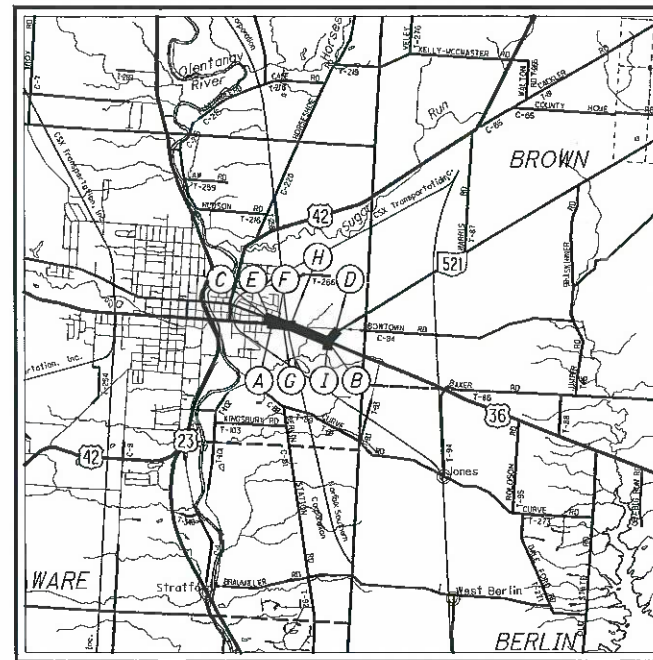


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**LOCATION MAP**

LATITUDE: 40°17'50" N LONGITUDE: 83°02'40" W



PORTION TO BE IMPROVED	-----
INTERSTATE HIGHWAY	=====
FEDERAL ROUTES	-----
STATE ROUTES	-----
COUNTY & TOWNSHIP ROADS	-----
OTHER ROADS	-----

DESIGN DESIGNATION	US-36/SR-37	US-36 W OF RR	SR-37 W OF RR	SR521
CURRENT ADT (2020)	25,500	16,400	17,400	10,200
DESIGN YEAR ADT (2040)	34,600	21,800	22,100	15,700
DESIGN HOURLY VOLUME (2040)	4,330	2,110	2,220	970
DIRECTIONAL DISTRIBUTION	51%	55%	59%	66%
TRUCKS (24 HOUR B&C)	10%	8%	8%	5%
DESIGN SPEED	40 MPH	40 MPH	40 MPH	40 MPH
LEGAL SPEED	35 MPH	35 MPH	35 MPH	35 MPH

DESIGN FUNCTIONAL CLASSIFICATION:  
 US-36/SR-37 / US-36 / SR-37 - 03 PRINCIPAL ARTERIAL (URBAN)  
 SR 521 - 04 MINOR ARTERIAL

NHS PROJECT  YES

DESIGN EXCEPTIONS  
 NONE REQUIRED  
 ADA DESIGN WAIVER  
 NONE REQUIRED

**UNDERGROUND UTILITIES**  
 Contact Two Working Days  
 Before You Dig

**OHIO811.org**  
 Before You Dig

OHIO811, 8-1-1, or 1-800-362-2764  
 (Non-members must be called directly)

PLAN PREPARED BY:  
**Gannett Fleming**  
 2500 CORPORATE EXCHANGE DRIVE, SUITE 230  
 COLUMBUS, OHIO 43231

- (A) BEGIN PROJECT (US-36)  
STA 585+90.00  
SLM 11.09
- (B) END PROJECT (US-36)  
STA 620+58.20  
SLM 11.75
- (C) BEGIN WORK (SR-37)  
STA 13+78.00  
SLM 11.27
- (D) END WORK (SR-521)  
STA 60+24.00  
SLM 1.94
- (E) END WORK EAST ST  
STA 120+69.00
- (F) END WORK MOORE ST  
STA 110+83.00
- (G) END WORK  
(EAST POINT CROSSING)  
STA 78+25.30
- (H) END WORK BOWTOWN RD  
STA 73+84.00
- (I) END WORK  
(MILL RUN CROSSING)  
STA 4+50.00

**INDEX OF SHEETS:**

TITLE SHEET	1	CROSS SECTIONS	
SCHEMATIC PLAN	2	SR-521 (KILBOURNE RD)	211 - 217
CONTROL POINTS	3	BOWTOWN RD	218 - 220
TYPICAL SECTIONS	4 - 22	EAST POINT CROSSING	221 - 223
GENERAL NOTES	23 - 28	EAST STREET	224 - 225
MAINTENANCE OF TRAFFIC	29 - 124	MOORE STREET	226 - 227
GENERAL SUMMARY	125 - 131	INTERSECTION/MEDIAN DETAILS	228 - 234
ESTIMATED QUANTITIES	132 - 149	DRIVE DETAILS	235 - 251
PROJECT SITE PLAN	150	STORM SEWER PROFILES	252 - 261
PLAN AND PROFILE		CULVERT DETAIL	262 - 268, 263A, 263B
US-36/SR-37	151 - 158	DRAINAGE DETAIL	269
(E WILLIAM ST/SUNBURY RD)		UNDERDRAIN TABLES	270 - 273
SR-37 (E CENTRAL AVE)	159 - 163	WATER WORKS	274 - 294
SR-521 (KILBOURNE RD)	164 - 165	SANITARY SEWER	295 - 299
BOWTOWN RD	166	GRADING DETAIL	300
EAST POINT CROSSING	167	TRAFFIC CONTROL	301 - 335
EAST STREET	168	TRAFFIC SIGNAL	336 - 363
MOORE STREET	169	LIGHTING	364 - 387
MILL RUN CROSSING	170	LANDSCAPE	388 - 398
PARCEL 8	171	STRUCTURE (OVER 20' SPAN)	
CROSS SECTIONS		TEMPORARY BRIDGE	399 - 432
US-36/SR-37	172 - 198	DEL-36-1126	433 - 474
(E WILLIAM ST/SUNBURY RD)		RAILROAD	475 - 600
SR-37 (E CENTRAL AVE)	199 - 210	RIGHT OF WAY	601 - 644
		SOIL PROFILES	

<b>ENGINEERS SEAL:</b> ROADWAY SHEETS 1 - III, 125 - 300  SIGNED: [Signature] DATE: 9/08/2022	<b>ENGINEERS SEAL:</b> BRIDGE SHEETS 399 - 474  SIGNED: [Signature] DATE: 9/18/2022	<b>ENGINEERS SEAL:</b> TRAFFIC, LIGHTING, RAIL SHEETS 12-124, 301-387, 475-600  SIGNED: [Signature] DATE: 09/20/2022
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STANDARD CONSTRUCTION DRAWINGS										SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS
BP-3.1	1/21/22	HW-2.1	7/20/18	HL-50.11	1/16/15	MT-101.90	7/17/20	TC-74.10	1/21/22	800 SEE PROPOSAL	WATERWAY
BP-5.1	7/15/22	HW-2.2	7/20/18	HL-60.11	7/21/17	MT-105.10	1/17/20	TC-81.22	7/15/22	809	PERMIT
BP-7.1	1/21/22	I-2	7/16/21	HL-60.12	7/16/21	MT-110.10	7/19/13	TC-82.10	7/19/13	816	10/18/15
CB-2-2A, 2B	7/15/22	MH-3	7/16/21	HL-60.31	1/17/20	TC-12.31	4/15/22	TC-83.10	1/17/20	821	4/20/12
CB-2-3-2-4	7/16/21	RM-1.1	1/15/21	ITS-14.10	1/21/22	TC-21.21	7/15/22	TC-83.20	7/15/22	832	7/15/22
CB-3	7/16/21	RM-2.1	7/19/13	ITS-14.11	1/21/22	TC-41.20	10/18/13	TC-85.10	4/17/20	895	4/18/14
CB-3A	7/16/21	RM-3.1	7/20/18	ITS-14.20	1/15/21	TC-41.30	10/18/13	TC-85.20	7/20/18	921	4/20/12
DM-1.1	7/17/20	RM-5.2	1/18/19	ITS-15.11	1/15/21	TC-41.50	10/18/13			878	1/21/22
DM-1.2	7/16/21	HL-10.11	7/15/22	MT-95.30	7/19/19	TC-42.20	10/18/13				
DM-4.4	1/15/16	HL-10.12	1/20/17	MT-95.70	1/17/20	TC-51.11	01/15/16				
MGS-1.1	7/16/21	HL-10.13	4/17/20	MT-97.10	4/19/19	TC-52.10	10/18/13				
MGS-2.1	1/19/18	HL-20.11	1/15/21	MT-99.30	1/17/20	TC-52.20	1/15/21				
MGS-4.2	7/19/13	HL-30.11	1/15/21	MT-100.00	7/16/21	TC-61.10	1/17/20				
MGS-5.3	7/15/16	HL-30.22	1/15/21	MT-101.60	1/17/20	TC-65.10	1/17/14				
		HL-40.10	7/17/20	MT-101.70	1/17/20	TC-65.11	7/15/22				
		HL-40.20	7/15/22	MT-101.75	1/17/20	TC-71.10	7/15/22				

**PROJECT DESCRIPTION**  
 REPLACEMENT OF THE NORFOLK SOUTHERN RAILROAD BRIDGE OVER US-36/SR-37. RECONSTRUCTION OF 0.66 MILES OF US-36/SR-37. RECONSTRUCTION OF EAST WILLIAM ST, CENTRAL AVE, BOWTOWN RD, EAST POINT CROSSING. WIDENING AND RESURFACING OF SR-521 AND MILL RUN RD. ADDITIONAL WORK CONSISTS OF INTERSECTION, SIDEWALK, SIGNAL, SHARED USE PATH, LIGHTING, AND DRAINAGE IMPROVEMENTS.

**EARTH DISTURBED AREAS**  
 PROJECT EARTH DISTURBED AREA: 17.2 ACRES  
 ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 1.0 ACRES  
 NOTICE OF INTENT EARTH DISTURBED AREA: 18.2 ACRES

**2019 SPECIFICATIONS**  
 THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS AND CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT DETOURS WILL BE PROVIDED AS INDICATED ON SHEET 52 - 58.

APPROVED: Wm Ferrigno  
 DATE: 9/14/22 CITY ENGINEER, CITY OF DELAWARE

APPROVED: G C  
 DATE: 9/15/22 DISTRICT DEPUTY DIRECTOR

APPROVED: \_\_\_\_\_  
 DATE: \_\_\_\_\_ DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO. **E180 (007)**  
 PID NO. **103626**  
 CONSTRUCTION PROJECT NO. **NORFOLK SOUTHERN**  
 RAILROAD INVOLVEMENT **NORFOLK SOUTHERN**  
**DEL-36-11.03**  
 1/644

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**BENCHMARK: SOURCE Y307**  
 NGS BENCHMARK DISK "KZ1562" SET ON THE TOP OF THE EAST END OF THE BRIDGE SEAT OF THE MAIN TRACK OVERPASS (EAST ONE OF TWO) OVER U.S. HIGHWAY 36 (WILLIAM STREET), 7 FEET EAST OF THE EAST RAIL, 2.2 FEET NORTH OF THE SOUTH FACE OF THE ABUTMENT AND 4 FEET BELOW THE LEVEL OF THE TRACK.  
 NOTE - MARK MAY BE REACHED BY GOING 0.45 MILES EAST ALONG U.S. HIGHWAY 36 FROM THE DELAWARE CITY HALL.  
 ELEV. = 902.70

**BENCHMARK: BM#1**  
 A 308 NGS BENCHMARK DISK "KZ1567" BEING ABOUT 1.0 MILE EAST ALONG U.S. HIGHWAY 36 FROM THE DELAWARE CITY HALL, ABOUT 90 YARDS EAST OF THE EAST EDGE OF THE PENNSYLVANIA RAILROAD OVERPASS OVER THE HIGHWAY, IN FRONT OF THE WDLR RADIO STATION, SET ON THE TOP OF THE SOUTHWEST CORNER OF A 3-FOOT SQUARE AND 6 FOOT DEEP CATCH BASIN, 21 FEET NORTH OF THE CENTER LINE OF THE HIGHWAY AND 1 FOOT BELOW THE LEVEL OF THE HIGHWAY.  
 ELEV. = 934.69 (EMHT ELEV.)

**BENCHMARK: BM#2**  
 RAILROAD SPIKE IN THE WEST SIDE OF A UTILITY POLE AT THE NORTHEAST CORNER OF BOWTOWN ROAD AND SUNBURY ROAD (U.S. 36/S.R. 37).  
 ELEV. = 937.24

**BENCHMARK: BM#3**  
 CHISELED "X" ON THE SOUTHEAST BOLT OF THE METAL SIGNAL POLE LOCATED AT THE SOUTHEAST CORNER OF THE INTERSECTION OF CHANNING STREET AND EAST CENTRAL AVENUE (S.R. 37).  
 ELEV. = 920.80

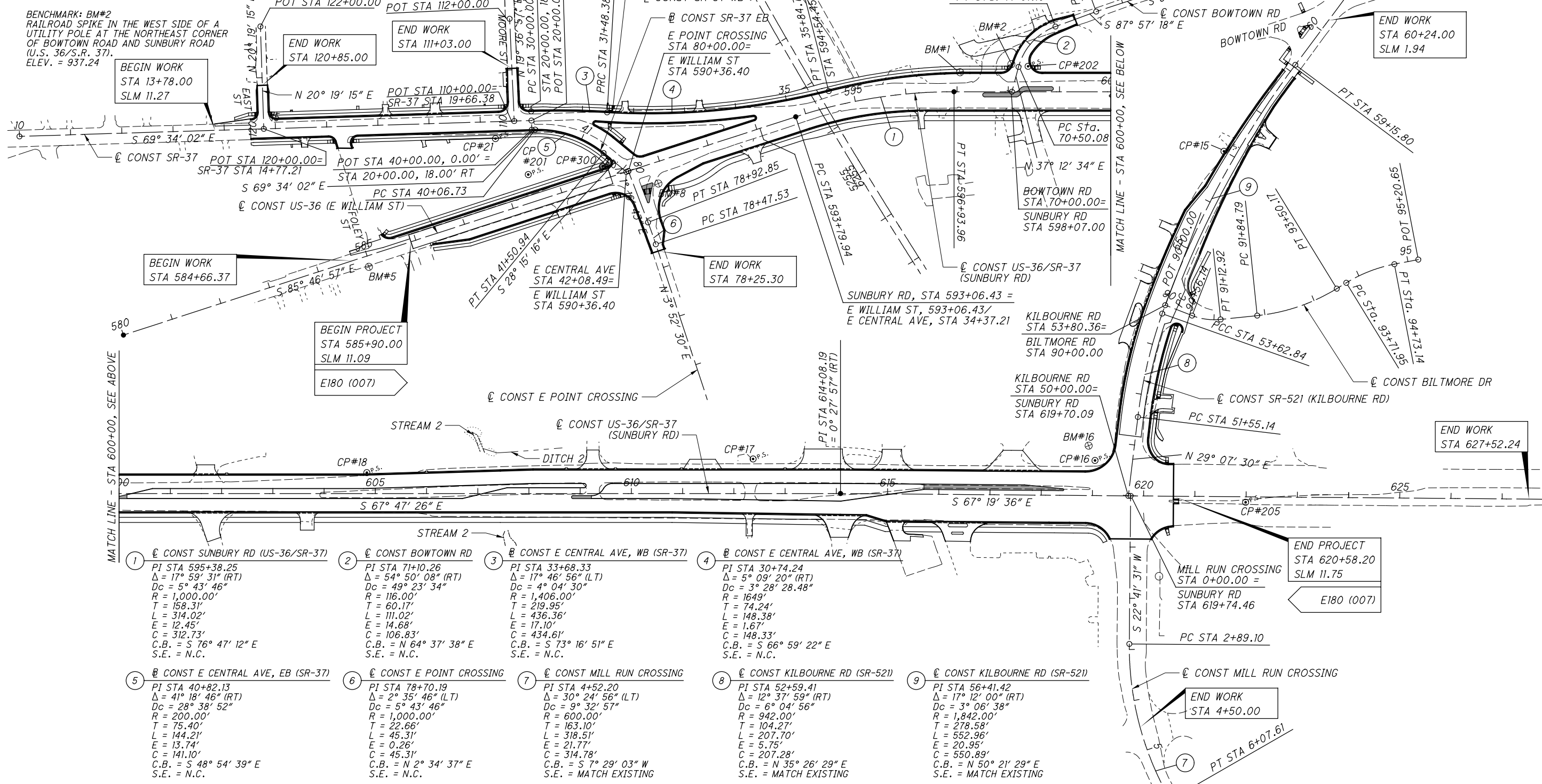
**BENCHMARK: BM#4**  
 CHISELED "X" ON THE NORTH FLANGE BOLT OF THE FIRE HYDRANT LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF EAST WINTER STREET AND EAST CENTRAL AVENUE (S.R. 37).  
 ELEV. = 928.39

**BENCHMARK: BM#5**  
 CHISELED "X" ON THE NORTH FLANGE BOLT OF THE FIRE HYDRANT LOCATED IN FRONT OF 342 EAST WILLIAM STREET (U.S. 36).  
 ELEV. = 931.13

**BENCHMARK: BM#7**  
 CHISELED "X" ON THE EAST FLANGE BOLT OF THE FIRST FIRE HYDRANT NORTH OF THE INTERSECTION OF KILBOURNE ROAD (S.R. 521) AND FIELDCREST DRIVE. BEING ON THE WEST SIDE OF KILBOURNE ROAD (S.R. 521).  
 ELEV. = 943.83

**BENCHMARK: BM#8**  
 CHISELED SQUARE ON THE NORTH CORNER OF THE CONCRETE BASE FOR THE TRAFFIC CONTROL BOX LOCATED 50 FEET OF THE EAST POINT CROSSING.  
 ELEV. = 932.38

**BENCHMARK: BM#16**  
 CHISELED "X" ON THE NORTH RIM OF A SANITARY MANHOLE LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF KILBOURNE ROAD (S.R. 521) AND SUNBURY ROAD (U.S. 36/S.R. 37).  
 ELEV. = 938.92



SPLIT NO	CATEGORY	GROUP	RESPONSIBLE PARTY	PLAN SPLIT CODE	DESCRIPTION
1	NHS	PAVEMENT	NON-STATE	01/NHS/PV	ROADWAY WORK ON US-36 (WILLIAM ST AND SUNBURY RD) AND SR-37 (CENTRAL AVE) EXCEPT SURFACE COURSE
2	STP > 200000	PAVEMENT	NON-STATE	02/S>2/PV	ROADWAY WORK ON SR-521 EXCEPT SURFACE COURSE
3	NHS	BRIDGE	NON-STATE	03/NHS/BR	WORK TO REPLACE RAILROAD STRUCTURE
4	NHS	PAVEMENT	NON-STATE	04/NHS/PV	SURFACE COURSE ON US-36 AND SR-37 (URBAN PAVING)
5	STP > 200000	PAVEMENT	NON-STATE	05/S>2/PV	SURFACE COURSE ON SR-521 (URBAN PAVING)

CALCULATED PEK CHECKED RGR

SCHEMATIC PLAN

DEL-36-11.03

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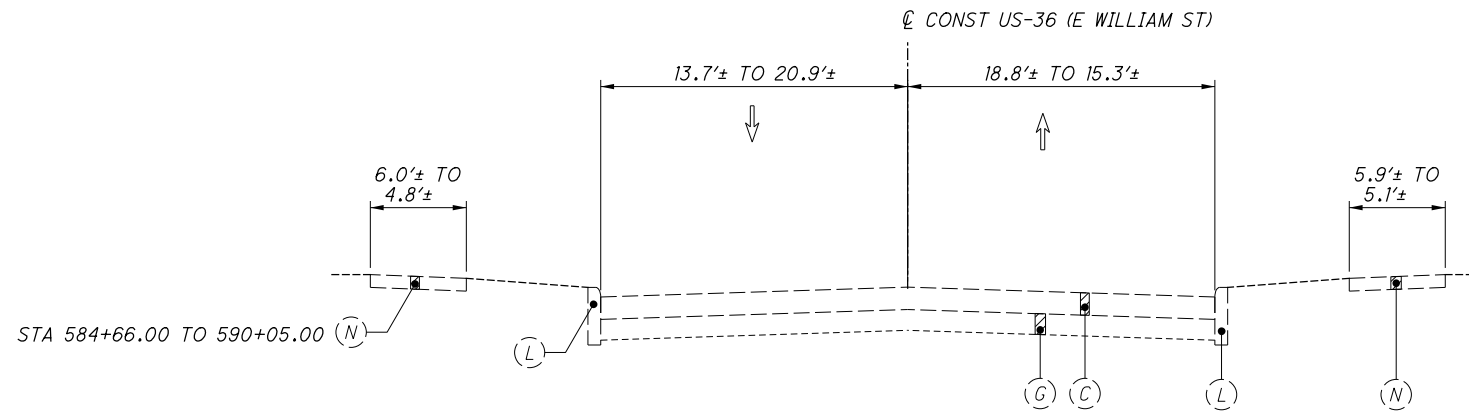
CENTERLINE GEOMETRY									
CURVE #	POINT	STATION	NORTHING (GROUND)	EASTING (GROUND)	DELTA	Dc	R (FT)	T (FT)	L (FT)
US-36/SR-37 (E WILLIAM STEET/SUNBURY ROAD)									
CENTERLINE CONSTRUCTION									
		580+00.00	230504.2528	1814518.8876					
1	PC	593+79.94	230402.7680	1815895.0934	17° 59' 30.59" (RT)	5° 43' 46.68"	1000.00	158.31	314.02
	PI	595+38.25	230391.1253	1816052.9761					
	CC		229405.4759	1815821.5506					
	PT	596+93.96	230331.2849	1816199.5422					
	PI	614+08.19	229683.3201	1817786.5926					
	POT	624+00.20	229300.9228	1818701.9424					
SR-37 (E CENTRAL AVENUE)									
CENTERLINE CONSTRUCTION									
	POT	10+00.00	230940.1097	1814477.5239					
	POT	20+00.00	230590.9997	1815414.6056					
SR-37 WB (E CENTRAL AVENUE)									
CENTERLINE CONSTRUCTION									
3	PC	30+00.00	230607.8671	1815420.8896	5° 09' 20.05" (RT)	3° 28' 28.48"	1649.00	74.24	148.38
	PI	30+74.24	230581.9492	1815490.4585					
	CC		229062.6194	1814845.2071					
4	PRC	31+48.38	230549.8847	1815557.4170					
	PI	33+68.33	230454.8935	1815755.7812	17° 44' 18.06" (LT)	4° 03' 54.52"	1409.44	219.94	436.35
	CC		231817.7515	1816165.1586					
	PT	35+84.74	230424.8542	1815873.6558					
SR-37 EB (E CENTRAL AVENUE)									
CENTERLINE CONSTRUCTION									
	POT	40+00.00	230574.1322	1815408.3216					
5	PC	40+06.73	230571.7828	1815414.6279					
	PI	40+82.13	230545.4600	1815485.2835	41° 18' 45.74" (RT)	28° 38' 52.40"	200.00	75.40	144.21
	CC		230384.3665	1815344.8058					
	PT	41+50.94	230479.0439	1815520.9767					
		42+08.49	230428.3471	1815548.2221					
CURVE #	POINT	STATION	NORTHING (GROUND)	EASTING (GROUND)	DELTA	Dc	R (FT)	T (FT)	L (FT)
BOWTOWN ROAD									
CENTERLINE CONSTRUCTION									
	POT	70+00.00	230288.5582	1816304.1921					
2	PC	70+50.08	230328.4454	1816334.4784	54° 50' 08.20" (RT)	49° 23' 34.49"	116.00	60.17	111.02
	PI	71+10.26	230376.3703	1816370.8676					
	CC		230258.2969	1816426.8644					
	PT	71+61.10	230374.2230	1816431.0037					
	PI	72+45.86	230371.1986	1816515.7077					
	POT	76+06.69	230345.9510	1816875.6531					
EAST POINT CROSSING									
CENTERLINE CONSTRUCTION									
		80+00.00	230428.0329	1815552.4828					
6	PC	81+07.15	230320.9054	1815550.0915	2° 35' 46.28" (RT)	5° 43' 46.48"	1000.00	22.66	45.31
	PI	81+29.81	230298.2512	1815549.5858					
	CC		230343.2218	1814550.3405					
	PT	81+52.47	230275.6431	1815548.0544					
		84+72.67	229956.1738	1815526.4156					

CENTERLINE GEOMETRY									
CURVE #	POINT	STATION	NORTHING (GROUND)	EASTING (GROUND)	DELTA	Dc	R (FT)	T (FT)	L (FT)
SR-521 (KILBOURNE ROAD)									
CENTERLINE CONSTRUCTION									
		50+00.00	229466.7211	1818305.0688					
8	PC	51+55.14	229602.2451	1818380.5778	12° 37' 59.30" (RT)	6° 04' 56.48"	942.00	104.27	207.70
	PI	52+59.41	229693.3343	1818431.3293					
	CC		229143.7590	1819203.4718					
9	PCC	53+62.84	229771.1186	1818500.7741	17° 11' 59.73" (RT)	3° 06' 37.87"	1842.00	278.58	552.96
	PI	56+41.42	229978.9254	1818686.3014					
	CC		228544.3709	1819874.8390					
	PT	59+15.80	230122.5772	1818924.9817					
		64+79.03	230413.0178	1819407.5543					
EAST STREET									
CENTERLINE CONSTRUCTION									
	POT	120+00.00	230773.5119	1814924.7058					
	POT	122+00.00	230961.0645	1814994.1610					
MOORE STREET									
CENTERLINE CONSTRUCTION									
	POT	110+00.00	230602.7379	1815383.0978					
	POT	112+00.00	230791.1309	1815450.2400					
MILL RUN CROSSING									
CENTERLINE CONSTRUCTION									
		0+00.00	229465.0371	1818309.0996					
7	PC	2+89.10	229198.3179	1818197.5731	30° 24' 55.70' (LT)	9° 32' 57.47"	600.00	163.10	318.51
	PI	4+52.20	229047.8333	1818134.6519					
	CC		228966.8530	1818751.1289					
	PT	6+07.61	228886.2162	1818156.5722					
		8+17.08	228678.6394	1818184.7248					

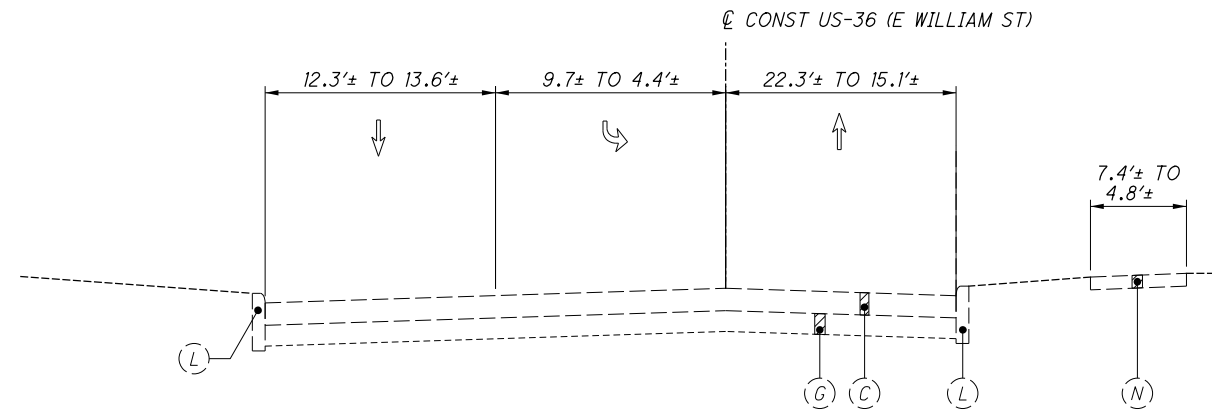
PROJECT CONTROL TABLE				
POINT NO.	NORTHING (GROUND)	EASTING (GROUND)	ELEVATION	DESCRIPTION
15	230018.923	1818732.153	941.560	1152 15 IPSw/cap
16	229555.276	1818270.974	941.530	1152 16 IPSw/cap
17	229810.283	1817654.100	936.450	1152 17 IPSw/cap
18	230070.634	1816945.883	938.366	1152 18 IPSw/cap
19	230409.555	1816054.076	935.310	1173 19 CHIS TRI Tri w/punch
20	230390.254	1815770.720	933.420	1173 20 CHIS TRI Tri w/punch
21	230584.860	1815336.255	935.520	1152 21 IPSw/cap
22	230804.133	1814898.321	931.030	1165 22 W/SHIN MAGS
201	230495.703	1815368.976	932.765	1152 GPS 201 IPSw/cap
202	230322.583	1816352.227	936.545	1152 GPS 202 IPSw/cap
203	231157.027	1813799.766	920.561	1152 GPS 203 IPSw/cap
204	230967.753	1814328.168	926.155	1152 GPS 204 IPSw/cap
205	229368.603	1818512.304	940.535	1152 GPS 205 W/ALUM CAP IPSw/cap
206	229097.457	1819185.048	938.630	1152 GPS 206 W/ALUM CAP IPSw/cap
207	230359.321	1819261.453	941.666	1152 GPS 207 IPSw/cap
208	230741.357	1819851.620	941.585	1165 GPS 208 W/SHIN MAGS
209	232848.958	1815429.135	932.455	1152 GPS 209 IPSw/cap
210	232999.000	1815856.528	935.487	1152 GPS 210 IPSw/cap
211	228094.454	1817155.494	912.913	1152 GPS 211 IPSw/cap
212	228490.014	1816801.095	912.880	1152 GPS 212 IPSw/cap
213	228762.633	1815453.308	929.375	1152 GPS 213 IPSw/cap
214	228644.683	1815812.508	927.059	1152 GPS 214 IPSw/cap
224	224370.591	1820242.139	939.885	1152 GPS 214 IPSw/cap
300	230455.832	1815509.921	932.540	1152 GPS 300 W/ALUM CAP DLZ IPSw/cap

CALCULATED PEK CHECKED XXX  
**CENTERLINE GEOMETRY / PROJECT CONTROL**  
**DEL - 36 - 11.03**  
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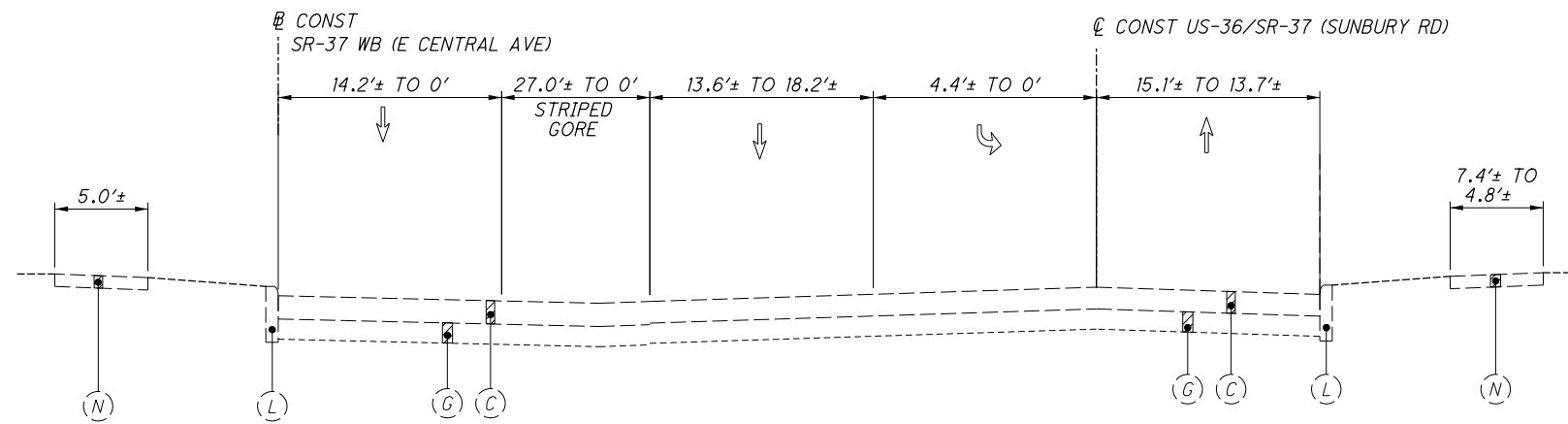
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NORMAL SECTION - US-36 (E WILLIAM ST)  
STA 584+66.00 TO 590+04.00



NORMAL SECTION - US-36 (E WILLIAM ST)  
STA 590+04.00 TO 592+40.00



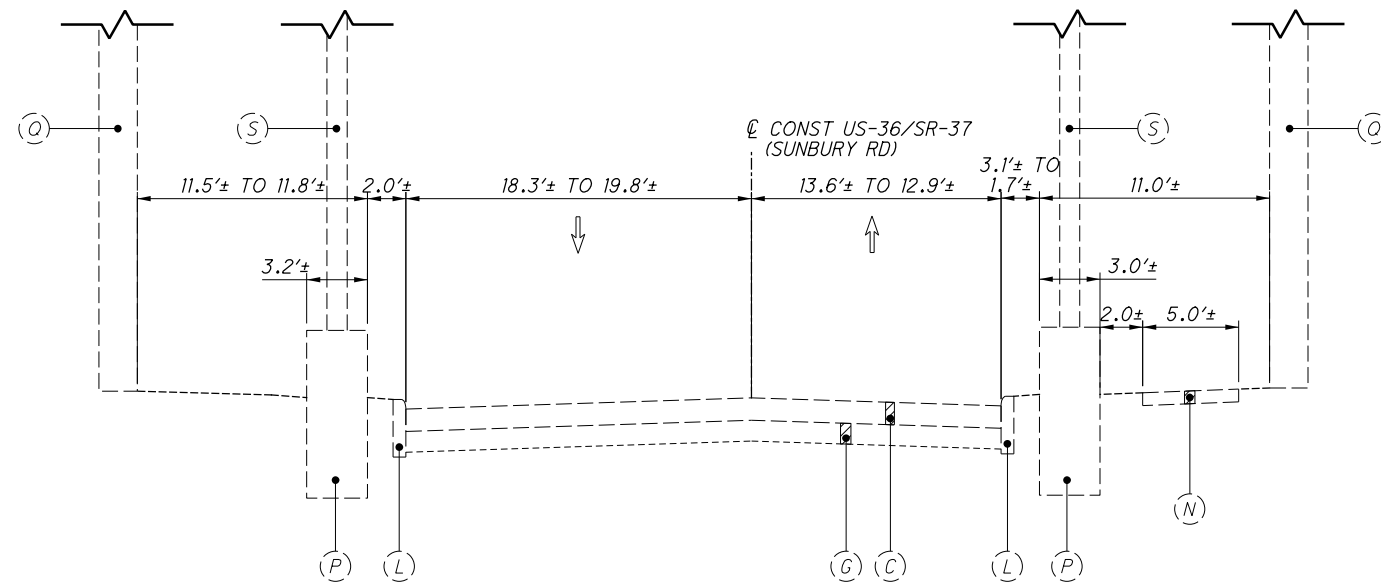
GORE SECTION - US-36 (E WILLIAM ST)  
STA 592+40.00 TO 593+51.00

NORMAL SECTION - US-36/SR-37 (SUNBURY RD)  
STA 592+40.00 TO 594+15.00

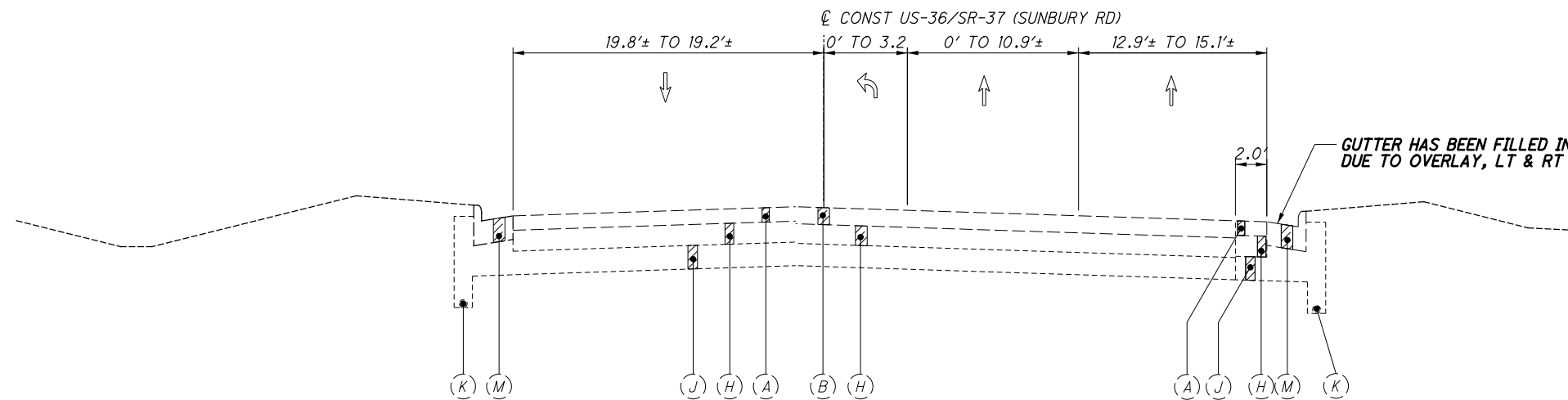
EXISTING PAVEMENT LEGEND

- (A) 5-1/2"± ASPHALT SURFACE
- (B) 6-1/2"± ASPHALT SURFACE
- (C) 7"± ASPHALT SURFACE
- (D) 8"± ASPHALT SURFACE
- (E) 11-1/2"± REINFORCED CONCRETE
- (F) 6"± MACADAM BASE COURSE
- (G) 6-1/2"± MACADAM BASE COURSE
- (H) 7-1/2"± MACADAM BASE COURSE
- (I) 5"± SUBBASE
- (J) 9"± SUBBASE
- (K) ROADWAY UNDERDRAIN, 6"
- (L) CURB
- (M) CURB & GUTTER
- (N) 4" CONCRETE SIDEWALK
- (O) 8" CONCRETE ISLAND
- (P) CONCRETE FOUNDATION
- (Q) CONCRETE ABUTMENT
- (R) CONCRETE MEDIAN
- (S) STEEL PIER

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NORMAL SECTION UNDER RR BRIDGE - US-36/SR-37 (SUNBURY RD)  
STA 594+15.00 TO 594+56.00



NORMAL SECTION - US-36/SR-37 (SUNBURY RD)  
STA 594+56.00 TO 596+19.00

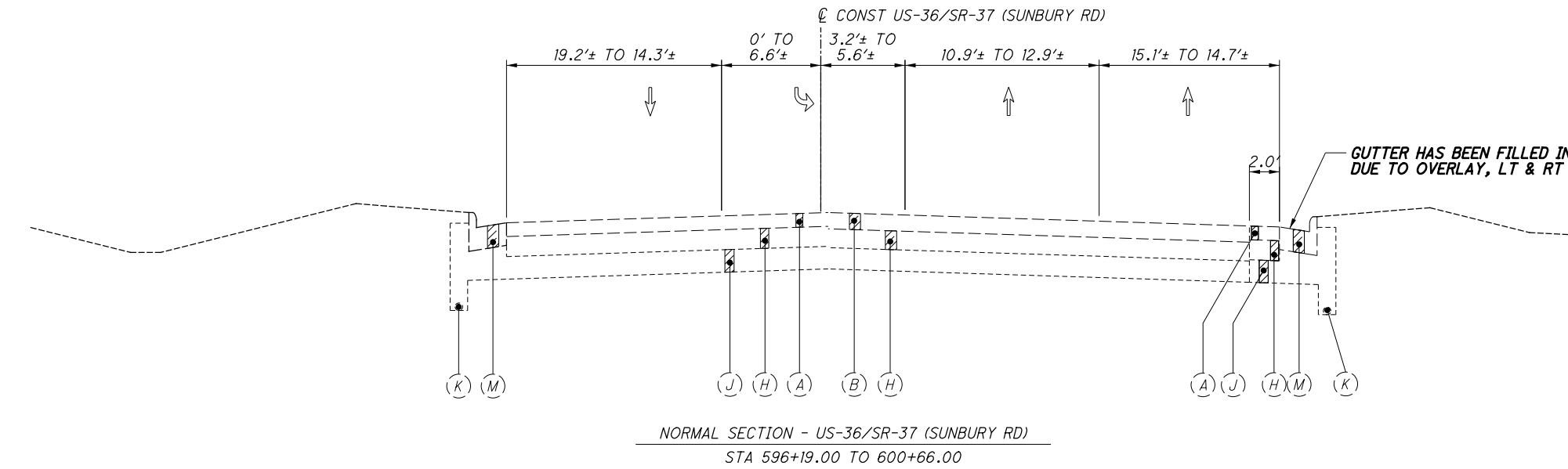
SEE SHEET 4 FOR EXISTING PAVEMENT LEGEND

EXISTING TYPICAL SECTIONS

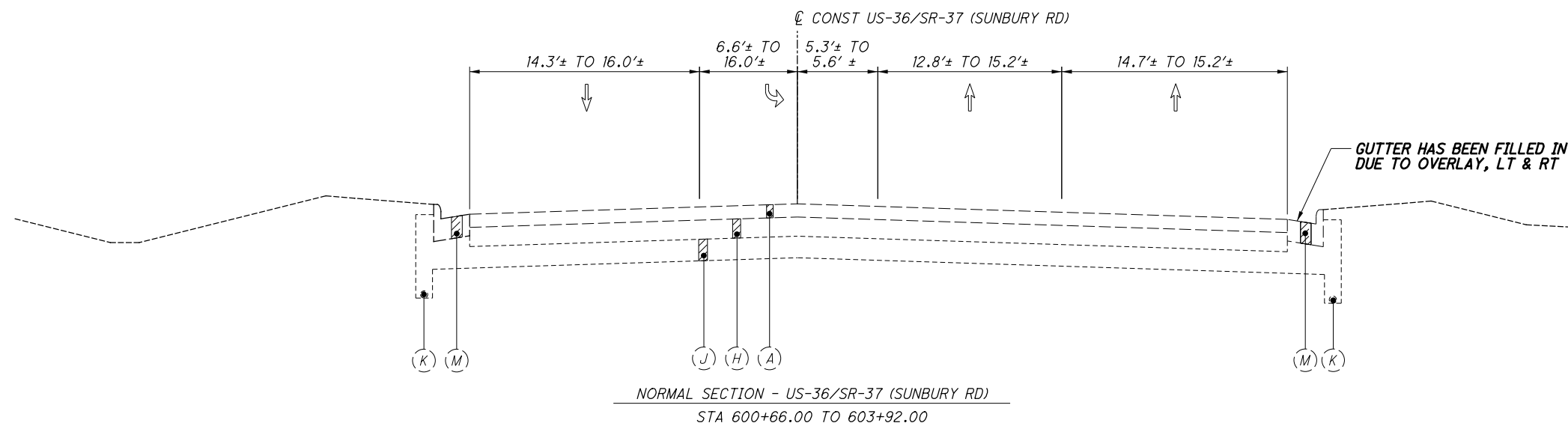
DEL-36-11.03

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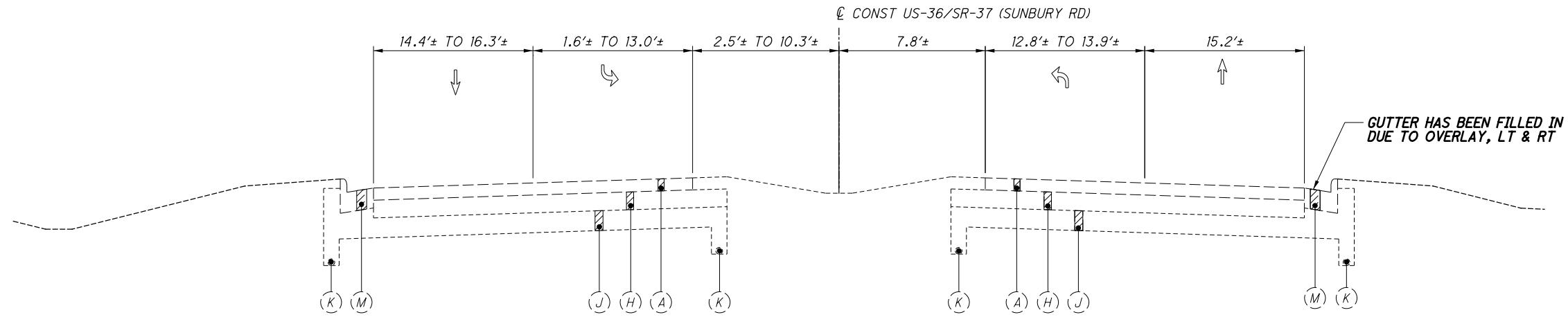
NORMAL SECTION - US-36/SR-37 (SUNBURY RD)  
STA 596+19.00 TO 600+66.00



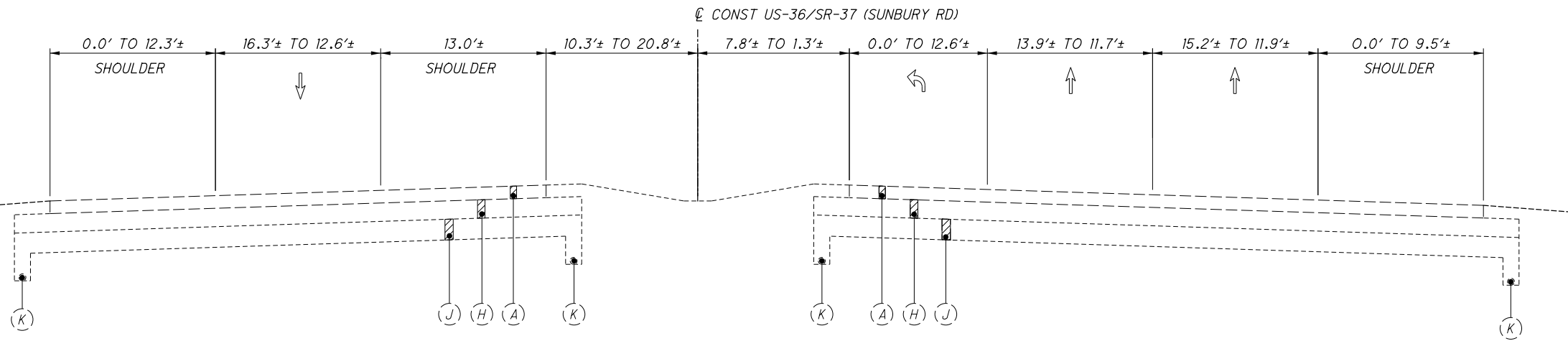
NORMAL SECTION - US-36/SR-37 (SUNBURY RD)  
STA 600+66.00 TO 603+92.00

SEE SHEET 4 FOR EXISTING PAVEMENT LEGEND

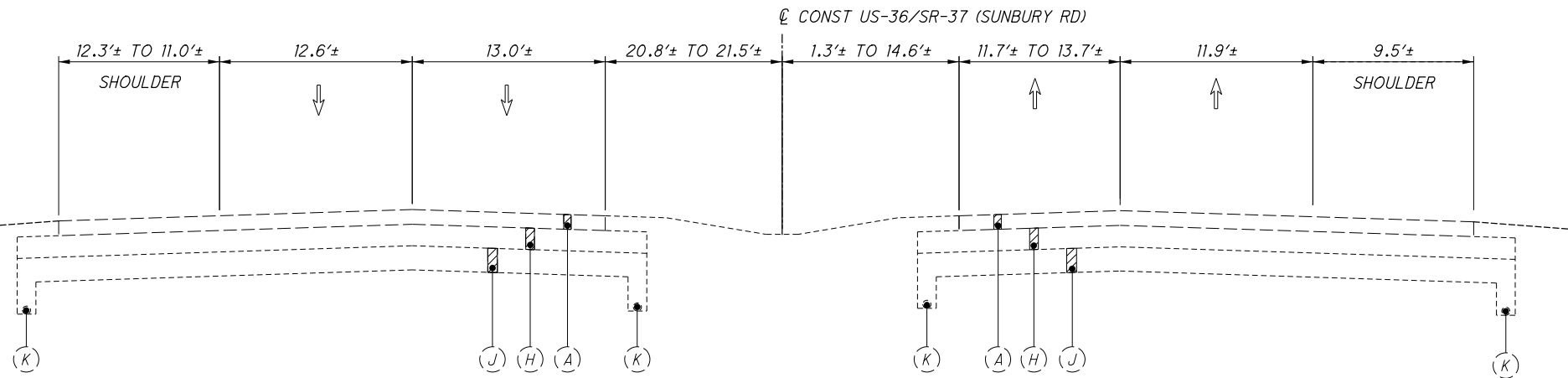
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NORMAL SECTION - US-36/SR-37 (SUNBURY RD)  
STA 603+92.00 TO 605+74.00



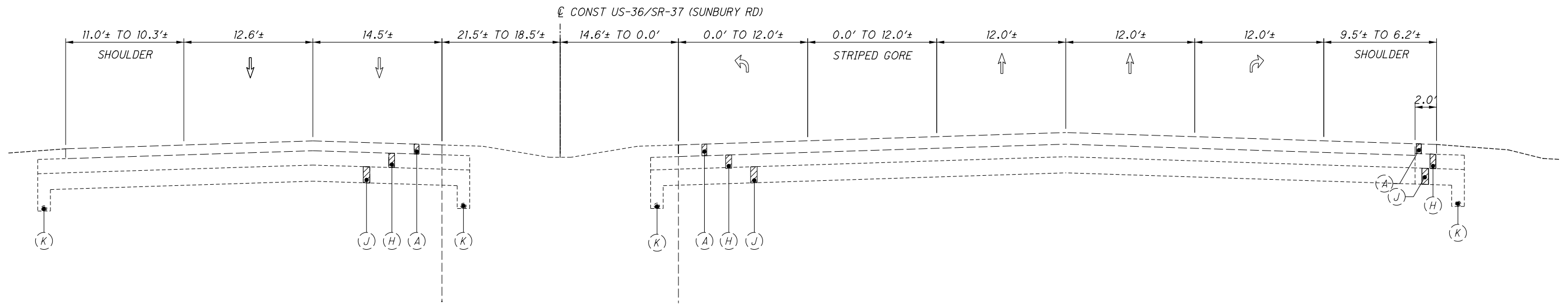
NORMAL SECTION - US-36/SR-37 (SUNBURY RD)  
STA 605+74.00 TO 609+12.00



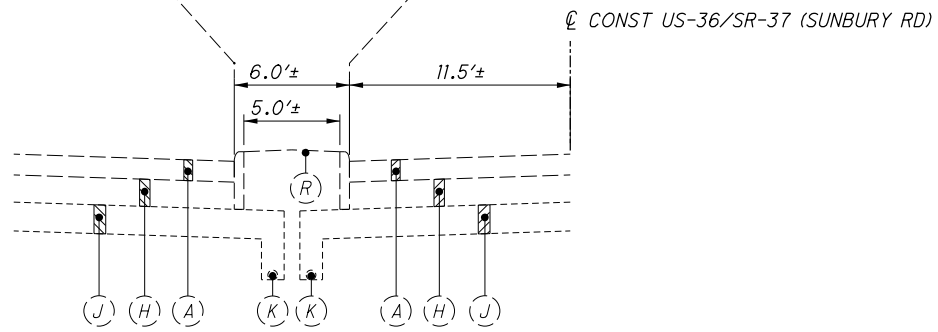
NORMAL SECTION - US-36/SR-37 (SUNBURY RD)  
STA 609+12.00 TO 612+90.00

SEE SHEET 4 FOR EXISTING PAVEMENT LEGEND

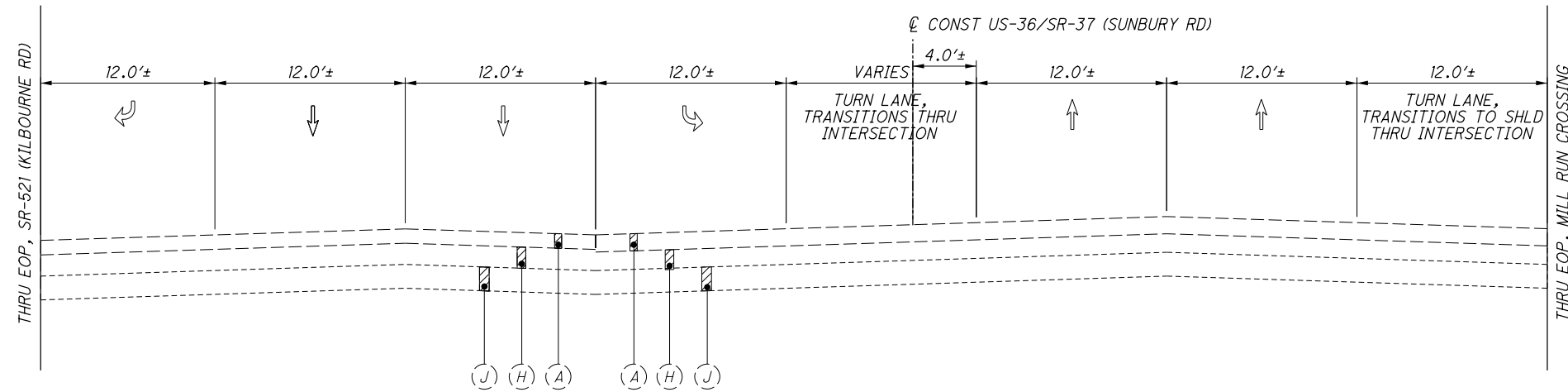
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NORMAL SECTION - US-36/SR-37 (SUNBURY RD)  
STA 612+90.00 TO 618+96.00



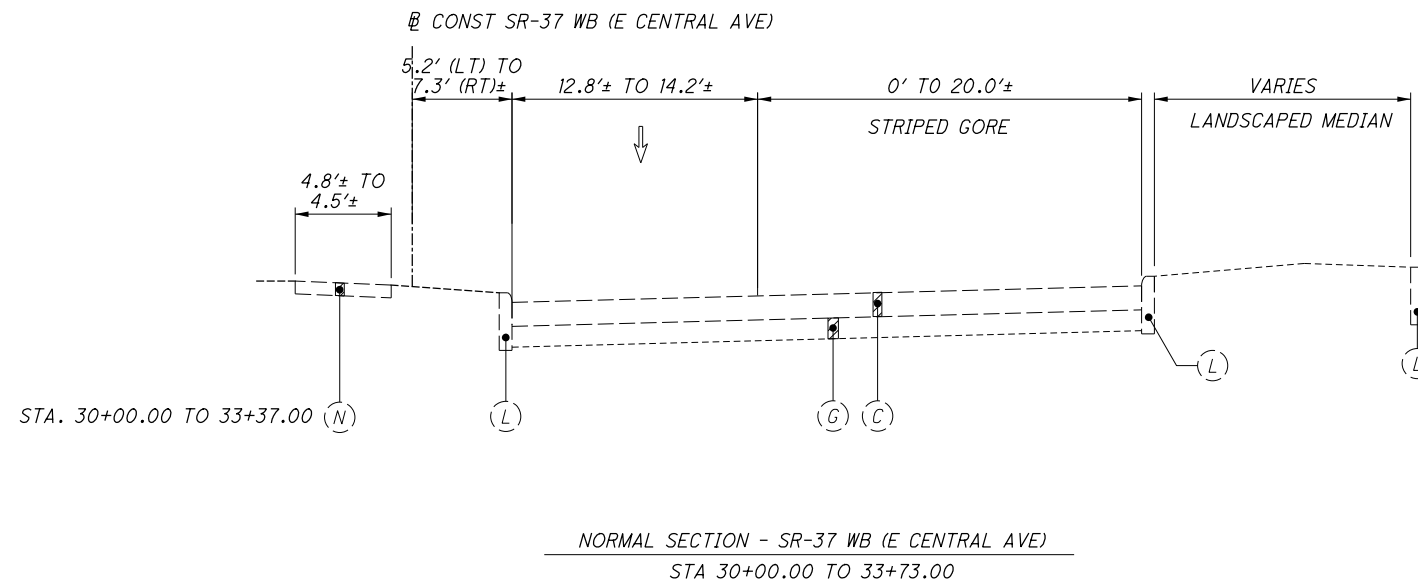
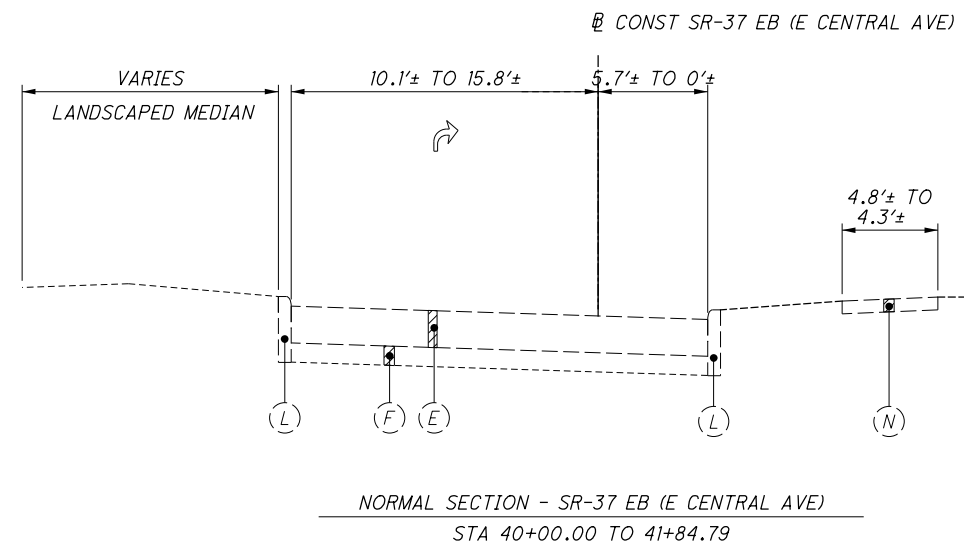
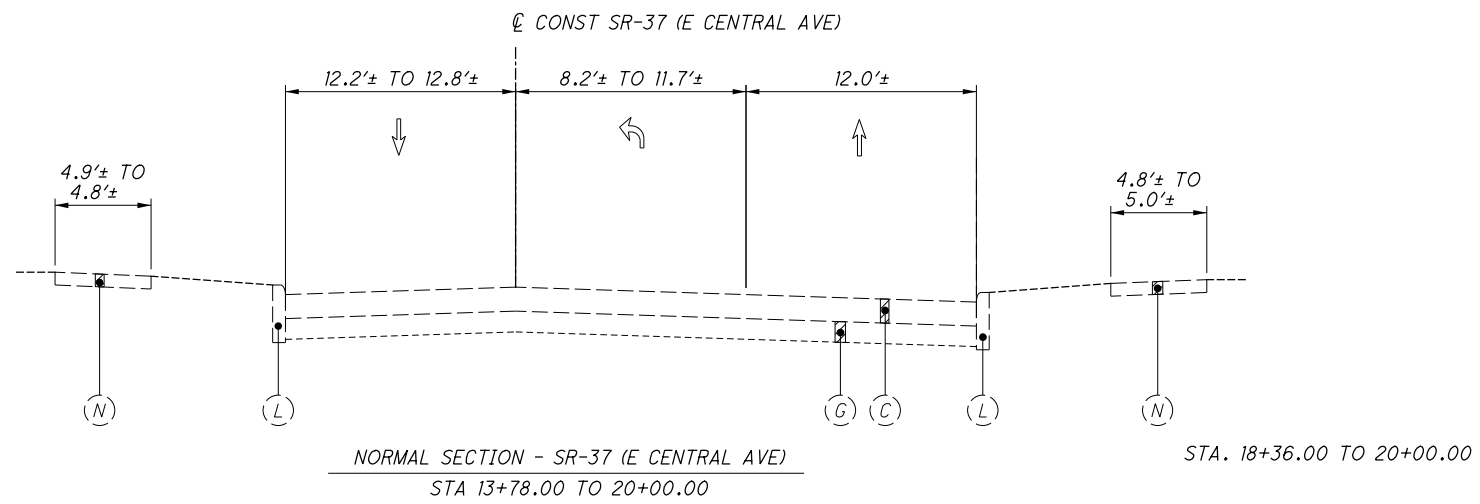
CONCRETE MEDIAN SECTION - US-36/SR-37 (SUNBURY RD)  
STA 615+66.00 TO 618+96.00



NORMAL SECTION - US-36/SR-37 (SUNBURY RD)  
STA 618+96.00 TO 620+58.00

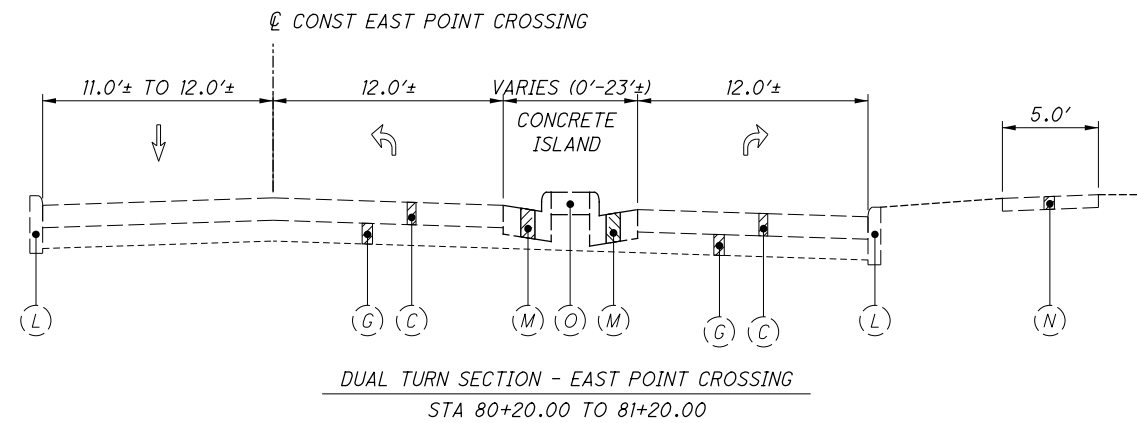
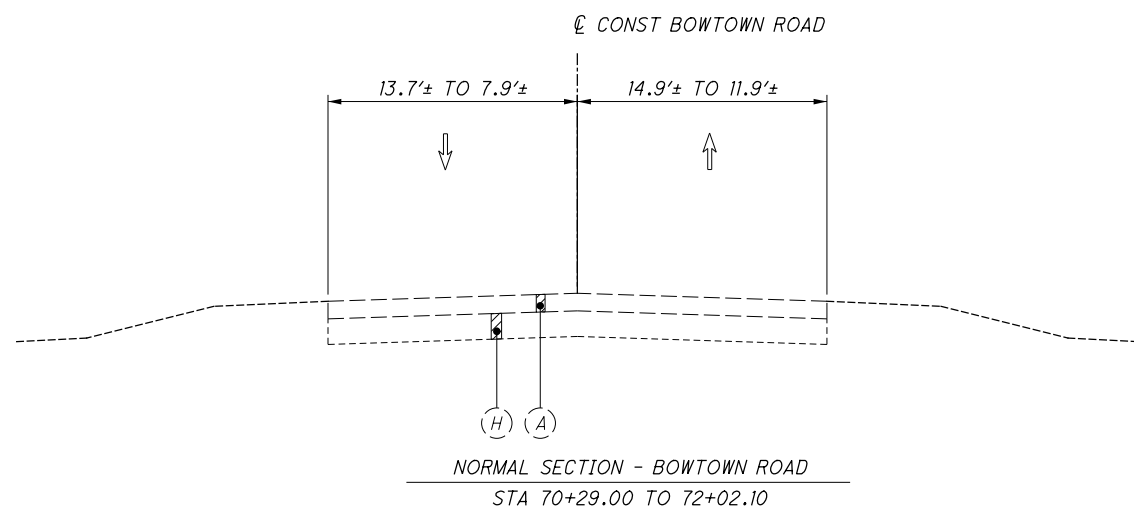
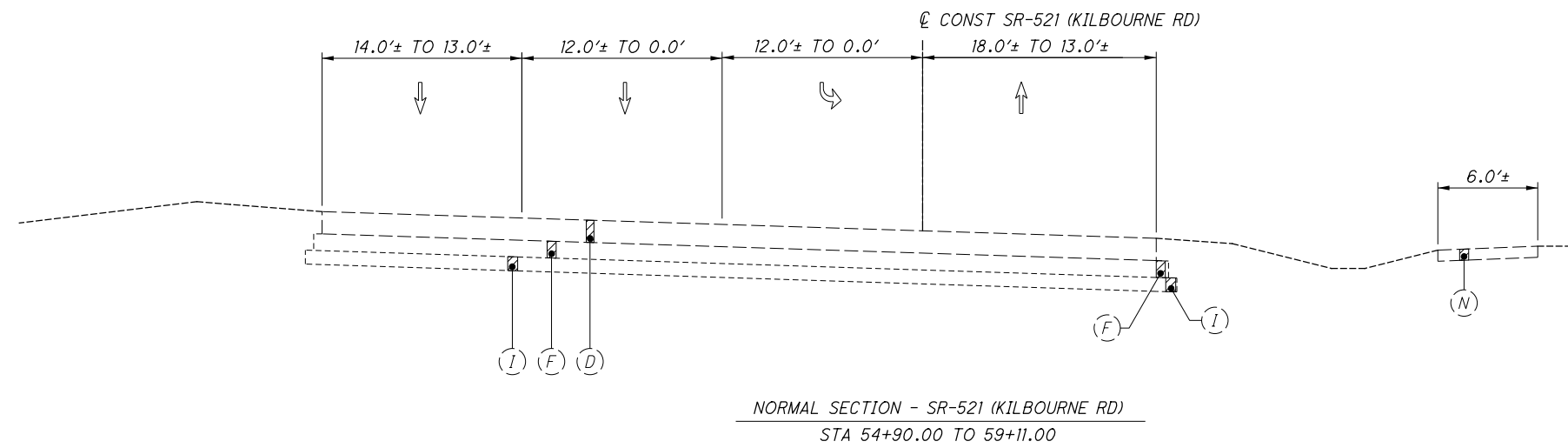
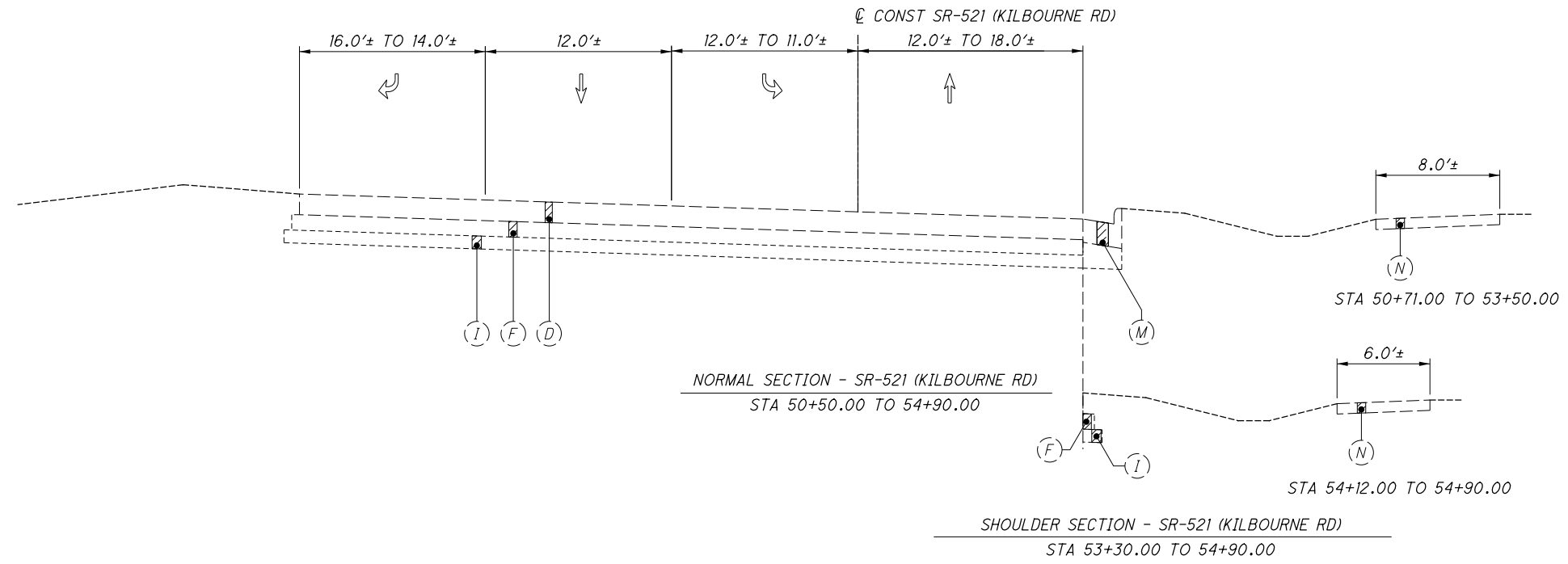


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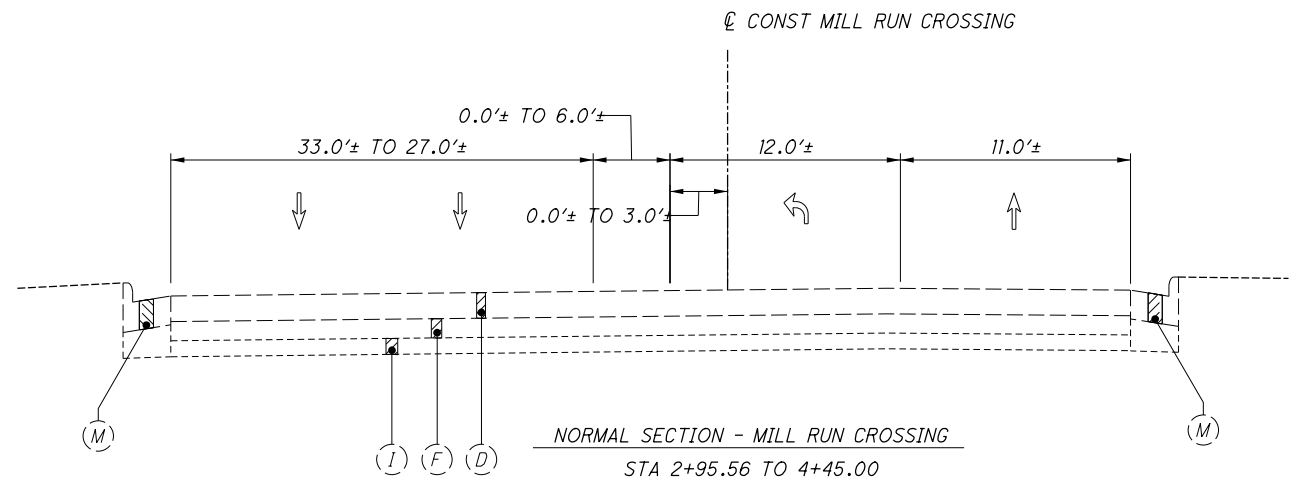
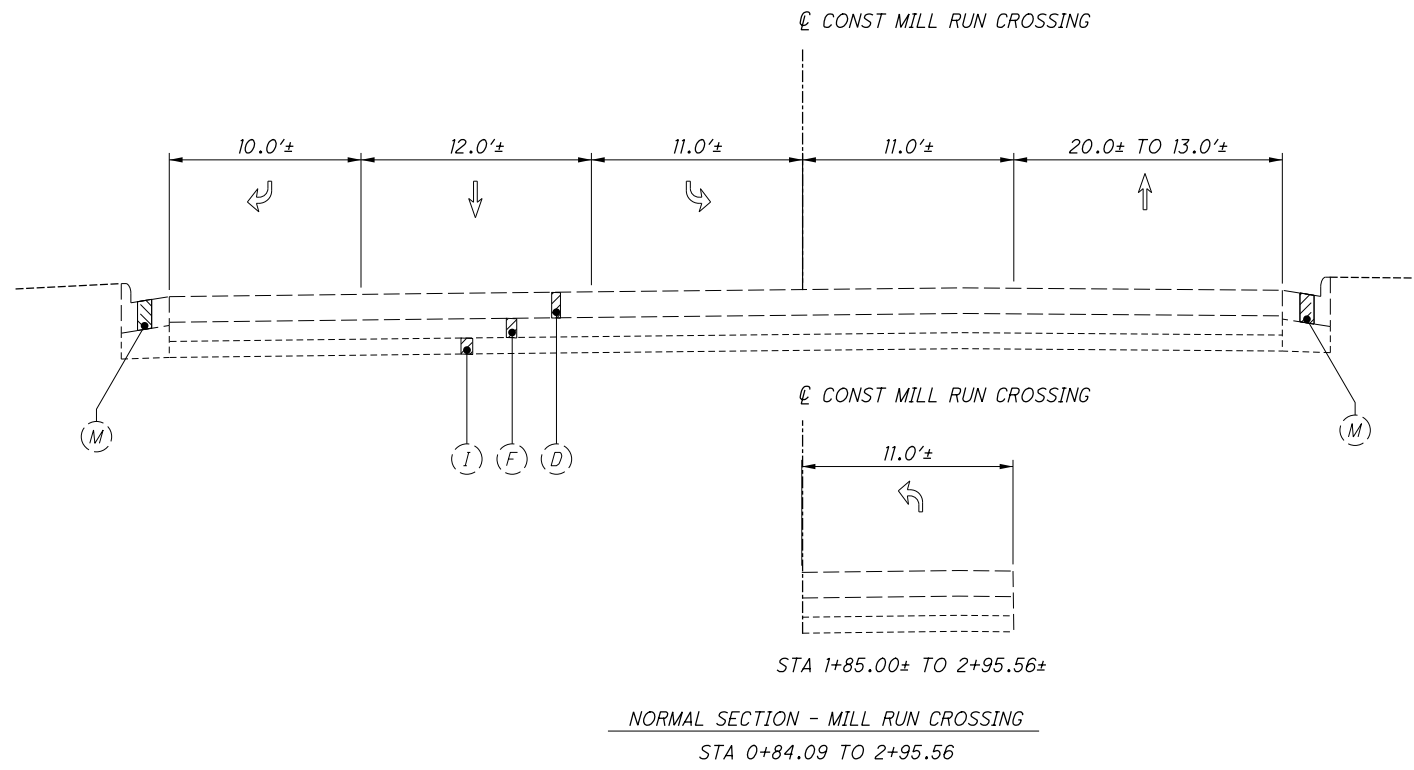
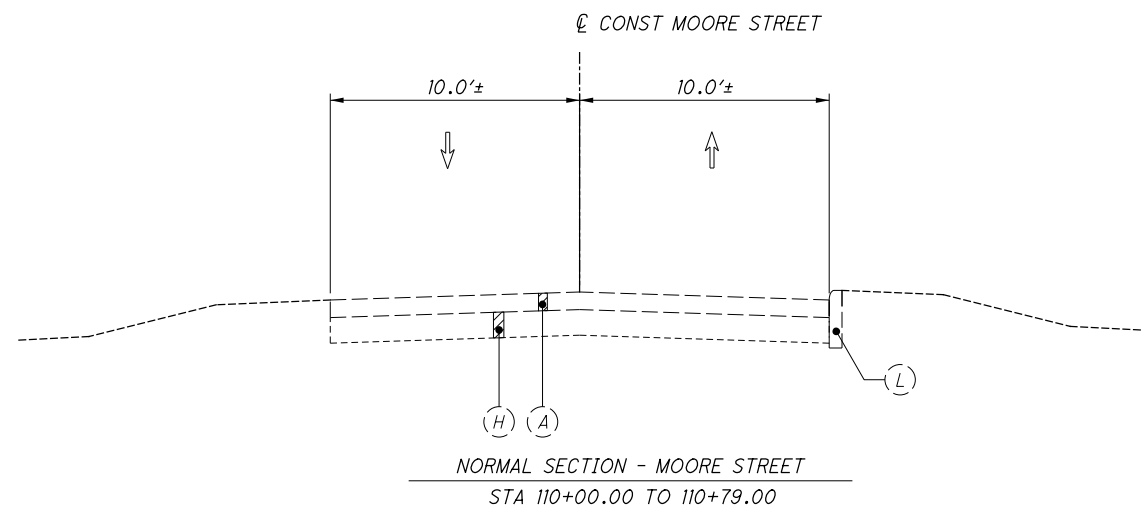
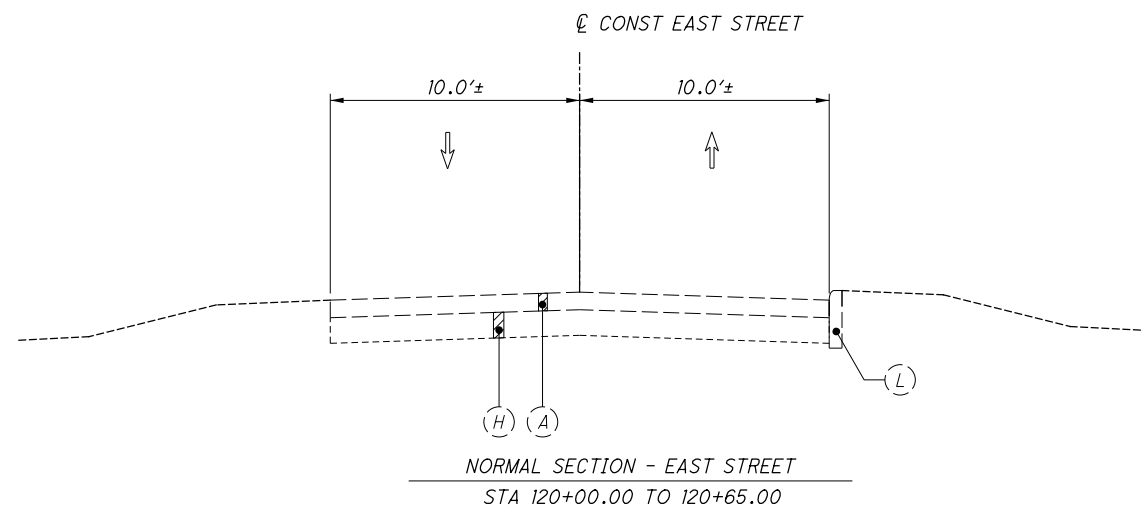
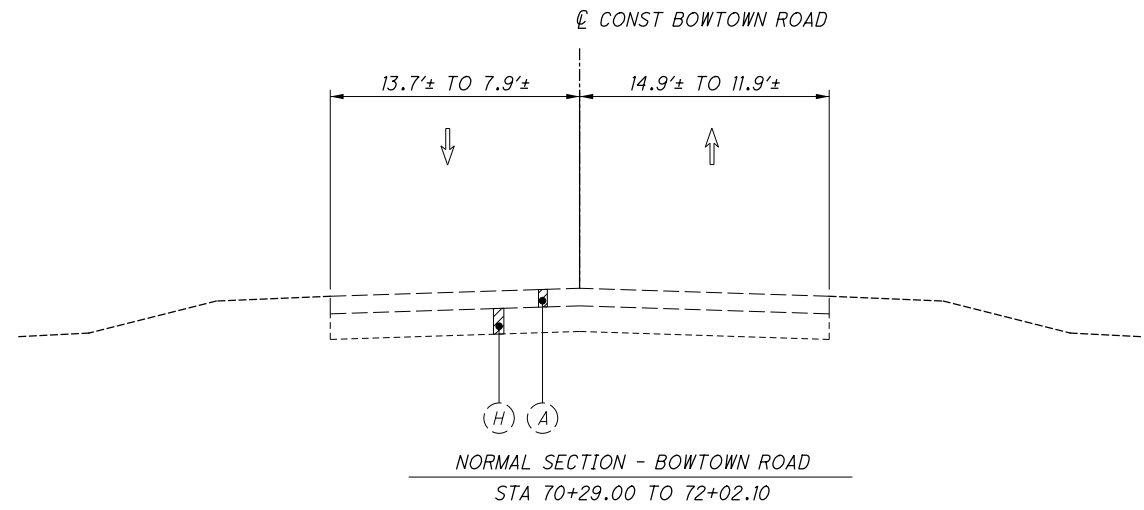
SEE SHEET 4 FOR EXISTING PAVEMENT LEGEND

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SEE SHEET 4 FOR EXISTING PAVEMENT LEGEND

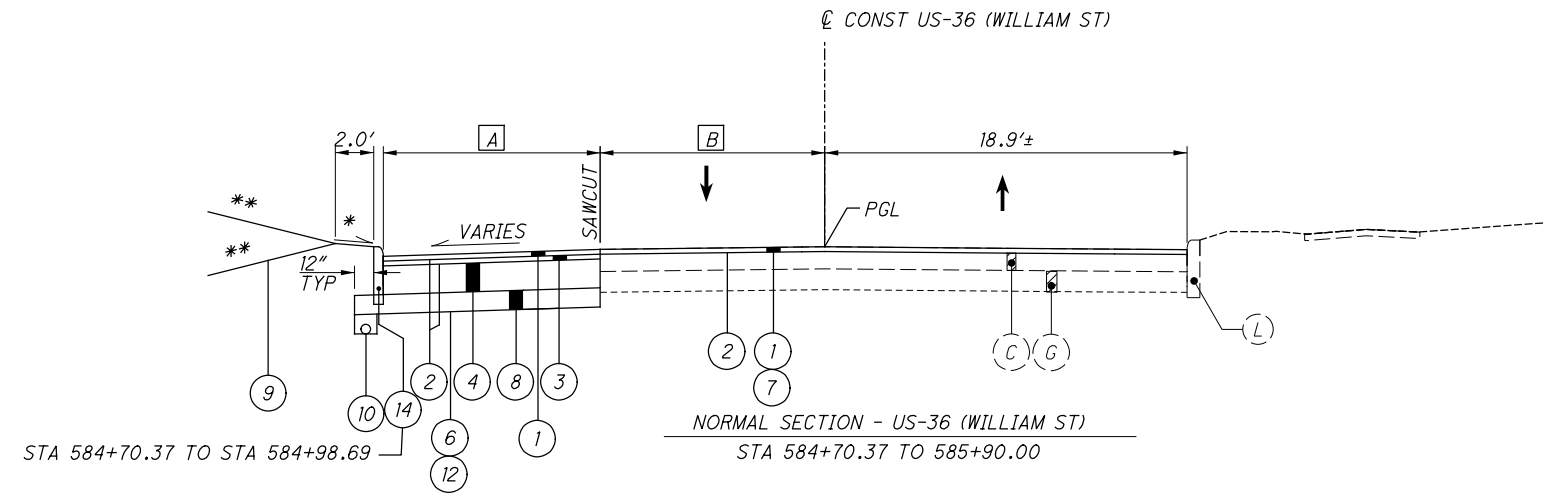
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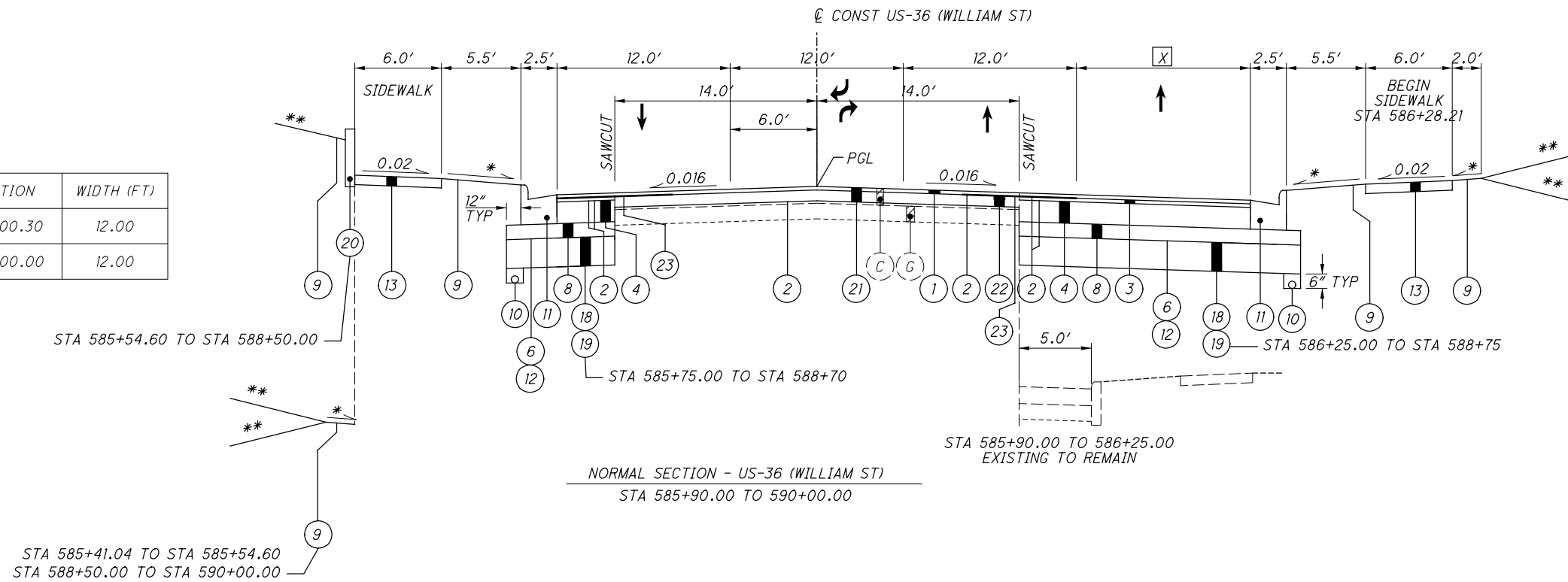
SEE SHEET 4 FOR EXISTING PAVEMENT LEGEND

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ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
A	584+70.37	7.89	TO	584+85.12	9.05
	584+85.12	9.05	TO	584+98.69	14.13
	584+98.69	14.13	TO	585+35.00	17.00
	585+35.00	25.02	TO	585+39.16	25.02
	585+39.16	25.02	TO	585+57.91	12.00
B	584+70.37	11.11	TO	585+35.00	6.00
	585+35.00	6.00	TO	585+90.00	6.00



ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
X	586+29.66	0.00	TO	587+00.30	12.00
	587+00.30	12.00	TO	590+00.00	12.00



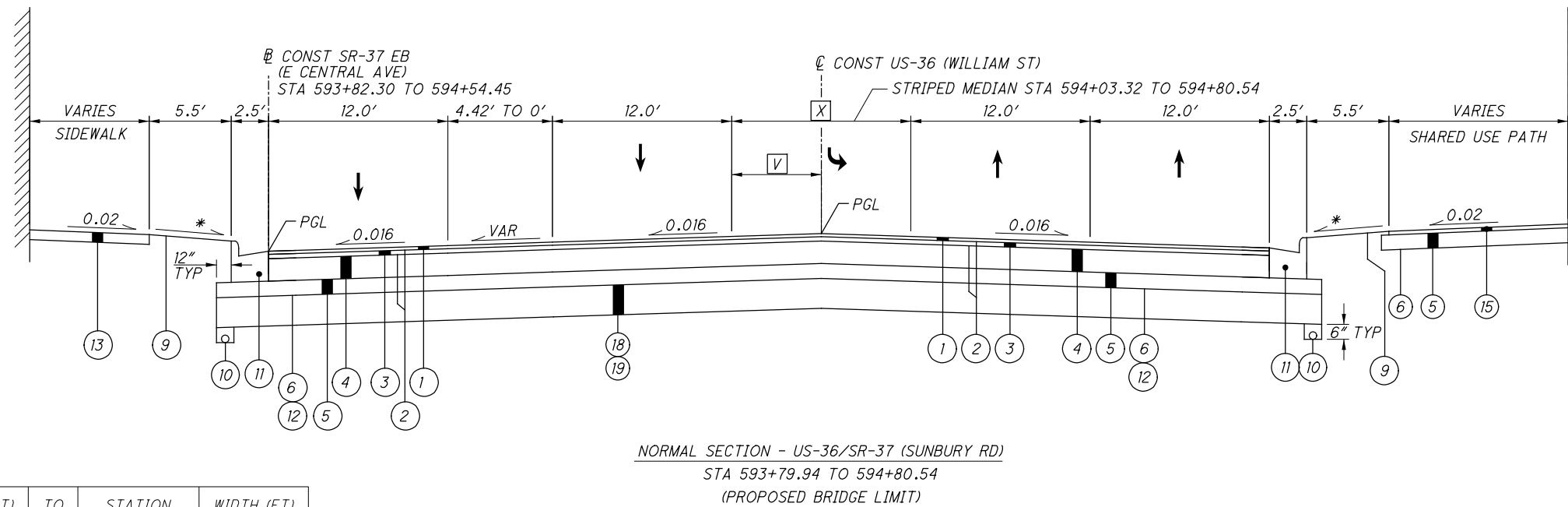
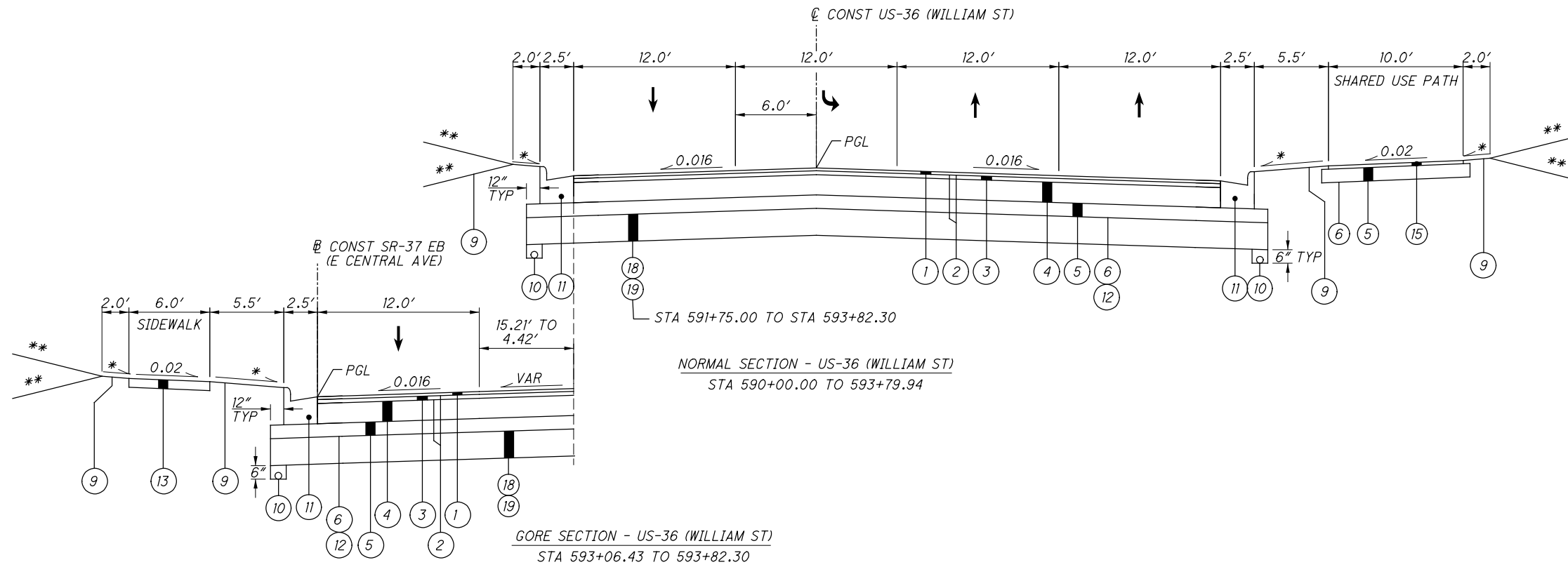
**PROPOSED PAVEMENT LEGEND**

- |   |   |  |
|---|---|--|
| <ul style="list-style-type: none"> <li>① ITEM 442 - 1.5" ASPHALT CONCRETE SURFACE COURSE, 12.5mm, TYPE A (446), 76-22M, AS PER PLAN</li> <li>② ITEM 407 - NON-TRACKING TACK COAT (PER ODOT CMS, TABLE 407.06-1)</li> <li>③ ITEM 442 - 1.75" ASPHALT CONCRETE INTERMEDIATE COURSE, 12.5mm, TYPE A (446)</li> <li>④ ITEM 301 - 9" ASPHALT CONCRETE BASE, PG64-22, (449) (TO BE PLACED IN 2 EQUAL LIFTS, NON-TRACKING TACK COAT TO BE PLACED BETWEEN LIFTS)</li> <li>⑤ ITEM 304 - 6" AGGREGATE BASE</li> <li>⑥ ITEM 204 - SUBGRADE COMPACTION</li> <li>⑦ ITEM 254 - 1.5" PAVEMENT PLANING, ASPHALT CONCRETE</li> <li>⑧ ITEM 304 - AGGREGATE BASE, AS PER PLAN (VARIABLE DEPTH)</li> <li>⑨ ITEM 659 - SEEDING AND MULCHING</li> </ul> | <ul style="list-style-type: none"> <li>⑩ ITEM 605 - 6" BASE PIPE UNDERDRAIN</li> <li>⑪ ITEM 609 - COMBINATION CURB AND GUTTER, TYPE 2</li> <li>⑫ ITEM 204 - PROOF ROLLING</li> <li>⑬ ITEM 608 - 4" CONCRETE WALK</li> <li>⑭ ITEM 609 - CURB, TYPE 6</li> <li>⑮ ITEM 441 - 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE 1 (448), PG64-22</li> <li>⑯ ITEM 609 - 6" CONCRETE TRAFFIC ISLAND, AS PER PLAN</li> <li>⑰ ITEM 442 - 1.5" ASPHALT CONCRETE SURFACE COURSE, 12.5mm, TYPE A (446), 88-22M, AS PER PLAN</li> <li>⑱ ITEM 204 - 12" EXCAVATION OF SUBGRADE</li> <li>⑲ ITEM 204 - 12" GRANULAR MATERIAL, TYPE C</li> </ul> | <ul style="list-style-type: none"> <li>⑳ ITEM 609 - CURB, AS PER PLAN</li> <li>㉑ ITEM 254 - 6" PAVEMENT PLANING, ASPHALT CONCRETE</li> <li>㉒ ITEM 442 - 4.5" ASPHALT CONCRETE INTERMEDIATE COURSE, 12.5mm, TYPE A (446) (TO BE PLACED IN 2 EQUAL LIFTS, NON-TRACKING TACK COAT TO BE PLACED BETWEEN LIFTS)</li> <li>㉓ ITEM 690 - SPECIAL: PAVEMENT OVERLAY FABRIC COMPOSITE, 30" WIDE, CENTERED ON SAWCUT (GLASGRID 8502 OR APPROVED EQUAL)</li> <li>㉔ ITEM 607 - FENCE, MISC: WOOD FENCE</li> </ul> |
|---|---|--|

NOTE:  
 SUBGRADE STABILIZATION LOCATIONS ARE APPROXIMATE AND SHALL BE DETERMINED BY THE ENGINEER BY WAY OF PROOF ROLLING.

\* - 0.04 FT/FT  
 \*\* - SEE CROSS SECTIONS FOR GRADING  
 ME - MATCH EXISTING

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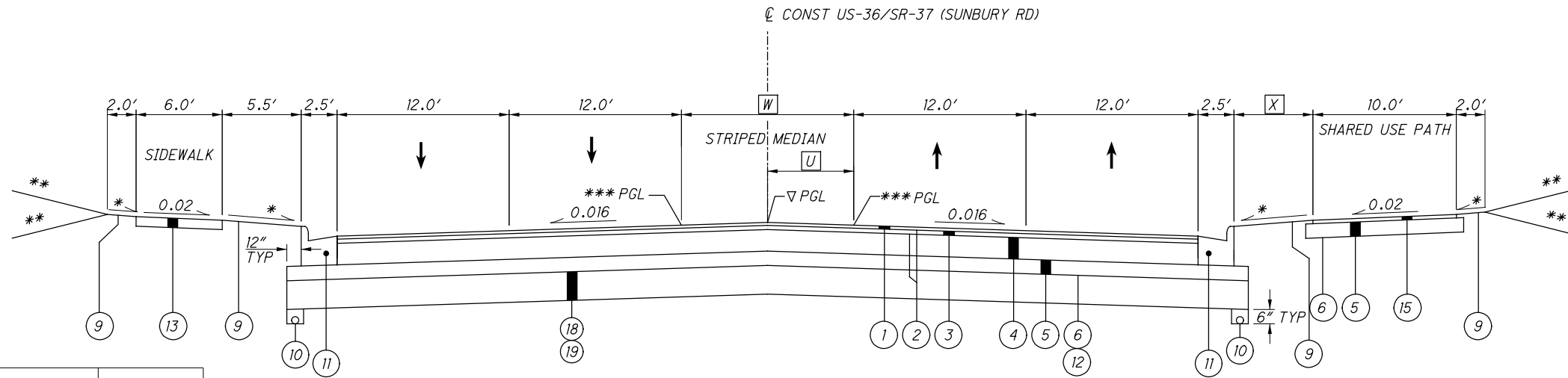
ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
[X]	593+79.84	12.00	TO	594+57.93	12.00
	594+57.93	12.00	TO	594+80.54	12.41
[V]	593+79.84	6.00	TO	594+57.93	6.70
	594+57.93	6.70	TO	594+80.54	7.00

NOTE:  
 SUBGRADE STABILIZATION LOCATIONS ARE APPROXIMATE AND SHALL BE DETERMINED BY THE ENGINEER BY WAY OF PROOF ROLLING.  
 SEE SHEET 12 FOR PROPOSED PAVEMENT LEGEND  
 \* - 0.04 FT/FT  
 \*\* - SEE CROSS SECTIONS FOR GRADING  
 ME - MATCH EXISTING

PROPOSED TYPICAL SECTIONS

DEL-36-11.03

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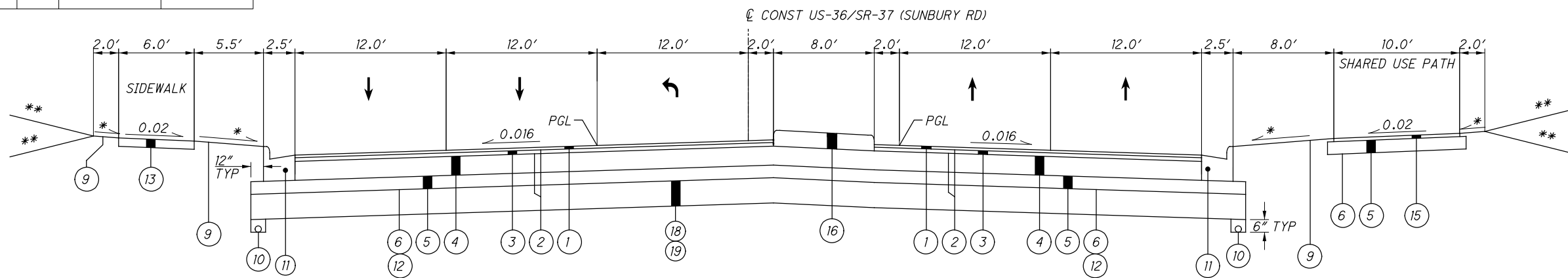


NORMAL SECTION - US-36/SR-37 (SUNBURY RD)  
STA 594+80.54 TO 597+50.00

\*\*\* SEE PGL TRANSITION LABELED ON SHEET 153

▽ PGL ON  $\varnothing$  CONST US-36/SR-37 STA 594+80.54 TO 595+61.28  
CROWN POINT ON  $\varnothing$  CONST US-36/SR-37 STA 595+61.28 TO 597+50.00

ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
W	594+80.54	12.41	TO	596+38.68	20.56
	596+38.68	20.56	TO	597+23.78	24.00
	597+23.78	24.00	TO	597+50.00	24.00
U	594+80.54	5.50	TO	594+97.25	5.50
	594+97.25	5.50	TO	595+23.29	8.00
X	594+80.54	5.55	TO	595+23.21	8.00
	595+23.21	8.00	TO	597+50.00	8.00



NORMAL SECTION - US-36/SR-37 (SUNBURY RD)  
STA 597+50.00 TO 598+09.49

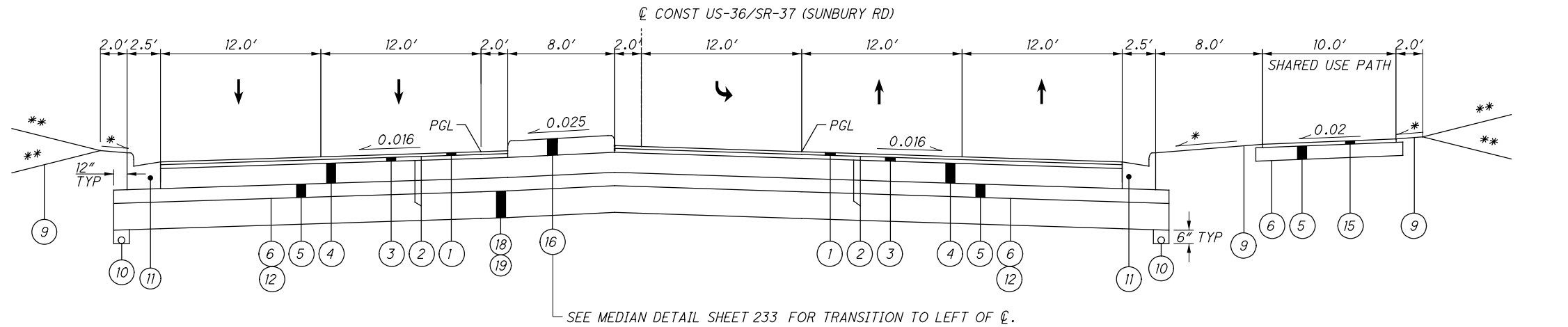
SEE MEDIAN DETAIL SHEET 233 FOR TRANSITION TO LEFT OF  $\varnothing$ .  
(STA 598+09.49 TO 598+36.40)

NOTE:  
SUBGRADE STABILIZATION LOCATIONS ARE APPROXIMATE AND SHALL BE DETERMINED BY THE ENGINEER BY WAY OF PROOF ROLLING.

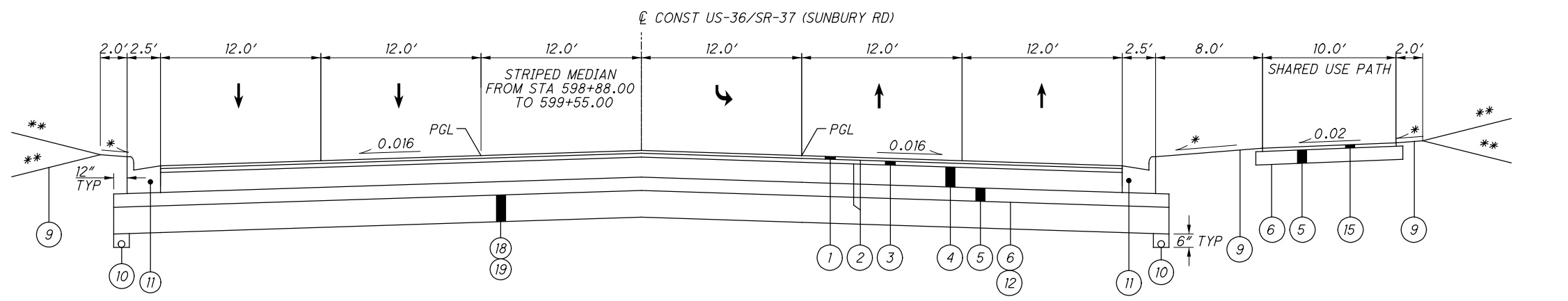
SEE SHEET 12 FOR PROPOSED PAVEMENT LEGEND

\* - 0.04 FT/FT  
\*\* - SEE CROSS SECTIONS FOR GRADING  
ME - MATCH EXISTING

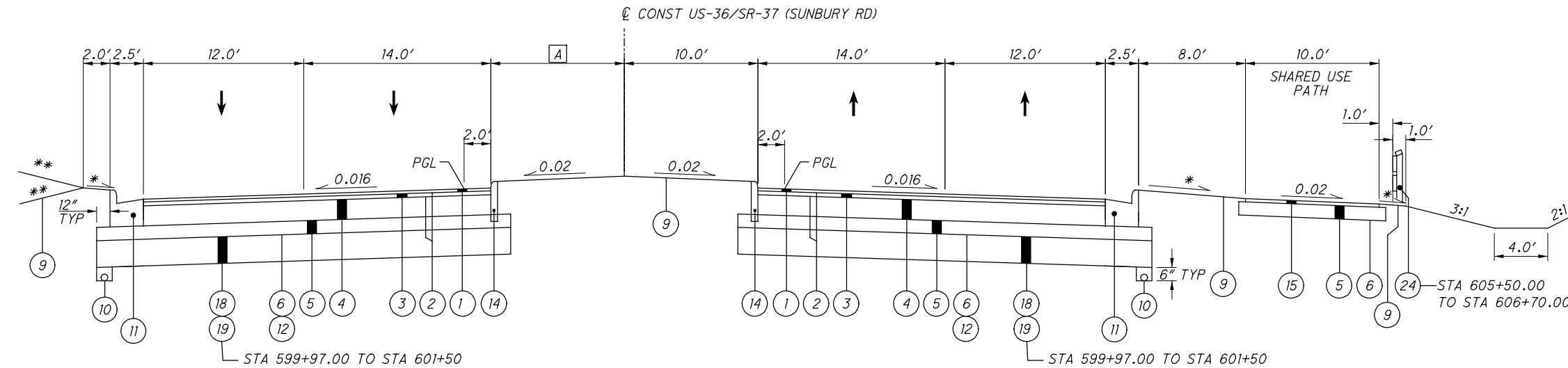
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NORMAL SECTION - US-36/SR-37 (SUNBURY RD)  
STA 598+36.40 TO 598+88.00



NORMAL SECTION - US-36/SR-37 (SUNBURY RD)  
STA 598+88.00 TO 599+97.00



NORMAL SECTION - US-36/SR-37 (SUNBURY RD)  
STA 599+97.00 TO 606+70.00

ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
A	599+97.00	-8.24	TO	600+65.00	10.00
	600+65.00	10.00	TO	604+77.40	10.00
	604+77.40	10.00	TO	606+70.00	15.82

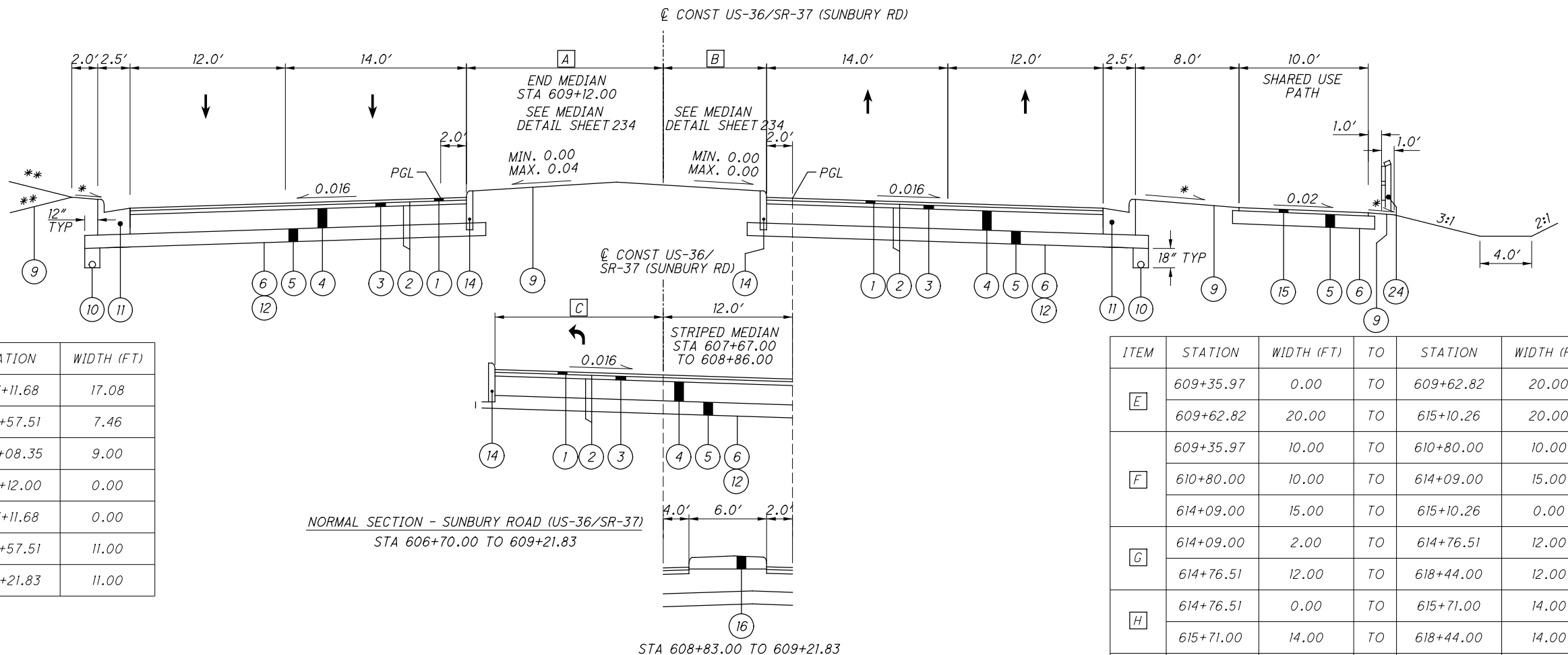
NOTE:  
SUBGRADE STABILIZATION LOCATIONS ARE APPROXIMATE AND SHALL BE DETERMINED BY THE ENGINEER BY WAY OF PROOF ROLLING.  
SEE SHEET 12 FOR PROPOSED PAVEMENT LEGEND  
\* - 0.04 FT/FT  
\*\* - SEE CROSS SECTIONS FOR GRADING  
ME - MATCH EXISTING

PROPOSED TYPICAL SECTIONS

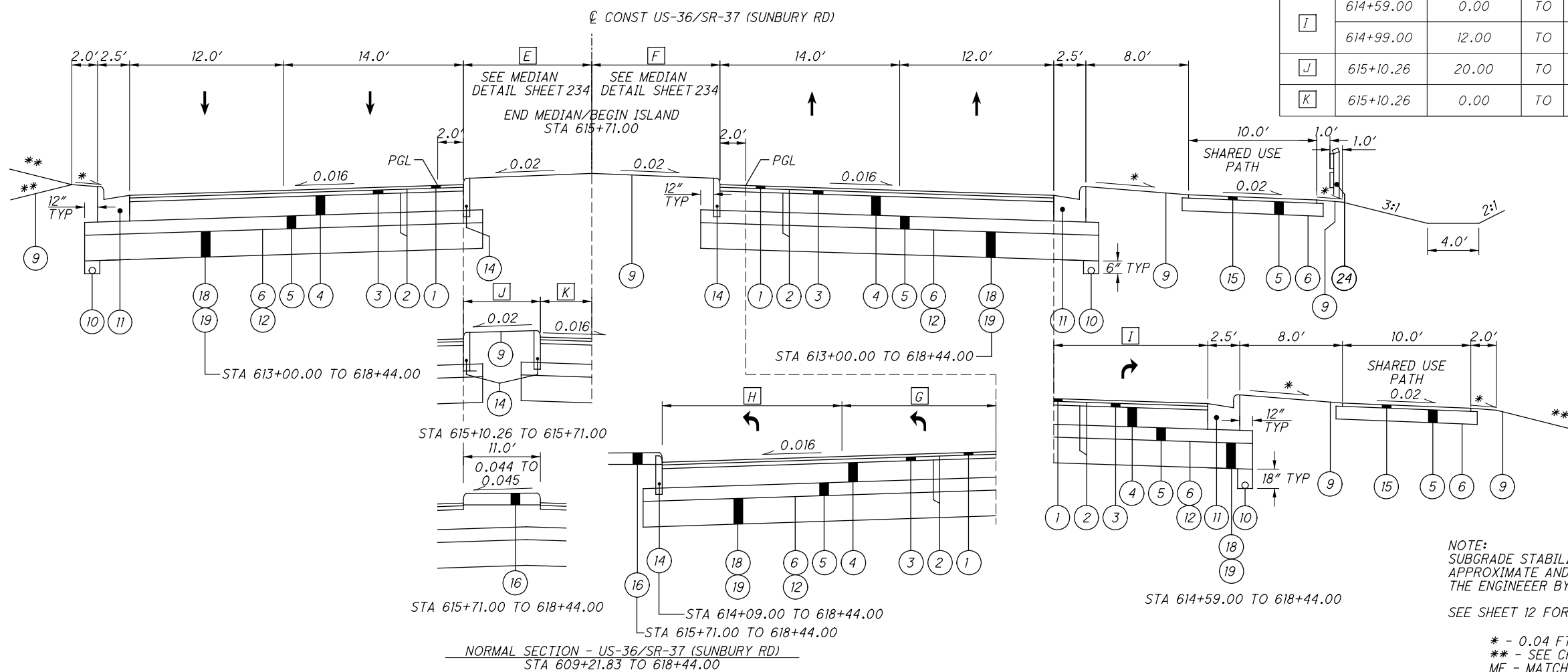
DEL-36-11.03

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ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
A	606+70.00	15.82	TO	607+11.68	17.08
	607+11.68	17.08	TO	607+57.51	7.46
	607+57.51	7.46	TO	608+08.35	9.00
	608+08.35	9.00	TO	609+12.00	0.00
B	606+70.00	10.00	TO	607+11.68	0.00
C	607+11.68	0.00	TO	607+57.51	11.00
	607+57.51	11.00	TO	609+21.83	11.00



ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
E	609+35.97	0.00	TO	609+62.82	20.00
	609+62.82	20.00	TO	615+10.26	20.00
F	609+35.97	10.00	TO	610+80.00	10.00
	610+80.00	10.00	TO	614+09.00	15.00
	614+09.00	15.00	TO	615+10.26	0.00
G	614+09.00	2.00	TO	614+76.51	12.00
	614+76.51	12.00	TO	618+44.00	12.00
H	614+76.51	0.00	TO	615+71.00	14.00
	615+71.00	14.00	TO	618+44.00	14.00
I	614+59.00	0.00	TO	614+99.00	12.00
	614+99.00	12.00	TO	618+44.00	12.00
J	615+10.26	20.00	TO	615+71.00	11.00
K	615+10.26	0.00	TO	615+71.00	9.00



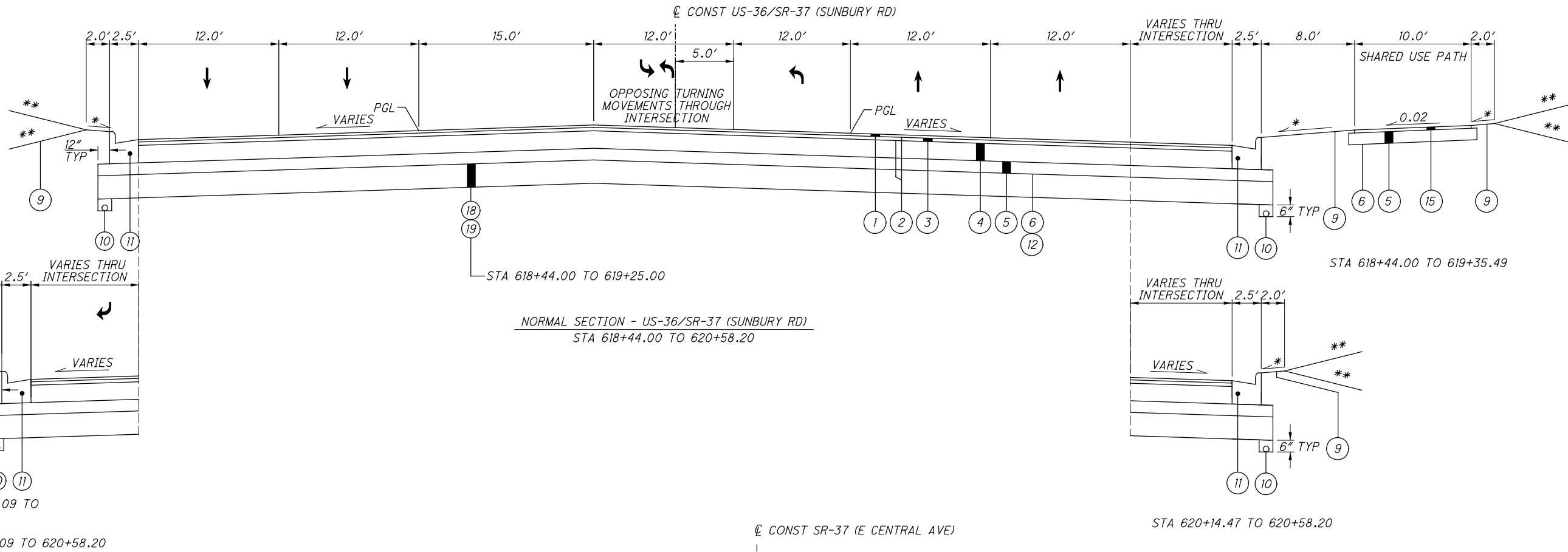
NOTE:  
 SUBGRADE STABILIZATION LOCATIONS ARE APPROXIMATE AND SHALL BE DETERMINED BY THE ENGINEER BY WAY OF PROOF ROLLING.  
 SEE SHEET 12 FOR PROPOSED PAVEMENT LEGEND  
 \* - 0.04 FT/FT  
 \*\* - SEE CROSS SECTIONS FOR GRADING  
 ME - MATCH EXISTING

**PROPOSED TYPICAL SECTIONS**

**DEL-36-11.03**

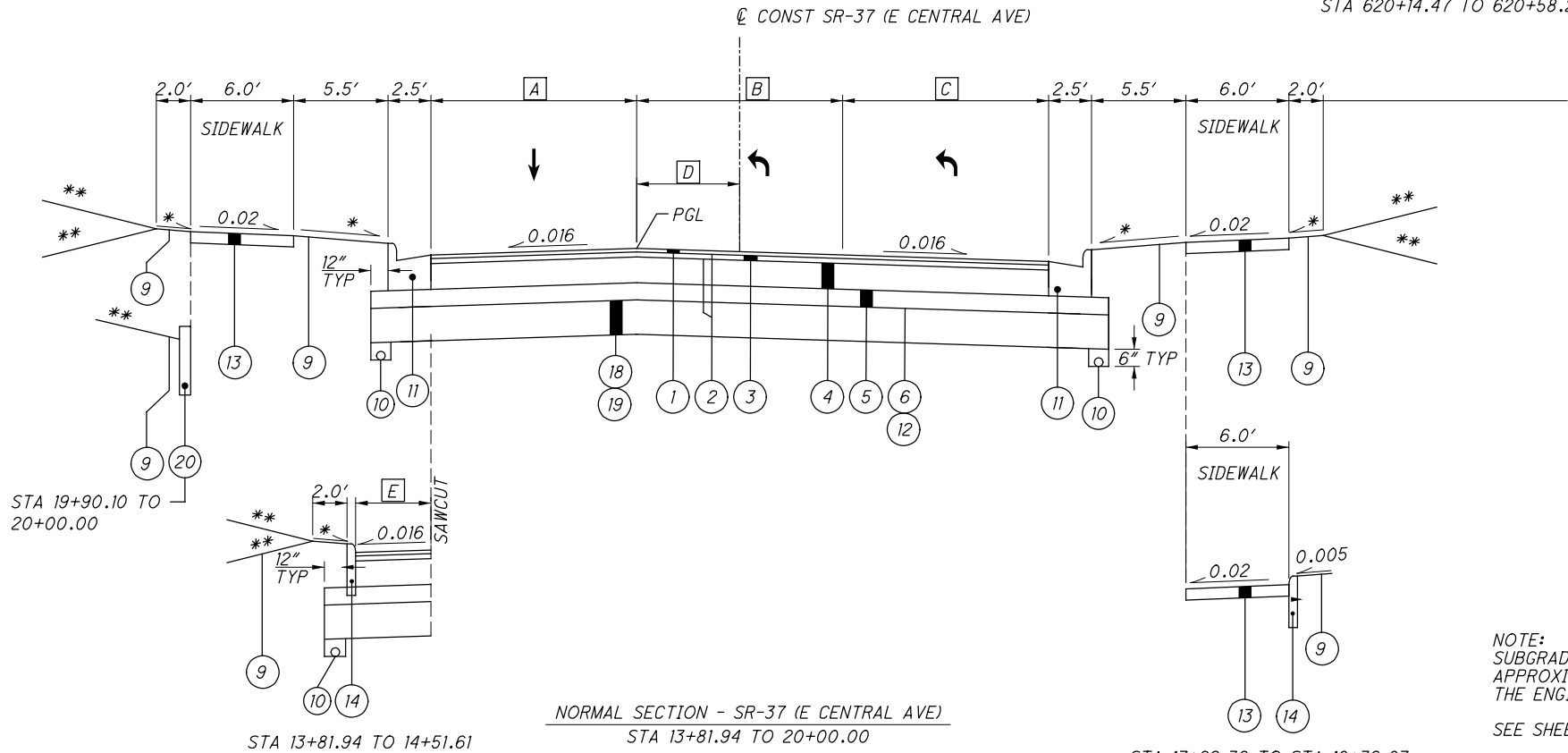


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NORMAL SECTION - US-36/SR-37 (SUNBURY RD)  
STA 618+44.00 TO 620+58.20

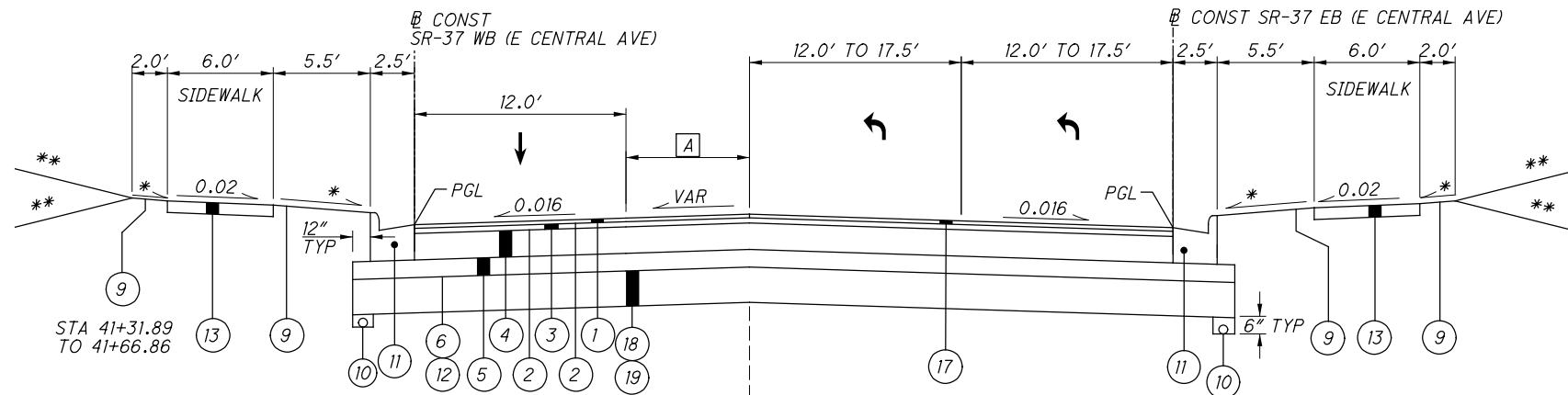
ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
A	14+51.61	12.00	TO	15+02.14	18.00
	15+02.14	18.00	TO	15+77.01	18.00
	15+77.01	18.00	TO	17+37.01	12.00
	17+37.01	12.00	TO	20+00.00	12.00
B	14+51.61	0.00	TO	15+77.01	0.00
	15+77.01	0.00	TO	17+37.01	12.00
	17+37.01	12.00	TO	20+00.00	12.00
C	14+51.61	18.20	TO	14+56.50	18.00
	14+56.50	18.00	TO	15+77.01	18.00
	15+77.01	18.00	TO	17+37.01	12.00
D	14+51.61	0.00	TO	15+77.01	0.00
	15+77.01	0.00	TO	17+37.01	6.00
	17+37.01	6.00	TO	20+00.00	6.00
E	13+81.94	4.00	TO	14+52.14	12.00



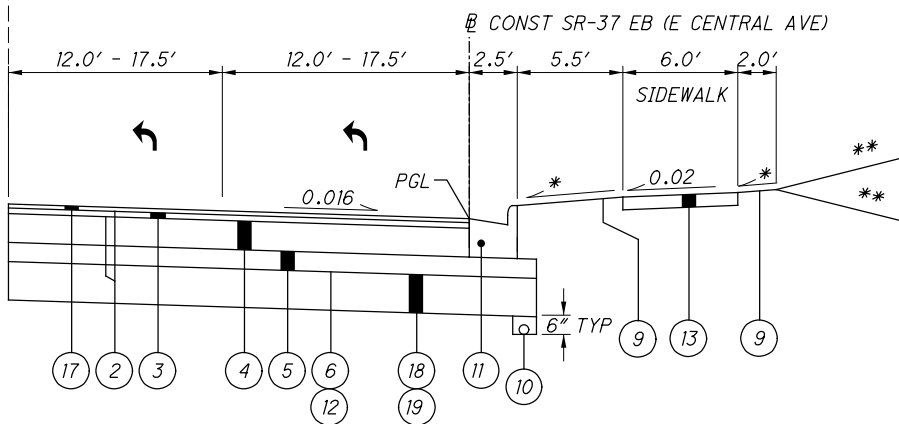
NORMAL SECTION - SR-37 (E CENTRAL AVE)  
STA 13+81.94 TO 20+00.00

NOTE:  
 SUBGRADE STABILIZATION LOCATIONS ARE APPROXIMATE AND SHALL BE DETERMINED BY THE ENGINEER BY WAY OF PROOF ROLLING.  
 SEE SHEET 12 FOR PROPOSED PAVEMENT LEGEND  
 \* - 0.04 FT/FT  
 \*\* - SEE CROSS SECTIONS FOR GRADING  
 ME - MATCH EXISTING

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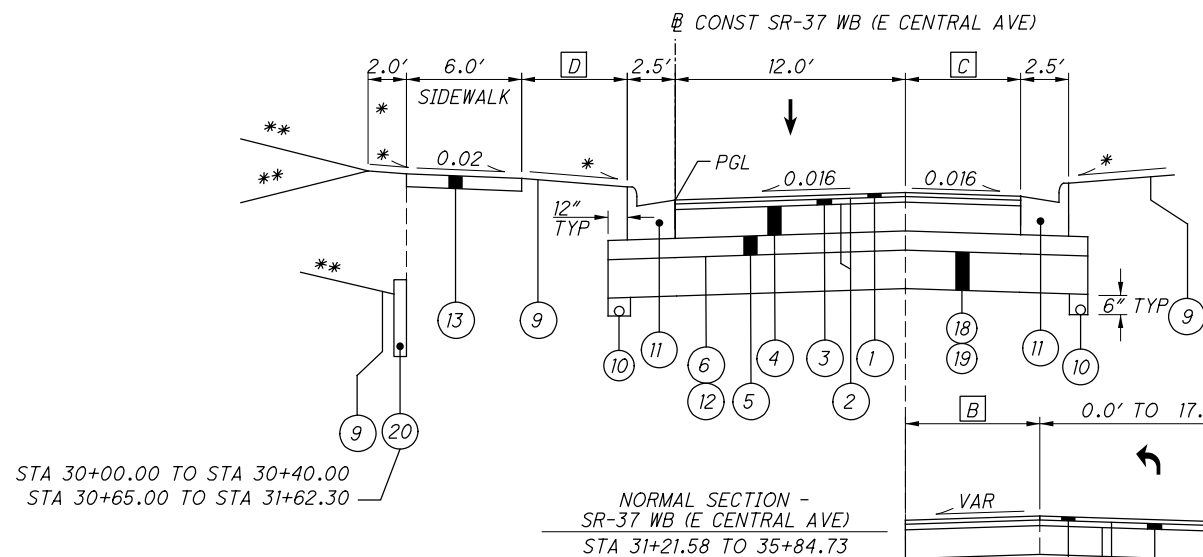
GORE SECTION - SR-37 (E CENTRAL AVE) TO US-36 (WILLIAM ST)  
STA 40+00 TO 41+87.16



NORMAL SECTION - SR-37 EB (E CENTRAL AVE)  
STA 41+09.94 TO 41+87.16

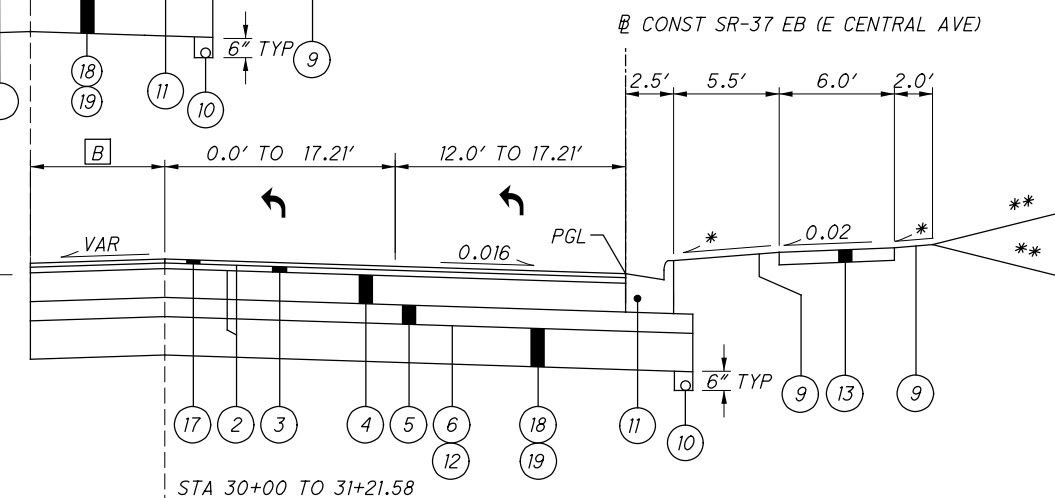
ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
A	40+42.99	0.00	TO	41+09.94	15.31

ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
B	30+00.00	0.00	TO	30+48.02	0.00
	30+48.02	0.00	TO	31+21.58	14.05
C	34+37.21	15.21'	TO	35+84.73	0.00
D	30+00.00	5.50	TO	30+23.36	5.50
	30+23.36	5.50	TO	30+48.87	4.50
	30+48.87	4.50	TO	30+64.49	4.50
	30+64.49	4.50	TO	30+90.00	5.50
	30+90.00	5.50	TO	35+84.73	5.50

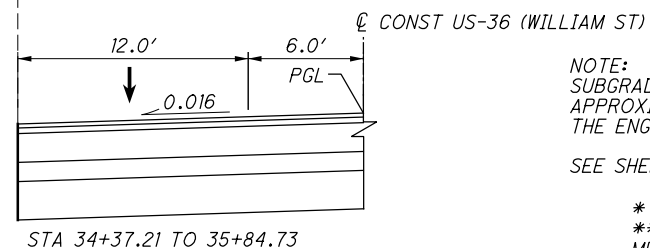


STA 30+00.00 TO STA 30+40.00  
STA 30+65.00 TO STA 31+62.30

NORMAL SECTION - SR-37 WB (E CENTRAL AVE)  
STA 31+21.58 TO 35+84.73



GORE SECTION - SR-37 (E CENTRAL AVE)  
STA 30+00 TO 31+21.58  
STA 34+37.21 TO 35+84.73



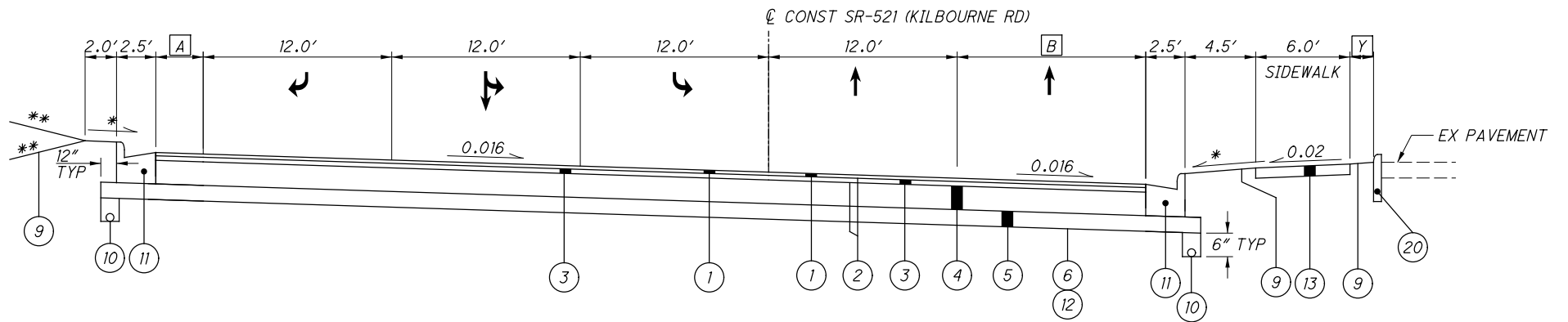
NOTE:  
SUBGRADE STABILIZATION LOCATIONS ARE APPROXIMATE AND SHALL BE DETERMINED BY THE ENGINEER BY WAY OF PROOF ROLLING.  
SEE SHEET 12 FOR PROPOSED PAVEMENT LEGEND

\* - 0.04 FT/FT  
\*\* - SEE CROSS SECTIONS FOR GRADING  
ME - MATCH EXISTING

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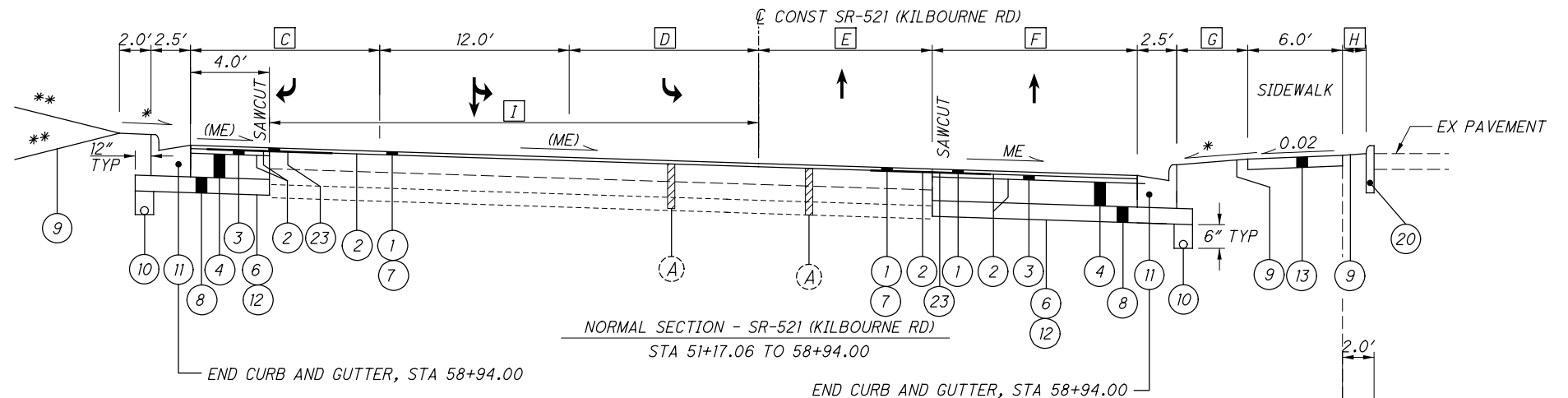
ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
A	50+36.20	53.26	TO	50+95.82	0.00
B	50+70.22	57.94	TO	51+17.06	12.00

ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
C	51+17.06	12.00	TO	55+64.00	12.00
	55+64.00	12.00	TO	56+24.00	0.00
D	51+17.06	12.00	TO	55+60.00	12.00
	55+60.00	12.00	TO	58+80.00	0.00
E	51+17.06	11.00	TO	53+45.00	11.00
	53+45.00	11.00	TO	53+52.00	21.00
	53+52.00	21.00	TO	54+22.00	26.00
	54+22.00	26.00	TO	53+40.00	12.00
	53+40.00	12.00	TO	57+13.26	12.00
	57+13.26	12.00	TO	57+33.62	11.24
	57+33.62	11.24	TO	57+33.71	9.43
	57+33.71	9.43	TO	57+59.10	10.28
F	57+59.10	10.28	TO	58+19.85	8.00
	58+19.85	8.00	TO	58+94.00	9.33
	51+17.06	13.00	TO	53+45.00	13.00
	53+45.00	13.00	TO	53+52.00	3.00
	53+52.00	3.00	TO	54+22.00	0.00
	54+22.00	0.00	TO	54+40.00	12.00
	54+40.00	12.00	TO	55+00.00	12.00
	55+00.00	12.00	TO	57+33.62	4.11
G	57+33.62	4.11	TO	57+33.71	5.91
	57+33.71	5.91	TO	57+59.10	4.12
	57+59.10	4.12	TO	58+19.85	4.15
H	58+19.85	4.15	TO	58+94.00	4.00
	51+17.06	4.50	TO	53+41.72	4.50
I	54+20.94	4.50	TO	54+25.36	4.50
	54+25.36	4.50	TO	55+10.00	11.35
J	51+17.06	10.54	TO	51+37.46	0.00
	51+37.46	0.00	TO	52+48.12	0.00
K	52+48.12	0.00	TO	53+40.95	9.78



NORMAL SECTION - SR-521 (KILBOURNE RD)  
STA 50+36.20 TO 51+17.06

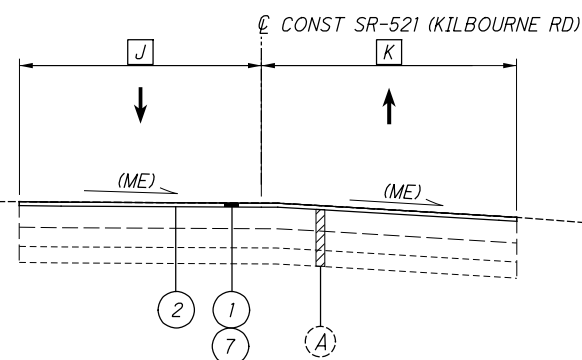
ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
Y	51+14.15	15.75	TO	51+17.06	10.54



NORMAL SECTION - SR-521 (KILBOURNE RD)  
STA 51+17.06 TO 58+94.00

ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
I	51+17.06	32.00	TO	55+63.56	32.00
	55+63.56	32.00	TO	56+23.11	18.10
	56+23.11	18.10	TO	58+94.00	8.37

ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
J	58+94.00	12.37	TO	59+10.96	13.36
K	58+94.00	13.33	TO	59+11.04	13.25

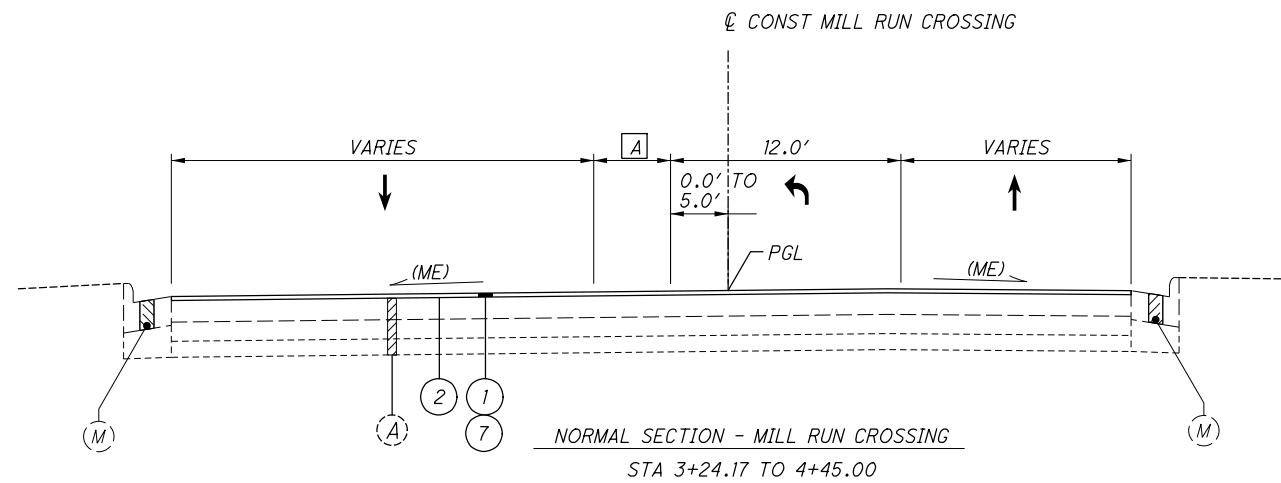
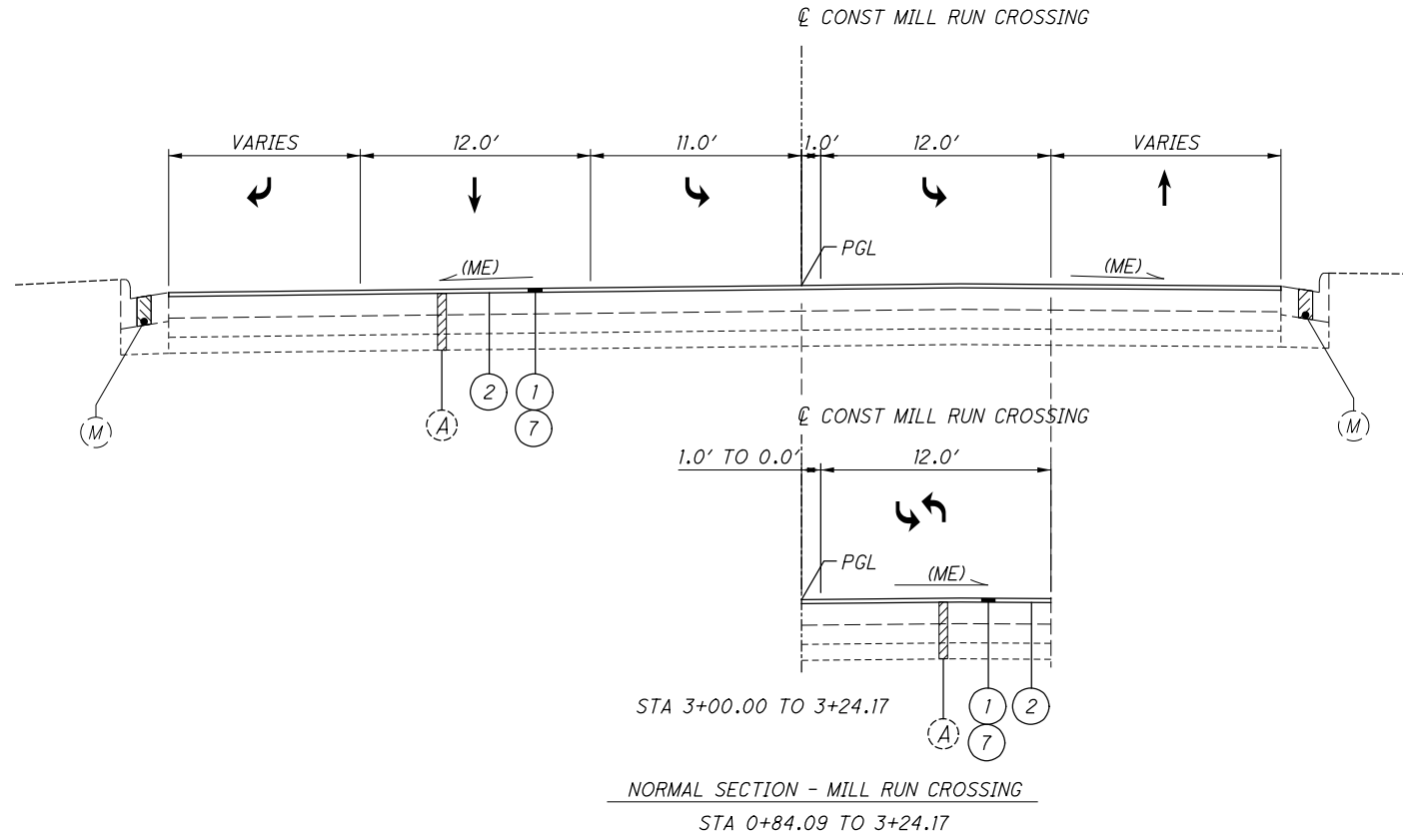


NORMAL SECTION - SR-521 (KILBOURNE RD)  
STA 58+94.00 TO 59+11.04

EXISTING PAVEMENT LEGEND

- (A) EXISTING KILBOURNE ROAD SEE SHEET 12 FOR PROPOSED PAVEMENT LEGEND
- 8"± ASPHALT SURFACE
- 6"± MACADAM BASE COURSE
- 5"± SUBBASE
- \* - 0.04 FT/FT
- \*\* - SEE CROSS SECTIONS FOR GRADING
- ME - MATCH EXISTING

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ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
A	3+33.00	0.00	TO	3+91.95	8.261
	3+91.95	8.261	TO	4+45.00	4.648

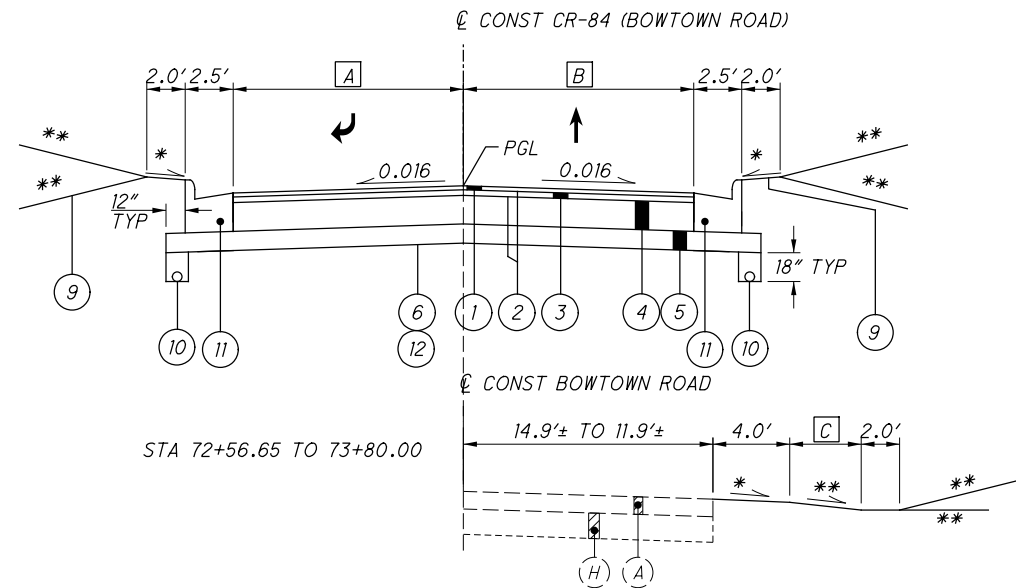
EXISTING PAVEMENT LEGEND

- (A) EXISTING KILBOURNE ROAD
- 8"± ASPHALT SURFACE
- 6"± MACADAM BASE COURSE
- 5"± SUBBASE

SEE SHEET 12 FOR PROPOSED PAVEMENT LEGEND

- \* - 0.04 FT/FT
- \*\* - SEE CROSS SECTIONS FOR GRADING
- ME - MATCH EXISTING

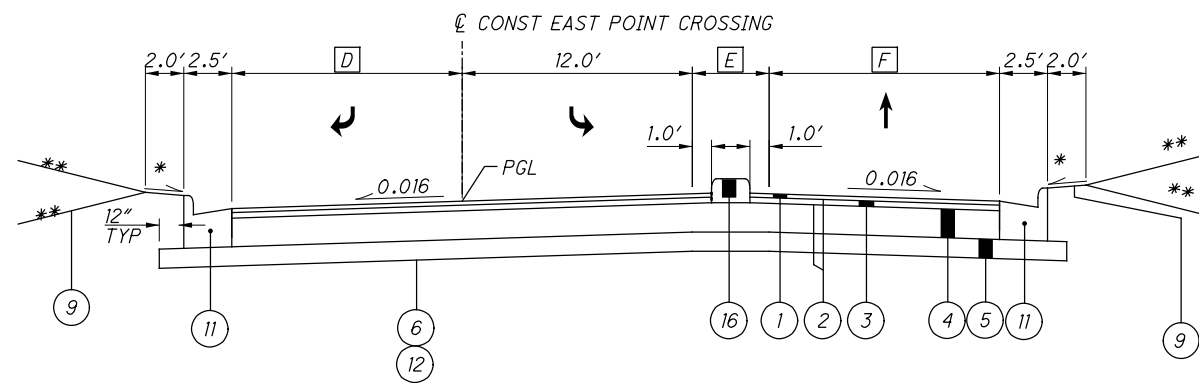
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STA 72+56.65 TO 73+80.00

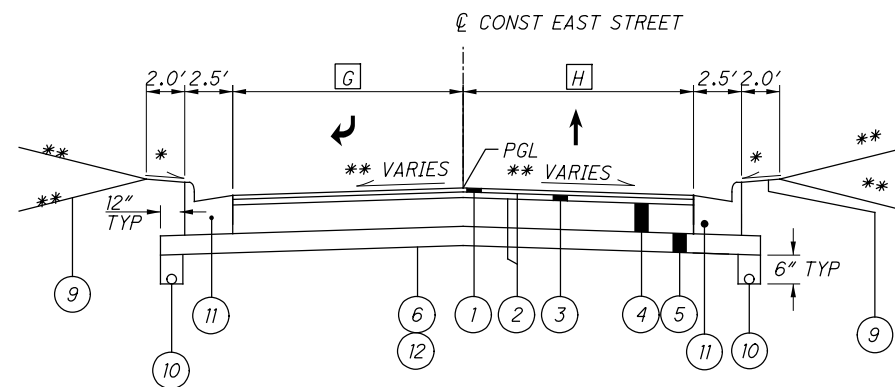
NORMAL SECTION - CR-84 (BOWTOWN ROAD)  
STA 70+37.27 TO 72+03.80

ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
A	70+29.10	30.50	TO	70+52.48	12.00
	70+52.48	12.00	TO	71+63.32	12.00
	71+63.32	12.00	TO	72+02.10	7.90
B	70+49.92	47.20	TO	70+85.86	12.00
	70+85.86	12.00	TO	71+54.65	12.00
	71+54.65	12.00	TO	72+02.10	9.56
C	72+56.65	1.38	TO	73+80.00	3.83



NORMAL SECTION - EAST POINT CROSSING  
STA 78+33.31 TO 80+00.00

ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
D	78+33.31	11.00	TO	78+60.00	12.00
	78+60.00	12.00	TO	79+32.28	12.00
	79+32.28	12.00	TO	79+72.52	49.95
E	79+18.52	0.00	TO	79+63.33	27.65
F	78+43.00	0.00	TO	78+67.91	12.00
	78+67.91	12.00	TO	78+86.80	12.00
	78+86.80	12.00	TO	79+55.70	44.90



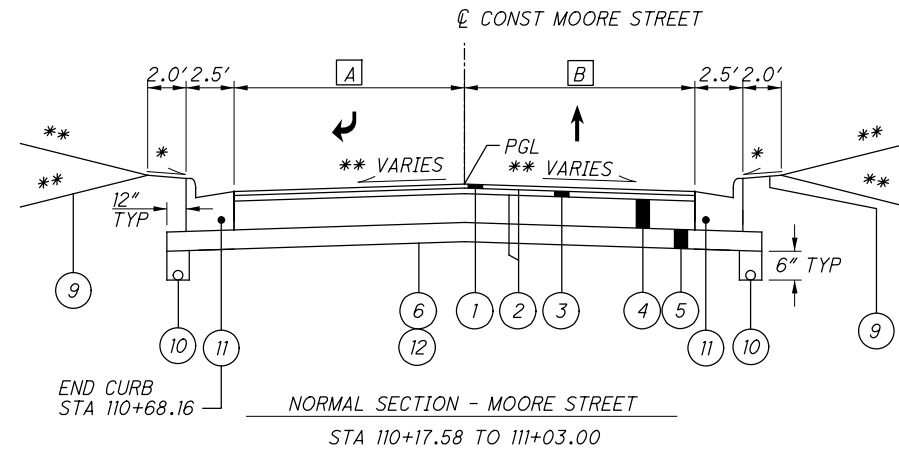
NORMAL SECTION - EAST STREET  
STA 120+17.95 TO 120+85.00

ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
G	120+18.05	25.03	TO	120+33.05	10.00
	120+33.05	10.00	TO	120+85.00	10.00
H	120+17.95	24.97	TO	120+32.95	10.00
	120+32.95	10.00	TO	120+85.00	10.00

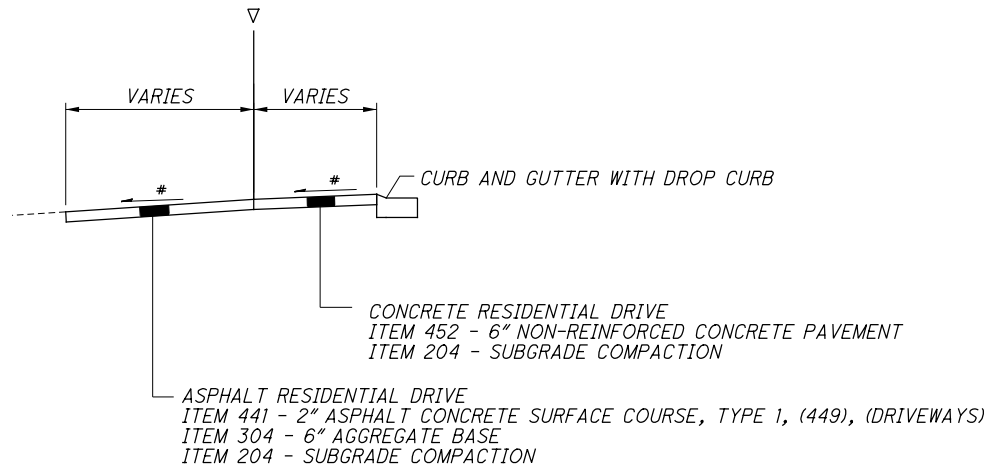
SEE SHEET 12 FOR PROPOSED PAVEMENT LEGEND

\* - 0.04 FT/FT  
 \*\* - SEE CROSS SECTIONS FOR GRADING  
 ME - MATCH EXISTING

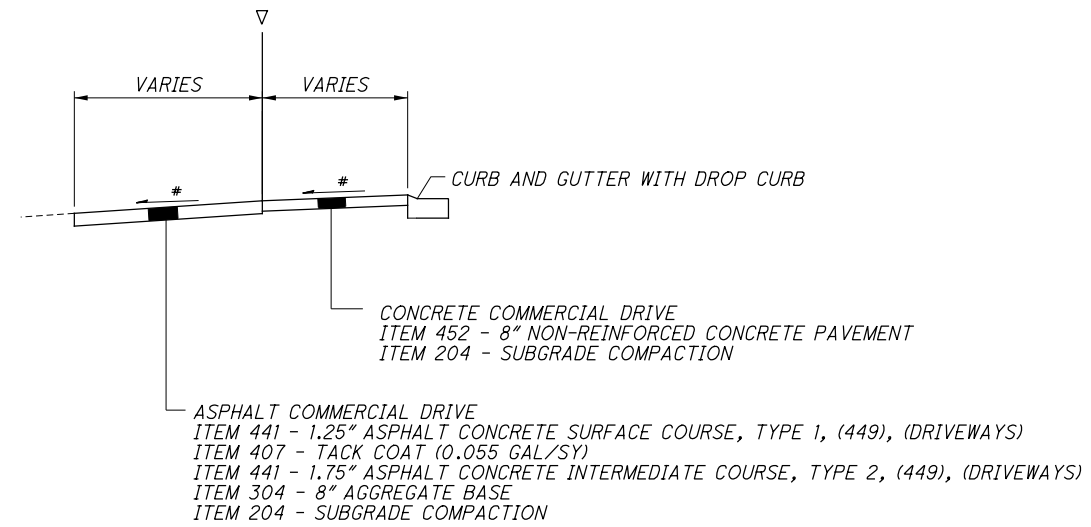
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ITEM	STATION	WIDTH (FT)	TO	STATION	WIDTH (FT)
A	110+18.43	30.29	TO	110+38.43	10.00
	110+38.43	10.00	TO	110+57.67	10.00
	110+57.67	10.00	TO	111+03.00	8.67
B	110+17.58	29.71	TO	110+37.58	10.00
	110+37.58	10.00	TO	110+57.67	10.00
	110+57.67	10.00	TO	111+03.00	9.79

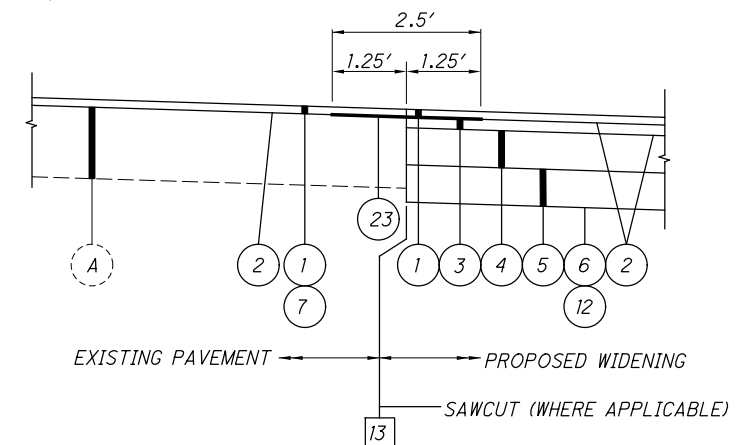


RESIDENTIAL DRIVEWAY  
 DR18, DR19, DR20, DR21, DR24, DR30



COMMERCIAL DRIVEWAY  
 DR1, DR2, DR4, DR5, DR6, DR7, DR8,  
 DR9, DR10, DR11, DR12, DR13, DR14, DR15,  
 DR16, DR17, DR22, DR23, DR25, DR26,  
 DR27, DR28, DR29, PRK1

▽ CONCRETE APRON ENDS AT THE BACK OF SIDEWALK OR SHARED USE PATH, OR AT THE END OF THE RADIUS RETURN FOR DRIVES THAT DO NOT CROSS A SIDEWALK OR SHARED USE PATH



PAVEMENT REINFORCING GRID DETAIL FOR WIDENING, PLANING AND RESURFACING  
 PAVEMENT OVERLAY FABRIC COMPOSITE (GLASGRID 8502 OR APPROVED EQUAL)

SEE SHEET 12 FOR PROPOSED PAVEMENT LEGEND

# FOR DRIVEWAY WIDTHS, APRONS, AND ELEVATIONS  
 SEE DRIVE DETAILS ON SHEETS 238 TO 251 .

\* - 0.04 FT/FT  
 \*\* - SEE CROSS SECTIONS FOR GRADING  
 ME - MATCH EXISTING

**UTILITIES**

LISTED BELOW ARE ALL OF THE UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

AEP OHIO  
700 MORRISON RD, 3RD FLOOR  
GAHANNA, OH 43230  
PAUL PAXTON  
PTPAXTON@AEP.COM  
(614) 883-6831  
MICHEAL POWERS (TRC)  
MAPOWERS@TRCCOMPANIES.COM  
(614) 636-6493

AT&T (OHIO)  
2932 6TH ST  
IRONTON, OH 45638  
CHARLES JOHNSON  
CJ3237@ATT.COM  
(740) 532-9943

SPECTRUM  
3760 INTERCHANGE RD  
COLUMBUS, OH 43204  
SAM LUTZ  
SAMUEL.LUTZ@CHARTER.COM  
(614) 481-5047

COLUMBIA GAS OF OHIO  
3550 JOHNNY APPLESEED CT  
COLUMBUS, OH 43231  
ROB CALDWELL  
RCALDWELL@NISOURCE.COM  
(614) 818-2104

CONSOLIDATED COOPERATIVE  
5255 STATE ROUTE 95  
MT GILEAD, OH 43338  
TYLER THOMPSON  
TTHOMPSON@CONSOLIDATED.COOP  
(419) 949-2977

CITY OF DELAWARE DEPARTMENT  
OF PUBLIC UTILITIES  
WATER TREATMENT FACILITY  
3080 US 23 NORTH  
DELAWARE, OH 43015  
(740) 203-1900

CITY OF DELAWARE DEPARTMENT  
OF PUBLIC UTILITIES  
WASTEWATER TREATMENT FACILITY  
225 N CHERRY ST  
DELAWARE, OH 43015  
(740) 203-1950

CITY OF DELAWARE (TRAFFIC)  
440 E WILLIAM ST  
DELAWARE, OH 43015  
NATHAN MCCOY  
(740) 203-1731

FRONTIER COMMUNICATIONS  
1300 COLUMBUS-SANDUSKY RD  
MARION, OH 43302  
CHRIS AVERY  
IRA.AVERY@FTR.COM  
(740) 383-0551

VERIZON BUSINESS  
120 RAVINE ST  
AKRON, OH 44303  
AL GUEST  
ALLEN.GUEST@VERIZON.COM  
(330) 253-8267

WIDE OPEN WEST  
3675 CORPORATE DR  
COLUMBUS, OH 43231  
STEVEN CALLAHAN  
STEVEN.CALLAHAN@WOWINC.COM  
(614) 948-4636  
KANN KHAY (TEAM FISHEL)  
(614) 291-8515

EVERSTREAM  
240 N 5TH STREET, SUITE 168  
COLUMBUS, OH 43215  
CHRIS POWELL  
CPOWELL@EVERSTREAM.NET  
(380) 204-5481

SUBURBAN NATURAL GAS  
2626 LEWIS CENTER RD  
LEWIS CENTER, OH 43035  
AARON ROLL  
AROLL@SNGCO.COM  
(740) 548-2450

LOCATIONS OF EXISTING UTILITIES SHOWN IN THE PLANS DEPICT THE LOCATION OF UTILITIES PRIOR TO ANY RELOCATION THAT MAY HAVE BEEN PERFORMED.

**SURVEYING PARAMETERS**

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE BELOW FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

USE THE FOLLOWING PROJECT CONTROL, VERTICAL POSITIONING, AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

**PROJECT CONTROL**

POSITIONING METHOD: STATIC/RAPID GPS OBSERVATIONS, TOTAL STATION MEASUREMENTS AND DIFFERENTIAL LEVELING

MONUMENT TYPE: 13/16" I.D. IRON PIPES WITH ALUMINUM CAP, 13/16" I.D. IRON PIPES WITH PLASTIC CAP INSCRIBED "EMHT INC" AND MAGNETIC NAILS

VERTICAL POSITIONING  
ORTHOMETRIC HEIGHT DATUM: NAVD88  
GEOID: GEOID12B

HORIZONTAL POSITIONING  
REFERENCE FRAME: NAD83 (2011)  
ELLIPSOID: GRS80

MAP PROJECTION: LAMBERT CONFORMAL CONIC  
COORDINATE SYSTEM: OHIO STATE PLANE (NORTH ZONE)  
COMBINED SCALE FACTOR: 1.0000100201 (GRID TO GROUND)

ORIGIN OF COORDINATE  
SYSTEM: 0,0,0

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 823.

UNITS ARE IN U.S. SURVEY FEET. USE THE FOLLOWING CONVERSION FACTOR: 1 METER = 3.280833333 U.S. SURVEY FEET.

**EXISTING SUBSURFACE DRAINAGE**

PROVIDE UNOBSTRUCTED OUTLETS FOR ALL EXISTING UNDERDRAINS OR AGGREGATE DRAINS ENCOUNTERED DURING CONSTRUCTION.

PROVIDE AN OUTLET PER STANDARD CONSTRUCTION DRAWING DM-1.1 FOR ALL UNDERDRAINS THAT OUTLET TO

UNDERDRAINS THAT CAN BE CONNECTED TO THE NEW OR EXISTING UNDERDRAINS AT THE END OF THE PROJECT LIMITS AS WELL AS ALL NECESSARY BENDS OR BRANCHES REQUIRED FOR CONNECTION ARE INCLUDED IN THE BASIS OF PAYMENT FOR UNCLASSIFIED PIPE UNDERDRAINS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED

- 601, TIED CONCRETE BLOCK MAT, WITH TYPE 1 UNDERLAYMENT - 10 SQ. YD.
- 605, AGGREGATE DRAINS - 50 FT.
- 611 6" CONDUIT, TYPE F - 50 FT.
- 611, PRECAST REINFORCED CONCRETE OUTLET - 2 EACH
- 605 6" UNCLASSIFIED PIPE UNDERDRAINS - 150 FT.

**SEEDING AND MULCHING**

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

659, SOIL ANALYSIS TEST	2 EACH
659, TOPSOIL	2268 CU. YD.
659, SEEDING AND MULCHING	20430 SQ. YD.
659, REPAIR SEEDING AND MULCHING	1022 SQ. YD.
659, INTER-SEEDING	1022 SQ. YD.
659, COMMERCIAL FERTILIZER	2.76 TON
659, LIME	4.22 ACRES
659, WATER	110 M. GAL.
659, MOWING	5108 M. SQ.FT.

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

**CLEARING AND GRUBBING**

REMOVE ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS UNDER THE LUMP SUM BID FOR ITEM 201, CLEARING AND GRUBBING. THE FOLLOWING IS AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES AND STUMPS TO BE REMOVED.

SIZES	NO. TREES	NO. STUMPS	TOTAL
18"	44	1	45
30"	6	0	6
48"	5	0	5

A SEPARATE CONTRACT WILL INCLUDE THE CLEARING AND GRUBBING WITHIN RAILROAD RIGHT-OF-WAY.

**ITEM 623 - RIGHT-OF-WAY MONUMENT**

THIS WORK SHALL CONSIST OF SETTING CENTERLINE MONUMENTS PER SCD RMI-1 (TYPE C) AT THE FOLLOWINGS LOCATION IDENTIFIED IN THE RIGHT-OF-WAY PLANS OF THESE CONSTRUCTION PLANS, SEE SHEET 603 (3/44) FOR COORDINATES. ENSURE ALL WORK ASSOCIATED WITH THE SETTING MONUMENTS SHALL BE IN ACCORDANCE WITH ITEM 623 OF ODOT CMS, CURRENT EDITION. PAYMENT FOR ALL WORK AS IT PERTAINS TO THE SETTING OF CENTERLINE MONUMENTS SHALL BE INCLUDED IN THE CONTRACT PRICE FOR ITEM 623 MONUMENT ASSEMBLY, TYPE C, 7 EACH. QUANTITIES CARRIED TO GENERAL SUMMARY.

**ITEM 204 - PROOF ROLLING**

THE FOLLOWING QUANTITY IS PROVIDED IN THE GENERAL SUMMARY TO ADDRESS LOCATIONS REQUIRING PROOF ROLLING. SEE PLAN SHEET NO. 12 FOR ADDITIONAL INFORMATION.

ITEM 204 - PROOF ROLLING 20 HOUR.

**GRADING OF PARCEL 8**

THE FOLLOWING QUANTITIES ACCOUNT FOR ALL EARTHWORK AND SEEDING AND MULCHING NECESSARY FOR THE REGRADING OF PARCEL 8 AFTER THE PROPERTY HAS BEEN CLEARED PER ITEM 202 - BUILDING DEMOLISHED, AS PER PLAN.

203, EXCAVATION	320 CU. YD.
203, EMBANKMENT	1296 CU. YD.
659, TOPSOIL	565 CU. YD.
659, SEEDING AND MULCHING	5089 SQ. YD.

REGRADE PARCEL 8 AS SPECIFIED ON SHEET 300. THE CONTRACTOR SHALL PLACE TOPSOIL AND SEEDING AND MULCHING TO ALL AREAS OF EXPOSED SOIL AFTER THE REGRADING IS COMPLETED. QUANTITY CALCULATIONS FOR EARTHWORK AND SEEDING AND MULCHING ARE BASED ON THE AREA OF THE EXISTING PROPERTY TO BE CLEARED.

**EARTHWORK FOR MAINLINE PAVEMENT**

EXCAVATION AND EMBANKMENT CONSTRUCTION EXCAVATED SOILS ON THE PROJECT SITE MAY NOT BE SUITABLE FOR EMBANKMENT USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ANY ON-SITE SOIL USED AS EMBANKMENT MEETS THE REQUIREMENTS OF 203.

ITEM 203, EXCAVATION, INCLUDES WASTING ANY EXCAVATED MATERIAL WITHIN THE RIGHT-OF-WAY WITH THE APPROVAL OF THE ENGINEER OR OUTSIDE THE RIGHT-OF-WAY AT THE CONTRACTOR'S EXPENSE, IF NO SUITABLE AREAS EXIST FOR WASTING WITHIN THE RIGHT-OF-WAY.

ITEM 203, EMBANKMENT INCLUDES CONSTRUCTING EMBANKMENTS TO PLAN LINES AND INCLUDES FURNISHING AND PLACING SUITABLE BORROW MATERIAL AS SPECIFIED IN 203, WHEN REQUIRED. FOR SOIL BORROW OR OTHER MATERIALS NOT ALREADY CERTIFIED TO MEET 203 REQUIREMENTS, THE CONTRACTOR SHALL ALLOW THE ENGINEER 10 DAYS TO PERFORM IN SITU TESTS PRIOR TO USING THE MATERIAL.

PRIOR TO EARTH DISTURBING ACTIVITIES, INSTALL ALL REQUIRED EROSION CONTROL ITEMS AS SPECIFIED ON THE STORMWATER POLLUTION PREVENTION PLAN PREPARED BY THE CONTRACTOR. FOR EARTH DISTURBING WORK OUTSIDE THE WORK LIMITS, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ACQUIRING ALL NECESSARY PERMITS, IF REQUIRED, INCLUDING FOR BORROW AREAS. PROVIDE THE APPROPRIATE EROSION CONTROL MEASURES AS REQUIRED.

THE FOLLOWING IS A SUMMARY OF ALL EARTHWORK QUANTITIES GENERATED BY THE CROSS SECTIONS.

US-36	203, EXCAVATION	31511 CU. YD.
	203, EMBANKMENT	2907 CU. YD.
SR-37	203, EXCAVATION	2468 CU. YD.
	203, EMBANKMENT	21 CU. YD.
SR-37 EB	203, EXCAVATION	1065 CU. YD.
	203, EMBANKMENT	36 CU. YD.
SR-37 WB	203, EXCAVATION	4558 CU. YD.
	203, EMBANKMENT	46 CU. YD.
BOWTOWN ROAD	203, EXCAVATION	338 CU. YD.
	203, EMBANKMENT	6 CU. YD.
EAST POINT CROSSING	203, EXCAVATION	371 CU. YD.
	203, EMBANKMENT	2 CU. YD.
MOORE STREET	203, EXCAVATION	122 CU. YD.
	203, EMBANKMENT	0 CU. YD.
EAST STREET	203, EXCAVATION	72 CU. YD.
	203, EMBANKMENT	0 CU. YD.
SR-521 (KILBOURNE RD)	203, EXCAVATION	1183 CU. YD.
	203, EMBANKMENT	447 CU. YD.

THE FOLLOWING GRAND TOTAL HAS BEEN CARRIED TO THE GENERAL SUMMARY:

203, EXCAVATION	41688 CU. YD.
203, EMBANKMENT	3465 CU. YD.

**EXISTING PLANS**

EXISTING PLANS MAY BE INSPECTED AT ODOT D6 AND/OR CITY OF DELAWARE OFFICE OF PUBLIC WORKS

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PRS

GENERAL NOTES

DEL-36-11.03

**GENERAL**

THE CITY OF DELAWARE "CITY" DETAILED SPECIFICATIONS, STANDARD DRAWINGS, AND INFRASTRUCTURE DESIGN MANUAL, TOGETHER WITH THE CITY OF COLUMBUS AND STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATION (CMS), INCLUDING ALL SUPPLEMENTS THERETO, SHALL GOVERN ALL MATERIAL AND WORKMANSHIP INVOLVED IN THE IMPROVEMENTS SHOWN IN THESE PLANS UNLESS OTHERWISE NOTED. ALL PERTINENT STANDARD CONSTRUCTION DRAWINGS ARE AVAILABLE UPON REQUEST OF THE PUBLIC WORKS DEPARTMENT.

ALL WORK SHALL BE COMPLETELY ACCEPTABLE TO CITY OFFICIALS. NO WORK SHALL COMMENCE UNTIL ARRANGEMENTS HAVE BEEN COORDINATED WITH THE CITY FOR REQUIRED INSPECTIONS. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS NECESSARY TO COORDINATE THE PROVISION OF INSPECTION SERVICE BY THE CITY FOR THE PROPOSED WORK. COST OF INSPECTION SHALL BE PAID FOR BY THE CONTRACTOR THROUGH ENGINEERING INSPECTION FEES CALCULATED BY THE PUBLIC WORKS DEPARTMENT.

THE CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO THE PUBLIC WORKS DEPARTMENT AT LEAST 7 DAYS PRIOR TO THE INITIAL START OF ANY CONSTRUCTION PROJECT AND AFTER A PRECONSTRUCTION MEETING HAS BEEN HELD.

TWENTY-FOUR HOUR ADVANCE NOTIFICATION IS REQUIRED FOR ALL WORK REQUIRING INSPECTION, TESTING, OR APPROVAL BY THE PUBLIC WORKS DEPARTMENT OR THE BUILDING DEPARTMENT. THE CONTRACTOR IS RESPONSIBLE TO NOTIFY THE PUBLIC WORKS DEPARTMENT AND REQUEST A FINAL PUNCH-OUT INSPECTION OF THE PROJECT SITE ONCE ALL ITEMS ON THE APPROVED DEVELOPMENT PLANS HAVE BEEN COMPLETED.

NECESSARY LINE AND GRADE STAKING WILL BE PROVIDED BY THE CONTRACTOR. CUT SHEETS SHALL BE SUBMITTED TO THE PUBLIC WORKS DEPARTMENT TWO (2) FULL WORKING DAYS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND MUST BE APPROVED BY THE CITY PRIOR TO THE BEGINNING OF CONSTRUCTION.

THE CONTRACTOR IS RESPONSIBLE FOR HAVING "AS-BUILT" CONSTRUCTION DRAWINGS DELIVERED TO THE PUBLIC WORKS DEPARTMENT WITHIN 30 DAYS FOLLOWING THE COMPLETION OF THE PROJECT CONSTRUCTION. PLANS SHALL BE SUBMITTED IN BOTH PAPER AND DIGITAL FORMAT. THE PLANS MUST INCLUDE TOP-OF-CASTING AND FLOW-LINE ELEVATIONS FOR ALL SANITARY AND STORM STRUCTURES, FLOOD ROUTING SWALE VERIFICATION, AND IDENTIFY ALL FIELD MODIFICATIONS TO THE APPROVED PLAN SET. THE "AS-BUILT" DRAWINGS MUST ALSO INCLUDE THE STATE PLANE COORDINATE LOCATIONS FOR ALL NEWLY CONSTRUCTED PUBLIC UTILITY STRUCTURES INCLUDING SANITARY/STORM STRUCTURES, MAINLINE WATER VALVES, FIRE HYDRANTS, STREET LIGHTS, PULL BOXES, ETC.

FOR MODIFICATIONS TO THE WORK AS SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS, A REQUEST MUST BE SUBMITTED IN WRITING FROM THE ENGINEER OF RECORD TO THE PUBLIC WORKS DEPARTMENT FOR REVIEW AND APPROVAL. MODIFICATIONS MUST FOLLOW THE PLAN REVISION PROCESS SET FORTH BY PUBLIC WORKS DEPARTMENT AND ARE SUBJECT TO PLAN REVISION FEES.

THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, FEES, LICENSES, AND INSPECTIONS REQUIRED FOR THE PROPER EXECUTION AND COMPLETION OF THE IMPROVEMENTS AS SHOWN ON THE APPROVED CONSTRUCTION PLANS.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE SITE AND VERIFY THE EXTENT OF THE WORK TO BE PERFORMED, TO IDENTIFY THE NECESSARY CONSTRUCTION MEANS AND METHODS TO ACCOMPLISH ALL WORK ITEMS, AND TO NOTIFY THE PUBLIC WORKS DEPARTMENT OF ANY IDENTIFIED CONFLICTS, ERRORS, OR OMISSION FROM THE CONSTRUCTION PLANS.

THE CONTRACTOR OR SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLYING WITH ALL FEDERAL, STATE, AND LOCAL SAFETY REQUIREMENTS, TOGETHER WITH EXERCISING PRECAUTIONS AT ALL TIMES FOR PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT IS ALSO THE SOLE RESPONSIBILITY OF THE CONTRACTOR OR SUBCONTRACTOR TO INITIATE, MAINTAIN, AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS, AND PROGRAMS IN CONNECTION WITH THE WORK.

THE CONTRACTOR IS RESPONSIBLE FOR THE INVESTIGATION, LOCATION, SUPPORT, PROTECTION, AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES WHETHER SHOWN ON THESE PLANS OR NOT. THE CONTRACTOR SHALL EXPOSE ALL UTILITIES OR STRUCTURES PRIOR TO CONSTRUCTION TO VERIFY THE VERTICAL AND HORIZONTAL EFFECT ON THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL CALL, TOLL FREE, THE OHIO UTILITIES PROTECTION SERVICE (OUPS) AT 1-800-362-2764 SEVENTY-TWO HOURS PRIOR TO CONSTRUCTION AND SHALL NOTIFY ALL UTILITY COMPANIES AT LEAST FORTY EIGHT HOURS PRIOR TO WORK IN THE VICINITY OF THEIR UNDERGROUND LINES.

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THE APPROVED CONSTRUCTION PLANS IS BASED ON THE MOST CURRENT AVAILABLE RECORDS, AND AT THE TIMES FROM MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION PROVIDED IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CITY ASSUMES NO RESPONSIBILITY AS TO THE ACCURACY OR DEPTHS OF THE UNDERGROUND FACILITIES AS SHOWN ON THE PLANS. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST SEVEN DAYS IN ADVANCE OF ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES.

THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE RELOCATION OF ANY UTILITIES AS REQUIRED BY THE APPROVED CONSTRUCTION PLAN, OR THAT MAY BE DETERMINED BY ADDITIONAL FIELD INVESTIGATION TO BE IN CONFLICT WITH THE CONSTRUCTION OF NEW INFRASTRUCTURE AS SHOWN ON THE PLANS, AND TO COORDINATE THESE EFFORTS WITH THE OWNER OF THE AFFECTED UTILITY.

WHERE POTENTIAL GRADE CONFLICTS MIGHT OCCUR WITH EXISTING UTILITIES, THE CONTRACTOR WILL BE REQUIRED TO UNCOVER SUCH UTILITIES IN ADVANCE OF INSTALLING NEW UTILITIES IN ORDER FOR THE ENGINEER OF RECORD TO DETERMINE THE EXACT ELEVATIONS, AND TO MAKE ANY NECESSARY PLAN ADJUSTMENTS.

ALL MATERIALS INCLUDING BUT NOT LIMITED TO PIPING, APPURTENANCES, MANHOLES, GRAVEL, ETC. UTILIZED FOR THE CONSTRUCTION OF NEW PUBLIC INFRASTRUCTURE MUST BE APPROVED BY THE PUBLIC WORKS DEPARTMENT. IN ADDITION, ALL CONCRETE PIPE, STORM, AND SANITARY SEWER STRUCTURES WILL BE INSPECTED BY THE CITY OF COLUMBUS AT THE MANUFACTURING PLANT LOCATION FOR CONFORMANCE TO SPECIFICATIONS. PIPE OR STRUCTURES WITHOUT PROPER APPROVAL AS IDENTIFIED BY BEARING THE APPROVAL STAMP, SHALL NOT BE PERMITTED FOR INSTALLATION IN THE CITY OF DELAWARE.

THE CONTRACTOR SHALL REPAIR OR REPLACE ANY PROPERTY, UTILITY, STRUCTURE, OR OTHER INFRASTRUCTURE AT HIS EXPENSE, DAMAGED DURING THE EXECUTION OF HIS WORK TO AN EQUAL OR BETTER CONDITION THAN EXISTED PRIOR TO THE DAMAGE. ALL WORK IS TO BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER OF RECORD AND THE CITY. ANY DAMAGE TO PRIVATE UTILITIES CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY THE APPROPRIATE UTILITY COMPANY AT THE CONTRACTOR'S EXPENSE.

CARE SHALL BE EXERCISED WHEN WORKING IN THE AREA AROUND EXISTING TREES AND SHRUBS. ANY TREES OR SHRUBS NOT MARKED FOR REMOVAL THAT ARE DAMAGED BY THE CONTRACTOR WILL HAVE TO BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE OWNER.

THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND SCHEDULING OF QUALIFIED PERSONNEL FOR CONCRETE, ASPHALT, AND SOILS TESTING SERVICES AS REQUIRED BY THE PUBLIC WORKS DEPARTMENT. TESTING IS TO BE PERFORMED UNDER THE DIRECT SUPERVISION OF A REGISTERED TESTING AGENCY APPROVED BY THE PUBLIC WORKS DEPARTMENT.

PROPERTY CORNER PINS OR PERMANENT SURVEY MARKERS DISTURBED DURING CONSTRUCTION SHALL BE RESET BY A REGISTERED SURVEYOR AT CONTRACTOR'S EXPENSE.

EXISTING STRUCTURES TO BE REMOVED OR DEMOLISHED REQUIRE A "DEMOLITION PERMIT" ISSUED BY THE CITY BUILDING DEPARTMENT.

THE OPEN BURNING OF SITE CLEANING DEBRIS, TRASH, ETC. IS PROHIBITED IN THE CITY. THE CONTRACTOR IS RESPONSIBLE FOR THE PROVISION AND MAINTENANCE OF A PORTABLE TOILET ON THE SITE DURING ALL PHASES OF CONSTRUCTION.

ALL EARTHWORK OPERATIONS, ESPECIALLY PAVEMENT SUB-GRADE CONSTRUCTION, SHALL BE INSPECTED BY A REGISTERED SOILS ENGINEER EMPLOYED AND PAID FOR BY THE OWNER. ADDITIONALLY, ALL FINAL GRADES SHALL BE FIELD CHECKED BY THE CONTRACTOR AND/OR SURVEYOR FOR CONFORMANCE TO CONSTRUCTION PLAN GRADES.

UTILITY TRENCHES WITHIN THE INFLUENCE OF THE ROADWAY ARE TO BE FILLED AND COMPACTED PER ITEM 912 OF THE CMS. UTILITY TRENCHES WITHIN THE RIGHT OF WAY BUT OUTSIDE THE ROADWAY INFLUENCE SHALL BE FILLED AND COMPACTED WITH SUITABLE NATIVE MATERIAL PER ITEM 911 OF THE CMS. ALL OTHER TRENCHES ARE TO BE FILLED AND COMPACTED WITH NATIVE MATERIAL TO WITHIN 95% OF THE MAXIMUM DRY DENSITY.

THE BACKFILL MATERIAL FOR ANY UTILITY TRENCH SHALL BE FREE OF LARGE BOULDERS, TREE BRANCHES, STUMPS, AND CONSTRUCTION DEBRIS. UTILITY TRENCHES THAT ARE UNDER EXISTING OR PROPOSED PAVEMENT SHALL BE REQUIRED TO HAVE BACKFILL TESTED FOR COMPACTION BY AN APPROVED TESTING FIRM.

STORM SEWERS, SANITARY SEWERS, AND WATER MAINS CONSTRUCTED IN FILL AREAS SHALL NOT BE CONSTRUCTED UNTIL AFTER COMPACTED FILL HAS BEEN INSTALLED TO PROPOSED GRADE. THE STORM SEWERS, SANITARY SEWERS, AND WATER MAINS SHALL BE INSTALLED PER SPECIFIED TRENCH INSTALLATION DETAILS.

CLEARING AND GRUBBING IS TO BE PERFORMED FROM RIGHT OF WAY LINE TO RIGHT OF WAY LINE, WITHIN ALL EASEMENTS, OR AS OTHERWISE NOTED IN THE APPROVED CONSTRUCTION PLANS. TREE CHIPPING EQUIPMENT MAY BE USED HOWEVER CHIP PILES SHALL BE STORED IN SEPARATE LOCATIONS AWAY FROM ANY AREA SUBJECT TO FURTHER CONSTRUCTION ACTIVITIES, AND SHALL NOT BE SPREAD OR DISPERSED OVER EXISTING GROUND.

TOPSOIL SHALL BE STRIPPED AND STOCKPILED SEPARATELY FROM ALL WORK AREAS, AND RESPREAD DURING FINAL GRADING OPERATIONS. FOR RESIDENTIAL DEVELOPMENTS, THE TOPSOIL SHALL NOT BE RESPREAD UNTIL SUCH TIME AS ALL BUILDING CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED ON INDIVIDUAL PROJECT PHASES.

SEEDING: ALL AREAS WITHIN THE RIGHT OF WAY DISTURBED DURING CONSTRUCTION SHALL BE SEEDED AND MULCHED WITHIN 7 DAYS FROM THE DATE WORK IN THE AREAS IS COMPLETED. SEED SHALL BE SPREAD AT THE RATE OF 14 POUNDS PER 1,000 SF AND MEET THE REQUIREMENTS OF CMS ITEM 659.09 CLASS 1 LAWN MIXTURE. A 10-20-10 COMMERCIAL FERTILIZER SHALL BE APPLIED AT A RATE OF 20 POUNDS PER 1,000 SF TO NEWLY SEEDED AREAS. SEEDING PERFORMED BETWEEN OCTOBER 30TH AND MARCH 1ST SHALL BE APPLIED AS TEMPORARY SEEDING PER CMS ITEM 207.

THE FOLLOWING TURF SEED BLEND IS REQUIRED FOR ALL PARK AREAS. SEED SHALL BE CERTIFIED, FRESH, CLEAN, POA AND BENT GRASS FREE, WITH 98% PURITY AND 85% MINIMUM GERMINATION RATE. SEED SHALL BE APPLIED AT A RATE OF 8 POUNDS PER 1,000 SF (350 POUNDS PER ACRE).

TURF TYPE MIXTURE SHALL BE TALL FESCUE (A MIXTURE OF NO LESS THAN THREE CULTIVARS BY WEIGHT) AND PERENNIAL RYEGRASS (A MIXTURE OF NO LESS THAN TWO CULTIVARS BY WEIGHT).

SEED CULTIVARS SHALL BE THE FOLLOWING OR AN APPROVED EQUAL:  
\* 30% GOODEN TURF TYPE TALL FESCUE  
\* 20% WOLVERINE TURF TYPE TALL FESCUE  
\* 20% COCHISE III TURF TYPE TALL FESCUE  
\* 15% NOBILITY PERENNIAL RYEGRASS  
\* 15% AMAZING GS PERENNIAL RYEGRASS  
\* FERTILIZER SHALL BE 10-20-10, APPLIED AT A RATE OF 20 POUNDS PER 1,000 SF. STRAW MULCH SHALL BE CLEAN OAT OR WHEAT STRAW, WELL-SEASONED BEFORE BAILING, AND FREE FROM MATURE SEED BEARING STALKS OR ROOTS OR PROHIBITIVE OR NOXIOUS WEEDS. THE STRAW MULCH SHALL BE APPLIED AT A RATE OF 2 TONS PER ACRE FOR ALL PERMANENT SEEDING.

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GENERAL NOTES

DEL -36 -11.03





**CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES**

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEM.

**REVIEW OF DRAINAGE FACILITIES**

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR, ALONG WITH LOCAL REPRESENTATIVES, SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCE SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE

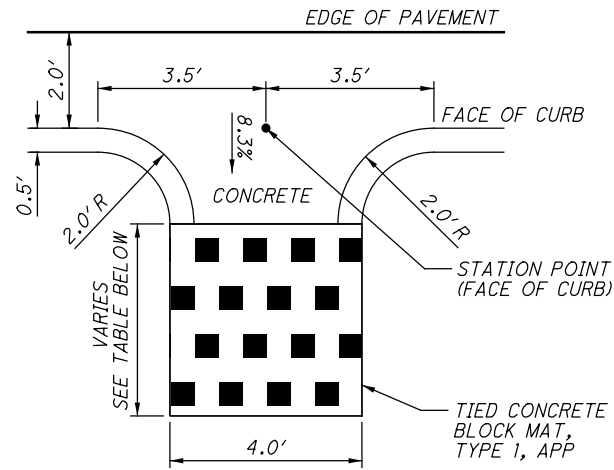
OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEMS.

**WORK LIMITS**

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

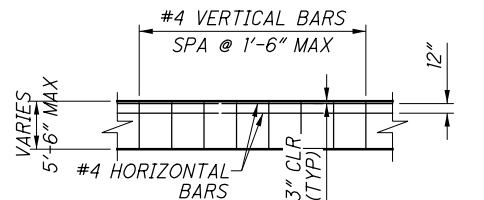
**CURB CUT DETAIL: US-36/SR-37 (SUNBURY RD)**



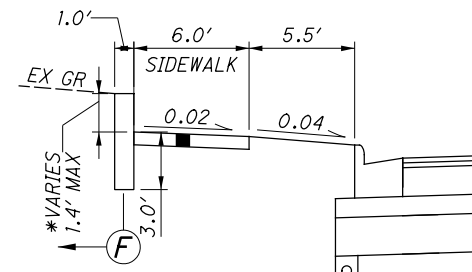
SEE THE CROSS SECTIONS FOR AN APPROXIMATE PROFILE OF THE SLOPE AT THE LOCATIONS BELOW.

STA	SIDE	LENGTH (FT)
602+10.00	LT	6
605+99.95	LT	10
608+72.94	LT	14
609+69.00	LT	5
610+97.88	LT	25
613+00.00	LT	10

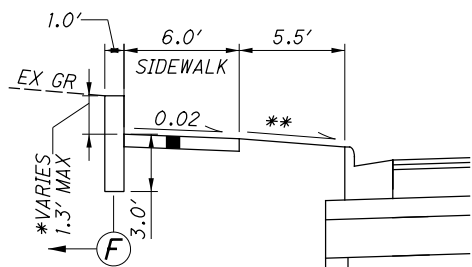
**ITEM 609 - CURB, AS PER PLAN**



**ELEVATION VARYING CURB DETAIL**

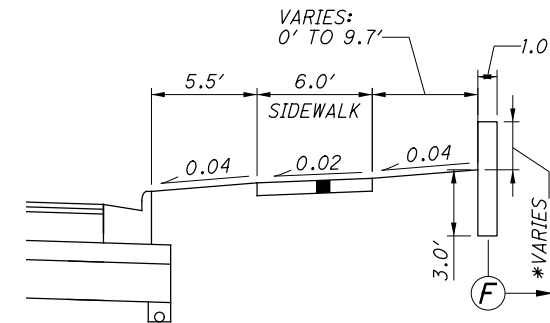


**CURB DETAIL: US-36 (WILLIAM ST)**  
STA 585+55.15 TO STA 588+50.00, LT  
\* SEE CROSS SECTIONS FOR HEIGHT



**CURB DETAIL: SR-37 (E CENTRAL AVE)**  
STA 19+90.10 TO STA 20+00.00, LT  
STA 30+00.00 TO STA 30+40.00, LT  
STA 30+65.00 TO STA 31+62.30, LT  
\* SEE CROSS SECTIONS FOR HEIGHT

**ITEM 609 - CURB, AS PER PLAN**



**CURB DETAIL: SR-521 (KILBOURNE RD)**  
STA 51+14.15 TO STA 51+80.35, RT  
STA 51+96.46 TO STA 53+40.92, RT  
\* SEE CROSS SECTIONS FOR HEIGHT

**ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING**

CONSTRUCT THE SUBGRADE AS FOLLOWS AND IN THE FOLLOWING SEQUENCE:

1. SHAPE THE SUBGRADE TO WITHIN 0.2 FEET OF THE PLAN SUBGRADE ELEVATION.
2. EXCAVATE AND REPLACE UNSUITABLE SUBGRADE BEFORE PROOF ROLLING. THE EXCAVATION LIMITS ARE SHOWN AND LABELED ON THE CROSS SECTIONS AS UNSUITABLE SUBGRADE. UNSUITABLE SUBGRADE INCLUDES UNSUITABLE SOIL (A-4B, A-2-5, A-5, A-7-5, AND SOIL WITH A LIQUID LIMIT GREATER THAN 65) AND ANY COAL, SHALE, OR ROCK WHICH NEEDS TO BE REMOVED ACCORDING TO SECTION 204.05 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS).

IF THERE IS UNSUITABLE SUBGRADE IN A SHALLOW FILL LOCATION, EXCAVATE AND REPLACE THE UNSUITABLE SUBGRADE BEFORE CONSTRUCTING THE SHALLOW FILL AND SHAPING THE SUBGRADE.

3. COMPACT THE SUBGRADE ACCORDING TO C&MS 204.03.
4. APPROXIMATE LIMITS FOR EXCAVATION OF UNSTABLE SUBGRADE ARE SHOWN AND LABELED ON THE CROSS SECTIONS AS UNSTABLE SUBGRADE. THE ENGINEER WILL IDENTIFY THE ACTUAL LIMITS OF EXCAVATION FOR UNSTABLE SUBGRADE BASED ON THE PROOF ROLLING RESULTS AND VISUAL OBSERVATIONS.

PROOF ROLL THE COMPACTED SUBGRADE ACCORDING TO C&MS 204.06.

5. EXCAVATE UNSTABLE SUBGRADE AS DIRECTED BY THE ENGINEER AND STABILIZE BY REPLACING WITH THE SPECIFIED MATERIALS ACCORDING TO C&MS 204.07. EXCAVATIONS WILL EXTEND 18 INCHES BEYOND THE EDGE OF THE SURFACE OF THE PAVEMENT, PAVED SHOULDERS, OR PAVED MEDIANS.

6. PROOF ROLL THE STABILIZED AREAS ACCORDING TO C&MS 204.06 TO VERIFY STABILITY.

7. FINE GRADE THE SUBGRADE TO THE SPECIFIED GRADE.

THE QUANTITIES FOR EXCAVATING THE UNSUITABLE SUBGRADE AND UNSTABLE SUBGRADE ARE BOTH PAID UNDER ITEM 204, EXCAVATION OF SUBGRADE.

**ITEM SPECIAL - MAILBOX SUPPORT**

THIS WORK SHALL CONSIST OF FURNISHING AND ERECTING MAILBOX SUPPORTS AND ANY ASSOCIATED MOUNTING HARDWARE IN ACCORDANCE WITH PLAN DETAILS AND ATTACHING AN OWNER-SUPPLIED MAILBOX AT LOCATIONS SPECIFIED IN THE PLAN, OR OTHERWISE ESTABLISHED BY THE ENGINEER.

WOOD POSTS SHALL BE NOMINAL 4 INCHES BY 4 INCHES SQUARE OR 4.5 INCHES DIAMETER ROUND AND CONFORM TO 710.14.

STEEL POSTS SHALL BE NOMINAL PIPE SIZE 2 INCHES I.D. AND CONFORM TO AASHTO M 181.

ALL HARDWARE INCLUDING BUT NOT LIMITED TO PLATES, SCREWS, BOLTS, AND ETC. SHALL BE COMMERCIAL-GRADE GALVANIZED STEEL.

POSTS SHALL BE SET PER THE FIRST PARAGRAPH OF 606.03 AND SHALL IN NO INSTANCE BE ENCASED IN CONCRETE.

SUPPORT HARDWARE SHALL ACCOMMODATE EITHER A SINGLE OR A DOUBLE MAILBOX INSTALLATION, AND NO MORE THAN TWO BOXES MAY BE MOUNTED ON A SINGLE POST.

THE MAILBOX SHALL BE SECURELY AND NEATLY ATTACHED BY THE CONTRACTOR TO THE NEW SUPPORT. THE CONTRACTOR SHALL FURNISH ALL NECESSARY ATTACHMENT HARDWARE (NUTS, BOLTS, PLATES, SPACERS, AND WASHERS) AS NECESSARY TO ACCOMMODATE THE COMPLETE INSTALLATION.

IN THE ABSENCE OF A NEW BOX SUPPLIED BY THE OWNER, THE CONTRACTOR SHALL SALVAGE THE EXISTING BOX AND PLACE IT ON THE NEW SUPPORT. DUE CARE SHALL BE EXERCISED IN SUCH AN OPERATION, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING ANY BOX DAMAGED BY IMPROPER HANDLING ON HIS PART, AS JUDGED AND DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE LOCAL POSTMASTER REGARDING THE TIMING OF THE MOVEMENT OF ANY MAILBOX TO A NEW LOCATION.

PAYMENT UNDER THIS ITEM SHALL BE LIMITED TO FINAL PERMANENT INSTALLATIONS. TEMPORARY INSTALLATIONS SHALL BE IN ACCORDANCE WITH 107.10. HOWEVER, THE SAME MATERIAL AND SIZE LIMITATIONS AS FOR PERMANENT INSTALLATIONS SHALL APPLY.

MAILBOX SUPPORTS, COMPLETE IN PLACE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH, FOR ITEM SPECIAL MAILBOX SUPPORT SYSTEM, (SINGLE) (DOUBLE).

**CONSTRUCTION NOISE**

ACTIVITIES AND LAND USE ADJACENT TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION NOISE. IN ORDER TO MINIMIZE ANY ADVERSE CONSTRUCTION NOISE IMPACTS, DO NOT OPERATE POWER-OPERATED CONSTRUCTION-TYPE DEVICES BETWEEN THE HOURS OF 9:00 P.M. AND 7:00 A.M.. IN ADDITION, DO NOT OPERATE AT ANY TIME ANY DEVICE IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

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GENERAL NOTES

DEL-36-11.03

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**ITEM 614 - MAINTAINING TRAFFIC**

THIS PROJECT WIDENS AND IMPROVES US 36 BETWEEN FOLEY STREET ON THE WEST AND SR 521 ON THE EAST; SR 37 BETWEEN PARKER STREET AND US 36; SR 521 NORTH OF US 36. IMPACTED SIDE STREETS ARE ALSO INCLUDED IN THE PROJECT. THE EXISTING RAILROAD BRIDGE THAT TRANSECTS THE PROJECT IS REPLACED WITH A LONGER SPAN STRUCTURE BY USE OF A TEMPORARY TRACK SHOOFLY AND BRIDGE. A MINIMUM OF 1 LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES, BY USE OF THE EXISTING PAVEMENT, THE COMPLETED PAVEMENT, AND ITEM 615 PAVEMENT FOR MAINTAINING TRAFFIC.

BEFORE WORK BEGINS, THE CONTRACTOR SHALL SUBMIT TO THE PROJECT ENGINEER THE NAMES AND TELEPHONE NUMBERS OF PERSONS WHO CAN BE CONTACTED 24 HOURS A DAY BY THE CITY OF DELAWARE AND ALL INTERESTED POLICE AGENCIES. THESE PERSONS SHALL BE RESPONSIBLE FOR PLACING OR REPLACING NECESSARY TRAFFIC CONTROL DEVICES TO MAINTAIN THE TRAVELED PAVEMENT SAFELY.

NO WORK SHALL BE PERFORMED AND ALL AVAILABLE LANES SHALL BE OPEN TO TRAFFIC DURING THE FOLLOWING DESIGNATED HOLIDAYS OR EVENTS:

CHRISTMAS           FOURTH OF JULY  
NEW YEAR'S         LABOR DAY  
MEMORIAL DAY      THANKSGIVING  
DELAWARE COUNTY FAIR (6AM TO 10PM DAILY)  
BROWN JUG DAY (THURSDAY OF COUNTY FAIR WEEK)

THE PERIOD OF TIME THAT THE LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY OR EVENT FALLS. THE FOLLOWING SCHEDULE SHALL BE USED TO DETERMINE THIS PERIOD:

DAY OF HOLIDAY	TIME ALL LANES MUST BE OPEN TO TRAFFIC
SUNDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY
MONDAY	12:00N FRIDAY THROUGH 6:00 AM TUESDAY
TUESDAY	12:00N MONDAY THROUGH 6:00 AM WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 6:00 AM THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 6:00 AM FRIDAY
THURSDAY (THANKSGIVING)	5:00 AM WEDNESDAY THROUGH 6:00 AM MONDAY
FRIDAY	12:00N THURSDAY THROUGH 6:00 AM MONDAY
SATURDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE PROJECT ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE PROJECT ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

NOTICE OF CLOSURE SIGNS (W20-H13) SHALL BE ERECTED BY THE CONTRACTOR PRIOR TO THE SCHEDULED ROAD CLOSURE IN ACCORDANCE WITH THE NOTICE OF CLOSURE TIME TABLE BELOW. (AT THE APPROVAL OF THE PROJECT ENGINEER, PORTABLE CHANGEABLE MESSAGE SIGNS MAY BE USED IN LIEU OF THE STANDARD FLATSHEET SIGN FOR CLOSURE DURATIONS OF LESS THAN 1 WEEK.)

THE SIGNS SHALL BE ERECTED ON THE RIGHT-HAND SIDE OF THE ROAD/RAMP FACING TRAFFIC. THEY SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS. ON ROADWAYS THEY SHOULD BE ERECTED AT OR NEAR THE POINT OF CLOSURE.

**ITEM 614 - MAINTAINING TRAFFIC (CONTINUED)**

**NOTICE OF CLOSURE SIGN TIME TABLE**

ITEM	DURATION OF CLOSURE	SIGN DISPLAYED TO PUBLIC
RAMPS & ROAD CLOSURES	>= 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	> 12 HOURS & < 2 WEEKS	7 CALENDAR DAYS PRIOR TO CLOSURE
	<= 12 HOURS	2 BUSINESS DAYS PRIOR TO CLOSURE

THE SIGN SHALL DISPLAY THE DATE OF THE CLOSURE IN MMM-DD FORMAT AND THE NUMBER OF DAYS OF THE CLOSURE. THE LAST LINE OF THE W20-H13 SIGN LISTS A PHONE NUMBER WHICH A MOTORIST MAY CALL FOR ADDITIONAL INFORMATION. THIS IS TO BE A SPECIFIC OFFICE WITHIN THE CITY OF DELAWARE RATHER THAN THE GENERAL SWITCHBOARD NUMBER.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN STANDARD 48 X 30 INCH ROAD CLOSED SIGNS, SIGN SUPPORTS, BARRICADES AND LIGHTS, AS DETAILED IN SCD MT-101.60 AT THE FOLLOWING LOCATIONS DURING PERIODS IN WHICH THE AFFECTED ROADS ARE CLOSED TO TRAFFIC.

EAST CENTRAL AVE JUST EAST OF LAKE STREET (ROAD CLOSED TO THROUGH TRAFFIC)

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN SIGNS AND SIGN SUPPORTS, AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

THE COSTS INCURRED TO REMOVE ANY PAVEMENT MARKINGS IN WHICH THE REMOVAL COST IS NOT ALREADY INCLUDED IN ITEM'S BID PRICE, SHALL BE INCLUDED IN THE LUMP SUM COST OF ITEM 614, MAINTAINING TRAFFIC.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH C&MS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

**NORFOLK SOUTHERN NOTICE**

ALL WORK ON, OVER, UNDER, OR ADJACENT TO NORFOLK SOUTHERN (NS) RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE TO NORFOLK SOUTHERN "SPECIAL PROVISIONS FOR THE PROTECTION OF RAILWAY INTERESTS" (NS SPECIAL PROVISIONS)

**SEQUENCE OF CONSTRUCTION**

**PHASE 1**

REFER TO BRIDGE PLANS FOR DETAILS REGARDING THE TEMPORARY AND PERMANENT RAILROAD STRUCTURES.

SHORT TERM ROADWAY CLOSURES TO REMOVE/SET BRIDGE BEAMS ARE EXPECTED. FOR THIS TASK, SHORT TERM ROADWAY CLOSURE IS DEFINED AS 15 MINUTES PER CLOSURE EVENT. THE CONTRACTOR IS LIMITED TO WEEKEND EVENINGS FOR THIS WORK. (USE MT-99.60 WITH THE HOURS OF MIDNIGHT TO 5AM)

**PHASE 1A**

WORK TO BE COMPLETED IN THIS PHASE IS AS FOLLOWS:

- 1. CONSTRUCT TEMPORARY RAILROAD STRUCTURE

MAINTAIN TRAFFIC AS FOLLOWS:

- 1. MAINTAIN EXISTING 2-WAY, 2-LANE OPERATION ALONG US 36/SR 37 TRAFFIC USING THE EXISTING ROADWAY

**PHASE 1B**

WORK TO BE COMPLETED IN THIS PHASE IS AS FOLLOWS:

- 1. CUT AND THROW TEMPORARY TRACK SHOOFLY AND STRUCTURE
- 2. PARTIALLY REMOVE EXISTING RAILROAD STRUCTURE

MAINTAIN TRAFFIC AS FOLLOWS:

- 1. MAINTAIN EXISTING US 36/SR 37 TRAFFIC ON EXISTING ROADWAY. IF NECESSARY, USE FLAGGER CONTROL DURING WORK HOURS

**PHASE 1C**

WORK TO BE COMPLETED IN THIS PHASE IS AS FOLLOWS:

- 1. START CONSTRUCTION OF PERMANENT RAILROAD STRUCTURE
- 2. CONSTRUCT TEMPORARY PAVEMENT FOR MAINTAINING TRAFFIC FOR USE IN PHASE 2 AT THE FOLLOWING LOCATIONS:
  - A. STA. 585+53 TO STA. 590+12
  - B. STA. 590+44 TO STA. 592+41
  - C. STA. 593+70 TO STA. 595+01
  - D. STA. 596+47 TO STA. 597+21
  - E. STA. 613+92 TO STA. 614+22
- 3. CONSTRUCT CROSS OVER ALONG US 36/SR 37 EAST OF SR 521 INTERSECTION FOR USE IN SUBSEQUENT MOT PHASES

MAINTAIN TRAFFIC AS FOLLOWS:

- 1. USE SCD MT-95.30, MT-101.90 DURING THE HOURS OF 9PM TO 6AM (OFF-PEAK HOURS) TO CONSTRUCT CROSS OVER AND TEMPORARY PAVEMENT
- 2. PHASE 2 CAN BEGIN ONCE TEMPORARY PAVEMENT CONSTRUCTION IS COMPLETE

**PHASE 1 CONCURRENT WORK**

DURING THE ABOVE PHASE 1 WORK, ROADWAY IMPROVEMENTS THAT DO NOT INTERFERE WITH THE BRIDGE CONSTRUCTION/REMOVAL CAN COMMENCE. THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT ENGINEER ON THE SCOPE AND TIMING OF OUT-OF-SEQUENCE ROADWAY IMPROVEMENTS.

**RESTRICTIONS**

CONCURRENT ROADWAY WORK SHALL NOT INCLUDE ANY IMPROVEMENTS UNDER, WEST OF, OR IN THE VICINITY OF THE PHASE 1 RAILROAD STRUCTURE(S) WORK.

REFER TO THE "ALTERNATIVE MAINTENANCE OF TRAFFIC PLANS" PLAN NOTE IF ALTERNATIVE PLAN SHEETS ARE REQUIRED OF THE CONTRACTOR BY THE PROJECT ENGINEER.

**SEQUENCE OF CONSTRUCTION (CONTINUED)**

**PHASE 2**

WORK TO BE COMPLETED IN THIS PHASE IS AS FOLLOWS:

- 1. CONTINUE RAILROAD BRIDGE IMPROVEMENTS
  - 2. IMPROVE SOUTH SIDE OF US 36 BETWEEN EAST AND WEST PROJECT LIMITS.
  - 3. CONSTRUCT SOUTH SIDE INTERSECTION IMPROVEMENTS AT E. WILLIAM STREET AND EAST POINT CROSSING. PLANNED IMPROVEMENTS REQUIRE SHORT TERM CLOSURES OF THE SOUTH LEG OF INTERSECTION THROUGH USE OF NIGHT-TIME (9PM TO 6AM) AND WEEKEND CLOSURES (9PM FRIDAY TO 6AM MONDAY). CONTRACTOR SHALL COORDINATE ALTERNATE ACCESS WITH AFFECTED PROPERTY OWNERS FOR THE ENTIRETY OF CONSTRUCTION OF SOUTH LEG.
  - 4. CONSTRUCT SOUTH SIDE INTERSECTION IMPROVEMENTS AT US 36/SR 37, SR 521 AND MILL RUN CROSSING INTERSECTION.
  - 5. CONSTRUCT DOWNSTREAM DRAINAGE
  - 6. CONSTRUCT SOUTH HALF OF BOX CULVERT AT STA. 607+35+
  - 7. CONSTRUCT SR 521 TEMPORARY PAVEMENT FOR USE IN PHASE 2A
- MAINTAIN TRAFFIC AS FOLLOWS:

- 1. MODIFY AND OPERATE TEMPORARY TRAFFIC SIGNALS AT THE FOLLOWING LOCATIONS:
  - A. E. WILLIAM STREET AND EAST POINT CROSSING
  - B. US 36/SR 37 AND SR 521
- 2. SHIFT TWO-WAY TRAFFIC TO NORTH SIDE OF US 36/SR 37
- 3. RAIL TRAFFIC ON TEMPORARY BRIDGE STRUCTURE

**PHASE 2A AND PHASE 2B**

WORK TO BE COMPLETED IN THESE PHASES IS AS FOLLOWS:

PHASE 2A  
CONSTRUCT SOUTHWEST QUADRANT OF US 36/SR 37, SR 521 AND MILL RUN CROSSING INTERSECTION

PHASE 2B  
CONSTRUCT SOUTHEAST QUADRANT OF US 36/SR 37, SR 521 AND MILL RUN CROSSING INTERSECTION

MAINTAIN TRAFFIC AS FOLLOWS:

- 1. USE PART-WIDTH METHODS TO SHIFT SR 521 AND MILL RUN CROSSING TRAFFIC FOR SOUTH SIDE INTERSECTION IMPROVEMENTS
- 2. CONTRACTOR SHALL COORDINATE FULL-TIME ACCESS TO TEMPORARY LOCATION OF FIRE STATION ALONG THE SOUTH SIDE OF US 36/SR 37 WEST OF SR 521.
- 3. IMPLEMENT TURN RESTRICTIONS AND DETOURS AT THE INTERSECTION.
  - A. PHASE 2A
    - NO NORTHBOUND LEFT TURNS
    - NO EASTBOUND RIGHT TURNS
  - B. PHASE 2B
    - NO WESTBOUND LEFT TURNS
    - NO NORTHBOUND RIGHT TURNS

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**SEQUENCE OF CONSTRUCTION (CONTINUED)**

**PHASE 3 (OVERVIEW)**

WORK TO BE COMPLETED IN THIS PHASE IS AS FOLLOWS:

1. IMPROVE NORTH SIDE OF US 36 BETWEEN EAST AND WEST PROJECT LIMITS.
2. IMPROVE E CENTRAL AVENUE FROM US 36 TO EAST STREET
3. COMPLETE PROPOSED RAILROAD STRUCTURE/REMOVE TEMPORARY RAILROAD STRUCTURE
4. CONSTRUCT SHOULDER IMPROVEMENTS ALONG SR 521
5. CONSTRUCT UPSTREAM DRAINAGE
6. CONSTRUCT NORTH HALF OF BOX CULVERT AT STA. 607+35+

MAINTAIN TRAFFIC AS FOLLOWS:

1. MODIFY AND OPERATE TEMPORARY TRAFFIC SIGNALS AT THE FOLLOWING LOCATIONS:
  - A. E WILLIAM STREET AND EAST POINT CROSSING
  - B. US 36/SR 37 & SR 521
  - C. E CENTRAL AVENUE AND LAKE STREET (US 42)
2. SHIFT TWO-WAY TRAFFIC TO SOUTH SIDE OF US 36/SR 37 ONTO NEW PAVEMENT

**PHASE 3.1 (CONSTRUCTION DURATION = 30 DAYS)**

WORK TO BE COMPLETED THIS PHASE:

1. CONSTRUCT NORTH SIDE E. WILLIAM STREET IMPROVEMENTS BETWEEN PROJECT LIMIT AND STA. 594+40

MAINTAIN TRAFFIC AS FOLLOWS:

1. IMPLEMENT THROUGH TRAFFIC DETOUR FOR E. CENTRAL AVENUE TRAFFIC
2. SHIFT TWO-WAY TRAFFIC TO SOUTH SIDE OF US 36/SR 37 ONTO NEW PAVEMENT

**PHASE 3.2 (CONSTRUCTION DURATION = 45 DAYS)**

WORK TO BE COMPLETED THIS PHASE:

1. CONSTRUCT E. CENTRAL AVENUE IMPROVEMENTS BETWEEN PROJECT LIMIT AND E. WILLIAM STREET

MAINTAIN TRAFFIC AS FOLLOWS:

1. IMPLEMENT FULL CLOSURE DETOUR FOR E. CENTRAL AVENUE. MAINTAIN ACCESS TO AFFECTED PROPERTIES

UPON COMPLETION OF PHASE 3.2, OPEN E. CENTRAL AVENUE TO TWO-WAY TRAFFIC. MAINTAIN WESTBOUND E. CENTRAL AVENUE DETOUR. COORDINATE ALL ROADWAY REOPENINGS WITH THE PROJECT ENGINEER.

**PHASE 3.3 (CONTINUATION OF PHASE 3)**

**PHASE 3A AND PHASE 3B**

WORK TO BE COMPLETED IN THESE PHASES IS AS FOLLOWS:

PHASE 3A  
CONSTRUCT NORTHWEST QUADRANT OF US 36/SR 37 & SR 521 INTERSECTION AND WEST SIDE SR 521 IMPROVEMENTS. CONTRACTOR SHALL REFER TO TRENCH FOR WIDENING AND OVERNIGHT TRENCH CLOSING NOTES WHEN WORKING NORTH OF STA. 52+30

**SEQUENCE OF CONSTRUCTION (CONTINUED)**

**PHASE 3B**

CONSTRUCT NORTHEAST QUADRANT OF US 36/SR 37 & SR 521 INTERSECTION AND EAST SIDE SR 521 IMPROVEMENTS. CONTRACTOR SHALL REFER TO TRENCH FOR WIDENING AND OVERNIGHT TRENCH CLOSING NOTES WHEN WORKING NORTH OF STA. 51+60

MAINTAIN TRAFFIC AS FOLLOWS:

1. USE PART-WIDTH METHODS TO SHIFT SR 521 AND MILL RUN CROSSING TRAFFIC FOR NORTH SIDE INTERSECTION IMPROVEMENTS
2. IMPLEMENT TURN RESTRICTIONS AND DETOURS AT THE INTERSECTION
  - A. PHASE 3A  
NO EASTBOUND LEFT TURNS  
NO SOUTHBOUND RIGHT TURNS
  - B. PHASE 3B  
NO SOUTHBOUND LEFT TURNS  
NO WESTBOUND RIGHT TURNS

**FINAL**

WORK TO BE COMPLETED IN THIS PHASE IS AS FOLLOWS:

1. COMPLETE FINAL PROJECT IMPROVEMENTS, INCLUDING SHARED USE PATHS/SIDEWALKS IN THE VICINITY OF REMOVED TEMPORARY RAILROAD BRIDGE.
2. REMOVE CROSS OVER ALONG US 36/SR 37 EAST OF SR 521 CONTRACTOR SHALL RESTORE MEDIAN GRADING TO ORIGINAL CONDITION PROVIDING POSITIVE DRAINAGE.
3. MILL AND RESURFACING AND/OR PLACE FINAL PAVEMENT COURSE(S) THROUGHOUT PROJECT LIMITS
4. PLACE FINAL PAVEMENT MARKINGS AND SIGNING THROUGHOUT PROJECT LIMITS

MAINTAIN TRAFFIC AS FOLLOWS:

1. USE OMTCD, ODOT STANDARD CONSTRUCTION DRAWINGS TO COMPLETE WORK

**PAVEMENT MARKING NOTE**

QUANTITIES OF WORK ZONE PAVEMENT MARKINGS ARE PROVIDED IN THE MOT SUBSUMMARIES (AS 'FINAL MARKINGS') FOR THE CONTRACTOR TO PLACE FINAL TRAFFIC CONTROL LAYOUT ON THE COMPLETED ROADWAY SECTION(S) PRIOR TO THE FINAL MOT PHASE / FINAL SURFACE COURSE OF PAVEMENT.

**ALTERNATE MAINTENANCE OF TRAFFIC PLANS**

IF THE CONTRACTOR SO ELECTS, HE MAY SUBMIT ALTERNATE METHOD FOR THE MAINTENANCE OF TRAFFIC, PROVIDED THE INTENT OF THE ABOVE PROVISIONS IS FOLLOWED AND NO ADDITIONAL INCONVENIENCE TO THE TRAVELING PUBLIC RESULTS THERE FROM. NO ALTERNATE PLANS SHALL BE PLACED IN EFFECT UNTIL APPROVAL HAS BEEN GRANTED IN WRITING BY THE PROJECT ENGINEER.

**PLACEMENT OF ASPHALT CONCRETE**

TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES EXCEPT THAT ONE-WAY TRAFFIC WILL BE PERMITTED FOR MINIMUM PERIODS OF TIME CONSISTENT WITH THE REQUIREMENTS OF THE SPECIFICATIONS FOR PROTECTION OF COMPLETED ASPHALT CONCRETE COURSES.

**TRENCH FOR WIDENING**

TRENCH EXCAVATION FOR BASE WIDENING SHALL BE ONLY ON ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS OR BARRICADES AT ALL TIMES. PLACEMENT OF PROPOSED SUBBASE AND BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL OF THE PROJECT ENGINEER.

**OVERNIGHT TRENCH CLOSING**

THE BASE WIDENING SHALL BE COMPLETED TO A DEPTH OF NO MORE THAN 1.5 INCHES BELOW THE EXISTING PAVEMENT BY THE END OF EACH WORK DAY. NO TRENCH SHALL BE LEFT OPEN OVERNIGHT EXCEPT FOR A SHORT LENGTH (25 FEET OR LESS) OF A WORK SECTION AT THE END OF THE TRENCH. IN CASE WORK MUST BE SUSPENDED BECAUSE OF INCLEMENT WEATHER OR OTHER REASONS, THE TRENCH FOR THE UNCOMPLETED BASE WIDENING SHALL BE BACKFILLED AT THE DIRECTION OF THE PROJECT ENGINEER.

**LOCAL ACCESS**

INGRESS AND EGRESS SHALL BE MAINTAINED TO ALL RESIDENTIAL AND COMMERCIAL PROPERTIES. DRIVEWAY CLOSURE MAY BE NECESSARY TO ENABLE WORK ON OR IN FRONT OF A DRIVE. THE CONTRACTOR WILL BE RESPONSIBLE FOR NOTIFYING OWNERS, RESIDENTS, OR BUSINESS OPERATORS IN WRITING AT LEAST 48 HOURS BUT NOT MORE THAN 72 HOURS PRIOR TO CLOSURE. THE PROJECT ENGINEER SHALL BE GIVEN A LIST OF THE PERSONS THAT WERE GIVEN NOTICES WITH THE DATE OF NOTICE INCLUDED. CLOSURE IS PERMITTED ONLY DURING WORK HOURS AND ACCESS MUST BE RETURNED AT THE END OF EACH WORKING DAY. PROPERTIES WITH MULTIPLE DRIVES MAY HAVE ONE DRIVE CLOSED AT A TIME WHILE WORK IS PERFORMED IN THE AREA OF THE CLOSED DRIVE.

ACCESS TO ALL BUSINESSES SHALL BE MAINTAINED AT A MINIMUM OF RIGHT-IN RIGHT-OUT MOVEMENTS.

INDIVIDUAL DRIVE CLOSURES SHALL BE KEPT TO THE MINIMUM TIME NEEDED FOR CONSTRUCTION ACTIVITIES. EVERY EFFORT MUST BE MADE TO ACCOMMODATE THE OWNER'S NEED FOR ACCESS.

ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY TO MAINTAIN REQUIRED ACCESS TO PROPERTIES SHALL BE INCLUDED IN THE LUMP SUM ITEM 614 - MAINTAINING TRAFFIC.

**EARTHWORK FOR MAINTAINING TRAFFIC**

THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED IN THE PLAN FOR INFORMATION ONLY.

EXCAVATION FOR MAINTAINING TRAFFIC 254 CU. YD.  
EMBANKMENT FOR MAINTAINING TRAFFIC 118 CU. YD.

WHEN UNDERCUTS ARE NECESSARY FOR MAINLINE PAVEMENT OR EMBANKMENT CONSTRUCTION, EVALUATE THE NEED FOR TEMPORARY ROAD UNDERCUTS IF WITHIN A CLOSE PROXIMITY TO THE MAINLINE UNDERCUTS. A GEOTECHNICAL EVALUATION SHOULD BE CONSIDERED TO DETERMINE IF THE EXISTING SOIL CONDITIONS ARE ADEQUATE TO SUPPORT THE TEMPORARY ROAD. ADDITIONAL SOIL BORINGS ALONG THE TEMPORARY ROAD ARE NOT NORMALLY REQUIRED.

**ITEM 614, WORK ZONE IMPACT ATTENUATOR FOR 24" WIDE HAZARDS (BIDIRECTIONAL)**

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING A NON-GATING IMPACT ATTENUATOR. FURNISH AN IMPACT ATTENUATOR FROM THE OFFICE OF ROADWAY ENGINEERING'S APPROVED LIST FOR WORK ZONE IMPACT ATTENUATORS, FROM THE ROADWAY STANDARDS APPROVED PRODUCTS WEB PAGE.

INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE CONTRACTOR SHALL REPAIR OR REPLACE A DAMAGED UNIT WITHIN 24 HOURS OF A DAMAGING IMPACT.

WHEN BIDIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS.

WHEN GATING IMPACT ATTENUATORS ARE DESIRED, THE CONTRACTOR SHALL SUBMIT DOCUMENTATION TO THE PROJECT ENGINEER FOR ACCEPTANCE.

THE COST FOR THE ADDITIONAL BARRIER REQUIRED FOR A GATING IMPACT ATTENUATOR SHALL BE INCLUDED IN THE COST OF THE GATING IMPACT ATTENUATOR.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT AND MAINTAIN A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS, TRANSITIONS, LEVELING PADS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

**DUST CONTROL**

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE PROJECT ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616, WATER 183 M. GAL.

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**DELINEATION OF PORTABLE AND PERMANENT BARRIER**

BARRIER REFLECTORS AND OBJECT MARKERS SHALL BE INSTALLED ON ALL PORTABLE BARRIER (PB) USED FOR TRAFFIC CONTROL; AND, ON PERMANENT CONCRETE BARRIER (INCLUDING BRIDGE PARAPETS) LOCATED WITHIN 5 FEET OF THE EDGE OF THE ADJACENT TRAVEL LANE.

BARRIER REFLECTORS SHALL CONFORM TO C&MS 626, EXCEPT THAT THE SPACING SHALL BE AS PER TRAFFIC SCD MT-101.70. OBJECT MARKERS AND THEIR INSTALLATION SHALL CONFORM TO C&MS 614.03 AND SCD MT-101.70. WHEN THE PB CONTAINS GLARE SCREEN, ONE SET OF THREE VERTICAL STRIPES OF SHEETING SHALL BE CONSIDERED EQUIVALENT TO AN OBJECT MARKER, ONE-WAY.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE PLANS AND CARRIED TO THE GENERAL SUMMARY:

ITEM 614, BARRIER REFLECTOR, TYPE 1 (ONE-WAY) 166 EACH  
 ITEM 614, OBJECT MARKER, ONE-WAY 166 EACH

PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIAL, LABOR, INCIDENTALS AND EQUIPMENT NECESSARY FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING EACH OF THE ABOVE ITEMS.

**NOTIFICATION OF TRAFFIC RESTRICTIONS**

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITTEN NOTIFICATION IS SUBMITTED IN A TIMELY MANNER TO ALLOW THE PROJECT ENGINEER TO MEET THE REQUIRED TIME FRAMES SET FORTH IN THE TABLE BELOW TO INFORM THE SPECIAL HAULING PERMITS SECTION (HAULING.PERMITS@DOT.OHIO.GOV) AND THE DISTRICT PUBLIC INFORMATION OFFICE (PIO) (d06.pio@dot.ohio.gov) THIS NOTIFICATION SHALL BE RECEIVED BY THE PROJECT ENGINEER PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE SIGNS OR MESSAGE BOARDS.

INFORMATION SHOULD INCLUDE, BUT IS NOT LIMITED TO, ALL CONSTRUCTION ACTIVITIES THAT IMPACT OR INTERFERE WITH TRAFFIC AND SHALL LIST THE SPECIFIC LOCATION, TYPE OF WORK, ROAD STATUS, DATE AND TIME OF RESTRICTION, DURATION OF RESTRICTION, NUMBER OF LANES MAINTAINED, NUMBER OF LANES CLOSED, MINIMUM VERTICAL CLEARANCE, MINIMUM WIDTH OF DRIVABLE PAVEMENT, DETOUR ROUTES, IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

NOTIFICATION TIME TABLE

ITEM	DURATION OF CLOSURE	NOTICE DUE TO PERMITS & PIO
ROAD CLOSURES	>= 2 WEEKS	21 CALENDAR DAYS PRIOR TO CLOSURE
	> 12 HOURS & < 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	<= 12 HOURS	4 BUSINESS DAYS PRIOR TO CLOSURE
LANE CLOSURES & RESTRICTIONS	>= 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	< 2 WEEKS	5 BUSINESS DAYS PRIOR TO CLOSURE
START OF CONSTRUCTION & TRAFFIC PATTERN CHANGES	N/A	14 CALENDAR DAYS PRIOR TO IMPLEMENTATION

ANY UNFORESEEN CONDITIONS NOT SPECIFIED IN THE PLANS REQUIRING TRAFFIC RESTRICTIONS SHALL ALSO BE REPORTED TO THE PROJECT ENGINEER USING THE NOTIFICATION TIME TABLE.

**PROJECT INCENTIVES/DISINCENTIVES**

DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AS DETAILED IN THE PLANS AND PROJECT DOCUMENTS. ANY LANE CLOSURES AND RESTRICTIONS OUTSIDE OF WHAT IS DETAILED IN THE PLANS SHALL NOT BE IMPLEMENTED WITHOUT THE APPROVAL OF THE PROJECT ENGINEER.

ALL LANE CLOSURE SCHEDULES, INCLUDING THOSE DETAILED IN THE PLANS, SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR REVIEW AND APPROVAL. UNLESS OTHERWISE ALLOWED BY THE PROJECT ENGINEER, ALL LANE CLOSURES AND/OR RESTRICTIONS SHALL FOLLOW THE NOTIFICATION TIME TABLE IN THE "NOTIFICATION OF TRAFFIC RESTRICTIONS" NOTE.

INCENTIVES/DISINCENTIVES SHALL BE ASSESSED PER THE BELOW SCHEDULE:

FULL CLOSURE OF E. CENTRAL AVENUE (PHASE 3.2):  
 (DURATION = 45 DAYS)  
 INCENTIVE OF \$2000.00 PER DAY FOR EACH DAY OF EARLY COMPLETION OF REQUIRED WORK WITH ROADWAY OPEN TO TRAFFIC. (MAXIMUM INCENTIVE SHALL BE \$30,000.00)

DISINCENTIVE OF \$5000.00 PER DAY FOR EACH DAY BEYOND THE ABOVE DURATION WHERE THE CLOSURE IS STILL IN PLACE. (THERE IS NO MAXIMUM LIMIT TO DISINCENTIVE AMOUNT)

CONTRACTOR SHALL COMPLETE WORK REQUIRED TO OPEN ALL LANES AND WITH ALL PROJECT TRAFFIC SIGNALS COMPLETE AND IN OPERATION ON OR BEFORE SEPTEMBER 15, 2025. DISINCENTIVE OF \$5000.00 PER DAY FOR EACH DAY BEYOND THE ABOVE SUBSTANTIAL COMPLETION DATE FOR UNRESTRICTED TRAFFIC.

**ITEM 614 - MAINTAINING TRAFFIC, MISC.: PORTABLE CHANGEABLE MESSAGE SIGN**

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A CHANGEABLE MESSAGE SIGN. THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS AVAILABLE ON THE OFFICE OF MATERIALS MANAGEMENT WEB PAGE. THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCES OF 800 FEET AND 650 FEET, RESPECTIVELY.

EACH SIGN SHALL BE TRAILER-MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM, TO DIM THE SIGN DURING DARKNESS, AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON-SITE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT. THE SIGN SHALL ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY. THE PCMS SHALL BE DELINEATED IN ACCORDANCE WITH C&MS 614.03.

PLACEMENT, OPERATION, MAINTENANCE AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE PROJECT ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS SHALL BE TURNED OFF. ADDITIONALLY, WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED AWAY FROM ALL TRAFFIC.

**ITEM 614 - MAINTAINING TRAFFIC, MISC.: PORTABLE CHANGEABLE MESSAGE SIGN (CONTINUED)**

THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE CITY OF DELAWARE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT, AND TO REVISE SIGN MESSAGES, IF NECESSARY.

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE PROJECT ENGINEER. A LIST OF ALL REQUIRED PRE-PROGRAMMED MESSAGES WILL BE GIVEN TO THE CONTRACTOR AT THE PROJECT PRECONSTRUCTION CONFERENCE. THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PRE-PROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON-BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THREE-LINE PRESENTATION FORMATS WITH UP TO SIX MESSAGE PHASES SHALL BE SUPPORTED. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST TWICE.

THE PCMS SHALL CONTAIN A CELLULAR TELEPHONE DATA LINK WHICH WILL, IN ACTIVE CELLULAR PHONE AREAS, ALLOW REMOTE SIGN ACTIVATION, MESSAGE CHANGES, MESSAGE ADDITIONS AND REVISIONS TO TIME OF DAY PROGRAMS. THE SYSTEM SHALL ALSO PERMIT VERIFICATION OF CURRENT AND PROGRAMMED MESSAGES. ONE REMOTE DATA INPUT DEVICE (LAPTOP COMPUTER PLUS MODEM OR EQUIVALENT) SHALL BE FURNISHED FOR USE BY THE CITY OF DELAWARE TRAFFIC ENGINEER AND SHALL BE INSURED AGAINST THEFT.

THE PCMS UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF C&MS 614.07. THE CONTRACTOR SHALL, PRIOR TO ACTIVATING THE UNIT, MAKE ARRANGEMENTS, WITH AN AUTHORIZED SERVICE AGENT FOR THE PCMS, TO ASSURE PROMPT SERVICE IN THE EVENT OF FAILURE. ANY FAILURE SHALL NOT RESULT IN THE SIGN BEING OUT OF SERVICE FOR MORE THAN 12 HOURS, INCLUDING WEEKENDS. FAILURE TO COMPLY MAY RESULT IN AN ORDER TO STOP WORK AND OPEN ALL TRAFFIC LANES AND/OR IN THE CITY TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC. THE ENTIRE COST TO CONTROL TRAFFIC, ACCRUED BY THE CITY DUE TO THE CONTRACTOR'S NONCOMPLIANCE, WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE THE CONTRACTOR ON HIS CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24-HOUR-PER-DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THE PHASES WHEN THE PLAN REQUIRES THEIR USE.

THE CONTRACTOR SHALL PURCHASE THE PORTABLE CHANGEABLE MESSAGE SIGN AS PART OF THE BID PRICE FOR THIS PROJECT. AT THE END OF PROJECT COMPLETION THE PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE DELIVERED TO THE CITY AND WILL BECOME PROPERTY OF THE CITY.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE, LIFETIME CELLULAR PACKAGE, AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK.

ITEM 614 - MAINTAINING TRAFFIC, MISC.: PORTABLE CHANGEABLE MESSAGE SIGN 3 EACH

**ITEM 614 - DETOUR SIGNING**

SIZE AND PLACEMENT OF DETOUR SIGNS (M4-9) SHOULD FOLLOW THE REQUIREMENTS OF THE OMUTCD SECTION 6F.03, SECTION 2A.11 AND TABLE 6F.01.

DETOUR SIGNING SHALL PROVIDE DRIVERS ADEQUATE TIME TO CLEARLY READ THE SIGNS AND MAKE THE PROPER DECISIONS AT EACH REQUIRED TURNING MOVEMENT. THE DESIGNATED DETOUR ROUTE SHALL BE SIGNED IN ACCORDANCE WITH THE REQUIREMENTS BELOW:

- APPROXIMATELY 1500 FEET PRIOR TO TIP OF THE PAINTED GORE AT AN INTERCHANGE WHEN EXITING A HIGH SPEED (45 MPH OR HIGHER) FACILITY.
- AT OR NEAR THE EXISTING SIGN IN THE GORE OF AN INTERCHANGE RAMP.
- AT OR NEAR THE FIRST EXISTING LANE ASSIGNMENT SIGN ON AN INTERCHANGE EXIT RAMP.
- AT OR NEAR THE EXISTING LANE ASSIGNMENT SIGN OR EXISTING ROUTE MARKER AT THE END OF AN EXIT RAMP.
- APPROXIMATELY 500 FEET PRIOR TO A REQUIRED TURN AT AN INTERSECTION NOT CONTROLLED BY A STOP SIGN (FOR 45 MPH OR HIGHER ONLY).
- AT OR NEAR THE EXISTING LANE ASSIGNMENT SIGN OR EXISTING ROUTE MARKER AT AN INTERSECTION.
- EVERY TWO MILES ALONG A TANGENT SECTION BETWEEN TURNING MOVEMENTS OUTSIDE A CITY.
- EVERY TWO BLOCKS ALONG A TANGENT SECTION BETWEEN TURNING MOVEMENTS WITHIN A CITY.
- AT ANY OTHER INTERSECTION OR DECISION POINT WHERE THE DETOUR ROUTE IS CONTRARY TO THE NORMAL, EXPECTED TURNING MANEUVER OR OTHERWISE UNCLEAR.

DETOUR SIGNS SHALL BE PLACED, WHEN POSSIBLE, NEXT TO BUT NOT BLOCKING EXISTING ROUTE MARKERS OR LANE ASSIGNMENT SIGNS. DETOUR SIGNS SHALL NOT OBSCURE OR BE OBSCURED BY OTHER EXISTING OR TEMPORARY SIGNS.

DETOUR SIGNS SHALL BE ERECTED AND/OR UNCOVERED PRIOR TO THE ROAD OR RAMP BEING CLOSED TO TRAFFIC BUT NO EARLIER THAN FOUR HOURS PRIOR TO THE CLOSURE. DETOUR SIGNS SHALL BE COVERED AND/OR REMOVED NO LATER THAN FOUR HOURS FOLLOWING THE ROAD OR RAMP RE-OPENING TO TRAFFIC.

PAYMENT FOR ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR FURNISHING, PROPER SIGN PLACEMENT AND SIZING, TIMELY ERECTING AND/OR UNCOVERING OF SIGNS, MAINTAINING SIGNS, AND TIMELY COVERING AND/OR REMOVING SIGNS AND SUPPORTS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614 - DETOUR SIGNING (LUMP SUM)

CALCULATED  
 A CW  
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 C JM

**MAINTENANCE OF TRAFFIC NOTES**

**DEL -36 -11.03**

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**ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS**

USE OF LAW ENFORCEMENT OFFICERS (LEOs) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOs SHOULD NOT BE USED WHERE THE OMTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF C&MS 614 AND THE OMTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

- DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.
- DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR THE FLOW OF TRAFFIC, OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT).

IN ADDITION TO THE REQUIREMENT OF C&MS 614 AND THE OMTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHOULD BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS AS APPROVED BY THE PROJECT ENGINEER:

- FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP).
- FOR OPERATIONS WITHOUT POSITIVE PROTECTION OCCURRING WITHIN 10 FEET OF AN OPEN TRAVELED LANE THAT MEET ALL OF THE FOLLOWING CRITERIA:
  - \* ON A MULTI-LANE DIVIDED INTERSTATE, OTHER FREEWAY OR EXPRESSWAY; AND
  - \* AN AUTHORIZED SPEED LIMIT OF 45 MPH OR GREATER THAT IS IN EFFECT AT THE TIME OF THE OPERATION; AND,
  - \* AADT OF 50,000 (OR AADT OF 30,000 WITH 25% OR HIGHER PERCENT TRUCKS)

"WITHOUT POSITIVE PROTECTION" MEANS USE OF DRUMS, CONES, SHADOW VEHICLE, ETC, WITHOUT PROTECTION FROM PORTABLE BARRIER OR OTHER RIGID BARRIER ALONG THE WORK AREA. THIS PHRASE DOES NOT APPLY TO CASES WHERE POSITIVE PROTECTION IS REQUIRED. MOBILE OPERATIONS ARE REGARDED AS "WITHOUT POSITIVE PROTECTION". FOR WORK ZONES USING A COMBINATION OF BARRIER AND TEMPORARY TRAFFIC CONTROL DEVICES (CONES, DRUMS, ETC), THE DESIGNATION SHALL BE BASED UPON THE TYPE OF DEVICES USED IN THE AREA THAT WORKERS ARE LOCATED.

IF MULTIPLE ACTIVE LOCALIZED QUALIFYING WORK AREAS OCCUR WITHOUT POSITIVE PROTECTION, PER MAINLINE TRAFFIC DIRECTION, PROVIDE A UNIFORMED LEO AND OFFICIAL PATROL CAR IN ADVANCE OF:

- THE FIRST ACTIVE WORK AREA THAT DRIVERS WILL ENCOUNTER; OR
- THE ACTIVE WORK AREA LATERALLY CLOSEST TO THE OPEN TRAVELED LANE; OR
- OTHER LOCATION AS APPROVED BY THE PROJECT ENGINEER.

THE UNIFORMED LEO AND OFFICIAL PATROL CAR MAY RELOCATE AMONG THE LISTED LOCATIONS AS APPROPRIATE AS THE OPERATIONS PROCEED IN THE LOCALIZED QUALIFYING WORK AREAS.

**ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS (CONTINUED)**

IN GENERAL, LEOs SHOULD BE POSITIONED IN ADVANCE OF AND ON THE SAME SIDE AS THE LANE RESTRICTION OR AT THE POINT OF ROAD CLOSURE, AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH SIGNALIZED INTERSECTIONS IN WORK ZONES.

LEOs SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

THE LEOs WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOs WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOs. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOs' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

ENSURE PROVIDED LEOs HAVE BEEN TRAINED APPROPRIATE TO THE JOB DECISIONS THEY ARE REQUIRED TO MAKE WHILE ON THE PROJECT, IN ACCORDANCE WITH C&MS 614.03.

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE THAT SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOs (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 520 HOURS

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF AN LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

**MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL/FLASHER INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITIONS:

1. EXISTING SIGNAL/FLASHER INSTALLATIONS WHICH THE PLANS REQUIRE THE CONTRACTOR TO ADJUST, MODIFY, ADD ONTO OR REMOVE, OR WHICH THE CONTRACTOR ACTUALLY ADJUSTS, MODIFIES OR OTHERWISE DISTURBS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE INSTALLATION (AT AN INTERSECTION) FROM THE TIME HIS OPERATIONS FIRST DISTURB THE INSTALLATION UNTIL THE INSTALLATION HAS BEEN SUBSEQUENTLY REMOVED OR MODIFIED AND THE WORK IS ACCEPTED.
2. NEW OR REUSED SIGNAL/FLASHER INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE MAINTAINING AGENCY AND THE ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY 24 HOURS A DAY, 7 DAYS A WEEK. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK TO SERVICE WITHIN FOUR HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGE.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN 8 HOURS AFTER THE CONTRACTOR'S NOTIFICATION OF THE OUTAGE. THE CONTRACTOR SHALL ARRANGE FOR FULL TRAFFIC CONTROL UNTIL THE SIGNAL IS BACK IN OPERATION. IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED 8-HOUR PERIOD, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OR CONSECUTIVE OUTAGE TIME PERIODS AT ANY ONE LOCATION. THAT IS, WHERE MORE THAN ONE OUTAGE OCCURS AT ANY ONE LOCATION THEN THE ALLOTTED TIME LIMIT SHALL BE FOR THE WORST SINGLE OUTAGE.

WHERE OUTAGES ARE THE DIRECT RESULT OF A VEHICLE ACCIDENT THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTION OF ANY COMPENSATION FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE.

WHERE THE CONTRACTOR HAS FAILED TO, OR CANNOT RESPOND TO, AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS TO THE STATE OR THE CITY OF DELAWARE FOR POLICE SERVICES AND MAINTENANCE SERVICES BY STATE/CITY FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

**MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION (CONTINUED)**

THE CONTRACTOR SHALL PROVIDE THE MAINTENANCE SERVICE ENTIRELY WITH HIS FORCES OR HE MAY CHOOSE TO ENTER INTO A COOPERATIVE UNDERSTANDING WITH THE LOCAL MAINTAINING AGENCY TO PROVIDE THE MAINTENANCE. THE CONTRACTOR SHALL INFORM THE ENGINEER, IN WRITING, OF THE MAINTENANCE METHOD SELECTED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY TRAFFIC SIGNAL COMPONENTS REQUIRED TO BE HANDLED DURING THE RELOCATION OF POLES AND REVISIONS TO THE SIGNAL SYSTEM. WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR, DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT EXCEED 4 HOURS AND SHALL NOT INCLUDE THE HOURS OF 6 AM TO 6 PM. ANY SIGNALIZED INTERSECTION, WHERE THE SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES, OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, SHALL BE PROTECTED, BY THE CONTRACTOR, BY THE INSTALLATION OF TEMPORARY "STOP" SIGNS, EXCEPT FOR THE FOLLOWING INTERSECTIONS WHICH SHALL BE PROTECTED BY OFF-DUTY CITY OF DELAWARE POLICE, HIRED BY THE CONTRACTOR:

1. US 36/SR 37 AND SR 521
2. E. WILLIAM STREET AND EAST POINT CROSSING

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.25.

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING:

1. TIME OF NOTIFICATION OF MALFUNCTION;
2. TIME OF WORK CREWS ARRIVAL TO CORRECT THE MALFUNCTION;
3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED;
4. A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE;
5. TIME OF COMPLETION OF THE REPAIR AND SYSTEM RESTORED TO FULL SERVICE.

A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE ENGINEER WITHIN THREE (3) WORKING DAYS FOLLOWING COMPLETION OF EACH REPAIR.

ALL COSTS RESULTING FROM THE ABOVE REQUIREMENTS SHALL BE CONSIDERED TO BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

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MAINTENANCE OF TRAFFIC NOTES

DEL -36 -11.03



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**ITEM 614 - BUSINESS ENTRANCE (M4-H15) SIGN**

THE BUSINESS ENTRANCE (M4-H15) SIGN SHOULD BE PROVIDED AT EACH TEMPORARILY RELOCATED COMMERCIAL DRIVEWAY FOR WHICH THE RELOCATION IS NOT OBVIOUS TO THE MOTORIST. THE PROJECT ENGINEER SHALL DETERMINE WHETHER OR NOT THE DRIVEWAY RELOCATION IS, OR IS NOT, OBVIOUS AND WHETHER OR NOT A SIGN SHOULD BE PROVIDED. ONLY ONE SIGN PER BUSINESS SHALL BE PERMITTED. THE SIGN SHALL BE 36 INCH X 48 INCH IN SIZE WITH TYPE G OR TYPE H ORANGE RETROREFLECTIVE SHEETING. THE SIGN LEGEND SHALL BE PLACED ON BOTH SIDES OF THE SIGN (BACK TO BACK). THE SIGN SHALL HAVE THE STANDARD M4-H15 LEGEND WITH THE WORD "BUSINESS" ON THE TOP LINE, EXCEPT UNDER UNUSUAL CIRCUMSTANCES WHERE IT MAY NOT BE INTUITIVE THAT A DRIVEWAY SERVES A SPECIFIC BUSINESS. IN SUCH UNUSUAL CASES, THE ACTUAL BUSINESS NAME MAY BE SUBSTITUTED FOR THE WORD "BUSINESS".

THE SIGN SHALL BE MOUNTED ON TWO #3 POSTS OR ON TEMPORARY POSTS IN ACCORDANCE WITH SCD MT-105.10 AND IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION. THE SIGN SHALL BE CLEARLY VISIBLE AND SHALL CLEARLY IDENTIFY THE LOCATION OF THE DRIVEWAY. THE SIGN SHOULD BE POSITIONED AT 90° TO THE DIRECTION(S) OF TRAFFIC. THE SIGN MAY NEED TO BE MOVED FOR EACH PHASE OF THE MAINTENANCE OF TRAFFIC OPERATIONS.

PAYMENT FOR ALL COSTS ASSOCIATED WITH MANUFACTURING, MOUNTING, RELOCATING, AND REMOVING THE SIGN, INCLUDING ALL LABOR, MATERIALS AND EQUIPMENT SHALL BE INCLUDED IN THE CONTRACT PRICE PER EACH FOR ITEM 614-BUSINESS ENTRANCE SIGN.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THIS ITEM.

ITEM 614, BUSINESS ENTRANCE SIGN 8 EACH

**SPECIAL - WORK ZONE TRAFFIC SIGNAL (614E11300)**

THIS ITEM SHALL INCLUDE ALL WORK REQUIRED TO CONSTRUCT, POWER, OPERATE AND MAINTAIN THE TEMPORARY TRAFFIC SIGNALS PROPOSED FOR USE IN THESE PLANS. EACH LOCATION IS COUNTED AS ONE WORK ZONE TRAFFIC SIGNAL, REGARDLESS OF THE OF THE NUMBER OF MODIFICATIONS REQUIRED BY THE PLANS OR THE MATERIALS REQUIRED TO MAINTAIN TRAFFIC SIGNAL FUNCTION DURING CONSTRUCTION.

TEMPORARY TRAFFIC SIGNAL LOCATIONS:

- US 36, SR 37 & E. POINT CROSSING
- US 36, SR 37 & SR 521
- SR 37 & US 42
- US 36 & US 42

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID FOR EACH LOCATION AND SHALL INCLUDE ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT NECESSARY TO CONSTRUCT, OPERATE, MAINTAIN AND REMOVE THE WORK ZONE TRAFFIC SIGNAL.

**ITEM 614 - WORK ZONE CROSSOVER LIGHTING SYSTEM**

THIS WORK SHALL CONSIST OF FURNISHING, ERECTING, OPERATING, MAINTAINING AND REMOVING A WORK ZONE LIGHTING SYSTEM FOR A SINGLE CROSSOVER, OR OVERLAPPING A PAIR OF CROSSOVERS. THE SYSTEM SHALL BE AS SHOWN ON TRAFFIC SCD MT-100.00. THE CONTRACTOR SHALL ARRANGE FOR AND PAY FOR POWER. ALL MATERIALS AND CONSTRUCTION SHALL COMPLY WITH APPLICABLE PORTIONS OF 625 AND 725 EXCEPT: THE PERFORMANCE TEST OF 625.19F, AND CERTIFIED DRAWING REQUIREMENT OF 625.06, ARE WAIVED AND USED MATERIALS IN GOOD CONDITION ARE ACCEPTABLE.

POLES WHICH ARE NOT PROTECTED BY GUARDRAIL OR PORTABLE BARRIER SHALL BE LOCATED OUTSIDE THE CLEAR ZONE, AND SHOULD BE LOCATED AT LEAST 30 FEET (PREFERABLY 40 FEET) FROM THE EDGE OF PAVEMENT WHEN POSSIBLE. ADDITIONAL POLE LINES, CABLES AND APPURTENANCES NECESSARY TO FURNISH POWER TO THE LIGHTING SYSTEM SHALL BE INCLUDED IN THIS ITEM. SERVICE POLES SHALL BE POSITIONED WITH THE SAME CONSTRAINTS AS THE LIGHTING POLES AS A MINIMUM.

PAYMENT WILL BE MADE AT THE UNIT PRICE PER EACH FOR ITEM 614, WORK ZONE CROSSOVER LIGHTING SYSTEM THROUGHOUT ALL PHASES OF WORK WHEN THE CROSSOVER ROADWAYS ARE USED.

**CATCH BASIN, MISC.: GRATE REMOVED AND REPLACED**

THE CONTRACTOR SHALL REMOVE THE EXISTING GRATE AND FRAME AND REPLACE WITH A CB-6 GRATE AND FRAME FLUSH WITH THE SURROUNDING PAVEMENT FOR MAINTAINING TRAFFIC. THE CB-6 SHALL BE REMOVED DURING LATER MOT PHASES WHEN THE STORM SEWER IMPROVEMENTS ARE CONSTRUCTED.

THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE CONSTRUCTION OF THIS ITEM.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE, EACH, FOR CATCH BASIN, MISC.: GRATE REMOVED AND REPLACED.

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MAINTENANCE OF TRAFFIC NOTES

DEL -36 -11.03

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US 36/SR 37					SHEET NUMBER					SR 521					ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.					
35	36	37	38	39						40	41	42	43												
	1.5																			601	32204	1.5	CY	ROCK CHANNEL PROTECTION, TYPE C WITH GEOTEXTILE FABRIC	
	226																			611	04400	226	FT	12" CONDUIT, TYPE B	
	1																			611	98370	1	EACH	CATCH BASIN, NO. 6	
	5																			611	98690	5	EACH	CATCH BASIN, MISC.: GRATE REMOVED AND REPLACED	33
520																				614	11110	520	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	32
	4																			SPECIAL	11300	4	EACH	WORK ZONE TRAFFIC SIGNAL	33
	12	7	6	5						2	2	2	2							614	12384	38	EACH	WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (BIDIRECTIONAL)	
LUMP																				614	12420	LUMP		DETOUR SIGNING	
	1																			614	12756	1	EACH	WORK ZONE CROSSOVER LIGHTING SYSTEM	
	32	131	100	35						39	33	53	49							614	12800	472	EACH	WORK ZONE RAISED PAVEMENT MARKER	
	57	15	64	11						6	6	4	3							614	13310	166	EACH	BARRIER REFLECTOR, TYPE 1, (1WAY)	
	57	15	64	11						6	6	4	3							614	13350	166	EACH	OBJECT MARKER, ONE WAY	
3																				614	18000	3	EACH	MAINTAINING TRAFFIC, MISC.: PORTABLE CHANGEABLE MESSAGE SIGN	31
				0.48									0.03							614	20010	0.51	MILE	WORK ZONE LANE LINE, CLASS I, 6"	
	0.35	0.79	0.89	1.93						0.21	0.33	0.38	1							614	21000	5.88	MILE	WORK ZONE CENTER LINE, CLASS I	
	1.35	0.22	0.91	2.84						0.2	0.26	0.46	0.41							614	22010	6.65	MILE	WORK ZONE EDGE LINE, CLASS I, 6"	
	215	905	1529	5085						767	259	557	1519							614	23010	10836	FT	WORK ZONE CHANNELIZING LINE, CLASS I, 12"	
		731	167	238							60		75							614	24000	1271	FT	WORK ZONE DOTTED LINE, CLASS I	
		57	100	122						120	230	290	58							614	25000	977	FT	WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I	
	22	80	134	439						35	26	70	154							614	26000	960	FT	WORK ZONE STOP LINE, CLASS I	
				764									169							614	27010	933	FT	WORK ZONE CROSSWALK LINE, CLASS I, 12"	
				199						124			164							614	28000	487	FT	WORK ZONE GORE MARKING, CLASS II	
		11	17	5						11	7	12	7							614	30000	70	EACH	WORK ZONE ARROW, CLASS I	
8																				614	40050	8	EACH	BUSINESS ENTRANCE SIGN	
LUMP																				615	10000	LUMP		ROADS FOR MAINTAINING TRAFFIC	
	1391.4									53.4										615	20000	1444.8	SY	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A	
183																				616	10000	183	MGAL	WATER	
	2660	690	3110	490						250	300	190	110							622	41100	7800	FT	PORTABLE BARRIER, UNANCHORED	

**MAINTENANCE OF TRAFFIC SUBSUMMARY**

**DEL -36 -11.03**

ESTIMATED QUANTITIES  
FORWARDED TO  
GENERAL SUMMARY

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REF NO.	SHEET NO.	LOCATION	STATION		SIDE	614				615		616																	
			FROM	TO		LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	SPECIAL - WORK ZONE TRAFFIC SIGNAL	DETOUR SIGNING	MAINTAINING TRAFFIC, MISC.: PORTABLE CHANGEABLE MESSAGE SIGN	BUSINESS ENTRANCE SIGN	ROADS FOR MAINTAINING TRAFFIC	WATER																	
						HOUR	EACH	LS	EACH	EACH	LS	MGAL																	
	29	NOTES									1																		
	30	NOTES										183																	
	31	NOTES						1	3																				
	32	NOTES				520																							
	33	NOTES					4			8																			
SUBTOTAL						520	4	1	3	8	1	183																	
TOTALS CARRIED TO SUBSUMMARY SHEET - 34						520	4	1	3	8	1	183																	

35  
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**DEL -36 -11.03**

**MOT ESTIMATED QUANTITIES (US 36 FUNDING)**

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Table with columns: REF NO., SHEET NO., LOCATION, STATION (FROM, TO), SIDE, and various material codes (601-615). Rows include project details like PMT-1, D-1, ELW-1, etc., and summary rows for PHASE 1, PHASE 2, and SUBTOTAL.

MOT ESTIMATED QUANTITIES (US 36 FUNDING)
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REF NO.	SHEET NO.	LOCATION	STATION		SIDE			614	614	614	614	614	614	614	614	614	614	614	614	614	615	622		
			WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (BIDIRECTIONAL)	WORK ZONE RAISED PAVEMENT MARKER (YELLOW/YELLOW)				WORK ZONE RAISED PAVEMENT MARKER (WHITE/RED)	BARRIER REFLECTOR, TYPE 1, (WAY)	OBJECT MARKER, ONE WAY	WORK ZONE CENTER LINE, CLASS I (DOUBLE SOLID)	WORK ZONE CENTER LINE, CLASS I (SOLID-DASHED)	WORK ZONE EDGE LINE, CLASS I, 6" (WHITE)	WORK ZONE EDGE LINE, CLASS I, 6" (YELLOW)	WORK ZONE CHANNELIZING LINE, CLASS I, 12"	WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I (YELLOW)	WORK ZONE STOP LINE, CLASS I	WORK ZONE GORE MARKING, CLASS II	WORK ZONE ARROW, CLASS I	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A	PORTABLE BARRIER, UNANCHORED	FROM	TO	
								EACH	EACH	EACH	EACH	EACH	MILE	MILE	MILE	MILE	FT	FT	FT	FT	EACH	SY	FT	
		PHASE 2																						
PMT-1	75	SR 521	50+88	51+82	RT																	53.4		
		PHASE 2A																						
DYL-1	78	MILL RUN	6+21	5+25	RT								0.02											
CH-1	78	MILL RUN	6+21	5+25	LT												95							
LA-1	78	MILL RUN	6+01		CL																	1		
LA-2	78	MILL RUN	5+35		CL																	1		
CH-2	78	MILL RUN	4+46	3+60	LT																			
DYL-2	78	MILL RUN	4+46	1+00	LT								0.07											
ELW-1	78	MILL RUN/SR 521	4+41	50+21	RT/LT											0.09								
LA-3	78	MILL RUN	4+36		LT																	1		
LA-4	78	MILL RUN	3+69		LT																	1		
DYL-3	78	MILL RUN	3+50	1+50	LT								0.04											
TLY-1	78	MILL RUN	3+50	1+50	LT																			
ELW-2	78	MILL RUN/SUNBURY	3+30	620+57	LT											0.07								
IA-1	78	MILL RUN	2+95		RT			1																
PB-1	78	MILL RUN	2+75	0+08	RT																		250	
SL-1	79	MILL RUN	1+00		LT																			
IA-2	79	SR 521	50+12		RT																			
CH-3	79	SR 521	50+56	52+91	LT																			
ELW-4	79	SR 521	50+56	50+59	LT/RT												239							
CM-1	79	SR 521	50+56	52+91	LT																			
CH-4	79	SR 521	50+59	53+55	LT																			
ELW-5	79	SUNBURY/SR 521	620+57	51+82	LT/RT											0.03								
SL-2	79	SR 521	50+87		LT																			
LA-5	79	SR 521	50+97		LT																			
SL-3	79	SR 521	51+01		RT																			
DYL-4	79	SR 521	51+01	53+55	RT/LT								0.05											
DYL-5	79	SR 521	51+50	53+00	RT/LT								0.03											
TLY-2	79	SR 521	51+50	53+00	RT/LT																			
LA-6	79	SR 521	51+63		LT																			
LA-7	79	SR 521	52+27		LT																			
LA-8	79	SR 521	52+91		LT																			
CH-5	80	SR 521	53+10	53+55	LT																			
LA-9	80	SR 521	53+20		LT																			
LA-10	80	SR 521	53+45		LT																			
LA-11	80	SR 521	53+45		LT																			
	81	NONE																						
SUBTOTAL								2	16	23			0.21		0.2		767		120	35	124	11	53.4	250
TOTALS CARRIED TO SUBSUMMARY SHEET - 34								2	39				0.21		0.2		767		120	35	124	11	53.4	250

<b>MOT ESTIMATED QUANTITIES (SR 521 FUNDING)</b>	CALCULATED ACW CHECKED PRS
<b>DEL -36 -11.03</b>	40 644



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REF NO.	SHEET NO.	LOCATION	STATION		SIDE	614		614		614		614		614		614		614		614		622		
			FROM	TO		EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	FT
PHASE 2B																								
CH-1	82	MILL RUN	6+16	5+25	LT																			
DYL-1	82	MILL RUN	6+15	5+25	RT																			
LA-1	82	MILL RUN	6+01		CL																			
LA-2	82	MILL RUN	5+35		LT																			
CH-2	82	MILL RUN	4+49	3+86	RT																			
DYL-2	82	MILL RUN	4+49	1+74	LT/RT																			
LA-3	82	MILL RUN	4+39		CL																			
ELW-1	82	MILL RUN/SR 521	4+11	50+20	LT/RT																			
LA-4	82	MILL RUN	3+95		CL																			
DYL-3	82	MILL RUN	3+75	0+89	CL/RT																			
TLY-1	82	MILL RUN	3+75	1+74	CL/RT																			
IA-1	82	MILL RUN	3+20		LT																			
PB-1	82	MILL RUN	3+00	0+05	LT/RT																			
ELW-2	83	MILL RUN/SUNBURY	1+74	618+94	RT/LT																			
SL-1	83	MILL RUN	0+89		RT																			
IA-2	83	SR 521	50+14.5		RT																			
ELW-4	83	SUNBURY/SR 521	620+57	53+55	LT																			
SL-2	83	SR 521	50+87		LT																			
DYL-4	83	SR 521	50+87	53+55	LT																			
DYL-5	83	SR 521	50+87	53+21	LT																			
TLY-2	83	SR 521	50+87	53+21	LT																			
DL-1	83	SR 521	52+72	53+31	LT																			
CH-3	84	SR 521	53+31	53+55	LT																			
LA-5	84	SR 521	53+45		LT																			
CH-4	84	SR 521	54+10	54+90	LT																			
DYL-6	84	SR 521	54+10	57+57	LT																			
LA-6	84	SR 521	54+20		LT																			
ELW-5	84	SR 521	54+35	57+57	RT																			
LA-7	84	SR 521	54+80		LT																			
DYL-7	84	SR 521	55+00	57+00	LT																			
TLY-3	84	SR 521	55+00	57+00	LT																			
	85	NONE																						
SUBTOTAL																								
TOTALS CARRIED TO SUBSUMMARY SHEET - 34																								

<b>MOT ESTIMATED QUANTITIES (SR 521 FUNDING)</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">CALCULATED</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">ACW</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">CHECKED</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">PRS</td> </tr> </table>	CALCULATED	ACW	CHECKED	PRS
CALCULATED	ACW	CHECKED	PRS		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">41</td> <td style="width: 50%; text-align: center;">644</td> </tr> </table>	41	644	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">300</td> <td style="width: 50%; text-align: center;">300</td> </tr> </table>	300	300
41	644				
300	300				



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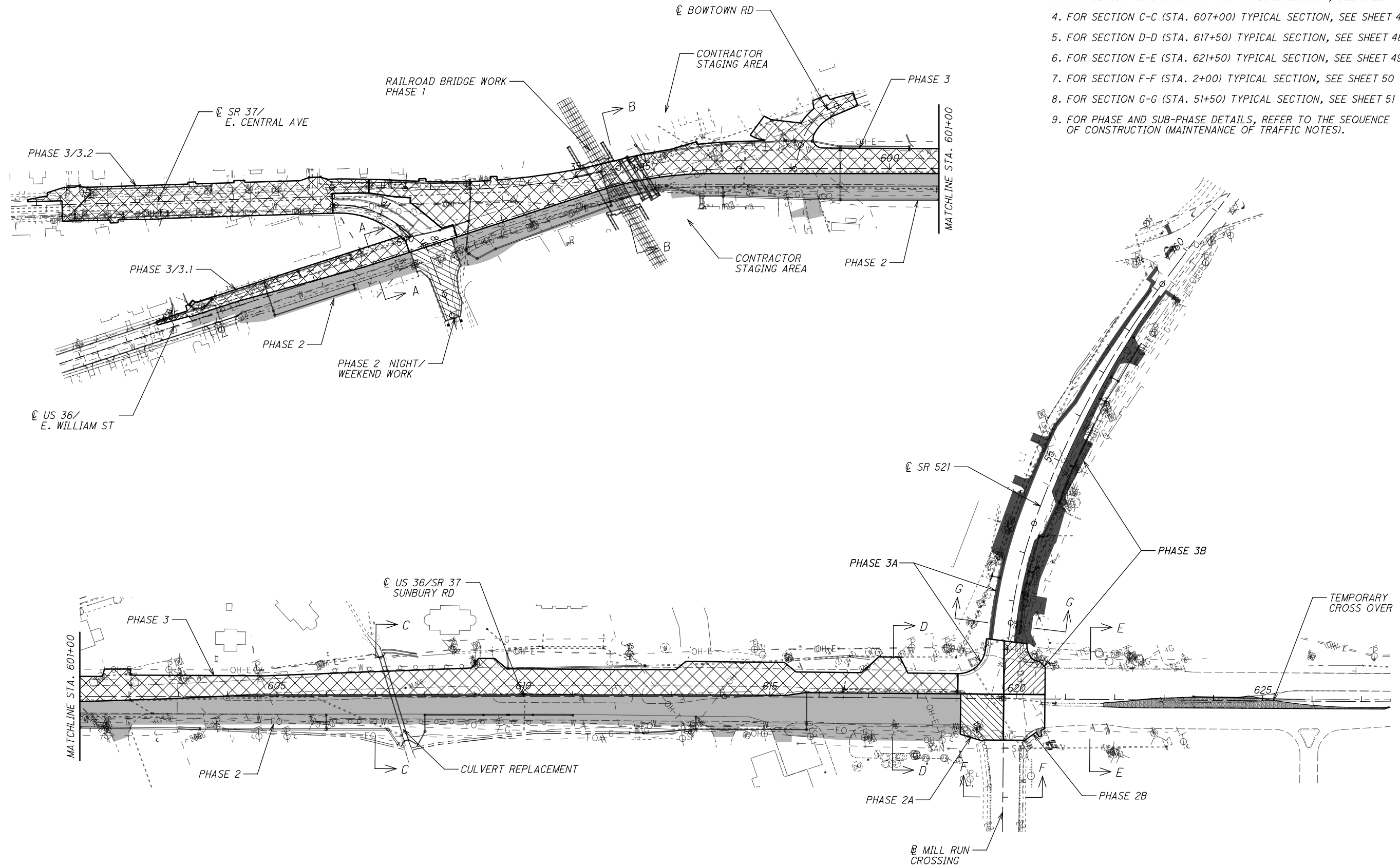
REF NO.	SHEET NO.	LOCATION	STATION		SIDE	DESCRIPTION	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	622
			FROM	TO			WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (BIDIRECTIONAL)	WORK ZONE RAISED PAVEMENT MARKER (YELLOW/YELLOW)	WORK ZONE RAISED PAVEMENT MARKER (WHITE/RED)	BARRIER REFLECTOR, TYPE 1, (WAY)	OBJECT MARKER, ONE WAY	WORK ZONE LANE LINE, CLASS I, 6"	WORK ZONE CENTER LINE, CLASS I (DOUBLE SOLID)	WORK ZONE CENTER LINE, CLASS I (SOLID-DASHED)	WORK ZONE EDGE LINE, CLASS I, 6" (WHITE)	WORK ZONE EDGE LINE, CLASS I, 6" (YELLOW)	WORK ZONE CHANNELIZING LINE, CLASS I, 12"	WORK ZONE DOTTED LINE, CLASS I (WHITE)	WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I (YELLOW)	WORK ZONE STOP LINE, CLASS I	WORK ZONE GORE MARKING, CLASS II	WORK ZONE ARROW, CLASS I	WORK ZONE CROSSWALK LINE, CLASS I, 12"
PHASE 3B																							
CH-1	108	MILL RUN	4+49	3+86	RT															64			
DYL-1	108	MILL RUN	4+49	1+95	LT/RT										0.05								
CH-2	108	MILL RUN	4+49	1+00	LT/RT																		
CH-3	108	MILL RUN	4+49	1+00	LT																		
CM-1	108	MILL RUN	4+49	1+00	LT																		
LA-1	108	MILL RUN	4+39		CL																		
LA-2	108	MILL RUN	3+95		CL																		
LA-3	108	MILL RUN	3+78		LT																		
DYL-2	108	MILL RUN	3+75	1+00	RT										0.05								
TLY-1	108	MILL RUN	3+75	1+95	LT																		
LA-4	108	MILL RUN	3+09		LT																		
LA-5	109	MILL RUN	2+42		LT																		
LA-6	109	MILL RUN	1+76		LT																		
LA-7	109	MILL RUN	1+10		LT																		
SL-1	109	MILL RUN	1+00		RT																		
SL-2	109	MILL RUN	1+00		LT																		
ELW-1	109	SUNBURY/SR 521	618+85	50+95	LT																		
ELW-3	109	SR 521	50+05	58+94	CL/RT																		
IA-4	109	SR 521	50+12		CL																		
PB-2	109	SR 521	50+32	51+42	LT																		
SL-3	109	SR 521	50+87		LT																		
DYL-3	109	SR 521	50+87	52+50	LT										0.03								
IA-5	109	SR 521	51+61		LT																		
DYL-4	109	SR 521	51+80	52+50	LT										0.01								
DSL-1	109	SR 521	52+50	54+70	LT																		
DSL-2	109	SR 521	52+50	54+70	LT																		
ELW-4	110	SR 521	54+70	56+20	LT																		
DYL-5	110	SR 521	54+70	59+34	LT																		
DYL-6	110	SR 521	54+70	56+13	LT																		
	111	NO NEW																					
FINAL MARKINGS																							
												0.03	0.66	0.19	765	75	113		169				
SUBTOTAL																							
							2	28	21	3	3	0.03	0.92	0.08	0.41	1519	75	58	154	164	7	169	110
TOTALS CARRIED TO SUBSUMMARY SHEET - 34																							
							2	49		3	3	0.03	1	0.41	1519	75	58	154	164	7	169	110	

CALCULATED ACW CHECKED PRS

**MOT ESTIMATED QUANTITIES (SR 521 FUNDING)**

DEL -36 -11.03

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NOTES:

1. REFER TO THE TYPICAL SECTIONS FOR CROSS SECTION VIEW OF IMPROVEMENTS IN EACH MOT PHASE.
2. FOR SECTION A-A (STA. 589+25) TYPICAL SECTION, SEE SHEET 45
3. FOR SECTION B-B (STA. 594+50) TYPICAL SECTION, SEE SHEET 46
4. FOR SECTION C-C (STA. 607+00) TYPICAL SECTION, SEE SHEET 47
5. FOR SECTION D-D (STA. 617+50) TYPICAL SECTION, SEE SHEET 48
6. FOR SECTION E-E (STA. 621+50) TYPICAL SECTION, SEE SHEET 49
7. FOR SECTION F-F (STA. 2+00) TYPICAL SECTION, SEE SHEET 50
8. FOR SECTION G-G (STA. 51+50) TYPICAL SECTION, SEE SHEET 51
9. FOR PHASE AND SUB-PHASE DETAILS, REFER TO THE SEQUENCE OF CONSTRUCTION (MAINTENANCE OF TRAFFIC NOTES).









CALCULATED	ACW	CHECKED	PRS
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**MAINTENANCE OF TRAFFIC  
SCHEMATIC PLAN**

**DEL-36-11.03**

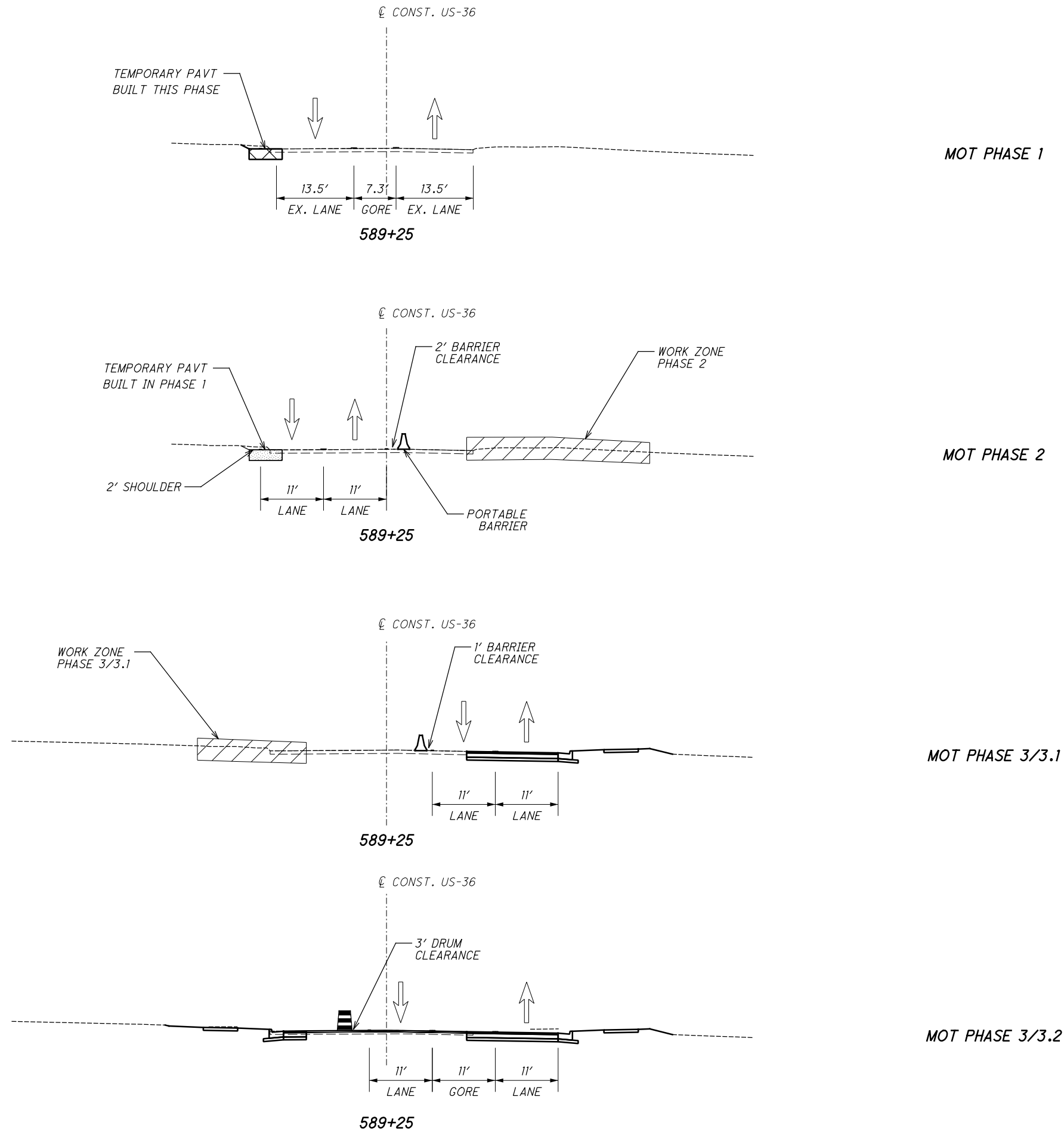
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MOT TRANSVERSE SECTION LEGEND

-  PORTABLE BARRIER
-  WORK ZONE DRUM
-  DIRECTION OF TRAVEL
-  ACTIVE WORK ZONE
-  PAVEMENT FOR MAINTAINING TRAFFIC (PROPOSED)
-  PAVEMENT FOR MAINTAINING TRAFFIC (CONSTRUCTED IN PREVIOUS PHASE)

NOTES:

1. INSIDE SAWCUT LINE IS A NOMINAL 1 FOOT INSIDE FROM EDGE OF PAVEMENT.









CALCULATED	CJM
CHECKED	ACW

**MOT TYPICAL SECTION A-A**  
**E. WILLIAM STREET (US-36) - STA. 589+25**

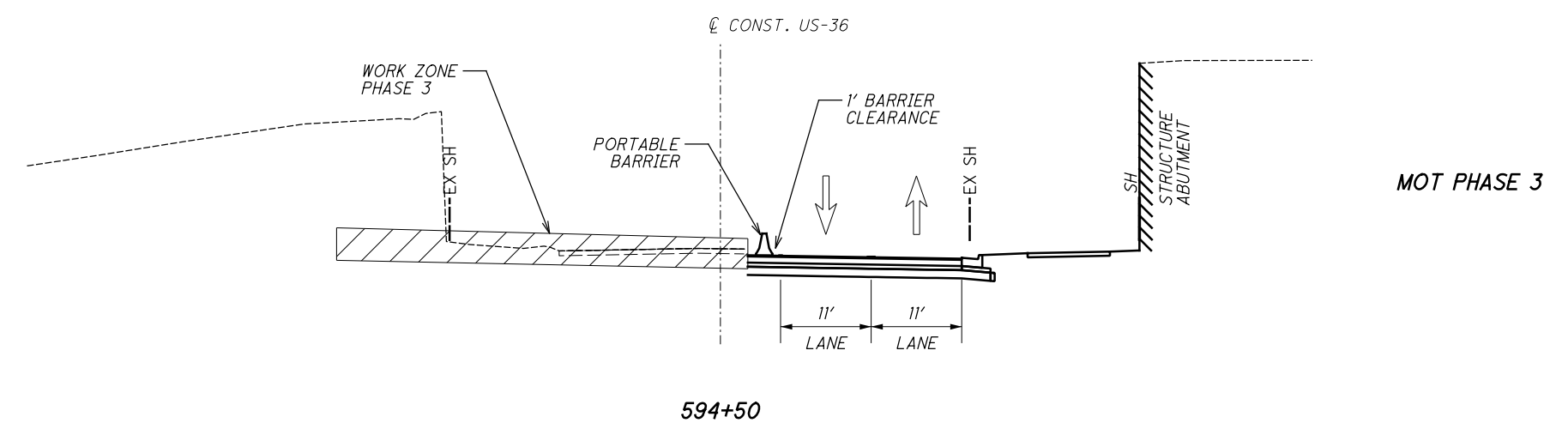
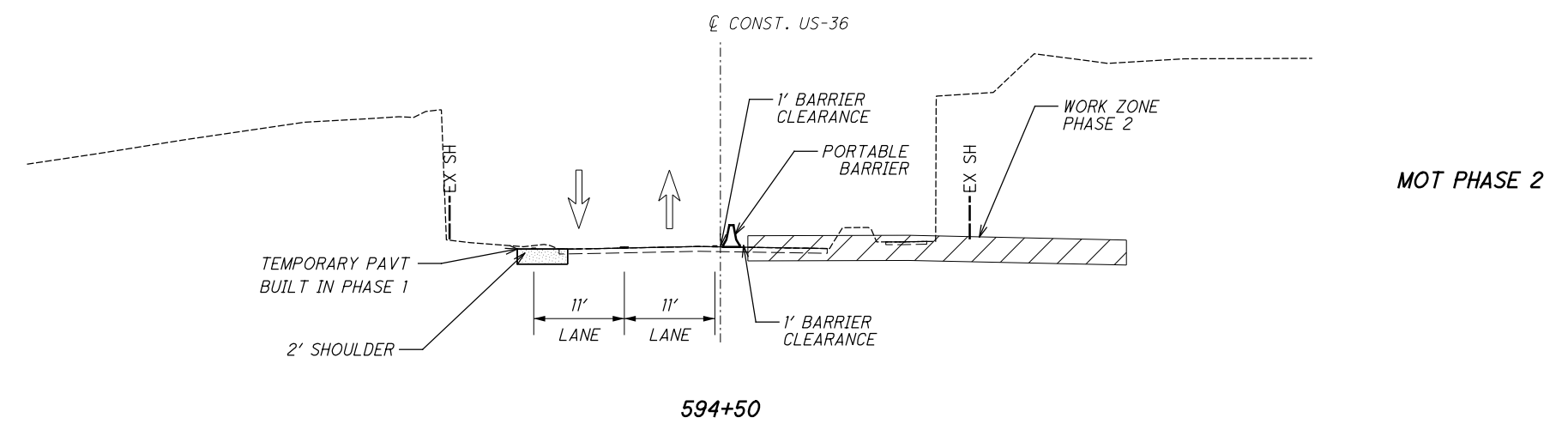
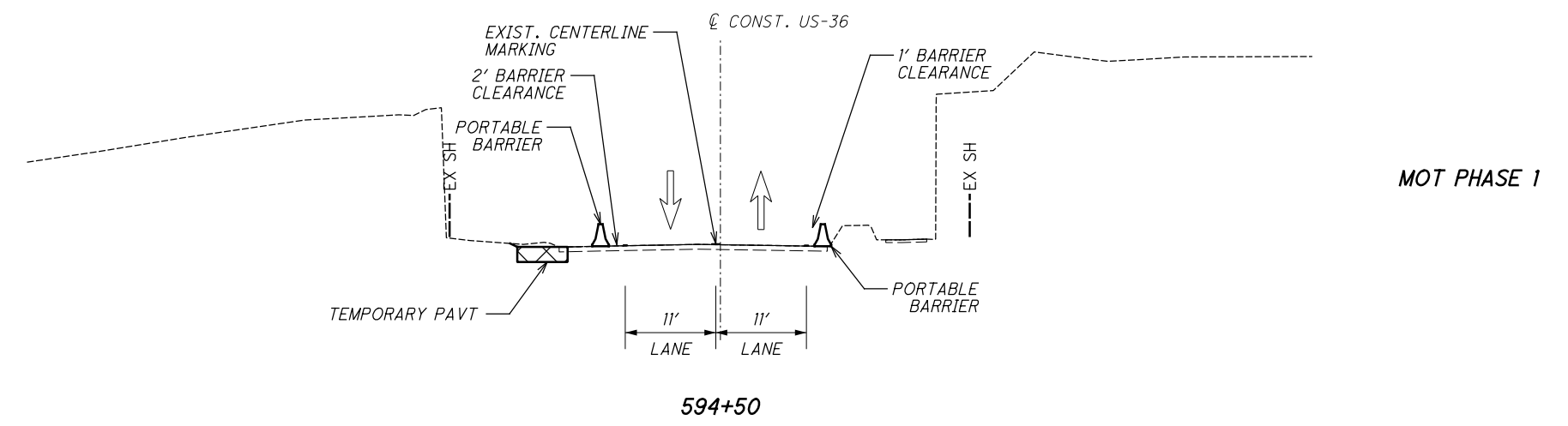
**DEL-36-11.03**

MOT TRANSVERSE SECTION LEGEND

-  PORTABLE BARRIER
-  WORK ZONE DRUM
-  DIRECTION OF TRAVEL
-  ACTIVE WORK ZONE
-  PAVEMENT FOR MAINTAINING TRAFFIC (PROPOSED)
-  PAVEMENT FOR MAINTAINING TRAFFIC (CONSTRUCTED IN PREVIOUS PHASE)

NOTES:







1. INSIDE SAWCUT LINE IS A NOMINAL 1 FOOT INSIDE FROM EDGE OF PAVEMENT.



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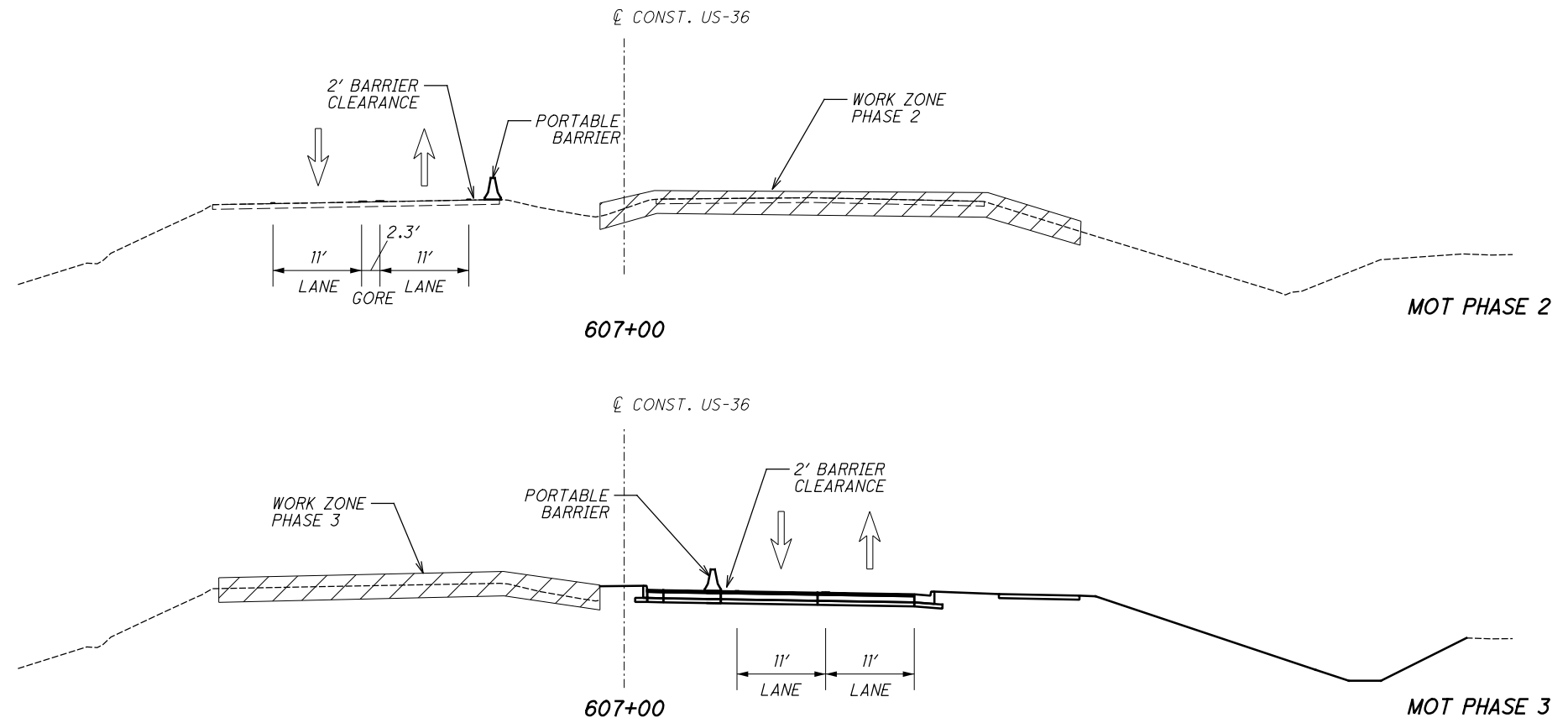
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MOT TRANSVERSE SECTION LEGEND

-  PORTABLE BARRIER
-  WORK ZONE DRUM
-  DIRECTION OF TRAVEL
-  ACTIVE WORK ZONE
-  PAVEMENT FOR MAINTAINING TRAFFIC (PROPOSED)
-  PAVEMENT FOR MAINTAINING TRAFFIC (CONSTRUCTED IN PREVIOUS PHASE)

NOTES:

1. INSIDE SAWCUT LINE IS A NOMINAL 1 FOOT INSIDE FROM EDGE OF PAVEMENT.









CALCULATED	CJM
CHECKED	ACW

**MOT TYPICAL SECTION C-C  
US-36 - STA. 607+00**

**DEL-36-11.03**

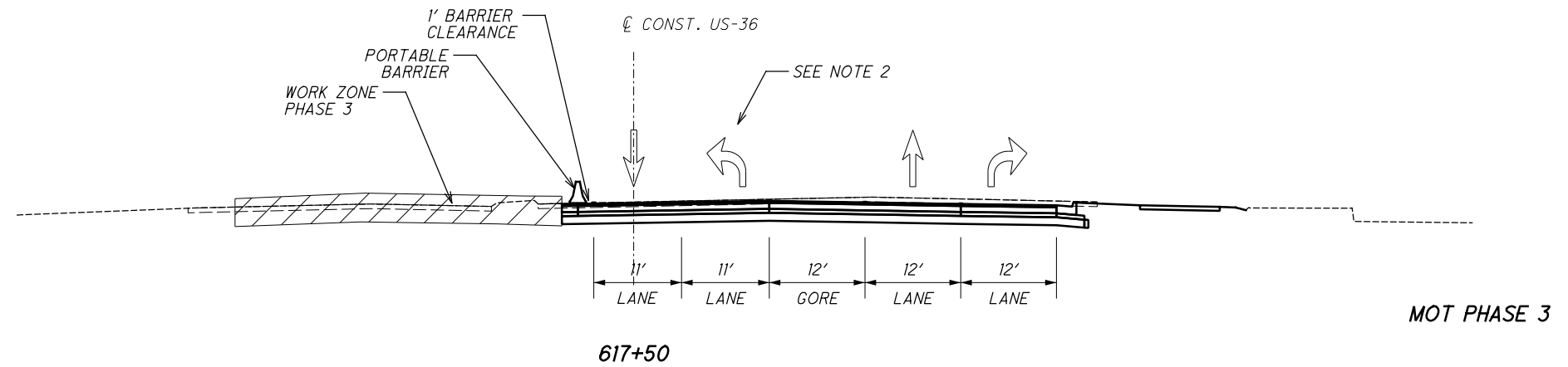
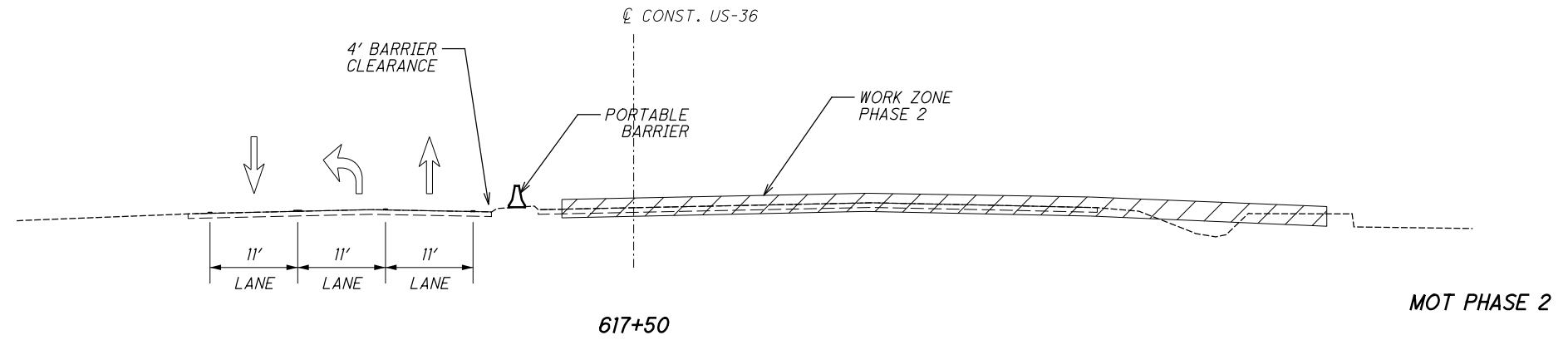
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MOT TRANSVERSE SECTION LEGEND

-  PORTABLE BARRIER
-  WORK ZONE DRUM
-  DIRECTION OF TRAVEL
-  ACTIVE WORK ZONE
-  PAVEMENT FOR MAINTAINING TRAFFIC (PROPOSED)
-  PAVEMENT FOR MAINTAINING TRAFFIC (CONSTRUCTED IN PREVIOUS PHASE)

NOTES:

1. INSIDE SAWCUT LINE IS A NOMINAL 1 FOOT INSIDE FROM EDGE OF PAVEMENT.
2. LEFT TURN LANE CLOSED IN PHASE 3A.



CALCULATED	CJM
CHECKED	ACW







**MOT TYPICAL SECTION D-D  
US-36 - STA. 617+50**

**DEL-36-11.03**



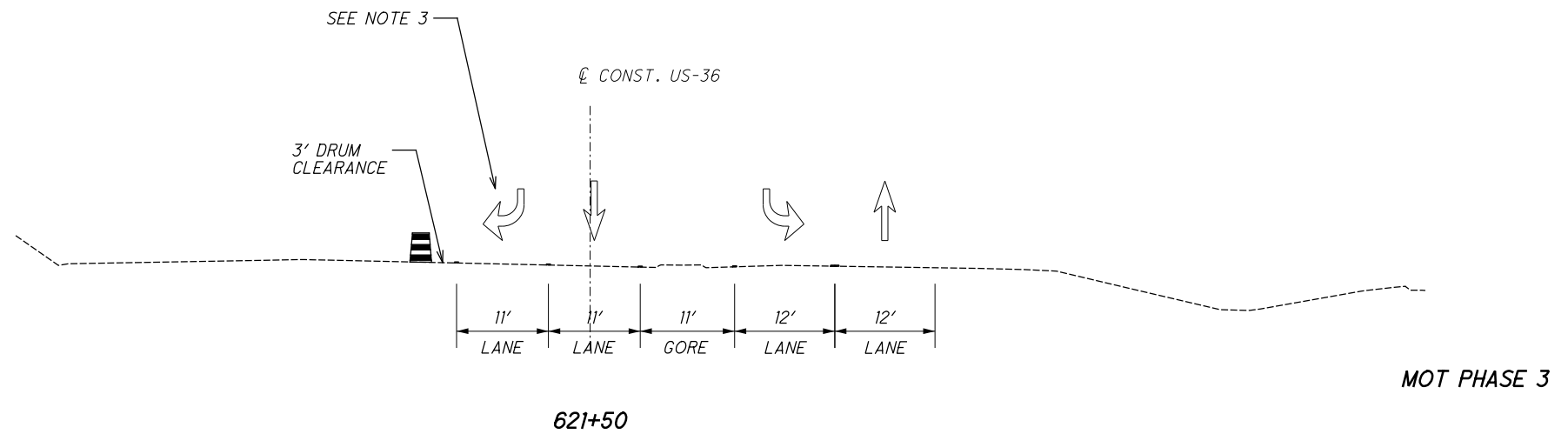
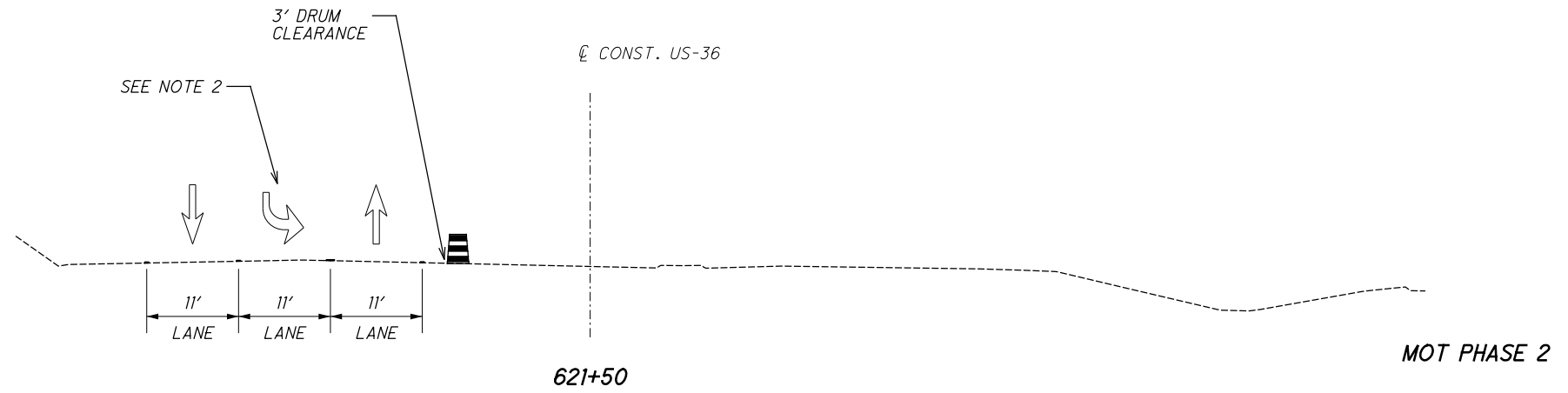
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MOT TRANSVERSE SECTION LEGEND

-  PORTABLE BARRIER
-  WORK ZONE DRUM
-  DIRECTION OF TRAVEL
-  ACTIVE WORK ZONE
-  PAVEMENT FOR MAINTAINING TRAFFIC (PROPOSED)
-  PAVEMENT FOR MAINTAINING TRAFFIC (CONSTRUCTED IN PREVIOUS PHASE)

NOTES:

1. INSIDE SAWCUT LINE IS A NOMINAL 1 FOOT INSIDE FROM EDGE OF PAVEMENT.
2. LEFT TURN LANE CLOSED IN PHASE 2B.
3. RIGHT TURN LANE CLOSED IN PHASE 3B.









CALCULATED	CJM
CHECKED	ACW

MOT TYPICAL SECTION E-E  
US-36 - STA. 621+50

DEL-36-11.03

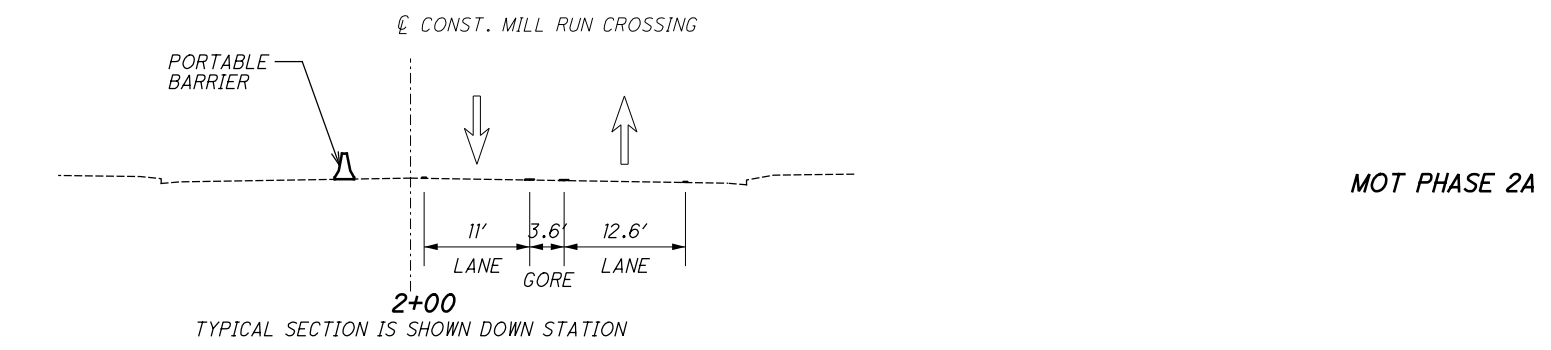
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MOT TRANSVERSE SECTION LEGEND

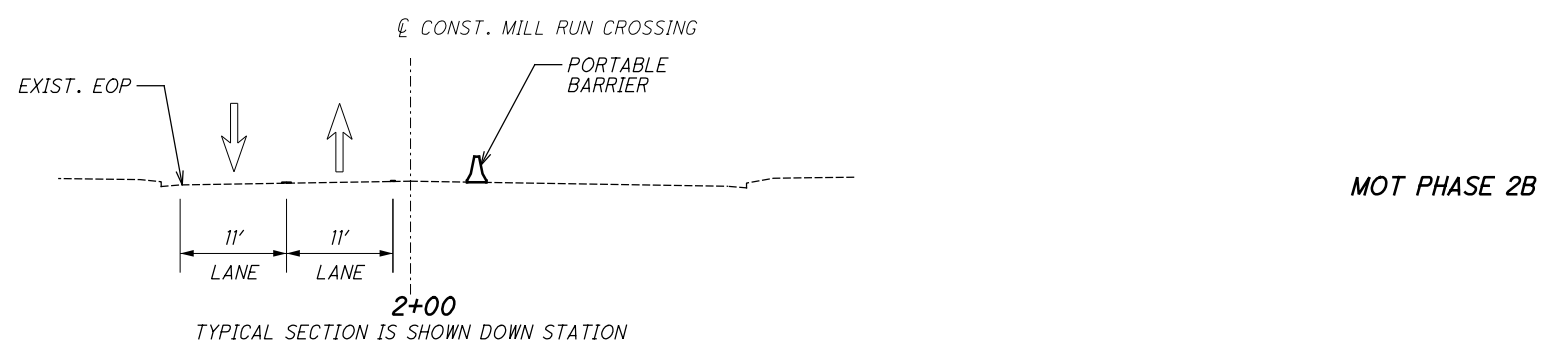
-  PORTABLE BARRIER
-  WORK ZONE DRUM
-  DIRECTION OF TRAVEL
-  ACTIVE WORK ZONE
-  PAVEMENT FOR MAINTAINING TRAFFIC (PROPOSED)
-  PAVEMENT FOR MAINTAINING TRAFFIC (CONSTRUCTED IN PREVIOUS PHASE)

NOTES:

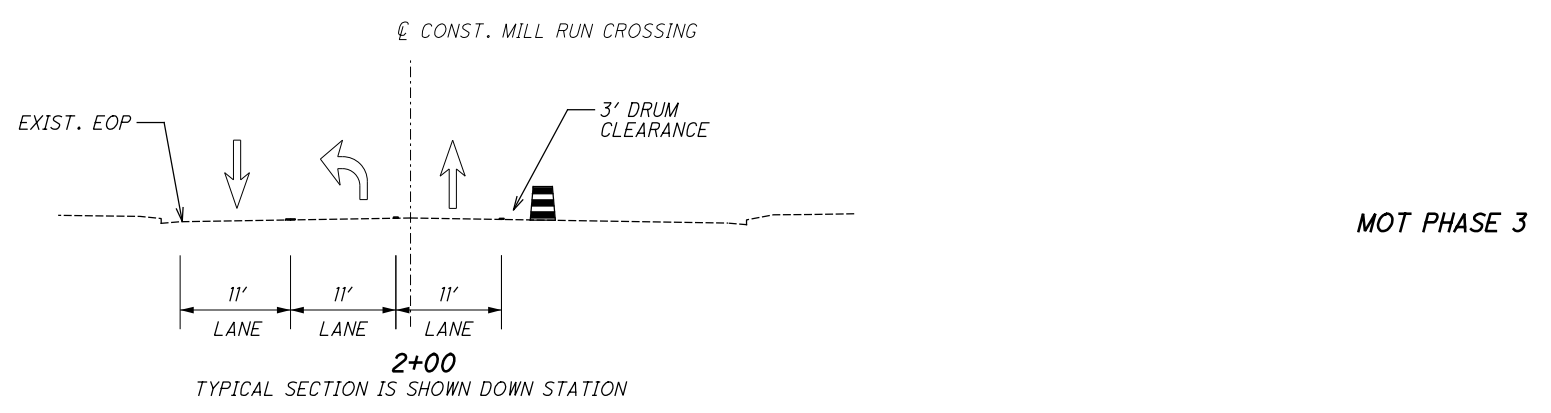
1. INSIDE SAWCUT LINE IS A NOMINAL 1 FOOT INSIDE FROM EDGE OF PAVEMENT.



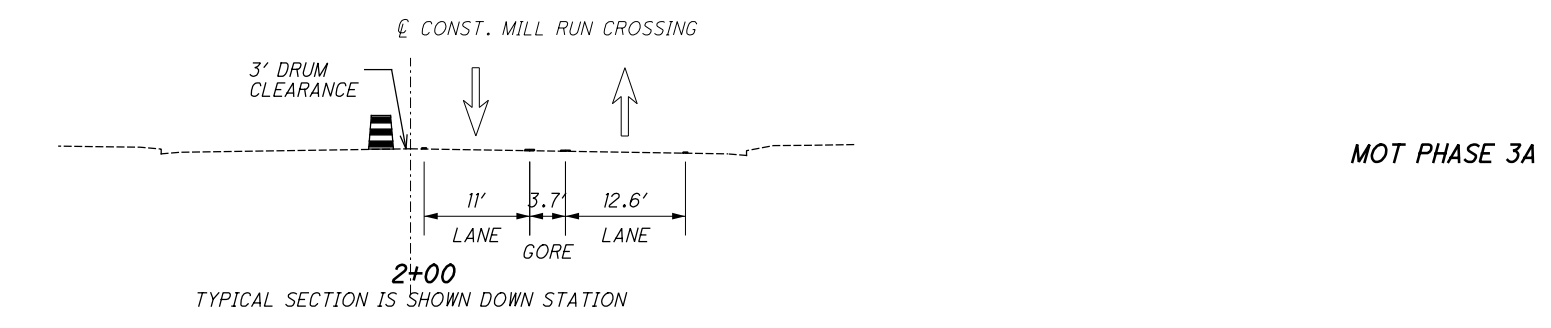
MOT PHASE 2A



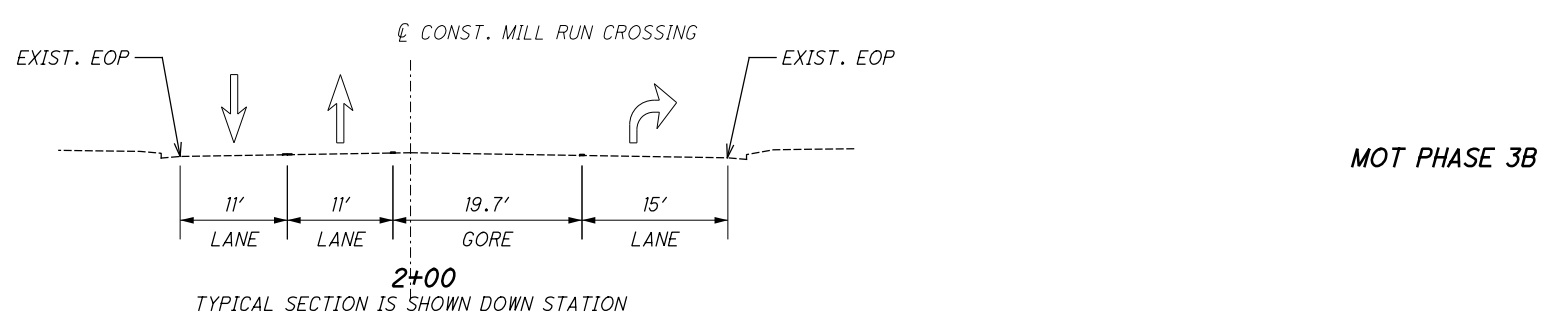
MOT PHASE 2B



MOT PHASE 3









MOT PHASE 3A



MOT PHASE 3B

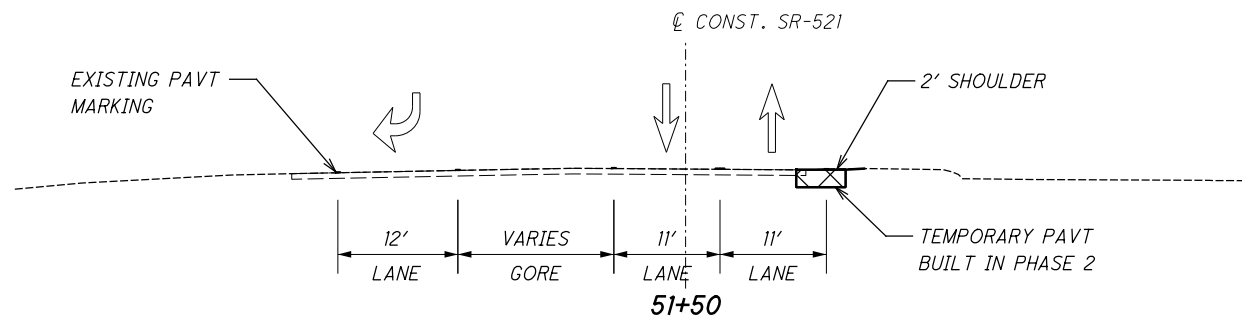
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MOT TRANSVERSE SECTION LEGEND

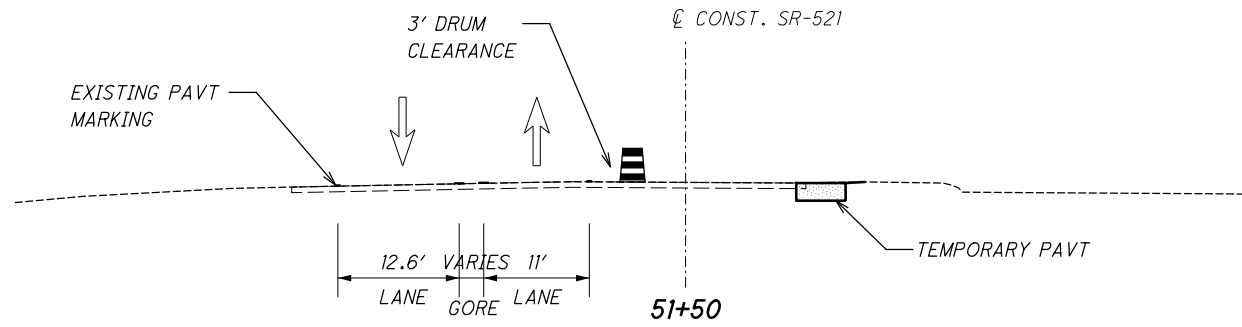
-  PORTABLE BARRIER
-  WORK ZONE DRUM
-  DIRECTION OF TRAVEL
-  ACTIVE WORK ZONE
-  PAVEMENT FOR MAINTAINING TRAFFIC (PROPOSED)
-  PAVEMENT FOR MAINTAINING TRAFFIC (CONSTRUCTED IN PREVIOUS PHASE)

NOTES:

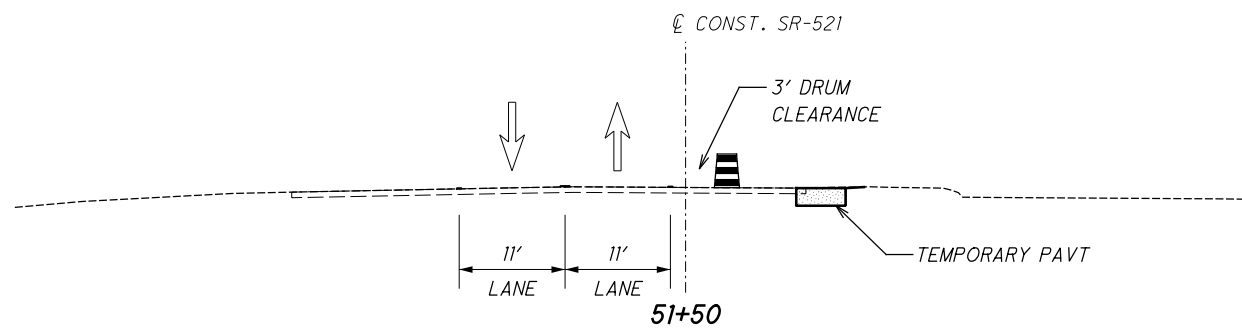
1. INSIDE SAWCUT LINE IS A NOMINAL 1 FOOT INSIDE FROM EDGE OF PAVEMENT.



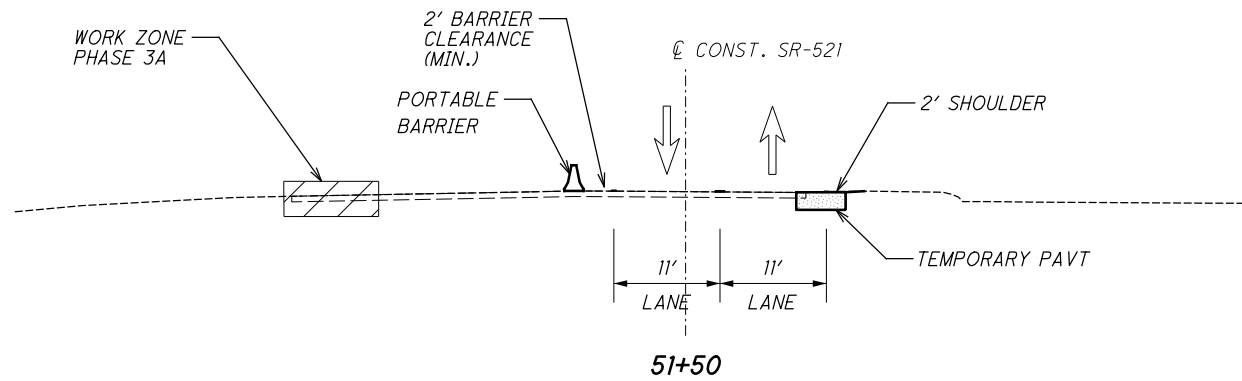
MOT PHASE 2A



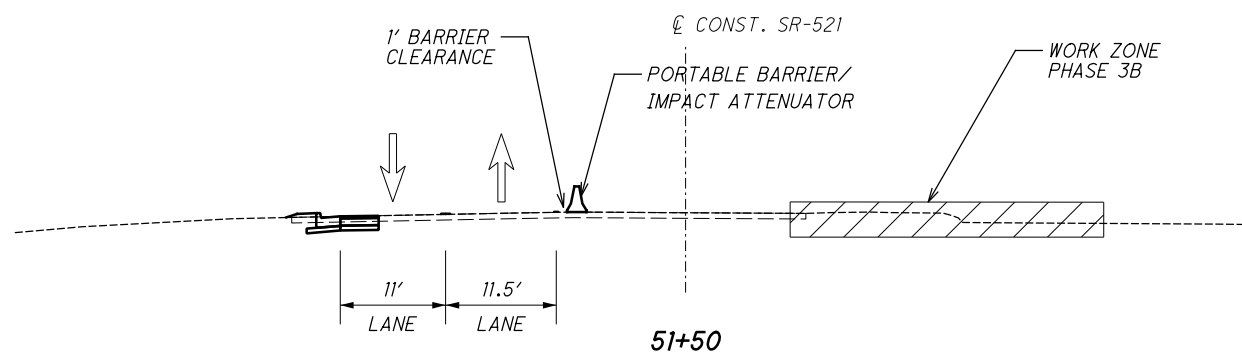
MOT PHASE 2B



MOT PHASE 3



MOT PHASE 3A



MOT PHASE 3B

CALCULATED  
CJM  
CHECKED  
ACW

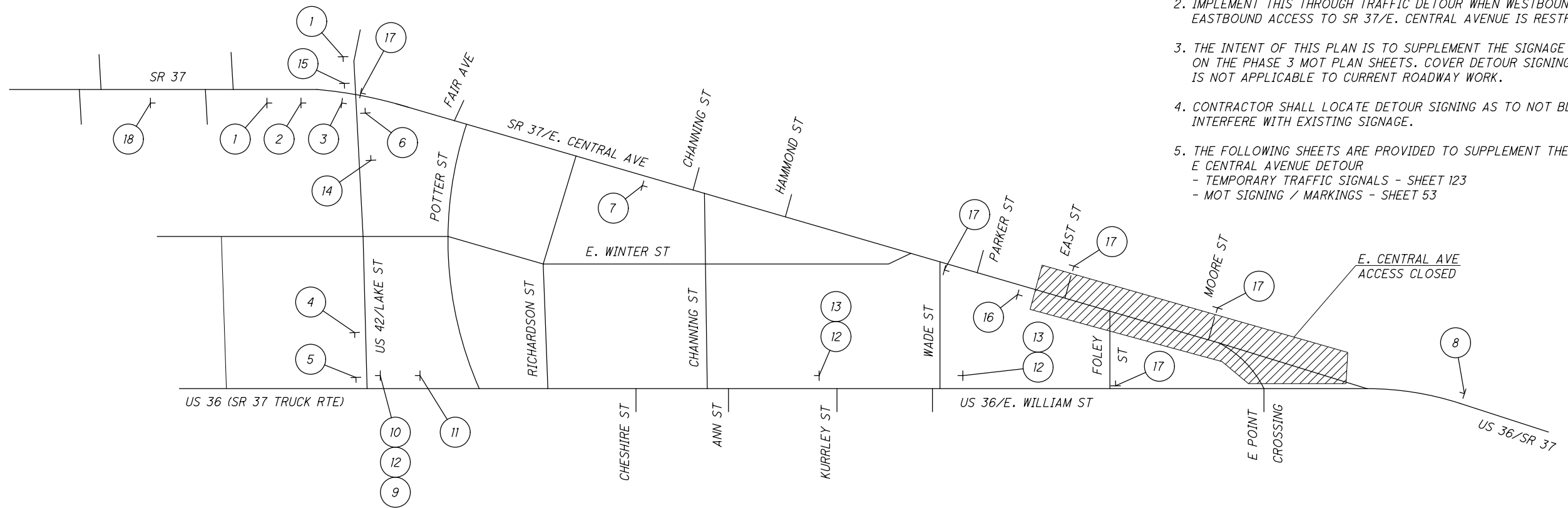
MOT TYPICAL SECTION G-G  
SR-521 - STA. 51+50

DEL-36-11.03

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NOTES:

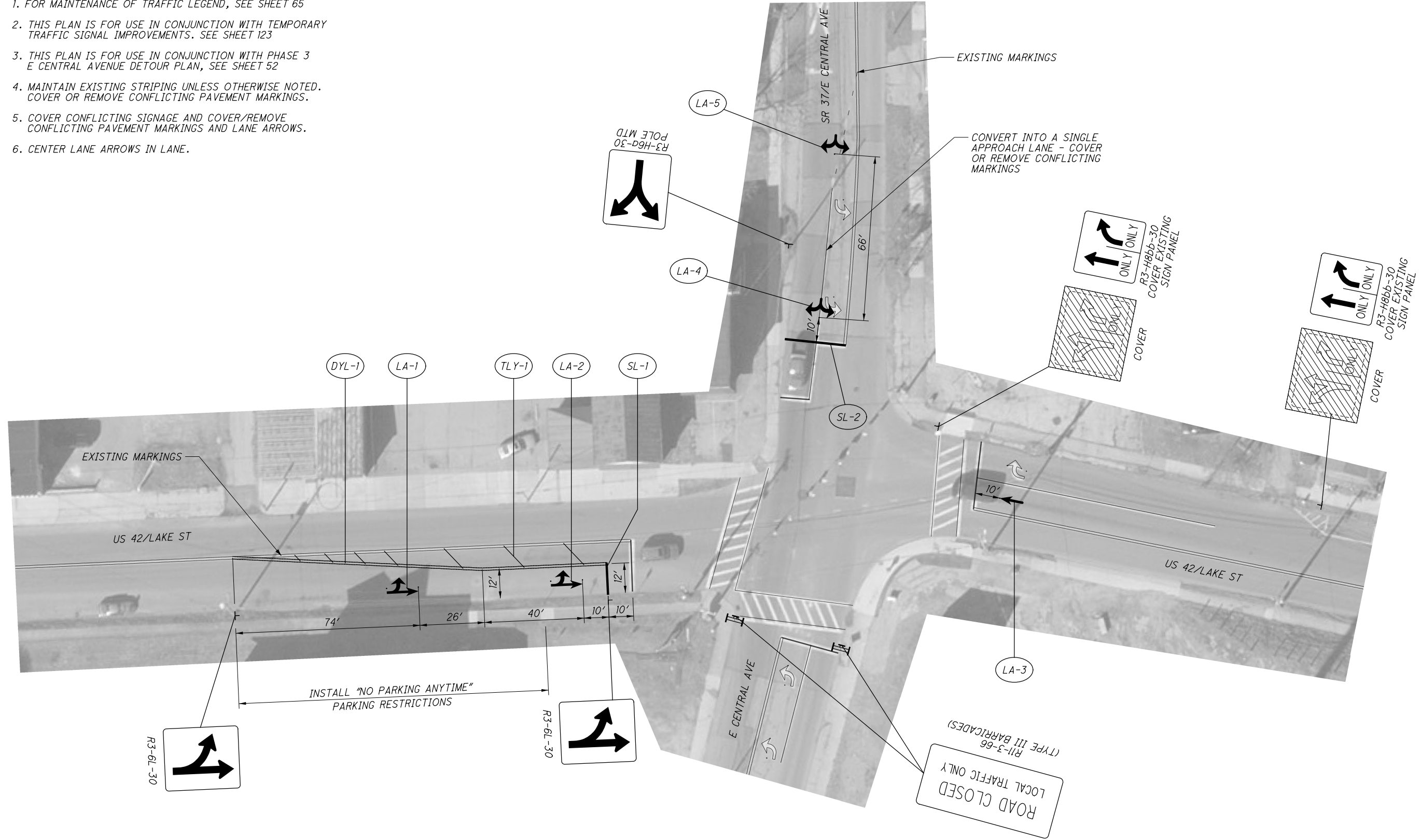
1. CONTRACTOR SHALL COORDINATE WITH THE CITY OF DELAWARE AND OHIO DEPARTMENT OF TRANSPORTATION TO ADJUST TRAFFIC SIGNAL TIMINGS WHEN UTILIZING THIS DETOUR PLAN.
2. IMPLEMENT THIS THROUGH TRAFFIC DETOUR WHEN WESTBOUND AND EASTBOUND ACCESS TO SR 37/E. CENTRAL AVENUE IS RESTRICTED.
3. THE INTENT OF THIS PLAN IS TO SUPPLEMENT THE SIGNAGE SHOWN ON THE PHASE 3 MOT PLAN SHEETS. COVER DETOUR SIGNING THAT IS NOT APPLICABLE TO CURRENT ROADWAY WORK.
4. CONTRACTOR SHALL LOCATE DETOUR SIGNING AS TO NOT BLOCK OR INTERFERE WITH EXISTING SIGNAGE.
5. THE FOLLOWING SHEETS ARE PROVIDED TO SUPPLEMENT THE E CENTRAL AVENUE DETOUR
  - TEMPORARY TRAFFIC SIGNALS - SHEET 123
  - MOT SIGNING / MARKINGS - SHEET 53



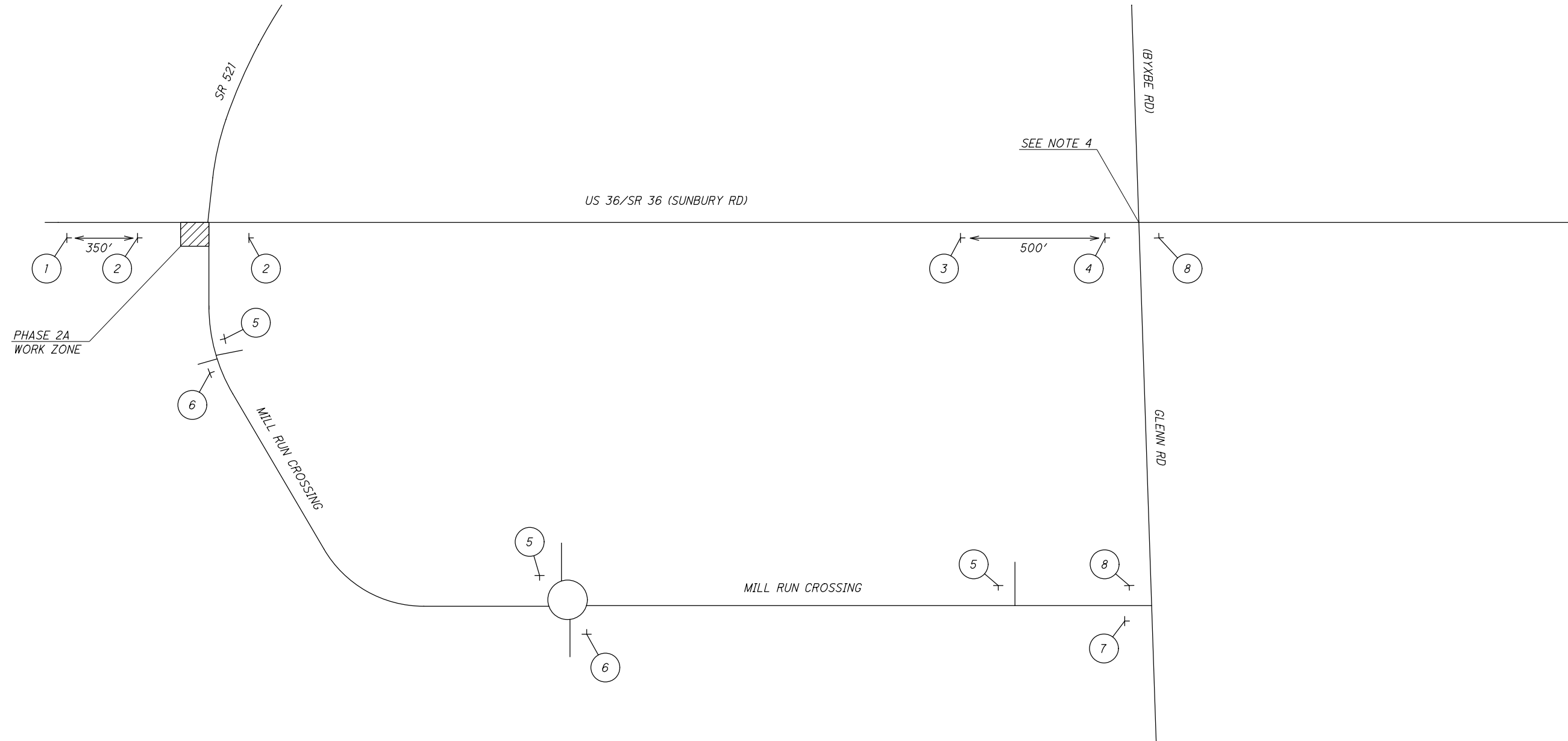
1	 W20-2-36	2	 M3-2-24 M1-5-24 M4-9RT-30	3	 M3-2-24 M1-5-24 M4-9R-30	4	 M3-2-24 M1-5-24 M4-9LT-30	5	 M3-2-24 M1-5-24 M4-9L-30	6	 M3-4-24 M1-5-24 M4-9L-30	7	 W20-3-36	8	 M3-4-24 M3-4-24 M4-5-24 M4-5-24 M1-4-24 M1-5-24-2 M1-4-24 M1-4-24				
9	 M1-4-24 M6-6-21 M3-1-24 M1-4-24 M6-1R-21	10	 M3-4-24 M1-5-24 M4-9R-30	11	 M3-4-24 M1-5-24 M4-9RT-30	12	 R14-1-24 M3-4-24 M1-5-24 M6-3-21	13	 M3-4-24 M1-5-24 M4-9C-30	14	 M3-4-24 M1-5-24 M4-9L T-30	15	 M3-2-24 M1-5-24 M4-9C-30	16	 R11-2-48 TYPE III BARRICADE	17	 R11-3-66 TYPE III BARRICADE	18	 W20-3-36

NOTES:

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. THIS PLAN IS FOR USE IN CONJUNCTION WITH TEMPORARY TRAFFIC SIGNAL IMPROVEMENTS. SEE SHEET 123
3. THIS PLAN IS FOR USE IN CONJUNCTION WITH PHASE 3 E CENTRAL AVENUE DETOUR PLAN, SEE SHEET 52
4. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. COVER OR REMOVE CONFLICTING PAVEMENT MARKINGS.
5. COVER CONFLICTING SIGNAGE AND COVER/REMOVE CONFLICTING PAVEMENT MARKINGS AND LANE ARROWS.
6. CENTER LANE ARROWS IN LANE.



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1	No Access to Mill Run Crossing Follow Detour <i>SPECIAL-36</i>	2	Mill Run Crossing DETOUR ↑ <i>W16-H8P M4-9C-30</i>	3	Mill Run Crossing DETOUR ↘ <i>W16-H8P M4-9RT-30</i>	4	Mill Run Crossing DETOUR → <i>W16-H8P M4-9R-30</i>
5	No Access to WB Sunbury US36/SR37 DETOUR ← <i>SPECIAL-36 M4-9L-30</i>	6	No Access to WB Sunbury US36/SR37 DETOUR → <i>SPECIAL-36 M4-9R-30</i>	7	Sunbury Rd US36/SR37 DETOUR ← <i>W16-H8P M4-9L-30</i>	8	END DETOUR <i>M4-8A-30</i>

**NOTES:**

1. IMPLEMENT THIS LOCAL DETOUR WHEN IMPROVING THE SOUTHWEST QUADRANT OF US 36/SR 37, SR 521, AND MILL RUN CROSSING INTERSECTION.
2. THE INTENT OF THIS PLAN IS TO SUPPLEMENT THE SIGNAGE SHOWN ON THE PHASE 2 AND PHASE 2A MOT PLAN SHEETS.
3. CONTRACTOR SHALL LOCATE DETOUR SIGNING AS TO NOT BLOCK OR INTERFERE WITH EXISTING SIGNAGE.
4. CONTRACTOR SHALL COORDINATE WITH THE ENGINEER FOR POSSIBLE TRAFFIC SIGNAL TIMING CHANGES. BYXBE ROAD AND TRAFFIC SIGNAL ARE NOT EXISTING AT TIME OF PLAN DEVELOPMENT.

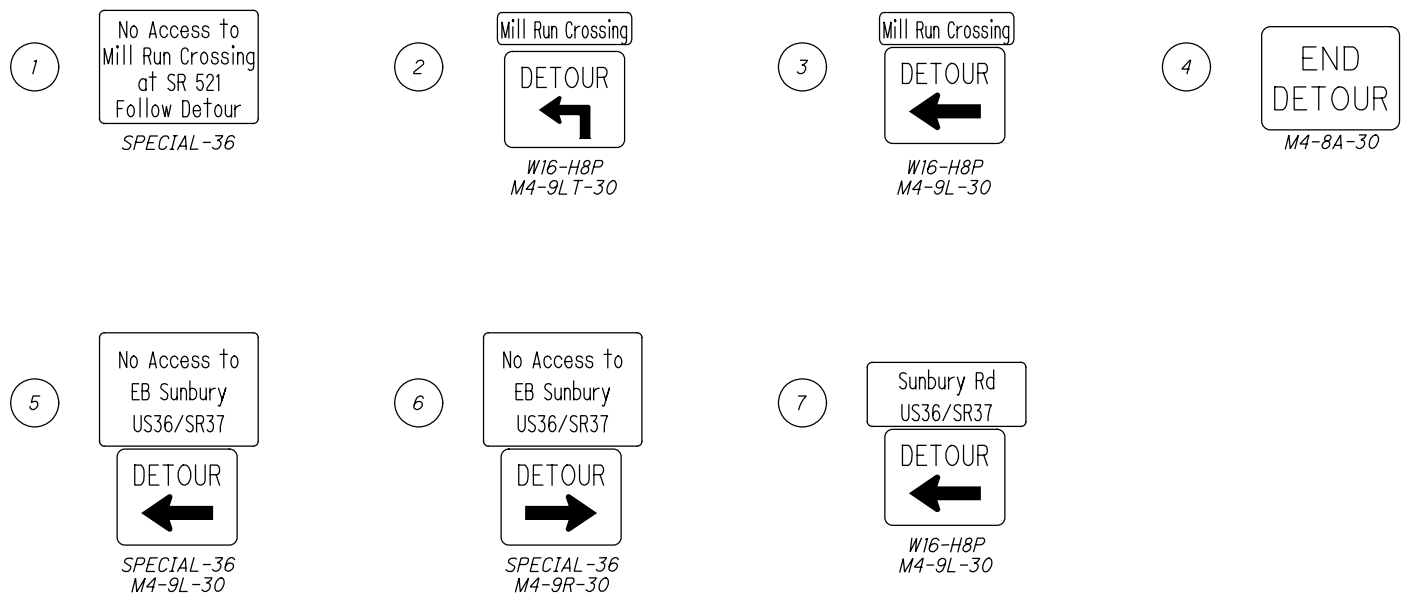
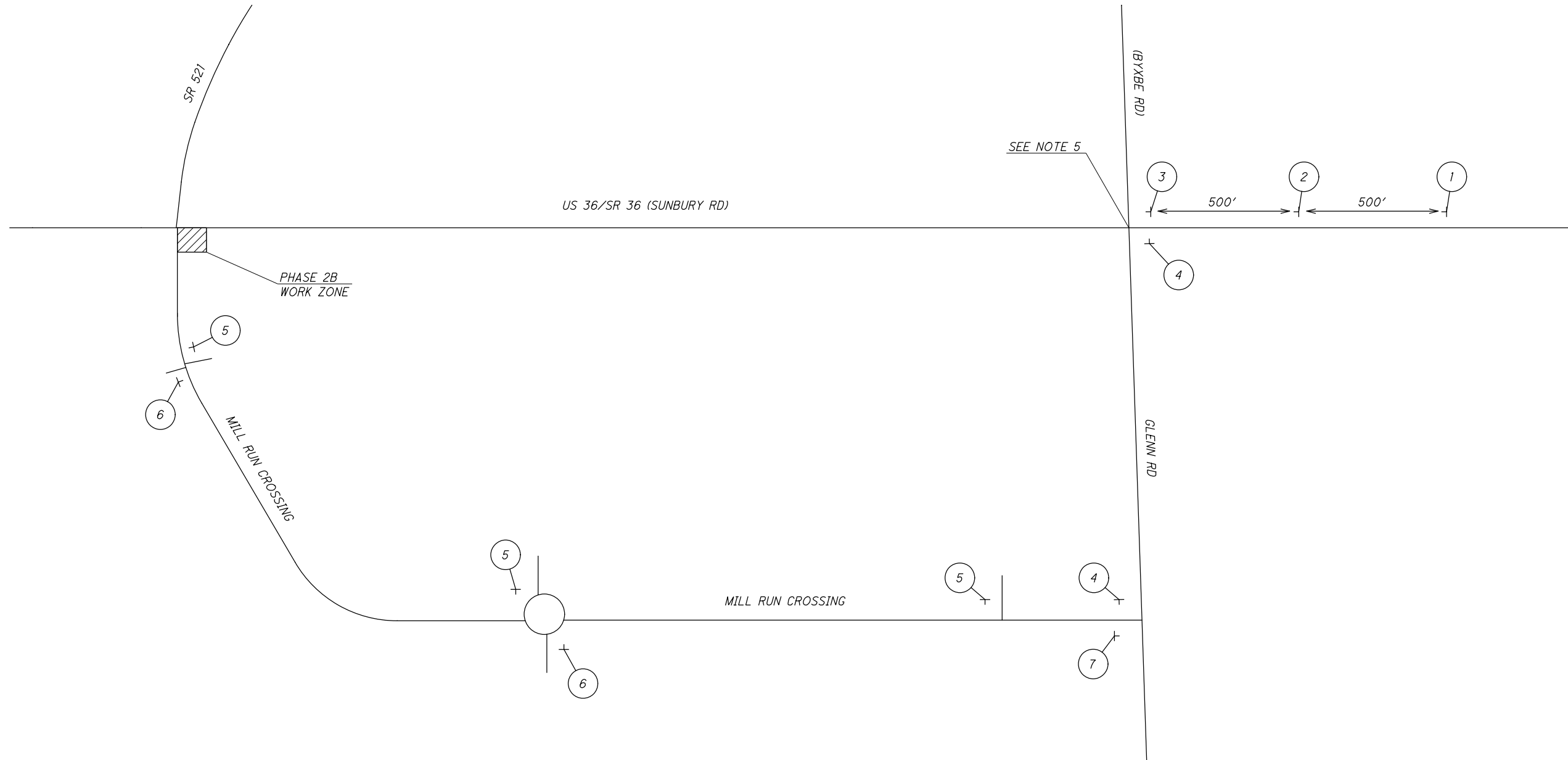
CALCULATED  
ACW  
CHECKED  
CJM

HORIZONTAL  
SCALE IN FEET

**MAINTENANCE OF TRAFFIC  
DETOUR - PHASE 2A**

**DEL-36-11.03**

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NOTES:

1. IMPLEMENT THIS LOCAL DETOUR WHEN IMPROVING THE SOUTHEAST QUADRANT OF US 36/SR 37, SR 521, AND MILL RUN CROSSING INTERSECTION.
2. THE INTENT OF THIS PLAN IS TO SUPPLEMENT THE SIGNAGE SHOWN ON THE PHASE 2 AND PHASE 2B MOT PLAN SHEETS.
3. CONTRACTOR SHALL LOCATE DETOUR SIGNING AS TO NOT BLOCK OR INTERFERE WITH EXISTING SIGNAGE.
4. CONTRACTOR SHALL POST DETOUR SIGNAGE ON BOTH SIDES OF US 36/SR 37 WHERE APPROPRIATE.
5. CONTRACTOR SHALL COORDINATE WITH THE ENGINEER FOR POSSIBLE TRAFFIC SIGNAL TIMING CHANGES. BYXBE ROAD AND TRAFFIC SIGNAL ARE NOT EXISTING AT TIME OF PLAN DEVELOPMENT.



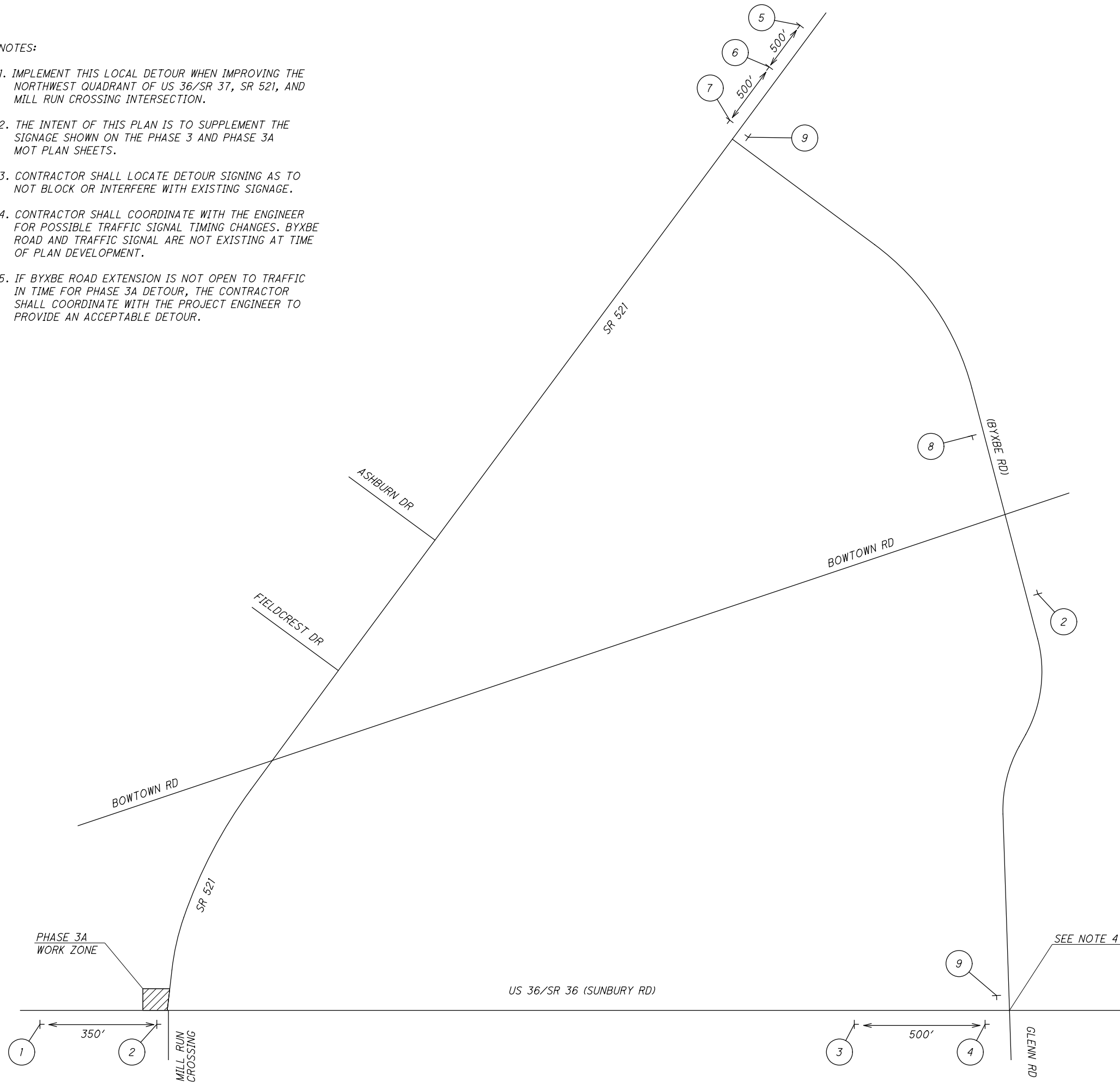
**MAINTENANCE OF TRAFFIC  
DETOUR - PHASE 2B**

**DEL-36-11.03**

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NOTES:

1. IMPLEMENT THIS LOCAL DETOUR WHEN IMPROVING THE NORTHWEST QUADRANT OF US 36/SR 37, SR 521, AND MILL RUN CROSSING INTERSECTION.
2. THE INTENT OF THIS PLAN IS TO SUPPLEMENT THE SIGNAGE SHOWN ON THE PHASE 3 AND PHASE 3A MOT PLAN SHEETS.
3. CONTRACTOR SHALL LOCATE DETOUR SIGNING AS TO NOT BLOCK OR INTERFERE WITH EXISTING SIGNAGE.
4. CONTRACTOR SHALL COORDINATE WITH THE ENGINEER FOR POSSIBLE TRAFFIC SIGNAL TIMING CHANGES. BYXBE ROAD AND TRAFFIC SIGNAL ARE NOT EXISTING AT TIME OF PLAN DEVELOPMENT.
5. IF BYXBE ROAD EXTENSION IS NOT OPEN TO TRAFFIC IN TIME FOR PHASE 3A DETOUR, THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT ENGINEER TO PROVIDE AN ACCEPTABLE DETOUR.



1 No Access to SR 521 Follow Detour  
SPECIAL-36

2 SR 521  
DETOUR  
↑  
W16-H8P  
M4-9C-30

3 SR 521  
DETOUR  
←  
W16-H8P  
M4-9L T-30

4 SR 521  
DETOUR  
←  
W16-H8P  
M4-9L-30

5 No Access to WB Sunbury US 36/SR 37 Follow Detour  
SPECIAL-36

6 Sunbury Rd US36/SR37  
DETOUR  
←  
W16-H8P  
M4-9L T-30

7 Sunbury Rd US36/SR37  
DETOUR  
←  
W16-H8P  
M4-9L-30

8 Sunbury Rd US36/SR37  
DETOUR  
↑  
W16-H8P  
M4-9C-30

9 END  
DETOUR  
M4-8A-30

CALCULATED ACW CHECKED PRS

0 200 400  
HORIZONTAL SCALE IN FEET

MAINTENANCE OF TRAFFIC  
DETOUR - PHASE 3A

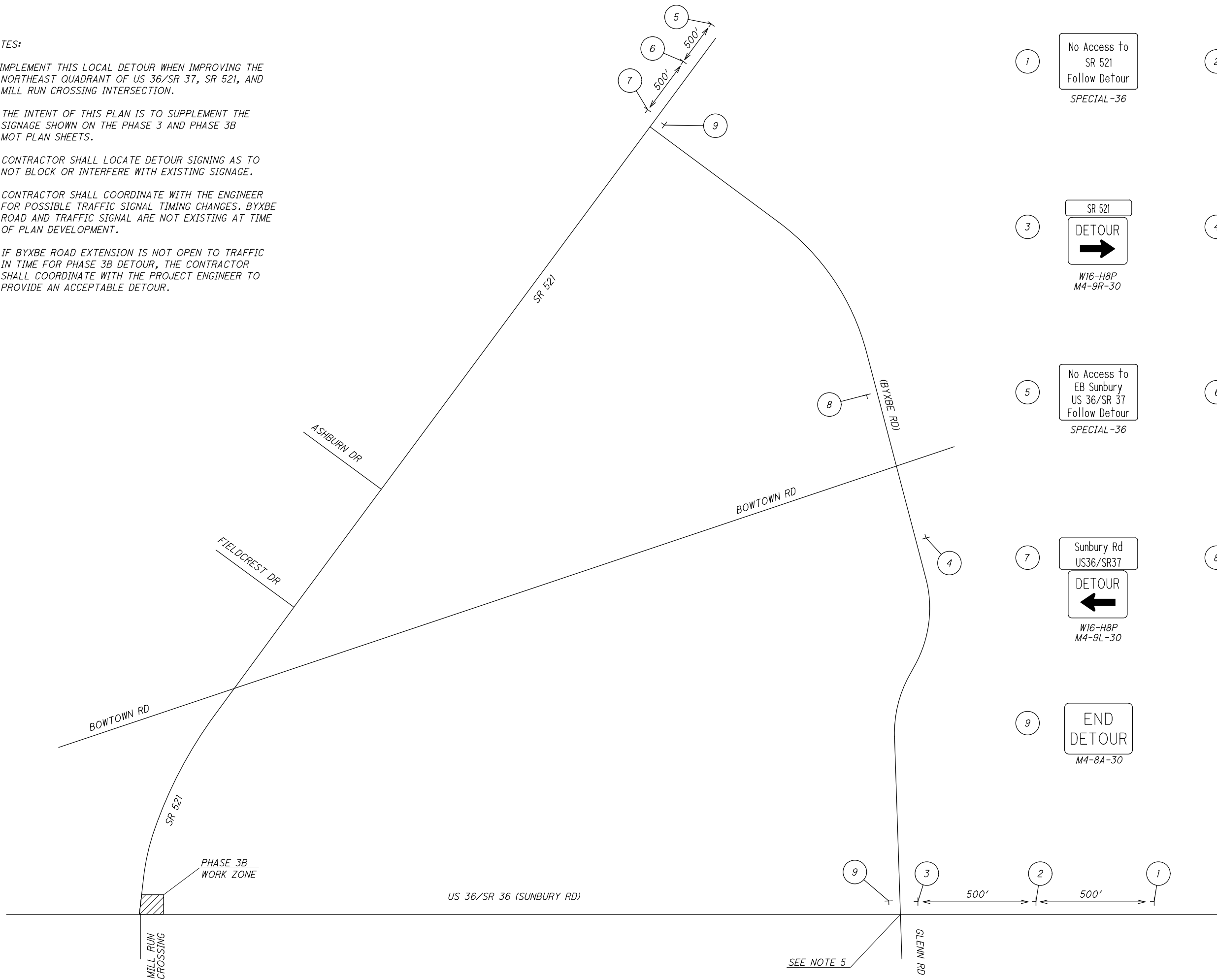
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NOTES:

1. IMPLEMENT THIS LOCAL DETOUR WHEN IMPROVING THE NORTHEAST QUADRANT OF US 36/SR 37, SR 521, AND MILL RUN CROSSING INTERSECTION.
2. THE INTENT OF THIS PLAN IS TO SUPPLEMENT THE SIGNAGE SHOWN ON THE PHASE 3 AND PHASE 3B MOT PLAN SHEETS.
3. CONTRACTOR SHALL LOCATE DETOUR SIGNING AS TO NOT BLOCK OR INTERFERE WITH EXISTING SIGNAGE.
4. CONTRACTOR SHALL COORDINATE WITH THE ENGINEER FOR POSSIBLE TRAFFIC SIGNAL TIMING CHANGES. BYXBE ROAD AND TRAFFIC SIGNAL ARE NOT EXISTING AT TIME OF PLAN DEVELOPMENT.
5. IF BYXBE ROAD EXTENSION IS NOT OPEN TO TRAFFIC IN TIME FOR PHASE 3B DETOUR, THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT ENGINEER TO PROVIDE AN ACCEPTABLE DETOUR.



(1)	No Access to SR 521 Follow Detour <i>SPECIAL-36</i>	(2)	SR 521 DETOUR W16-H8P M4-9RT-30
(3)	SR 521 DETOUR W16-H8P M4-9R-30	(4)	SR 521 DETOUR W16-H8P M4-9C-30
(5)	No Access to EB Sunbury US 36/SR 37 Follow Detour <i>SPECIAL-36</i>	(6)	Sunbury Rd US36/SR37 DETOUR W16-H8P M4-9LT-30
(7)	Sunbury Rd US36/SR37 DETOUR W16-H8P M4-9L-30	(8)	Sunbury Rd US36/SR37 DETOUR W16-H8P M4-9C-30
(9)	END DETOUR M4-8A-30		



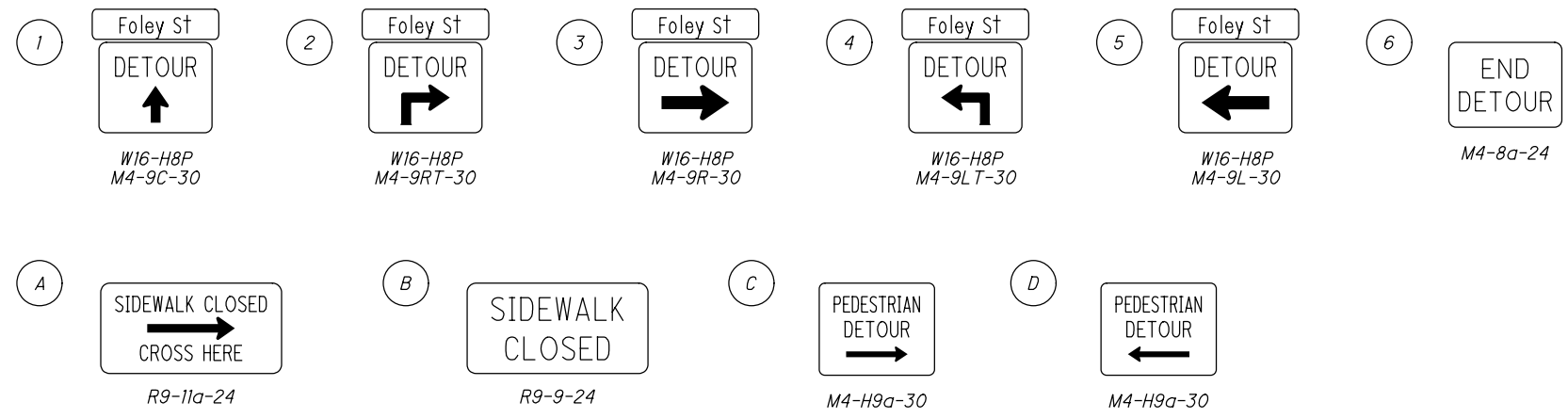
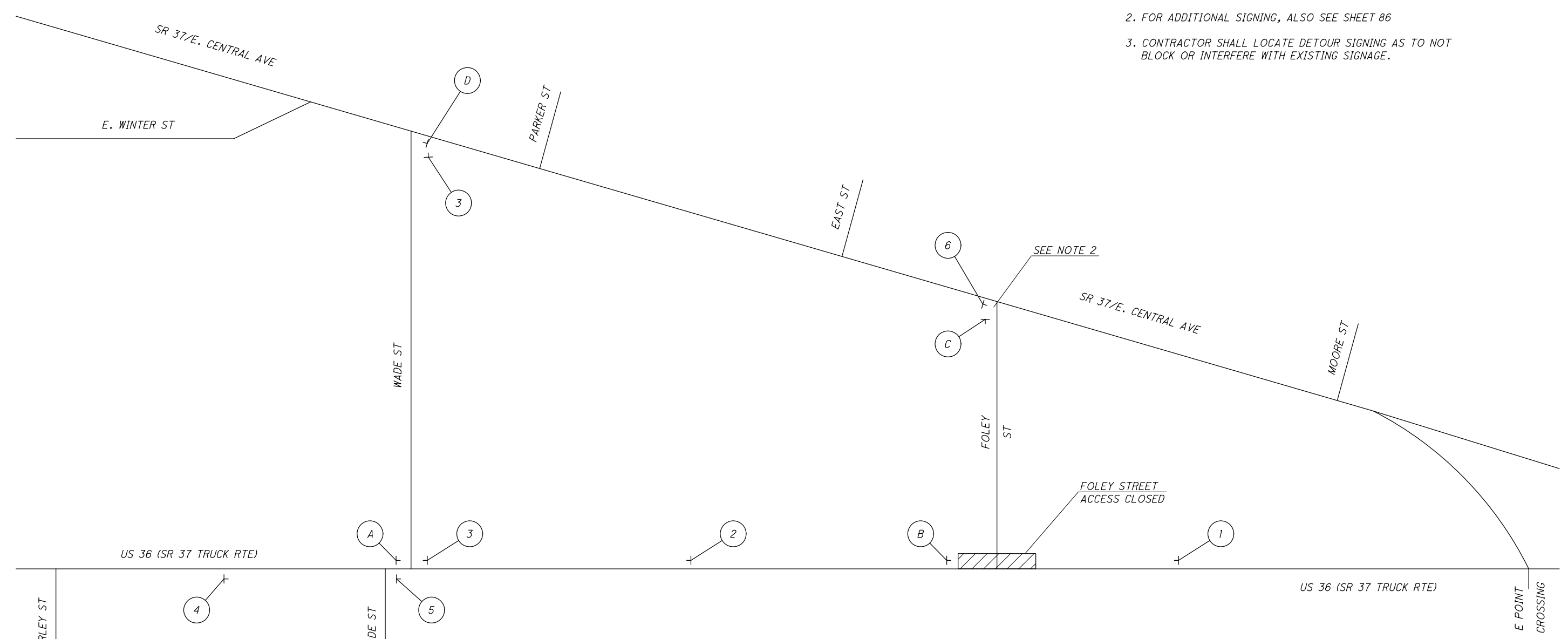
MAINTENANCE OF TRAFFIC  
DETOUR - PHASE 3B

DEL-36-11.03

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NOTES:

- 1. IMPLEMENT THIS DETOUR WHEN FOLEY STREET IS CLOSED DUE TO STORM SEWER WORK IN PHASE 3/3.1 SEE SHEET 86
- 2. FOR ADDITIONAL SIGNING, ALSO SEE SHEET 86
- 3. CONTRACTOR SHALL LOCATE DETOUR SIGNING AS TO NOT BLOCK OR INTERFERE WITH EXISTING SIGNAGE.

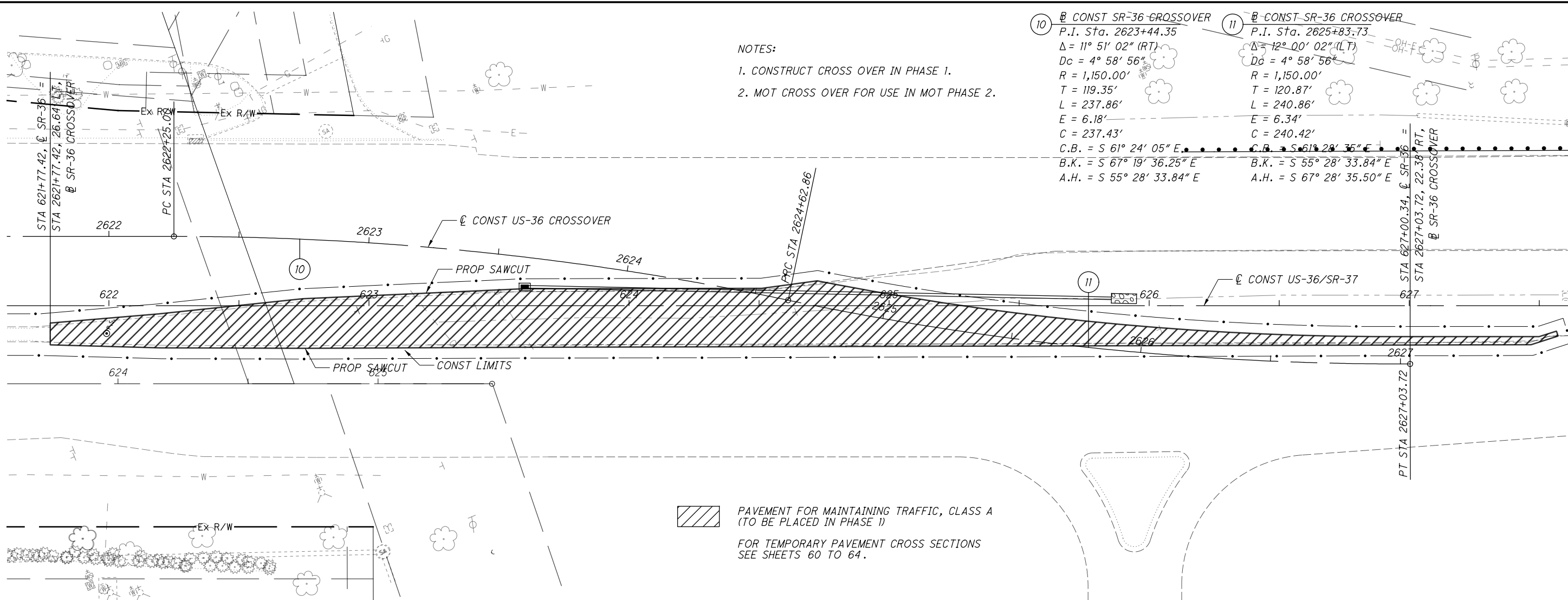


CALCULATED  
ACW  
CHECKED  
PRS

MAINTENANCE OF TRAFFIC  
DETOUR PLAN - FOLEY STREET CLOSURE

DEL-36-11.03


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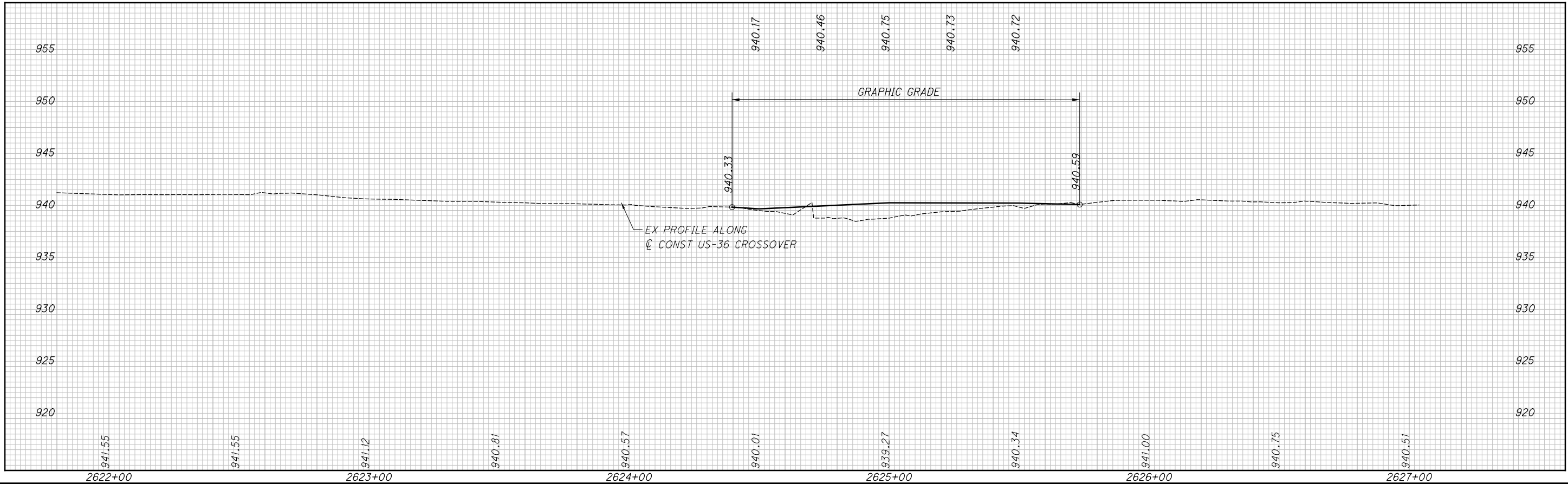


NOTES:

- 1. CONSTRUCT CROSS OVER IN PHASE 1.
- 2. MOT CROSS OVER FOR USE IN MOT PHASE 2.

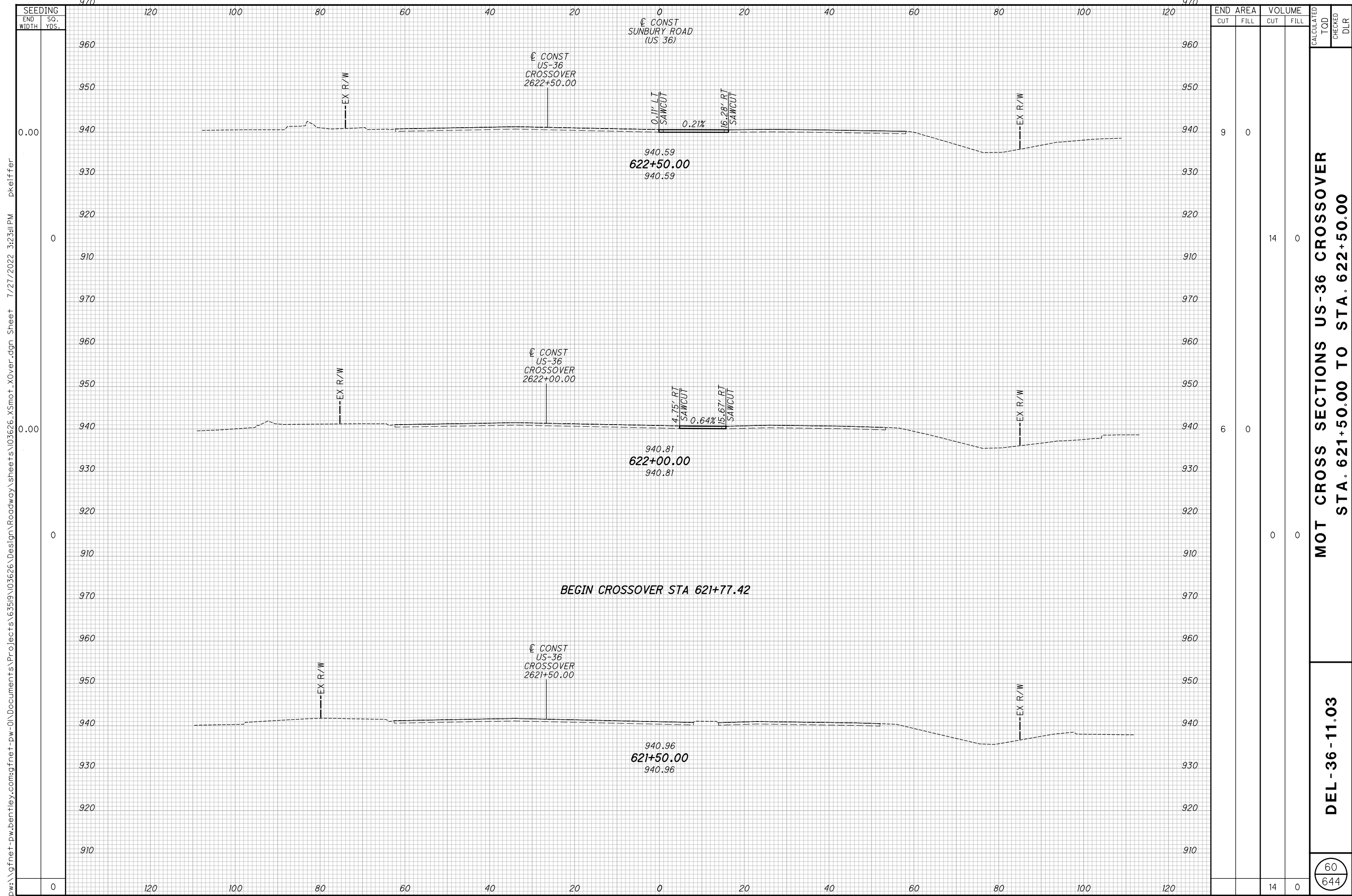
10	CONST SR-36 CROSSOVER	11	CONST SR-36 CROSSOVER
	P.I. Sta. 2623+44.35		P.I. Sta. 2625+83.73
	$\Delta = 11^\circ 51' 02''$ (RT)		$\Delta = 12^\circ 00' 02''$ (LT)
	$Dc = 4^\circ 58' 56''$		$Dc = 4^\circ 58' 56''$
	$R = 1,150.00'$		$R = 1,150.00'$
	$T = 119.35'$		$T = 120.87'$
	$L = 237.86'$		$L = 240.86'$
	$E = 6.18'$		$E = 6.34'$
	$C = 237.43'$		$C = 240.42'$
	C.B. = $S 61^\circ 24' 05'' E$		C.B. = $S 61^\circ 28' 35'' E$
	B.K. = $S 67^\circ 19' 36.25'' E$		B.K. = $S 55^\circ 28' 33.84'' E$
	A.H. = $S 55^\circ 28' 33.84'' E$		A.H. = $S 67^\circ 28' 35.50'' E$

 PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A (TO BE PLACED IN PHASE 1)  
 FOR TEMPORARY PAVEMENT CROSS SECTIONS SEE SHEETS 60 TO 64.



**MOT - US 36 CROSSOVER**  
**STA 2661+39 TO STA 627+60**

**DEL-36-11.03**



SEEDING	
END WIDTH	SO. YDS.
0	0

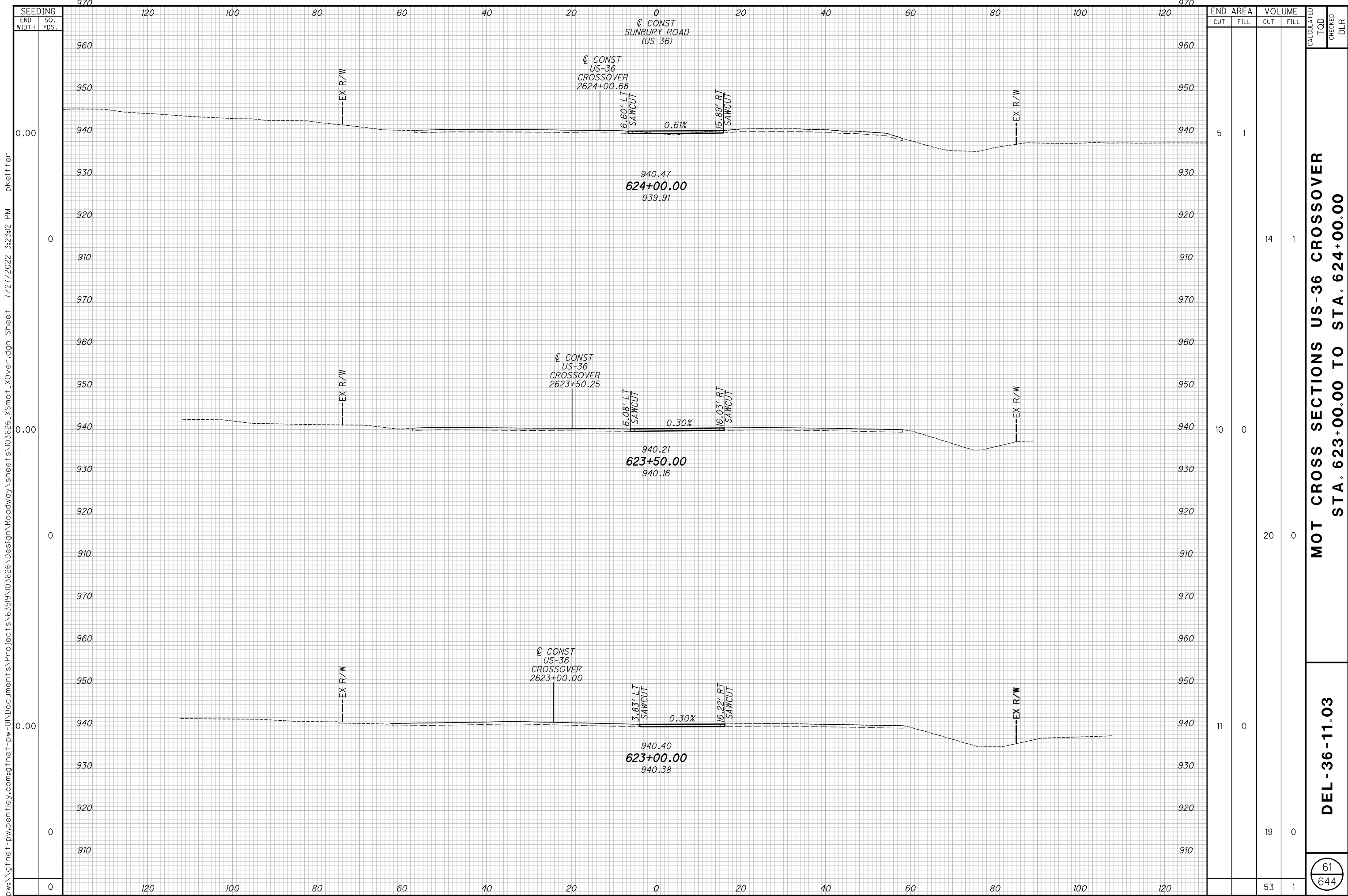
END AREA		VOLUME		CALCULATED TOD	CHECKED DLR
CUT	FILL	CUT	FILL		
9	0	14	0		
6	0	0	0		
		14	0		

**MOT CROSS SECTIONS US-36 CROSSOVER  
STA. 621+50.00 TO STA. 622+50.00**

**DEL-36-11.03**

60  
644

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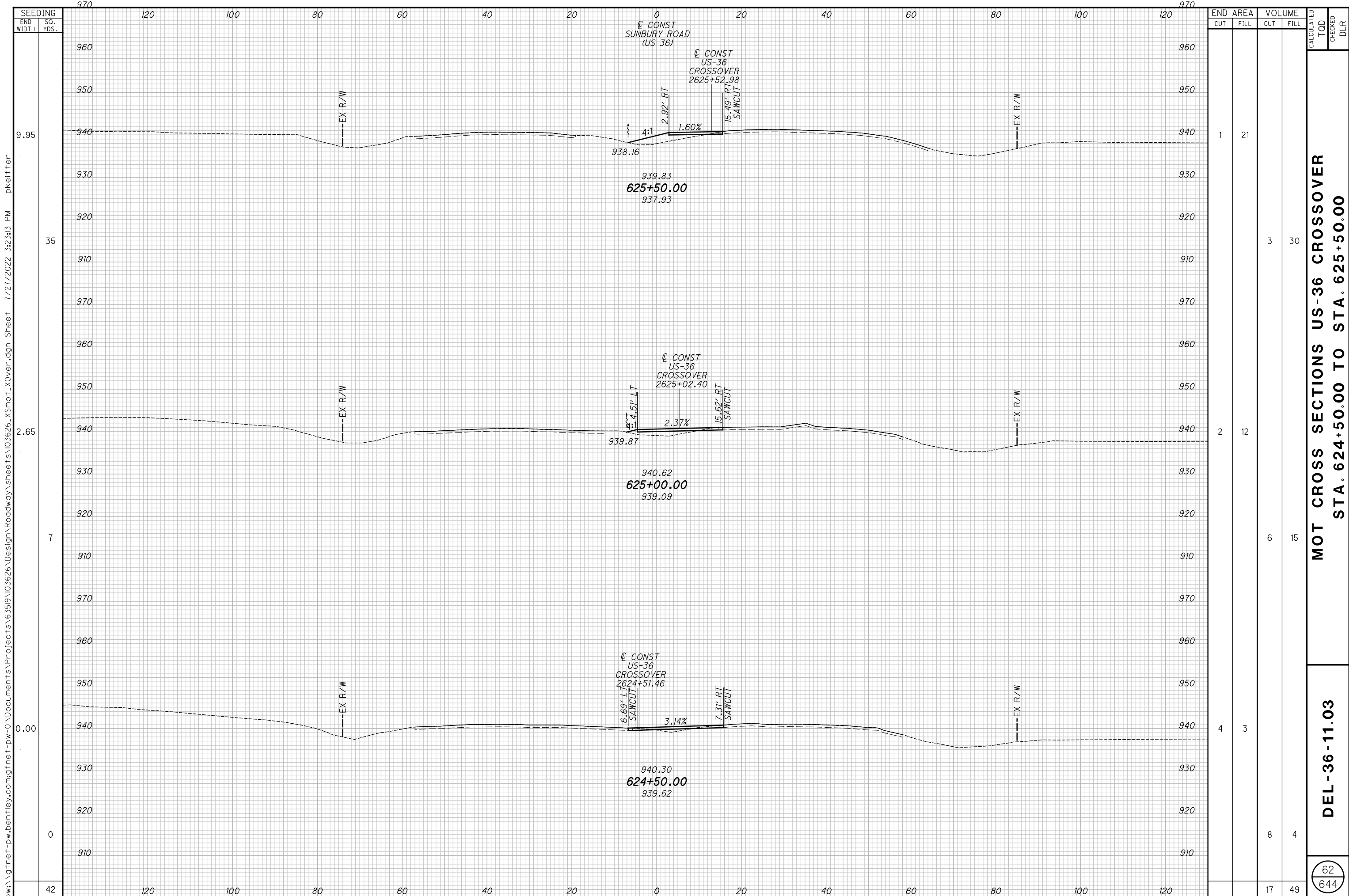


**MOT CROSS SECTIONS US-36 CROSSOVER**  
**STA. 623+00.00 TO STA. 624+00.00**

**DEL-36-11.03**

61  
 644

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SEEDING  
 END SO.  
 WIDTH YDS.  
 9.95  
 35  
 2.65  
 7  
 0.00  
 0  
 42

SEEDING		END AREA		VOLUME		CALCULATED	
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL	TOD	DLR
9.95		1	21				
35				3	30		
2.65		2	12				
7				6	15		
0.00		4	3				
0				8	4		
42				17	49		

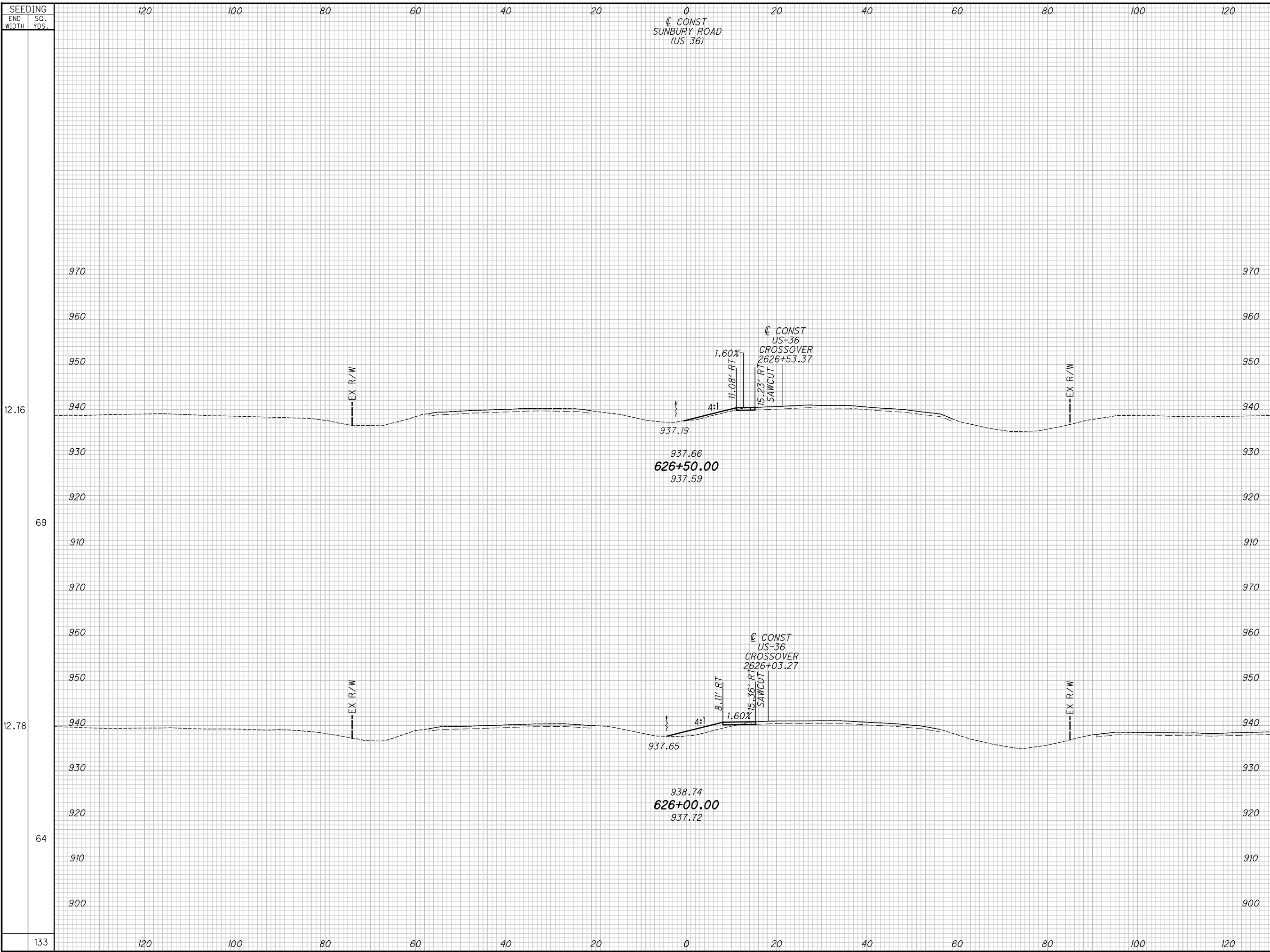
**MOT CROSS SECTIONS US-36 CROSSOVER  
 STA. 624+50.00 TO STA. 625+50.00**

**DEL-36-11.03**

62  
 644

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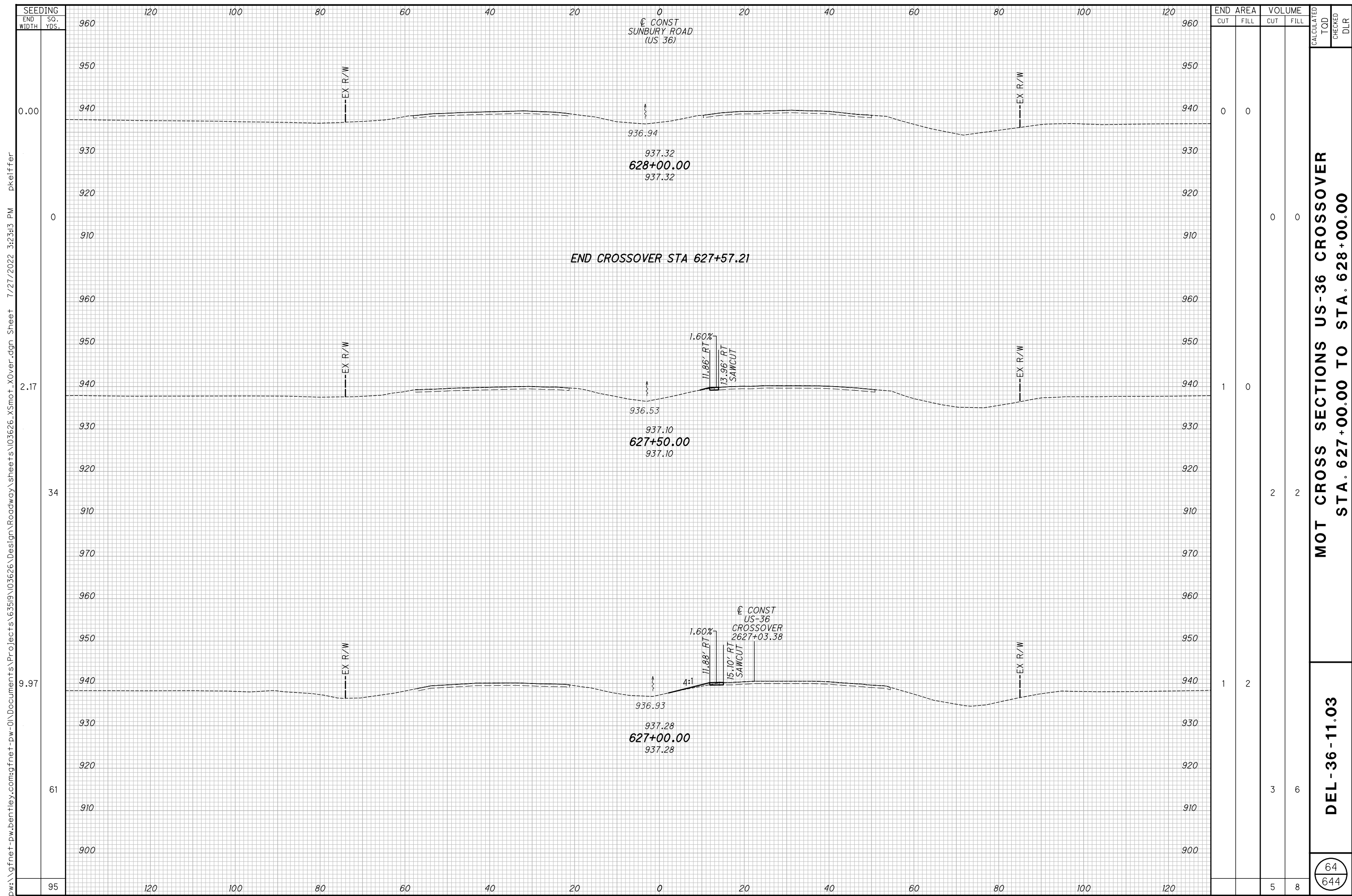


SEEDING		END AREA		VOLUME		CALCULATED	
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL	TOD	DLR
12.16		2	4				
69				3	17		
12.78		1	14				
64				2	32		
133				5	49		

**MOT CROSS SECTIONS US-36 CROSSOVER**  
**STA. 626+00.00 TO STA. 626+50.00**

**DEL-36-11.03**

63  
 644



**MOT CROSS SECTIONS US-36 CROSSOVER**  
**STA. 627+00.00 TO STA. 628+00.00**

**DEL-36-11.03**






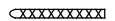










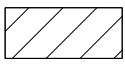
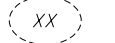

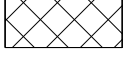
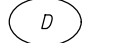










64  
 644

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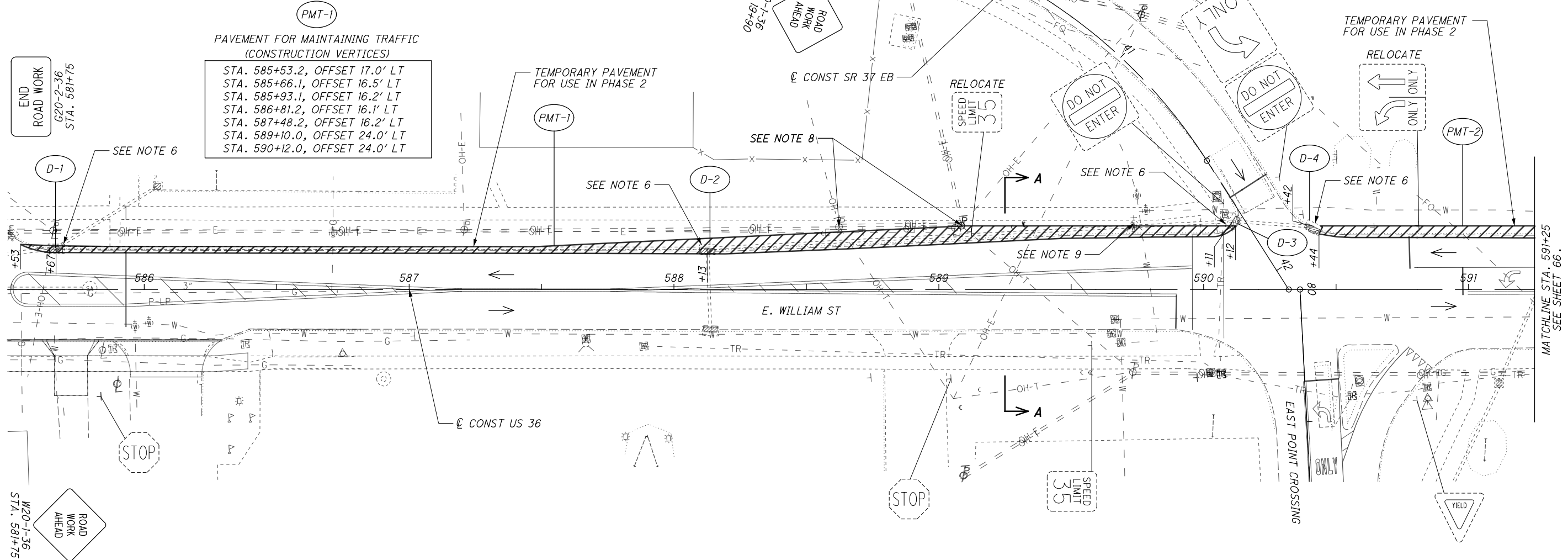
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MAINTENANCE OF TRAFFIC LEGEND

	WZ CENTER LINE, DOUBLE YELLOW		EXISTING SIGN		PORTABLE BARRIER
	WZ CENTER LINE, DASHED / SOLID		EXISTING SIGN TO BE REMOVED		IMPACT ATTENUATOR
	WZ EDGE LINE, WHITE		PROPOSED SIGN		DRUMS (SPACING)
	WZ EDGE LINE, YELLOW		EXISTING SIGN SUPPORT		DIRECTION OF TRAVEL
	WZ CHANNELIZING LINE		PROPOSED SIGN SUPPORT		ITEM, QUANTIFIED
	WZ LANE LINE		WORK ZONE (MAIN PHASE)		ITEM, PREVIOUSLY QUANTIFIED
	WZ DOTTED LINE, 4"		WORK ZONE (SUB-PHASE)		DRAINAGE ITEM
	WZ DOTTED LINE, 8"		PAVEMENT FOR MAINTAINING TRAFFIC (PROPOSED)		RAISED PAVEMENT MARKER
	WZ TRANSVERSE LINE, YELLOW		PAVEMENT FOR MAINTAINING TRAFFIC (PLACED IN PREVIOUS PHASE)		
	WZ CHEVRON MARKING				
	WZ STOP LINE				
	IMPACT ATTENUATOR				
	PORTABLE BARRIER				
	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A				

NOTES:

1. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
2. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
3. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
4. MAINTAIN TRAFFIC DURING CONSTRUCTION OF PAVEMENT FOR MAINTAINING TRAFFIC. SAW CUT LINE IS A NOMINAL 1 FT FROM EDGE OF EXISTING PAVEMENT.
5. CONTRACTOR SHALL REFER TO THE INCLUDED CHARTS FOR DIRECTION IN CONSTRUCTING TEMPORARY PAVEMENT FOR USE IN MOT PHASE 2.
6. REMOVE EXISTING GRATE AND FRAME AND REPLACE WITH CB-6 GRATE AND FRAME.
7. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
8. CONTRACTOR SHALL COORDINATE UTILITY RELOCATION WITH UTILITY OWNER(S).
9. IF NECESSARY, REMOVE HYDRANT CASTING. REFER TO PLAN AND PROFILES SHEETS FOR ADDITIONAL WORK.
10. CONTRACTOR SHALL REFER TO SCD MT-110.10 WHEN MAINTAINING PEDESTRIAN TRAFFIC.
11. FOR SECTION A-A, SEE SHEET 45



MAINTENANCE OF TRAFFIC PLANS - PHASE 1  
 STA. 585+50 TO STA. 591+25

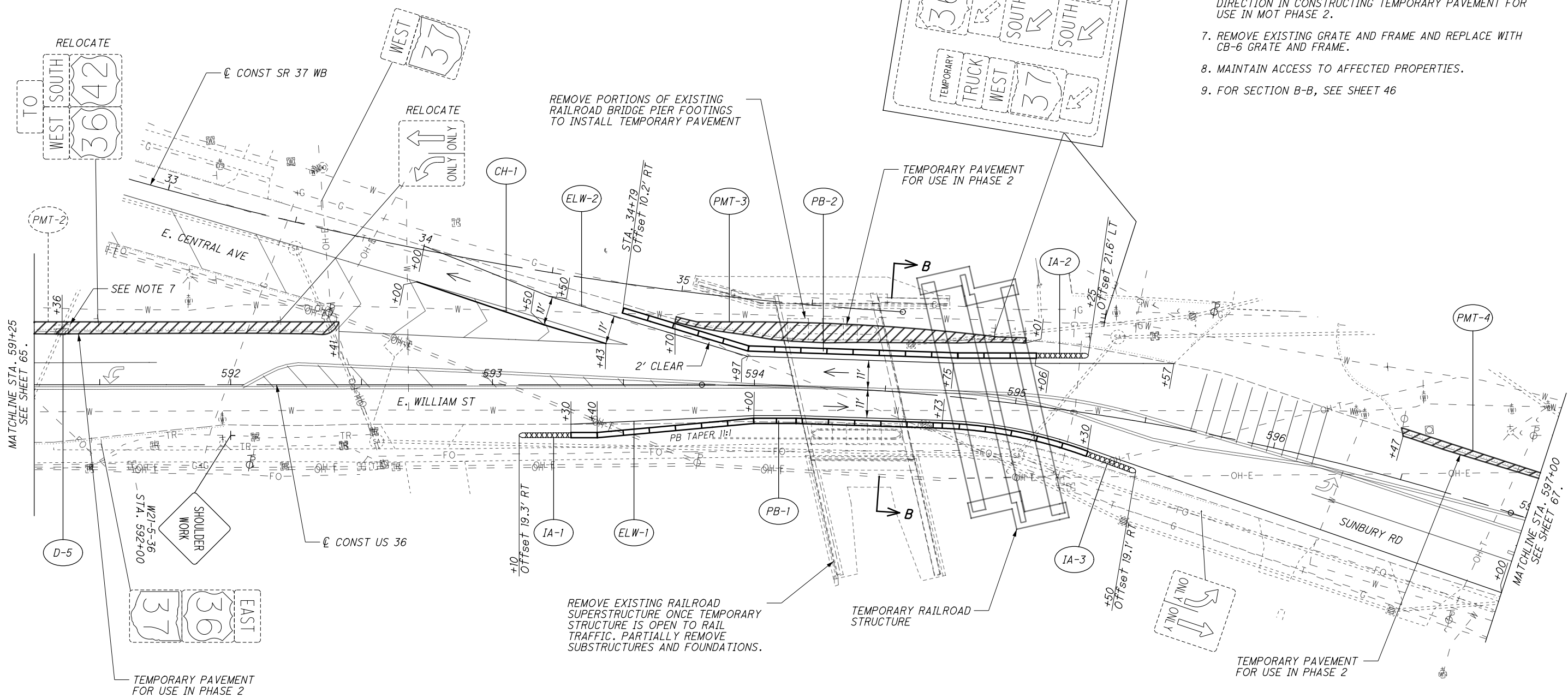
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**PMT-3**  
 PAVEMENT FOR MAINTAINING TRAFFIC  
 (CONSTRUCTION VERTICES)  
 STA. 593+70.2, OFFSET 25.9' LT  
 STA. 593+78.1, OFFSET 24.0' LT  
 STA. 594+00.0, OFFSET 24.2' LT  
 STA. 594+50.0, OFFSET 24.7' LT  
 STA. 594+90.7, OFFSET 24.5' LT  
 STA. 595+01.0, OFFSET 25.4' LT

**PMT-4**  
 PAVEMENT FOR MAINTAINING TRAFFIC  
 (CONSTRUCTION VERTICES)  
 STA. 596+45.1, OFFSET 19.2' LT  
 STA. 597+16.2, OFFSET 18.0' LT  
 STA. 597+20.2, OFFSET 19.0' LT

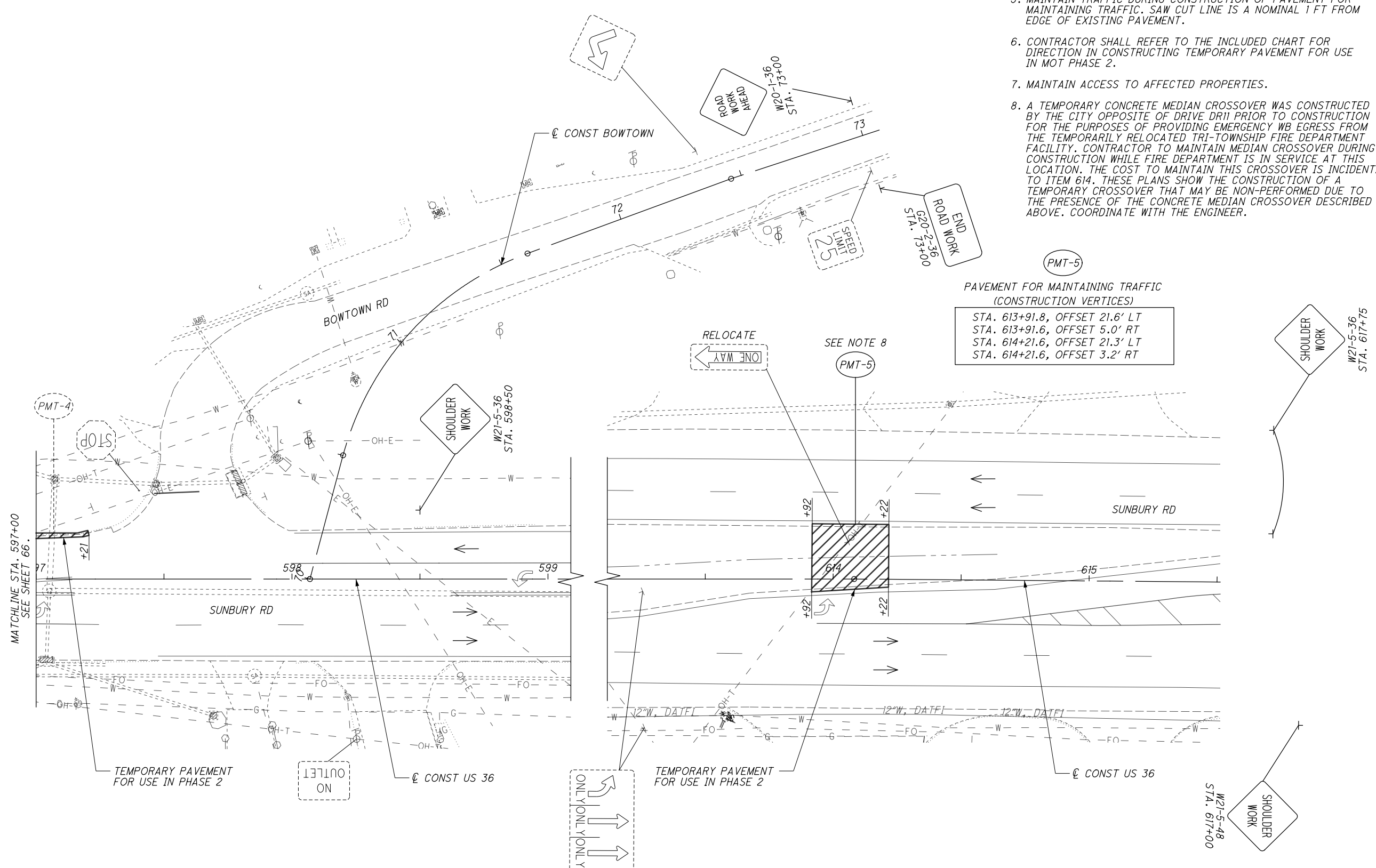
RELOCATE TO  
 STA. 595+29 LT

- NOTES:**
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. MAINTAIN TRAFFIC DURING CONSTRUCTION OF PAVEMENT FOR MAINTAINING TRAFFIC. SAW CUT LINE IS A NOMINAL 1 FT FROM EDGE OF EXISTING PAVEMENT.
  6. CONTRACTOR SHALL REFER TO THE INCLUDED CHARTS FOR DIRECTION IN CONSTRUCTING TEMPORARY PAVEMENT FOR USE IN MOT PHASE 2.
  7. REMOVE EXISTING GRATE AND FRAME AND REPLACE WITH CB-6 GRATE AND FRAME.
  8. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
  9. FOR SECTION B-B, SEE SHEET 46



CALCULATED ACW CHECKED CJM  
**MAINTENANCE OF TRAFFIC PLANS - PHASE 1**  
**STA. 591+25 TO STA. 597+00**

**DEL-36-11.03**  
 66  
 644



NOTES:

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. MAINTAIN TRAFFIC DURING CONSTRUCTION OF PAVEMENT FOR MAINTAINING TRAFFIC. SAW CUT LINE IS A NOMINAL 1 FT FROM EDGE OF EXISTING PAVEMENT.
6. CONTRACTOR SHALL REFER TO THE INCLUDED CHART FOR DIRECTION IN CONSTRUCTING TEMPORARY PAVEMENT FOR USE IN MOT PHASE 2.
7. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
8. A TEMPORARY CONCRETE MEDIAN CROSSOVER WAS CONSTRUCTED BY THE CITY OPPOSITE OF DRIVE DR11 PRIOR TO CONSTRUCTION FOR THE PURPOSES OF PROVIDING EMERGENCY WB EGRESS FROM THE TEMPORARILY RELOCATED TRI-TOWNSHIP FIRE DEPARTMENT FACILITY. CONTRACTOR TO MAINTAIN MEDIAN CROSSOVER DURING CONSTRUCTION WHILE FIRE DEPARTMENT IS IN SERVICE AT THIS LOCATION. THE COST TO MAINTAIN THIS CROSSOVER IS INCIDENTAL TO ITEM 614. THESE PLANS SHOW THE CONSTRUCTION OF A TEMPORARY CROSSOVER THAT MAY BE NON-PERFORMED DUE TO THE PRESENCE OF THE CONCRETE MEDIAN CROSSOVER DESCRIBED ABOVE. COORDINATE WITH THE ENGINEER.

PAVEMENT FOR MAINTAINING TRAFFIC  
(CONSTRUCTION VERTICES)

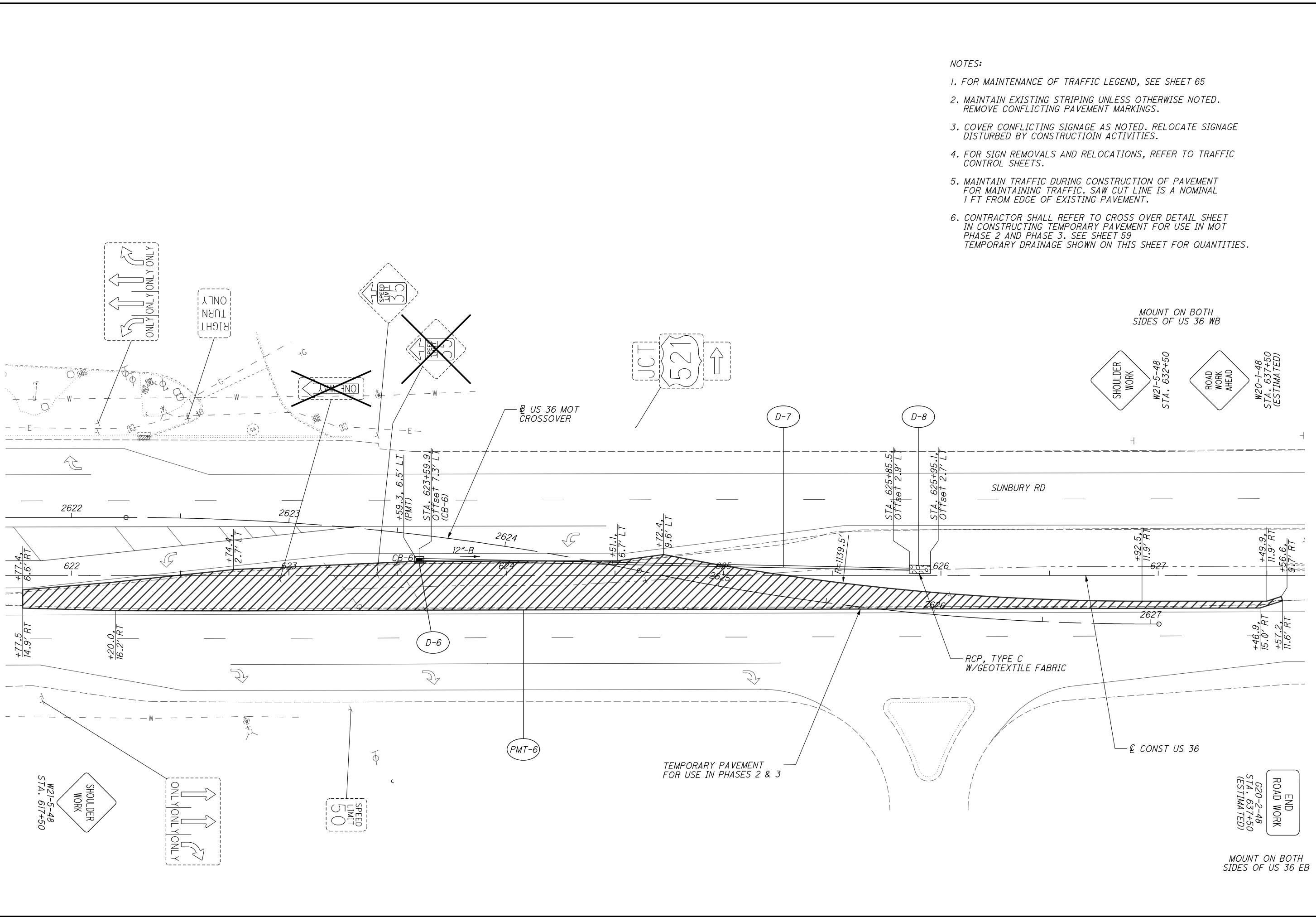
STA. 613+91.8, OFFSET 21.6' LT
STA. 613+91.6, OFFSET 5.0' RT
STA. 614+21.6, OFFSET 21.3' LT
STA. 614+21.6, OFFSET 3.2' RT



MAINTENANCE OF TRAFFIC PLANS - PHASE 1  
STA. 597+00 TO STA. 615+00

DEL-36-11.03

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NOTES:

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. MAINTAIN TRAFFIC DURING CONSTRUCTION OF PAVEMENT FOR MAINTAINING TRAFFIC. SAW CUT LINE IS A NOMINAL 1 FT FROM EDGE OF EXISTING PAVEMENT.
6. CONTRACTOR SHALL REFER TO CROSS OVER DETAIL SHEET IN CONSTRUCTING TEMPORARY PAVEMENT FOR USE IN MOT PHASE 2 AND PHASE 3. SEE SHEET 59 TEMPORARY DRAINAGE SHOWN ON THIS SHEET FOR QUANTITIES.

CALCULATED ACW CHECKED CJM

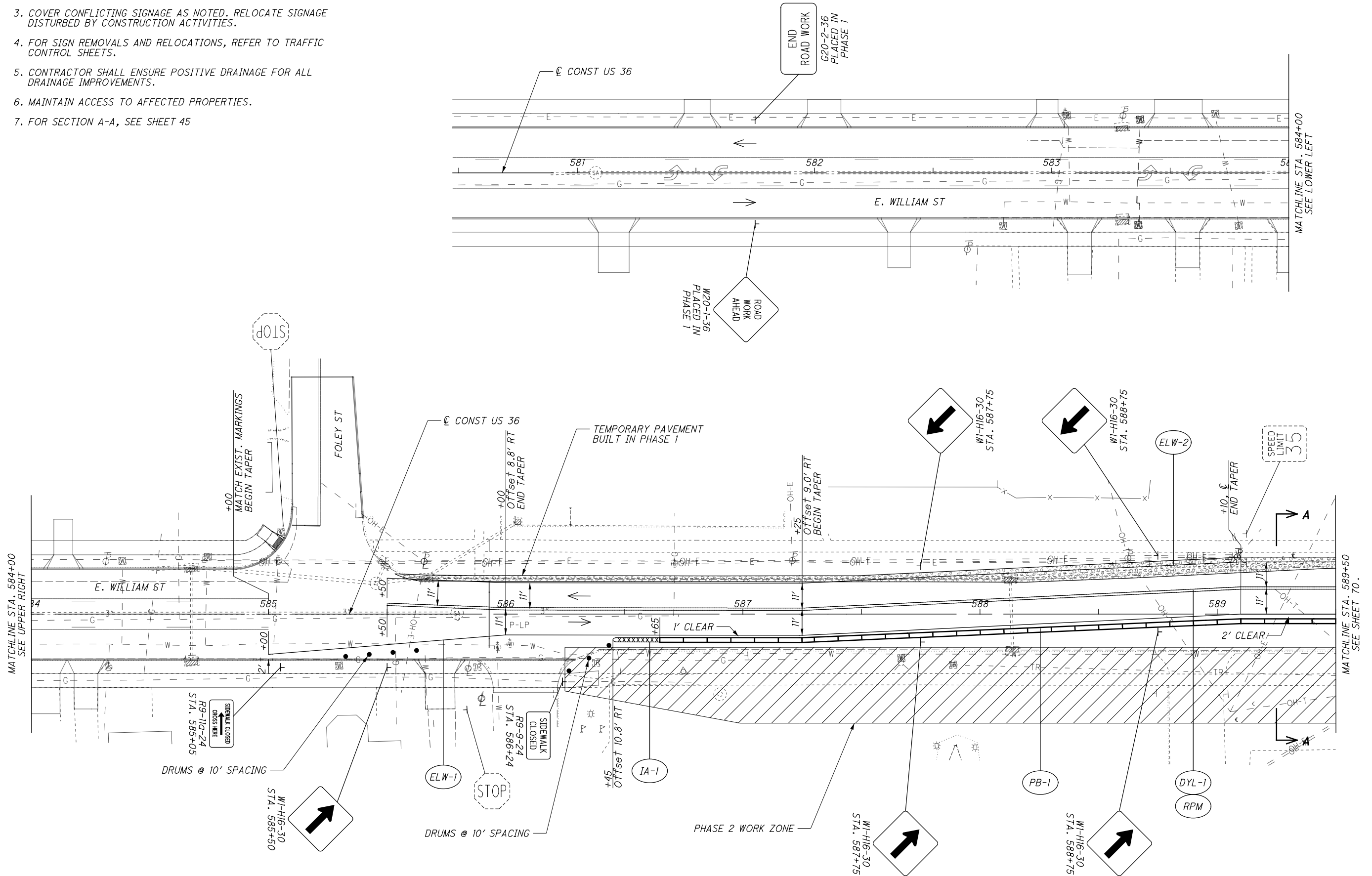
0 10 20 40 HORIZONTAL SCALE IN FEET

MAINTENANCE OF TRAFFIC PLANS - PHASE 1  
STA. 621+70 TO STA. 627+50

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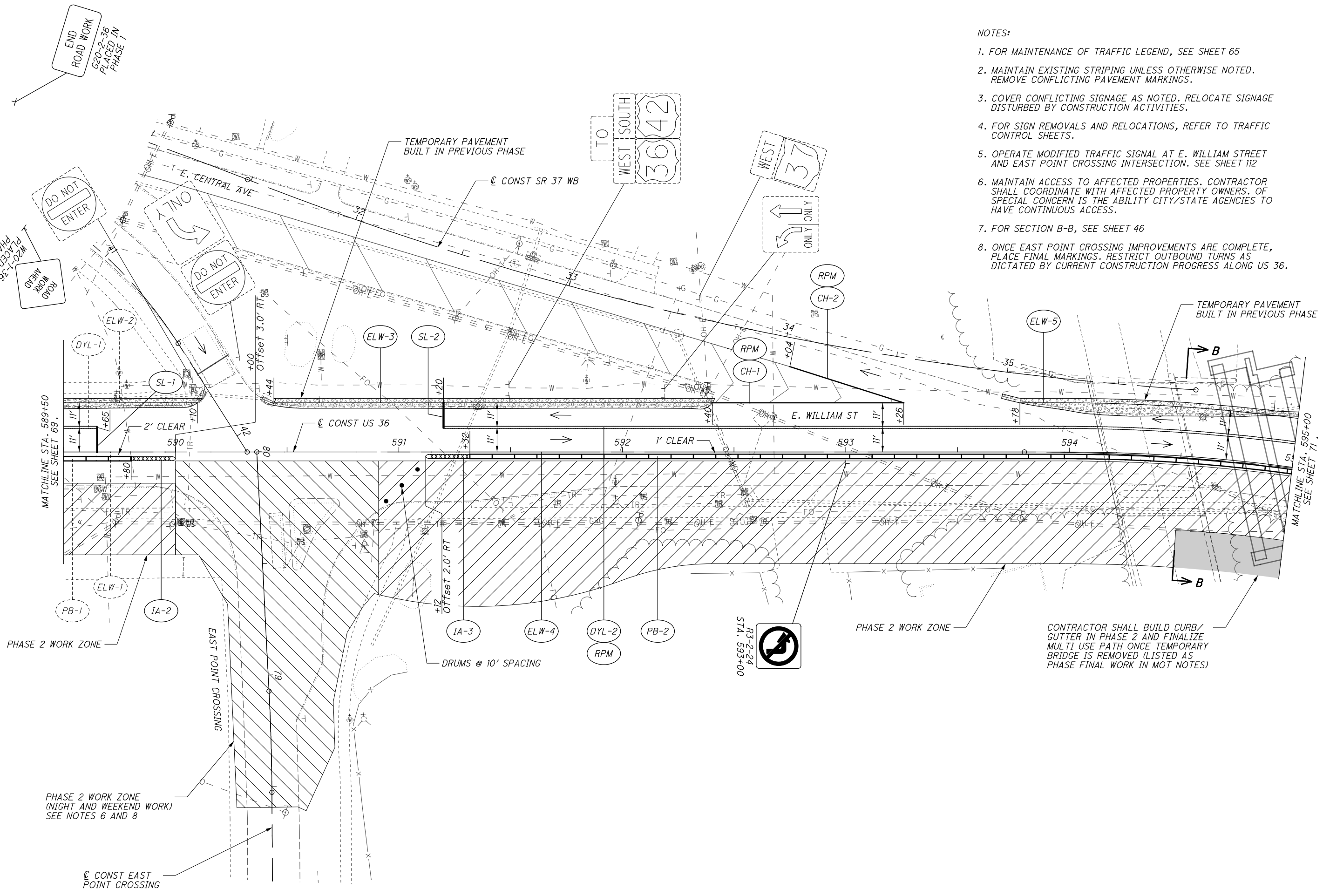
**NOTES:**

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE FOR ALL DRAINAGE IMPROVEMENTS.
6. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
7. FOR SECTION A-A, SEE SHEET 45



**DEL-36-11.03**  
**MAINTENANCE OF TRAFFIC PLANS - PHASE 2**  
**STA. 581+00 TO STA. 589+50**

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- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. OPERATE MODIFIED TRAFFIC SIGNAL AT E. WILLIAM STREET AND EAST POINT CROSSING INTERSECTION. SEE SHEET 112
  6. MAINTAIN ACCESS TO AFFECTED PROPERTIES. CONTRACTOR SHALL COORDINATE WITH AFFECTED PROPERTY OWNERS. OF SPECIAL CONCERN IS THE ABILITY CITY/STATE AGENCIES TO HAVE CONTINUOUS ACCESS.
  7. FOR SECTION B-B, SEE SHEET 46
  8. ONCE EAST POINT CROSSING IMPROVEMENTS ARE COMPLETE, PLACE FINAL MARKINGS. RESTRICT OUTBOUND TURNS AS DICTATED BY CURRENT CONSTRUCTION PROGRESS ALONG US 36.



**MAINTENANCE OF TRAFFIC PLANS - PHASE 2**  
**STA. 589+50 TO STA. 595+00**

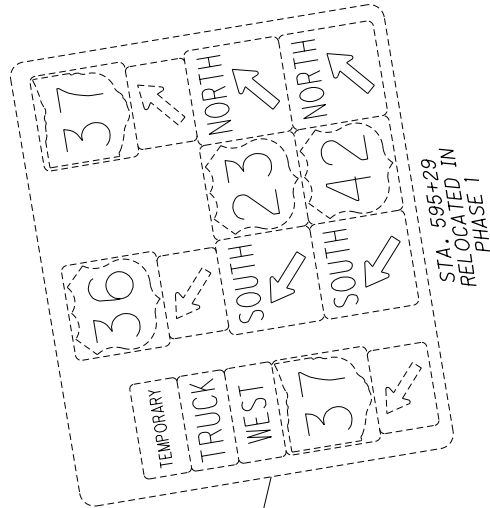
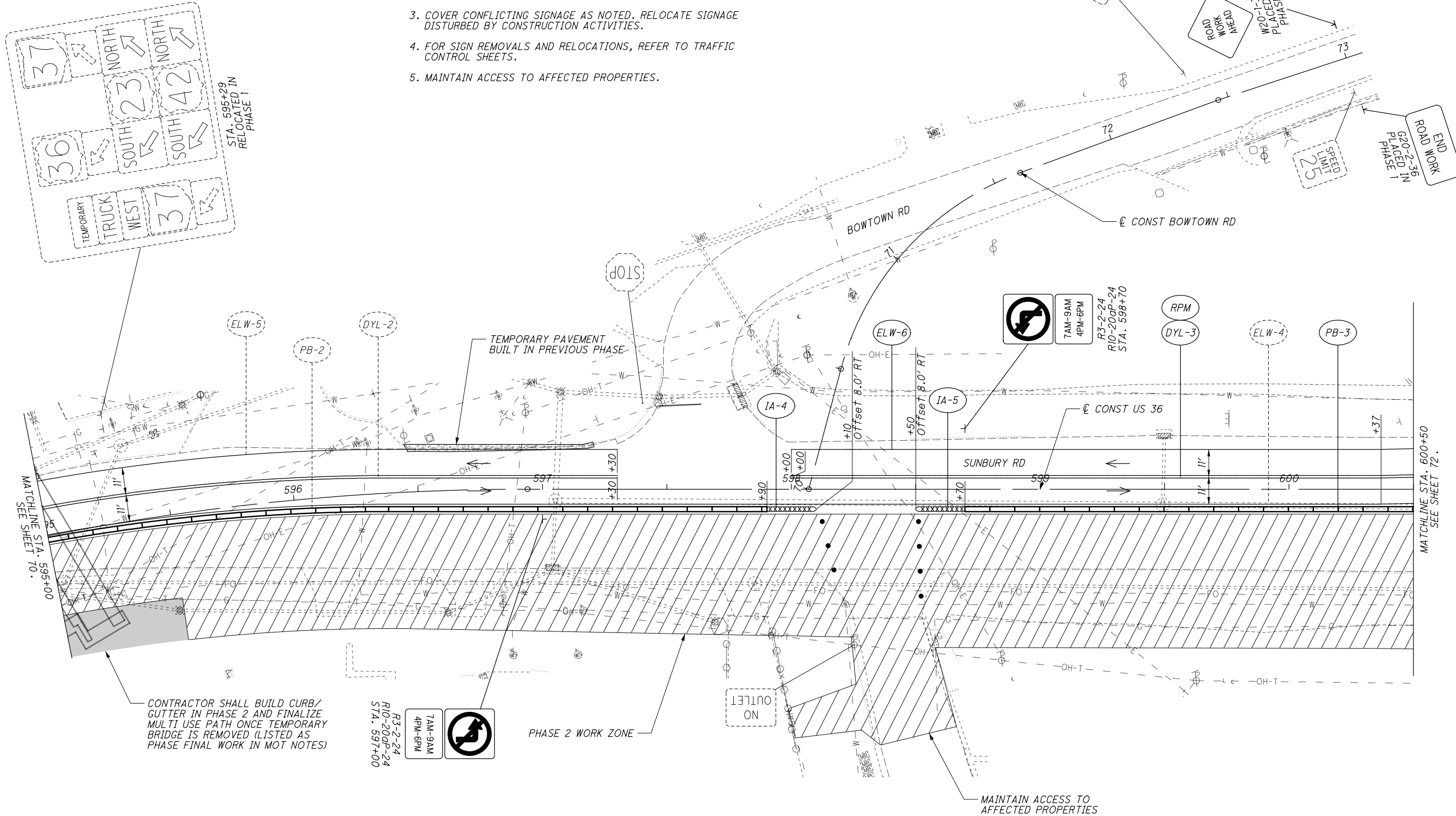
DEL-36-11.03

CONTRACTOR SHALL BUILD CURB/GUTTER IN PHASE 2 AND FINALIZE MULTI USE PATH ONCE TEMPORARY BRIDGE IS REMOVED (LISTED AS PHASE FINAL WORK IN MOT NOTES)

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NOTES:

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.



CONTRACTOR SHALL BUILD CURB/  
GUTTER IN PHASE 2 AND FINALIZE  
MULTI USE PATH ONCE TEMPORARY  
BRIDGE IS REMOVED (LISTED AS  
PHASE FINAL WORK IN MOT NOTES)

R3-2-24  
R10-200P-24  
STA. 597+00



PHASE 2 WORK ZONE

MAINTAIN ACCESS TO  
AFFECTED PROPERTIES



DEL-36-11.03  
MAINTENANCE OF TRAFFIC PLANS - PHASE 2  
STA. 595+00 TO STA. 600+50

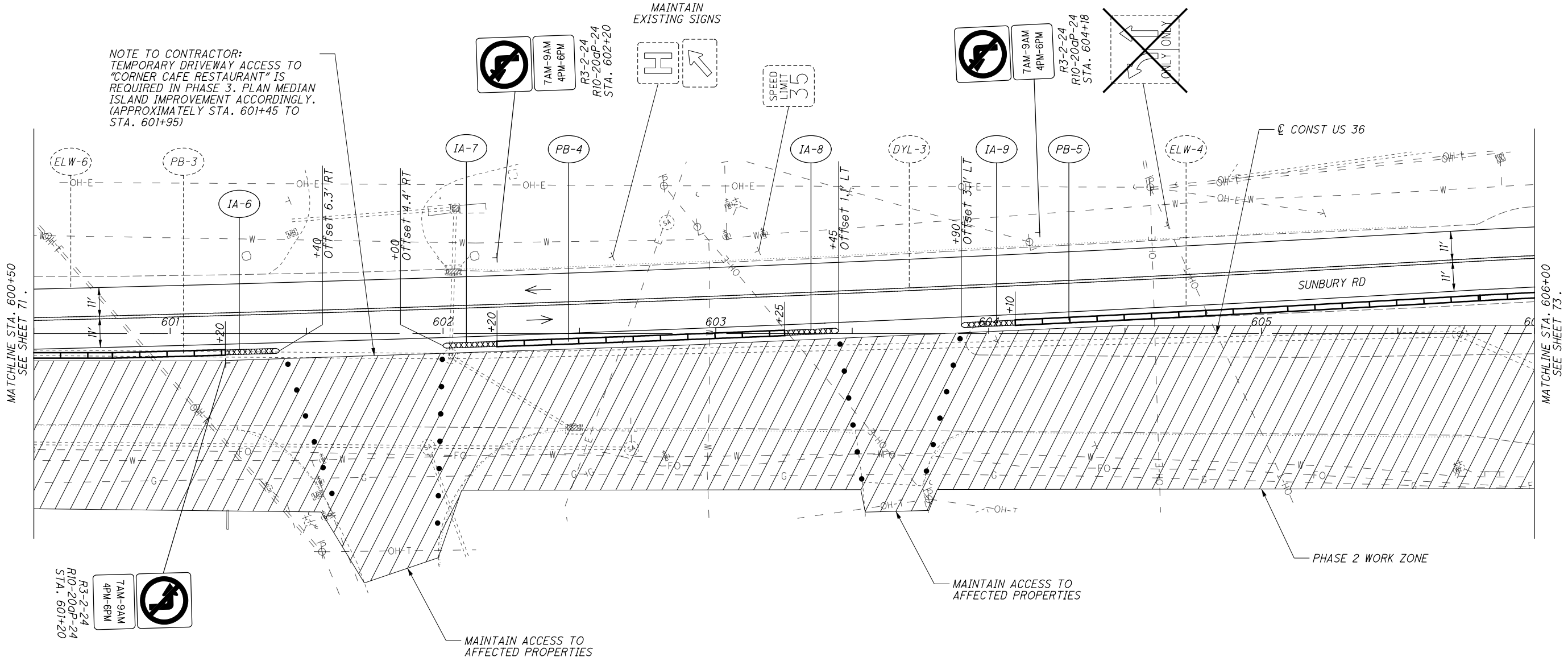
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CALCULATED ACW
CHECKED CJM

**MAINTENANCE OF TRAFFIC PLANS - PHASE 2**  
**STA. 600+50 TO STA. 606+00**

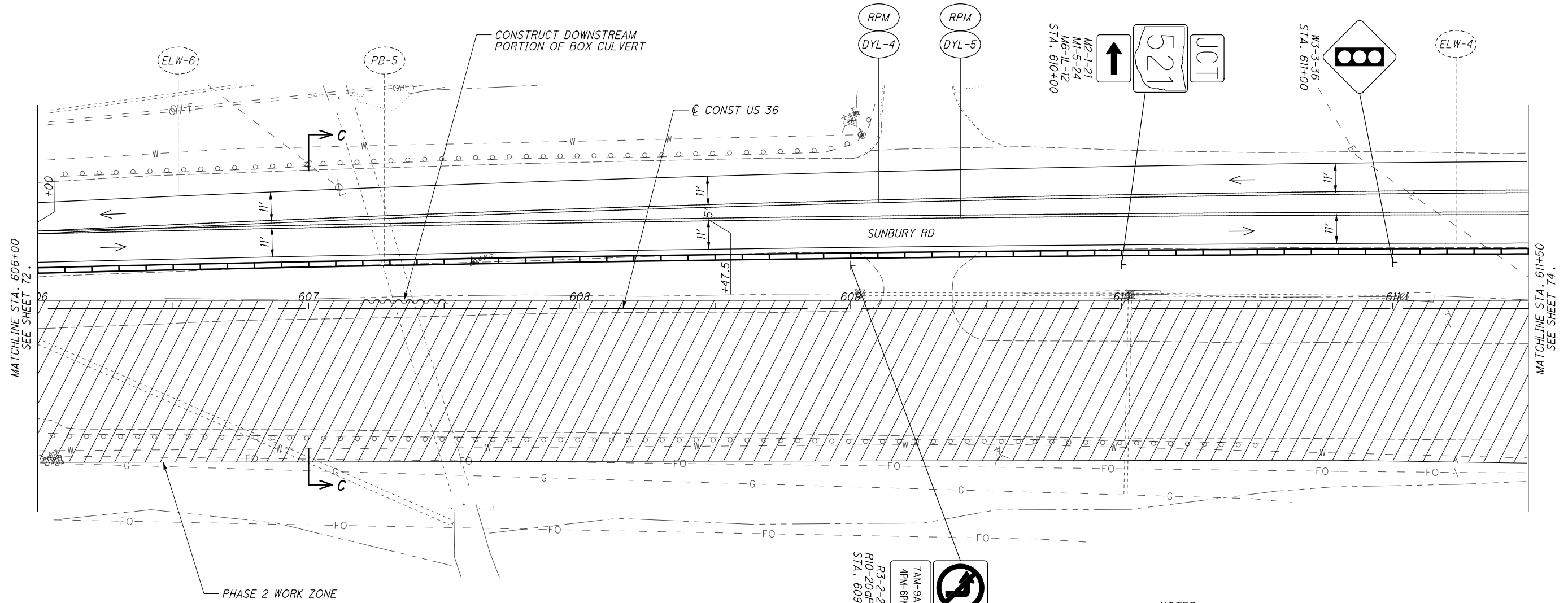
**NOTES:**

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.



NOTE TO CONTRACTOR:  
 TEMPORARY DRIVEWAY ACCESS TO  
 "CORNER CAFE RESTAURANT" IS  
 REQUIRED IN PHASE 3. PLAN MEDIAN  
 ISLAND IMPROVEMENT ACCORDINGLY.  
 (APPROXIMATELY STA. 601+45 TO  
 STA. 601+95)





- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
  6. FOR SECTION C-C, SEE SHEET 47

CALCULATED  
ACW  
CHECKED  
CJM

0 20 40  
HORIZONTAL  
SCALE IN FEET

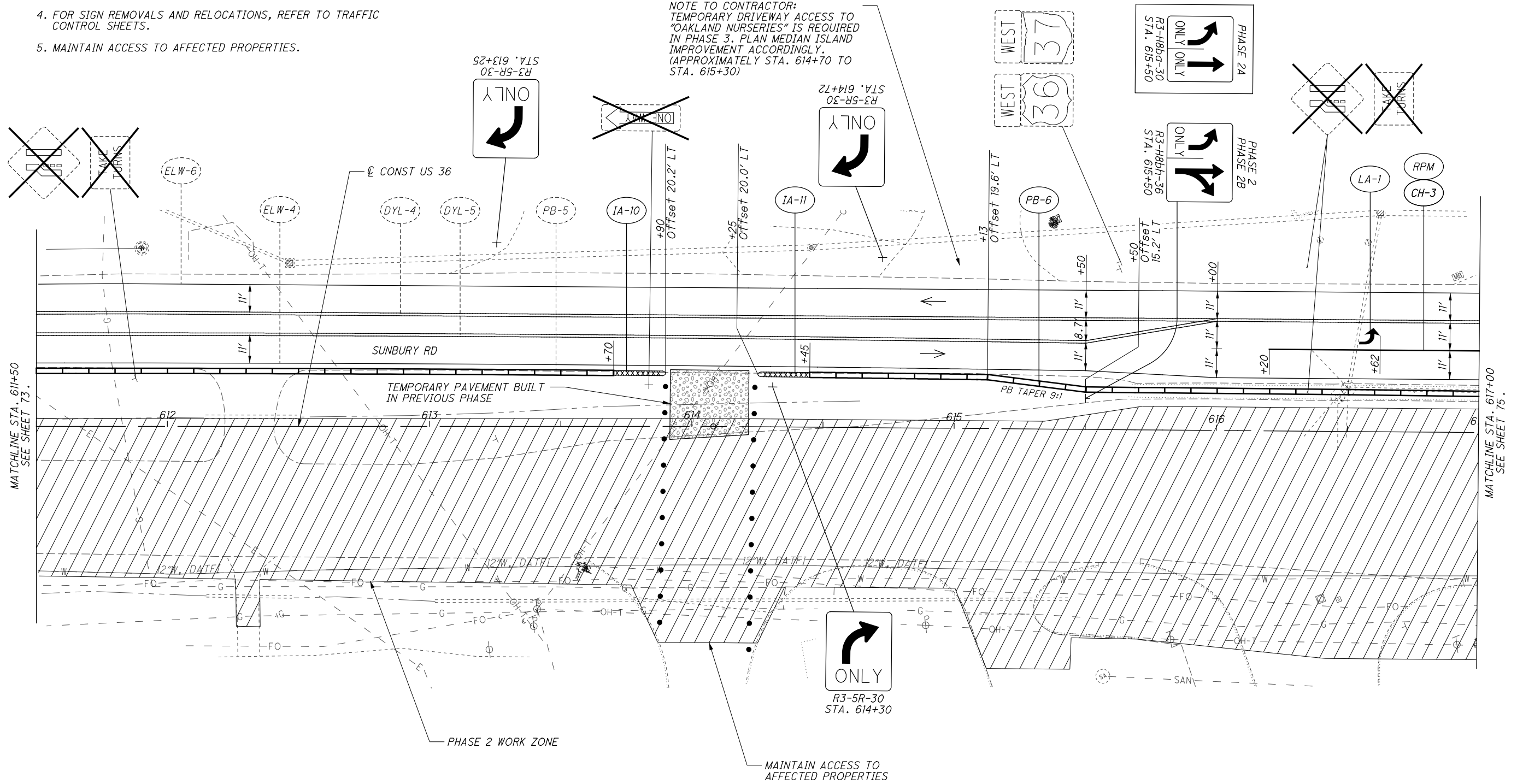
**MAINTENANCE OF TRAFFIC PLANS - PHASE 2**  
**STA. 606+00 TO STA. 611+50**

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NOTES:

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.

NOTE TO CONTRACTOR:  
 TEMPORARY DRIVEWAY ACCESS TO  
 "OAKLAND NURSERIES" IS REQUIRED  
 IN PHASE 3. PLAN MEDIAN ISLAND  
 IMPROVEMENT ACCORDINGLY.  
 (APPROXIMATELY STA. 614+70 TO  
 STA. 615+30)



CALCULATED ACW CHECKED CJM  
**MAINTENANCE OF TRAFFIC PLANS - PHASE 2**  
**STA. 611+50 TO STA. 617+00**

NOTES:

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
3. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
4. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
5. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
6. OPERATE MODIFIED TRAFFIC SIGNAL AT US 36/SR 37 AND SR 521 INTERSECTION. SEE SHEET 112
7. MAINTAIN TRAFFIC DURING CONSTRUCTION OF PAVEMENT FOR MAINTAINING TRAFFIC. SAW CUT LINE IS A NOMINAL 1 FT FROM EDGE OF EXISTING PAVEMENT.

(NOTES CONTINUED BELOW)

NOTES (CONTINUED):

8. CONTRACTOR SHALL REFER TO THE INCLUDED CHART FOR DIRECTION IN CONSTRUCTING TEMPORARY PAVEMENT FOR USE IN MOT PHASES 2A & 2B.
9. FOR SECTION D-D, SEE SHEET 48
10. FOR SECTION E-E, SEE SHEET 49
11. FOR SECTION G-G, SEE SHEET 51
12. RPM SPACING THROUGH CROSSOVER IS 20 FT C-C PER SCD MT-99.30.

W20-1-36  
STA. 62+50

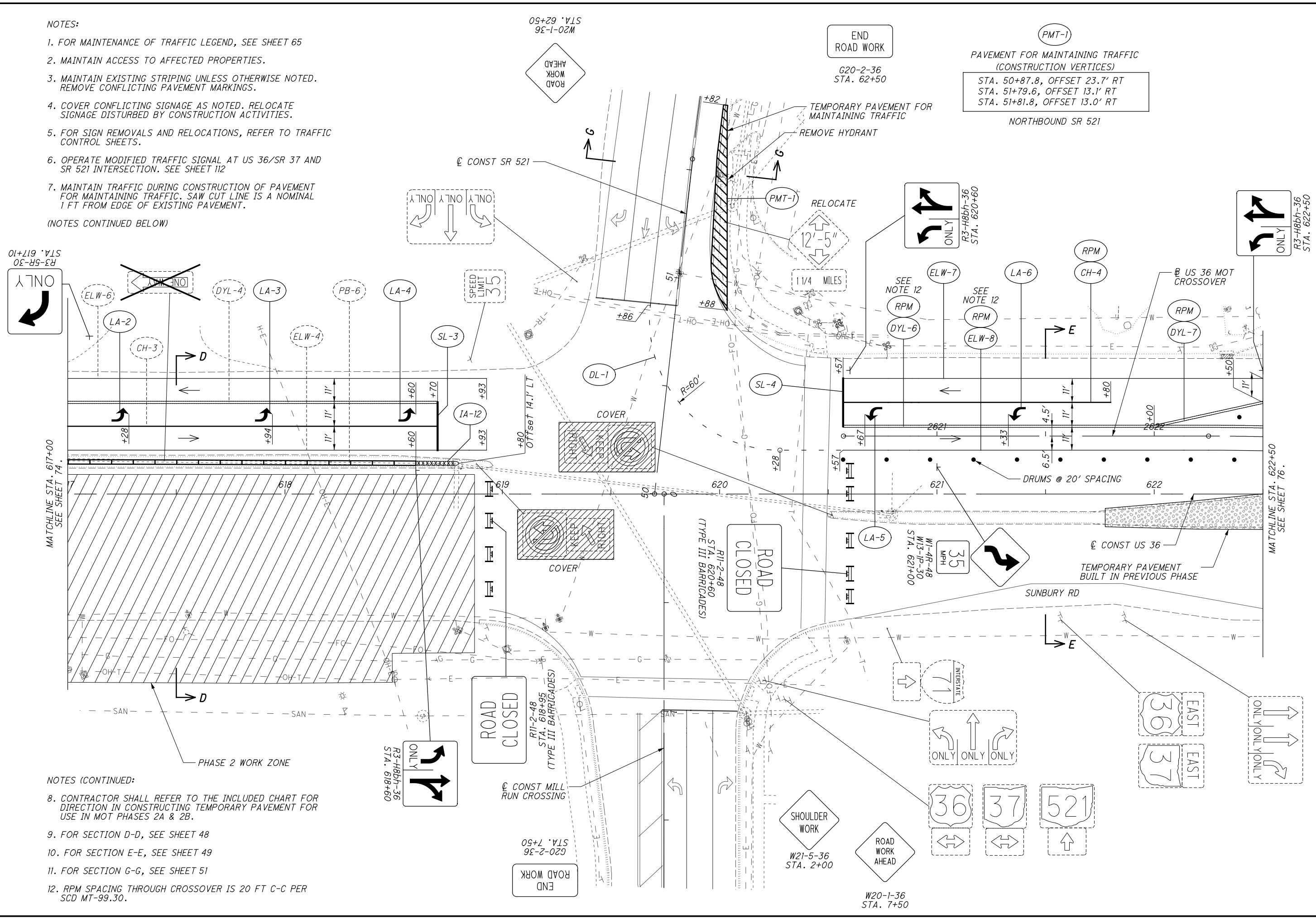
END ROAD WORK  
G20-2-36  
STA. 62+50

PMT-1  
PAVEMENT FOR MAINTAINING TRAFFIC  
(CONSTRUCTION VERTICES)  
STA. 50+87.8, OFFSET 23.7' RT  
STA. 51+79.6, OFFSET 13.1' RT  
STA. 51+81.8, OFFSET 13.0' RT  
NORTHBOUND SR 521



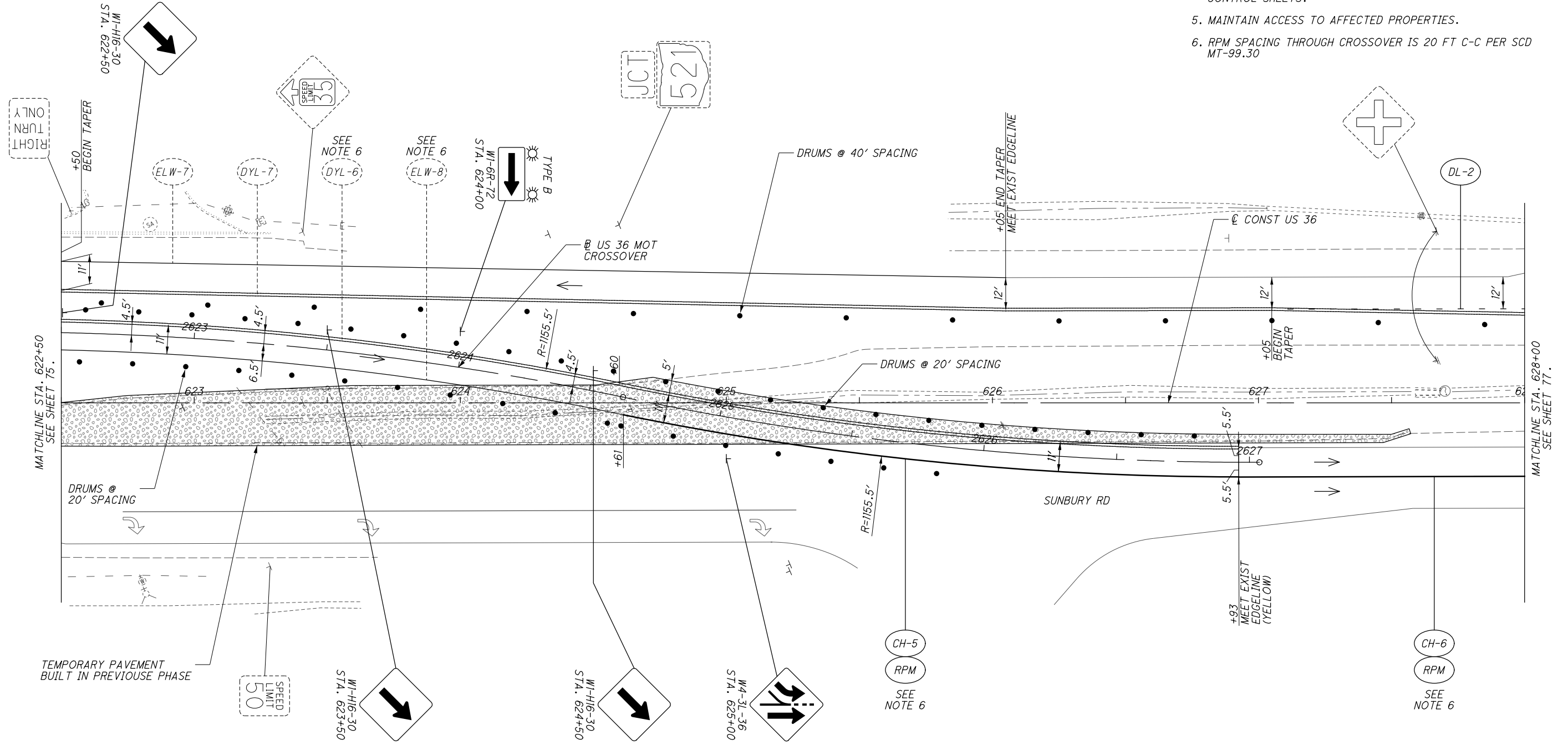
MAINTENANCE OF TRAFFIC PLANS - PHASE 2  
STA. 617+00 TO STA. 622+50

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 STA. 617+10  
 R3-5R-30  
 STA. 617+10  
 MATCHLINE STA. 617+00  
 SEE SHEET 74.  
 MATCHLINE STA. 622+50  
 SEE SHEET 76.



CALCULATED  
ACW  
CHECKED  
CJM

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- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
  6. RPM SPACING THROUGH CROSSOVER IS 20 FT C-C PER SCD MT-99.30

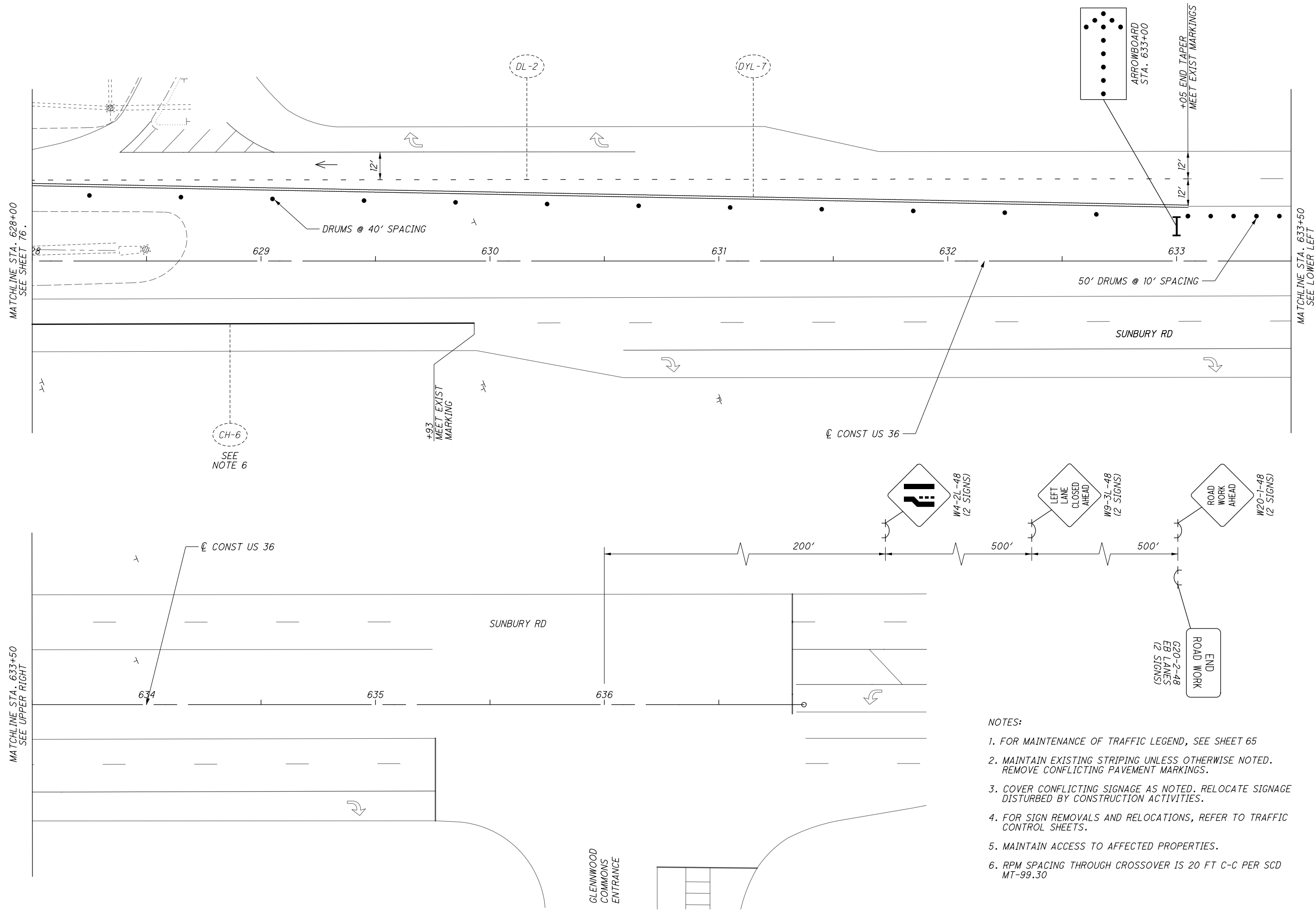
CALCULATED ACW  
CHECKED CJM

0 10 20 40  
HORIZONTAL SCALE IN FEET

**MAINTENANCE OF TRAFFIC PLANS - PHASE 2**  
**STA. 622+50 TO STA. 628+00**

**DEL-36-11.03**

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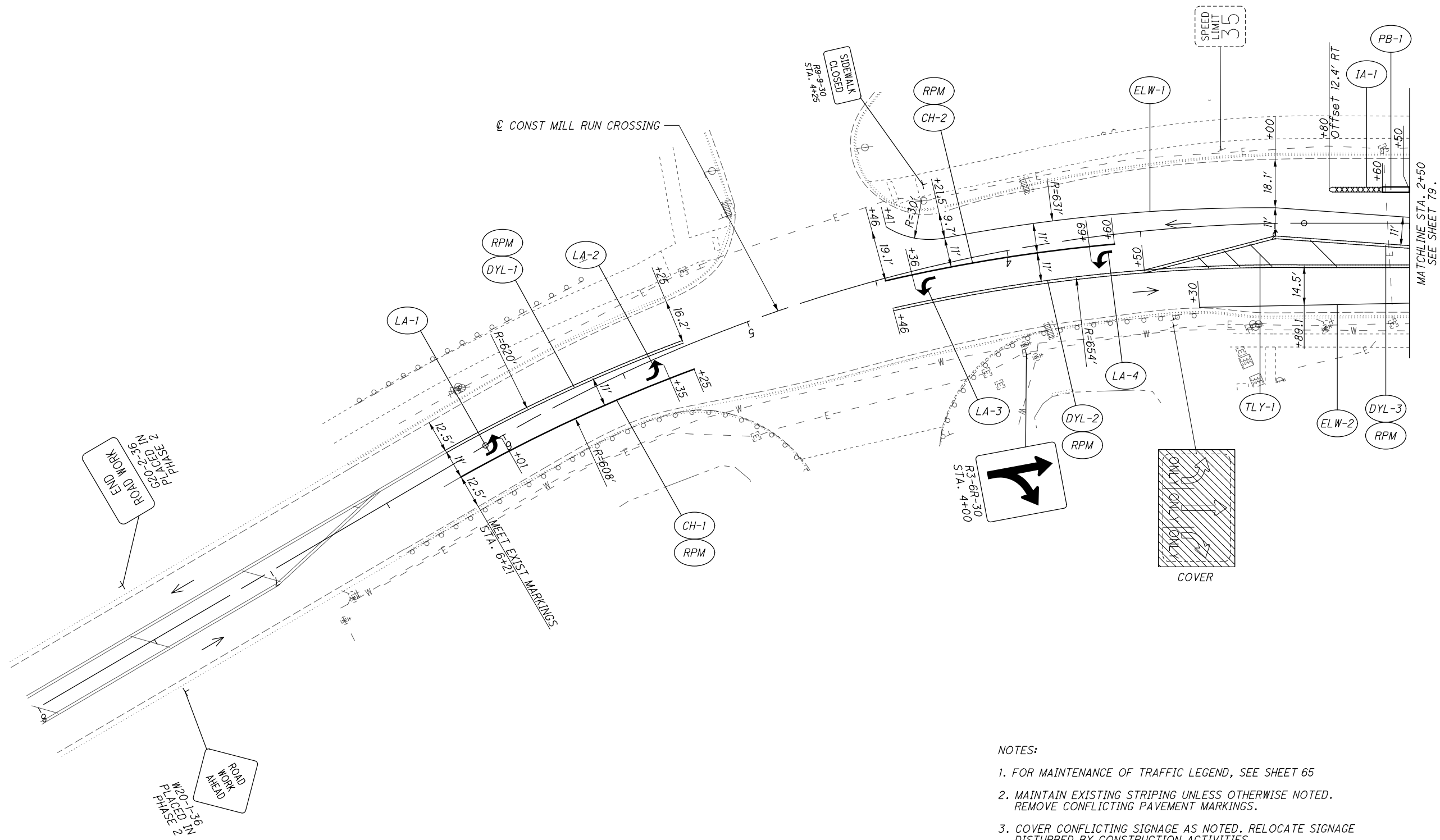


- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
  6. RPM SPACING THROUGH CROSSOVER IS 20 FT C-C PER SCD MT-99.30

CALCULATED  
ACW  
CHECKED  
CJM

0 20 40  
HORIZONTAL  
SCALE IN FEET

**MAINTENANCE OF TRAFFIC PLANS - PHASE 2**  
**STA. 628+00 TO STA. 636+50**



- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.



CALCULATED ACW CHECKED CJM  
**MAINTENANCE OF TRAFFIC PLANS - PHASE 2A**  
**STA. 2+50 TO STA. 8+00**

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PLACE PCMS FOR EASTBOUND US 36 TRAFFIC

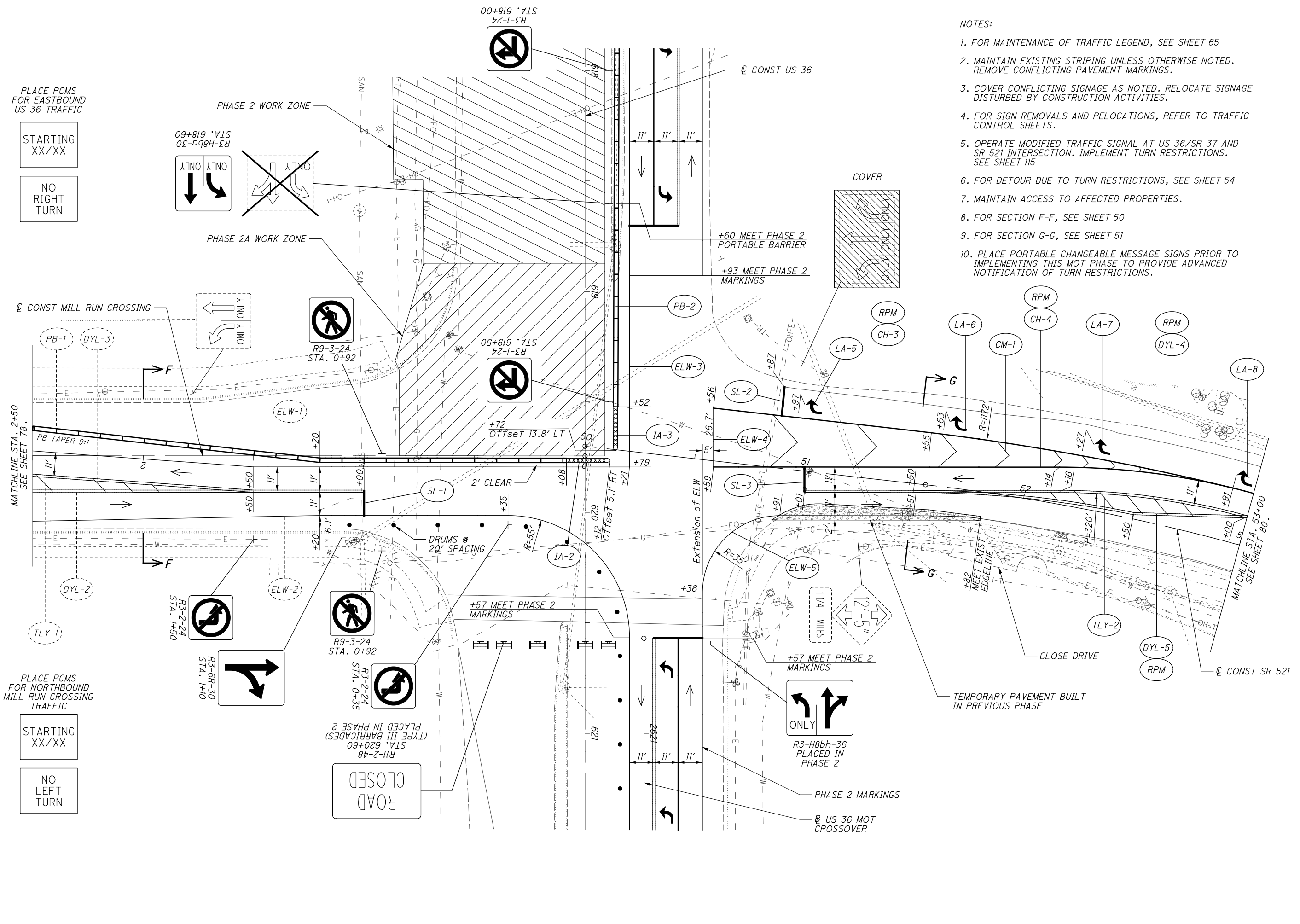
STARTING XX/XX

NO RIGHT TURN

PLACE PCMS FOR NORTHBOUND MILL RUN CROSSING TRAFFIC

STARTING XX/XX

NO LEFT TURN



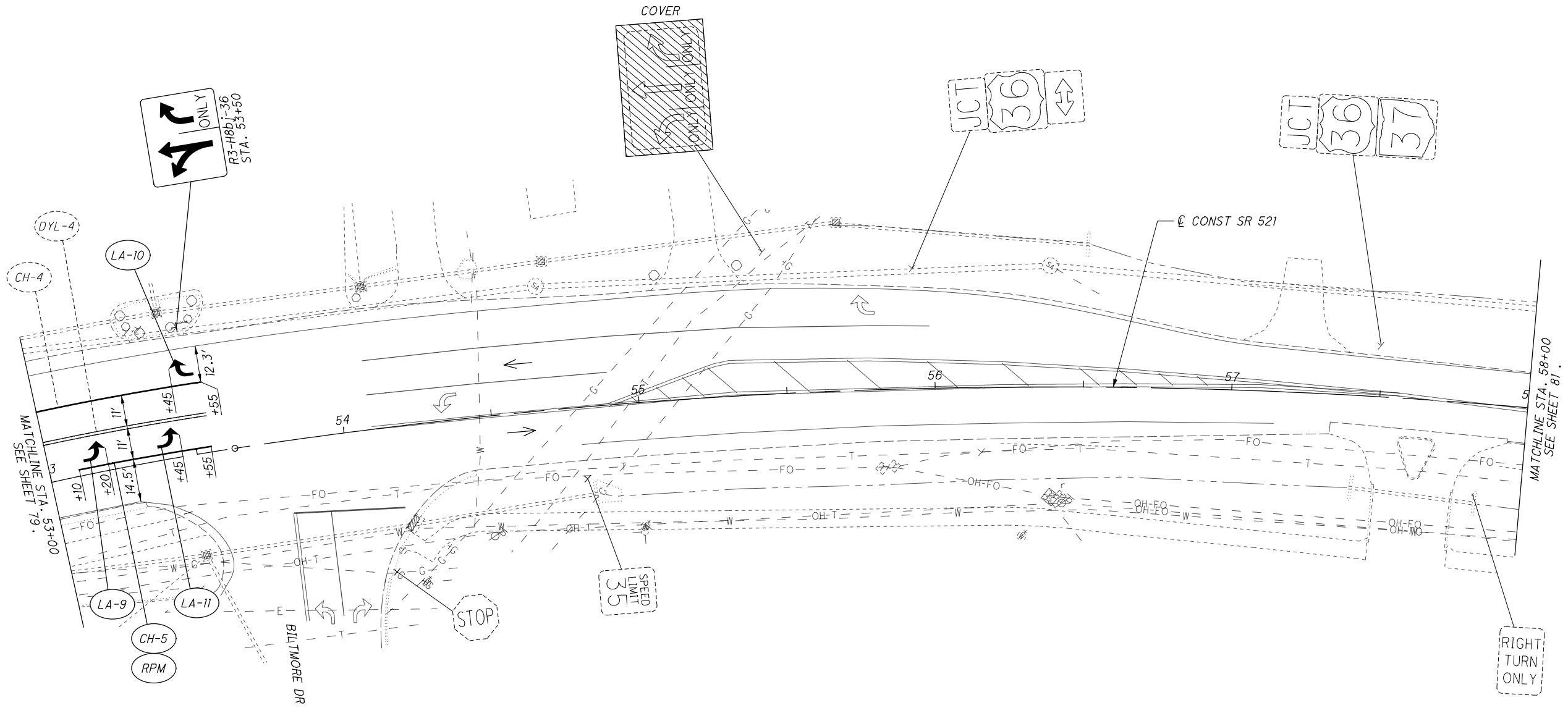
NOTES:

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. OPERATE MODIFIED TRAFFIC SIGNAL AT US 36/SR 37 AND SR 521 INTERSECTION. IMPLEMENT TURN RESTRICTIONS. SEE SHEET 115
6. FOR DETOUR DUE TO TURN RESTRICTIONS, SEE SHEET 54
7. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
8. FOR SECTION F-F, SEE SHEET 50
9. FOR SECTION G-G, SEE SHEET 51
10. PLACE PORTABLE CHANGEABLE MESSAGE SIGNS PRIOR TO IMPLEMENTING THIS MOT PHASE TO PROVIDE ADVANCED NOTIFICATION OF TURN RESTRICTIONS.



MAINTENANCE OF TRAFFIC PLANS - PHASE 2A  
 STA. 2+50 TO STA. 53+00

DEL-36-11.03  
 79  
 644



NOTES:

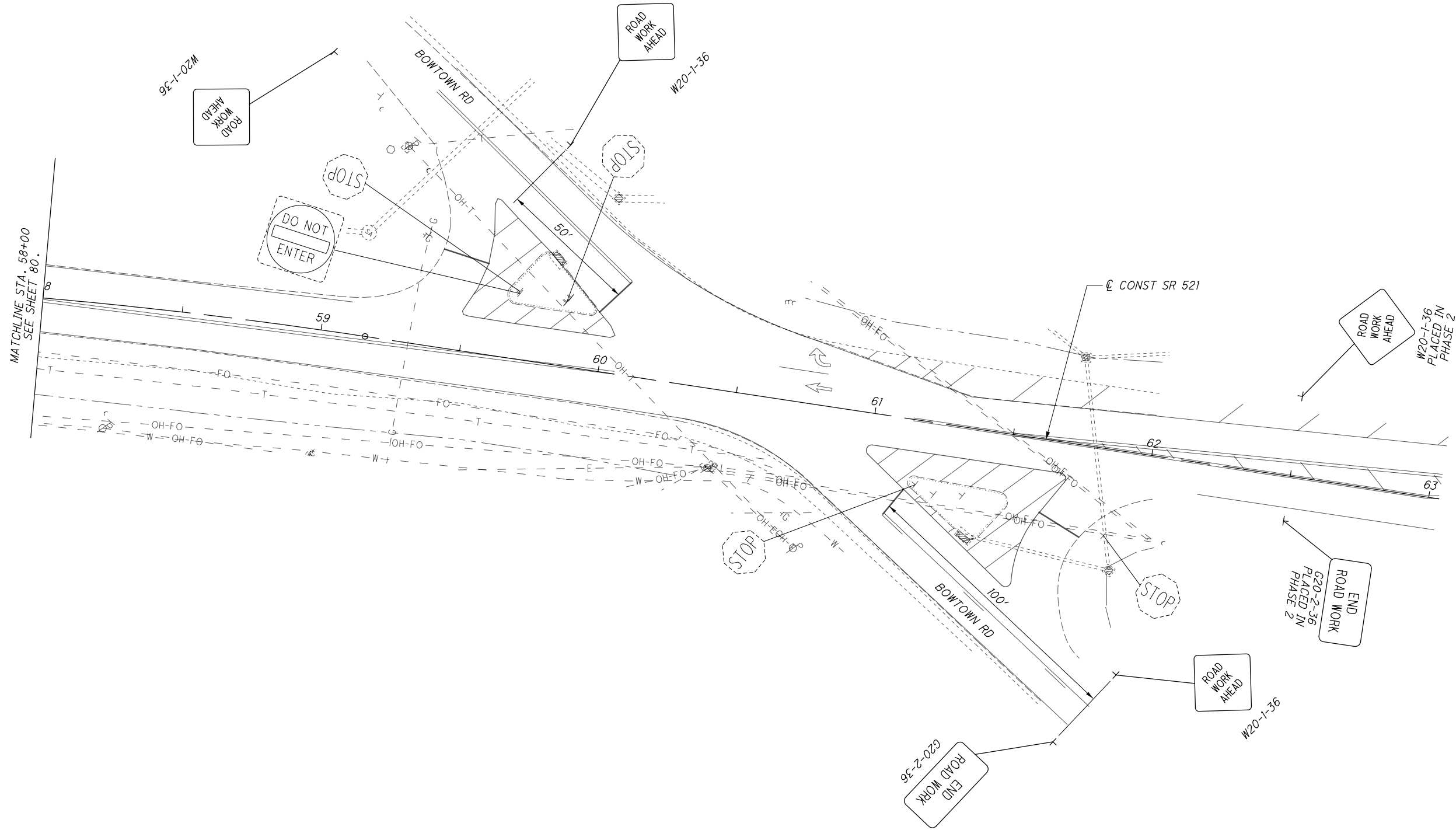
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.

<p>HORIZONTAL SCALE IN FEET</p>				
<table border="1"> <tr> <td style="font-size: 8px;">CALCULATED</td> <td style="font-size: 8px;">ACW</td> <td style="font-size: 8px;">CHECKED</td> <td style="font-size: 8px;">CJM</td> </tr> </table>	CALCULATED	ACW	CHECKED	CJM
CALCULATED	ACW	CHECKED	CJM	

**MAINTENANCE OF TRAFFIC PLANS - PHASE 2A**  
**STA. 53+00 TO STA. 58+00**

**DEL-36-11.03**





NOTES:

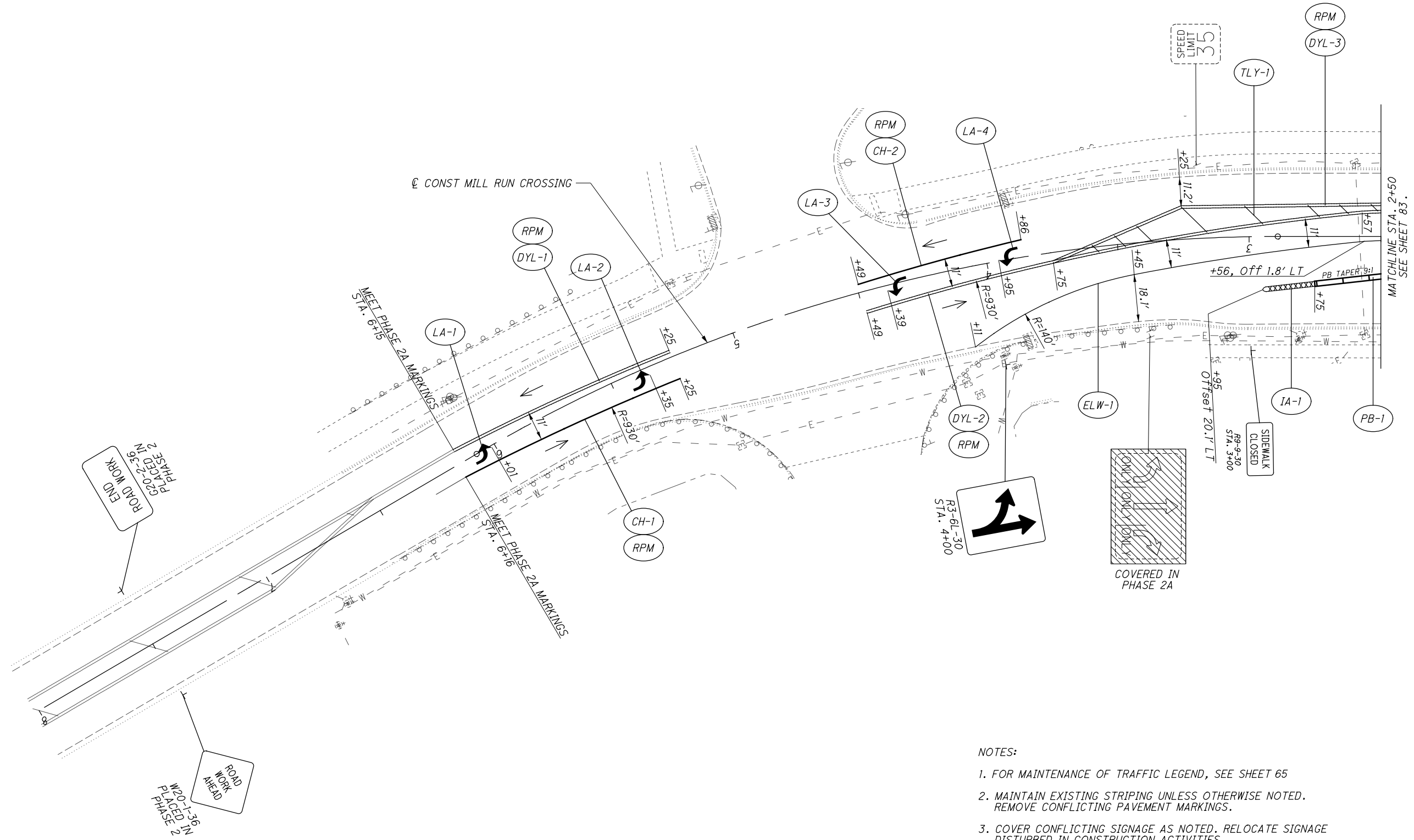
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.

CALCULATED ACW	CHECKED CJM
-------------------	----------------

HORIZONTAL SCALE IN FEET  
0 10 20 40

**MAINTENANCE OF TRAFFIC PLANS - PHASE 2A**  
**STA. 58+00 TO STA. 63+00**

**DEL-36-11.03**

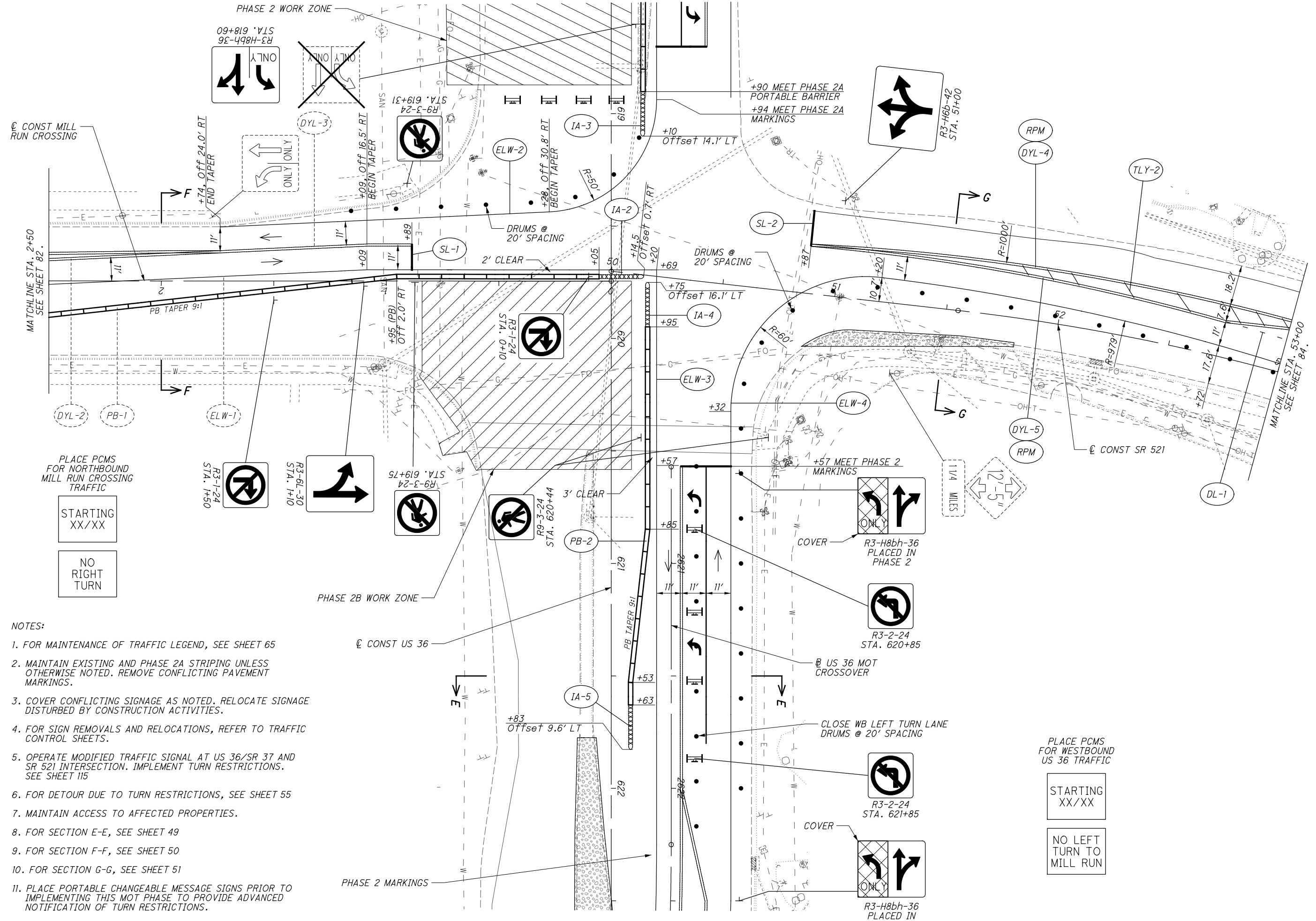


- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED IN CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.



MAINTENANCE OF TRAFFIC PLANS - PHASE 2B  
 STA. 2+50 TO STA. 8+00

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- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING AND PHASE 2A STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. OPERATE MODIFIED TRAFFIC SIGNAL AT US 36/SR 37 AND SR 521 INTERSECTION. IMPLEMENT TURN RESTRICTIONS. SEE SHEET 115
  6. FOR DETOUR DUE TO TURN RESTRICTIONS, SEE SHEET 55
  7. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
  8. FOR SECTION E-E, SEE SHEET 49
  9. FOR SECTION F-F, SEE SHEET 50
  10. FOR SECTION G-G, SEE SHEET 51
  11. PLACE PORTABLE CHANGEABLE MESSAGE SIGNS PRIOR TO IMPLEMENTING THIS MOT PHASE TO PROVIDE ADVANCED NOTIFICATION OF TURN RESTRICTIONS.

PLACE PCMS FOR NORTHBOUND MILL RUN CROSSING TRAFFIC

STARTING XX/XX

NO RIGHT TURN

PLACE PCMS FOR WESTBOUND US 36 TRAFFIC

STARTING XX/XX

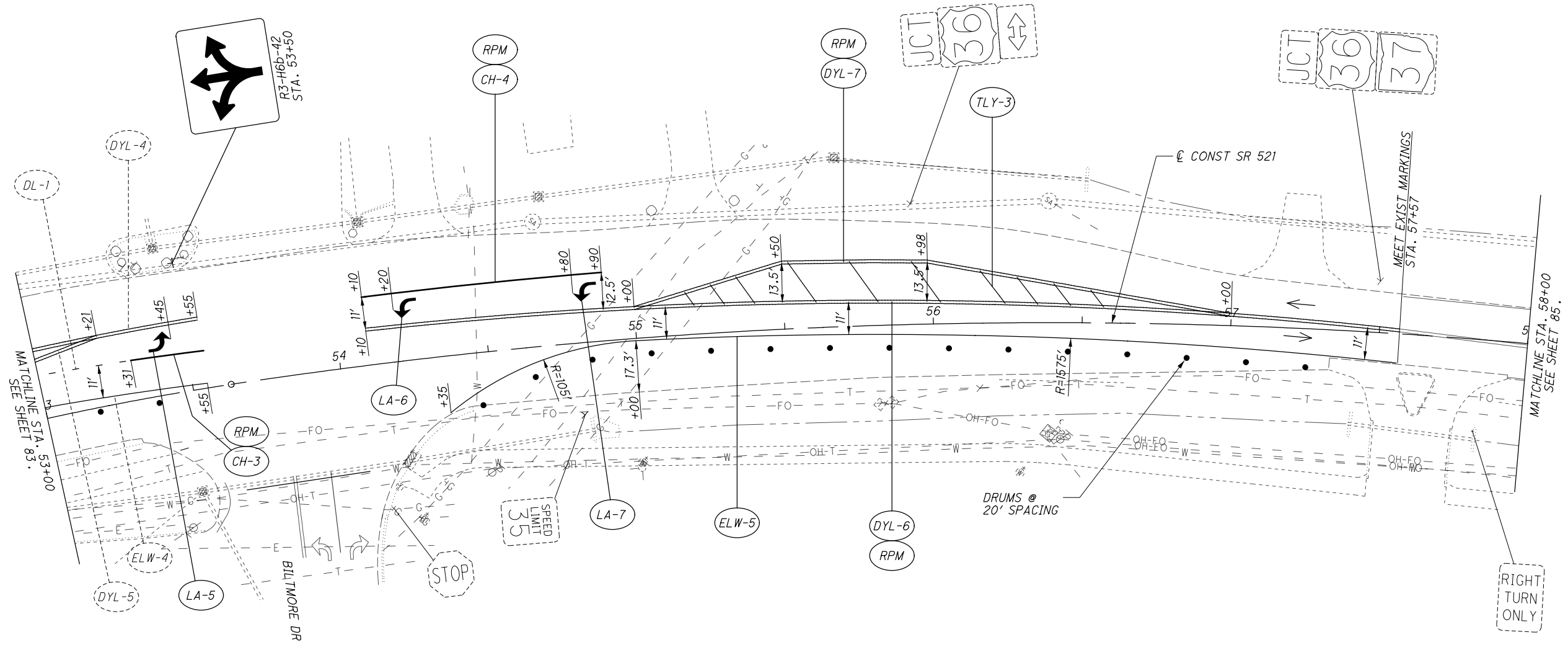
NO LEFT TURN TO MILL RUN



MAINTENANCE OF TRAFFIC PLANS - PHASE 2B  
STA. 2+50 TO STA. 53+00

DEL-36-11.03

83  
644



NOTES:

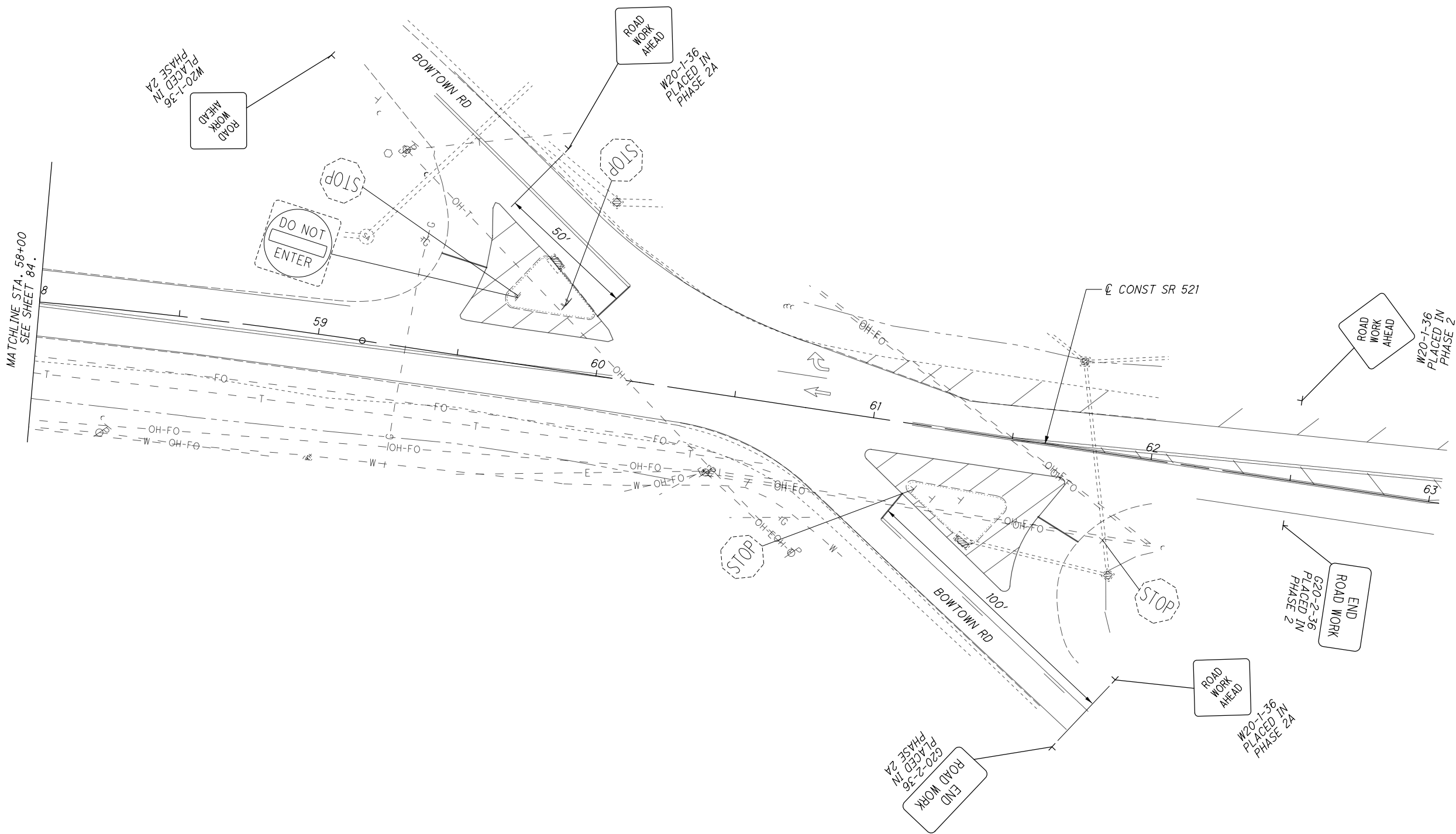
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.

CALCULATED	ACW	CHECKED	CJM
0	10	20	40
HORIZONTAL SCALE IN FEET			

**MAINTENANCE OF TRAFFIC PLANS - PHASE 2B**  
**STA. 53+00 TO STA. 58+00**

**DEL-36-11.03**

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- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.

CALCULATED	ACW
CHECKED	CJM

0 20 40  
HORIZONTAL SCALE IN FEET

**MAINTENANCE OF TRAFFIC PLANS - PHASE 2B**  
**STA. 58+00 TO STA. 63+00**

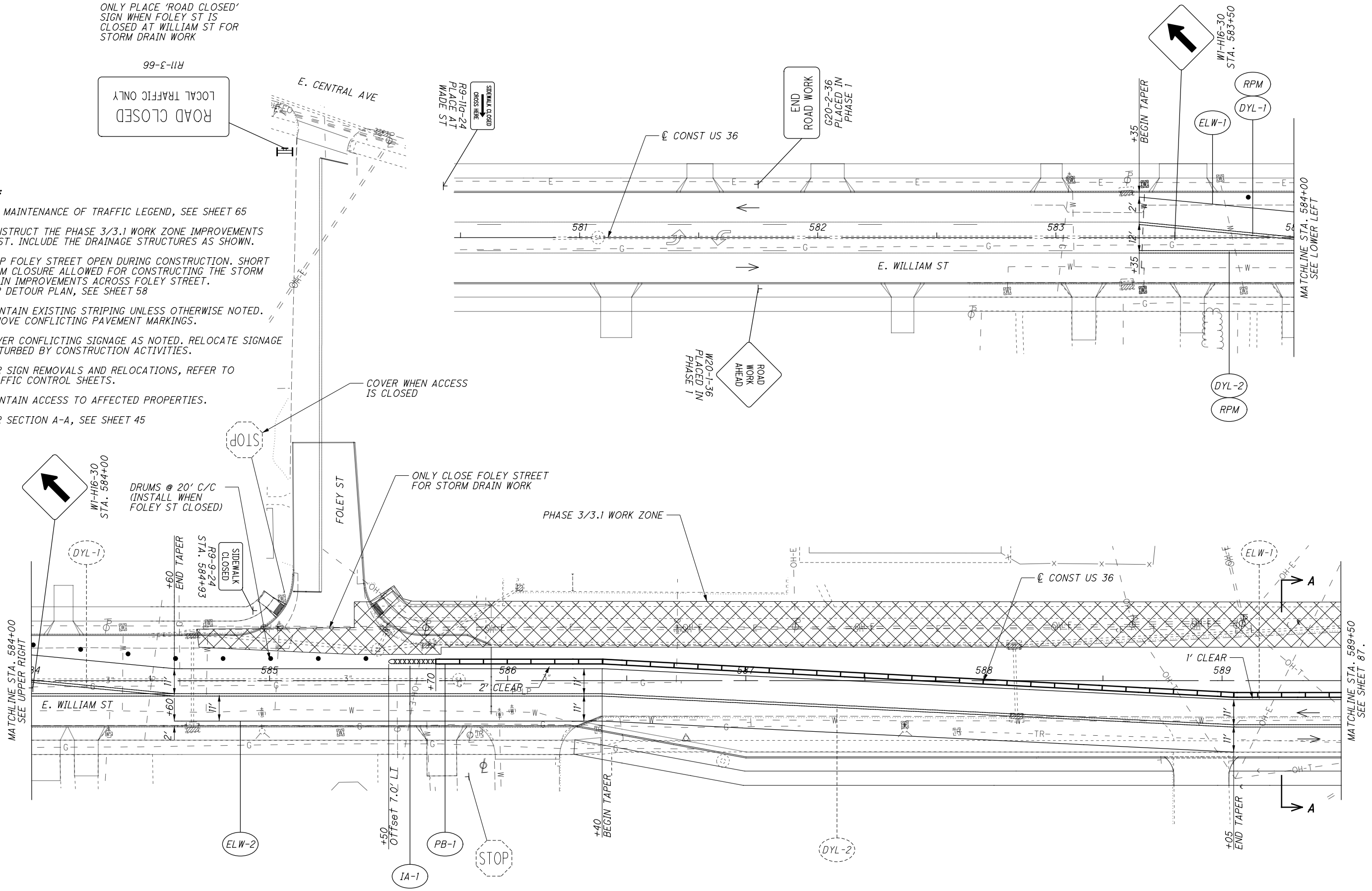
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ONLY PLACE 'ROAD CLOSED' SIGN WHEN FOLEY ST IS CLOSED AT WILLIAM ST FOR STORM DRAIN WORK

ROAD CLOSED LOCAL TRAFFIC ONLY

NOTES:

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. CONSTRUCT THE PHASE 3/3.1 WORK ZONE IMPROVEMENTS FIRST. INCLUDE THE DRAINAGE STRUCTURES AS SHOWN.
3. KEEP FOLEY STREET OPEN DURING CONSTRUCTION. SHORT TERM CLOSURE ALLOWED FOR CONSTRUCTING THE STORM DRAIN IMPROVEMENTS ACROSS FOLEY STREET. FOR DETOUR PLAN, SEE SHEET 58
4. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
5. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
6. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
7. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
8. FOR SECTION A-A, SEE SHEET 45



MOT PLANS - PHASE 3/3.1  
STA. 581+00 TO STA. 589+50

DEL-36-11.03

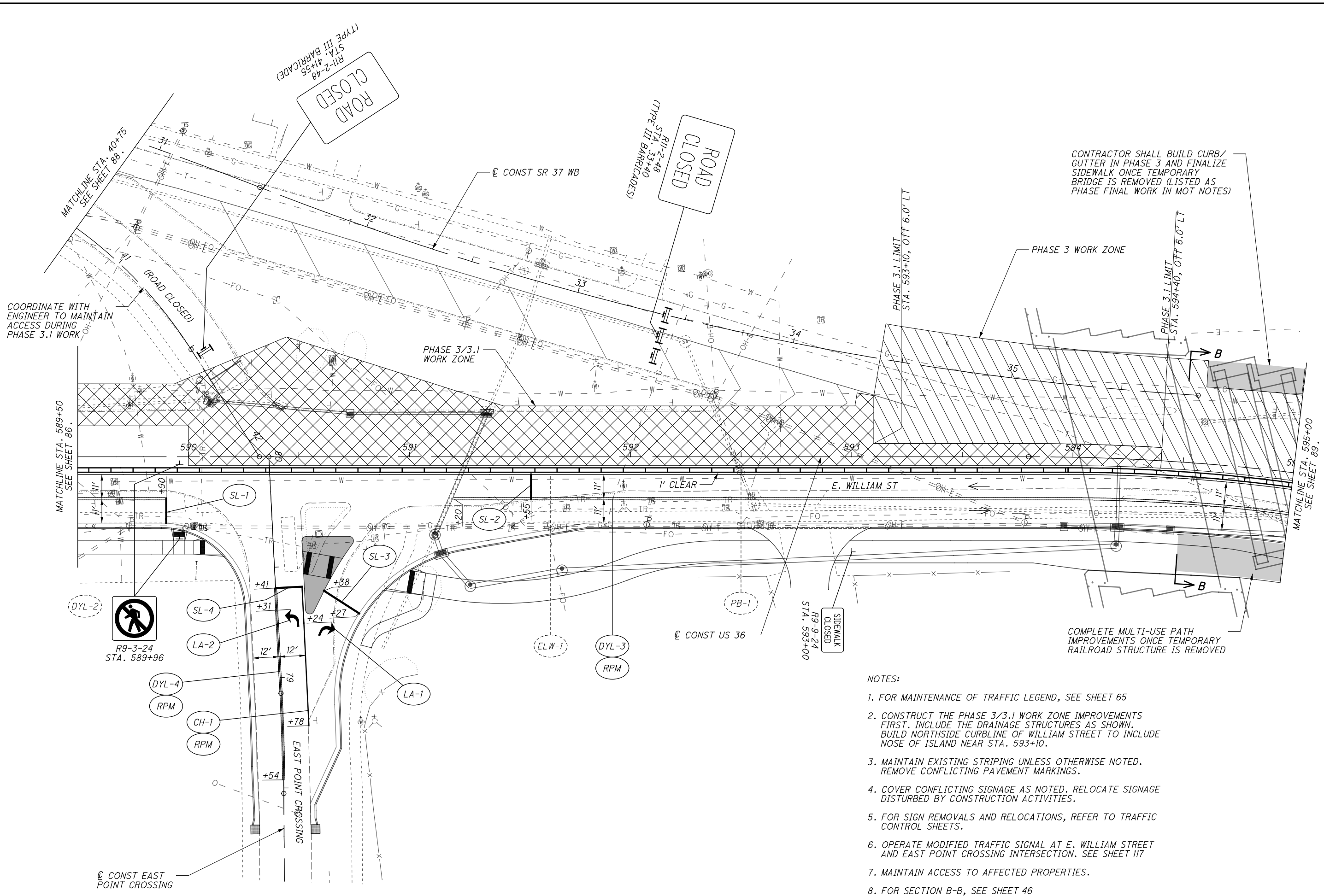
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CALCULATED
ACW
CHECKED
CJM

**MOT PLANS - PHASE 3/3.1**  
**STA. 589+50 TO STA. 595+00**

**DEL-36-11.03**



CONTRACTOR SHALL BUILD CURB/  
 GUTTER IN PHASE 3 AND FINALIZE  
 SIDEWALK ONCE TEMPORARY  
 BRIDGE IS REMOVED (LISTED AS  
 PHASE FINAL WORK IN MOT NOTES)

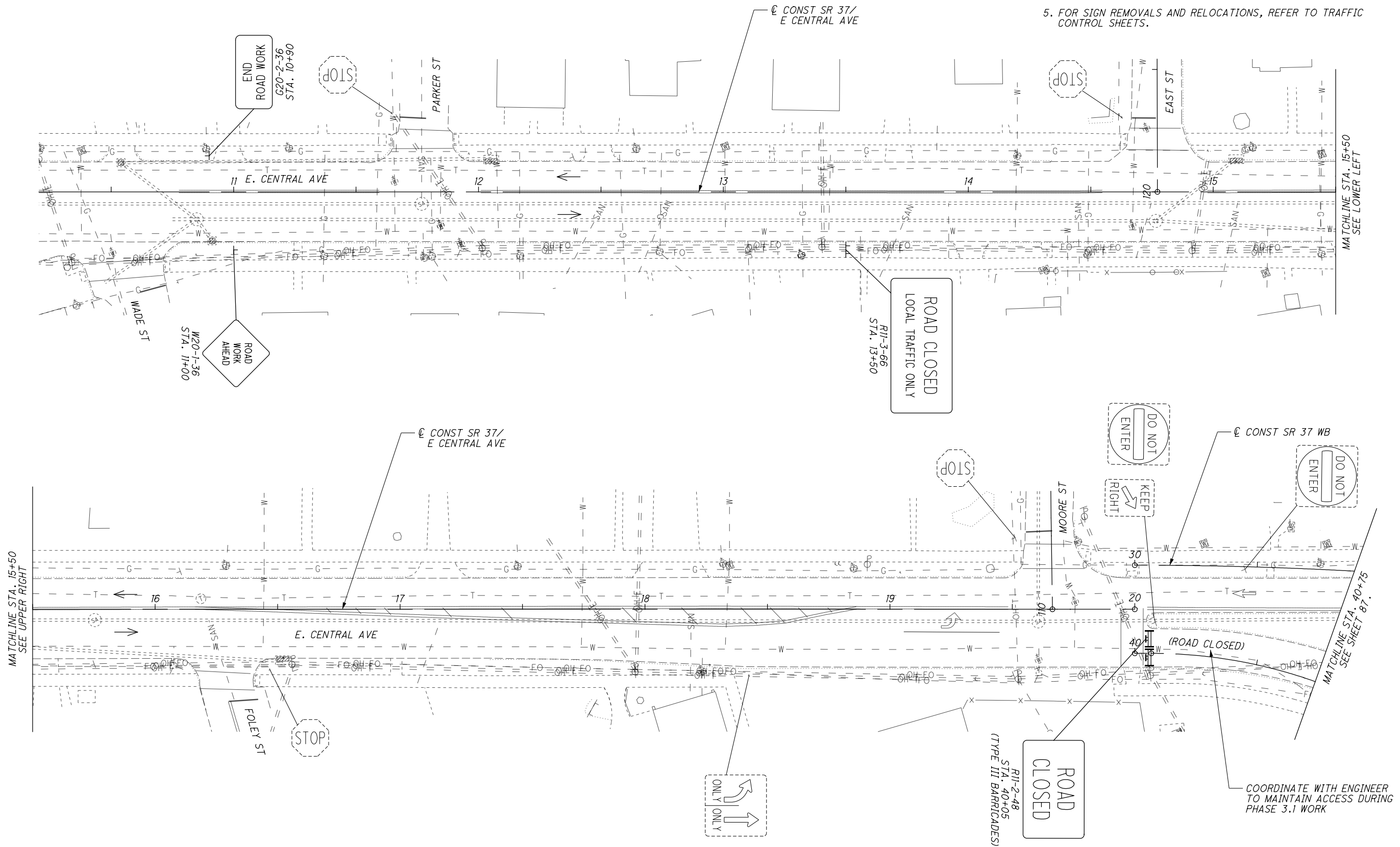
COMPLETE MULTI-USE PATH  
 IMPROVEMENTS ONCE TEMPORARY  
 RAILROAD STRUCTURE IS REMOVED

- NOTES:**
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. CONSTRUCT THE PHASE 3/3.1 WORK ZONE IMPROVEMENTS FIRST. INCLUDE THE DRAINAGE STRUCTURES AS SHOWN. BUILD NORTHSIDE CURBLINE OF WILLIAM STREET TO INCLUDE NOSE OF ISLAND NEAR STA. 593+10.
  3. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  4. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  5. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  6. OPERATE MODIFIED TRAFFIC SIGNAL AT E. WILLIAM STREET AND EAST POINT CROSSING INTERSECTION. SEE SHEET 117
  7. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
  8. FOR SECTION B-B, SEE SHEET 46

COORDINATE WITH  
 ENGINEER TO MAINTAIN  
 ACCESS DURING  
 PHASE 3.1 WORK

CONST EAST  
 POINT CROSSING

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- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. EASTBOUND EAST CENTRAL AVENUE CLOSED TO THROUGH TRAFFIC. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
  3. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  4. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  5. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.

CALCULATED  
ACW  
CHECKED  
CJM

0 20 40  
HORIZONTAL  
SCALE IN FEET

**MOT PLANS - PHASE 3/3.1  
STA. 10+50 TO STA. 40+75**

**DEL-36-11.03**

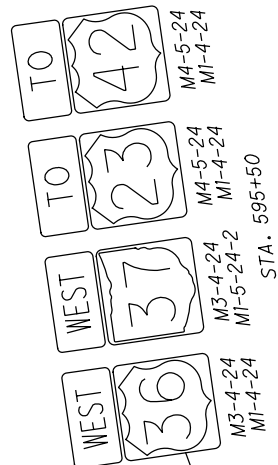
COORDINATE WITH ENGINEER TO MAINTAIN ACCESS DURING PHASE 3.1 WORK



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NOTES:

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. MAINTAIN ACCESS TO AFFECTED PROPERTIES. BOWTOWN RD ACCESS MAINTAINED ALONG BOWTOWN RD.



MATCHLINE STA. 595+00  
 FOR PHASE 3/3.1 SEE SHEET 99.  
 FOR PHASE 3/3.2 SEE SHEET 102.  
 FOR PHASE 3/3.3

PHASE FINAL WORK

PHASE 3 WORK ZONE

MAINTAIN ACCESS TO AFFECTED PROPERTIES

REMOVE EXISTING PAVEMENT

MAINTAIN ACCESS TO AFFECTED PROPERTIES

CONST BOWTOWN RD

CONST US 36

SUNBURY RD

MATCHLINE STA. 600+50  
 SEE SHEET 90.

ROAD CLOSED  
 R11-2-48  
 STA. 72+10

SPEED LIMIT  
 25

ROAD CLOSED  
 R11-2-48  
 STA. 72+10

W20-3-36 &  
 BOWTOWN RD DR  
 VILLAGE GATE DR



MAINTENANCE OF TRAFFIC PLANS - PHASE 3  
 STA. 595+00 TO STA. 600+50

DEL-36-11.03

SUPPLEMENTAL HOSPITAL SIGNAGE



PLACE SIGNS ON NORTHEAST CORNER  
OF LAKE ST & WILLIAM ST  
FACING WESTBOUND TRAFFIC



D9-2-18  
M6-1R-12



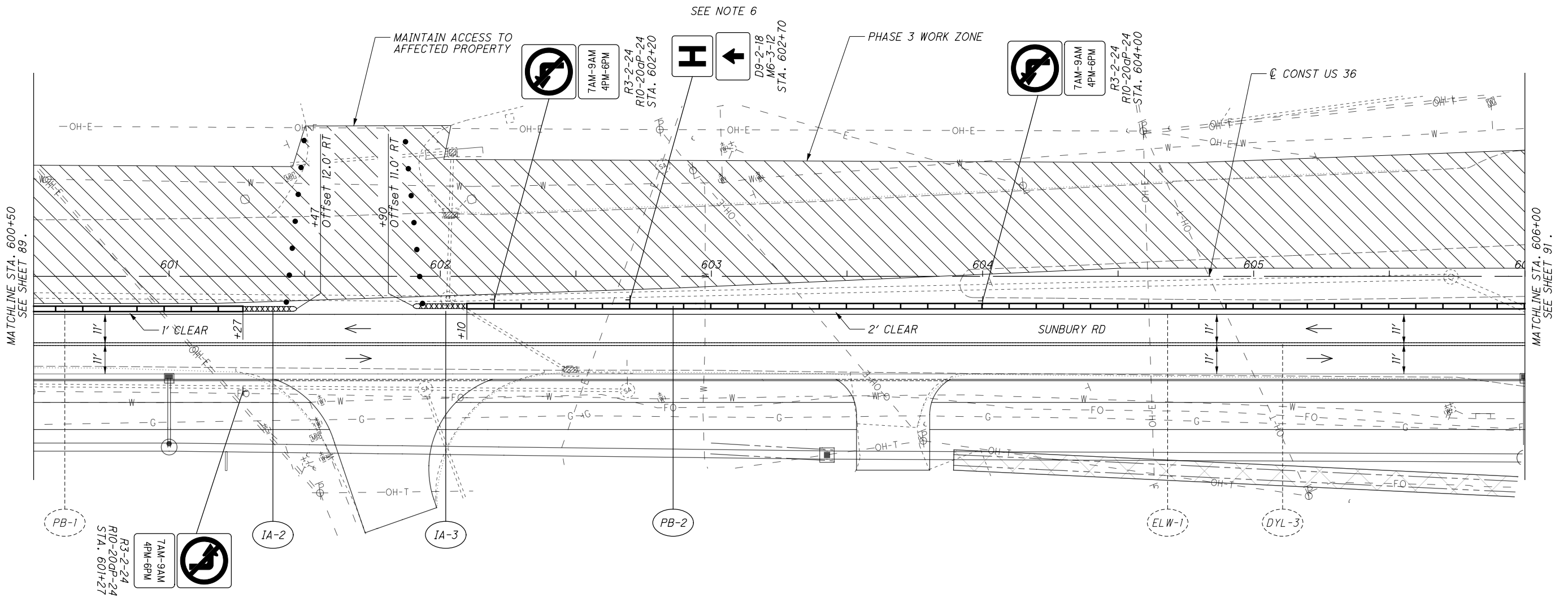
PLACE SIGNS ON SOUTHEAST CORNER  
OF LAKE ST & CENTRAL AVE  
FACING NORTHBOUND TRAFFIC



D9-2-18  
M6-1L-12

NOTES:

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. MAINTAIN ACCESS TO AFFECTED PROPERTIES. CONTRACTOR TO PROVIDE TEMPORARY DRIVEWAY TO "CORNER CAFE RESTAURANT" PROPERTY AS SHOWN.
6. WHEN HOSPITAL ROUTING SIGNS ARE PLACED AT STA. 602+70, THE CONTRACTOR SHALL MAINTAIN ROUTING TO HOSPITAL BY ALSO PLACING SUPPLEMENTAL HOSPITAL SIGNAGE AS NOTED ON THIS SHEET.

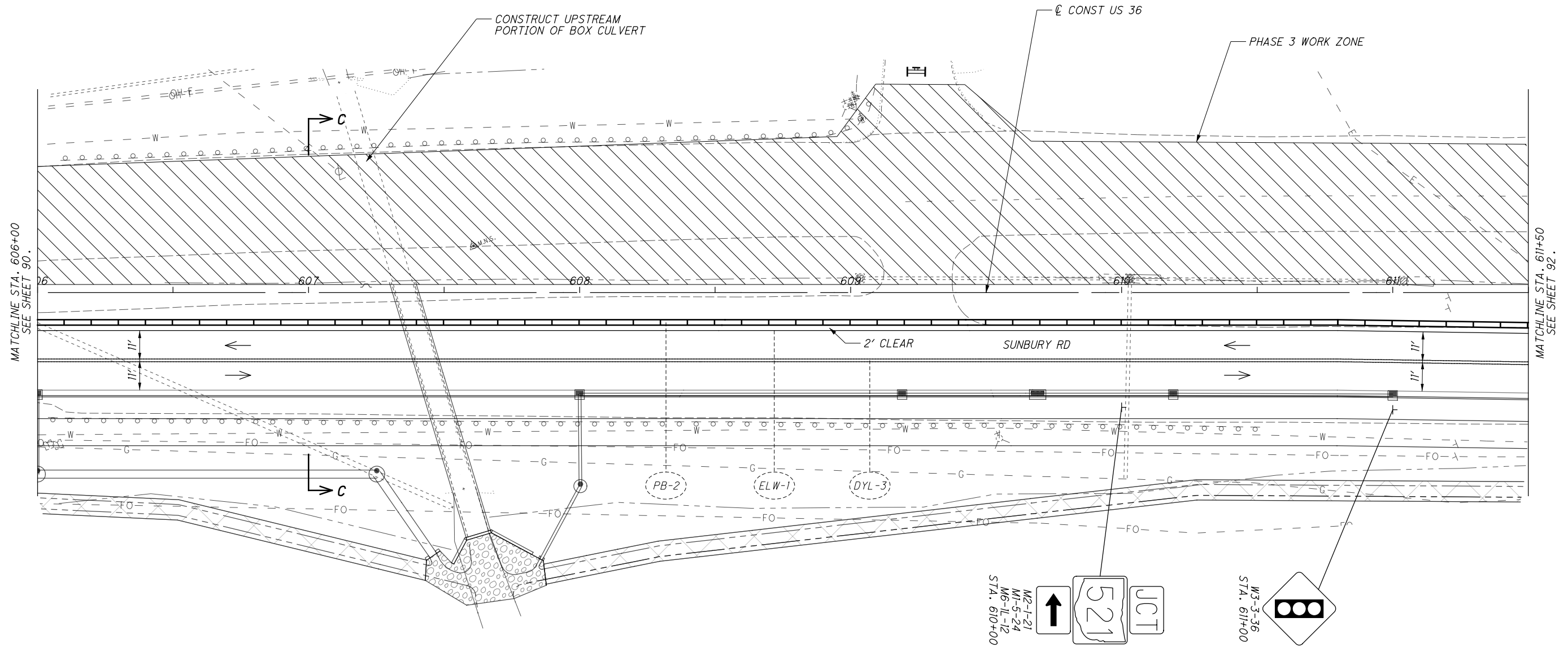


CALCULATED	ACW	CHECKED	CJM
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MAINTENANCE OF TRAFFIC PLANS - PHASE 3  
STA. 600+50 TO STA. 606+00

DEL-36-11.03

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NOTES:

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. MAINTAIN ACCESS TO AFFECTED PROPERTIES. BOWTOWN ROAD CAN BE USED TO MAINTAIN PROPERTY ACCESS.
6. FOR SECTION C-C, SEE SHEET 47

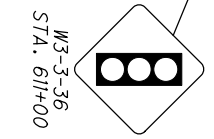
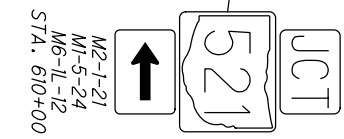
CALCULATED ACW CHECKED CJM

0 20 40 HORIZONTAL SCALE IN FEET

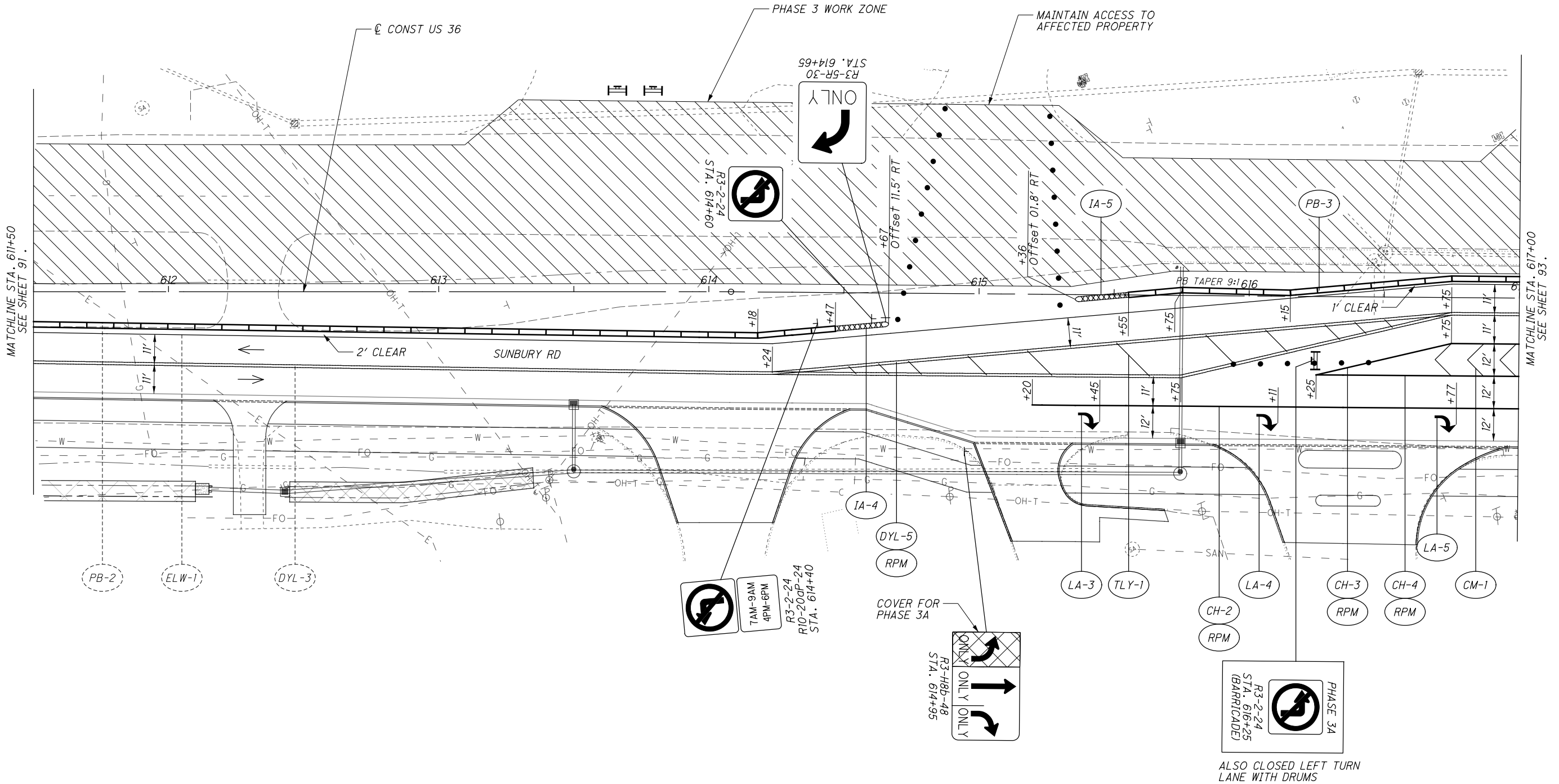
MAINTENANCE OF TRAFFIC PLANS - PHASE 3  
STA. 606+00 TO STA. 611+50

DEL-36-11.03

91  
644



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- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. CLOSE EASTBOUND LEFT TURN LANE FOR PHASE 3A WORK.
  6. CONTRACTOR TO PROVIDE TEMPORARY DRIVEWAY TO "OAKLAND NURSERIES".



**MAINTENANCE OF TRAFFIC PLANS - PHASE 3**  
**STA. 611+50 TO STA. 617+00**

**DEL-36-11.03**



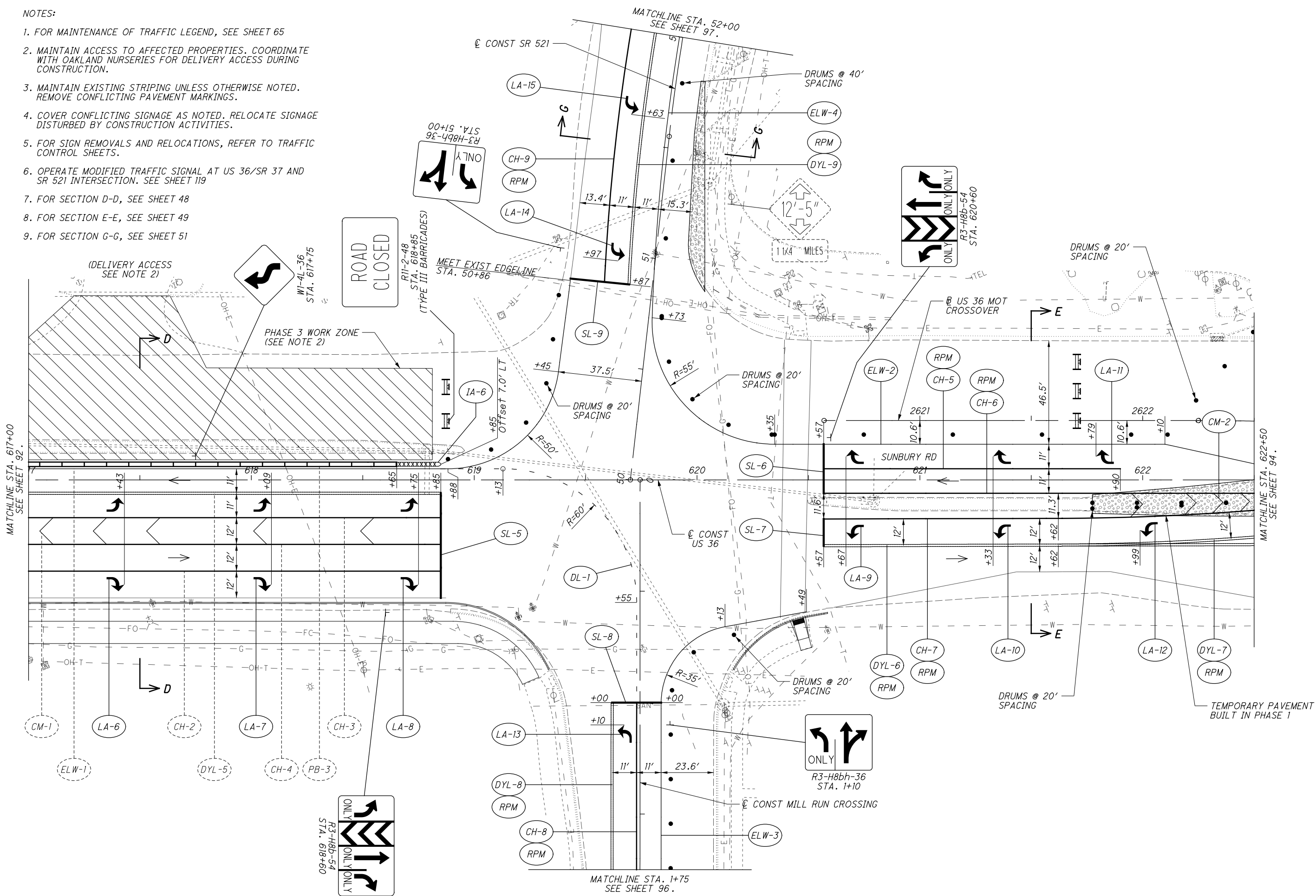
CALCULATED  
ACW  
CHECKED  
CJM

**MAINTENANCE OF TRAFFIC PLANS - PHASE 3**  
**STA. 617+00 TO STA. 622+50**

**DEL-36-11.03**

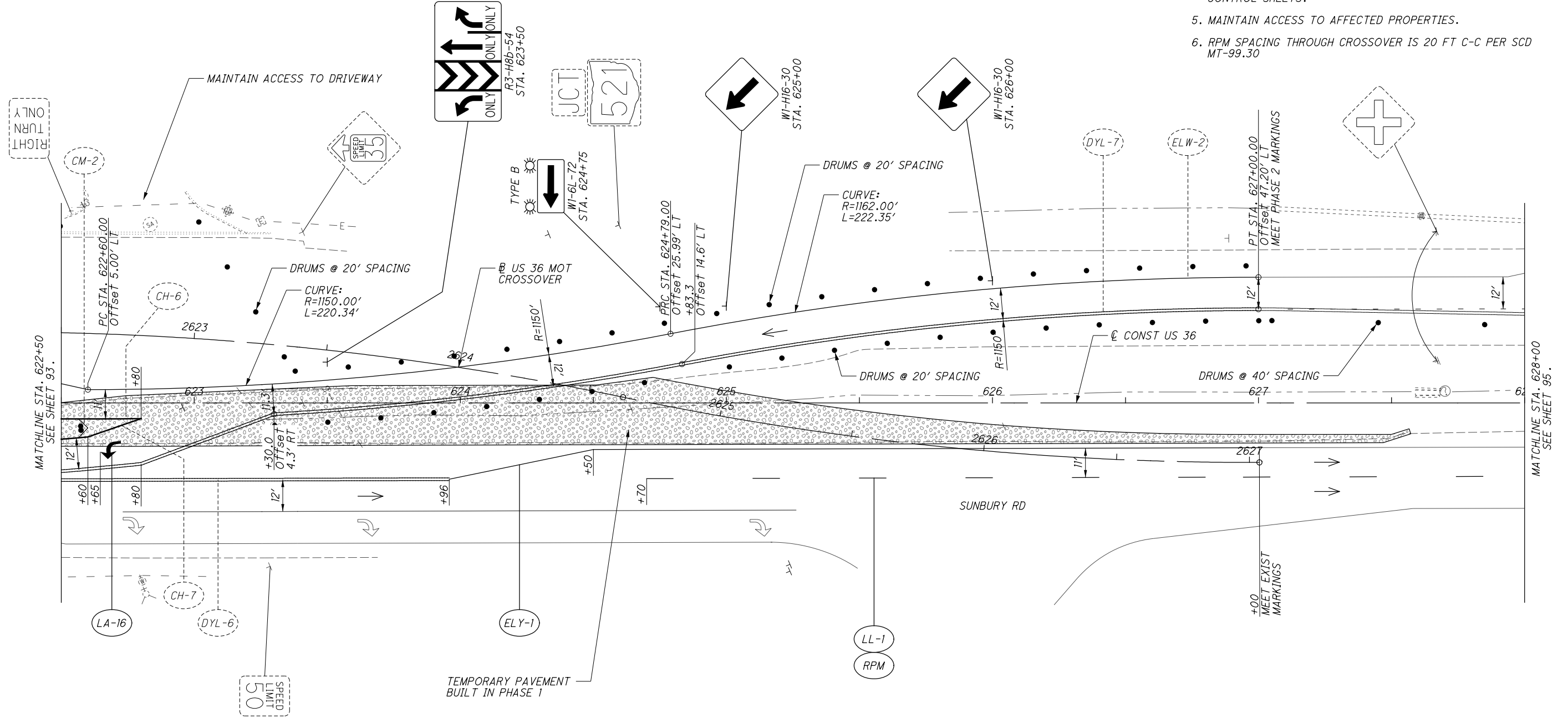
**NOTES:**

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN ACCESS TO AFFECTED PROPERTIES. COORDINATE WITH OAKLAND NURSERIES FOR DELIVERY ACCESS DURING CONSTRUCTION.
3. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
4. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
5. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
6. OPERATE MODIFIED TRAFFIC SIGNAL AT US 36/SR 37 AND SR 521 INTERSECTION. SEE SHEET 119
7. FOR SECTION D-D, SEE SHEET 48
8. FOR SECTION E-E, SEE SHEET 49
9. FOR SECTION G-G, SEE SHEET 51



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- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
  6. RPM SPACING THROUGH CROSSOVER IS 20 FT C-C PER SCD MT-99.30

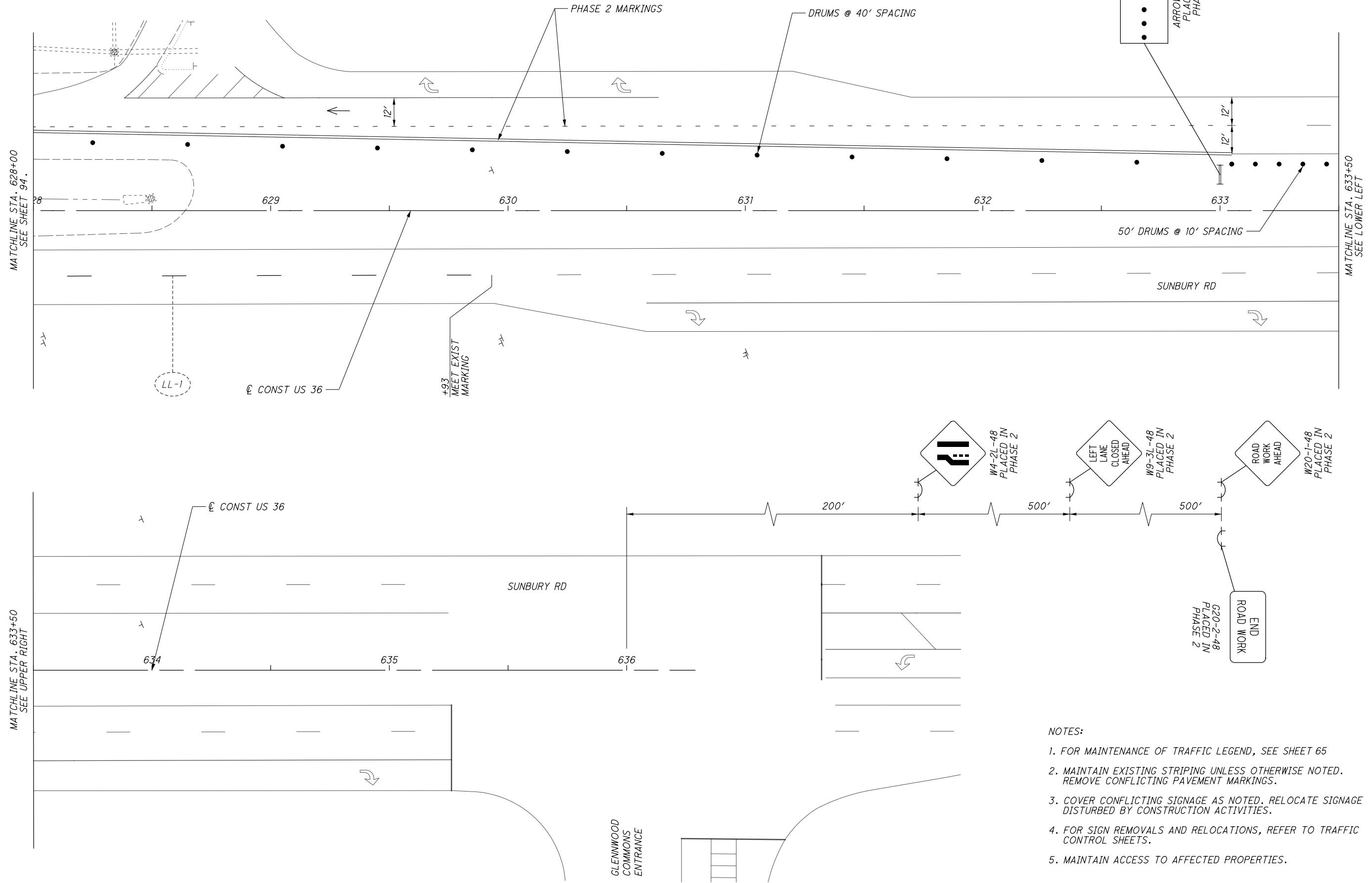
CALCULATED ACW CHECKED CJM

0 20 40  
HORIZONTAL SCALE IN FEET

**MAINTENANCE OF TRAFFIC PLANS - PHASE 3**  
**STA. 622+50 TO STA. 628+00**

**DEL-36-11.03**

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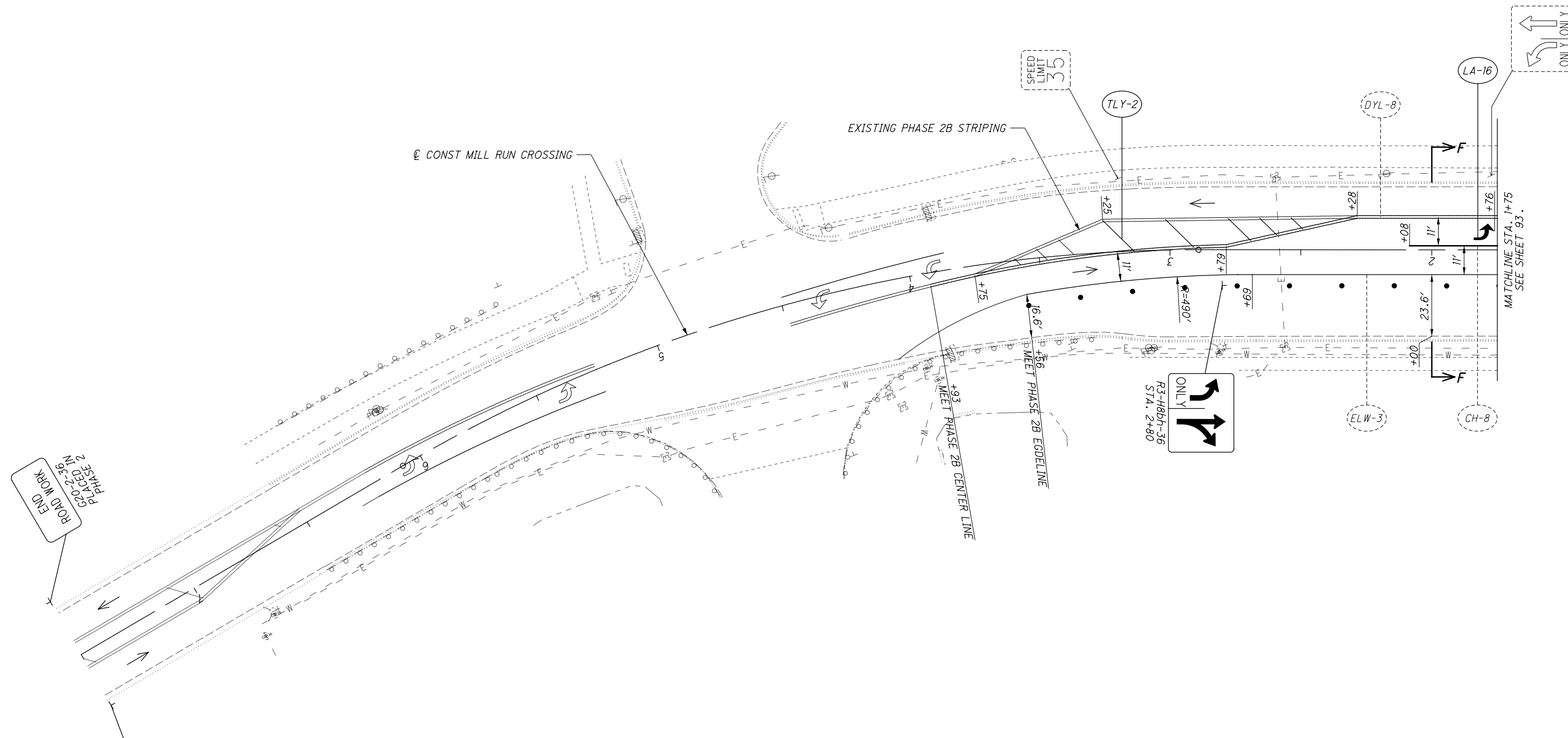


- NOTES:**
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.



**MAINTENANCE OF TRAFFIC PLANS - PHASE 3**  
**STA. 628+00 TO STA. 636+50**

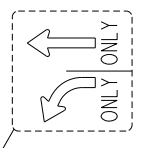
CALCULATED	ACW
CHECKED	CJM



ROAD WORK  
END  
PLACED IN  
PHASE 2  
5202-2-36

ROAD WORK  
AHEAD  
PLACED IN  
PHASE 2  
W20-1-36

- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING AND STRIPING FROM PHASE 2/2A/2B UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. FOR SECTION F-F, SEE SHEET 50

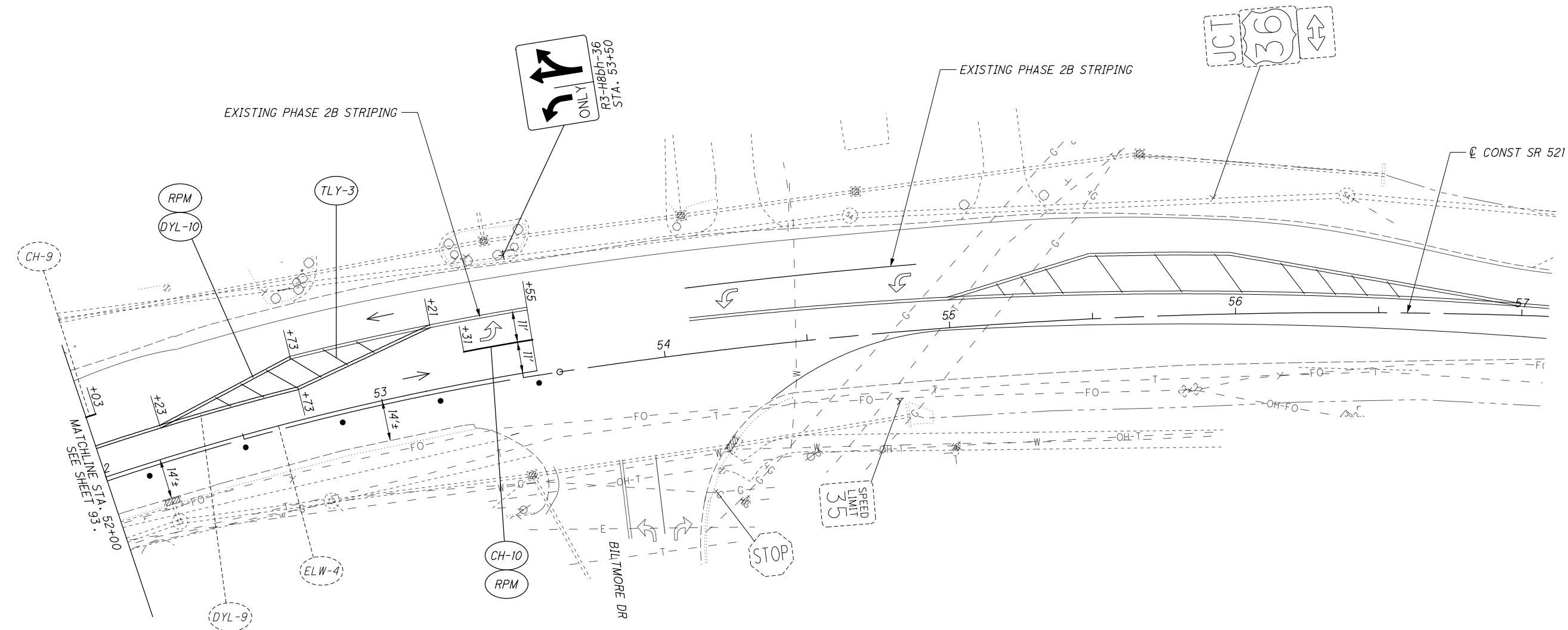


CALCULATED  
ACW  
CHECKED  
CJM

**MAINTENANCE OF TRAFFIC PLANS - PHASE 3**  
**STA. 1+75 TO STA. 7+50**

**DEL-36-11.03**





CALCULATED ACW CHECKED CJM

0 20 40  
HORIZONTAL SCALE IN FEET

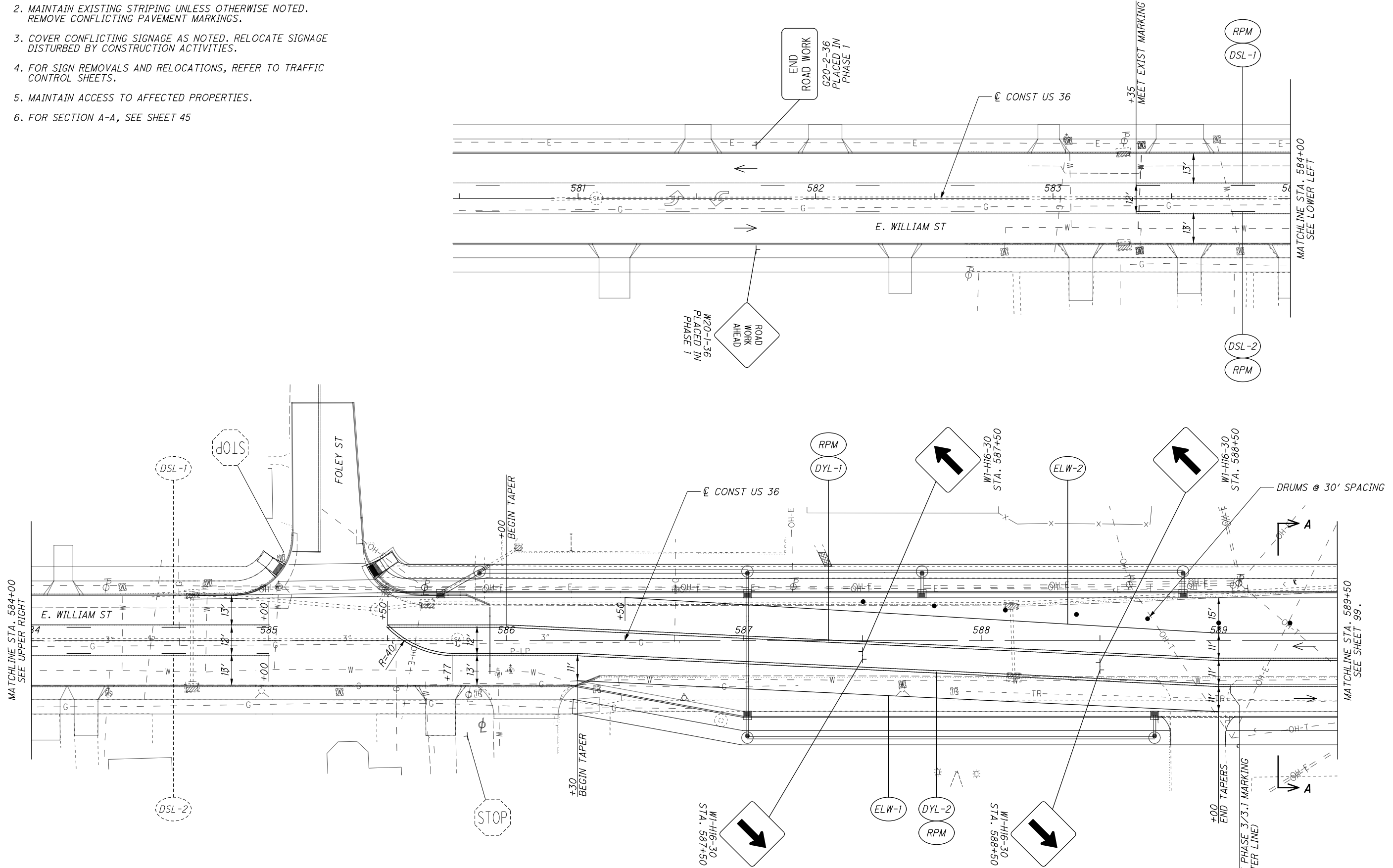
**MAINTENANCE OF TRAFFIC PLANS - PHASE 3**  
**STA. 52+00 TO STA. 57+00**

- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING AND STRIPING FROM PHASE 2/2A/2B UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.

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NOTES:

- 1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
- 2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
- 3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
- 4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
- 5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
- 6. FOR SECTION A-A, SEE SHEET 45

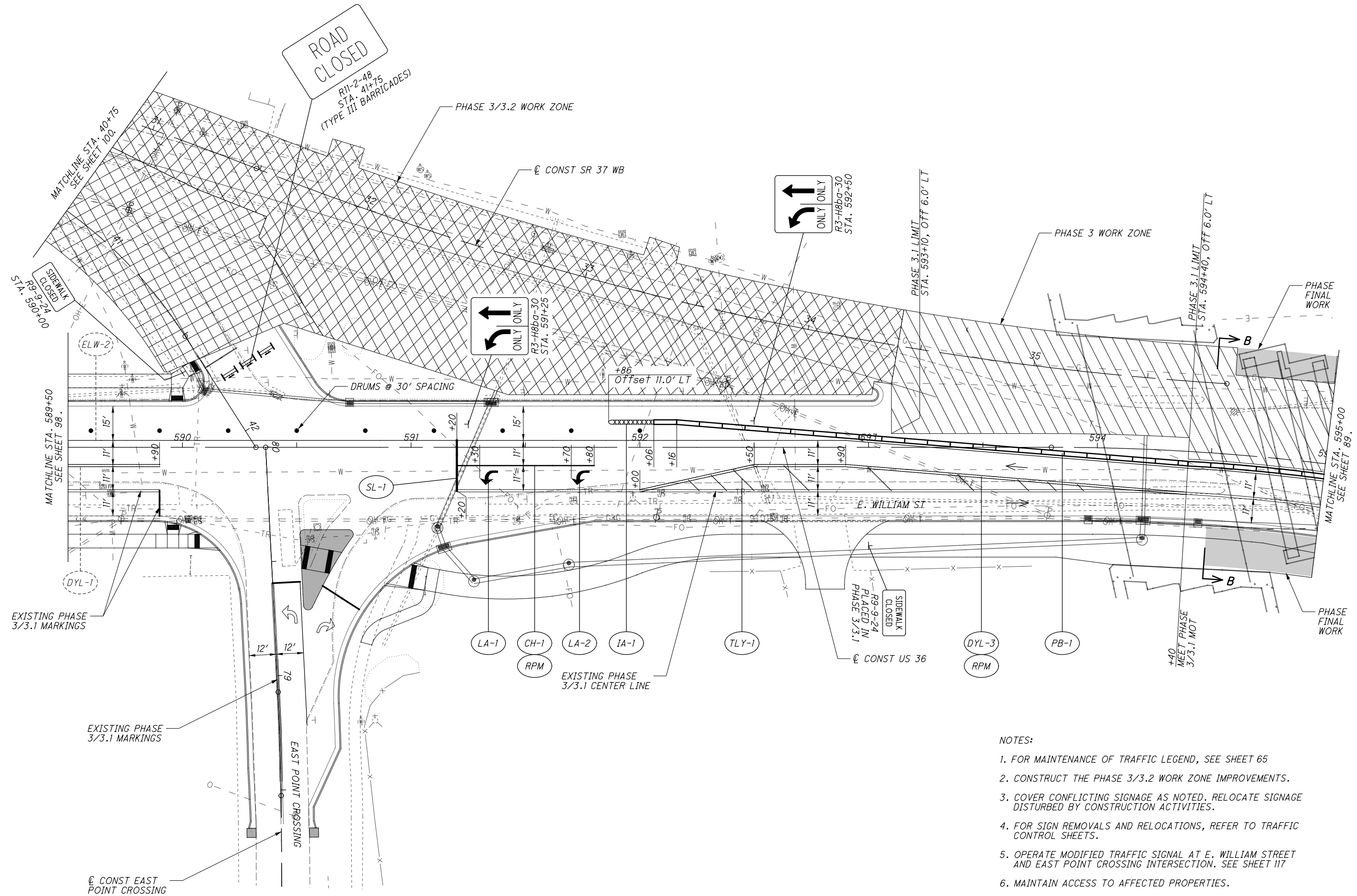


CALCULATED	
ACW	
CHECKED	CJM

**MOT PLANS - PHASE 3 / 3.2**  
**STA. 581+00 TO STA. 589+50**

**DEL-36-11.03**

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NOTES:

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. CONSTRUCT THE PHASE 3/3.2 WORK ZONE IMPROVEMENTS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. OPERATE MODIFIED TRAFFIC SIGNAL AT E. WILLIAM STREET AND EAST POINT CROSSING INTERSECTION. SEE SHEET 117
6. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
7. FOR SECTION B-B, SEE SHEET 46

CALCULATED  
ACW  
CHECKED  
CJM

0 20 40  
HORIZONTAL  
SCALE IN FEET

**MOT PLANS - PHASE 3/3.2  
STA. 589+50 TO STA. 595+00**

**DEL-36-11.03**

NOTES:

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. CONSTRUCT THE PHASE 3/3.2 WORK ZONE IMPROVEMENTS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
6. IMPLEMENT CLOSURE DETOUR, SEE SHEET 52

CALCULATED  
ACW  
CHECKED  
CJM

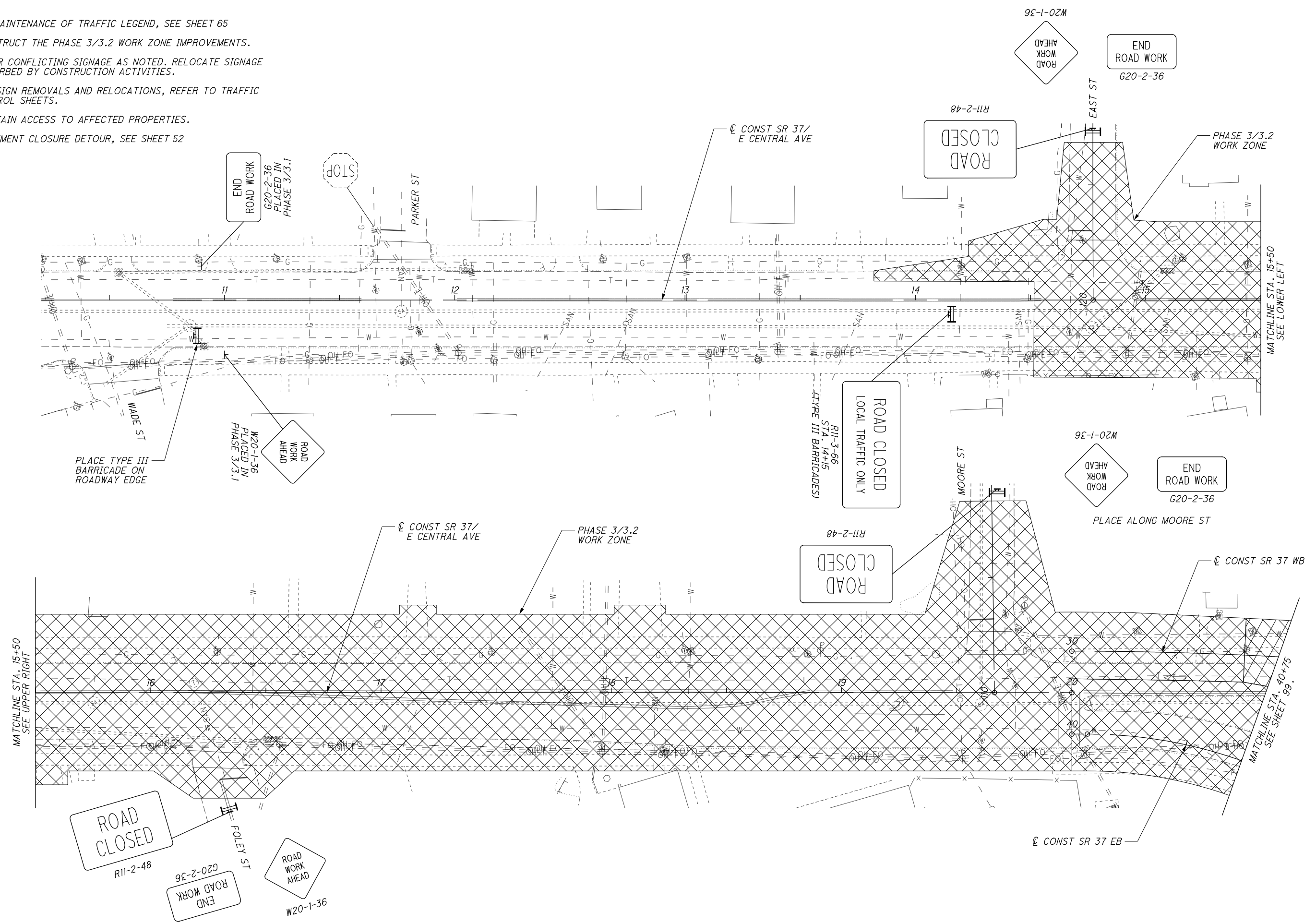
0 20 40  
HORIZONTAL  
SCALE IN FEET

**MOT PLANS - PHASE 3/3.2  
STA. 10+50 TO STA. 40+75**

**DEL-36-11.03**

100  
644

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NOTES:

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
6. FOR SECTION A-A, SEE SHEET 45



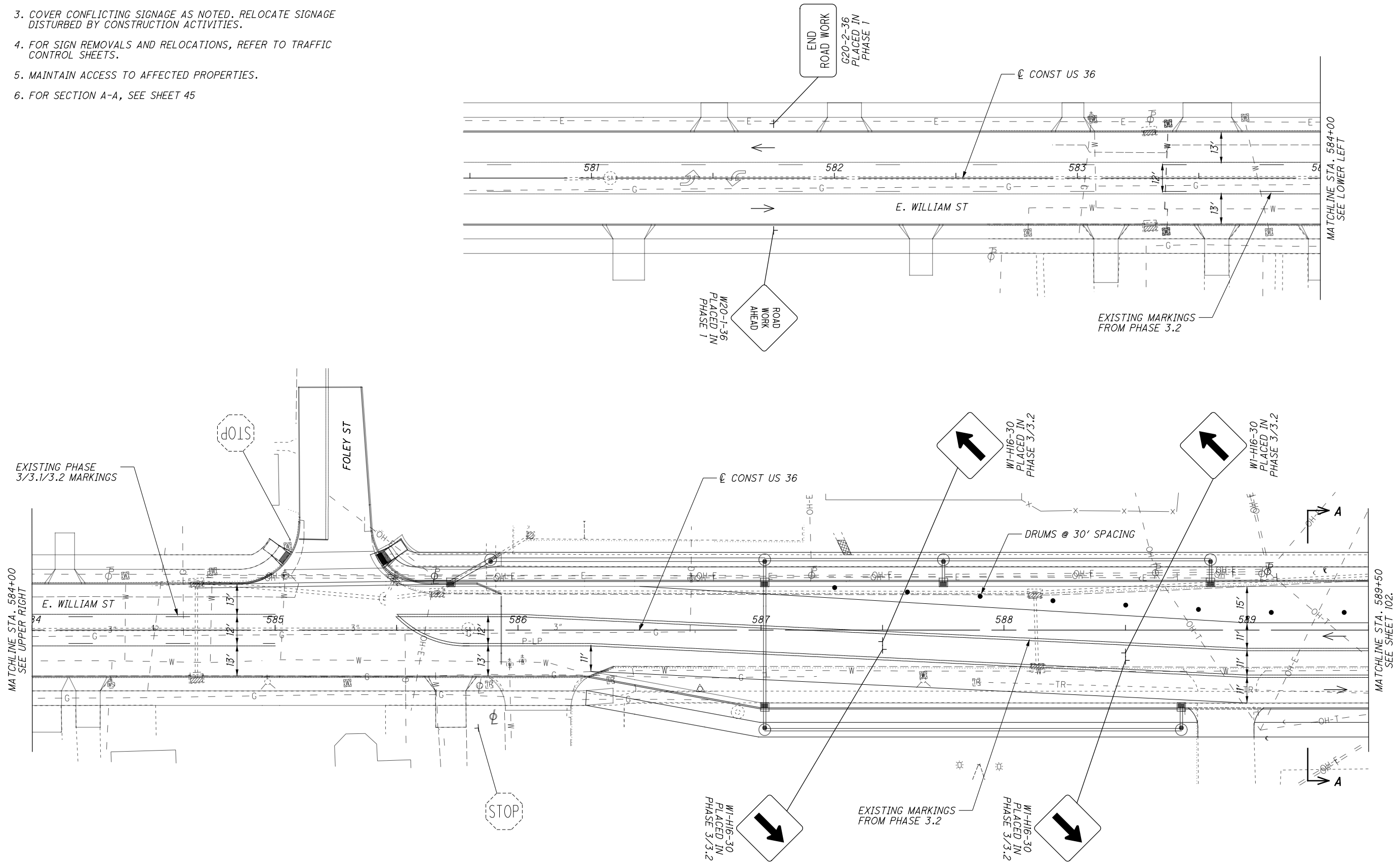
CALCULATED  
ACW  
CHECKED  
CJM

**MOT PLANS - PHASE 3/3.3  
STA. 581+00 TO STA. 589+50**

**DEL-36-11.03**

101  
644

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EXISTING PHASE 3/3.1/3.2 MARKINGS

STOP

FOLEY ST

END ROAD WORK  
G20-2-36  
PLACED IN PHASE 1

CONST US 36

E. WILLIAM ST

MATCHLINE STA. 584+00  
SEE LOWER LEFT

W20-1-36  
ROAD WORK AHEAD  
PLACED IN PHASE 1

EXISTING MARKINGS FROM PHASE 3.2

W1-H16-30  
PLACED IN PHASE 3/3.2

W1-H16-30  
PLACED IN PHASE 3/3.2

DRUMS @ 30' SPACING

W1-H16-30  
PLACED IN PHASE 3/3.2

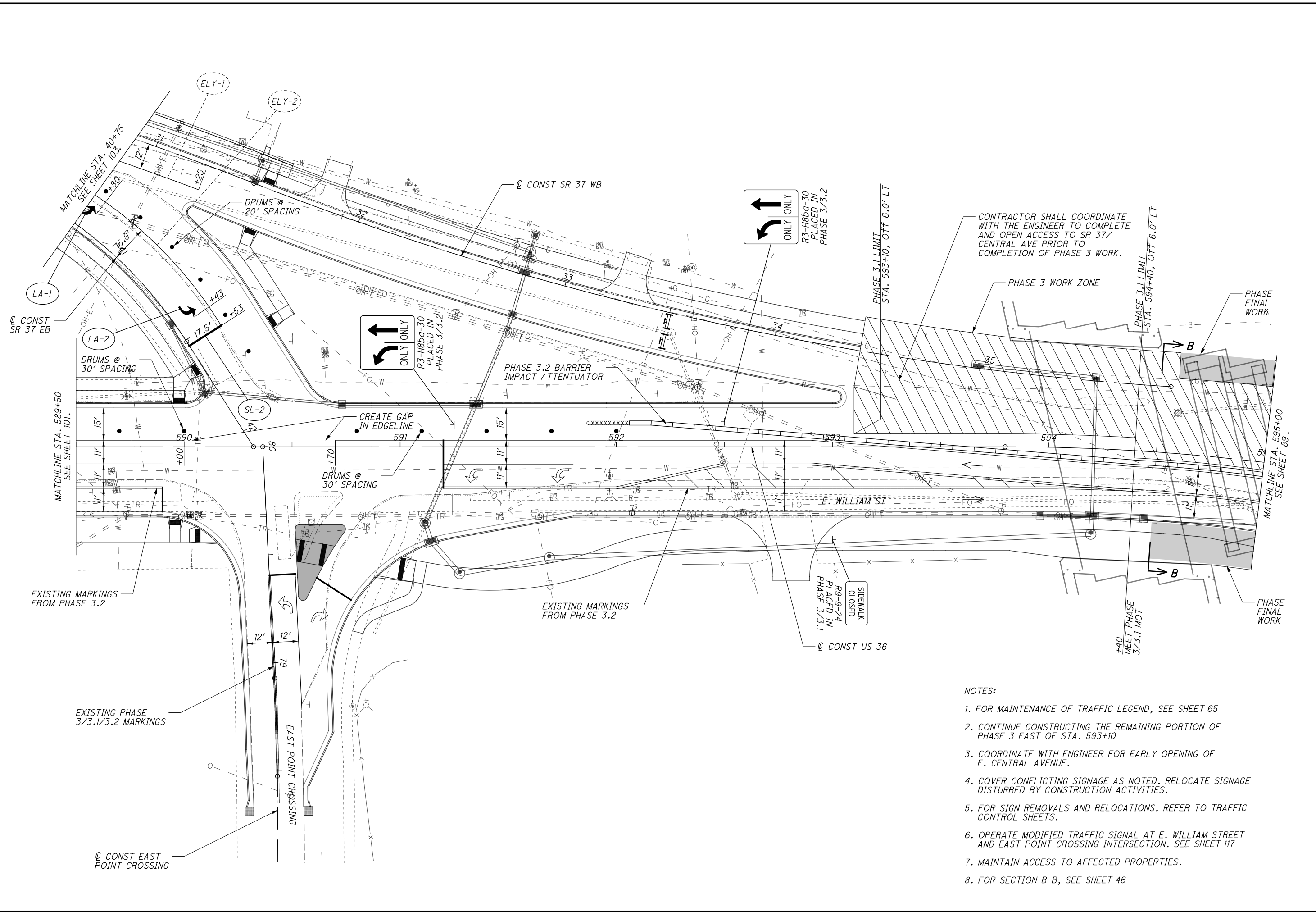
W1-H16-30  
PLACED IN PHASE 3/3.2

EXISTING MARKINGS FROM PHASE 3.2

MATCHLINE STA. 584+00  
SEE UPPER RIGHT

MATCHLINE STA. 589+50  
SEE SHEET 102.

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CALCULATED ACW CHECKED CJM  
**MOT PLANS - PHASE 3/3.3**  
**STA. 589+50 TO STA. 595+00**

**DEL-36-11.03**  
 102  
 644

- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. CONTINUE CONSTRUCTING THE REMAINING PORTION OF PHASE 3 EAST OF STA. 593+10
  3. COORDINATE WITH ENGINEER FOR EARLY OPENING OF E. CENTRAL AVENUE.
  4. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  5. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  6. OPERATE MODIFIED TRAFFIC SIGNAL AT E. WILLIAM STREET AND EAST POINT CROSSING INTERSECTION. SEE SHEET 117
  7. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
  8. FOR SECTION B-B, SEE SHEET 46

NOTES:

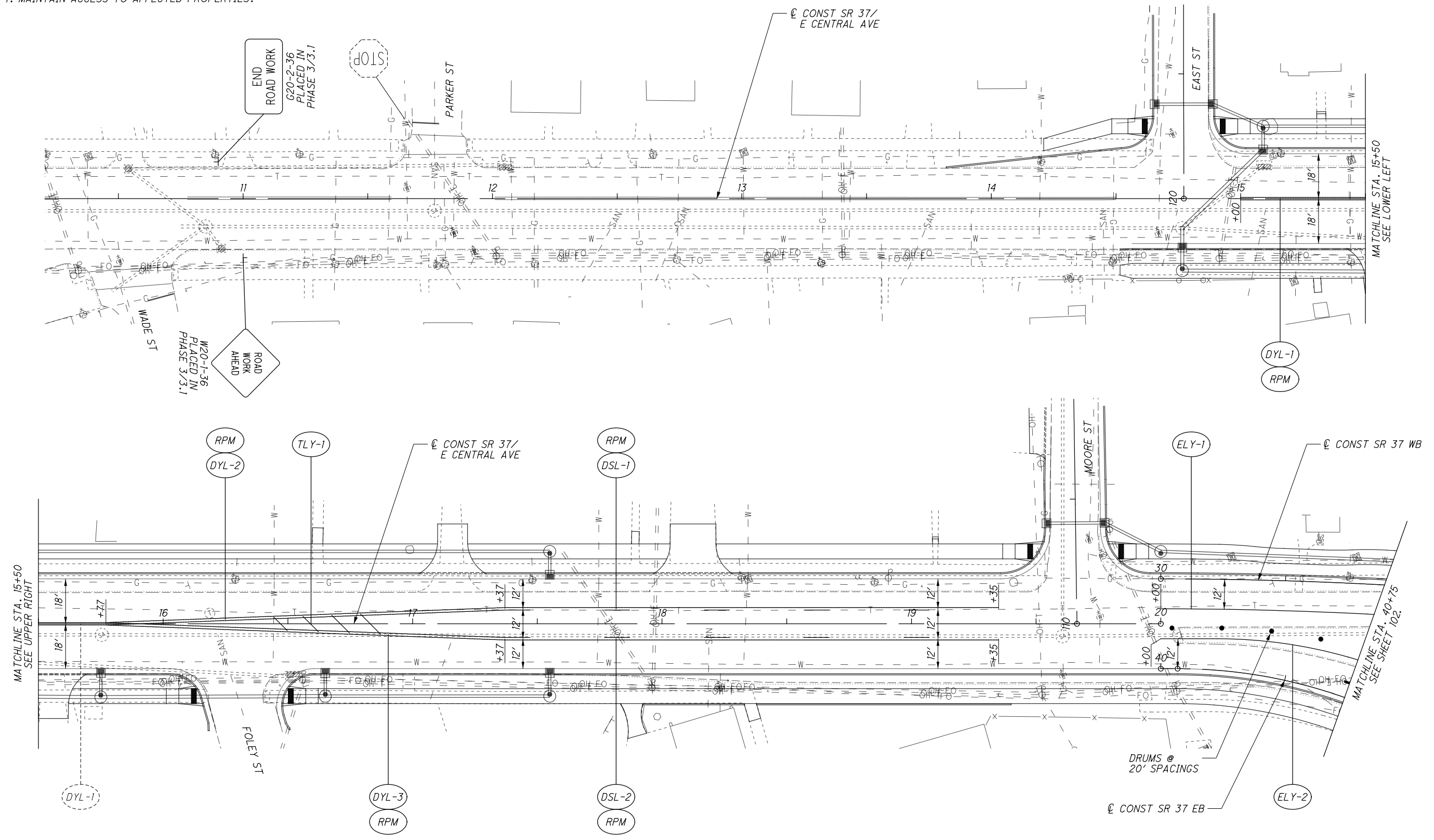
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
3. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
4. MAINTAIN ACCESS TO AFFECTED PROPERTIES.

CALCULATED  
ACW  
CHECKED  
CJM

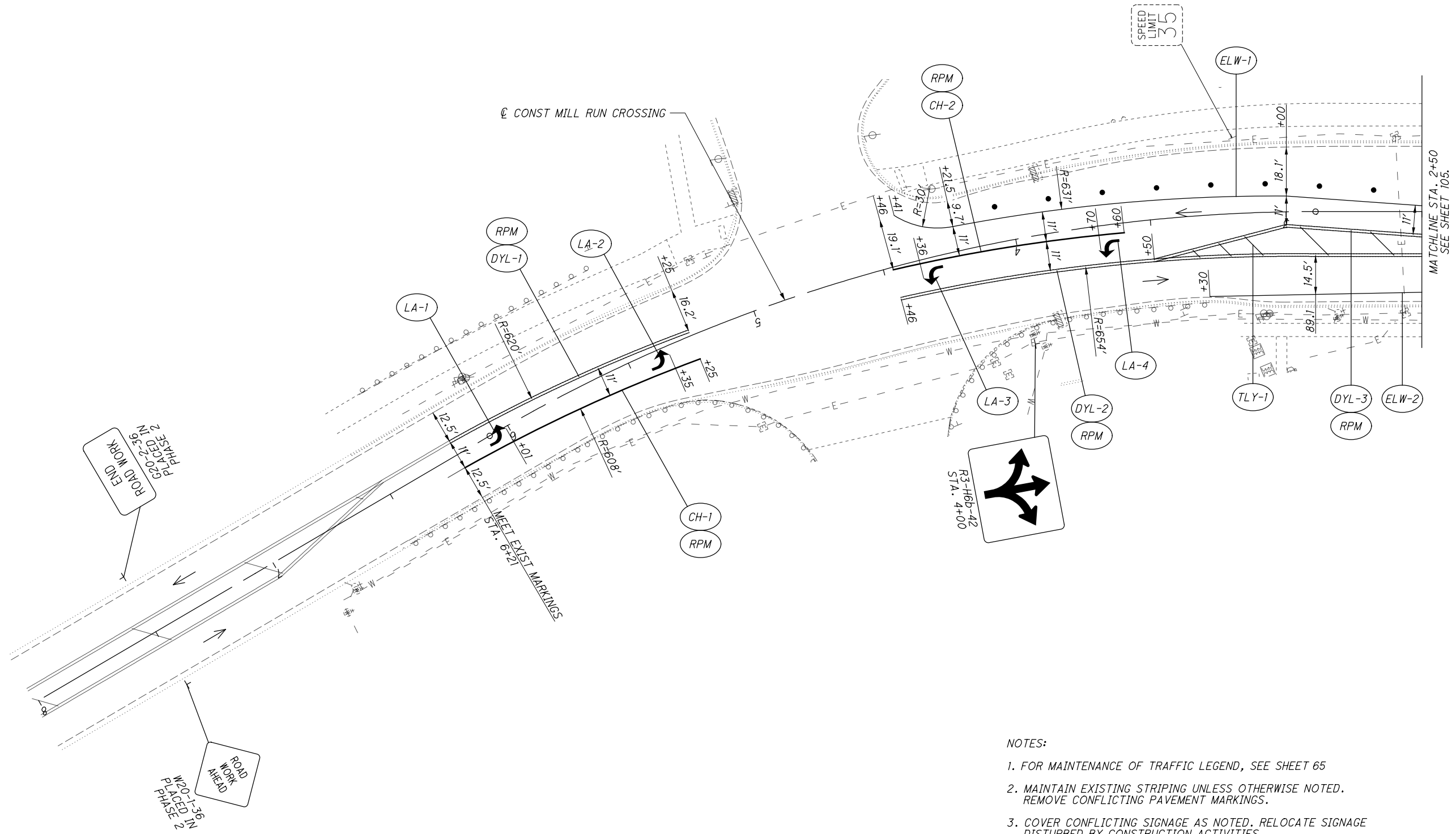
**MOT PLANS - PHASE 3/3.3  
STA. 10+50 TO STA. 40+75**

**DEL-36-11.03**

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DRUMS @  
20' SPACINGS



- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.



MAINTENANCE OF TRAFFIC PLANS - PHASE 3A  
STA. 2+50 TO STA. 8+00

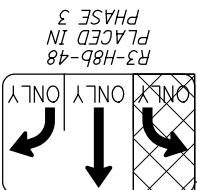


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PLACE PCMS FOR EASTBOUND US 36 TRAFFIC

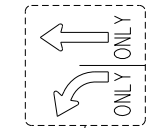
STARTING XX/XX

NO LEFT TURN

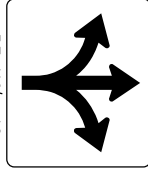


R3-H8b-48 PLACED IN PHASE 3

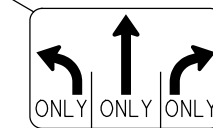
COVER



R3-H8b-42 STA. 1+10



R3-2-24 STA. 618+40



R3-H8b-48 PLACED IN PHASE 3

PLACE PCMS FOR SOUTHBOUND SR 521 TRAFFIC

STARTING XX/XX

NO RIGHT TURN TO US 36

NOTES:

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. OPERATE MODIFIED TRAFFIC SIGNAL AT US 36/SR 37 AND SR 521 INTERSECTION. IMPLEMENT TURN RESTRICTIONS. SEE SHEET 119
6. FOR DETOUR DUE TO TURN RESTRICTIONS, SEE SHEET 56
7. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
8. FOR SECTION F-F, SEE SHEET 50
9. FOR SECTION G-G, SEE SHEET 51
10. PLACE PORTABLE CHANGEABLE MESSAGE SIGNS PRIOR TO IMPLEMENTING THIS MOT PHASE TO PROVIDE ADVANCED NOTIFICATION OF TURN RESTRICTIONS.

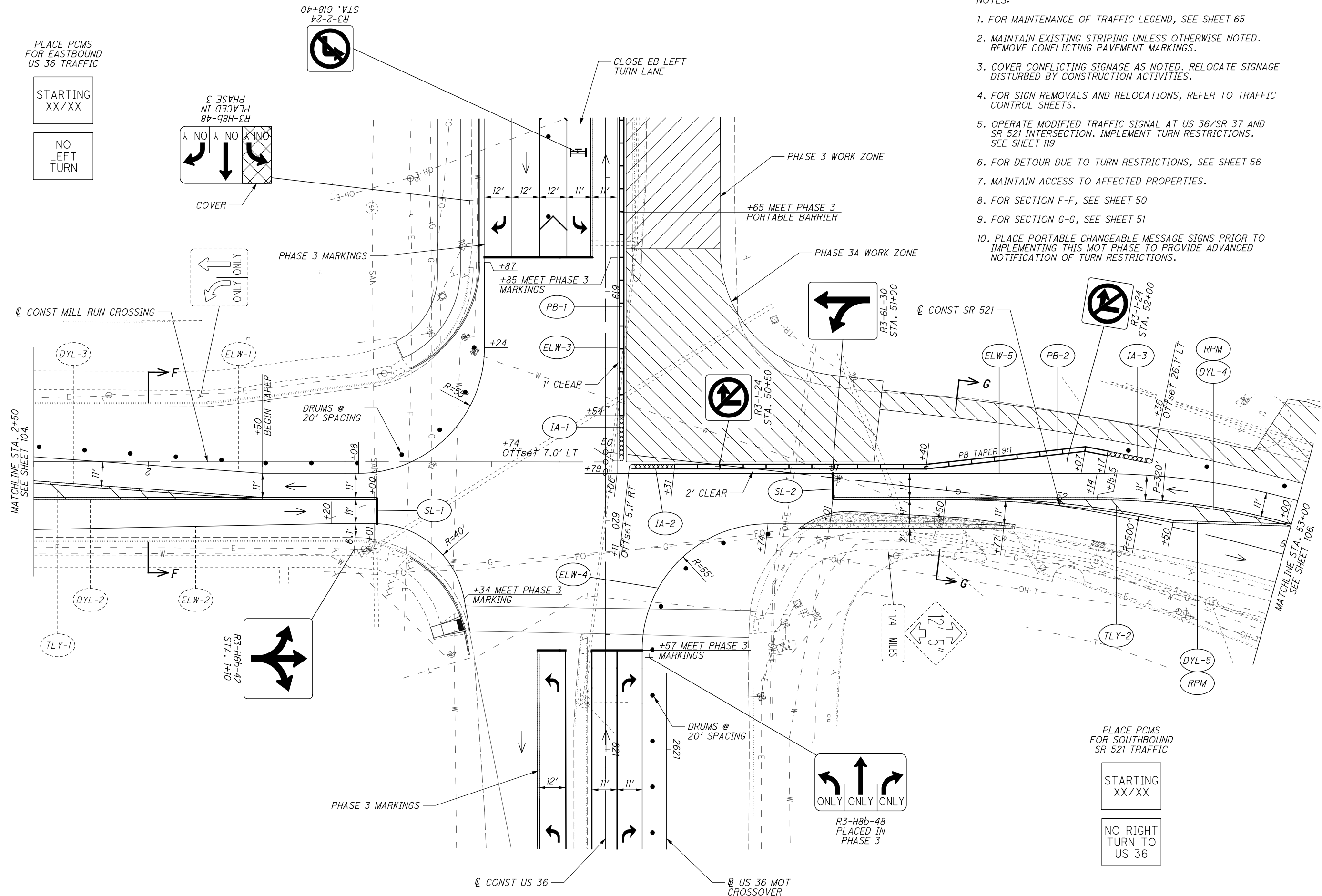


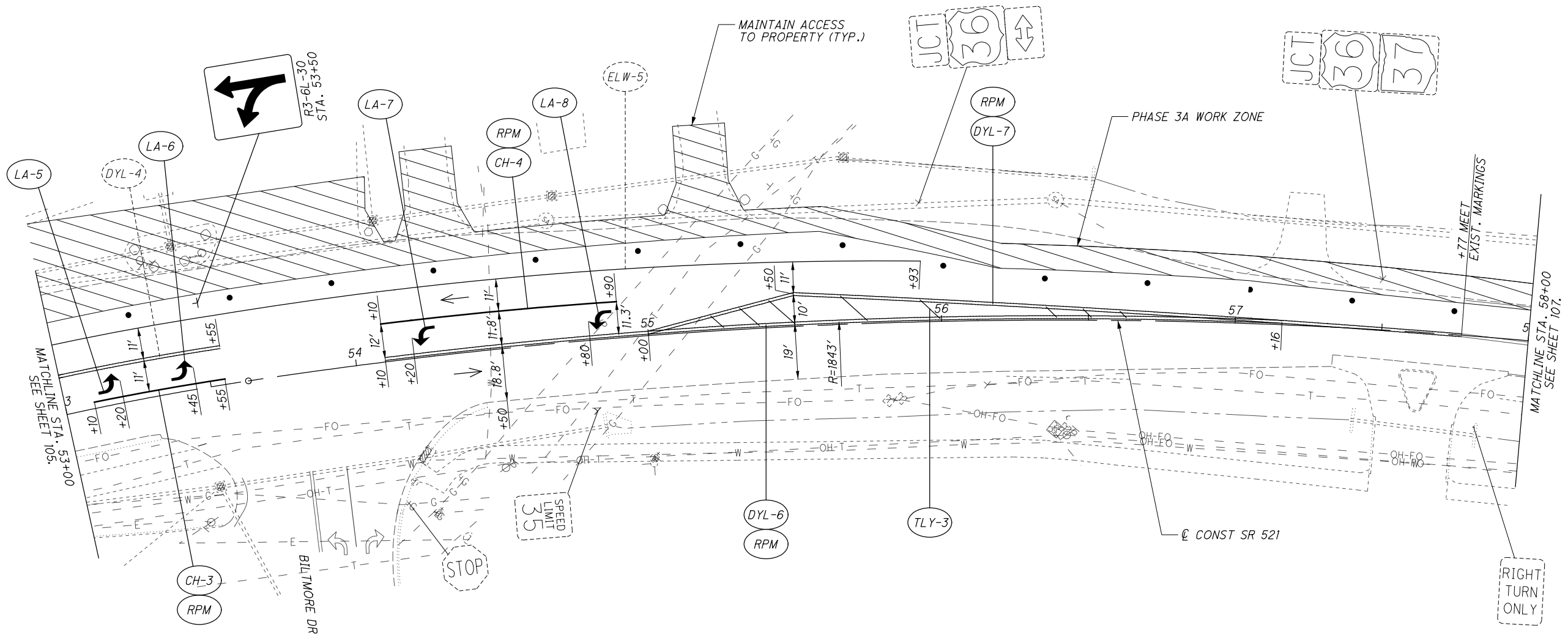
CALCULATED ACW CHECKED CJM

MAINTENANCE OF TRAFFIC PLANS - PHASE 3A STA. 2+50 TO STA. 53+00

DEL-36-11.03

105 644



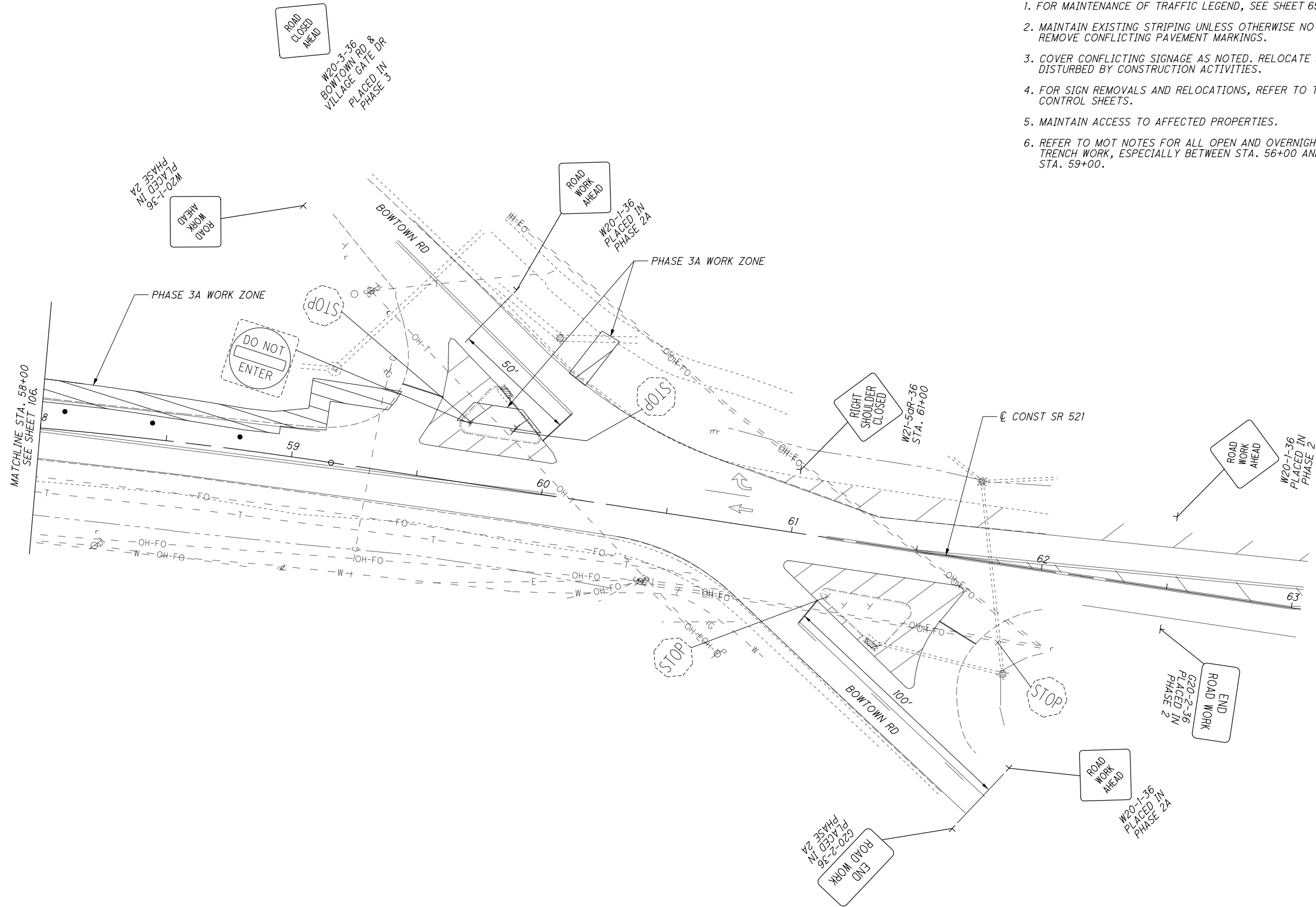


- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
  6. REFER TO MOT NOTES FOR ALL OPEN AND OVERNIGHT TRENCH WORK, ESPECIALLY BETWEEN STA. 56+00 AND STA. 59+00.

CALCULATED  
ACW  
CHECKED  
CJM

0 10 20 40  
HORIZONTAL  
SCALE IN FEET

**MAINTENANCE OF TRAFFIC PLANS - PHASE 3A**  
**STA. 53+00 TO STA. 58+00**

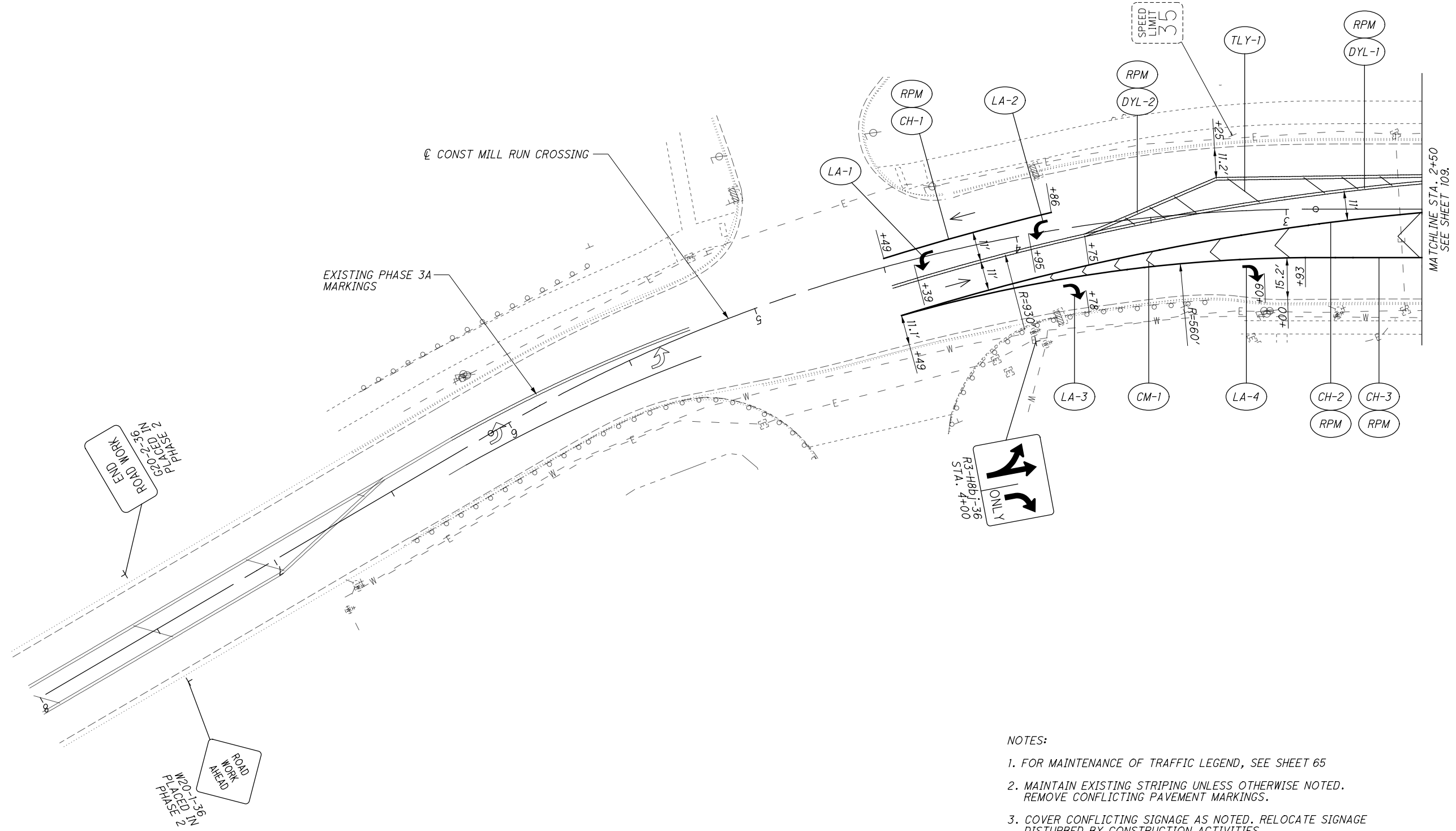


- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
  6. REFER TO MOT NOTES FOR ALL OPEN AND OVERNIGHT TRENCH WORK, ESPECIALLY BETWEEN STA. 56+00 AND STA. 59+00.

CALCULATED  
ACW  
CHECKED  
CJM

0 20 40  
HORIZONTAL  
SCALE IN FEET

**MAINTENANCE OF TRAFFIC PLANS - PHASE 3A**  
**STA. 58+00 TO STA. 63+00**



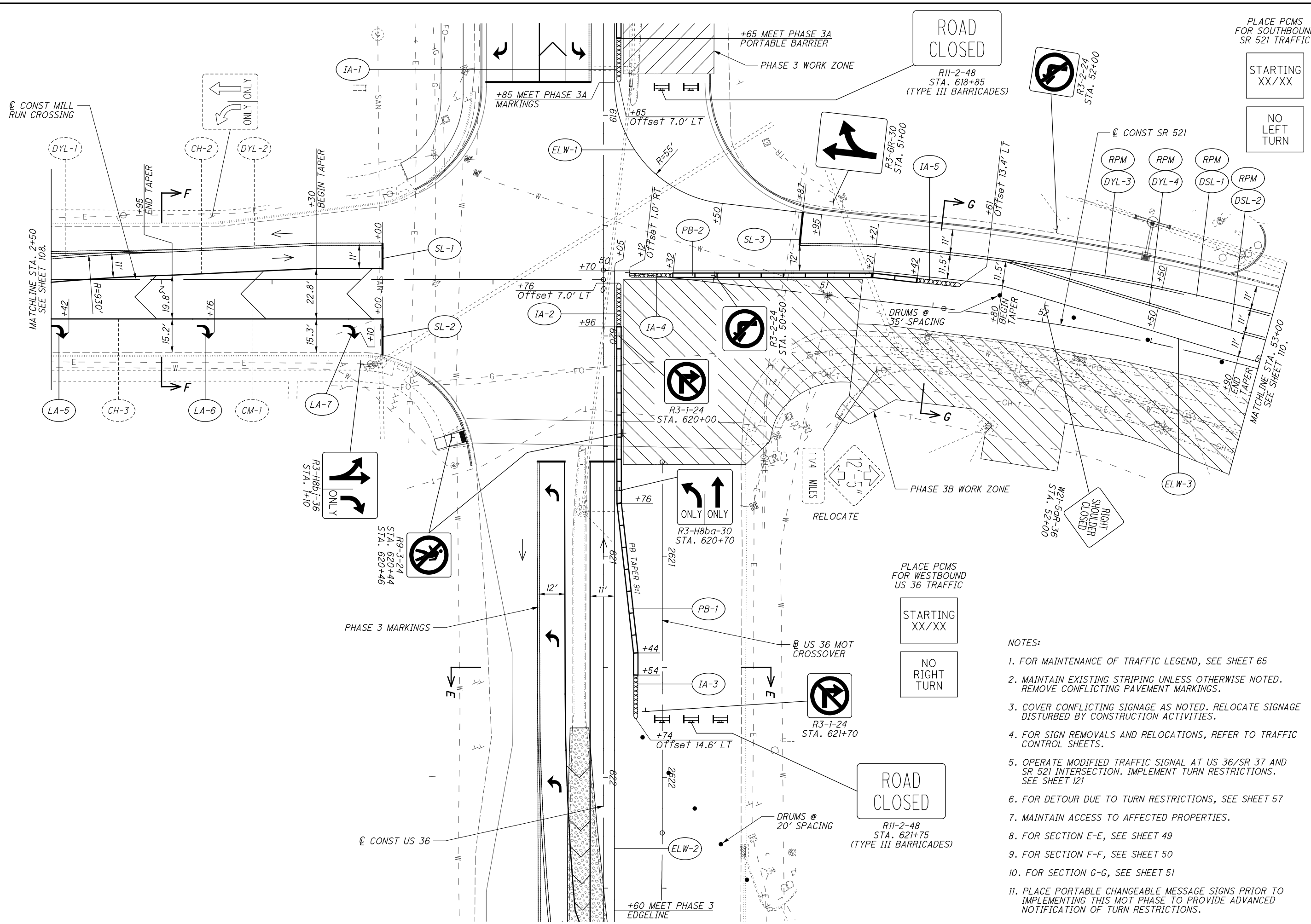
- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.

CALCULATED ACW  
CHECKED CJM

0 20 40  
HORIZONTAL SCALE IN FEET

**MAINTENANCE OF TRAFFIC PLANS - PHASE 3B**  
**STA. 2+50 TO STA. 8+00**

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PLACE PCMS FOR WESTBOUND US 36 TRAFFIC

STARTING XX/XX

NO RIGHT TURN

ROAD CLOSED

R11-2-48  
STA. 621+75  
(TYPE III BARRICADES)

- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
  3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  5. OPERATE MODIFIED TRAFFIC SIGNAL AT US 36/SR 37 AND SR 521 INTERSECTION. IMPLEMENT TURN RESTRICTIONS. SEE SHEET 121
  6. FOR DETOUR DUE TO TURN RESTRICTIONS, SEE SHEET 57
  7. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
  8. FOR SECTION E-E, SEE SHEET 49
  9. FOR SECTION F-F, SEE SHEET 50
  10. FOR SECTION G-G, SEE SHEET 51
  11. PLACE PORTABLE CHANGEABLE MESSAGE SIGNS PRIOR TO IMPLEMENTING THIS MOT PHASE TO PROVIDE ADVANCED NOTIFICATION OF TURN RESTRICTIONS.

DEL-36-11.03

MAINTENANCE OF TRAFFIC PLANS - PHASE 3B

STA. 2+50 TO STA. 53+00

109  
644

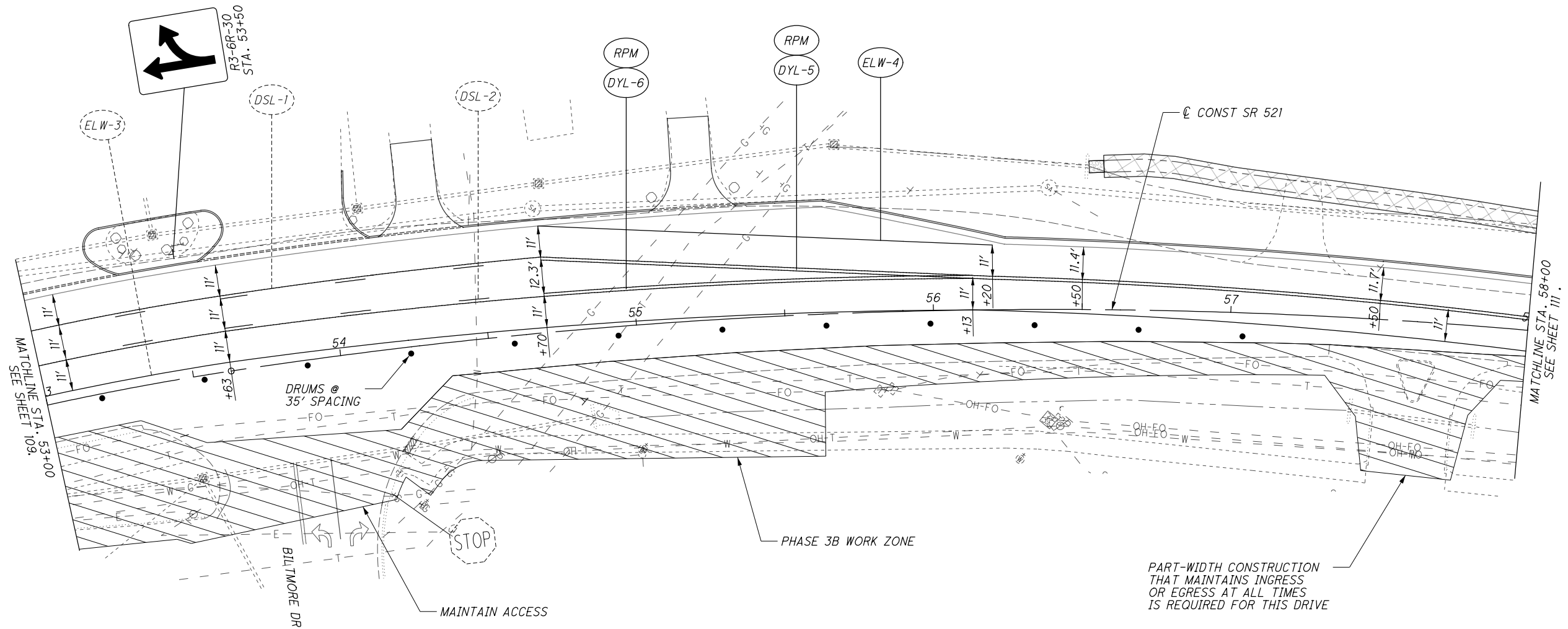
CALCULATED ACW CHECKED CJM

SCALE IN FEET  
0 10 20 40  
HORIZONTAL

PLACE PCMS FOR SOUTHBOUND SR 521 TRAFFIC

STARTING XX/XX

NO LEFT TURN



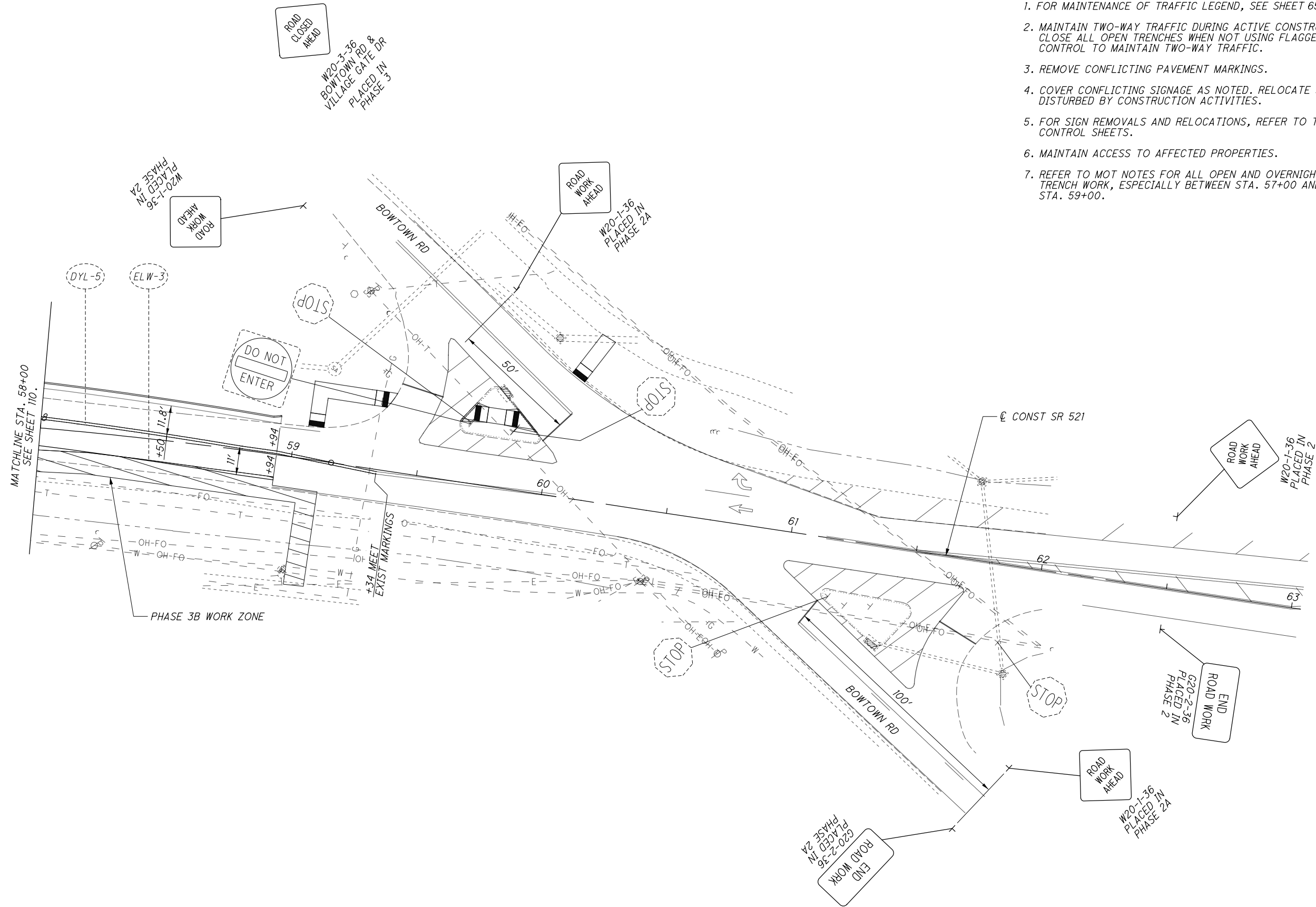
NOTES:

1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
2. MAINTAIN EXISTING STRIPING UNLESS OTHERWISE NOTED. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
5. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
6. REFER TO MOT NOTES FOR ALL OPEN AND OVERNIGHT TRENCH WORK, ESPECIALLY BETWEEN STA. 57+00 AND STA. 59+00.

CALCULATED ACW	CHECKED CJM
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HORIZONTAL SCALE IN FEET  
0 20 40

**MAINTENANCE OF TRAFFIC PLANS - PHASE 3B**  
**STA. 53+00 TO STA. 58+00**



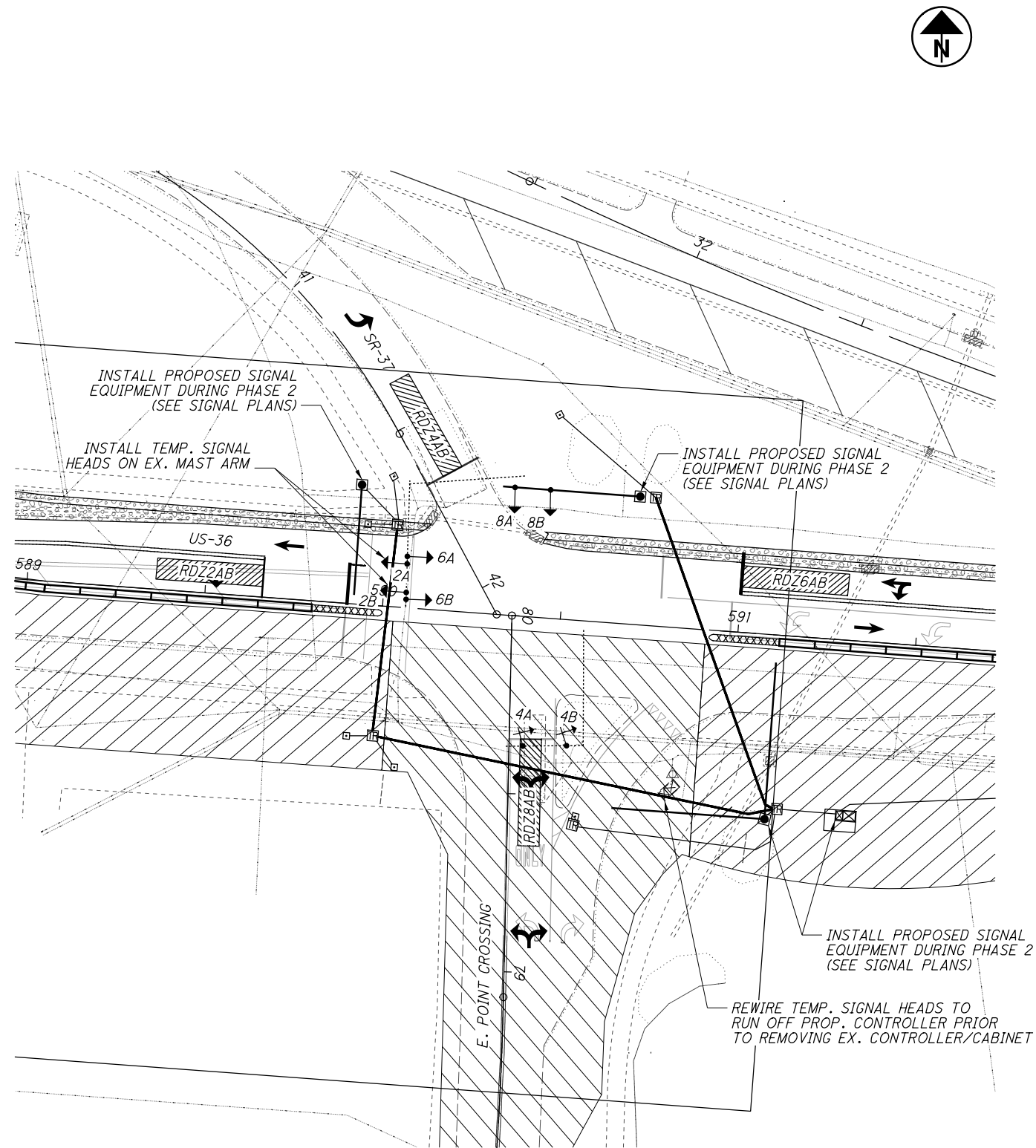
- NOTES:
1. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 65
  2. MAINTAIN TWO-WAY TRAFFIC DURING ACTIVE CONSTRUCTION. CLOSE ALL OPEN TRENCHES WHEN NOT USING FLAGGER CONTROL TO MAINTAIN TWO-WAY TRAFFIC.
  3. REMOVE CONFLICTING PAVEMENT MARKINGS.
  4. COVER CONFLICTING SIGNAGE AS NOTED. RELOCATE SIGNAGE DISTURBED BY CONSTRUCTION ACTIVITIES.
  5. FOR SIGN REMOVALS AND RELOCATIONS, REFER TO TRAFFIC CONTROL SHEETS.
  6. MAINTAIN ACCESS TO AFFECTED PROPERTIES.
  7. REFER TO MOT NOTES FOR ALL OPEN AND OVERNIGHT TRENCH WORK, ESPECIALLY BETWEEN STA. 57+00 AND STA. 59+00.

CALCULATED  
ACW  
CHECKED  
CJM

0 20 40  
HORIZONTAL  
SCALE IN FEET

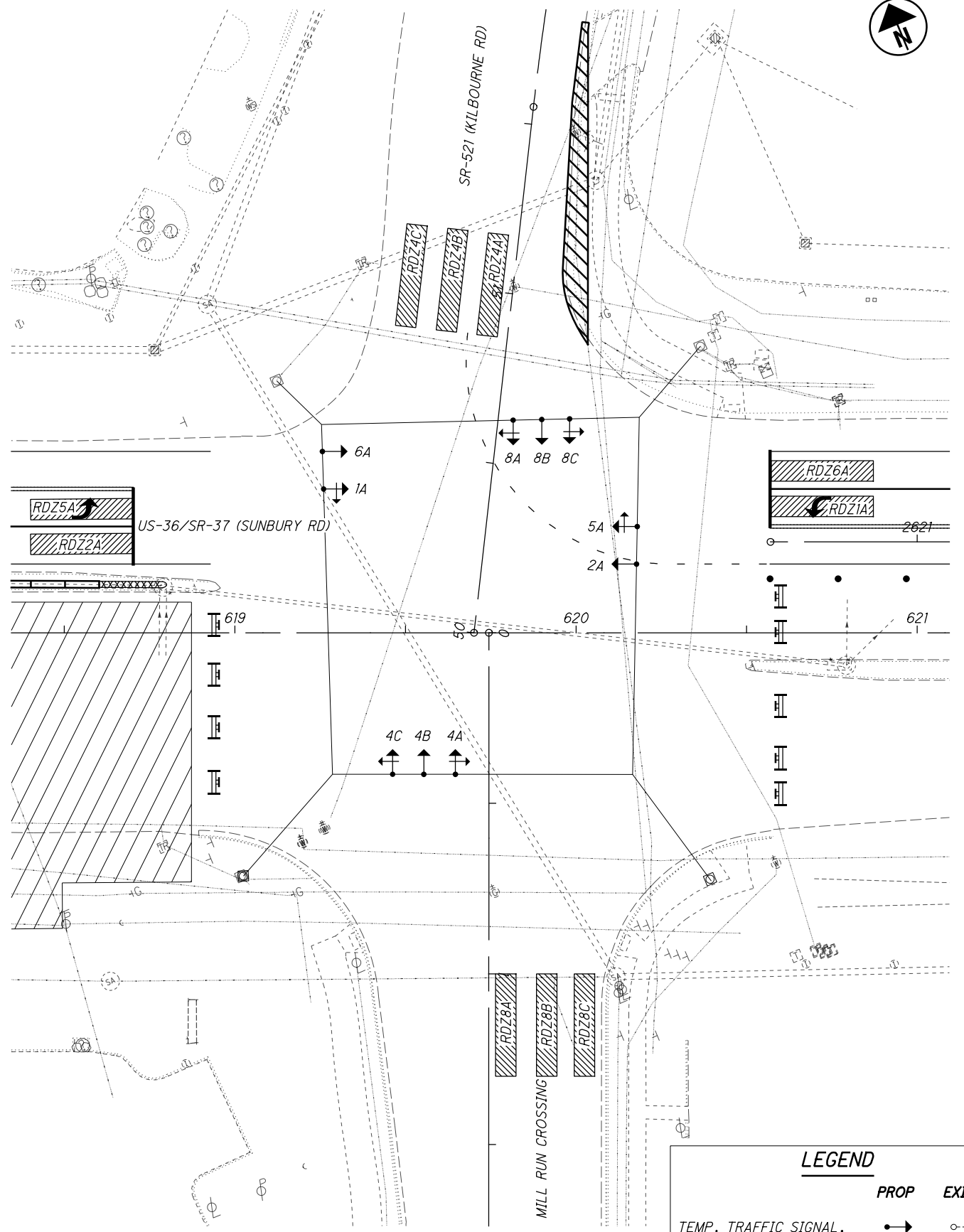
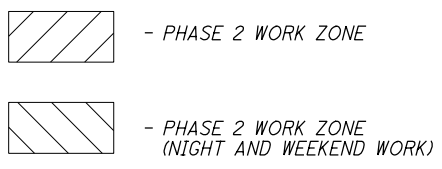
**MAINTENANCE OF TRAFFIC PLANS - PHASE 3B**  
**STA. 58+00 TO STA. 63+00**

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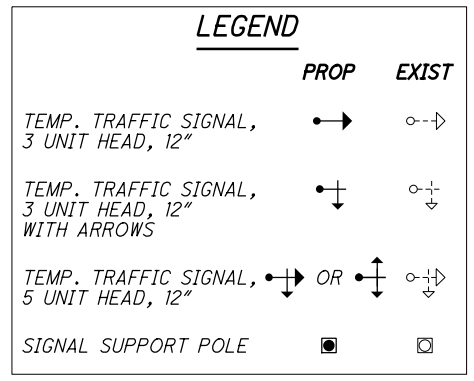
US-36 AT SR-37 / E. POINT CROSSING

- NOTES:
1. CONTRACTOR SHALL REARRANGE EX. SIGNAL HEADS OR FURNISH TEMPORARY HEADS AS NECESSARY AND SHALL COVER ANY CONFLICTING SIGNS/SIGNAL INDICATIONS.
  2. FOR MOT DETAILS, SEE SHEET 70.
  3. CONTRACTOR SHALL ADJUST AND COORDINATE SIGNAL PHASING AND TIMING FOR SIGNALS IN THE PROJECT AREA AS APPROVED BY PROJECT ENGINEER.



US-36/SR-37 (SUNBURY RD) AT SR-521/MILL RUN CROSSING

- NOTES:
1. CONTRACTOR SHALL REARRANGE EX. SIGNAL HEADS OR FURNISH TEMPORARY HEADS AS NECESSARY AND SHALL COVER ANY CONFLICTING SIGNS/SIGNAL INDICATIONS.
  2. FOR MOT DETAILS, SEE SHEET 75.
  3. CONTRACTOR SHALL ADJUST AND COORDINATE SIGNAL PHASING AND TIMING FOR SIGNALS IN THE PROJECT AREA AS APPROVED BY PROJECT ENGINEER.



MAINTENANCE OF TRAFFIC PLAN - PHASE 2  
TRAFFIC SIGNAL DETAILS

DEL-36-11.03



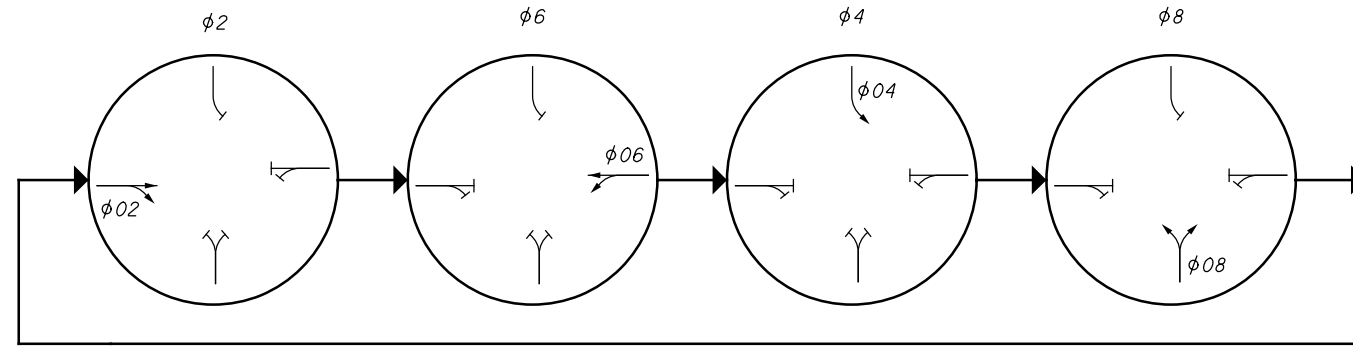
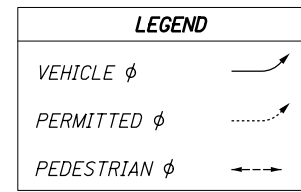
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**SIGNAL TIMING CHART**

INTERSECTION: US 36 (WILLIAM ST) AT SR 37 (CENTRAL AVE) / E POINT CROSSING									
MAINTAINING AGENCY: CITY OF DELAWARE									
START UP		DUAL ENTRY:	YES	PHASES:		2, 6, 4, & 8			
START IN:		REST IN RED:		RING 1		RING 2			
TIME FOR: FLASH, ALL RED (SEC.):		OVERLAP		A	B	C	D		
FIRST PHASE(S):		PHASES		-	-	-	-		
COLOR DISPLAYED:				-	-	-	-		
INTERVAL OR FEATURE									
CONTROLLER MOVEMENT NO.									
INTERSECTION MOVEMENT (PHASE)		1	2	3	4	5	6	7	8
DIRECTION		-	EB	-	SB LT	-	WB	-	NB
MINIMUM GREEN (INITIAL) (SEC.)		-	20	-	15	-	20	-	15
ADDED INITIAL *(SEC./ACTUATION)		-	-	-	-	-	-	-	-
MAXIMUM INITIAL (SEC.)		-	-	-	-	-	-	-	-
PASSAGE TIME (PRESET GAP) (SEC.)		-	-	-	-	-	-	-	-
TIME BEFORE REDUCTION *(SEC.)		-	-	-	-	-	-	-	-
MINIMUM GAP *(SEC.)		-	-	-	-	-	-	-	-
TIME TO REDUCE *(SEC.)		-	-	-	-	-	-	-	-
MAXIMUM GREEN I (SEC.)		-	50	-	40	-	50	-	20
MAXIMUM GREEN II (SEC.)		-	50	-	40	-	50	-	20
YELLOW CHANGE (SEC.)		-	4.1	-	3.4	-	4.1	-	3.4
ALL RED CLEARANCE (SEC.)		-	1.0	-	2.5	-	1.0	-	2.5
DELAYED GREEN (LPI) * (SEC.)		-	-	-	-	-	-	-	-
FLASHING YELLOW ARROW DELAY* (SEC.)		-	-	-	-	-	-	-	-
WALK (SEC.)		-	-	-	-	-	-	-	7
PEDESTRIAN CLEARANCE (SEC.)		-	-	-	-	-	-	-	11
RECALL	MAXIMUM (ON/OFF)	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
	MINIMUM (ON/OFF)	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
	PEDESTRIAN (ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
MEMORY (ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

\*VOLUME DENSITY CONTROLS

**PHASING DIAGRAM**



**RADAR DETECTION CHART**

DETECTION ZONE	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	DELAY PROGRAMMED IN CONTROLLER (SEC.)	DELAY INHIBITED PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)
RDZ2AB	EB	PRESENCE	2	-	-	STOP-LINE	30
RDZ6AB	WB	PRESENCE	6	-	-	STOP-LINE	30
RDZ4AB	SB LT	PRESENCE	4	-	-	STOP-LINE	30
RDZ8AB	NB	PRESENCE	8	-	-	STOP-LINE	30

CALCULATED  
ABS  
CHECKED  
PHF

**MAINTENANCE OF TRAFFIC PLAN - PHASE 2**  
**TRAFFIC SIGNAL DETAILS - US 36 AT SR 37, E. POINT CROSSING**

**DEL-36-11.03**

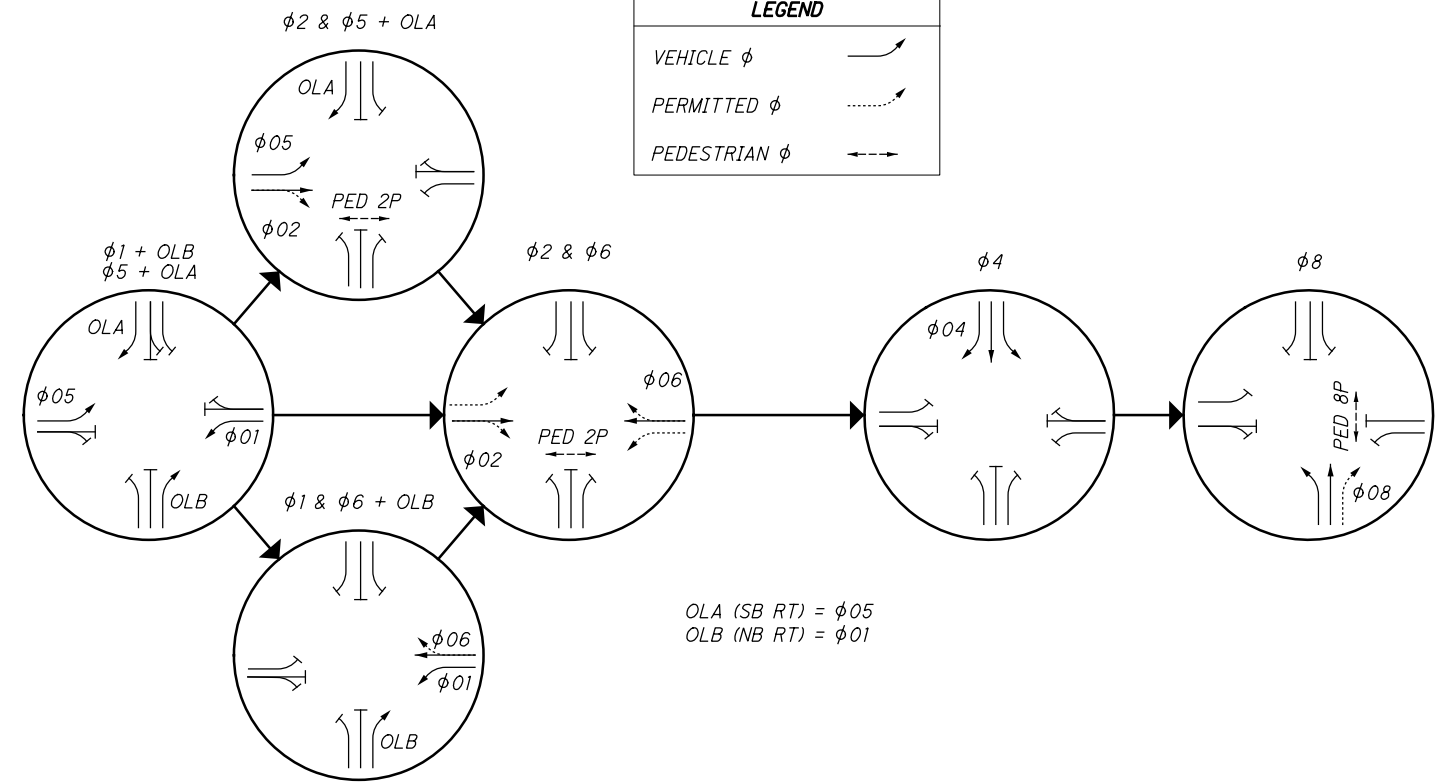
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**SIGNAL TIMING CHART**

INTERSECTION: U.S. 36 / S.R. 37 & S.R. 521 / MILL RUN CROSSING MAINTAINING AGENCY: CITY OF DELAWARE, OH									
START UP		DUAL ENTRY: YES		PHASES: 2 & 6, 4 & 8					
START IN: ALL-RED FLASH		REST IN RED: RING 1 - RING 2 -		OVERLAP		A	B	C	D
TIME FOR: FLASH, ALL RED (SEC.): 6		PHASES		5	1				
FIRST PHASE(S): 2 & 6		PHASES		5	1				
COLOR DISPLAYED: GREEN		PHASES		5	1				
INTERVAL OR FEATURE		CONTROLLER MOVEMENT NO.							
INTERSECTION MOVEMENT (PHASE)		1	2	-	4	5	6	-	8
DIRECTION		WB LT	EB	-	SB	EB LT	WB	-	NB
MINIMUM GREEN (INITIAL) (SEC.)		6	20	-	10	6	20	-	10
ADDED INITIAL *(SEC./ACTUATION)		-	-	-	-	-	-	-	-
MAXIMUM INITIAL (SEC.)		-	-	-	-	-	-	-	-
PASSAGE TIME (PRESET GAP) (SEC.)		-	-	-	-	-	-	-	-
TIME BEFORE REDUCTION *(SEC.)		-	-	-	-	-	-	-	-
MINIMUM GAP *(SEC.)		-	-	-	-	-	-	-	-
TIME TO REDUCE *(SEC.)		-	-	-	-	-	-	-	-
MAXIMUM GREEN I (SEC.)		15	50	-	40	15	50	-	40
MAXIMUM GREEN II (SEC.)		30	50	-	40	30	50	-	40
YELLOW CHANGE (SEC.)		4.2	5.1	-	3.3	3.1	5.1	-	3.1
ALL RED CLEARANCE (SEC.)		3.6	2.0	-	3.5	4.4	2.0	-	3.9
DELAYED GREEN (LPD) # (SEC.)		-	-	-	-	-	-	-	-
FLASHING YELLOW ARROW DELAY* (SEC.)		-	-	-	-	-	-	-	-
WALK (SEC.)		-	9	-	-	-	-	-	12
PEDESTRIAN CLEARANCE (SEC.)		-	19	-	-	-	-	-	33
RECALL	MAXIMUM (ON/OFF)	OFF	OFF	-	OFF	OFF	OFF	-	OFF
	MINIMUM (ON/OFF)	OFF	ON	-	OFF	OFF	ON	-	OFF
	PEDESTRIAN (ON/OFF)	OFF	OFF	-	OFF	OFF	OFF	-	OFF
MEMORY (ON/OFF)	OFF	OFF	-	OFF	OFF	OFF	OFF	-	OFF

\*VOLUME DENSITY CONTROLS

**PHASING DIAGRAM**



**RADAR DETECTION CHART**

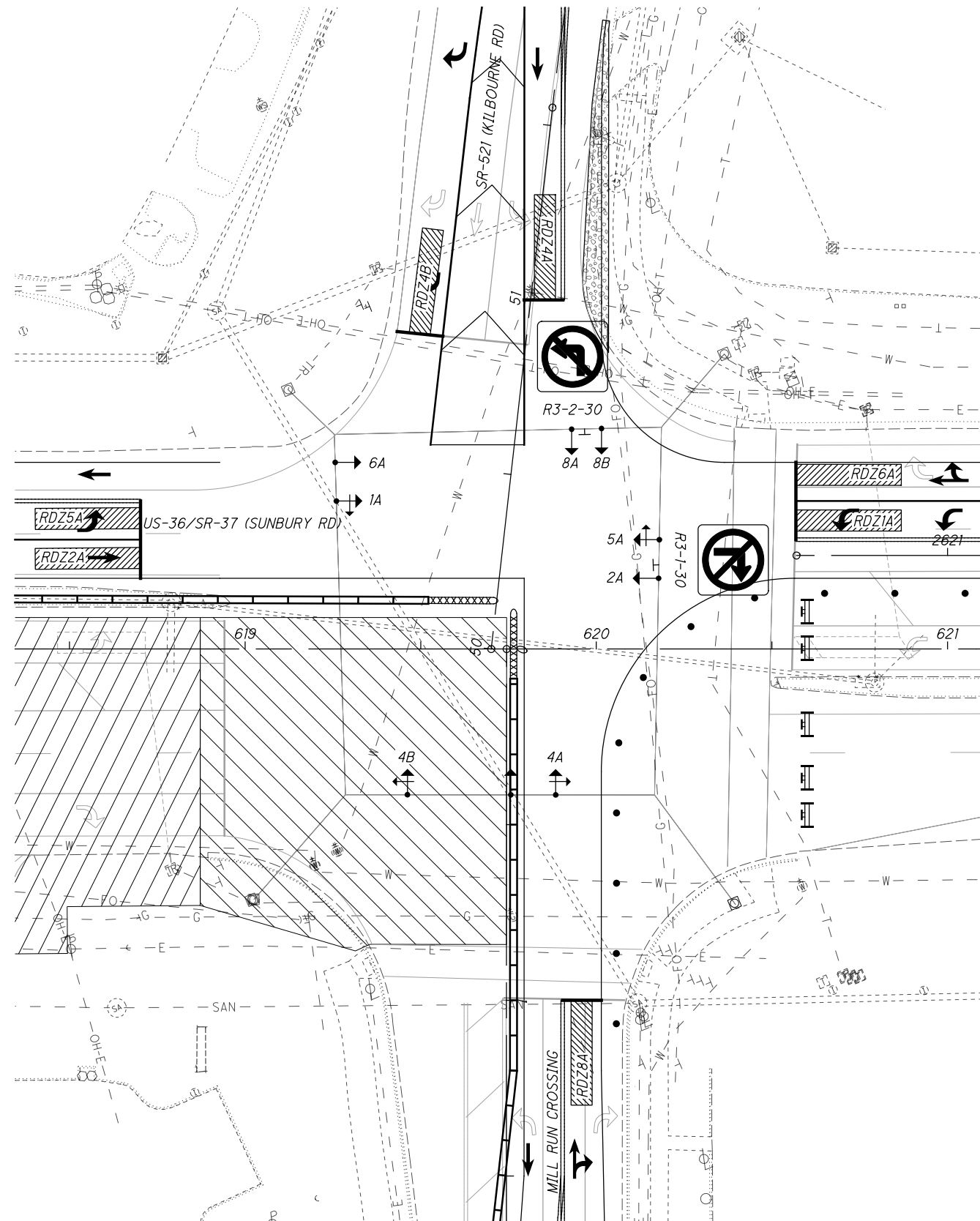
DETECTION ZONE	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	DELAY PROGRAMMED IN CONTROLLER (SEC.)	DELAY INHIBITED PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)
RDZ1A	WB LT	PRESENCE	1	-	-	STOP-LINE	30
RDZ6A	WB	PRESENCE	6	-	-	STOP-LINE	30
RDZ5A	EB LT	PRESENCE	5	-	-	STOP-LINE	30
RDZ2A	EB	PRESENCE	2	-	-	STOP-LINE	30
RDZ4A	SB LT	PRESENCE	4	-	-	STOP-LINE	30
RDZ4B	SB	PRESENCE	4	-	-	STOP-LINE	30
RDZ4C	SB RT	PRESENCE	4	10	4	STOP-LINE	30
RDZ8A	NB LT	PRESENCE	8	-	-	STOP-LINE	30
RDZ8B	NB	PRESENCE	8	-	-	STOP-LINE	30
RDZ8C	NB RT	PRESENCE	8	-	-	STOP-LINE	30
-	EB	PULSE	2	-	-	ADVANCE DETECTION	*
-	WB	PULSE	6	-	-	ADVANCE DETECTION	*

\*ADVANCE DETECTION ZONE LENGTH SHALL BE AS LONG AS DETECTOR CAN RELIABLY DETECT WITHIN LANE.

CALCULATED  
ABS  
CHECKED  
PHF

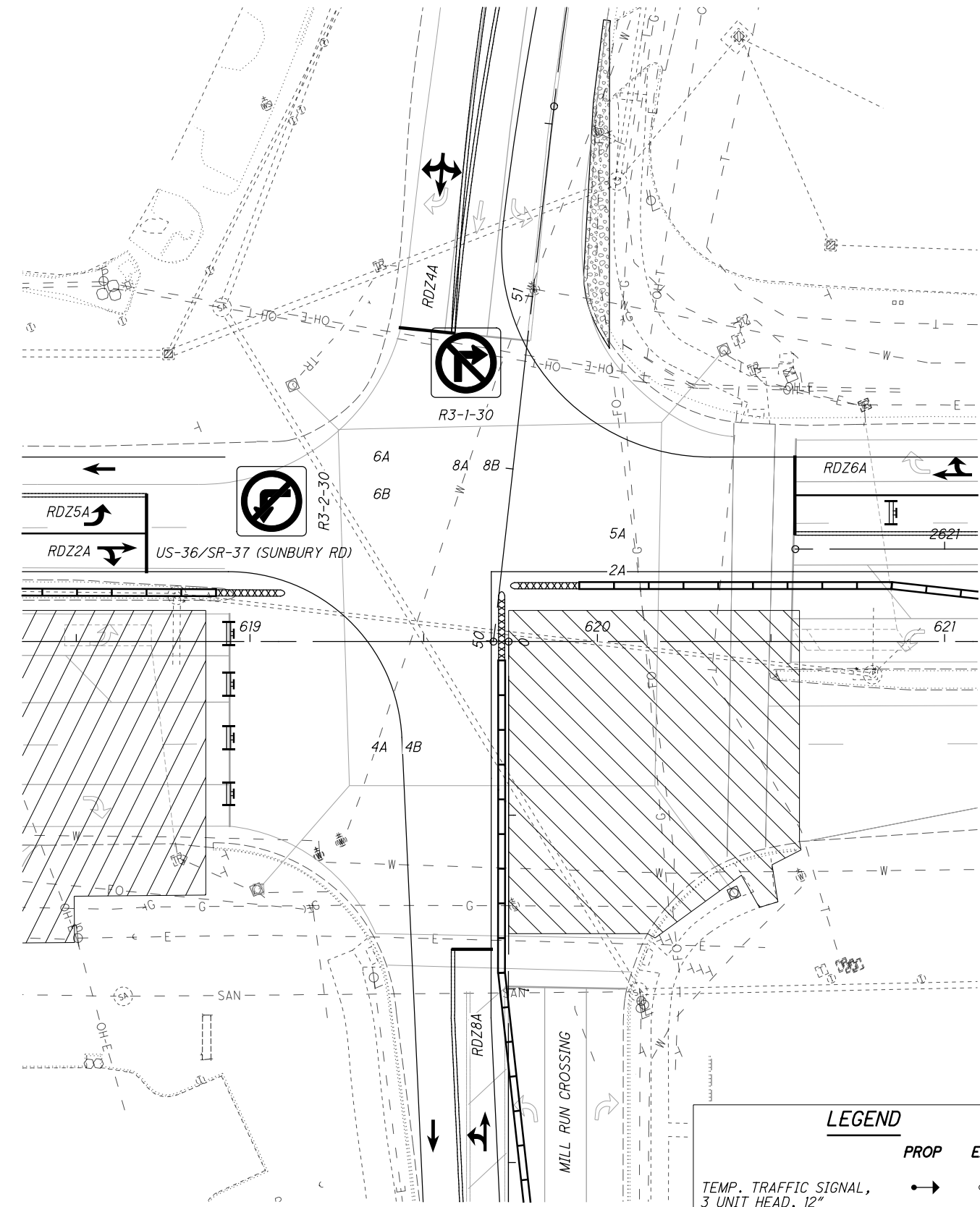
TRAFFIC SIGNAL DETAILS - US 36/SR 37 (SUNBURY RD) AT SR 521/MILL RUN CROSSING

DEL-36-11.03



US-36/SR-37 (SUNBURY RD) AT SR-521/MILL RUN CROSSING PHASE 2A

- NOTES:
- CONTRACTOR SHALL REARRANGE EX. SIGNAL HEADS OR FURNISH TEMPORARY HEADS AS NECESSARY AND SHALL COVER ANY CONFLICTING SIGNS/SIGNAL INDICATIONS.
  - FOR MOT DETAILS, SEE SHEET 79 .
  - CONTRACTOR SHALL ADJUST AND COORDINATE SIGNAL PHASING AND TIMING FOR SIGNALS IN THE PROJECT AREA AS APPROVED BY PROJECT ENGINEER.



US-36/SR-37 (SUNBURY RD) AT SR-521/MILL RUN CROSSING PHASE 2B

- NOTES:
- CONTRACTOR SHALL REARRANGE EX. SIGNAL HEADS OR FURNISH TEMPORARY HEADS AS NECESSARY AND SHALL COVER ANY CONFLICTING SIGNS/SIGNAL INDICATIONS.
  - FOR MOT DETAILS, SEE SHEET 83 .
  - CONTRACTOR SHALL ADJUST AND COORDINATE SIGNAL PHASING AND TIMING FOR SIGNALS IN THE PROJECT AREA AS APPROVED BY PROJECT ENGINEER.

LEGEND	
PROP	EXIST
TEMP. TRAFFIC SIGNAL, 3 UNIT HEAD, 12"	○→
TEMP. TRAFFIC SIGNAL, 3 UNIT HEAD, 12" WITH ARROWS	○↕
TEMP. TRAFFIC SIGNAL, 5 UNIT HEAD, 12"	○↔ OR ○↕
SIGNAL SUPPORT POLE	■



CALCULATED  
MAS  
CHECKED  
PHF

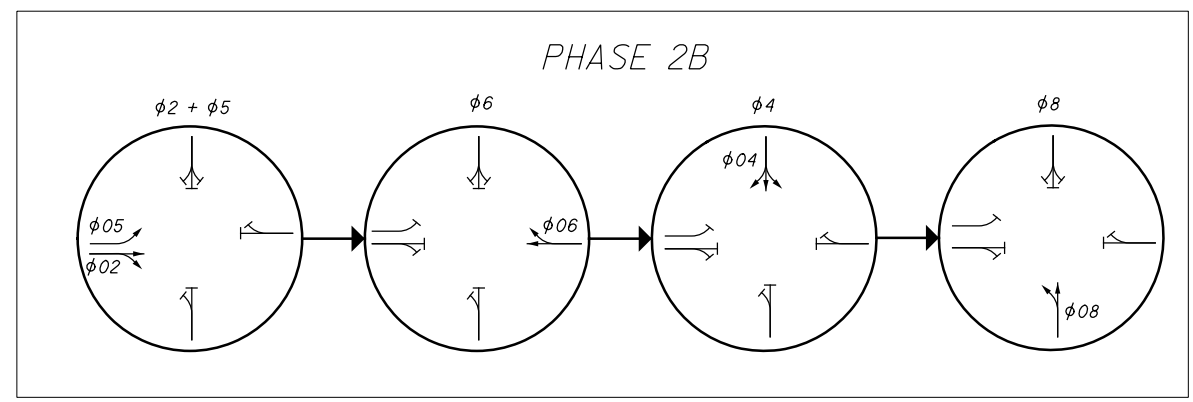
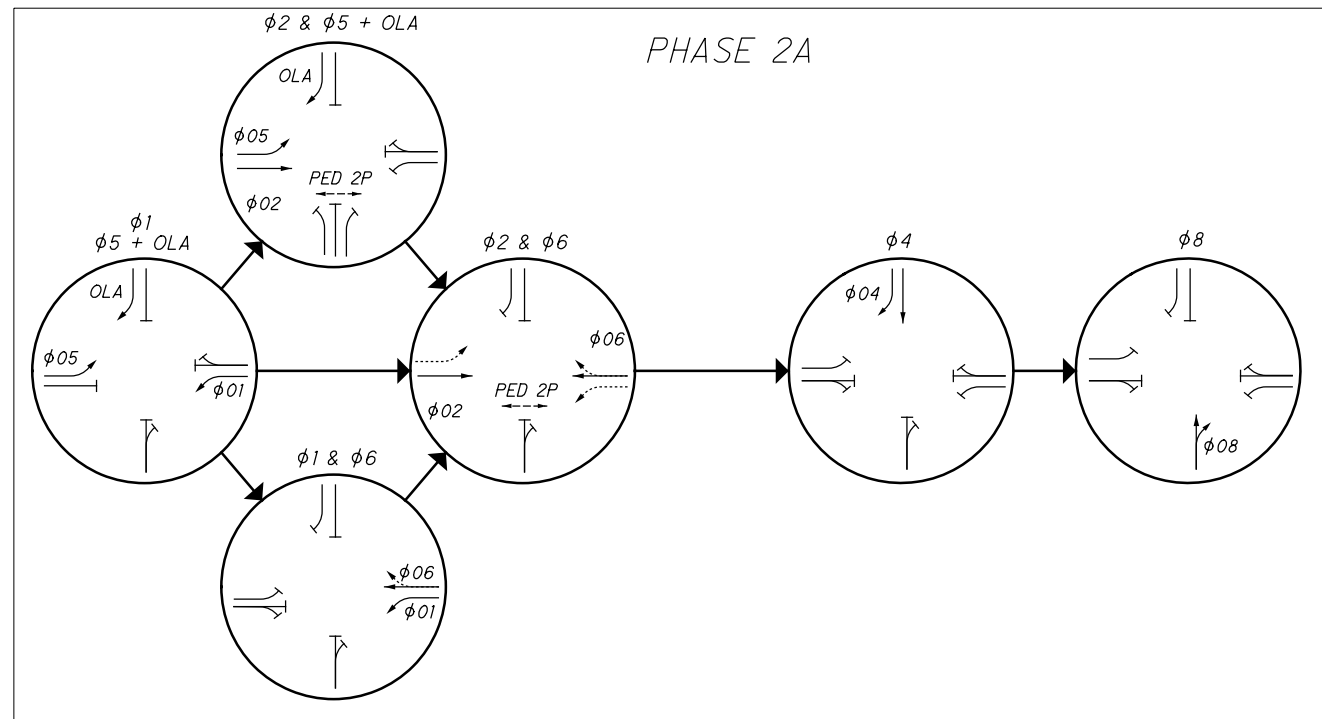
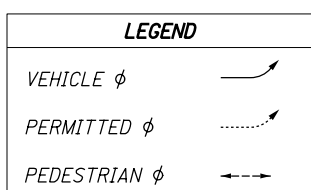
MAINTENANCE OF TRAFFIC PLAN - PHASE 2A & 2B  
TRAFFIC SIGNAL DETAILS US 36/SR 37 AT SR 521/MILL RUN CROSSING

**SIGNAL TIMING CHART**

**US 36 / SR-37 (SUNBURY RD) AT SR-521 - MILL RUN CROSSING**

**PHASING DIAGRAM**

INTERSECTION: U.S. 36 / S.R. 37 & S.R. 521 / MILL RUN CROSSING									
MAINTAINING AGENCY: CITY OF DELAWARE, OH									
START UP		DUAL ENTRY: YES		PHASES: 2 & 6, 4 & 8					
START IN: ALL-RED FLASH		REST IN RED: RING 1 - RING 2 -		OVERLAP		A		B	
TIME FOR: FLASH, ALL RED (SEC.): 6				PHASES		5			
FIRST PHASE(S): 2 & 6									
COLOR DISPLAYED: GREEN									
INTERVAL OR FEATURE		CONTROLLER MOVEMENT NO.							
INTERSECTION MOVEMENT (PHASE)		1	2	4	5	6	8		
DIRECTION		WB LT	EB	SB	EB LT	WB	NB		
MINIMUM GREEN (INITIAL) (SEC.)		6	20	10	6	20	10		
ADDED INITIAL *(SEC./ACTUATION)		-	-	-	-	-	-		
MAXIMUM INITIAL (SEC.)		-	-	-	-	-	-		
PASSAGE TIME (PRESET GAP) (SEC.)		-	-	-	-	-	-		
TIME BEFORE REDUCTION *(SEC.)		-	-	-	-	-	-		
MINIMUM GAP *(SEC.)		-	-	-	-	-	-		
TIME TO REDUCE *(SEC.)		-	-	-	-	-	-		
MAXIMUM GREEN I (SEC.)		15	50	40	15	50	40		
MAXIMUM GREEN II (SEC.)		30	50	40	30	50	40		
YELLOW CHANGE (SEC.)		4.2	5.1	3.3	3.1	5.1	3.1		
ALL RED CLEARANCE (SEC.)		3.6	2.0	3.5	4.4	2.0	3.9		
DELAYED GREEN (LPI) # (SEC.)		-	-	-	-	-	-		
FLASHING YELLOW ARROW DELAY° (SEC.)		-	-	-	-	-	-		
WALK (SEC.)		-	9	-	-	-	-		
PEDESTRIAN CLEARANCE (SEC.)		-	19	-	-	-	-		
RECALL	MAXIMUM (ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF		
	MINIMUM (ON/OFF)	OFF	ON	OFF	OFF	ON	OFF		
	PEDESTRIAN (ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF		
MEMORY (ON/OFF)		OFF	OFF	OFF	OFF	OFF	OFF		



**RADAR DETECTION CHART (MOT PHASE 2B)**

DETECTION ZONE	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	DELAY PROGRAMMED IN CONTROLLER (SEC.)	DELAY INHIBITED PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)
RDZ6A	WB	PRESENCE	6	-	-	STOP-LINE	30
RDZ5A	EB LT	PRESENCE	5	-	-	STOP-LINE	30
RDZ2A	EB	PRESENCE	2	-	-	STOP-LINE	30
RDZ4A	SB	PRESENCE	4	-	-	STOP-LINE	30
RDZ8A	NB	PRESENCE	8	-	-	STOP-LINE	30
-	EB	PULSE	2	-	-	ADVANCE DETECTION	*
-	WB	PULSE	6	-	-	ADVANCE DETECTION	*

\*ADVANCE DETECTION ZONE LENGTH SHALL BE AS LONG AS DETECTOR CAN RELIABLY DETECT WITHIN LANE.

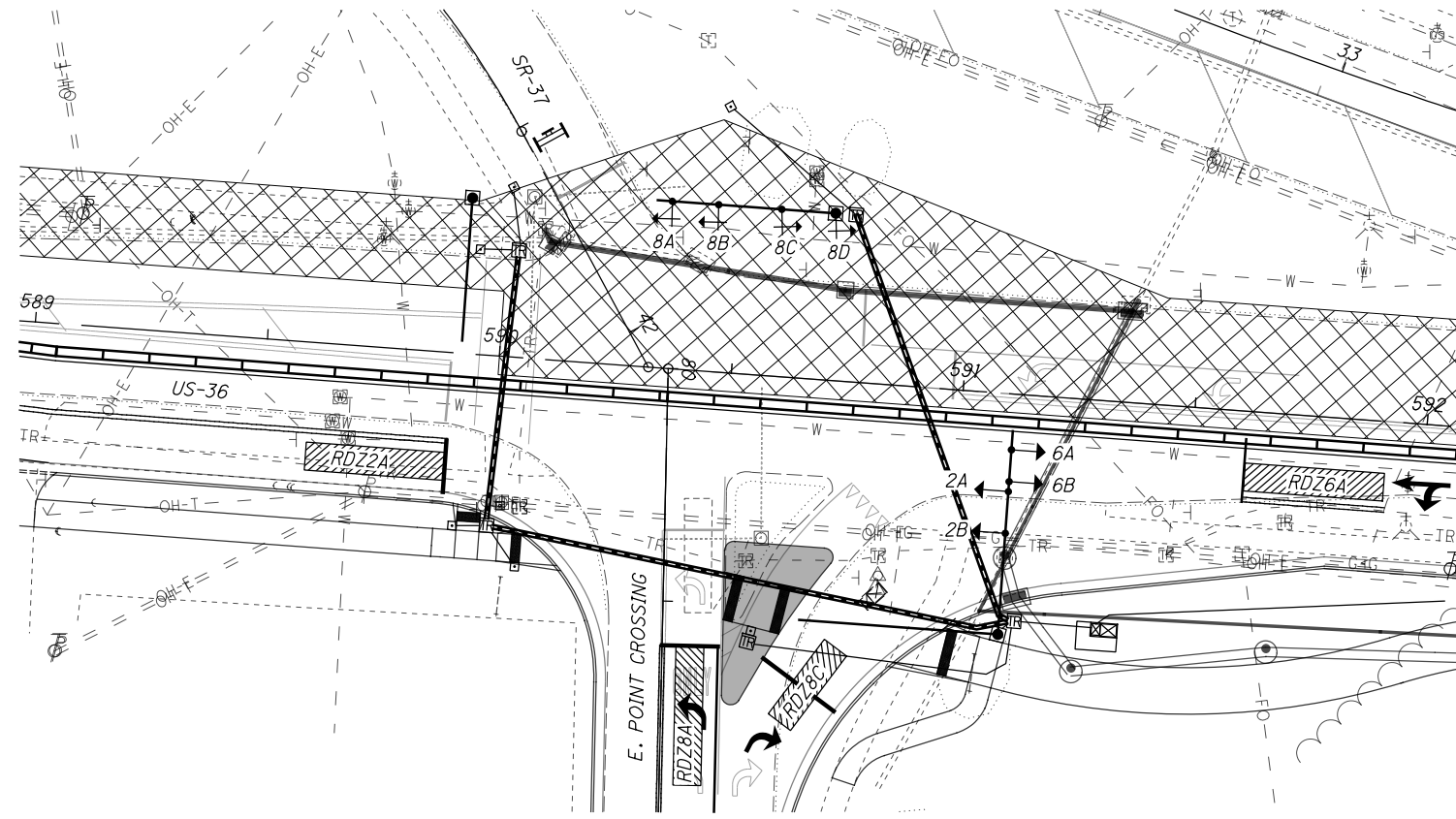
**RADAR DETECTION CHART (MOT PHASE 2A)**

DETECTION ZONE	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	DELAY PROGRAMMED IN CONTROLLER (SEC.)	DELAY INHIBITED PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)
RDZ1A	WB LT	PRESENCE	1	-	-	STOP-LINE	30
RDZ6A	WB	PRESENCE	6	-	-	STOP-LINE	30
RDZ5A	EB LT	PRESENCE	5	-	-	STOP-LINE	30
RDZ2A	EB	PRESENCE	5	-	-	STOP-LINE	30
RDZ4A	SB	PRESENCE	4	-	-	STOP-LINE	30
RDZ4B	SB RT	PRESENCE	4	-	-	STOP-LINE	30
RDZ8A	NB	PRESENCE	8	-	-	STOP-LINE	30
-	EB	PULSE	2	-	-	ADVANCE DETECTION	*
-	WB	PULSE	6	-	-	ADVANCE DETECTION	*

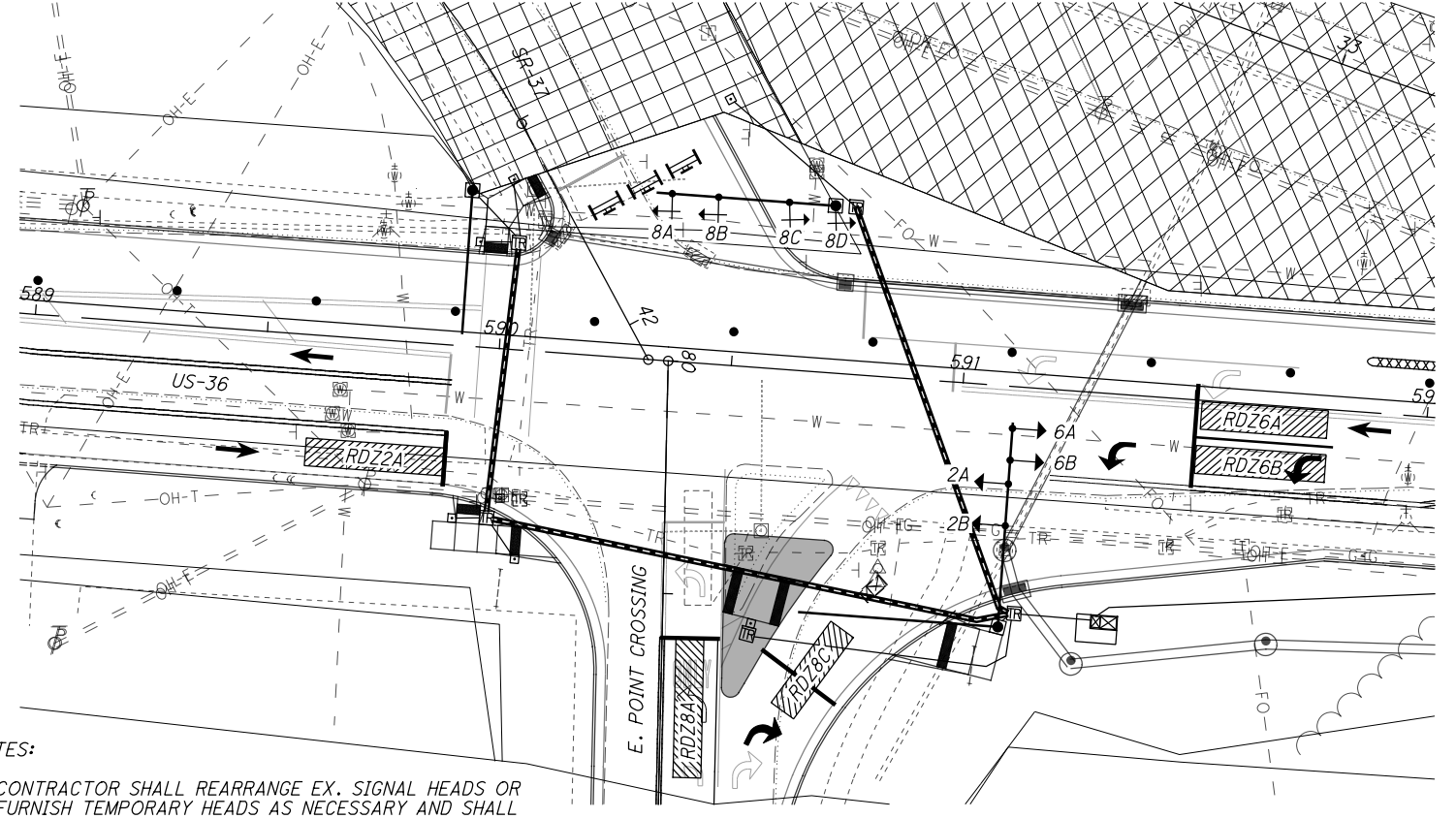
\*ADVANCE DETECTION ZONE LENGTH SHALL BE AS LONG AS DETECTOR CAN RELIABLY DETECT WITHIN LANE.

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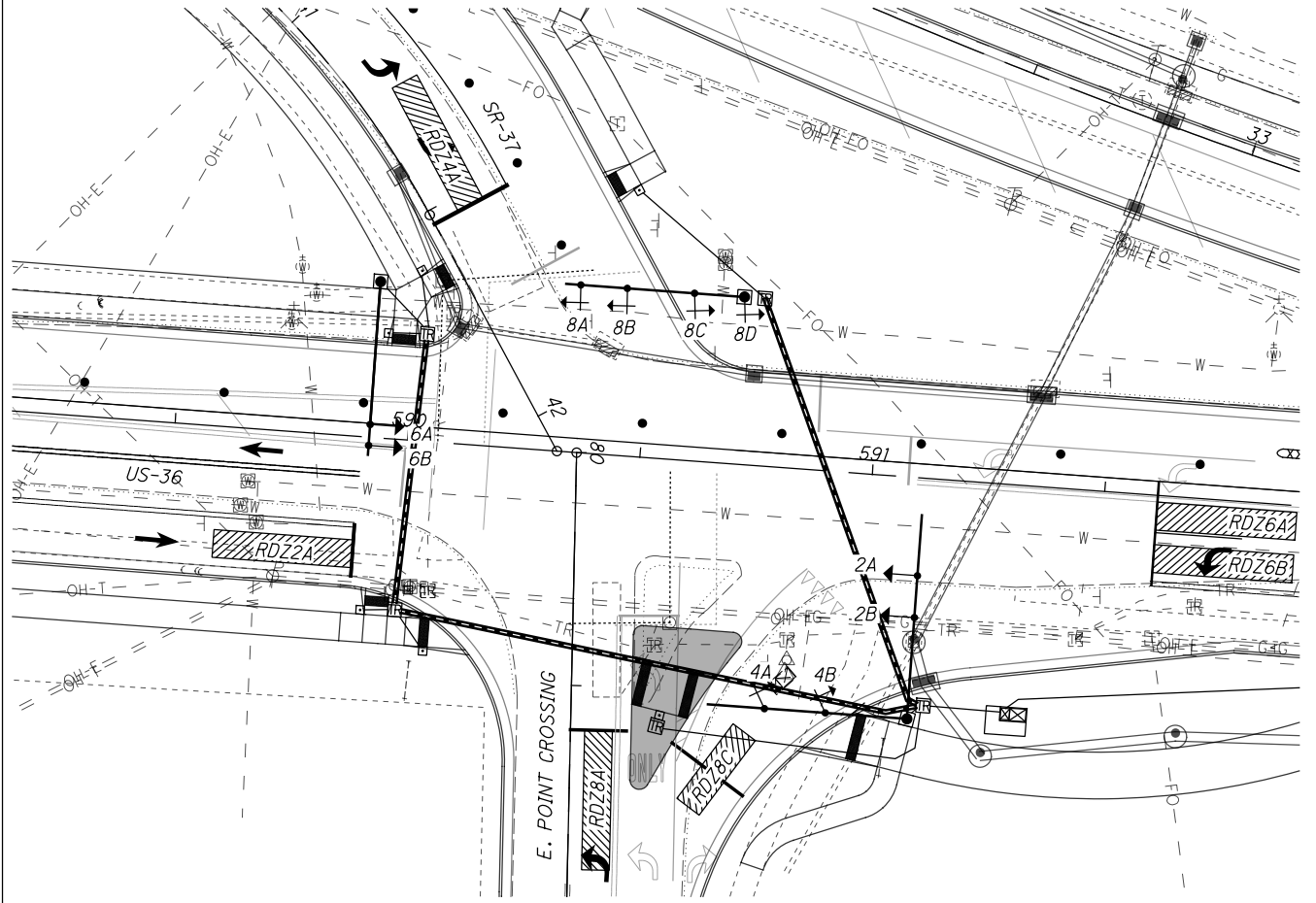


US-36 AT SR-37 / E. POINT CROSSING  
PHASE 3/3.1



US-36 AT SR-37 / E. POINT CROSSING  
PHASE 3/3.2

- NOTES:**
- CONTRACTOR SHALL REARRANGE EX. SIGNAL HEADS OR FURNISH TEMPORARY HEADS AS NECESSARY AND SHALL COVER ANY CONFLICTING SIGNS/SIGNAL INDICATIONS.
  - FOR MOT DETAILS, SEE SHEETS 87 & 99 .
  - CONTRACTOR SHALL ADJUST AND COORDINATE SIGNAL PHASING AND TIMING FOR SIGNALS IN THE PROJECT AREA AS APPROVED BY PROJECT ENGINEER.



US-36 AT SR-37 / E. POINT CROSSING  
PHASE 3/3.3

- NOTES:**
- CONTRACTOR SHALL REARRANGE EX. SIGNAL HEADS OR FURNISH TEMPORARY HEADS AS NECESSARY AND SHALL COVER ANY CONFLICTING SIGNS/SIGNAL INDICATIONS.
  - FOR MOT DETAILS, SEE SHEET 102 .
  - CONTRACTOR SHALL ADJUST AND COORDINATE SIGNAL PHASING AND TIMING FOR SIGNALS IN THE PROJECT AREA AS APPROVED BY PROJECT ENGINEER.

LEGEND		
	PROP	EXIST
TEMP. TRAFFIC SIGNAL, 3 UNIT HEAD, 12"	→	○→
TEMP. TRAFFIC SIGNAL, 3 UNIT HEAD, 12" WITH ARROWS	↕	○↕
TEMP. TRAFFIC SIGNAL, 5 UNIT HEAD, 12"	↔ OR ↕	○↔ OR ○↕
SIGNAL SUPPORT POLE	■	□



CALCULATED MAS PHF  
 MAINTENANCE OF TRAFFIC PLAN - PHASE 3  
 TRAFFIC SIGNAL DETAILS - US 36 AT SR 37/E. POINT CROSSING

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 117  
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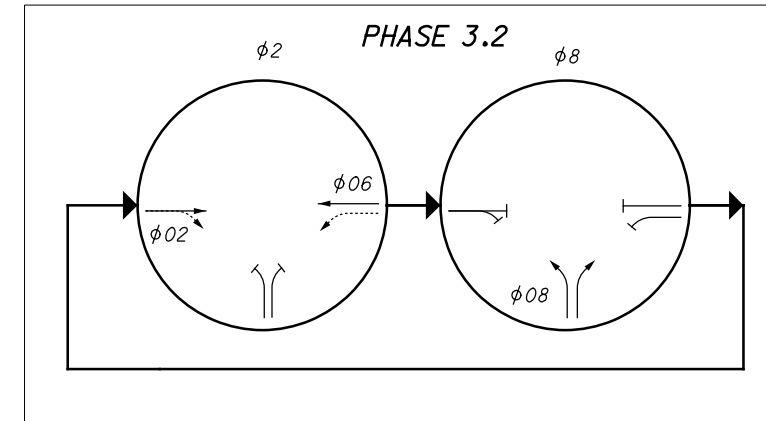
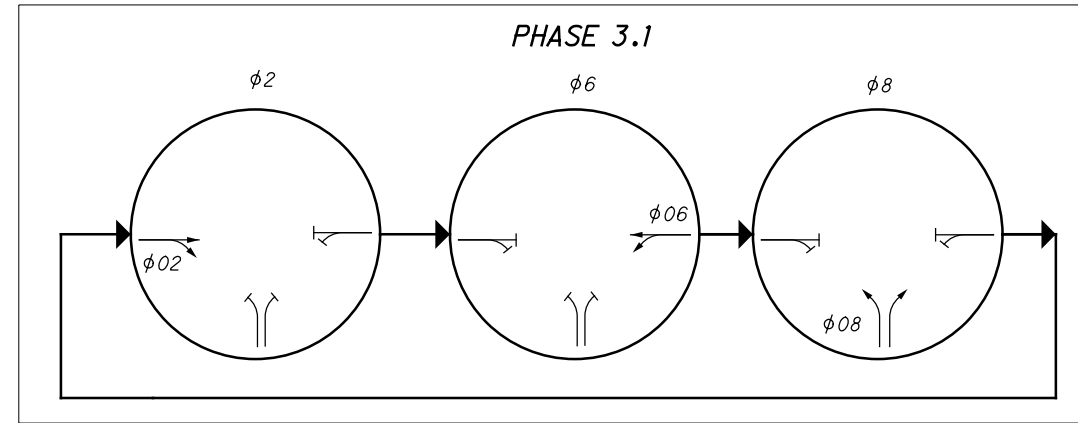
US 36 AT SR-37 / E. POINT CROSSING

SIGNAL TIMING CHART

INTERSECTION: US 36 (WILLIAM ST) AT SR 37 (CENTRAL AVE) / E POINT CROSSING											
MAINTAINING AGENCY: CITY OF DELAWARE											
START UP		DUAL ENTRY:	YES		PHASES:		2 & 6				
START IN:		REST IN RED:		RING 1		RING 2					
TIME FOR: FLASH , ALL RED (SEC.):		OVERLAP		A	B	C	D				
FIRST PHASE(S):		PHASES									
COLOR DISPLAYED:											
ALL-RED FLASH											
6											
2 & 6											
GREEN											
INTERVAL OR FEATURE											
CONTROLLER MOVEMENT NO.											
INTERSECTION MOVEMENT (PHASE)											
DIRECTION											
MINIMUM GREEN (INITIAL) (SEC.)											
ADDED INITIAL *(SEC./ACTUATION)											
MAXIMUM INITIAL (SEC.)											
PASSAGE TIME (PRESET GAP) (SEC.)											
TIME BEFORE REDUCTION *(SEC.)											
MINIMUM GAP *(SEC.)											
TIME TO REDUCE *(SEC.)											
MAXIMUM GREEN I (SEC.)											
MAXIMUM GREEN II (SEC.)											
YELLOW CHANGE (SEC.)											
ALL RED CLEARANCE (SEC.)											
DELAYED GREEN (LPI) * (SEC.)											
FLASHING YELLOW ARROW DELAY* (SEC.)											
WALK (SEC.)											
PEDESTRIAN CLEARANCE (SEC.)											
RECALL	MAXIMUM	(ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
	MINIMUM	(ON/OFF)	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	
	PEDESTRIAN	(ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
MEMORY	(ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	

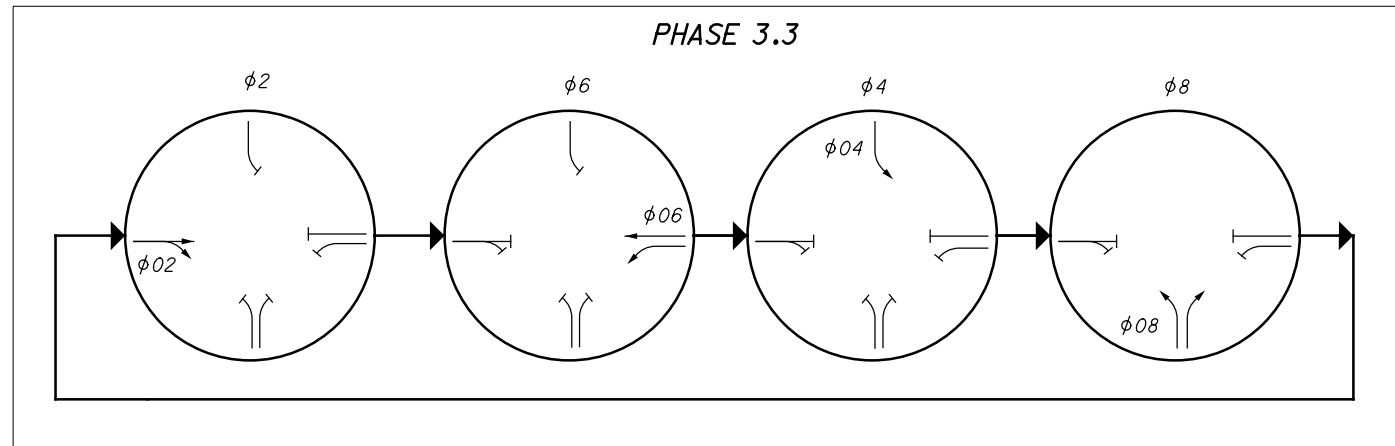
\*VOLUME DENSITY CONTROLS

PHASING DIAGRAM



RADAR DETECTION CHART

DETECTION ZONE	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	DELAY PROGRAMMED IN CONTROLLER (SEC.)	DELAY INHIBITED PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)	NOTES
RDZ2A	EB	PRESENCE	2	-	-	STOP-LINE	30	
RDZ4A	SB	PRESENCE	4	-	-	STOP-LINE	30	PHASE 3.3 ONLY
RDZ6A	WB	PRESENCE	6	-	-	STOP-LINE	30	
RDZ6B	WB LT	PRESENCE	6	-	-	STOP-LINE	30	PHASE 3.2 & 3.3 ONLY
RDZ8A	NB LT	PRESENCE	8	-	-	STOP-LINE	30	
RDZ8C	NB RT	PRESENCE	8	-	-	STOP-LINE	30	



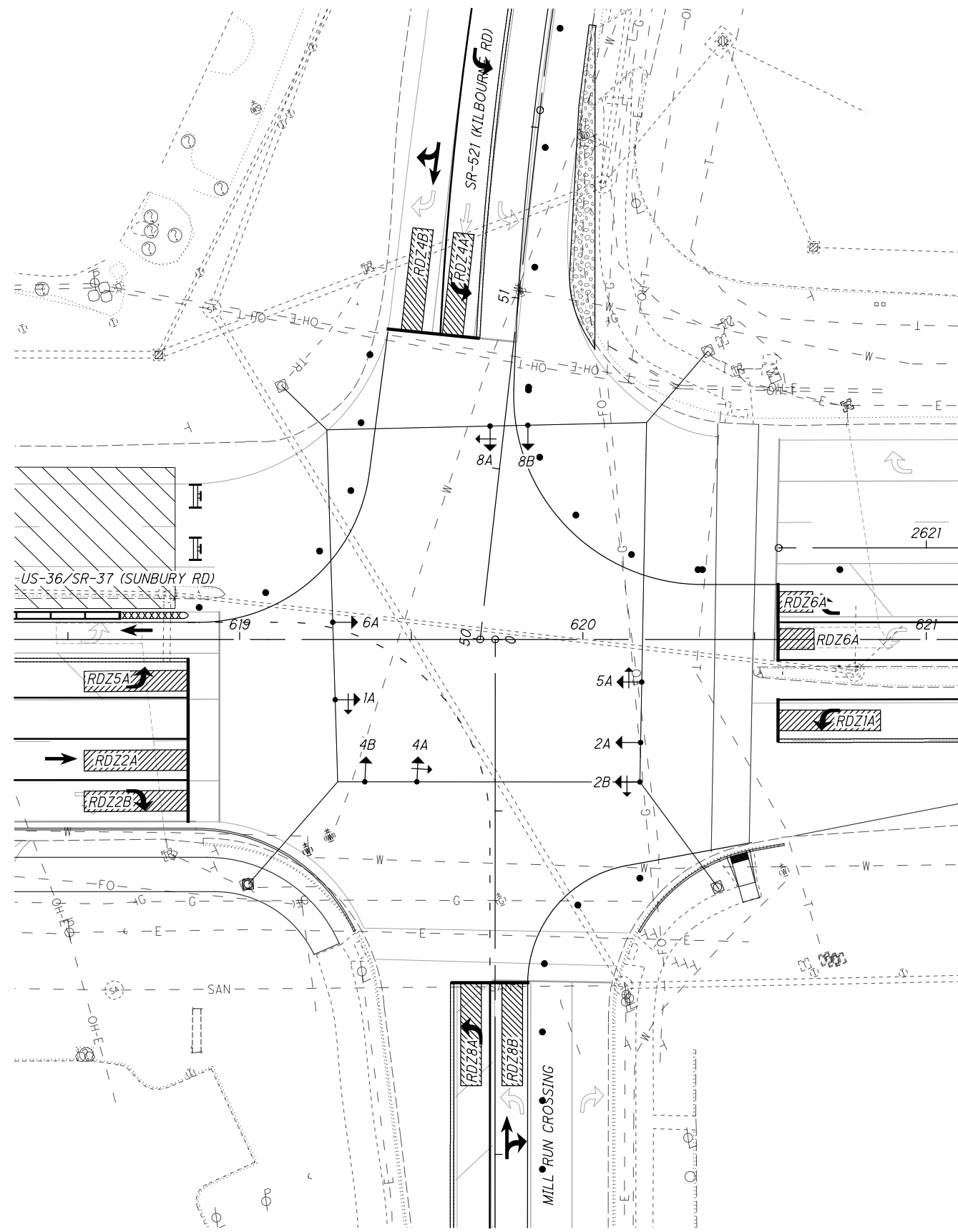
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CALCULATED  
ABS  
CHECKED  
PHF

MAINTENANCE OF TRAFFIC PLAN PHASE 3, 3.1, 3.2, & 3.3  
TRAFFIC SIGNAL DETAIL - US 36 AT SR 37 / E. POINT CROSSING

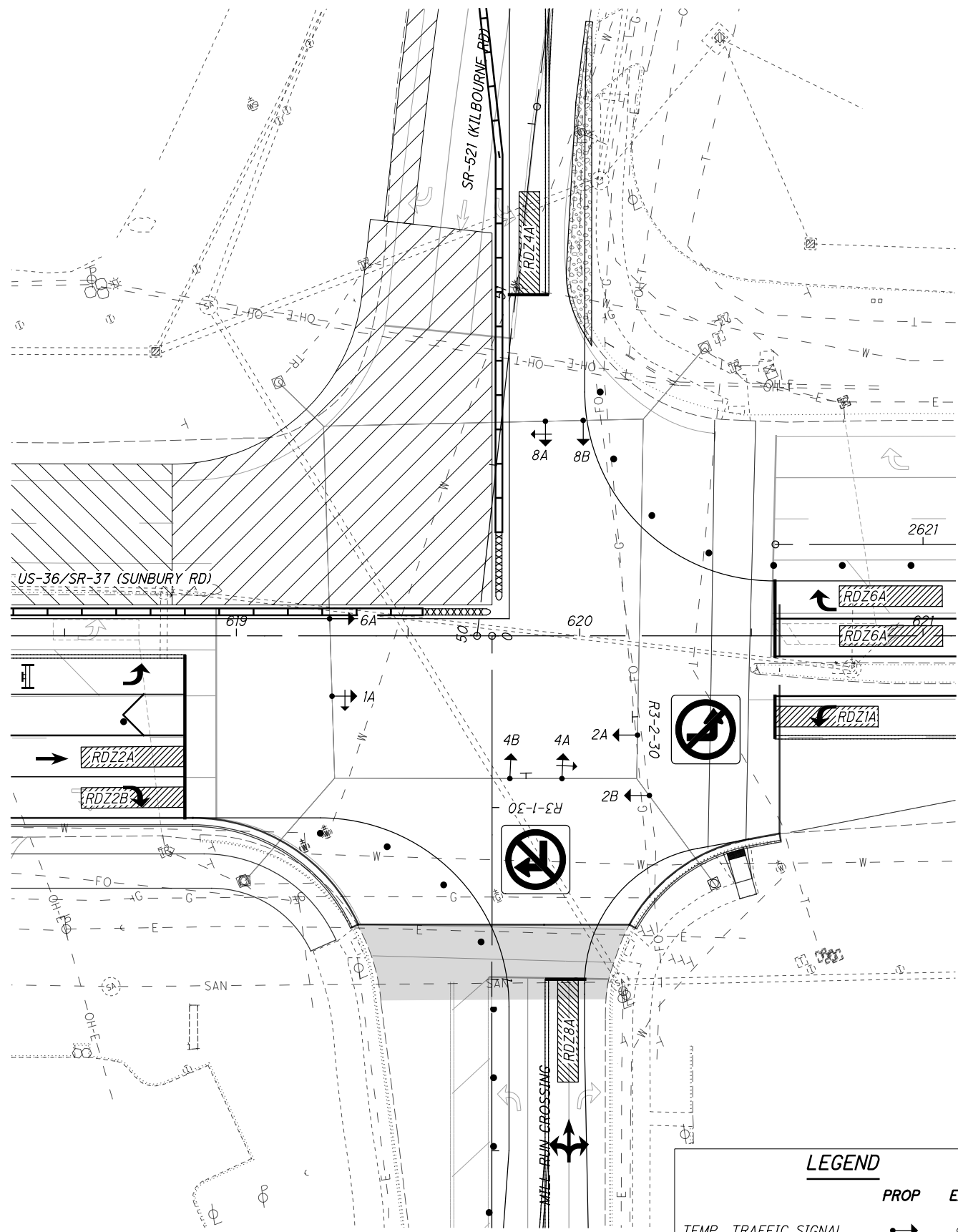
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US-36/SR-37 (SUNBURY RD) AT SR-521/MILL RUN CROSSING  
PHASE 3

- NOTES:
1. CONTRACTOR SHALL REARRANGE EX. SIGNAL HEADS OR FURNISH TEMPORARY HEADS AS NECESSARY AND SHALL COVER ANY CONFLICTING SIGNS/SIGNAL INDICATIONS.
  2. FOR MOT DETAILS, SEE SHEET 93 .
  3. CONTRACTOR SHALL ADJUST AND COORDINATE SIGNAL PHASING AND TIMING FOR SIGNALS IN THE PROJECT AREA AS APPROVED BY PROJECT ENGINEER.



US-36/SR-37 (SUNBURY RD) AT SR-521/MILL RUN CROSSING  
PHASE 3A

- NOTES:
1. CONTRACTOR SHALL REARRANGE EX. SIGNAL HEADS OR FURNISH TEMPORARY HEADS AS NECESSARY AND SHALL COVER ANY CONFLICTING SIGNS/SIGNAL INDICATIONS.
  2. FOR MOT DETAILS, SEE SHEET 105 .
  3. CONTRACTOR SHALL ADJUST AND COORDINATE SIGNAL PHASING AND TIMING FOR SIGNALS IN THE PROJECT AREA AS APPROVED BY PROJECT ENGINEER.

LEGEND	
PROP	EXIST
TEMP. TRAFFIC SIGNAL, 3 UNIT HEAD, 12"	→ ○→
TEMP. TRAFFIC SIGNAL, 3 UNIT HEAD, 12" WITH ARROWS	→ ○→
TEMP. TRAFFIC SIGNAL, 5 UNIT HEAD, 12"	→ OR ○→
SIGNAL SUPPORT POLE	■ □

CALCULATED  
MAS  
CHECKED  
PHF

0 20 40  
HORIZONTAL  
SCALE IN FEET

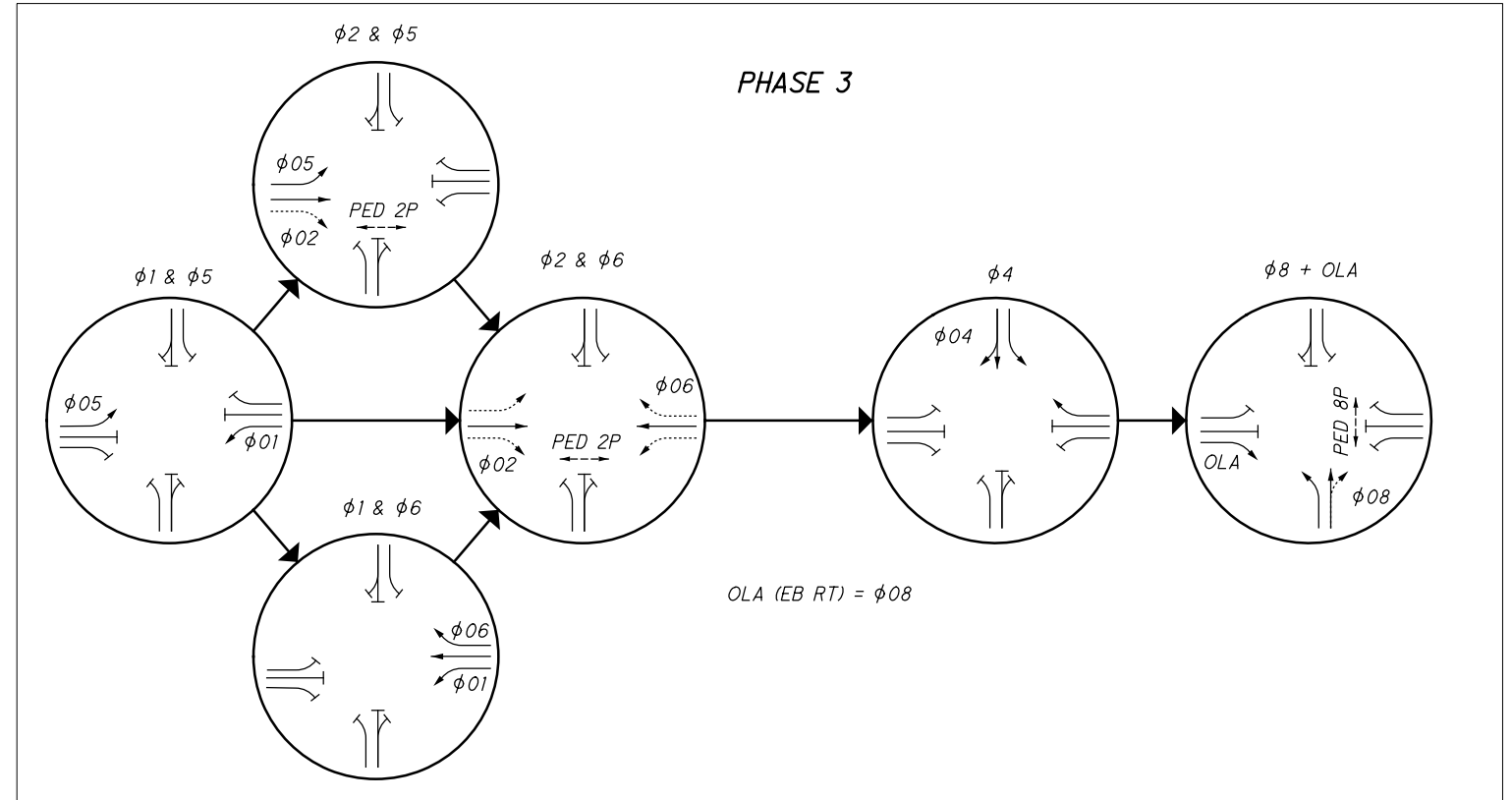
MAINTENANCE OF TRAFFIC PLAN - PHASE 3 & 3A  
TRAFFIC SIGNAL DETAILS - US 36/SR 37 AT SR 521/MILL RUN CROSSING

SIGNAL TIMING CHART

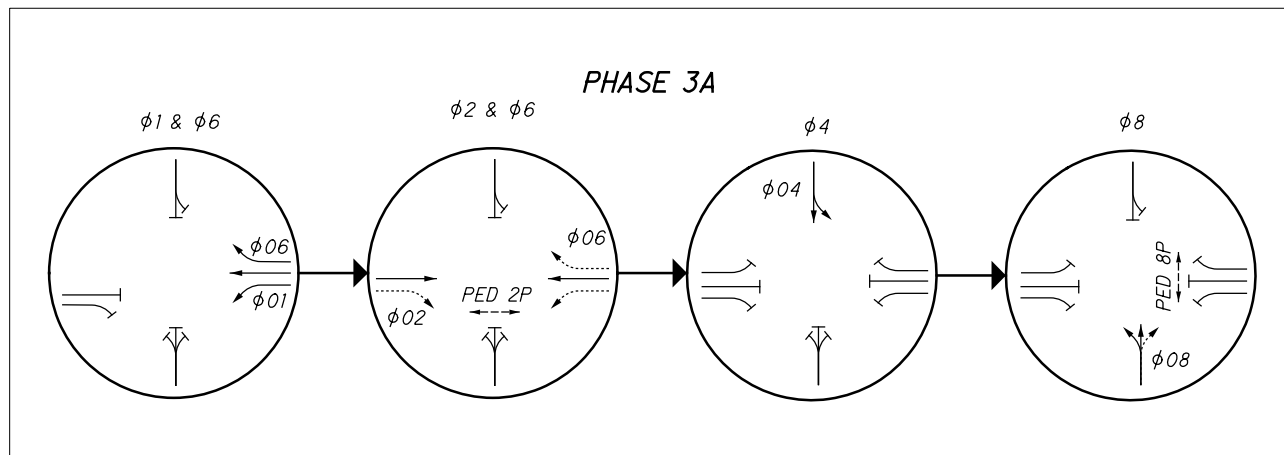
INTERSECTION: U.S. 36 / S.R. 37 & S.R. 521 / MILL RUN CROSSING									
MAINTAINING AGENCY: CITY OF DELAWARE, OH									
START UP		DUAL ENTRY: YES		PHASES: 2 & 6, 4 & 8					
START IN: ALL-RED FLASH		REST IN RED: RING 1 - RING 2 -		OVERLAP		A	B	C	D
TIME FOR: FLASH, ALL RED (SEC.): 6						8	-	-	-
FIRST PHASE(S): 2 & 6				PHASES					
COLOR DISPLAYED: GREEN									
INTERVAL OR FEATURE		CONTROLLER MOVEMENT NO.							
INTERSECTION MOVEMENT (PHASE)		1	2	-	4	5	6	-	8
DIRECTION		WB LT	EB	-	SB	EB LT	WB	-	NB
MINIMUM GREEN (INITIAL) (SEC.)		6	20	-	10	6	20	-	10
ADDED INITIAL *(SEC./ACTUATION)		-	-	-	-	-	-	-	-
MAXIMUM INITIAL (SEC.)		-	-	-	-	-	-	-	-
PASSAGE TIME (PRESET GAP) (SEC.)		-	-	-	-	-	-	-	-
TIME BEFORE REDUCTION *(SEC.)		-	-	-	-	-	-	-	-
MINIMUM GAP *(SEC.)		-	-	-	-	-	-	-	-
TIME TO REDUCE *(SEC.)		-	-	-	-	-	-	-	-
MAXIMUM GREEN I (SEC.)		15	50	-	40	15	50	-	40
MAXIMUM GREEN II (SEC.)		30	50	-	40	30	50	-	40
YELLOW CHANGE (SEC.)		4.2	5.1	-	3.3	3.1	5.1	-	3.1
ALL RED CLEARANCE (SEC.)		3.6	2.0	-	3.5	4.4	2.0	-	3.9
DELAYED GREEN (LPD) # (SEC.)		-	-	-	-	-	-	-	-
FLASHING YELLOW ARROW DELAY* (SEC.)		-	-	-	-	-	-	-	-
WALK (SEC.)		-	9	-	-	-	-	-	12
PEDESTRIAN CLEARANCE (SEC.)		-	19	-	-	-	-	-	33
RECALL	MAXIMUM (ON/OFF)	OFF	OFF	-	OFF	OFF	OFF	-	OFF
	MINIMUM (ON/OFF)	OFF	ON	-	OFF	OFF	ON	-	OFF
	PEDESTRIAN (ON/OFF)	OFF	OFF	-	OFF	OFF	OFF	-	OFF
MEMORY (ON/OFF)		OFF	OFF	-	OFF	OFF	OFF	-	OFF

\*VOLUME DENSITY CONTROLS

LEGEND	
VEHICLE $\phi$	
PERMITTED $\phi$	
PEDESTRIAN $\phi$	



RADAR DETECTION CHART



DETECTION ZONE	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	DELAY PROGRAMMED IN CONTROLLER (SEC.)	DELAY INHIBITED PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)	NOTES
RDZ1A	WB LT	PRESENCE	1	-	-	STOP-LINE	30	
RDZ6A	WB	PRESENCE	6	-	-	STOP-LINE	30	
RDZ6A	WB RT	PRESENCE	6	-	-	STOP-LINE	30	
RDZ5A	EB LT	PRESENCE	5	-	-	STOP-LINE	30	PHASE 3 ONLY
RDZ2A	EB	PRESENCE	2	-	-	STOP-LINE	30	
RDZ2B	EB RT	PRESENCE	2	-	-	STOP-LINE	30	
RDZ4A	SB LT	PRESENCE	4	-	-	STOP-LINE	30	PHASE 3 ONLY
RDZ4B	SB	PRESENCE	4	-	-	STOP-LINE	30	PHASE 3 ONLY
RDZ4A	SB	PRESENCE	4	-	-	STOP-LINE	30	PHASE 3.1 ONLY
RDZ8A	NB LT	PRESENCE	8	-	-	STOP-LINE	30	PHASE 3 ONLY
RDZ8B	NB	PRESENCE	8	-	-	STOP-LINE	30	PHASE 3 ONLY
RDZ8A	NB	PRESENCE	8	-	-	STOP-LINE	30	PHASE 3.1 ONLY
-	EB	PULSE	2	-	-	ADVANCE DETECTION	*	
-	WB	PULSE	6	-	-	ADVANCE DETECTION	*	

\*ADVANCE DETECTION ZONE LENGTH SHALL BE AS LONG AS DETECTOR CAN RELIABLY DETECT WITHIN LANE.

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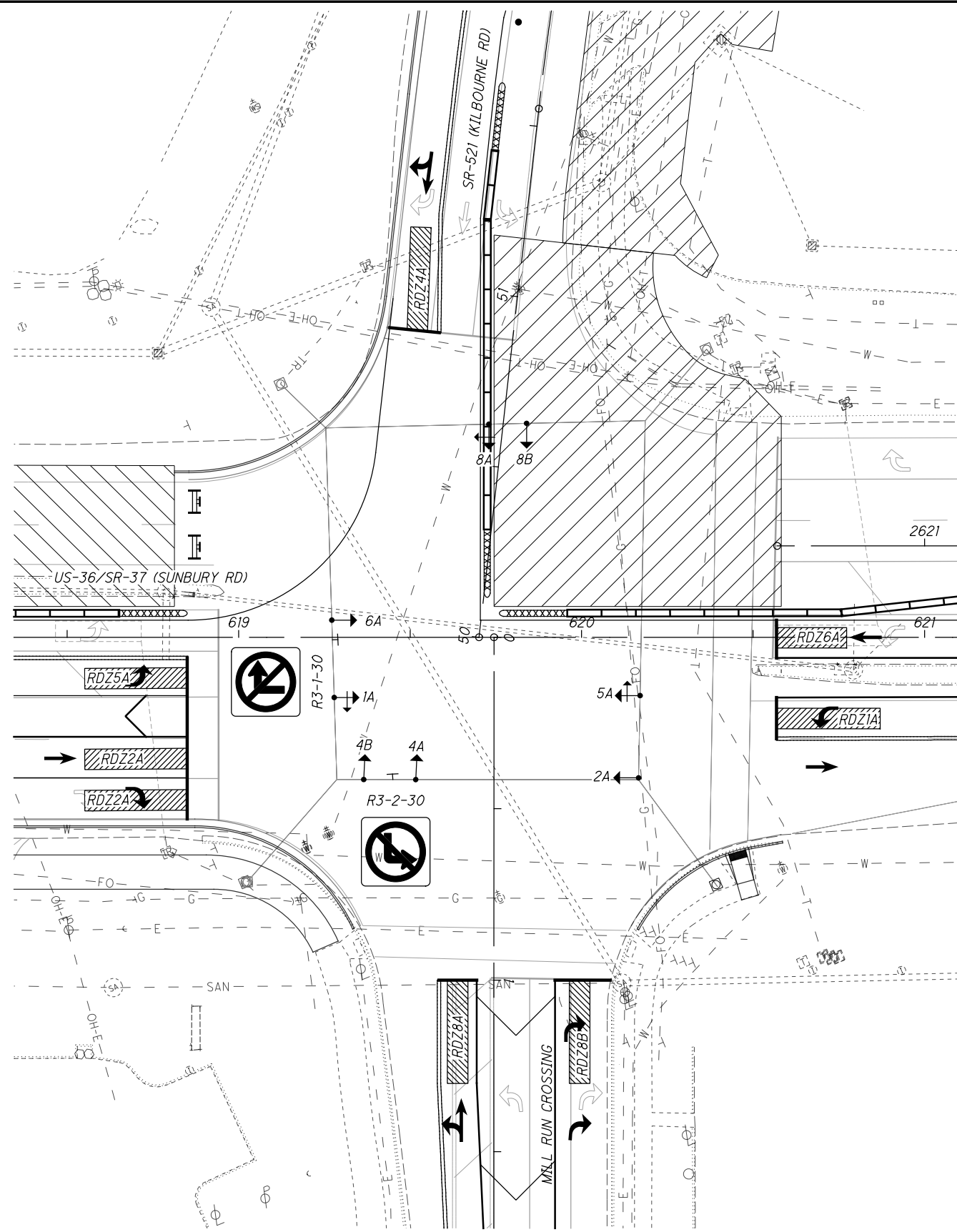
CALCULATED  
ABS  
CHECKED  
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MAINTENANCE OF TRAFFIC PLAN - PHASE 3 & 3A  
TRAFFIC SIGNAL DETAILS - US36 / SR 37 AT SR 521 / MILL RUN CROSSING

DEL-36-11.03



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US-36/SR-37 (SUNBURY RD) AT SR-521/MILL RUN CROSSING  
PHASE 3B

NOTES:

1. CONTRACTOR SHALL REARRANGE EX. SIGNAL HEADS OR FURNISH TEMPORARY HEADS AS NECESSARY AND SHALL COVER ANY CONFLICTING SIGNS/SIGNAL INDICATIONS.
2. FOR MOT DETAILS, SEE SHEET 109.
3. CONTRACTOR SHALL ADJUST AND COORDINATE SIGNAL PHASING AND TIMING FOR SIGNALS IN THE PROJECT AREA AS APPROVED BY PROJECT ENGINEER.

LEGEND		
	PROP	EXIST
TEMP. TRAFFIC SIGNAL, 3 UNIT HEAD, 12"		
TEMP. TRAFFIC SIGNAL, 3 UNIT HEAD, 12" WITH ARROWS		
TEMP. TRAFFIC SIGNAL, 5 UNIT HEAD, 12"		
SIGNAL SUPPORT POLE		

CALCULATED  
MAS  
CHECKED  
PHF

10 HORIZONTAL SCALE IN FEET

MAINTENANCE OF TRAFFIC PLAN - PHASE 3B  
TRAFFIC SIGNAL DETAILS - US 36/SR 37 AT SR 521/MILL RUN CROSSING

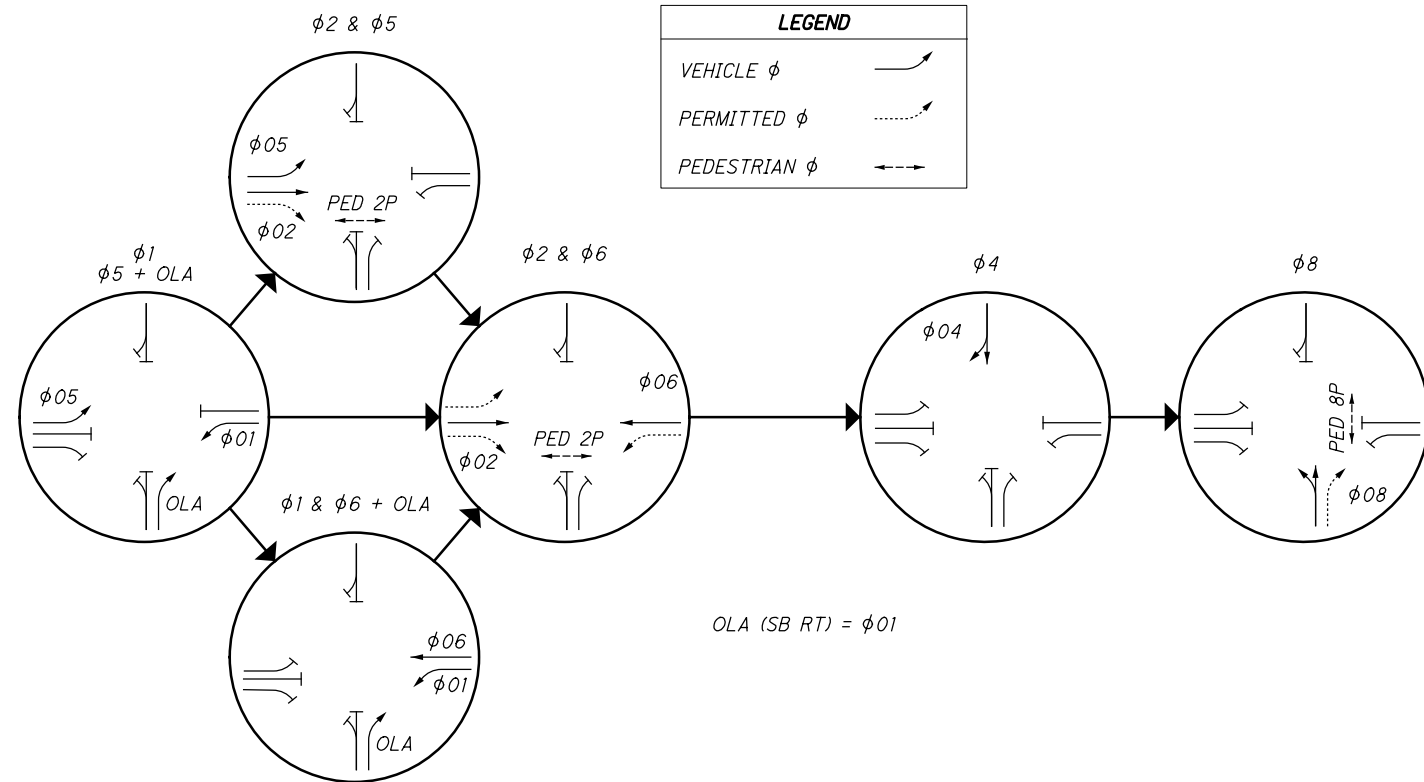
US 36 / SR-37 (SUNBURY RD) AT SR-521 - MILL RUN CROSSING

SIGNAL TIMING CHART

INTERSECTION: U.S. 36 / S.R. 37 & S.R. 521 / MILL RUN CROSSING										
MAINTAINING AGENCY: CITY OF DELAWARE, OH										
START UP		DUAL ENTRY: YES		PHASES: 2 & 6, 4 & 8						
START IN: ALL-RED FLASH		REST IN RED: RING 1 - RING 2 -		OVERLAP		A	B	C	D	
TIME FOR: FLASH, ALL RED (SEC.): 6		PHASES		1	-	-	-			
FIRST PHASE(S): 2 & 6		PHASES		1	-	-	-			
COLOR DISPLAYED: GREEN		PHASES		1	-	-	-			
INTERVAL OR FEATURE		CONTROLLER MOVEMENT NO.								
INTERSECTION MOVEMENT (PHASE)		1	2	-	4	5	6	-	8	
DIRECTION		WB LT	EB	-	SB	EB LT	WB	-	NB	
MINIMUM GREEN (INITIAL) (SEC.)		6	20	-	10	6	20	-	10	
ADDED INITIAL *(SEC./ACTUATION)		-	-	-	-	-	-	-	-	
MAXIMUM INITIAL (SEC.)		-	-	-	-	-	-	-	-	
PASSAGE TIME (PRESET GAP) (SEC.)		-	-	-	-	-	-	-	-	
TIME BEFORE REDUCTION *(SEC.)		-	-	-	-	-	-	-	-	
MINIMUM GAP *(SEC.)		-	-	-	-	-	-	-	-	
TIME TO REDUCE *(SEC.)		-	-	-	-	-	-	-	-	
MAXIMUM GREEN I (SEC.)		15	50	-	40	15	50	-	40	
MAXIMUM GREEN II (SEC.)		30	50	-	40	30	50	-	40	
YELLOW CHANGE (SEC.)		4.2	5.1	-	3.3	3.1	5.1	-	3.1	
ALL RED CLEARANCE (SEC.)		3.6	2.0	-	3.5	4.4	2.0	-	3.9	
DELAYED GREEN (LPD) # (SEC.)		-	-	-	-	-	-	-	-	
FLASHING YELLOW ARROW DELAY* (SEC.)		-	-	-	-	-	-	-	-	
WALK (SEC.)		-	9	-	-	-	-	-	12	
PEDESTRIAN CLEARANCE (SEC.)		-	19	-	-	-	-	-	33	
RECALL	MAXIMUM (ON/OFF)	OFF	OFF	-	OFF	OFF	OFF	-	OFF	
	MINIMUM (ON/OFF)	OFF	ON	-	OFF	OFF	ON	-	OFF	
	PEDESTRIAN (ON/OFF)	OFF	OFF	-	OFF	OFF	OFF	-	OFF	
MEMORY (ON/OFF)	OFF	OFF	-	OFF	OFF	OFF	OFF	-	OFF	

\*VOLUME DENSITY CONTROLS

PHASING DIAGRAM



RADAR DETECTION CHART

DETECTION ZONE	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	DELAY PROGRAMMED IN CONTROLLER (SEC.)	DELAY INHIBITED PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)
RDZ1A	WB LT	PRESENCE	1	-	-	STOP-LINE	30
RDZ6A	WB	PRESENCE	6	-	-	STOP-LINE	30
RDZ5A	EB LT	PRESENCE	5	-	-	STOP-LINE	30
RDZ2A	EB	PRESENCE	2	-	-	STOP-LINE	30
RDZ2A	EB RT	PRESENCE	2	-	-	STOP-LINE	30
RDZ4A	SB	PRESENCE	4	-	-	STOP-LINE	30
RDZ8A	NB	PRESENCE	8	-	-	STOP-LINE	30
RDZ8B	NB RT	PRESENCE	8	-	-	STOP-LINE	30
-	EB	PULSE	2	-	-	ADVANCE DETECTION	*
-	WB	PULSE	6	-	-	ADVANCE DETECTION	*

\*ADVANCE DETECTION ZONE LENGTH SHALL BE AS LONG AS DETECTOR CAN RELIABLY DETECT WITHIN LANE.

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CALCULATED  
ABS  
CHECKED  
PHF

MAINTENANCE OF TRAFFIC PLAN - PHASE 3B  
TRAFFIC SIGNAL DETAILS - US 36 / SR 37 AT SR 521 / MILL RUN CROSSING

DEL-36-11.03

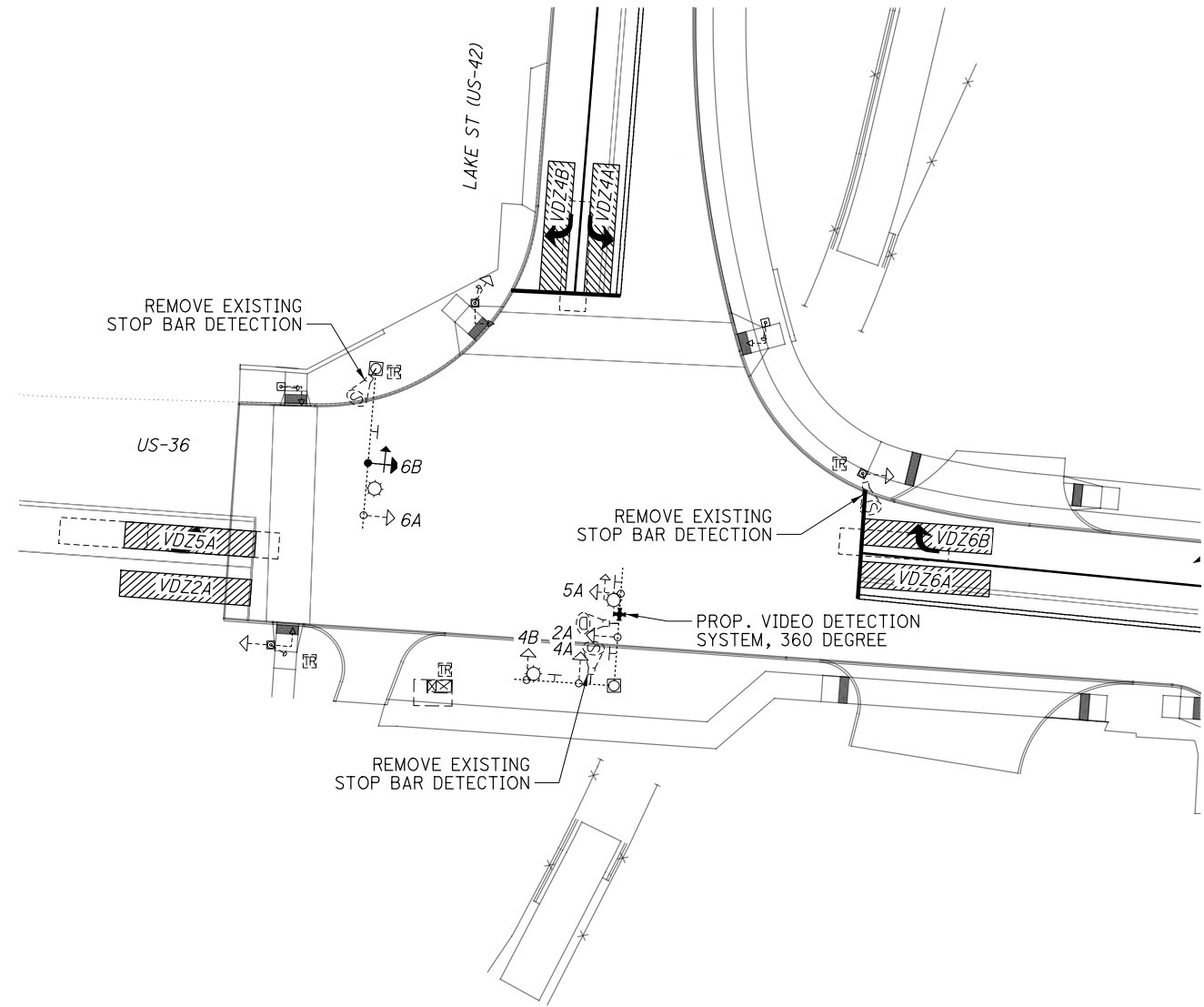
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SR-37 (CENTRAL AV) AT LAKE ST  
PHASE 3 - SR-37 DETOUR

NOTES:

1. CONTRACTOR SHALL REARRANGE EX. SIGNAL HEADS OR FURNISH TEMPORARY HEADS AS NECESSARY AND SHALL COVER ANY CONFLICTING SIGNS/SIGNAL INDICATIONS.
2. FOR MOT DETAILS, SEE SHEET 53 .
3. CONTRACTOR SHALL ADJUST AND COORDINATE SIGNAL PHASING AND TIMING FOR SIGNALS IN THE PROJECT AREA AS APPROVED BY PROJECT ENGINEER.



US-36 (WILLIAM ST) AT LAKE ST  
PHASE 3 - SR-37 DETOUR

NOTES:

1. CONTRACTOR SHALL REARRANGE EX. SIGNAL HEADS OR FURNISH TEMPORARY HEADS AS NECESSARY AND SHALL COVER ANY CONFLICTING SIGNS/SIGNAL INDICATIONS.
2. FOR MOT DETAILS, SEE SHEET 52 .
3. CONTRACTOR SHALL ADJUST AND COORDINATE SIGNAL PHASING AND TIMING FOR SIGNALS IN THE PROJECT AREA AS APPROVED BY PROJECT ENGINEER.

**LEGEND**

	PROP	EXIST
TEMP. TRAFFIC SIGNAL, 3 UNIT HEAD, 12"	→	→
TEMP. TRAFFIC SIGNAL, 3 UNIT HEAD, 12" WITH ARROWS	↕	↕
TEMP. TRAFFIC SIGNAL, 5 UNIT HEAD, 12"	↔ OR ↕	↔ OR ↕
SIGNAL SUPPORT POLE	■	■

CALCULATED  
MAS  
CHECKED  
PHF

0 20 40  
HORIZONTAL  
SCALE IN FEET

MAINTENANCE OF TRAFFIC PLAN - PHASE 3  
TRAFFIC SIGNAL DETAILS - US 42 (LAKE ST) AT US 36 & AT SR 37

DEL-36-11.03

123  
644

**SR-37 (CENTRAL AV) AT LAKE ST**  
**SIGNAL TIMING CHART**

**US-36 (WILLIAM ST) AT LAKE ST**  
**SIGNAL TIMING CHART**

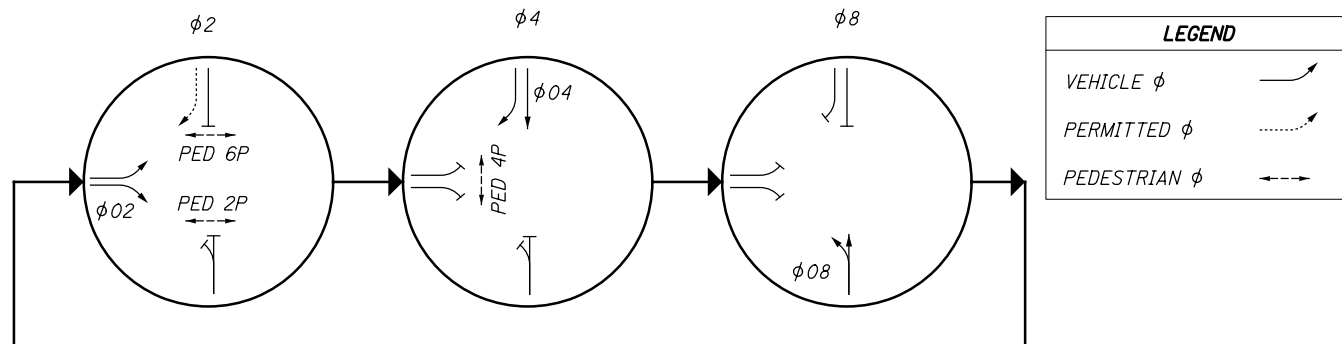
INTERSECTION: SR 37 (CENTRAL AVE) / LAKE ST									
MAINTAINING AGENCY: CITY OF DELAWARE									
START UP		DUAL ENTRY: YES		PHASES: 2					
START IN: ALL-RED FLASH		REST IN RED: RING 1 - RING 2 -		OVERLAP		A B C D			
TIME FOR: FLASH, ALL RED (SEC.): 6									
FIRST PHASE(S): 2									
COLOR DISPLAYED: GREEN									
PHASES									
INTERVAL OR FEATURE		CONTROLLER MOVEMENT NO.							
INTERSECTION MOVEMENT (PHASE)		1	2	3	4	5	6	7	8
DIRECTION		-	EB	-	SB	-	-	-	NB
MINIMUM GREEN (INITIAL) (SEC.)		-	7	-	7	-	-	-	7
ADDED INITIAL *(SEC./ACTUATION)		-	-	-	-	-	-	-	-
MAXIMUM INITIAL (SEC.)		-	-	-	-	-	-	-	-
PASSAGE TIME (PRESET GAP) (SEC.)		-	-	-	-	-	-	-	-
TIME BEFORE REDUCTION *(SEC.)		-	-	-	-	-	-	-	-
MINIMUM GAP *(SEC.)		-	-	-	-	-	-	-	-
TIME TO REDUCE *(SEC.)		-	-	-	-	-	-	-	-
MAXIMUM GREEN I (SEC.)		-	15	-	15	-	-	-	25
MAXIMUM GREEN II (SEC.)		-	15	-	15	-	-	-	25
YELLOW CHANGE (SEC.)		-	3.3	-	3.3	-	-	-	3.3
ALL RED CLEARANCE (SEC.)		-	1.4	-	1.2	-	-	-	1.7
DELAYED GREEN (LPI) * (SEC.)		-	-	-	-	-	-	-	-
FLASHING YELLOW ARROW DELAY* (SEC.)		-	-	-	-	-	-	-	-
WALK (SEC.)		-	7	-	7	-	-	-	-
PEDESTRIAN CLEARANCE (SEC.)		-	10	-	10	-	-	-	-
RECALL	MAXIMUM (ON/OFF)	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
	MINIMUM (ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	PEDESTRIAN (ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
MEMORY (ON/OFF)		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

INTERSECTION: US 36 (WILLIAM ST) / LAKE ST									
MAINTAINING AGENCY: CITY OF DELAWARE									
START UP		DUAL ENTRY: YES		PHASES: 2					
START IN: ALL-RED FLASH		REST IN RED: RING 1 - RING 2 -		OVERLAP		A B C D			
TIME FOR: FLASH, ALL RED (SEC.): 6									
FIRST PHASE(S): 2 & 6									
COLOR DISPLAYED: GREEN									
PHASES									
INTERVAL OR FEATURE		CONTROLLER MOVEMENT NO.							
INTERSECTION MOVEMENT (PHASE)		1	2	3	4	5	6	7	8
DIRECTION		-	EB	-	SB	EB LT	WB	-	-
MINIMUM GREEN (INITIAL) (SEC.)		-	7	-	7	7	7	-	-
ADDED INITIAL *(SEC./ACTUATION)		-	-	-	-	-	-	-	-
MAXIMUM INITIAL (SEC.)		-	-	-	-	-	-	-	-
PASSAGE TIME (PRESET GAP) (SEC.)		-	-	-	-	-	-	-	-
TIME BEFORE REDUCTION *(SEC.)		-	-	-	-	-	-	-	-
MINIMUM GAP *(SEC.)		-	-	-	-	-	-	-	-
TIME TO REDUCE *(SEC.)		-	-	-	-	-	-	-	-
MAXIMUM GREEN I (SEC.)		-	25	-	25	15	25	-	-
MAXIMUM GREEN II (SEC.)		-	25	-	25	15	30	-	-
YELLOW CHANGE (SEC.)		-	3.3	-	3.3	3.3	3.3	-	-
ALL RED CLEARANCE (SEC.)		-	1.9	-	1.1	1.9	1.3	-	-
DELAYED GREEN (LPI) * (SEC.)		-	-	-	-	-	-	-	-
FLASHING YELLOW ARROW DELAY* (SEC.)		-	-	-	-	-	-	-	-
WALK (SEC.)		-	7	-	7	-	-	-	-
PEDESTRIAN CLEARANCE (SEC.)		-	14	-	12	-	-	-	-
RECALL	MAXIMUM (ON/OFF)	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
	MINIMUM (ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	PEDESTRIAN (ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
MEMORY (ON/OFF)		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

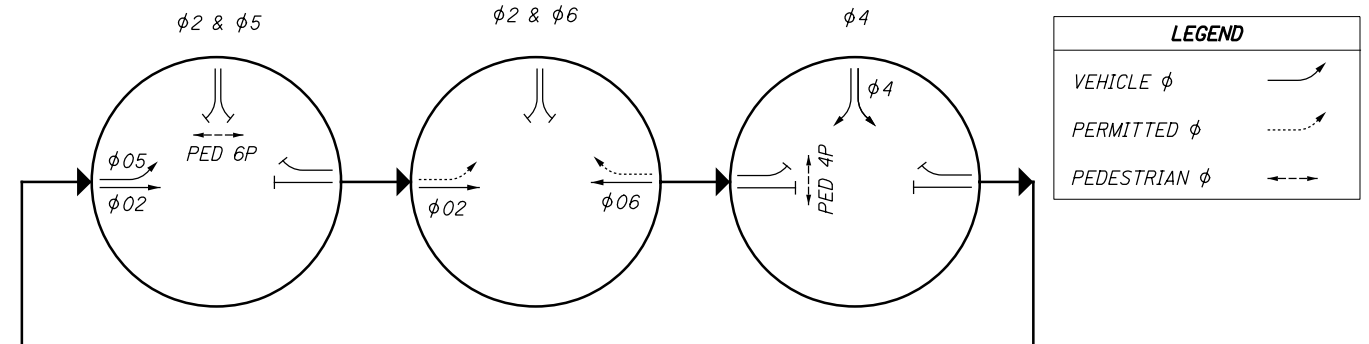
\*VOLUME DENSITY CONTROLS

\*VOLUME DENSITY CONTROLS

**PHASING DIAGRAM**



**PHASING DIAGRAM**



**RADAR DETECTION CHART**

DETECTION ZONE	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	DELAY PROGRAMMED IN CONTROLLER (SEC.)	DELAY INHIBITED PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)
RDZ2A	EB	PRESENCE	2	-	-	STOP-LINE	30
RDZ4A	SB	PRESENCE	4	-	-	STOP-LINE	30
RDZ4B	SB RT	PRESENCE	4	-	-	STOP-LINE	30
RDZ8A	NB	PRESENCE	8	-	-	STOP-LINE	30

**VIDEO DETECTION CHART**

DETECTION ZONE	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	DELAY PROGRAMMED IN CONTROLLER (SEC.)	DELAY INHIBITED PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)
VDZ5A	EB LT	PRESENCE	5	-	-	STOP-LINE	30
VDZ2A	EB	PRESENCE	2	-	-	STOP-LINE	30
VDZ6A	WB	PRESENCE	6	-	-	STOP-LINE	30
VDZ6B	WB RT	PRESENCE	6	-	-	STOP-LINE	30
VDZ4A	SB RT	PRESENCE	4	-	-	STOP-LINE	30
VDZ4B	SB LT	PRESENCE	4	-	-	STOP-LINE	30

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CALCULATED ABS CHECKED PHF  
MAINTENANCE OF TRAFFIC PLAN - PHASE 3  
TRAFFIC SIGNAL DETAILS - US 41 (LAKE ST) AT US 36 & AT SR 37

**DEL-36-11.03**











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Table with columns: SHEET NUMBER (23-476), FUNDING (01/02/03/04/05), ITEM, ITEM EXT., GRAND TOTAL, UNIT, DESCRIPTION, SEE SHEET NO. (338-341). Rows include items like TRAFFIC CONTROL, TRAFFIC SIGNALS, and various pavement markings.

GENERAL SUMMARY table with columns: CALCULATED, CJM, CHECKED, PEK. Total value: 129 (644).







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SHEET NUMBER														ITEM	TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.		
US 36/SR 37							SR 521													
134	135	136	137	138	139	140	141	142		143	144	145								
						44	116					212				611	372	FT	15" CONDUIT, TYPE C	
							126									611	126	FT	15" CONDUIT, TYPE D	
						105						8				611	113	FT	18" CONDUIT, TYPE B	
						132										611	132	FT	18" CONDUIT, TYPE C	
						69						125				611	194	FT	21" CONDUIT, TYPE B	
						17										611	17	FT	21" CONDUIT, TYPE C	
						110						78				611	188	FT	24" CONDUIT, TYPE B	
						531	318									611	849	FT	24" CONDUIT, TYPE C	
						251										611	251	FT	24" CONDUIT, TYPE D	
						193										611	193	FT	27" CONDUIT, TYPE B	
						43										611	43	FT	27" CONDUIT, TYPE D	
						200	162									611	362	FT	36" CONDUIT, TYPE C	
						238	500									611	738	FT	36" CONDUIT, TYPE D	
												80				611	80	FT	14" X 23" CONDUIT, TYPE B, 706.04	
												76				611	76	FT	14" X 23" CONDUIT, TYPE C, 706.04	
						8	1					2				611	11	EACH	CATCH BASIN, NO. 3	
						1										611	1	EACH	CATCH BASIN, NO. 3, AS PER PLAN	
						16	18					8				611	42	EACH	CATCH BASIN, NO. 3A	
						1						1				611	2	EACH	CATCH BASIN, NO. 3A, AS PER PLAN	
						1	1									611	2	EACH	CATCH BASIN, NO. 2-2B	
								2				1				611	3	EACH	CATCH BASIN, NO. 2-3	
								1								611	1	EACH	CATCH BASIN, NO. 2-4	
												1				611	1	EACH	CATCH BASIN ADJUSTED TO GRADE	
								1								611	1	EACH	INLET, NO. 2-6	
						19	16					9				611	44	EACH	MANHOLE, NO. 3	
						1										611	1	EACH	MANHOLE, NO. 3 WITH 108" BASE I.D. AND 12" WEIR	
							2									611	2	EACH	MANHOLE ADJUSTED TO GRADE	
												1				611	1	EACH	MANHOLE RECONSTRUCTED TO GRADE	
									911			130				670	1041	SY	DITCH EROSION PROTECTION MAT, TYPE A	
																SPECIAL	6	EACH	MAILBOX SUPPORT SYSTEM, SINGLE	
						1										895	1	EACH	MANUFACTURED WATER QUALITY STRUCTURE, TYPE 4	

CALCULATED WWM CHECKED PEK	ROADWAY AND DRAINAGE SUBSUMMARY
DEL-36-11.03	
133 644	





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REF NO.	SHEET NO.	STATION		SIDE	QUANTITIES															
		FROM	TO		202	202	202	202	202	202	202	202	202	202	202	202	202	203		
					REMOVAL MISC.: FENCE, GATE, BRICK COLUMNS	REMOVAL MISC.: COLUMN	REMOVAL MISC.: CONCRETE PADS	REMOVAL MISC.: LANDSCAPE BOULDER	REMOVAL MISC.: WOOD/STEEL POST	REMOVAL MISC.: IRRIGATION/SPRINKLER	REMOVAL MISC.: DUMPSTER/DONATION BIN	REMOVAL MISC.: WOODEN FENCE	REMOVAL MISC.: HANDRAIL	REMOVAL MISC.: CHAIN LINK FENCE	CONCRETE MEDIAN REMOVED	REMOVAL MISC.: SIGN	ROADWAY, MISC.: MANHOLE ADJUSTED TO GRADE			
					LS	LS	LS	EACH	EACH	EACH	EACH	FT	FT	FT	SY	EACH	EACH			
R-116	157	36	617+67.72						1											
R-117	158	36	618+32.92							1										
R-118	159	37	14+48.96	37	14+57.91							14								
R-119	159	37	14+54.11	37	15+06.50															
R-120	159	37	15+11.59					1												
R-121			NOT USED																	
R-122	159	37	15+72.04								1									
R-123	159	37	15+73.45	37	15+81.55							17.1								
R-124	159	37	16+98.87					1												
R-125	160	37	17+92.05									11								
R-126	160	37	19+86.63	37	19+93.16									3						
R-127			NOT USED																	
R-128			NOT USED																	
R-129	160	37	19+40.98					1												
R-130	160	37	19+32.42	37 EB	20+00.00				8				70							
R-131	161	37WB	30+58.35									3								
FOR R-131 TO R-140 SEE SHEET				143																
R-141	166	BOW	71+07.98	BOW	71+39.18		1													
R-142	166	BOW	71+39.00						1											
R-143	166	BOW	72+10.72					1												
R-144	166	BOW	72+52.99					1												
R-145	166	BOW	73+15.96	BOW	73+27.94		1													
R-146	152	36	590+73.89												1					
R-147	152	36	592+82.58														1			
SUBTOTAL					1	1	1	5	10	1	1	31.1	14	70	3	1	1			
TOTALS CARRIED TO SUBSUMMARY ON SHEET 132 - 133					1	1	1	5	10	1	1	32	14	70	3	1	1			

<b>ROADWAY QUANTITIES - US-36 / SR-37</b>	<b>DEL-36-11.03</b>
CALCULATED WWM CHECKED TOD	136 644













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REF NO.	SHEET NO.	STATION				SIDE	TIED CONCRETE BLOCK MAT WITH TYPE 1 UNDERLAYMENT, AS PER PLAN	TIED CONCRETE BLOCK MAT WITH TYPE 1 UNDERLAYMENT	ROCK CHANNEL PROTECTION, TYPE C WITH GEOTEXTILE FABRIC	DITCH EROSION PROTECTION MAT, TYPE A
		FROM	TO	SY	SY					
EC-1	153	36	594+94	36	594+99	LT				
EC-2	153	36	596+58	36	596+63	RT				1.2
EC-3	154	36	602+08	36	602+12	LT	3			1.2
EC-4	155	36	603+89	36	607+43	RT				
EC-5	155	36	605+98	36	606+02	LT	5			297
EC-6	155	36	607+88	36	612+10	RT				354
EC-7	156	36	608+71	36	608+75	LT	7			
EC-8	156	36	609+67	36	609+71	LT	3			
EC-9	156	36	610+96	36	611+00	LT	12			
EC-10	156	36	612+45	36	613+35	RT				76
EC-11	157	36	615+50	36	616+60	LT				92
EC-12	157	36	616+63	36	617+02	LT				32
EC-15	156	36	612+98	36	613+02	LT	5			
EC-16	167	EPC	79+29	EPC	78+33	RT		2		
EC-17	167	EPC	79+29	EPC	78+33	LT		2		
EC-18	155	36	607+19	36	607+91	LT				60
SUBTOTAL							35	4	2.4	911
TOTALS CARRIED TO SUBSUMMARY ON SHEET 132 - 133							35	4	3	911

**DEL - 36 - 11.03**

**DRAINAGE QUANTITIES - US - 36 / SR - 37**

CALCULATED  
 WWM  
 CHECKED  
 TOD

142  
 644







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REF NO.	SHEET NO.	STATION				SIDE	601		602	611		611		611		611		611		611		670						
		FROM	TO	ROCK CHANNEL PROTECTION, TYPE C WITH GEOTEXTILE FABRIC	CONCRETE MASONRY		12" CONDUIT, TYPE B	12" CONDUIT, TYPE C		12" CONDUIT, TYPE D	15" CONDUIT, TYPE C	18" CONDUIT, TYPE B	21" CONDUIT, TYPE B	24" CONDUIT, TYPE B	14" X 23" CONDUIT, TYPE B, 706.04	14" X 23" CONDUIT, TYPE C, 706.04	CATCH BASIN, NO. 3	CATCH BASIN, NO. 3A	CATCH BASIN, NO. 3A, AS PER PLAN	CATCH BASIN, NO. 2-3	CATCH BASIN ADJUSTED TO GRADE		MANHOLE RECONSTRUCTED TO GRADE	MANHOLE, NO. 3	DITCH EROSION PROTECTION MAT, TYPE A			
						CY	CY		FT	FT	FT	FT	FT	FT	FT	EACH	EACH	EACH	EACH	EACH	EACH	SY						
D-94	164	SR-52	52+15.00	SR-52	52+15.00	RT			8									1										
D-95	164	SR-52	51+35.00	SR-52	52+15.00	RT									78					1								
D-96	164	SR-52	52+40.00	SR-52	52+40.00	RT			8												1							
D-97	164	SR-52	52+15.00	SR-52	52+40.00	RT																						
D-98	164	SR-52	52+65.00	SR-52	52+78.00	RT						15										1						
D-99	164	SR-52	52+65.00	SR-52	52+65.00	RT			8																			
D-100	164	SR-52	52+40.00	SR-52	52+65.00	RT									25							1						
D-101	164	SR-52	52+65.00	SR-52	53+42.00	RT									75							1						
D-102	164	SR-52	53+42.00	SR-52	53+48.00	RT					10																	
D-103	164	SR-52	53+42.00	SR-52	54+23.00	RT																						
D-104	164	SR-52	55+00.00	SR-52	55+00.00	RT																						
D-105	164	SR-52	54+23.00	SR-52	55+00.00	RT																						
D-106	165	SR-52	56+50.00	SR-52	56+50.00	RT																						
D-107	165	SR-52	55+00.00	SR-52	56+50.00	RT																1						
D-108	165	SR-52	57+00.00	SR-52	57+00.00	RT					16																	
D-109	165	SR-52	56+50.00	SR-52	57+00.00	RT																1						
D-110	165	SR-52	57+83.00	SR-52	57+94.00	RT																						
D-111	165	SR-52	57+00.00	SR-52	57+83.00	RT																1						
D-112	165	SR-52	57+83.00	SR-52	57+92.00	RT		0.2																				
D-113	164	SR-52	52+40.00	SR-52	52+40.00	LT																						
D-114	164	SR-52	52+32.00	SR-52	52+48.00	LT																1						
D-115	165	SR-52	59+02.00	SR-52	59+14.00	RT																						
D-116	164	SR-52	51+66	SR-52	51+82	RT			18													130						
EC-13	165	521	56+52.00	521	58+08.00	LT	1.2																					
EC-14	165	521	57+92.00	521	57+97.00	RT	1.2																					
SUBTOTAL							2.4	0.2		42	120	81	212		8	125	78	80	76	2	8	1		9	130			
TOTALS CARRIED TO SUBSUMMARY ON SHEET 132 - 133							3	0.2		42	120	81	212		8	125	78	80	76	2	8	1		1	1	1	9	130

CALCULATED  
 WWM  
 CHECKED  
 TOD  
**DEL - 36 - 11.03**  
**DRAINAGE QUANTITIES - SR - 521**

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US-36/SR-37			SR-521	SHEET NUMBER												ITEM	TOTAL	UNIT	DESCRIPTION
147	148	149																	
6690																203	6690	CY	GRANULAR MATERIAL, TYPE C
27054	2119	2069														204	31242	SY	SUBGRADE COMPACTION
6690																204	6690	CY	EXCAVATION OF SUBGRADE
11																204	11	HOUR	PROOF ROLLING
17232																204	17232	SY	GEOTEXTILE FABRIC
371	2267	3282														254	5920	SY	PAVEMENT PLANING, ASPHALT CONCRETE, 1.5"
1276																254	1276	SY	PAVEMENT PLANING, ASPHALT CONCRETE, 6"
6765	531	488														301	7784	CY	ASPHALT CONCRETE BASE, PG64-22, (449)
4355	354	183														304	4892	CY	AGGREGATE BASE
156		170														304	326	CY	AGGREGATE BASE, AS PER PLAN
3189	427	505														407	4121	GAL	NON-TRACKING TACK COAT
1167	182	219														442	1568	CY	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), 76-22M, AS PER PLAN
32																442	32	CY	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), 88-22M, AS PER PLAN
1477	102	95														442	1674	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, 12.5 MM, TYPE A (446)
236		449														690	685	SY	SPECIAL - PAVEMENT OVERLAY FABRIC COMPOSITE

CALCULATED WWM CHECKED PEK	<b>PAVEMENT SUBSUMMARY</b>
DEL - 36 - 11.03	
146 644	

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Table with columns: ROUTE, FROM, TO, FT, SIDE, LENGTH, SURFACE AREA (CA = CADD GENERATED AREA), 203, 204, 204, 254, 254, 301, 304, 304, 407, 407, 442, 442, 442, 442, 690, 204, 204. Includes detailed pavement specifications and quantities for various projects like US-36 and SR-37.

Summary row for 'TOTALS CARRIED TO SUBSUMMARY' with values: 146, 6690, 27054, 6690, 1276, 371, 6765, 4355, 156, 3189, 140.1, 1167, 32, 1477, 236, 11, 17232. Includes a stamp: CALCULATED WWM CHECKED PEK and a title: PAVEMENT QUANTITIES - US-36 / SR-37.

DEL-36-11.03 147 644

ROUTE				SIDE	LENGTH FT	SURFACE AREA SF (CA = CADD GENERATED AREA)	204	254		301	304		407	407	442		442							
	FROM	TO	FT				SY	SY	SY	SY	SY	SY	SY	SY	SY	GAL	GAL	CY	CY	CY	CY			
MILL RUN CROSSING																								
MRX	+53.07	+84.09	79	LT/RT	31.1	2449.7																		
MRX	+53.06	+84.09		LT	31.1	554.2 (CA)	272.2			68.1	45.4		30.0		11.4		13.3							
MRX	+53.09	+84.09		RT	31.0	418.0 (CA)	61.6			15.4	10.3		6.8		2.6		3.0							
MRX	+84.09	4+45.00		LT/RT	361.0	20395.4 (CA)	46.5			11.7	7.8		5.2		2.0		2.3							
								2266.2						192.7		94.5								
BOTOWN ROAD																								
CR-84	70+34.05	71+54.65	24	LT/RT	120.6	2894.4	321.6			80.4	53.6		35.4		13.4		15.7							
CR-84	70+37.27	70+52.48		LT	15.3	70.0	7.8			2.0	1.3		0.9		0.4		0.4							
CR-84	70+40.49	70+85.86		RT	45.4	345.3 (CA)	38.4			9.6	6.4		4.3		1.6		1.9							
CR-84	71+54.65	72+02.10		LT/RT	47.5	1005.5 (CA)	111.8			28.0	18.7		12.3		4.7		5.5							
EAST POINT CROSSING																								
EPX	78+33.31	79+69.34	24	LT/RT	136.1	3264.8	362.8			90.7	60.5		40.0		15.2		17.7							
EPX	78+43.00	79+69.34		RT	126.4	3366.9 (CA)	374.1			93.6	62.4		41.2		13.5		15.7							
EPX	79+32.87	79+70.58		LT	37.8	304.3 (CA)	33.9			8.5	5.7		3.8		1.5		1.7							
EAST STREET																								
EAST	120+18.00	120+85.00	20	LT/RT	67.0	1340.0	148.9			37.3	24.9		16.4		6.3		7.3							
EAST	120+18.02	120+33.05		LT	15.1	48.5 (CA)	5.4			1.4	0.9		0.6		0.3		0.3							
EAST	120+17.98	120+32.95		RT	15.0	48.1 (CA)	5.4			1.4	0.9		0.6		0.3		0.3							
MOORE STREET																								
MOORE	110+18.00	111+03.00		LT/RT	85.0	1665.0 (CA)	185.1			46.3	30.9		20.4		7.8		9.0							
MOORE	110+18.14	110+38.43		LT	20.3	88.7 (CA)	9.9			2.5	1.7		1.1		0.5		0.5							
MOORE	110+17.86	110+38.58		RT	20.8	83.0 (CA)	9.3			2.4	1.6		1.1		0.4		0.5							
FOLEY STREET																								
FOLEY	100+18.00	100+31.03		LT/RT	13.1	348.1 (CA)	38.7			9.7	6.5		4.3		1.7		1.9							
FOLEY	102+14.34	102+39.91		LT/RT	25.6	765.9 (CA)	85.2			21.3	14.2		9.4		3.6		4.2							
SUBTOTAL							2118.6	2266.2		530.3	353.7		233.8	192.7	181.7	101.2								
TOTALS CARRIED TO SUBSUMMARY 146							2119	2267		531	354		427	182	102									

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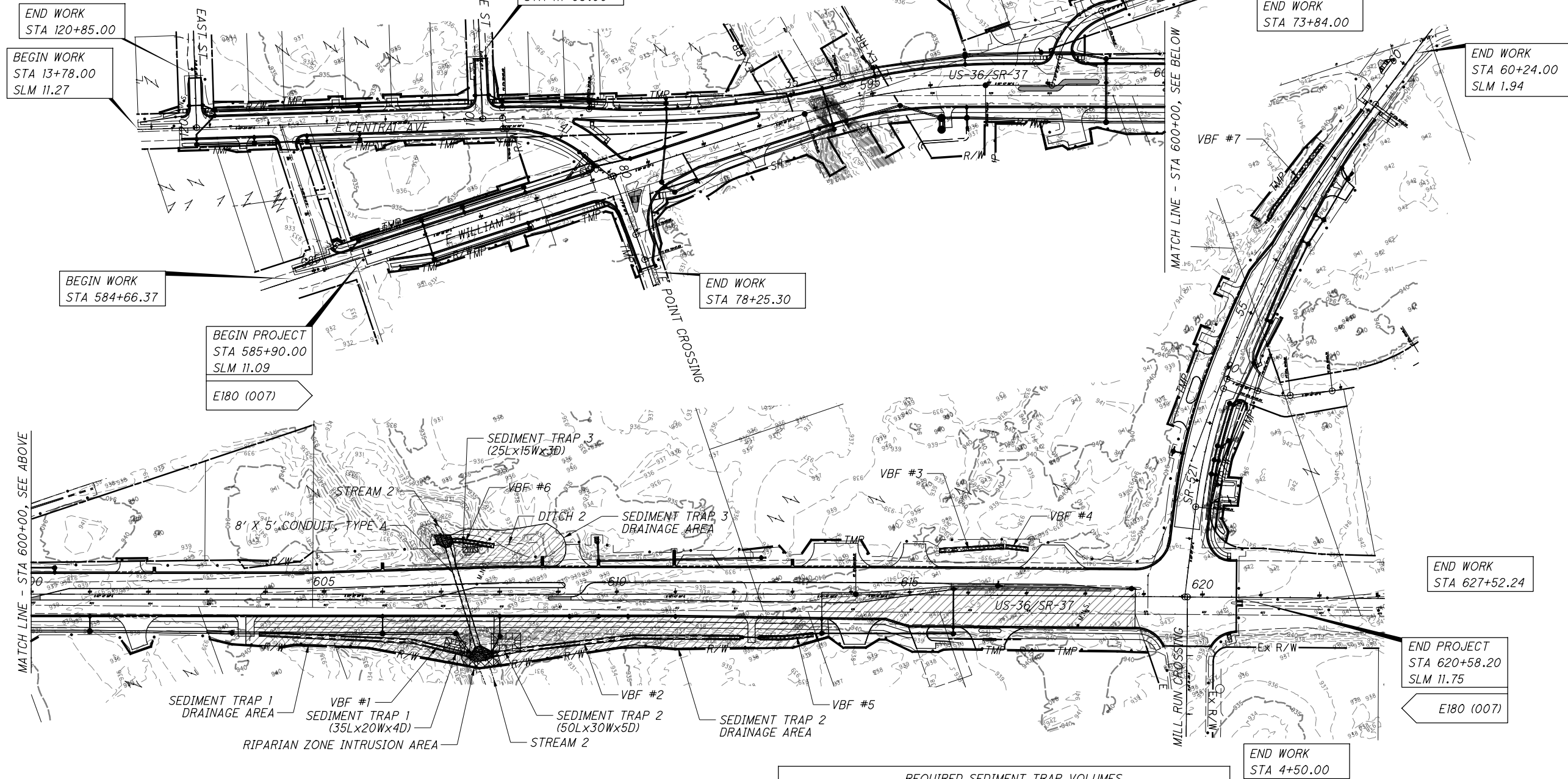
CALCULATED WWM CHECKED PEK	<b>PAVEMENT QUANTITIES - US-36 / SR-37</b>
<b>DEL-36-11.03</b>	
148 644	

ROUTE				SIDE	LENGTH FT	SURFACE AREA (CA = CADD GENERATED AREA) SF	204	254	304	301	304	304	407	407			442		442			690	
	FROM	TO	FT				SY	SY	CY	CY	CY	CY	CY	GAL	GAL			CY	CY			SY	
		SR-521																					
SR-521	50+46.29	51+17.06	60	LT/RT	71.5	4286.4	476.3			119.1	79.4		52.4				19.9		23.2				
SR-521	50+42.22	50+95.82		LT	53.6	591.1 (CA)	65.7			16.5	11.0		7.3				2.8		3.2				
SR-521	50+49.01	51+17.06		RT	68.1	1461.8 (CA)	162.5			40.7	27.1		17.9				6.8		7.9				
SR-521	51+17.06	58+94.00	4	LT	793.1	3172.1	352.5			88.2			38.8				14.7		17.2				
SR-521	51+17.06	59+11.00		LT/RT	794.0	29536.3 (CA)		3281.9						279.0			136.8					448.9	
SR-521	51+17.06	53+42.72	13	RT	221.2	2875.6	319.6		53.3	79.9			35.2				13.4		15.6				
SR-521	54+46.57	58+94.00		RT	447.5	3088.5 (CA)	343.2		57.2	85.8			37.8				14.3		16.7				
		ASPHALT FOR CURB CONSTRUCTION																					
SR-521	51+14.62	53+40.45		RT	225.9	1080.6 (CA)	120.1					26.7		10.3									
		BILTMORE DR																					
BILT	90+11.82	90+50.52		LT/RT	38.8	2060.2 (CA)	229.0			57.3	38.2		25.2				9.6		11.2				
SUBTOTAL							2068.9	3281.9	169.3	487.5	155.7	26.7	214.6	289.3			218.3	95		448.9			
TOTALS CARRIED TO SUBSUMMARY 146							2069	3282	170	488	183		505			219	95		449				

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<b>PAVEMENT QUANTITIES - SR-521</b>	CALCULATED WWM CHECKED PEK
<b>DEL-36-11.03</b>	149 644

RIPARIAN SETBACK MITIGATION			
STREAM	ZONE	AREA DISTURBED (AC)	REQUIRED MITIGATION
INTERMITTENT STREAM TO MILL RUN	1 (0'-30')	0.04	4:1 MITIGATION 0.16



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**PROJECT SITE PLAN**

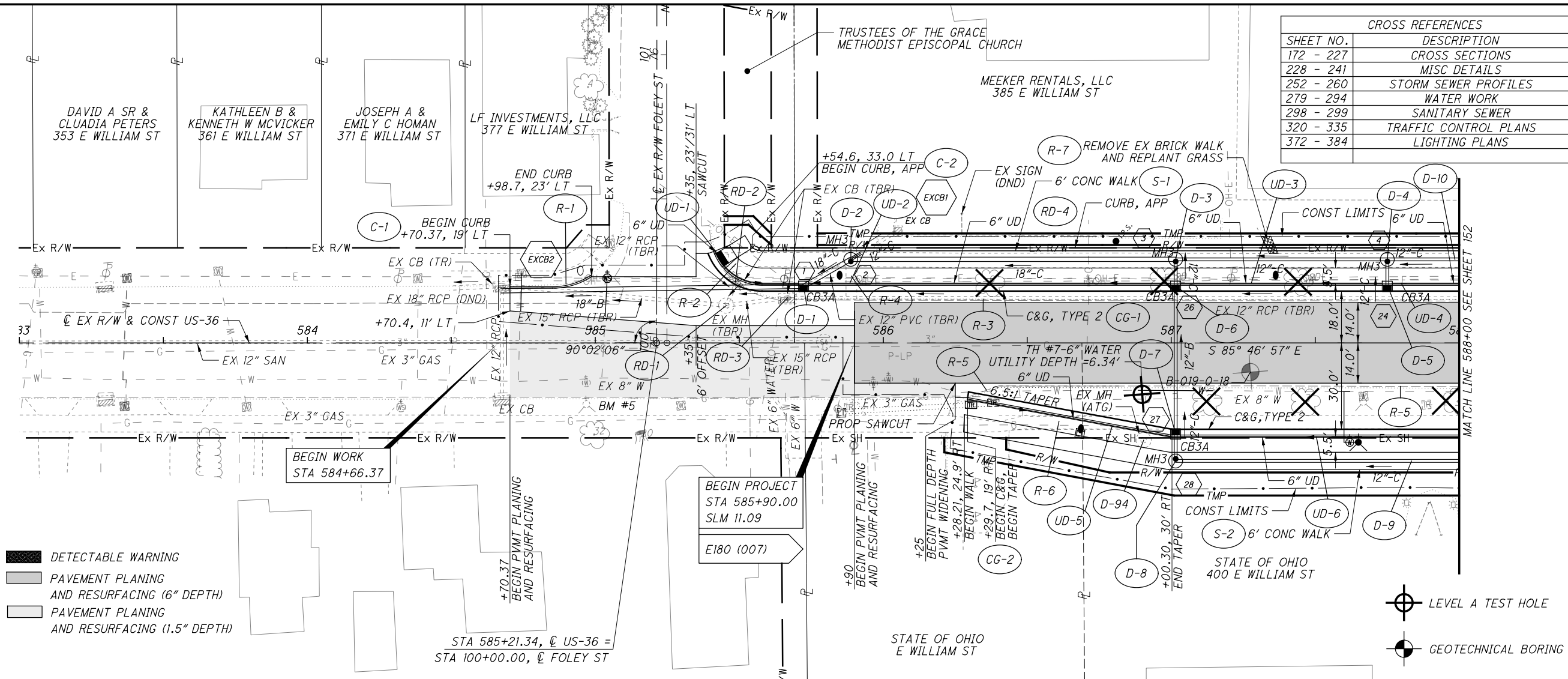
BMP TYPE	STATION **		LATITUDE/LONGITUDE		EDA TREATMENT CREDIT (ACRES)		
	BEGIN	END	BEGIN	END			
MANUFACTURED SYSTEM, TYPE 4	596+12.86		40.2974°	-83.0463°	2.25		
VEGETATED BIOFILTER #1	604+00.00	607+50.00	40.2967°	-83.0438°	40.2962°	-83.0426°	0.55
VEGETATED BIOFILTER #2	612+00.00	607+50.00	40.2958°	-83.0410°	40.2962°	-83.0426°	0.55
VEGETATED BIOFILTER #3	615+30.00	616+62.00	40.2959°	-83.0397°	40.2958°	-83.0393°	0.20
VEGETATED BIOFILTER #4	617+15.00	616+62.00	40.2957°	-83.0392°	40.2958°	-83.0393°	0.10
VEGETATED BIOFILTER #5	613+35.00	612+50.00	40.2957°	-83.0406°	40.2958°	-83.0409°	0.14
VEGETATED BIOFILTER #6	607+90.00	607+17.00	40.2967°	-83.0422°	40.2968°	-83.0424°	0.57
VEGETATED BIOFILTER #7	SR-521 58+05.00	SR-521 56+52.00	40.2970°	-83.0366°	40.2967°	-83.0371°	0.37
*CALCULATED PER L&D VOL. 2, SEC. 1111.7					TREATMENT PROVIDED	4.83	
**STATIONING BASED ON CONST. SR-36					TREATMENT REQUIRED*	3.81	

REQUIRED SEDIMENT TRAP VOLUMES				
	DRAINAGE AREA (AC)	STORAGE MULTIPLIER (CF/AC)	REQUIRED STORAGE (CF)	PROVIDED STORAGE (CF)
SEDIMENT TRAP 1 (35Lx20Wx4D)				
DEWATERING VOLUME	0.50	1800	900	
SEDIMENT STORAGE VOLUME	0.50	1000	500	
		TOTAL	1400	1552
SEDIMENT TRAP 2 (50Lx30Wx5D)				
DEWATERING VOLUME	1.52	1800	2736	
SEDIMENT STORAGE VOLUME	1.52	1000	1520	
		TOTAL	4256	4500
SEDIMENT TRAP 3 (25Lx15Wx3D)				
DEWATERING VOLUME	0.28	1800	504	
SEDIMENT STORAGE VOLUME	0.28	1000	280	
		TOTAL	784	819

PROJECT DATA	
TOTAL AREA (RIGHT-OF-WAY)	34.03 ACRES
PROJECT EARTH DISTURBED AREA	17.20 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA	1.00 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA	18.20 ACRES
RUNOFF COEFFICIENT FOR PRE-CONSTRUCTION SITE	0.64
RUNOFF COEFFICIENT FOR POST-CONSTRUCTION SITE	0.65
IMPERVIOUS AREA FOR PRE-CONSTRUCTION	12.1 ACRES
IMPERVIOUS AREA FOR POST-CONSTRUCTION	12.6 ACRES
IMMEDIATE RECEIVING WATERS	DELAWARE RUN
SUBSEQUENT RECEIVING WATERS	OLENTANGY RIVER
RECEIVING WATERS UNDER TOTAL MAXIMUM DAILY LOAD (TMDL) REGULATIONS	NONE

**DEL-36-11.03**

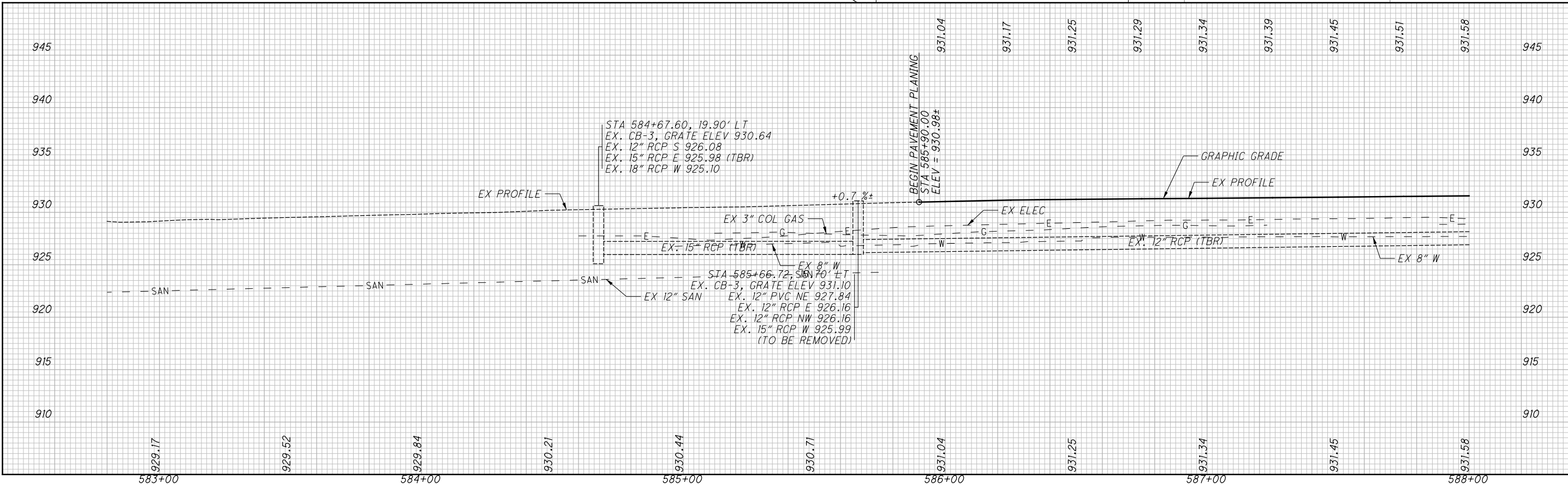
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CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS

- DETECTABLE WARNING
- PAVEMENT PLANING AND RESURFACING (6" DEPTH)
- PAVEMENT PLANING AND RESURFACING (1.5" DEPTH)

- LEVEL A TEST HOLE
- GEOTECHNICAL BORING



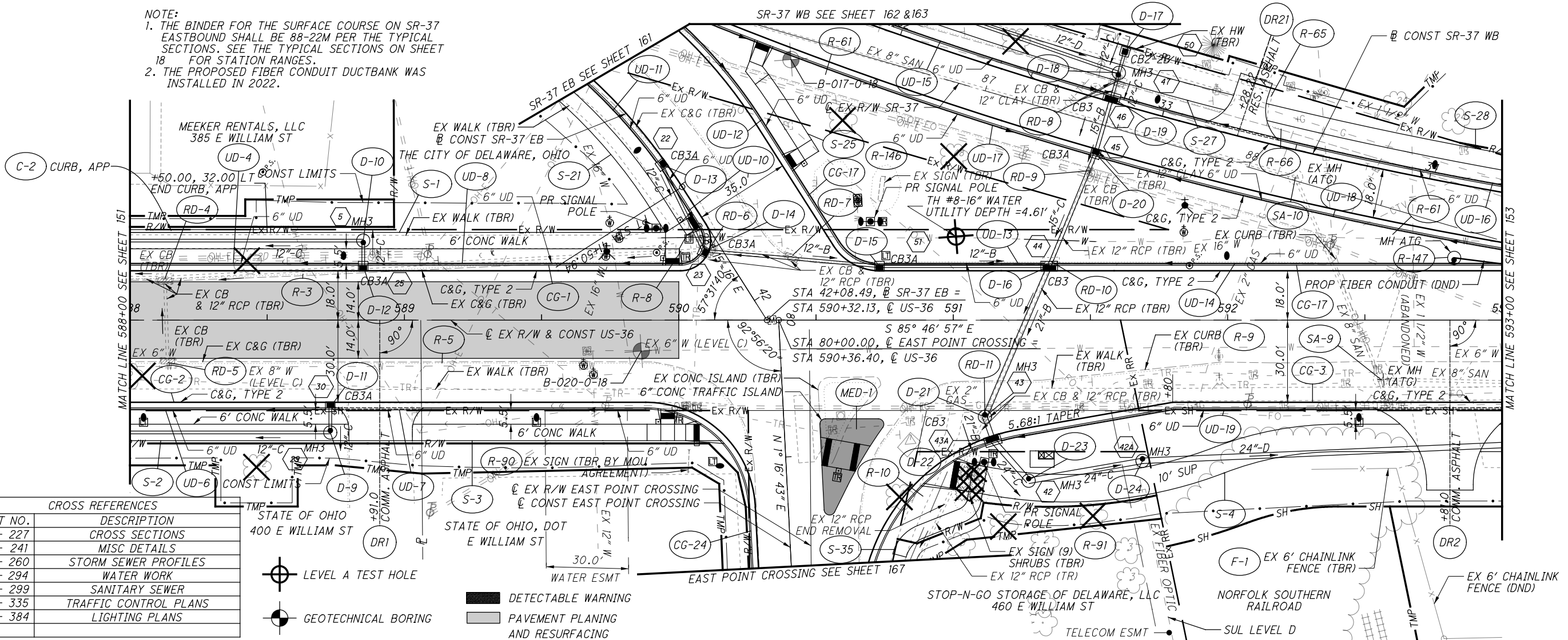
**PLAN AND PROFILE - US-36**  
**STA 585+35.60 TO STA 588+00**

**DEL-36-11.03**

151  
644

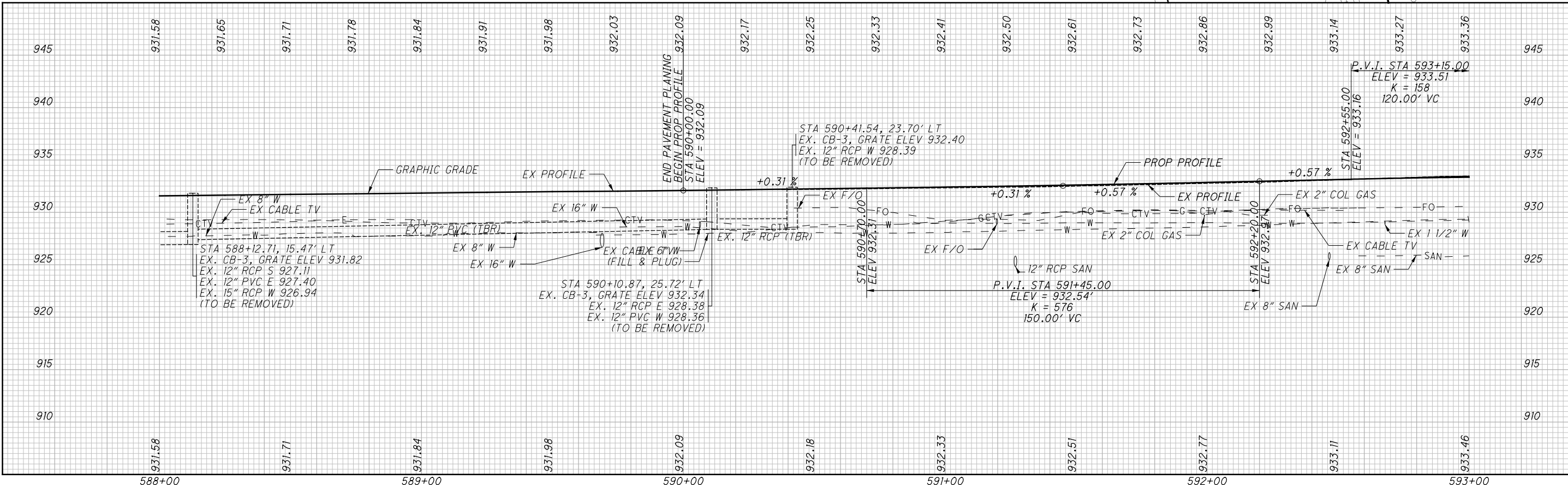
NOTE:  
 1. THE BINDER FOR THE SURFACE COURSE ON SR-37 EASTBOUND SHALL BE 88-22M PER THE TYPICAL SECTIONS. SEE THE TYPICAL SECTIONS ON SHEET 18 FOR STATION RANGES.  
 2. THE PROPOSED FIBER CONDUIT DUCTBANK WAS INSTALLED IN 2022.

SR-37 WB SEE SHEET 162 & 163



CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS

- LEVEL A TEST HOLE
- GEOTECHNICAL BORING
- DETECTABLE WARNING
- PAVEMENT PLANING AND RESURFACING

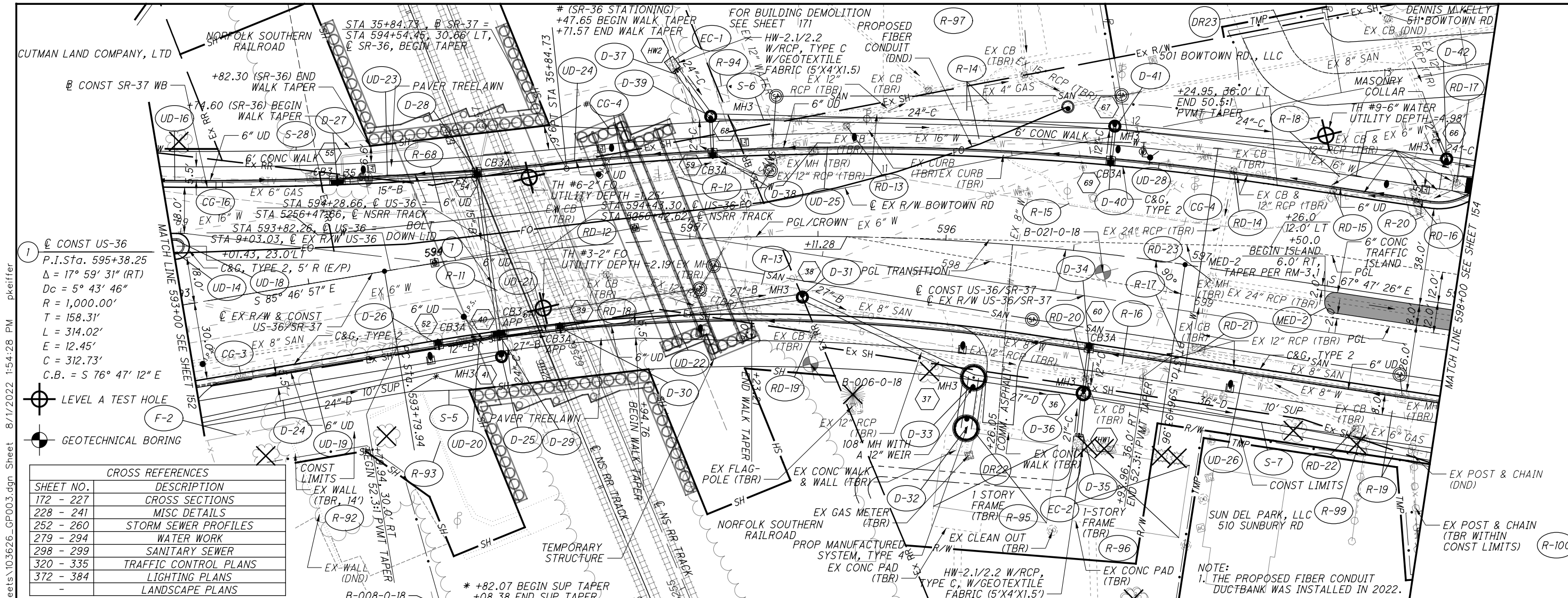


PLAN AND PROFILE - US-36  
 STA 588+00 TO STA 593+00

DEL-36-11.03

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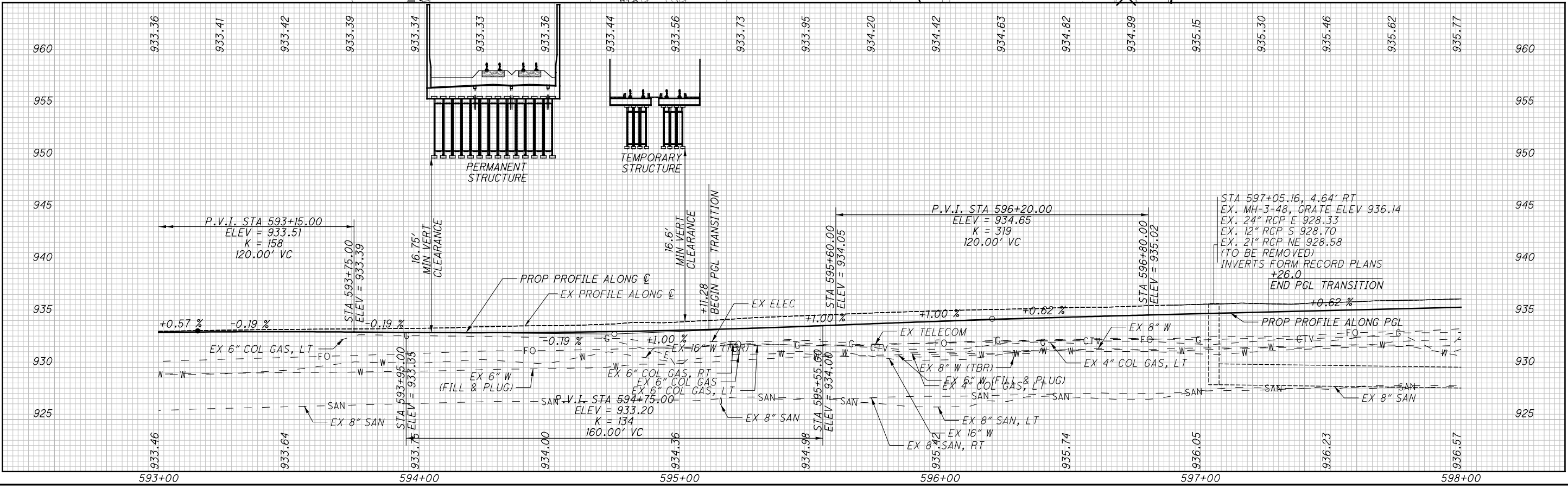




1. CONST US-36  
 P.I. Sta. 595+38.25  
 $\Delta = 17^\circ 59' 31''$  (RT)  
 $D_c = 5^\circ 43' 46''$   
 $R = 1,000.00'$   
 $T = 158.31'$   
 $L = 314.02'$   
 $E = 12.45'$   
 $C = 312.73'$   
 $C.B. = S 76^\circ 47' 12'' E$

LEVEL A TEST HOLE  
 GEOTECHNICAL BORING

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS
-	LANDSCAPE PLANS



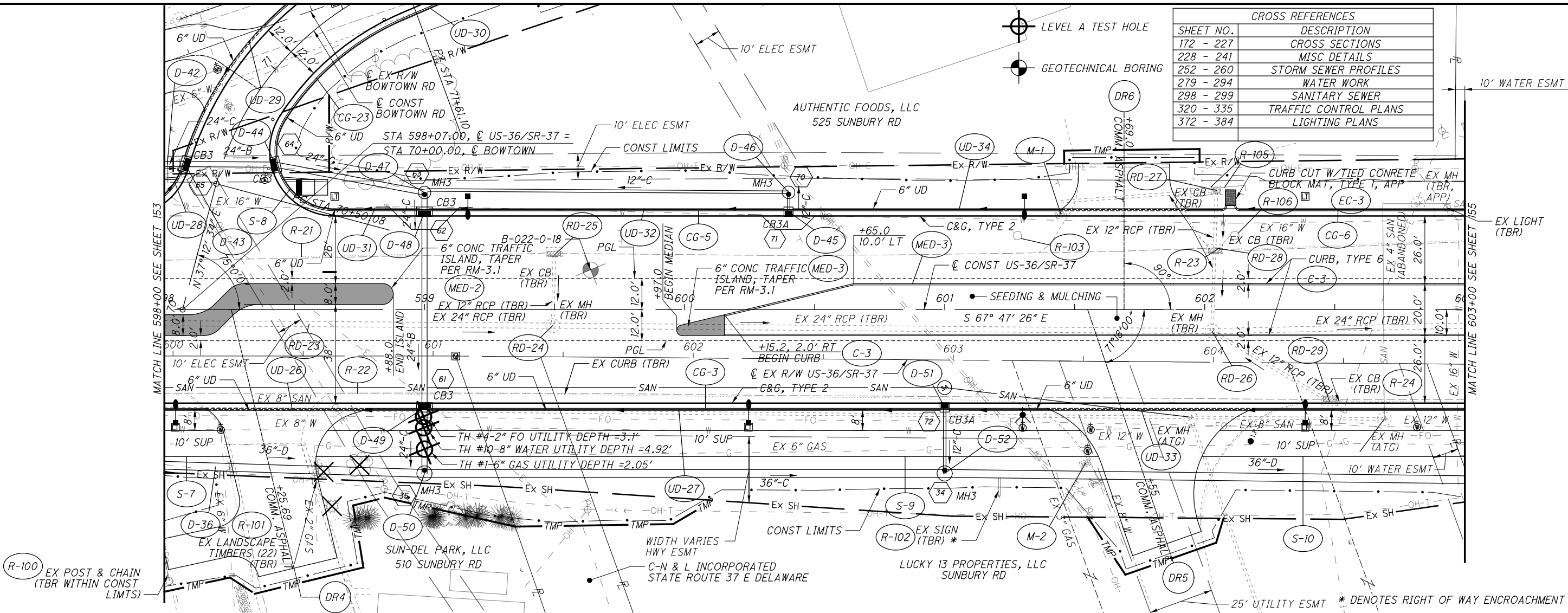
PLAN AND PROFILE - US-36 / SR-37  
 STA 593+00 TO STA 598+00

DEL-36-11.03

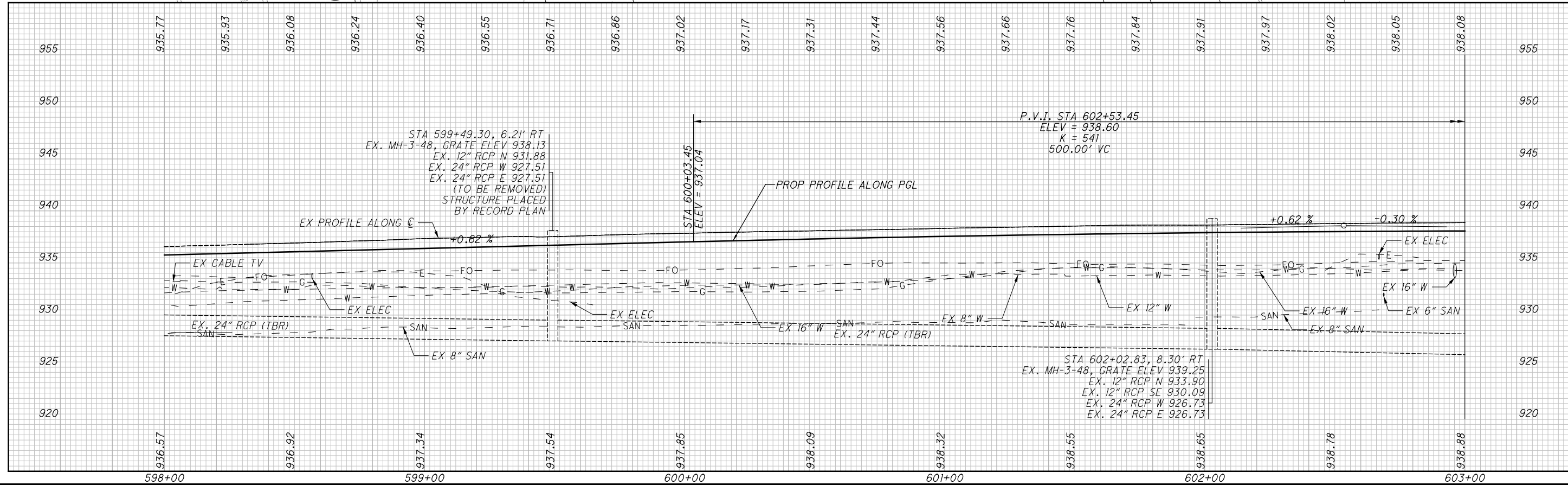
153  
 644

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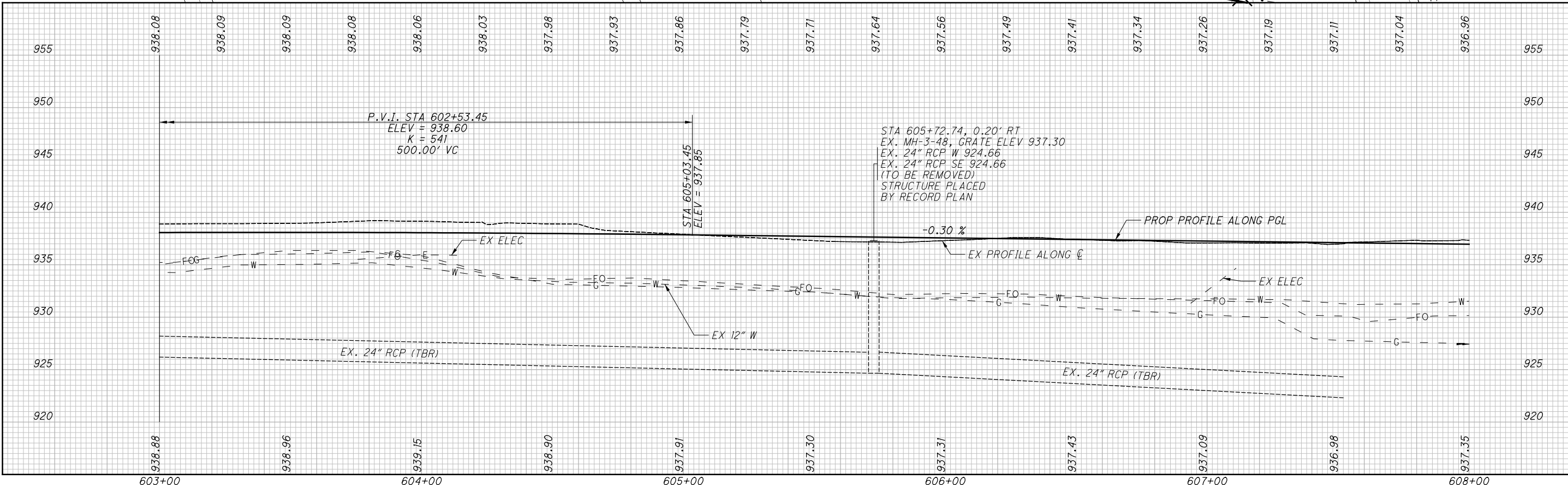
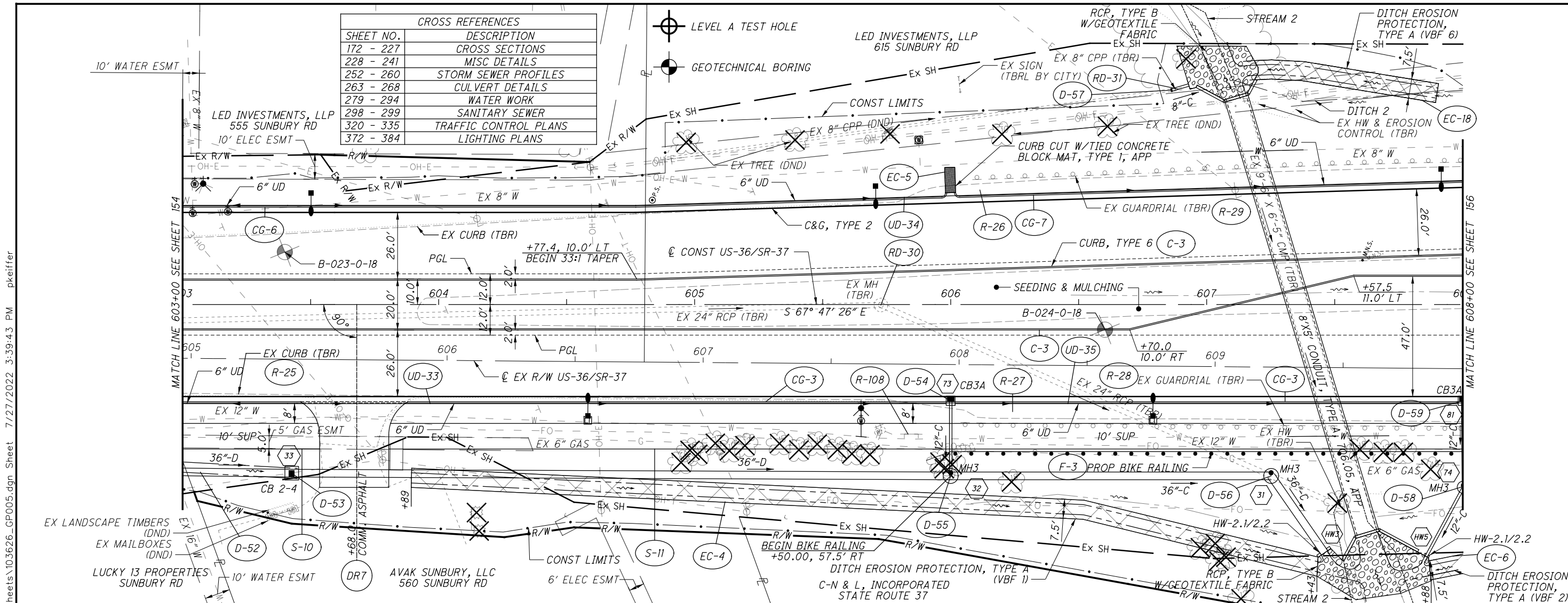
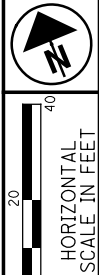
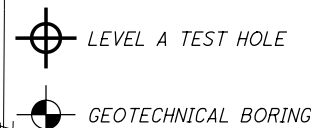
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SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS



**PLAN AND PROFILE - US-36 / SR-37**  
**STA 598+00 TO STA 603+00**

**DEL-36-11.03**

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
263 - 268	CULVERT DETAILS
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS



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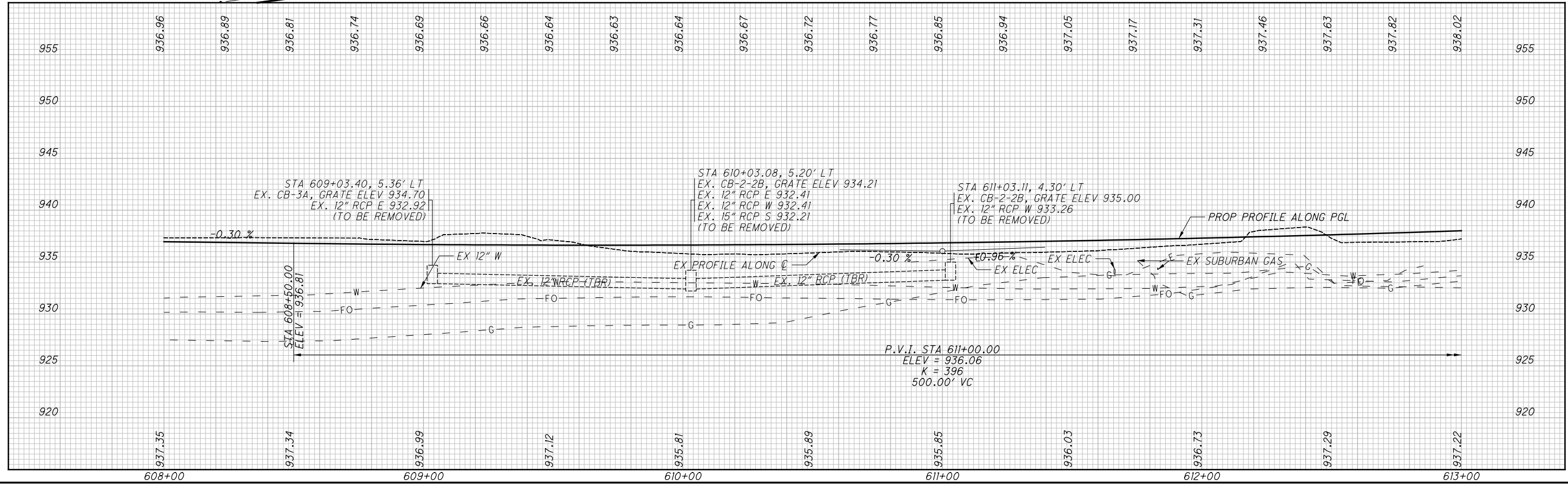
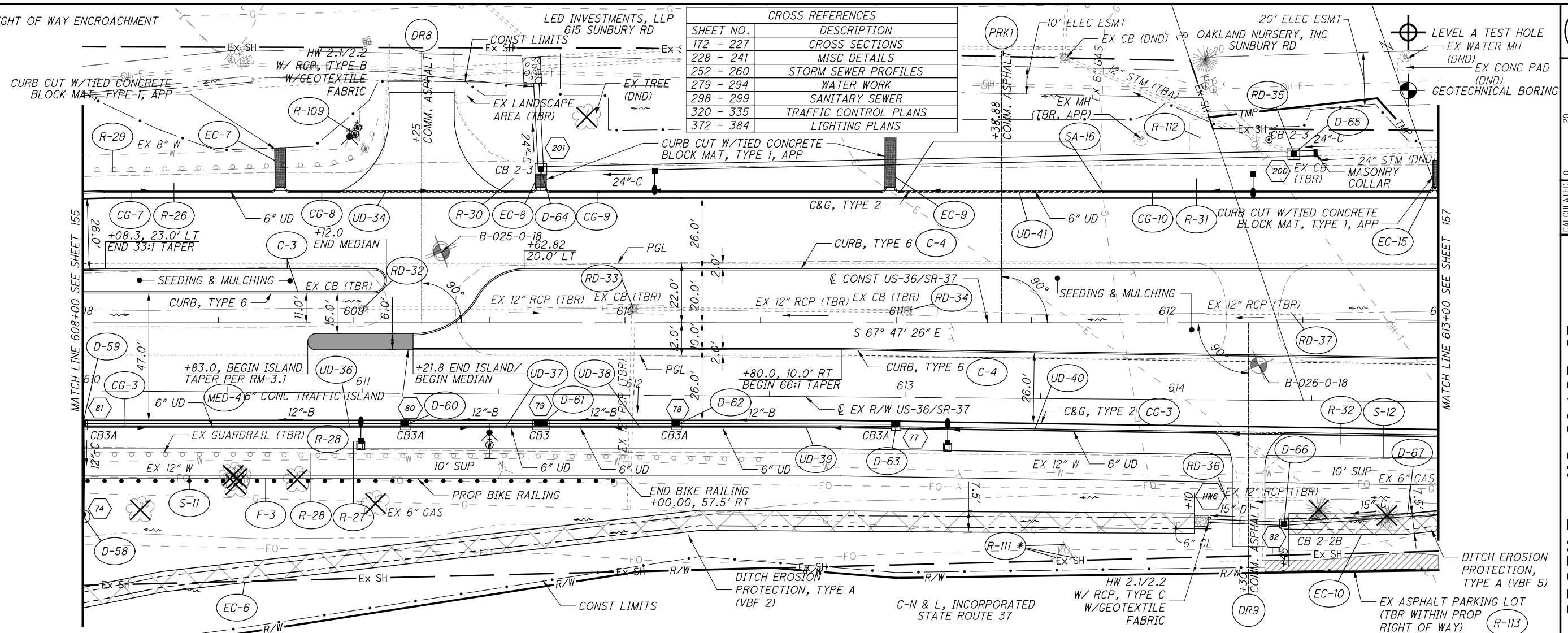
PLAN AND PROFILE - US-36 / SR-37  
 STA 603+00 TO STA 608+00

DEL-36-11.03

155  
 644

\* DENOTES RIGHT OF WAY ENCROACHMENT

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS



PLAN AND PROFILE - US-36 / SR-37  
STA 608+00 TO STA 613+00

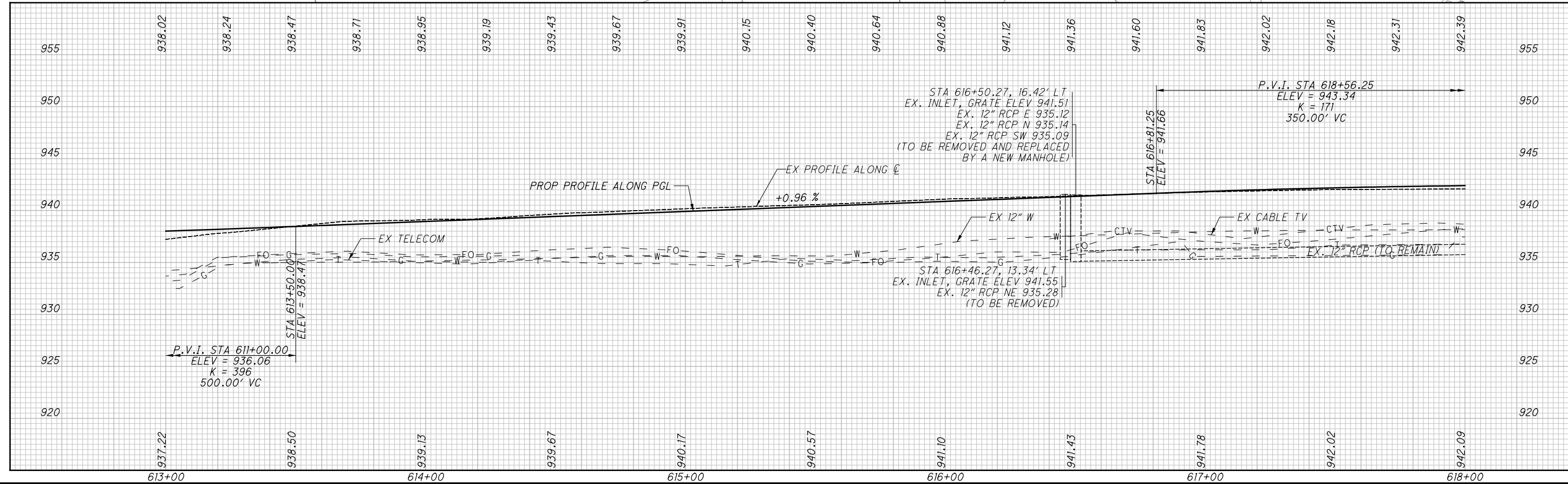
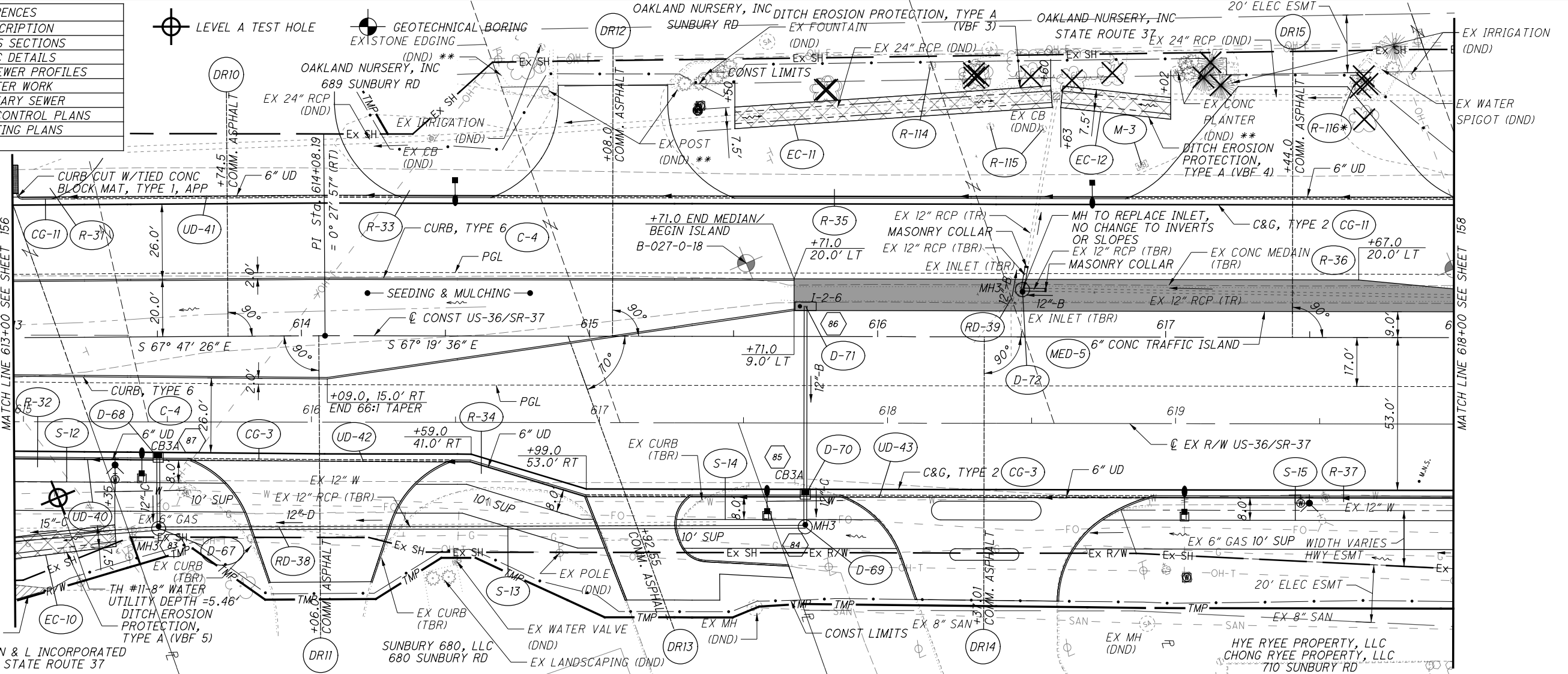
DEL-36-11.03

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CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS

\* DENOTES RIGHT OF WAY ENCROACHMENT  
 \*\* ITEMS ARE TO REMAIN PER A PERMIT FROM THE CITY OF DELAWARE THAT IS IN PROCESS.

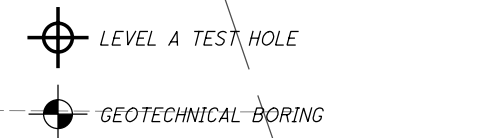
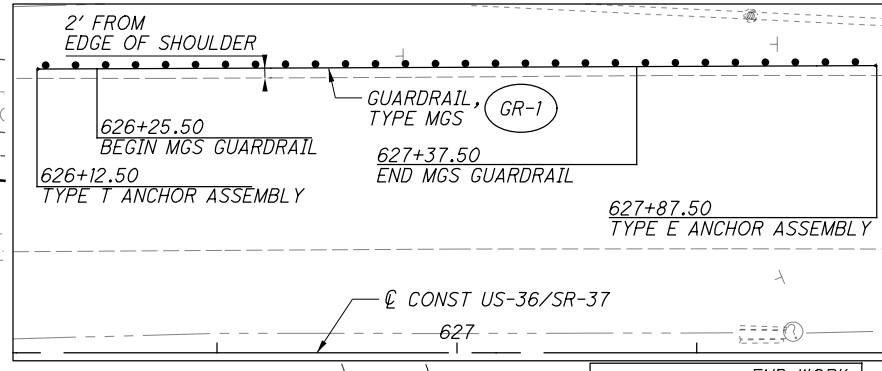
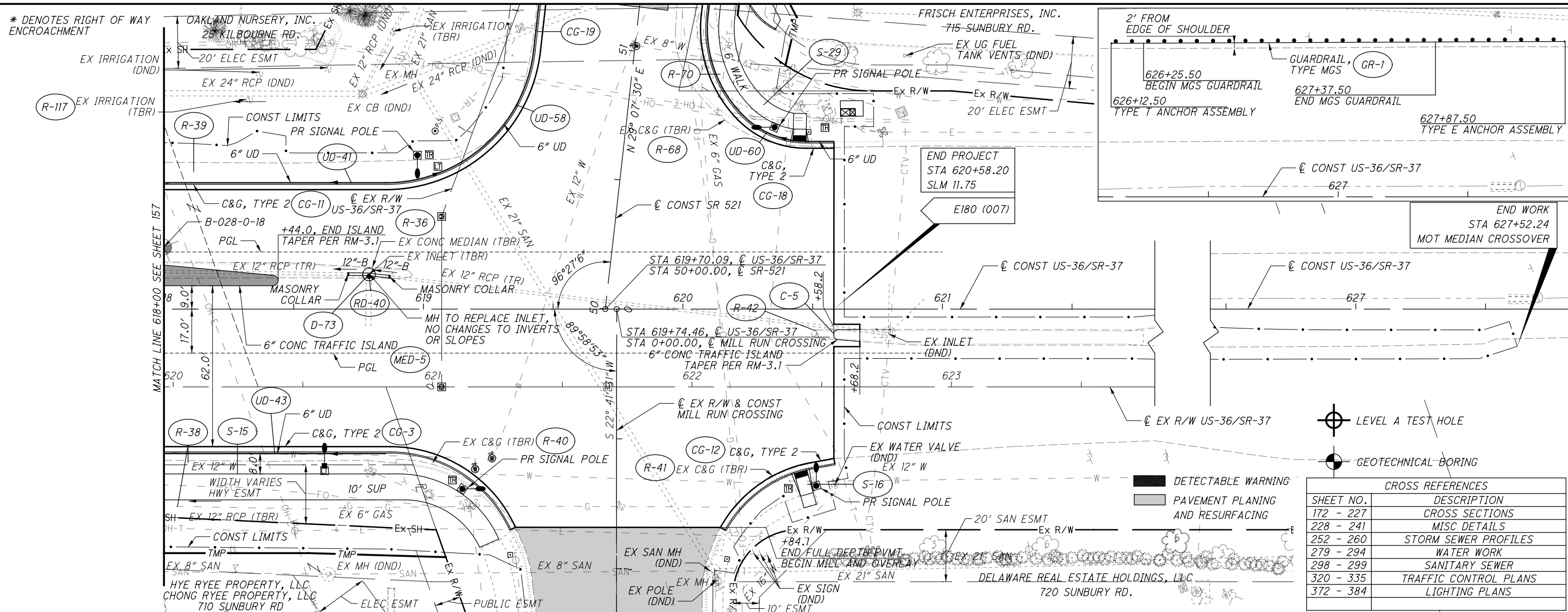


PLAN AND PROFILE - US-36 / SR-37  
 STA 613+00 TO STA 618+00

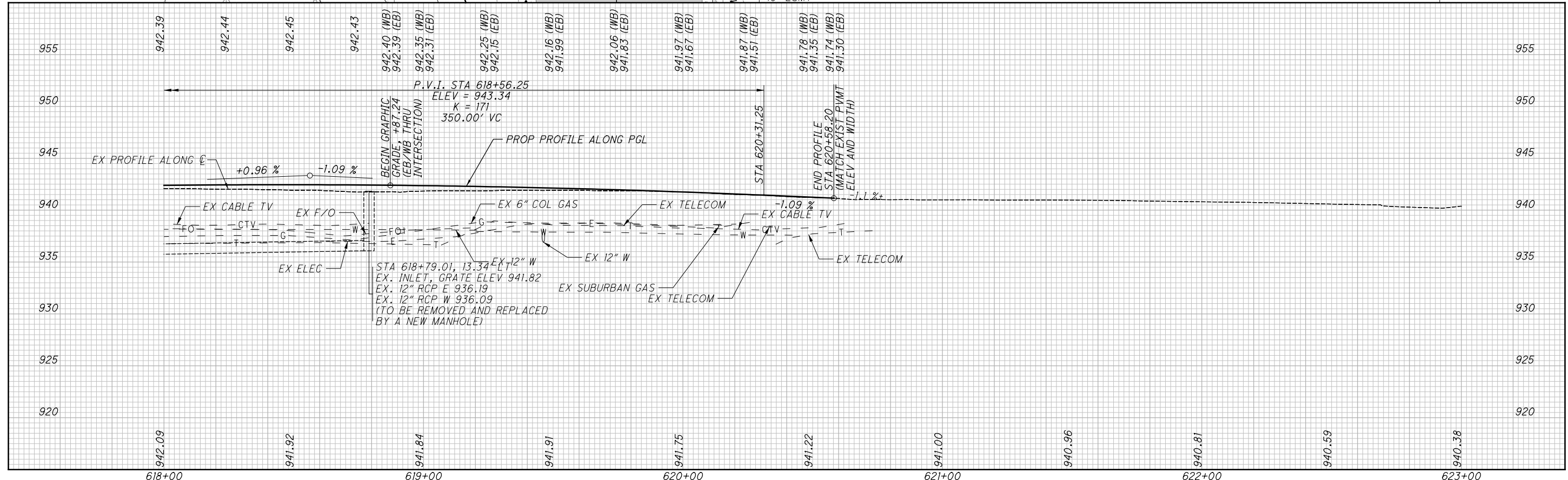
DEL-36-11.03

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\* DENOTES RIGHT OF WAY ENCROACHMENT



CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS



PLAN AND PROFILE - US-36 / SR-37  
 STA 618+00 TO STA 623+00

DEL-36-11.03

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\* DENOTES RIGHT OF WAY ENROACHMENT

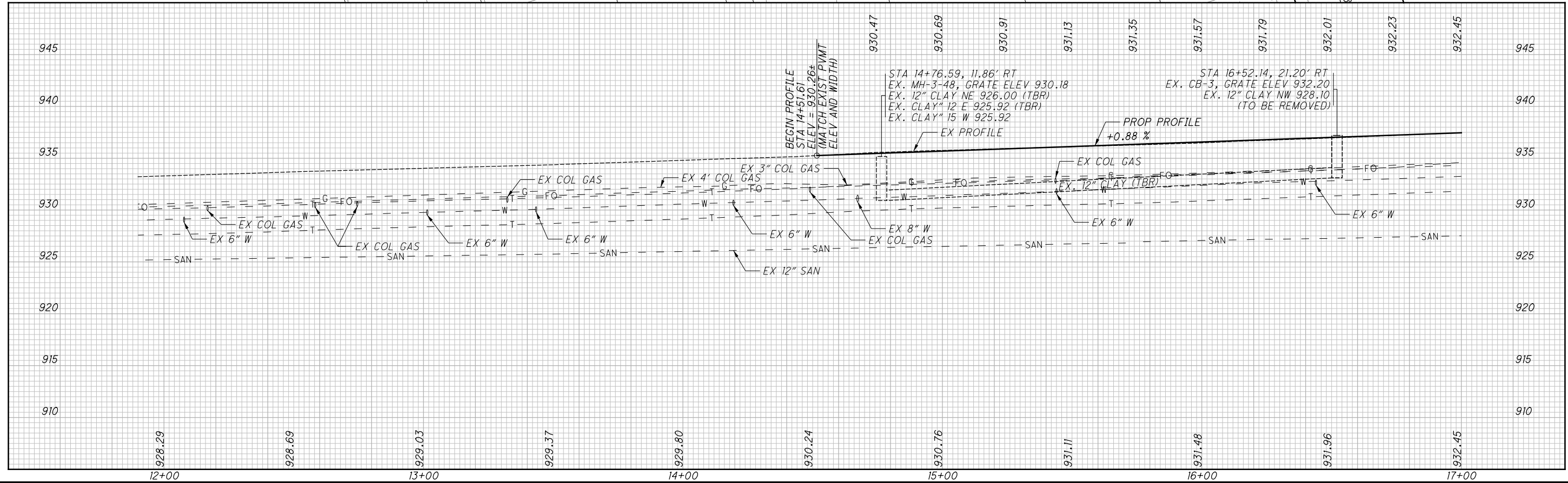
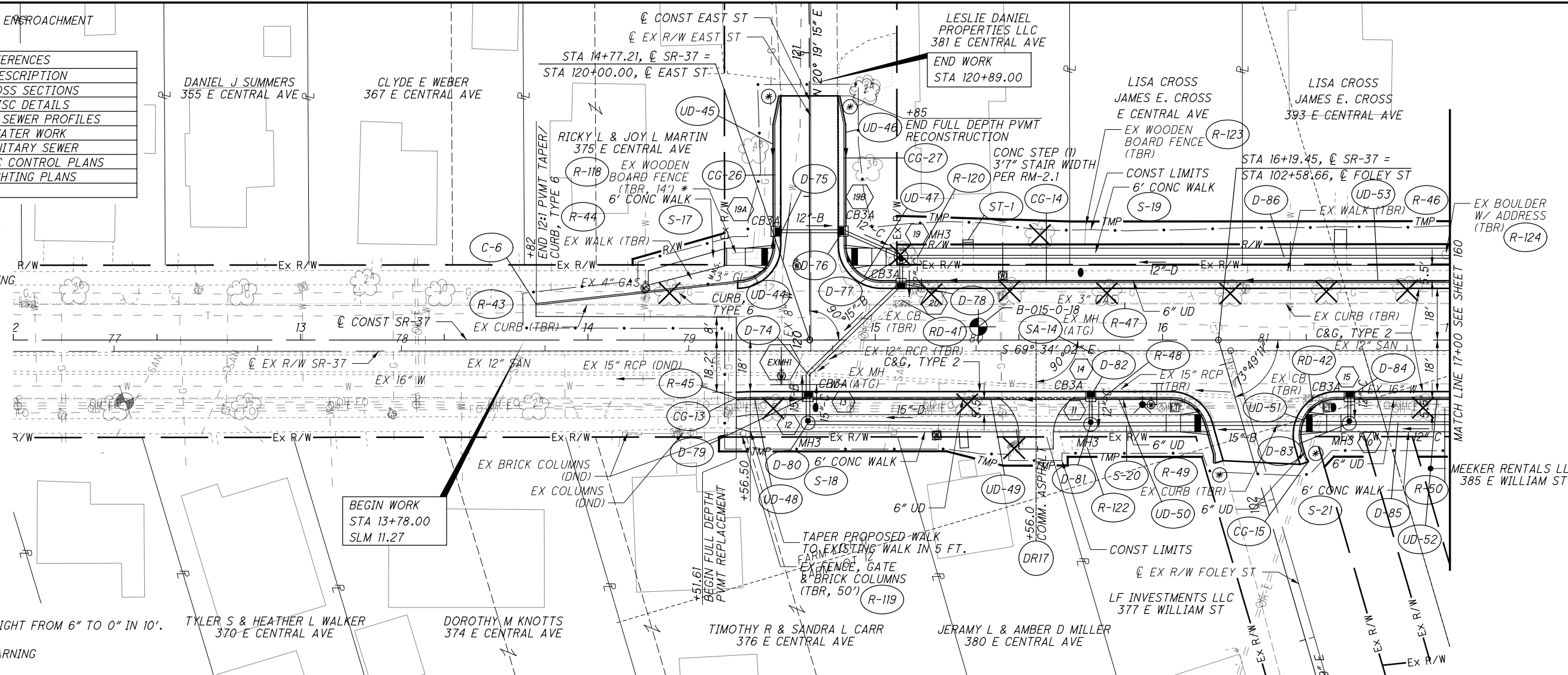
CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS

⊕ LEVEL A TEST HOLE

⊙ GEOTECHNICAL BORING

⊙ TAPER CURB HEIGHT FROM 6" TO 0" IN 10'.

■ DETECTABLE WARNING



CALCULATED PEK CHECKED DR

PLAN AND PROFILE - SR-37  
STA 12+00 TO STA 17+00

DEL-36-11.03

159  
644

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\* DENOTES RIGHT OF WAY ENCROACHMENT

LISA & JAMES E. CROSS  
393 E CENTRAL AVE

ROGER & LISA R. WEARS  
407 E CENTRAL AVE

STEPHANIE M STROMBERG  
415 E CENTRAL AVE

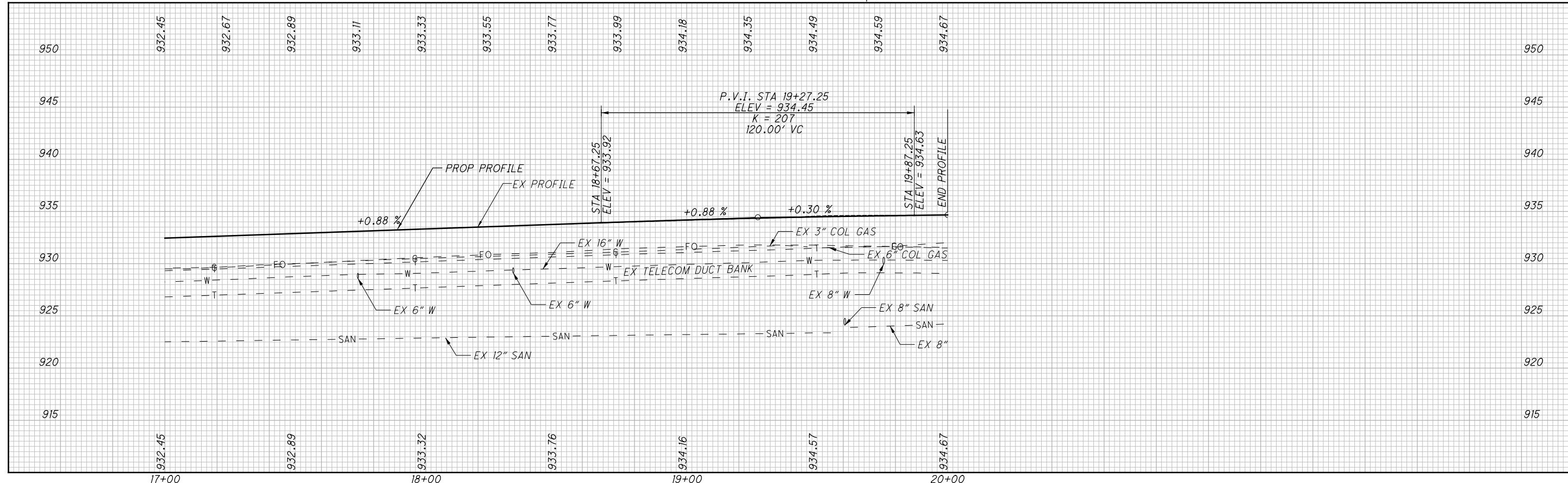
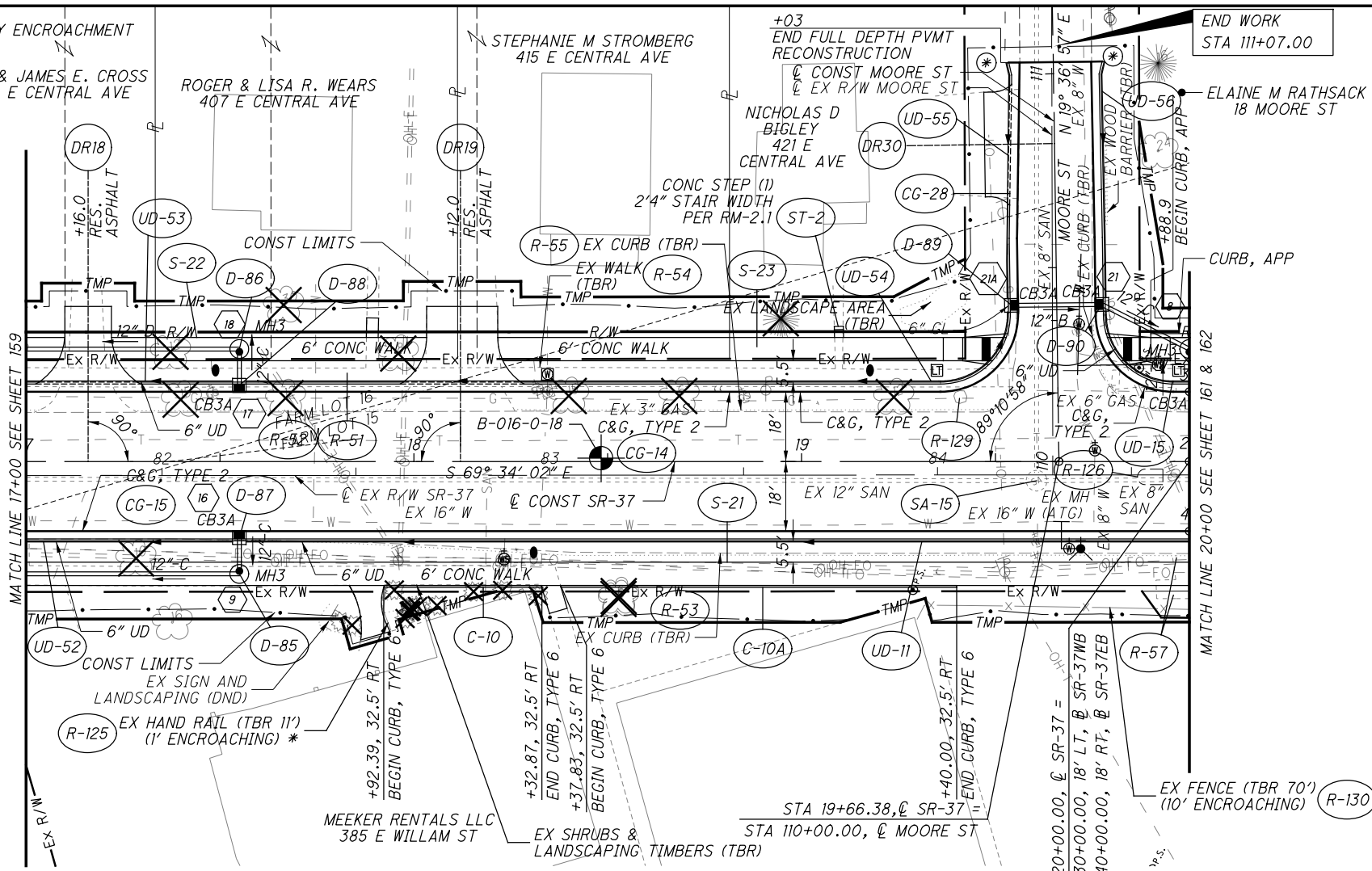
+03  
END FULL DEPTH PVMT  
RECONSTRUCTION  
CONST MOORE ST  
EX R/W MOORE ST

END WORK  
STA 111+07.00

ELAINE M RATHSACK  
18 MOORE ST

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS

- ⊗ TAPER CURB HEIGHT FROM 6" TO 0" IN 10'.
- DETECTABLE WARNING
- ⊕ LEVEL A TEST HOLE
- ⊙ GEOTECHNICAL BORING



**PLAN AND PROFILE - SR-37**  
**SR-37 STA 17+00 TO STA 20+00.00**

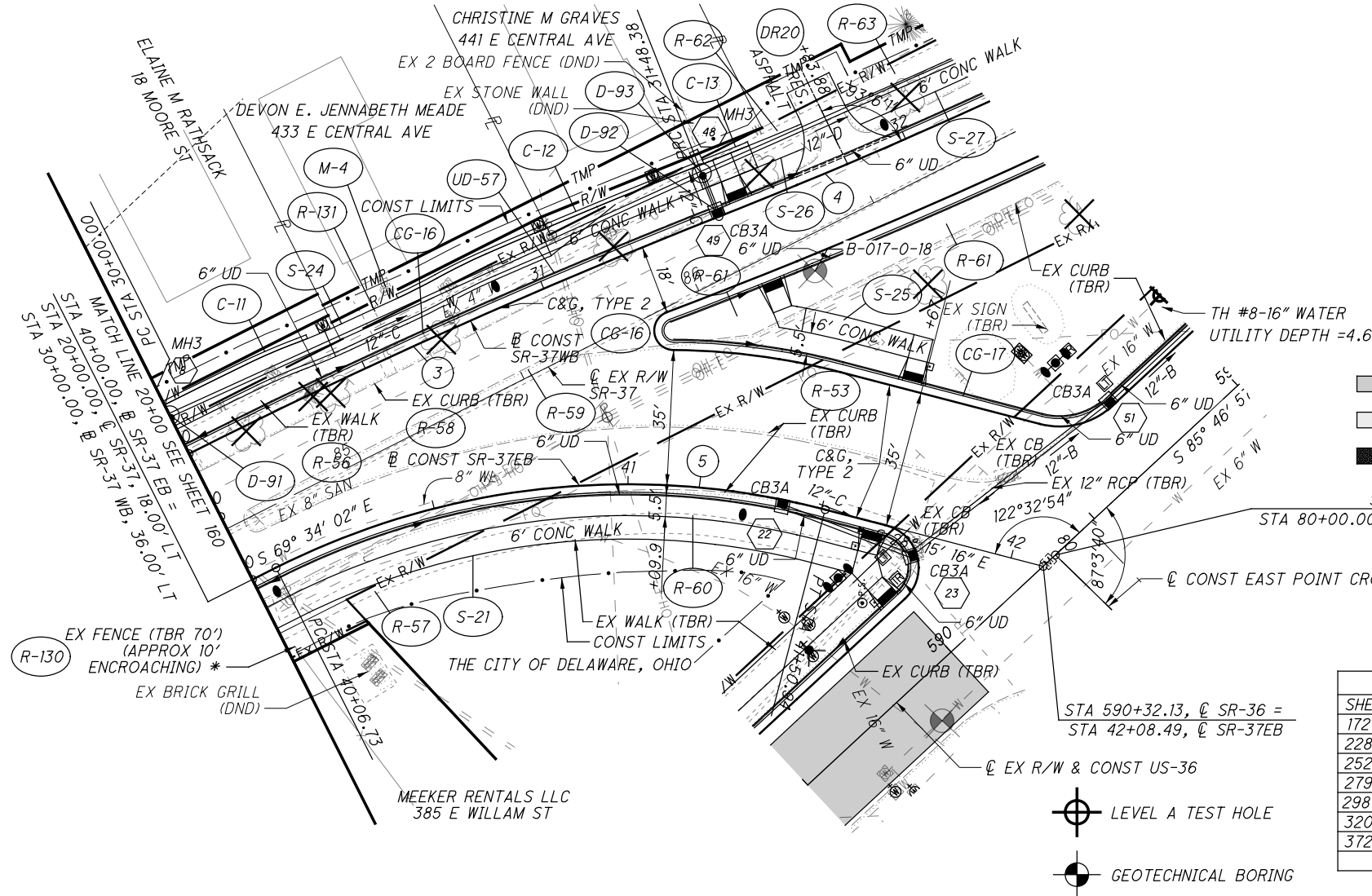
**DEL-36-11.03**  
 160  
 644

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\* DENOTES RIGHT OF WAY ENCROACHMENT

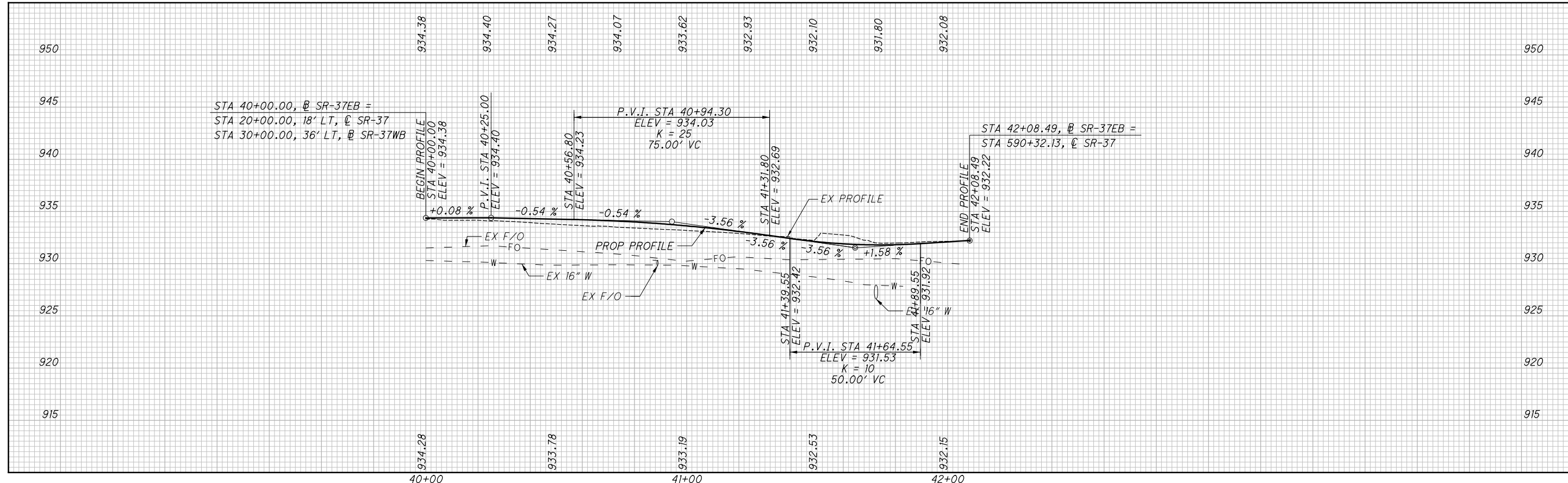
- 3 @ CONST SR-37EB  
 P.I. Sta. 30+74.24  
 $\Delta = 5^\circ 09' 20''$  (RT)  
 $D_c = 3^\circ 28' 28''$   
 $R = 1,649.00'$   
 $T = 74.24'$   
 $L = 148.38'$   
 $E = 1.67'$   
 $C = 148.33'$   
 C.B. = S 66° 59' 22" E
- 4 @ CONST SR-37EB  
 P.I. Sta. 33+68.32  
 $\Delta = 17^\circ 44' 18''$  (LT)  
 $D_c = 4^\circ 03' 55''$   
 $R = 1,409.44'$   
 $T = 219.94'$   
 $L = 436.35'$   
 $E = 17.06'$   
 $C = 434.61'$   
 C.B. = S 73° 16' 51" E
- 5 @ CONST SR-37EB  
 P.I. Sta. 40+82.13  
 $\Delta = 41^\circ 18' 46''$  (RT)  
 $D_c = 28^\circ 38' 52''$   
 $R = 200.00'$   
 $T = 75.40'$   
 $L = 144.21'$   
 $E = 13.74'$   
 $C = 141.10'$   
 C.B. = S 48° 54' 39" E



- PAVEMENT PLANING AND RESURFACING
- ASPHALT CONCRETE SURFACE COURSE, APP
- DETECTABLE WARNING

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS

- LEVEL A TEST HOLE
- GEOTECHNICAL BORING



PLAN AND PROFILE - SR-37 EB  
 DUAL LEFT STA 40+00 TO STA 42+08.49  
 DEL-36-11.03  
 161  
 644

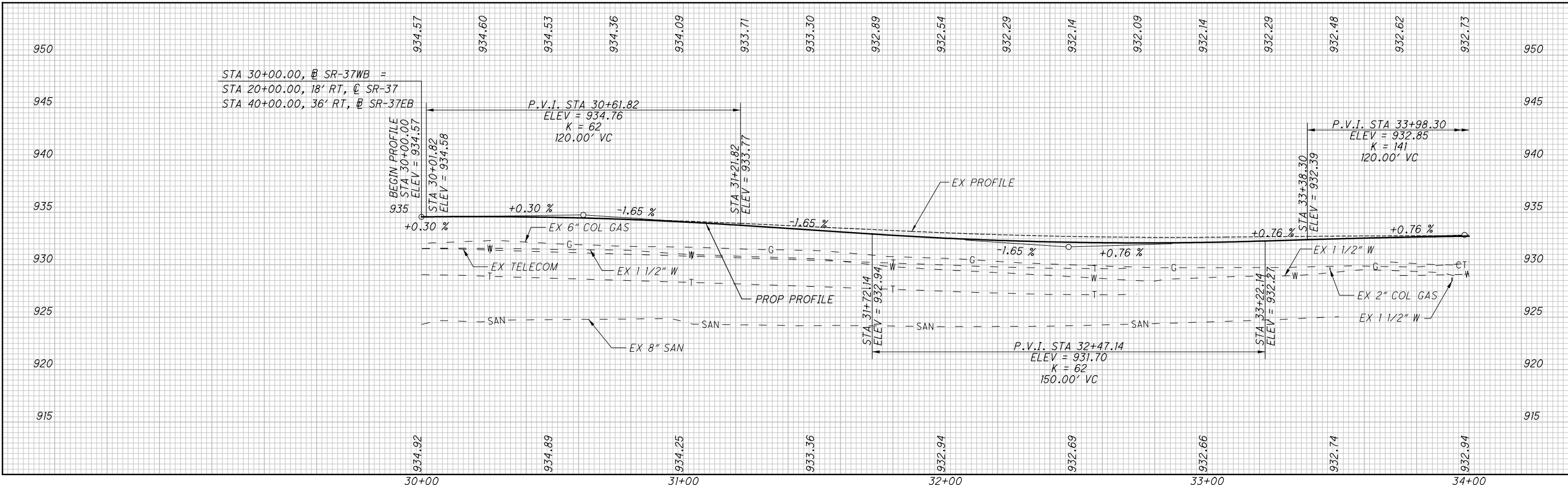
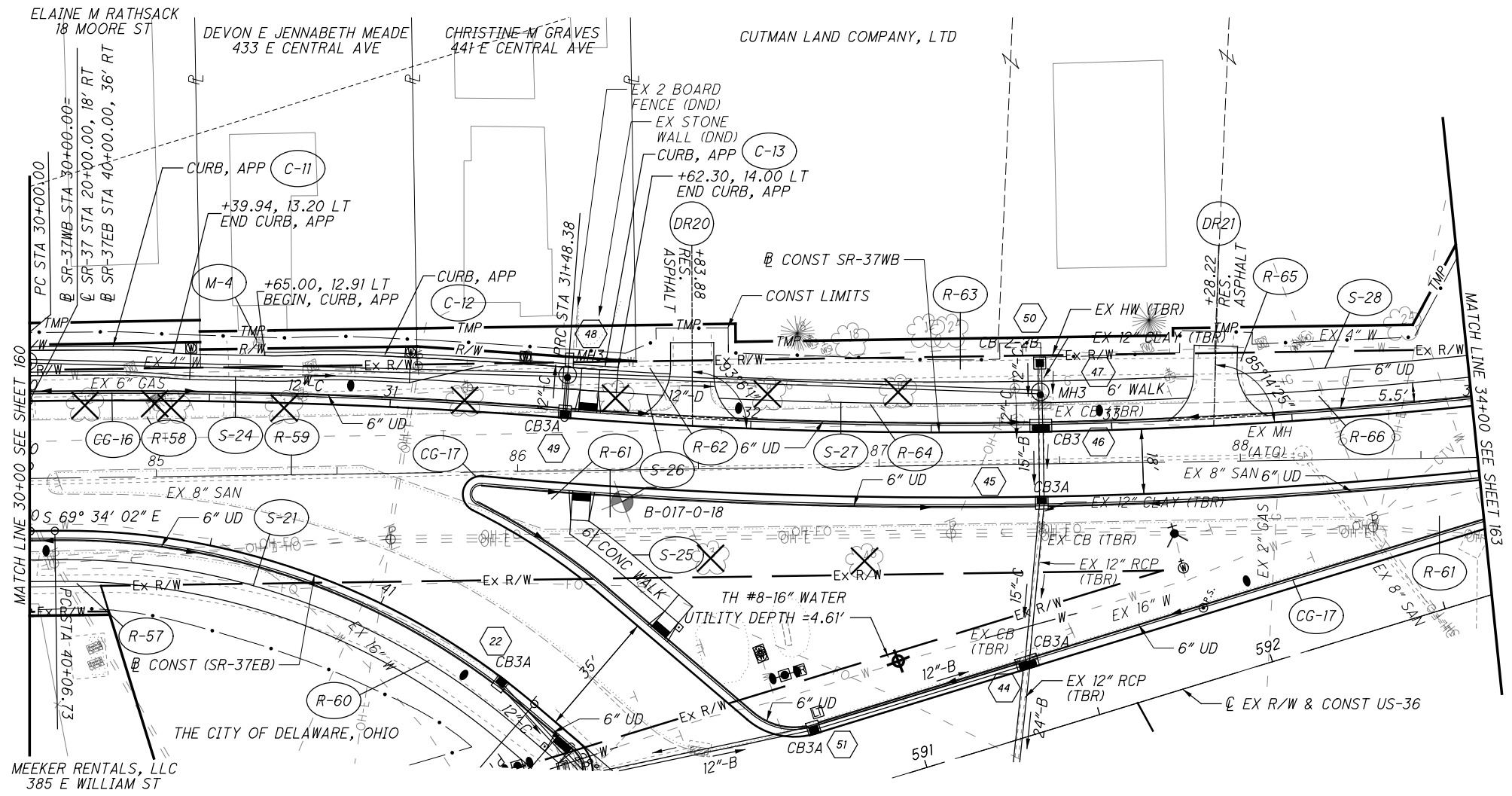
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3 **CONST**  
CENTRAL AVE (SR-37WB)  
P.I.Sta. 30+74.24  
 $\Delta = 5^\circ 09' 20''$  (RT)  
 $D_c = 3^\circ 28' 28''$   
 $R = 1,649.00'$   
 $T = 74.24'$   
 $L = 148.38'$   
 $E = 1.67'$   
 $C = 148.33'$   
 $C.B. = S 66^\circ 59' 22'' E$

3 P.I.Sta. 33+68.32  
 $\Delta = 17^\circ 44' 18''$  (LT)  
 $D_c = 4^\circ 03' 55''$   
 $R = 1,409.44'$   
 $T = 219.94'$   
 $L = 436.35'$   
 $E = 17.06'$   
 $C = 434.61'$   
 $C.B. = S 73^\circ 16' 51'' E$

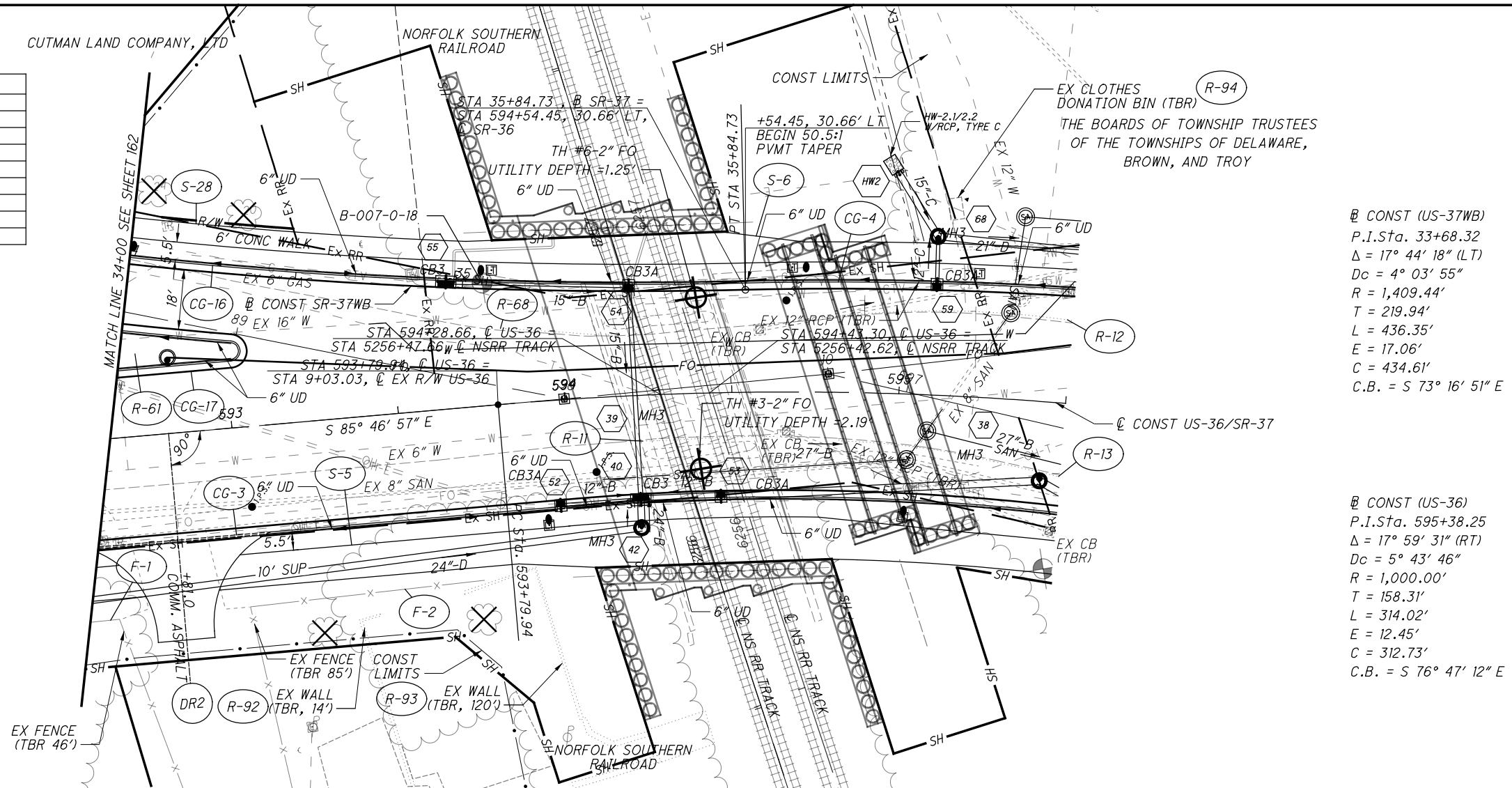
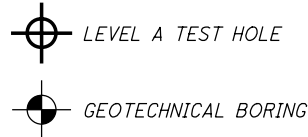
CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS

- ASPHALT CONCRETE SURFACE COURSE, APP
- DETECTABLE WARNING
- LEVEL A TEST HOLE
- GEOTECHNICAL BORING



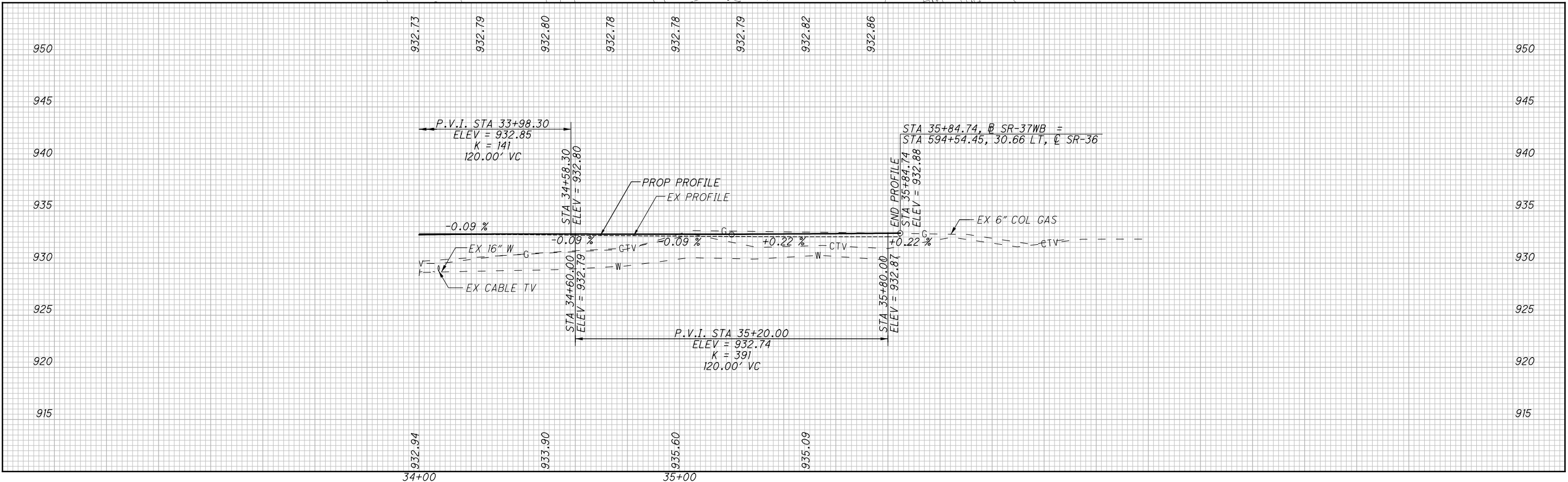
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CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS



@ CONST (US-37WB)  
 P.I. Sta. 33+68.32  
 $\Delta = 17^\circ 44' 18''$  (LT)  
 $D_c = 4^\circ 03' 55''$   
 $R = 1,409.44'$   
 $T = 219.94'$   
 $L = 436.35'$   
 $E = 17.06'$   
 $C = 434.61'$   
 $C.B. = S 73^\circ 16' 51'' E$

@ CONST (US-36)  
 P.I. Sta. 595+38.25  
 $\Delta = 17^\circ 59' 31''$  (RT)  
 $D_c = 5^\circ 43' 46''$   
 $R = 1,000.00'$   
 $T = 158.31'$   
 $L = 314.02'$   
 $E = 12.45'$   
 $C = 312.73'$   
 $C.B. = S 76^\circ 47' 12'' E$



**PLAN AND PROFILE - SR-37 WB**  
**STA 34+00 TO STA 35+84.74**

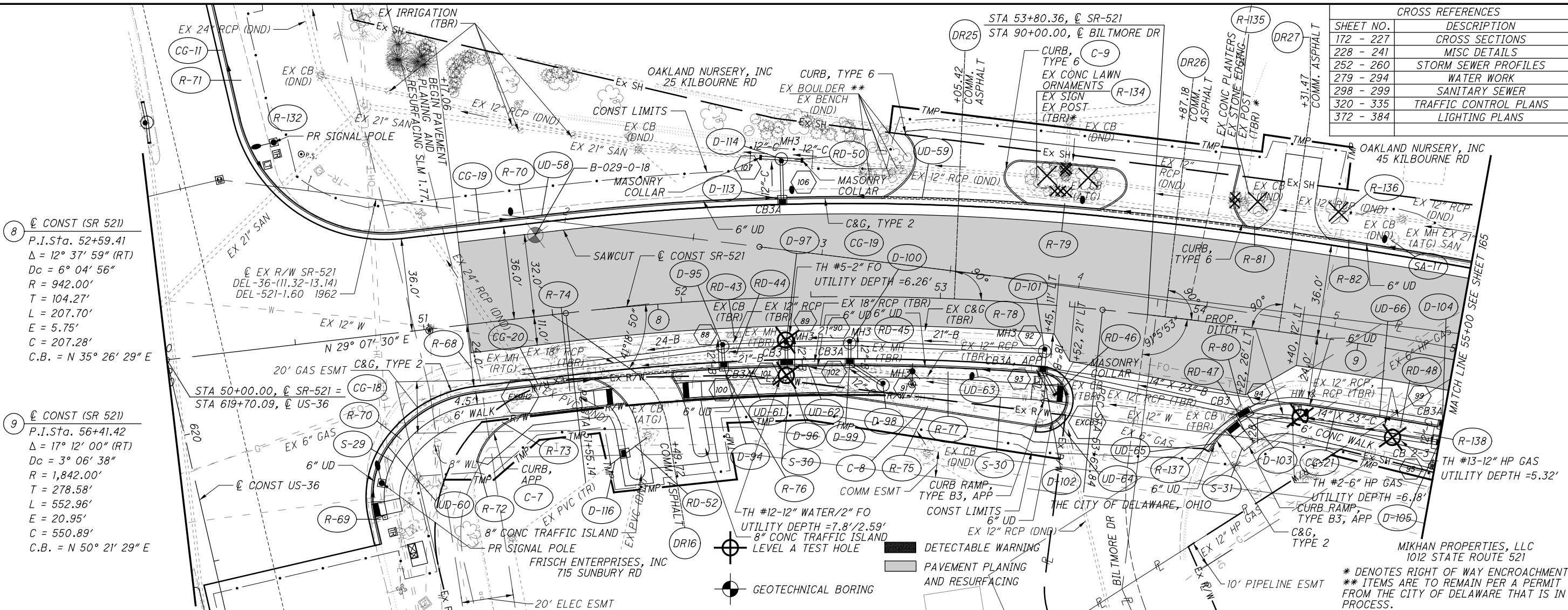
**DEL-36-11.03**

163  
 644

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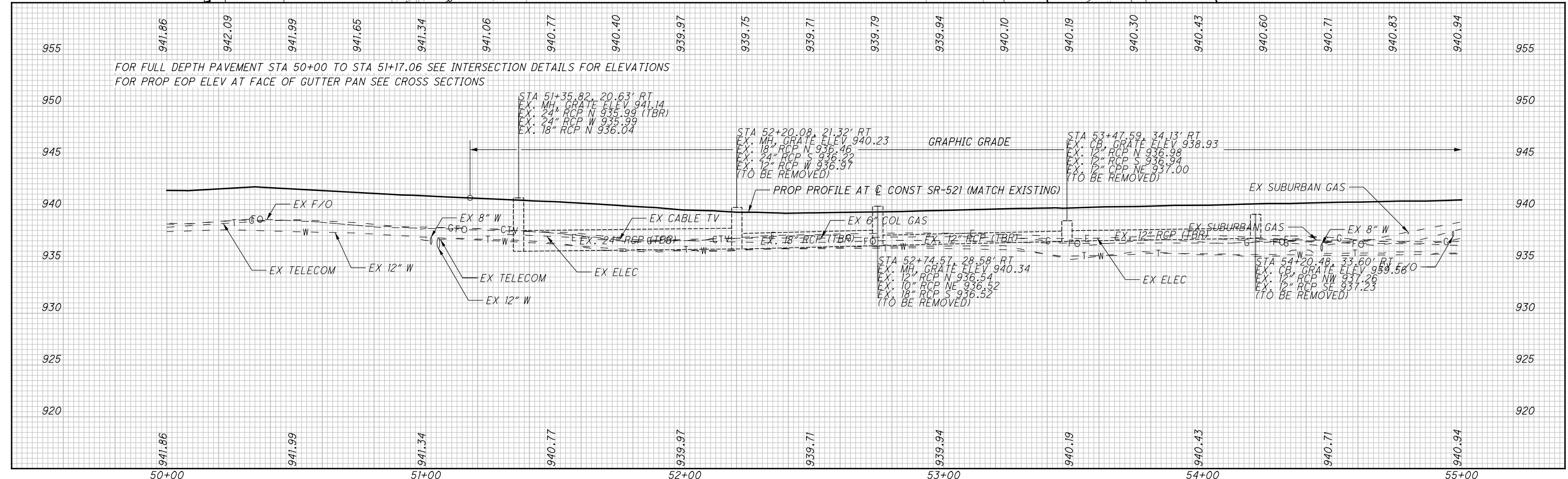
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CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS



8  $\curvearrowright$  CONST (SR 521)  
 P.I.Sta. 52+59.41  
 $\Delta = 12^\circ 37' 59''$  (RT)  
 $D_c = 6^\circ 04' 56''$   
 $R = 942.00'$   
 $T = 104.27'$   
 $L = 207.70'$   
 $E = 5.75'$   
 $C = 207.28'$   
 $C.B. = N 35^\circ 26' 29'' E$

9  $\curvearrowright$  CONST (SR 521)  
 P.I.Sta. 56+41.42  
 $\Delta = 17^\circ 12' 00''$  (RT)  
 $D_c = 3^\circ 06' 38''$   
 $R = 1,842.00'$   
 $T = 278.58'$   
 $L = 552.96'$   
 $E = 20.95'$   
 $C = 550.89'$   
 $C.B. = N 50^\circ 21' 29'' E$



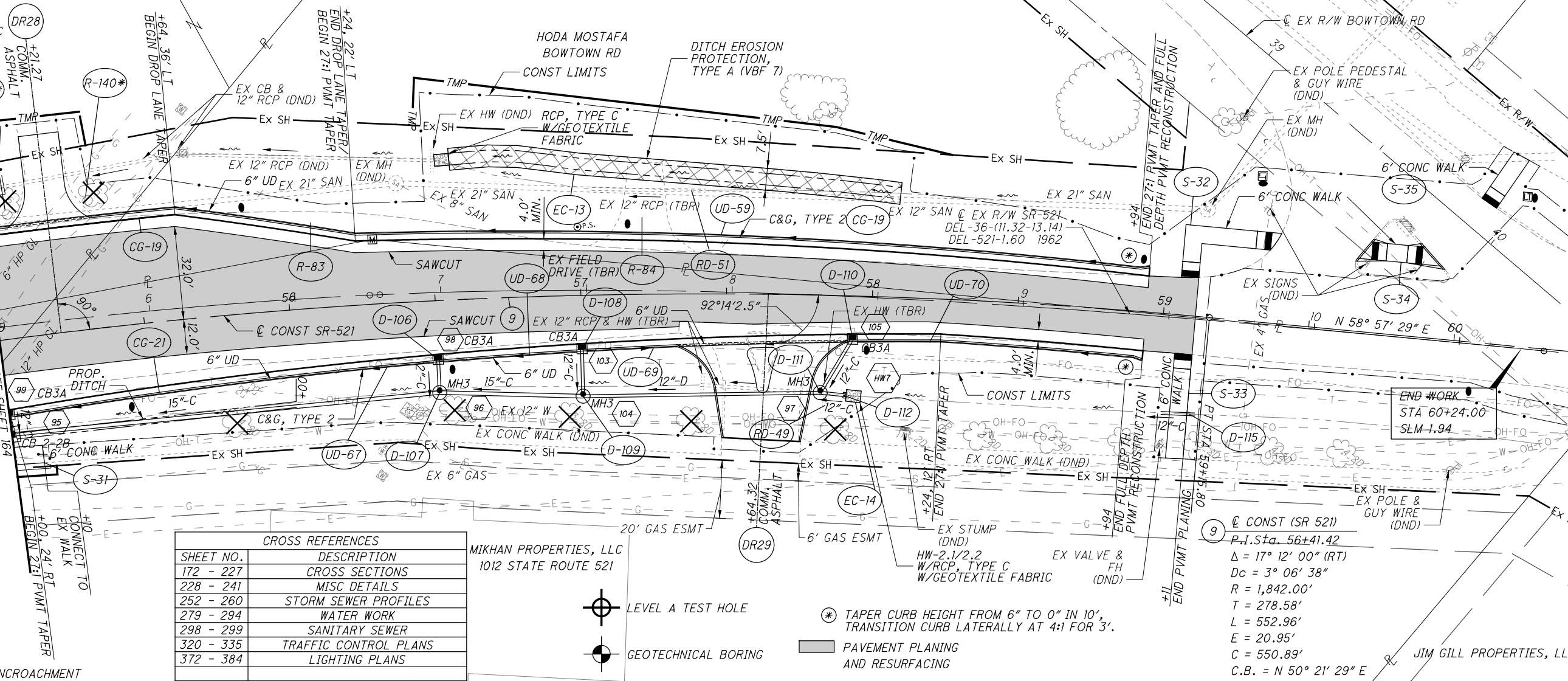
**PLAN AND PROFILE - SR-521**  
**STA 50+00 TO STA 55+00**

**DEL-36-11.03**

164  
 644

\* DENOTES RIGHT OF WAY ENCROACHMENT  
 \*\* ITEMS ARE TO REMAIN PER A PERMIT FROM THE CITY OF DELAWARE THAT IS IN PROCESS.

OAKLAND NURSERY, INC  
45 KILBOURNE RD



CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS

MIKHAN PROPERTIES, LLC  
1012 STATE ROUTE 521



LEVEL A TEST HOLE



GEOTECHNICAL BORING

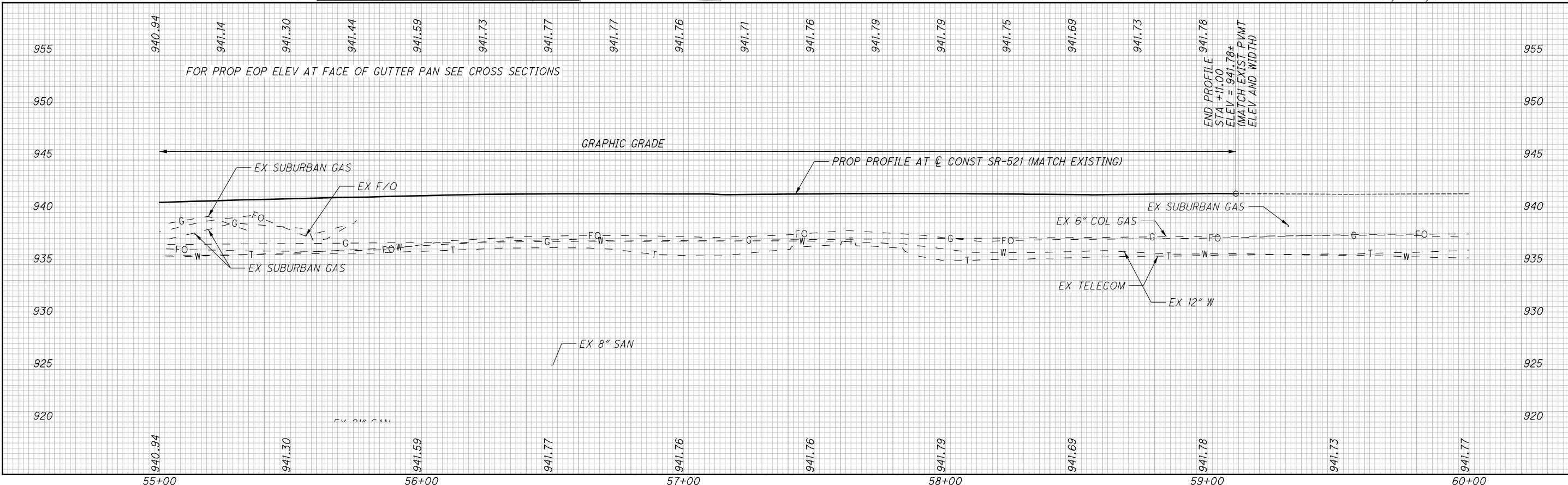
\* TAPER CURB HEIGHT FROM 6" TO 0" IN 10',  
TRANSITION CURB Laterally AT 4:1 FOR 3'.

PAVEMENT PLANING  
AND RESURFACING

CONST (SR 521)  
P.I. Sta. 56+41.42  
 $\Delta = 17^{\circ} 12' 00''$  (RT)  
 $D_c = 3^{\circ} 06' 38''$   
 $R = 1,842.00'$   
 $T = 278.58'$   
 $L = 552.96'$   
 $E = 20.95'$   
 $C = 550.89'$   
C.B. = N 50° 21' 29" E

JIM GILL PROPERTIES, LLC

\* DENOTES RIGHT OF WAY ENCROACHMENT



CALCULATED  
PEK  
CHECKED  
DR

PLAN AND PROFILE - SR-521  
STA 55+00 TO STA 60+00

DEL-36-11.03

165  
644

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\* DENOTES RIGHT OF WAY ENCROACHMENT

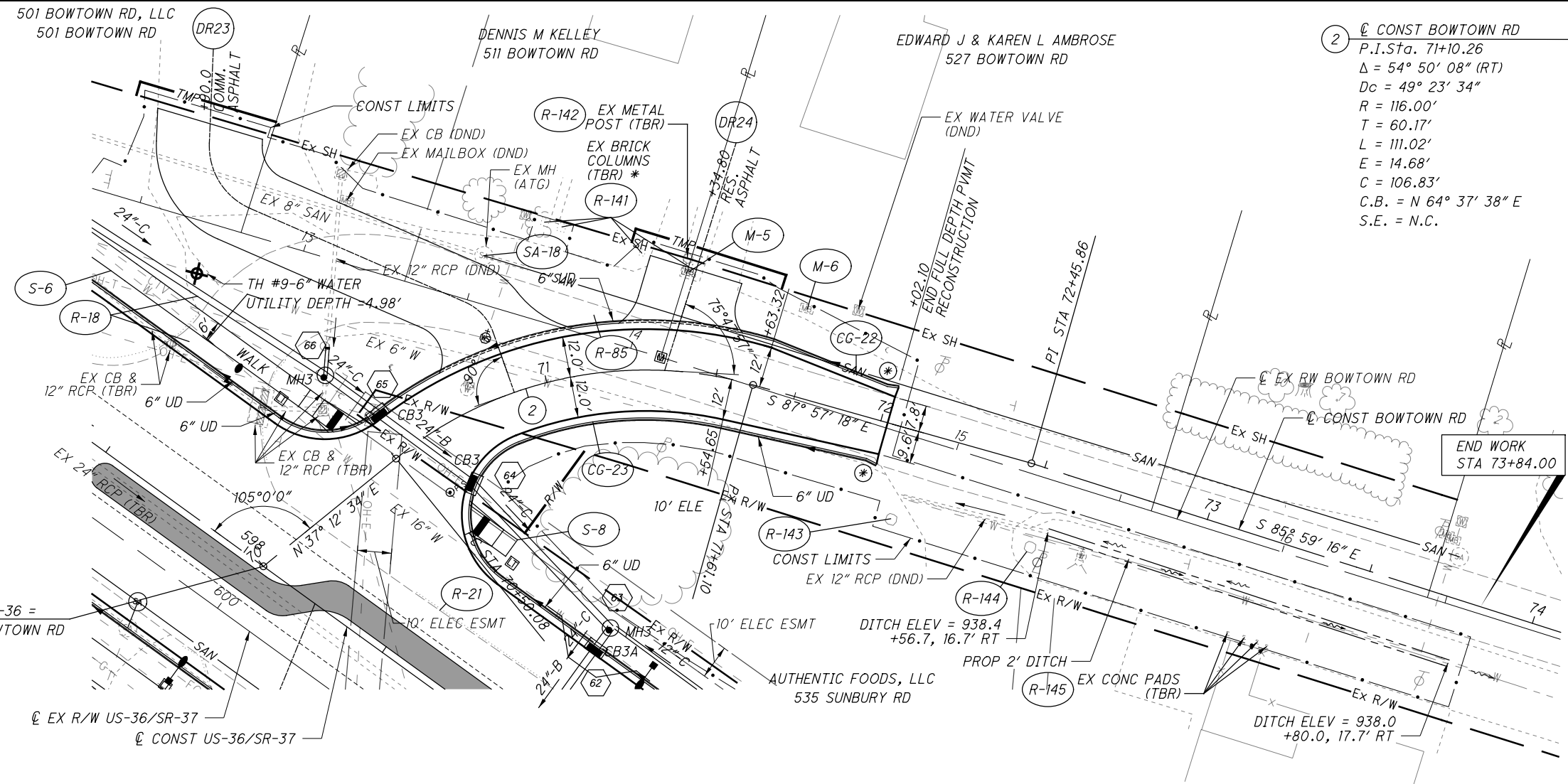
CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS

\* TAPER CURB HEIGHT FROM 6" TO 0" IN 10',  
TRANSITION CURB LATERALLY AT 4:1 FOR 3'.

■ DETECTABLE WARNING

⊕ LEVEL A TEST HOLE

⊙ GEOTECHNICAL BORING



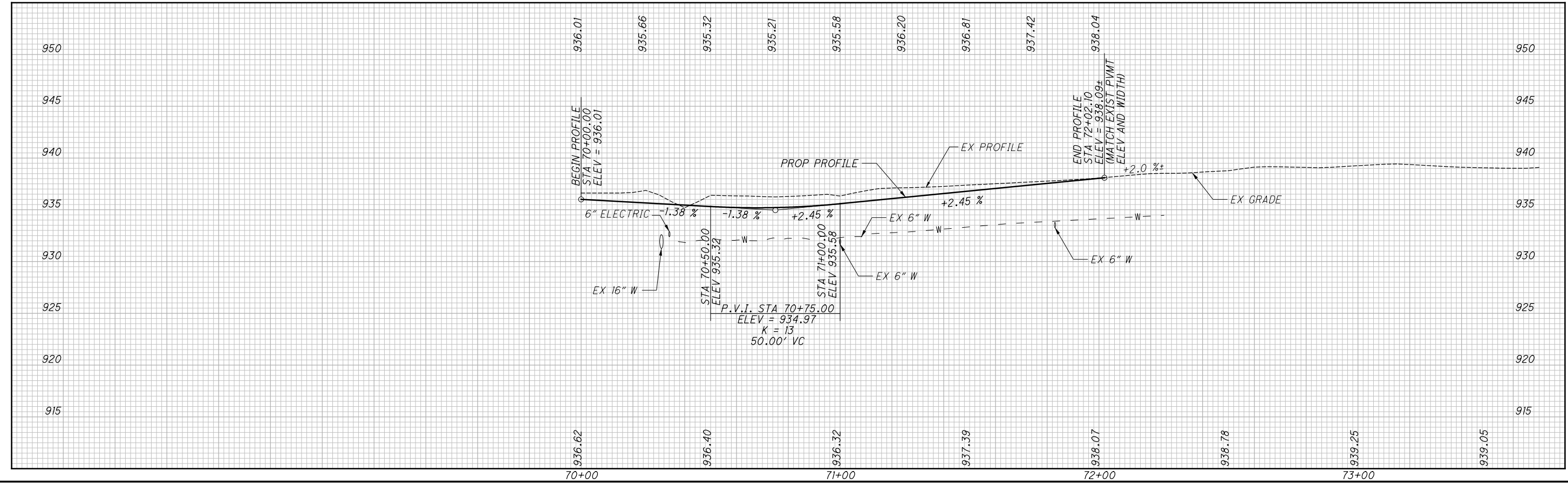
②  $\hat{C}$  CONST BOWTOWN RD  
P.I. Sta. 71+10.26  
 $\Delta = 54^\circ 50' 08''$  (RT)  
 $D_c = 49^\circ 23' 34''$   
 $R = 116.00'$   
 $T = 60.17'$   
 $L = 111.02'$   
 $E = 14.68'$   
 $C = 106.83'$   
C.B. = N  $64^\circ 37' 38''$  E  
S.E. = N.C.



PLAN AND PROFILE - BOWTOWN RD  
STA 70+00 TO 74+00

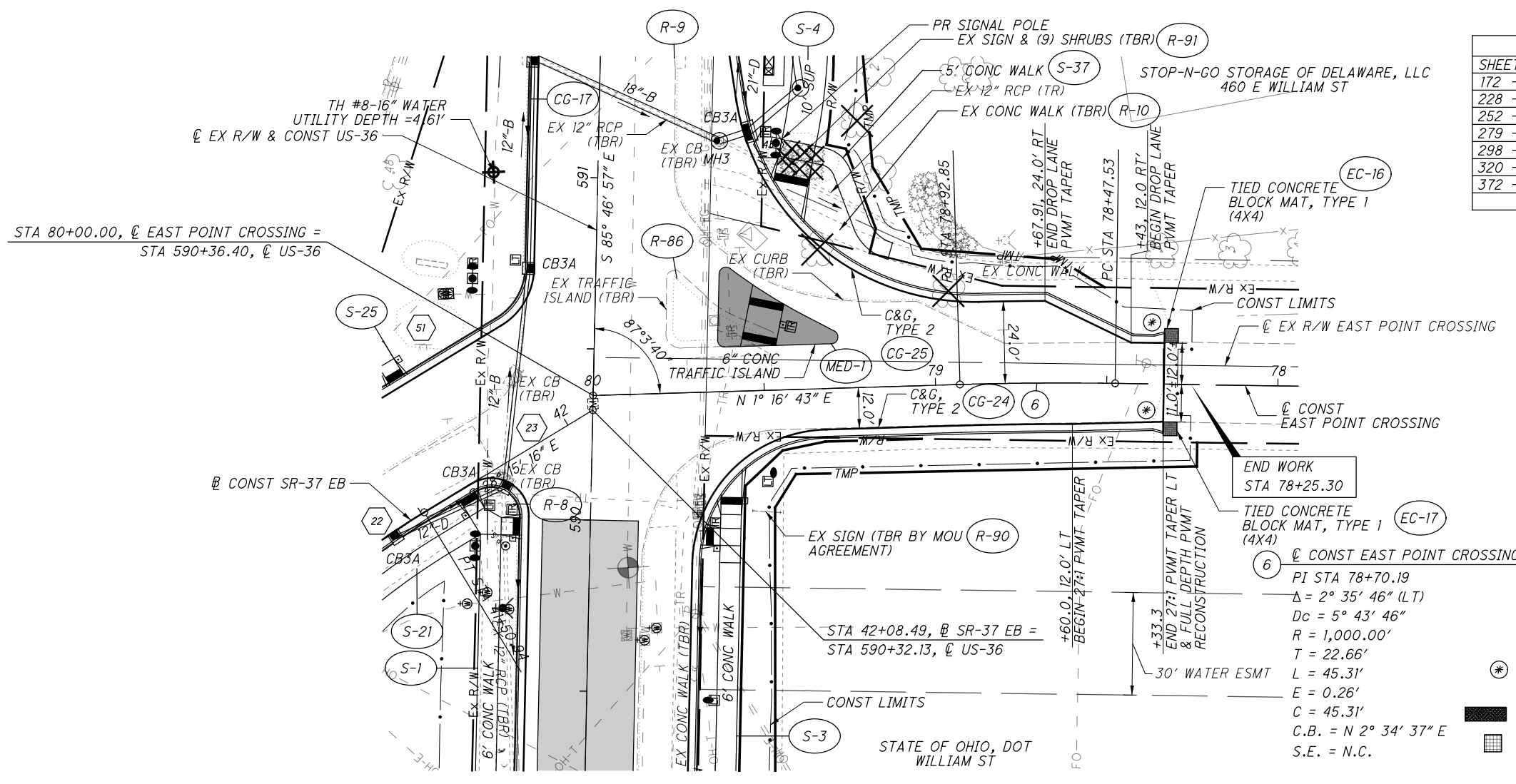
DEL-36-11.03

166  
644

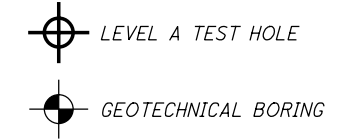


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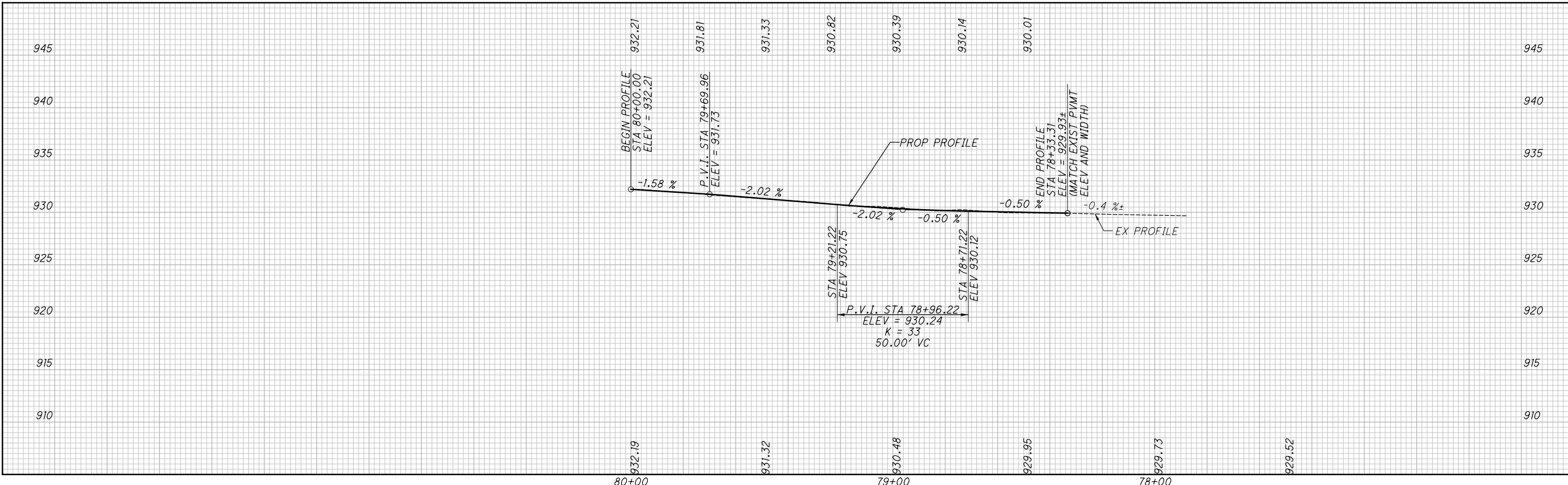
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CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS



- ⊙ TAPER CURB HEIGHT FROM 6" TO 0" IN 10', TRANSITION CURB Laterally AT 4:1 FOR 3'.
- DETECTABLE WARNING
- ▣ TIED CONCRETE BLOCK MAT, TYPE 1

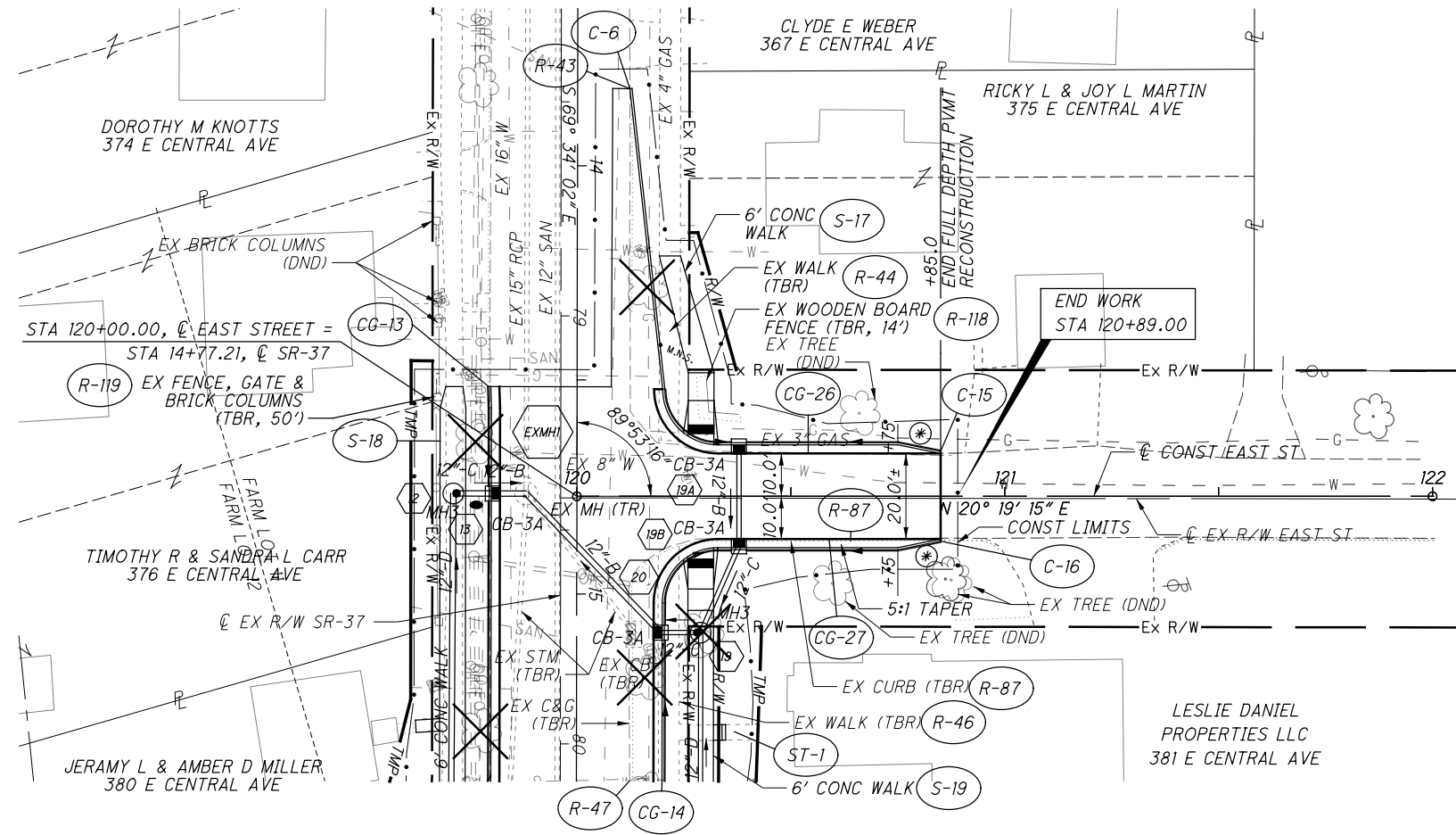


**PLAN AND PROFILE - EAST POINT CROSSING**  
**STA 78+00 TO STA 80+00**

**DEL-36-11.03**

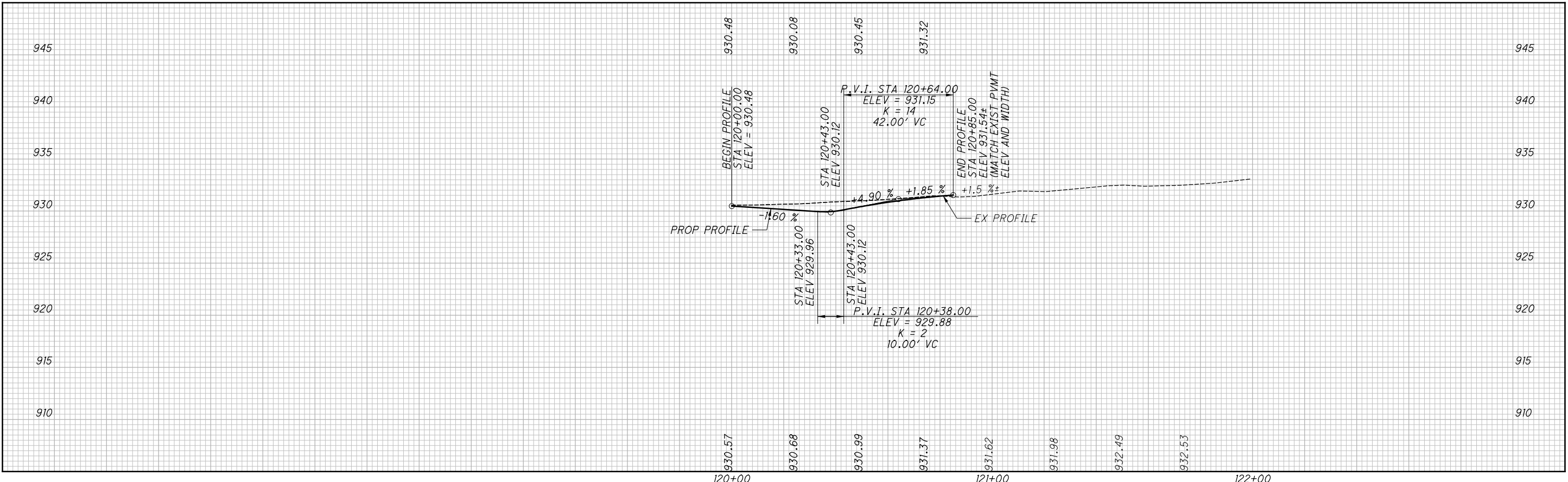
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644

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CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS

- LEVEL A TEST HOLE
- GEOTECHNICAL BORING
- DETECTABLE WARNING
- TAPER CURB HEIGHT FROM 6" TO 0" IN 10'.

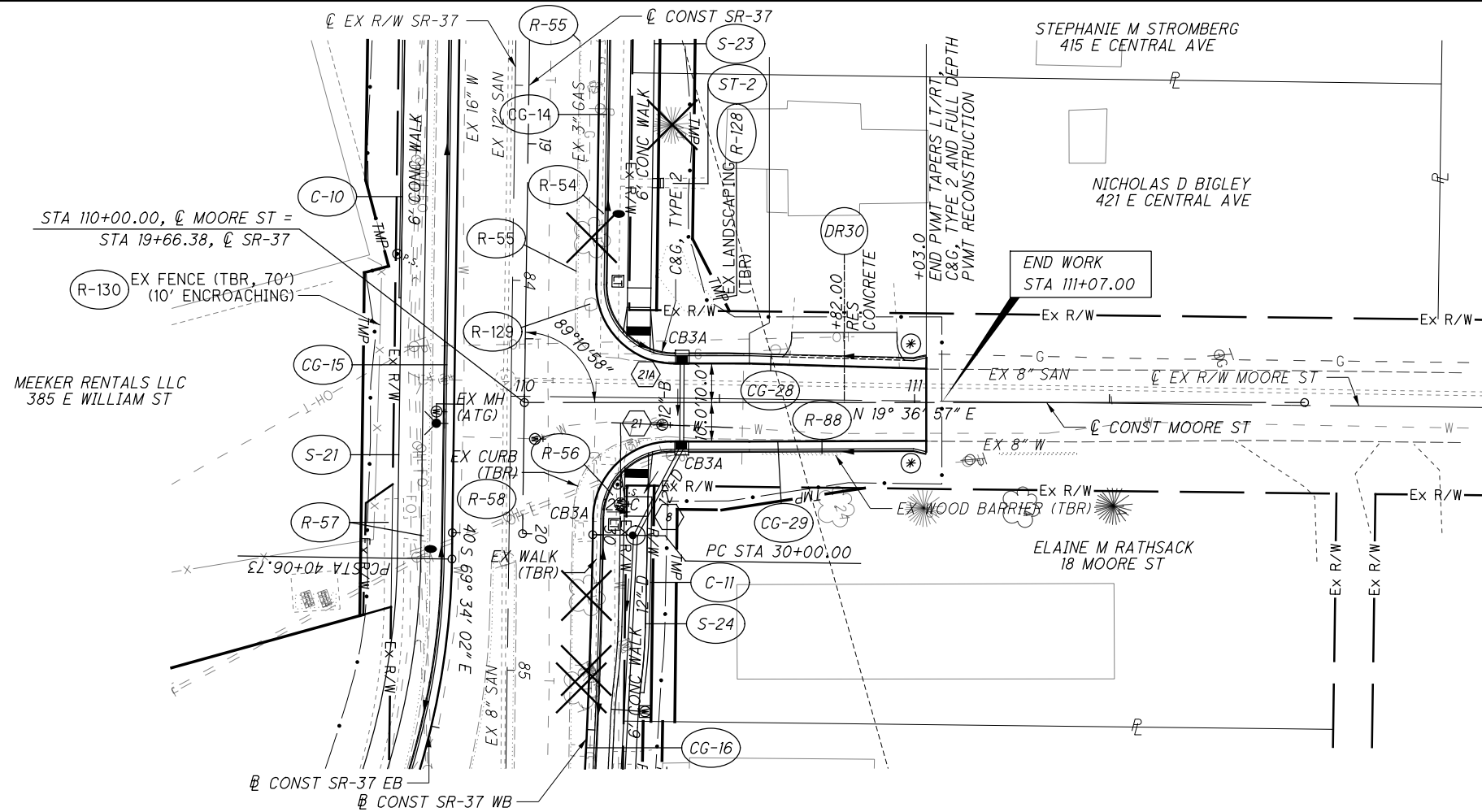


**PLAN AND PROFILE - EAST STREET  
 STA 120+00 TO STA 122+00**

**DEL-36-11.03**

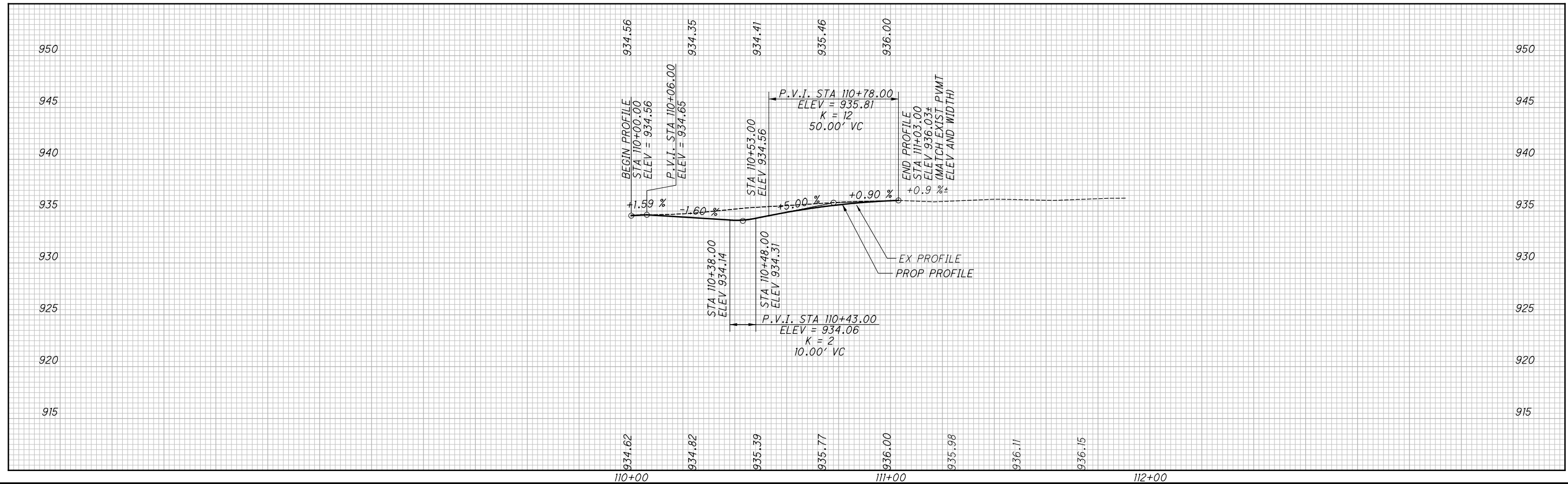


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CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS

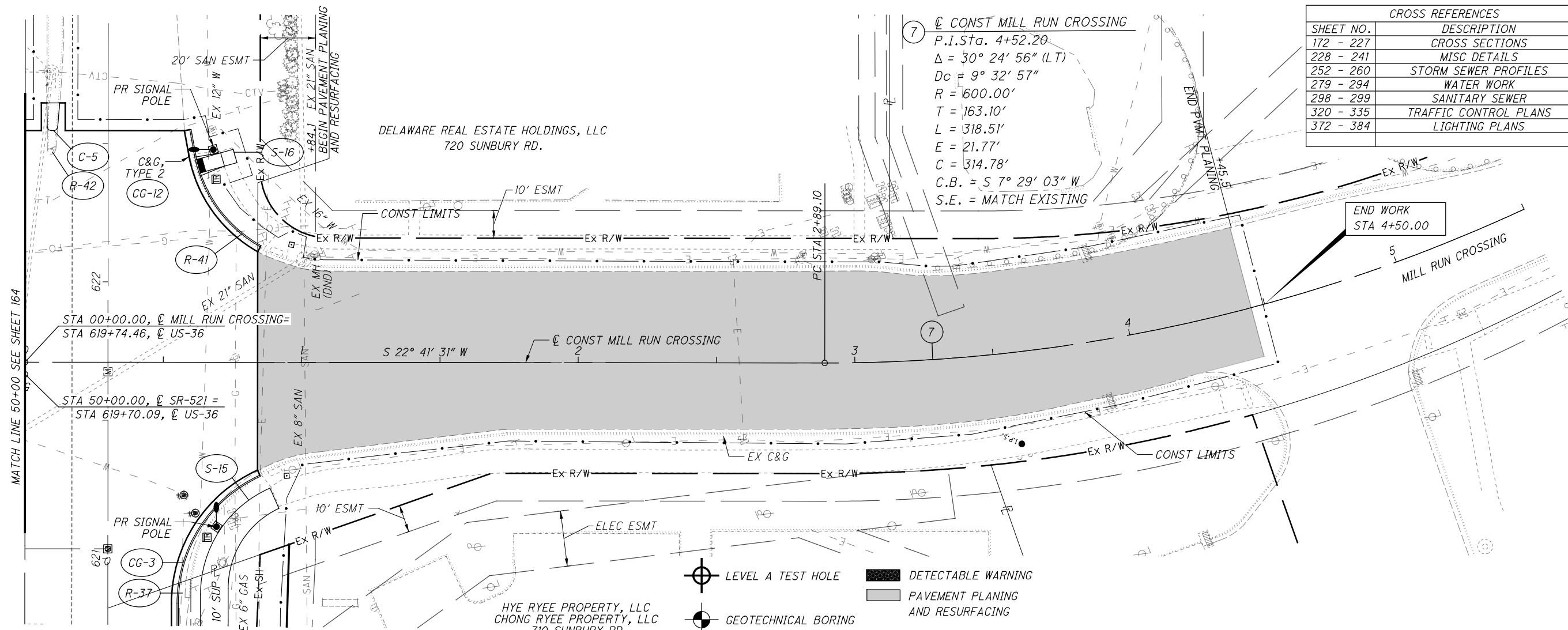
- LEVEL A TEST HOLE
- GEOTECHNICAL BORING
- ASPHALT CONCRETE SURFACE COURSE, APP
- DETECTABLE WARNING
- TAPER CURB HEIGHT FROM 6" TO 0" IN 10', TRANSITION CURB LATERALLY AT 4:1 FOR 3'.



**PLAN AND PROFILE - MOORE STREET  
STA 110+00 TO STA 112+00**

**DEL-36-11.03**

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CROSS REFERENCES	
SHEET NO.	DESCRIPTION
172 - 227	CROSS SECTIONS
228 - 241	MISC DETAILS
252 - 260	STORM SEWER PROFILES
279 - 294	WATER WORK
298 - 299	SANITARY SEWER
320 - 335	TRAFFIC CONTROL PLANS
372 - 384	LIGHTING PLANS



**PLAN AND PROFILE - MILL RUN CROSSING**  
**STA 00+00 TO STA 5+50**

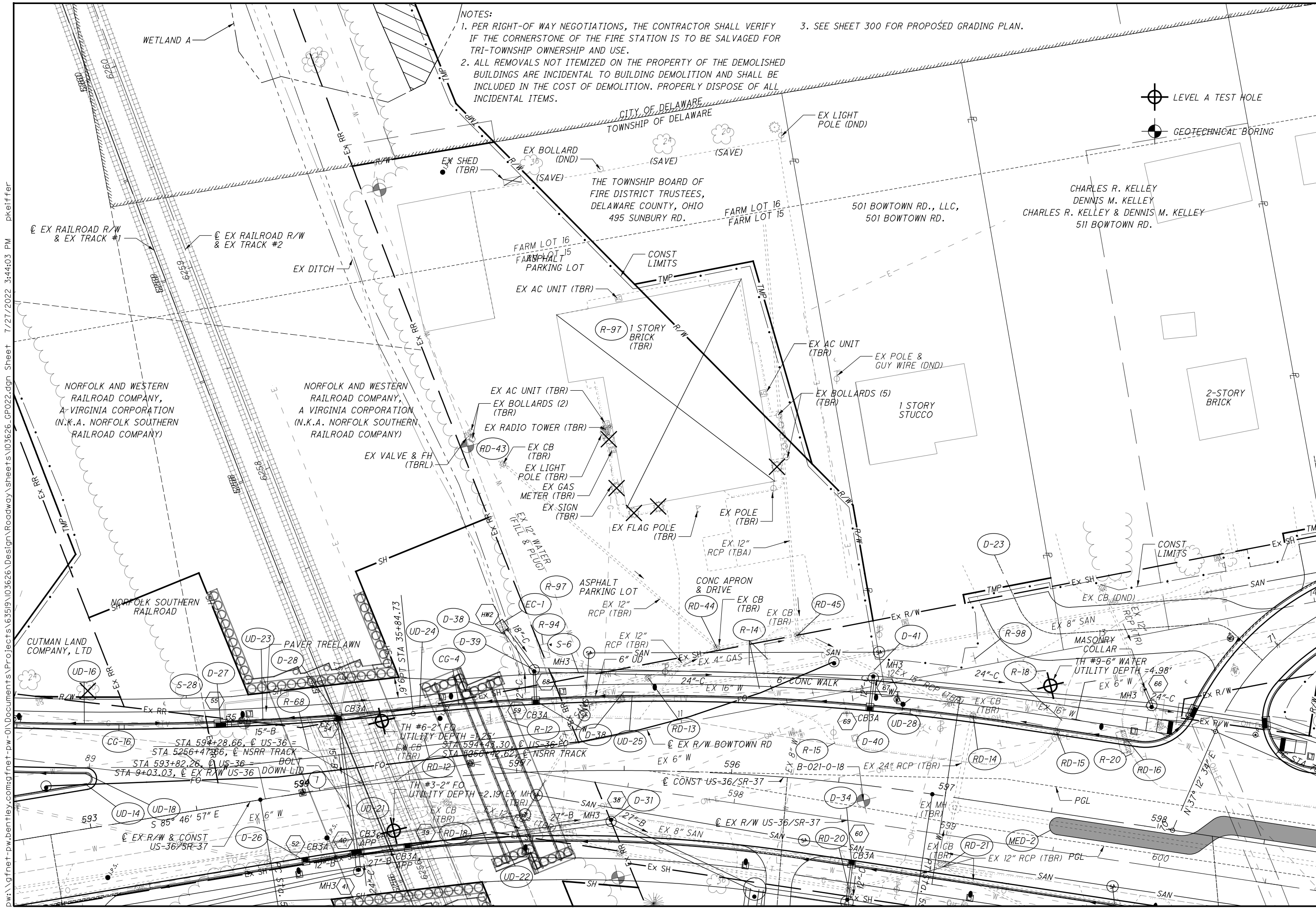
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NOTES:

1. PER RIGHT-OF WAY NEGOTIATIONS, THE CONTRACTOR SHALL VERIFY IF THE CORNERSTONE OF THE FIRE STATION IS TO BE SALVAGED FOR TRI-TOWNSHIP OWNERSHIP AND USE.
2. ALL REMOVALS NOT ITEMIZED ON THE PROPERTY OF THE DEMOLISHED BUILDINGS ARE INCIDENTAL TO BUILDING DEMOLITION AND SHALL BE INCLUDED IN THE COST OF DEMOLITION. PROPERLY DISPOSE OF ALL INCIDENTAL ITEMS.
3. SEE SHEET 300 FOR PROPOSED GRADING PLAN.

CALCULATED  
TOD  
CHECKED  
PRS

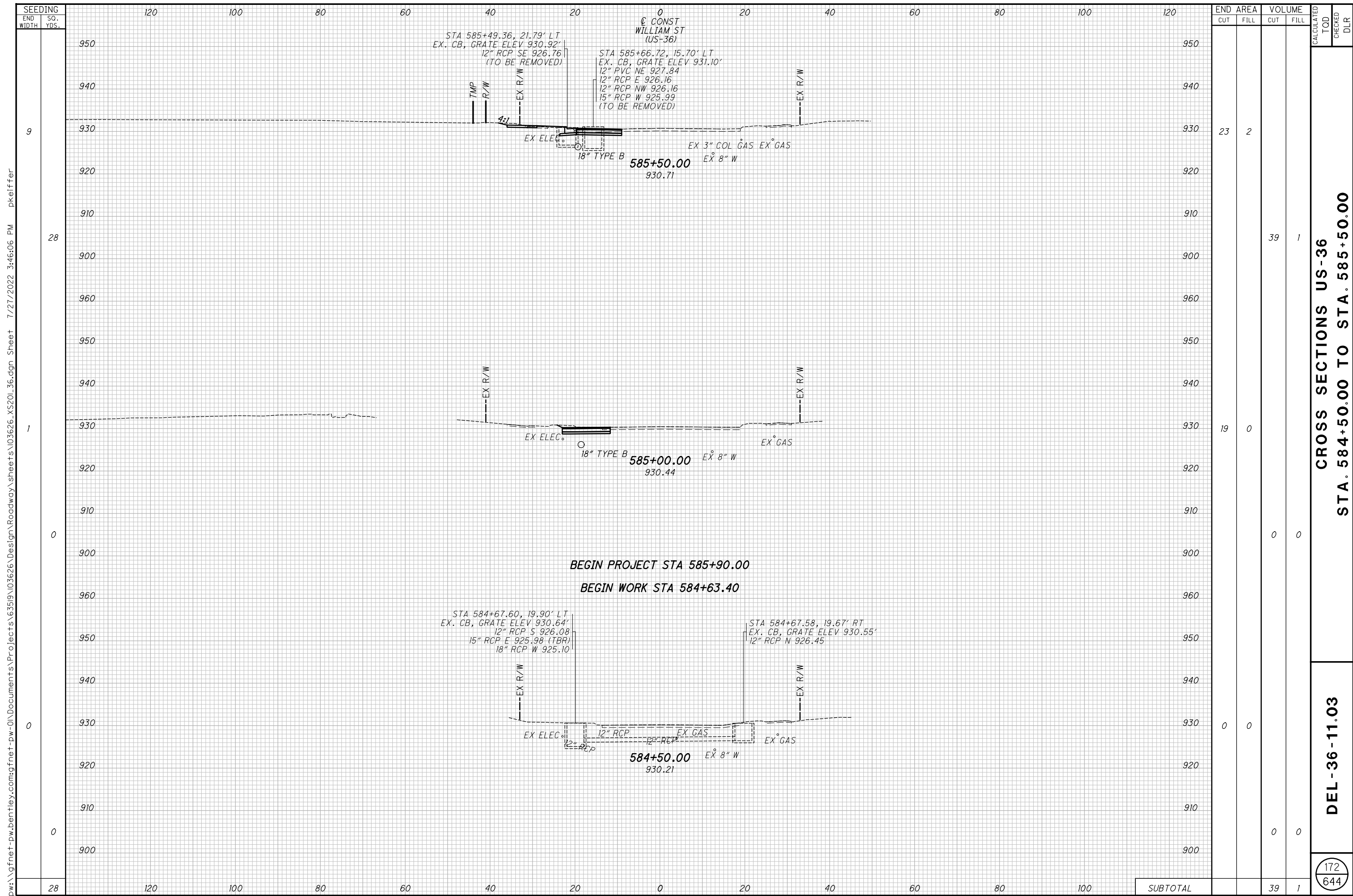
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HORIZONTAL  
SCALE IN FEET



PLAN - US-36 / SR-37  
PARCEL 8

DEL-36-11.03

171  
644



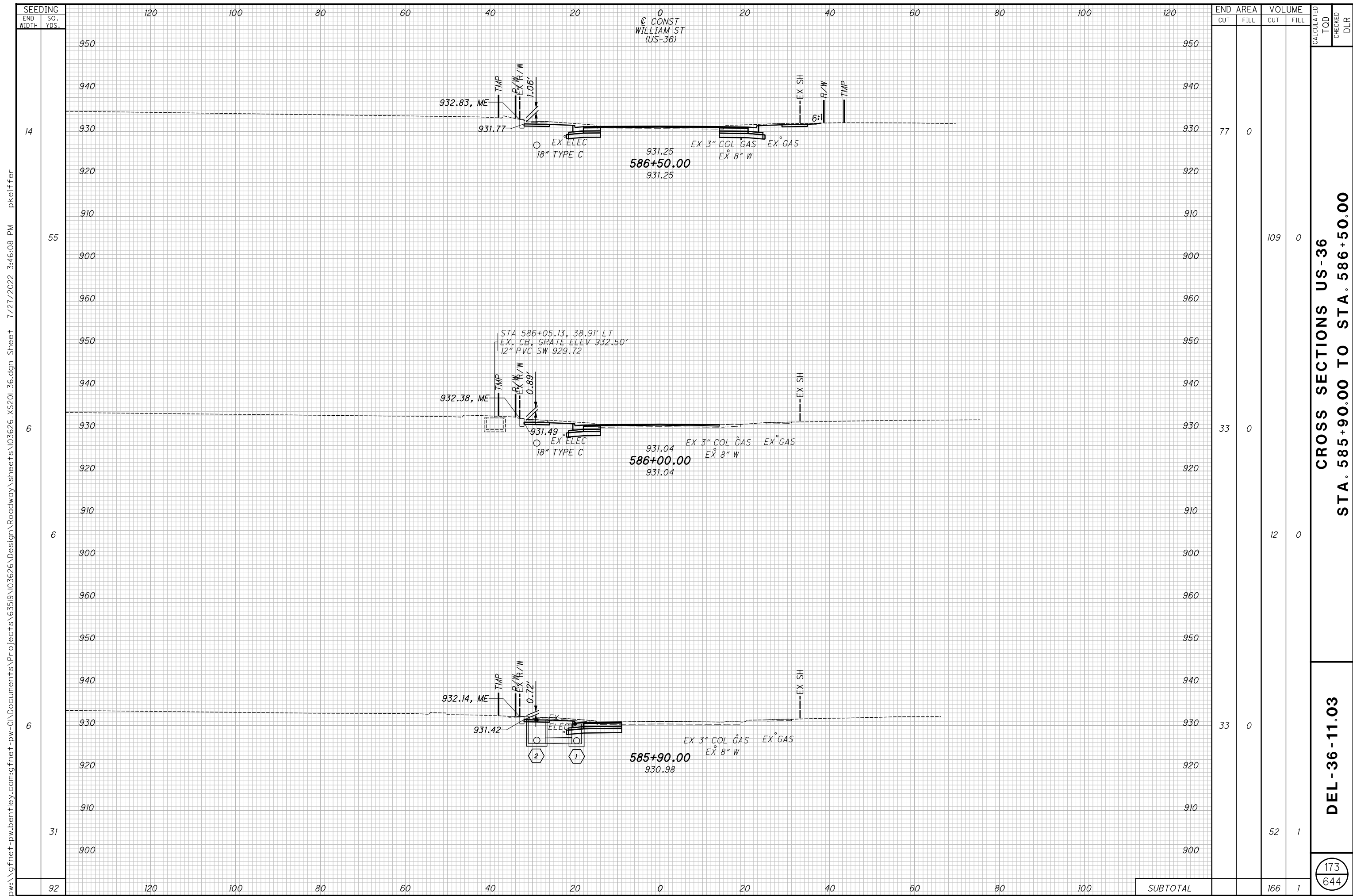
SEEDING														END AREA		VOLUME		CALCULATED				
END WIDTH	SO. YDS.	120	100	80	60	40	20	0	20	40	60	80	100	120	CUT	FILL	CUT	FILL	TOD	CHECKED	DLR	
9														23	2							
28																39	1					
1														19	0							
0																0	0					
0																0	0					
0																0	0					
28														SUBTOTAL		39	1					

**CROSS SECTIONS US-36  
STA. 584+50.00 TO STA. 585+50.00**

**DEL-36-11.03**

172  
644

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SEEDING	END	
	WIDTH	SO. YDS.
14		
55		
6		
6		
6		
31		
92		

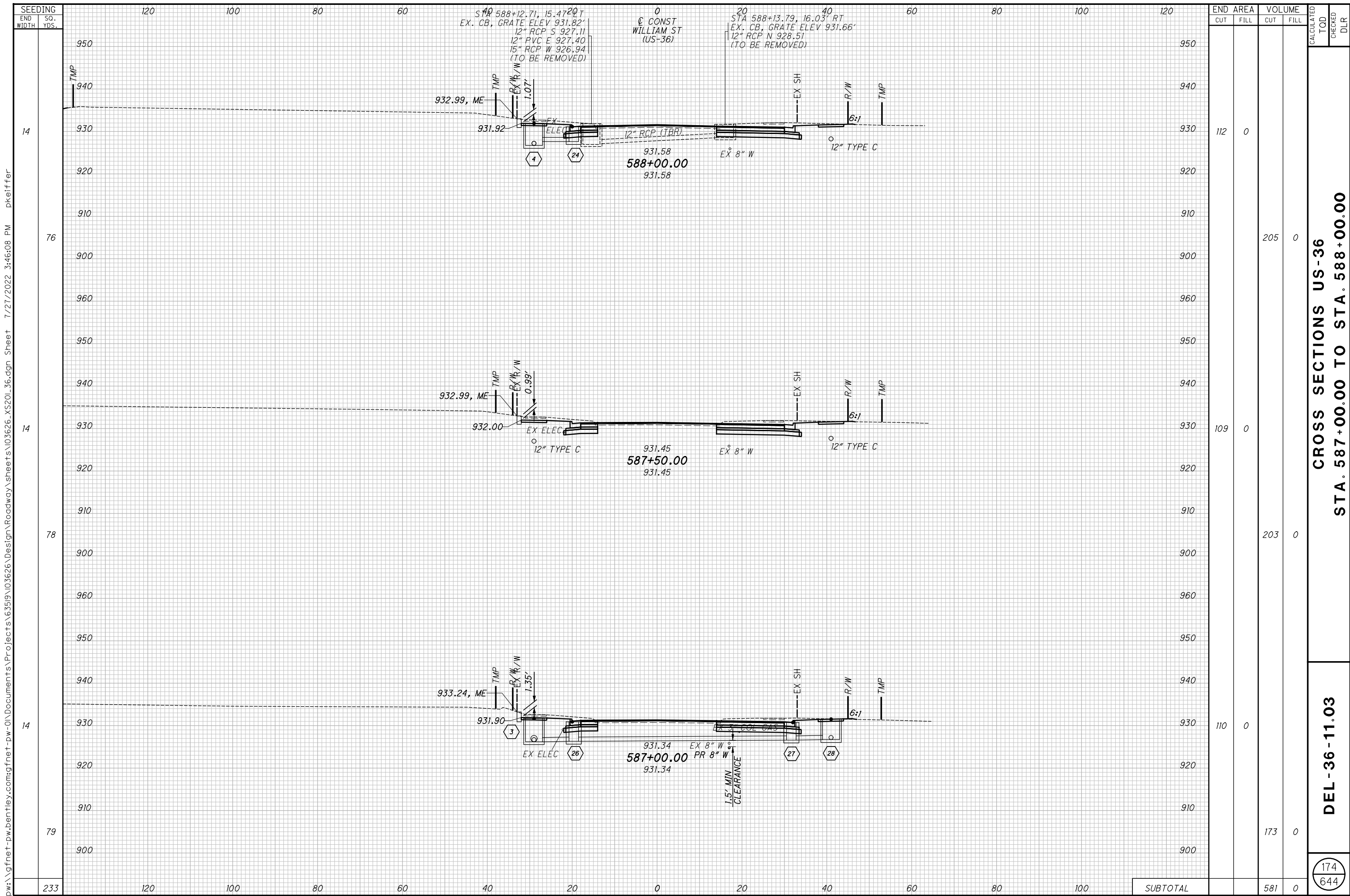
END AREA	VOLUME	CALCULATED		CHECKED	DLR
		CUT	FILL		
77	0				
33	0				
33	0				
		166	1		
SUBTOTAL		166	1		

**CROSS SECTIONS US-36**  
**STA. 585+90.00 TO STA. 586+50.00**

**DEL-36-11.03**

173  
 644

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SEEDING		120	100	80	60	40	20	0	20	40	60	80	100	120
END WIDTH	SO. YDS.													
14														
76														
14														
78														
14														
79														
233		120	100	80	60	40	20	0	20	40	60	80	100	

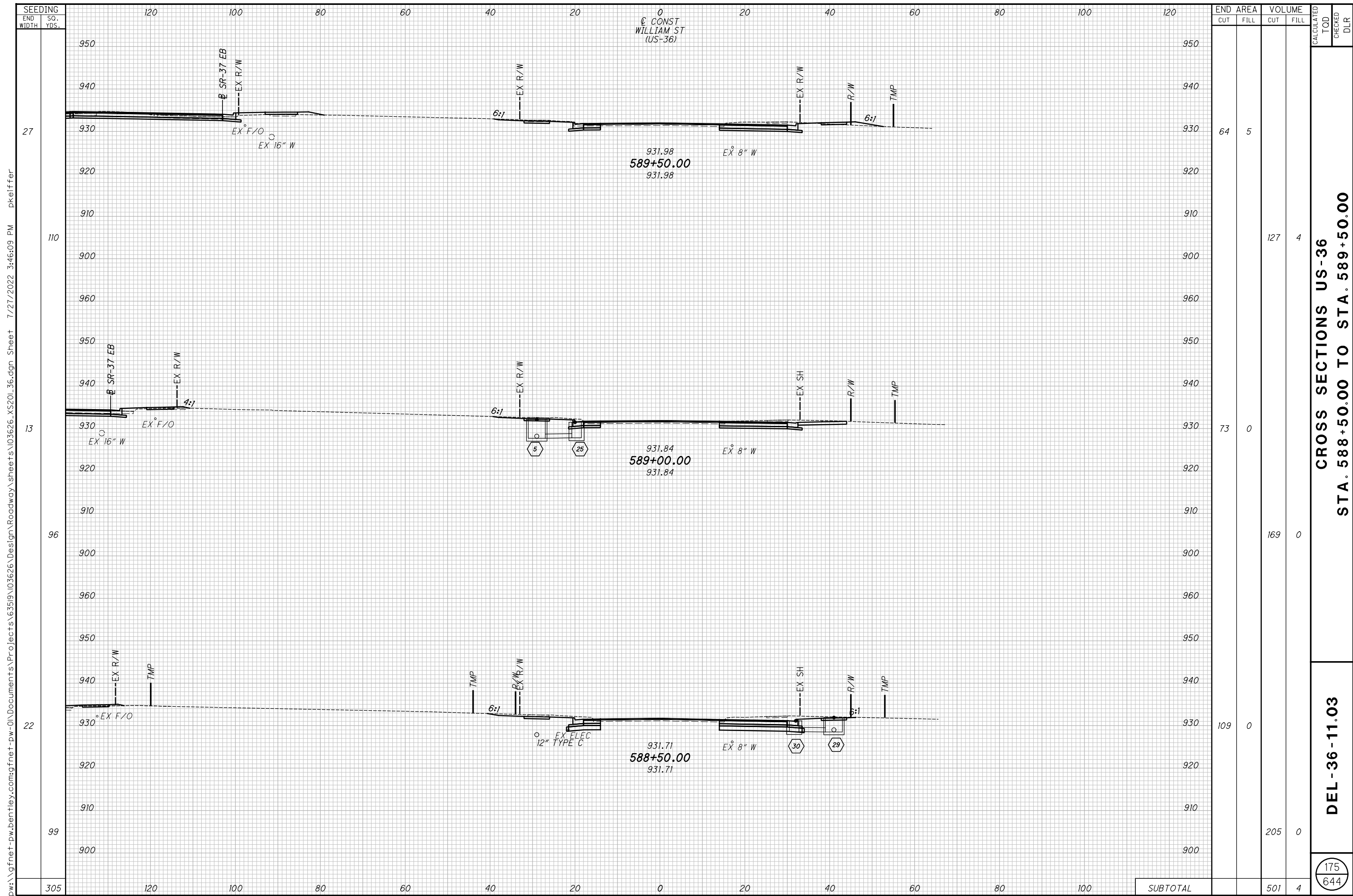
END AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
CUT	FILL	CUT	FILL				
112	0	205	0				
109	0	203	0				
110	0	173	0				
<b>SUBTOTAL</b>				581	0		

**CROSS SECTIONS US-36  
STA. 587+00.00 TO STA. 588+00.00**

**DEL-36-11.03**

174  
644

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SEEDING	
END WIDTH	SO. YDS.
27	120
110	100
13	80
96	60
22	40
99	20
305	0

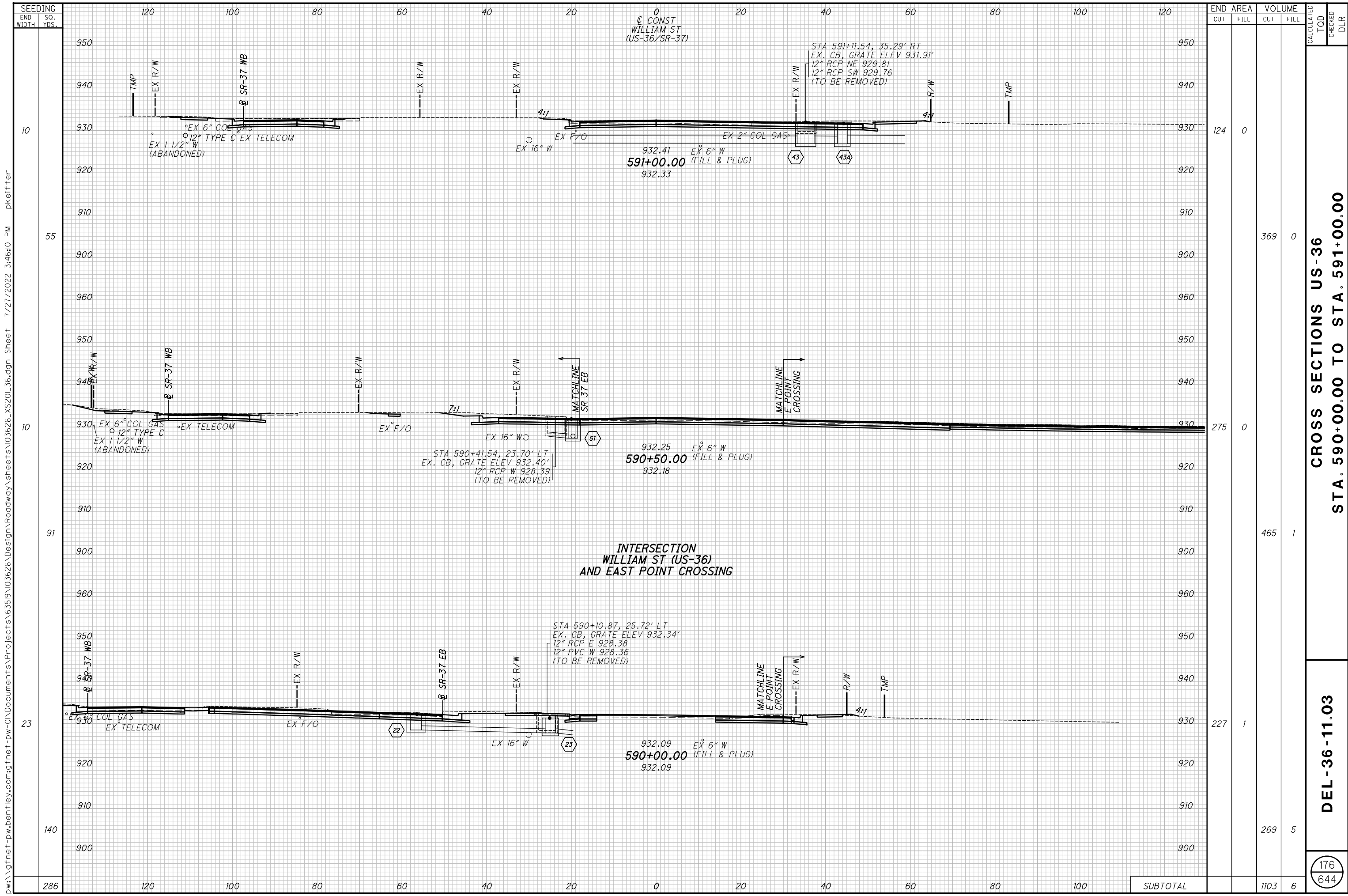
END AREA		VOLUME		CALCULATED		
CUT	FILL	CUT	FILL	TOD	CHECKED	DLR
64	5	127	4			
73	0	169	0			
109	0	205	0			
SUBTOTAL		501	4			

**CROSS SECTIONS US-36**  
**STA. 588+50.00 TO STA. 589+50.00**

**DEL-36-11.03**

175  
644

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SEEDING	END AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
	CUT	FILL	CUT	FILL				
10	124	0						
55			369	0				
10	275	0						
91			465	1				
23	227	1						
140			269	5				
286			1103	6				

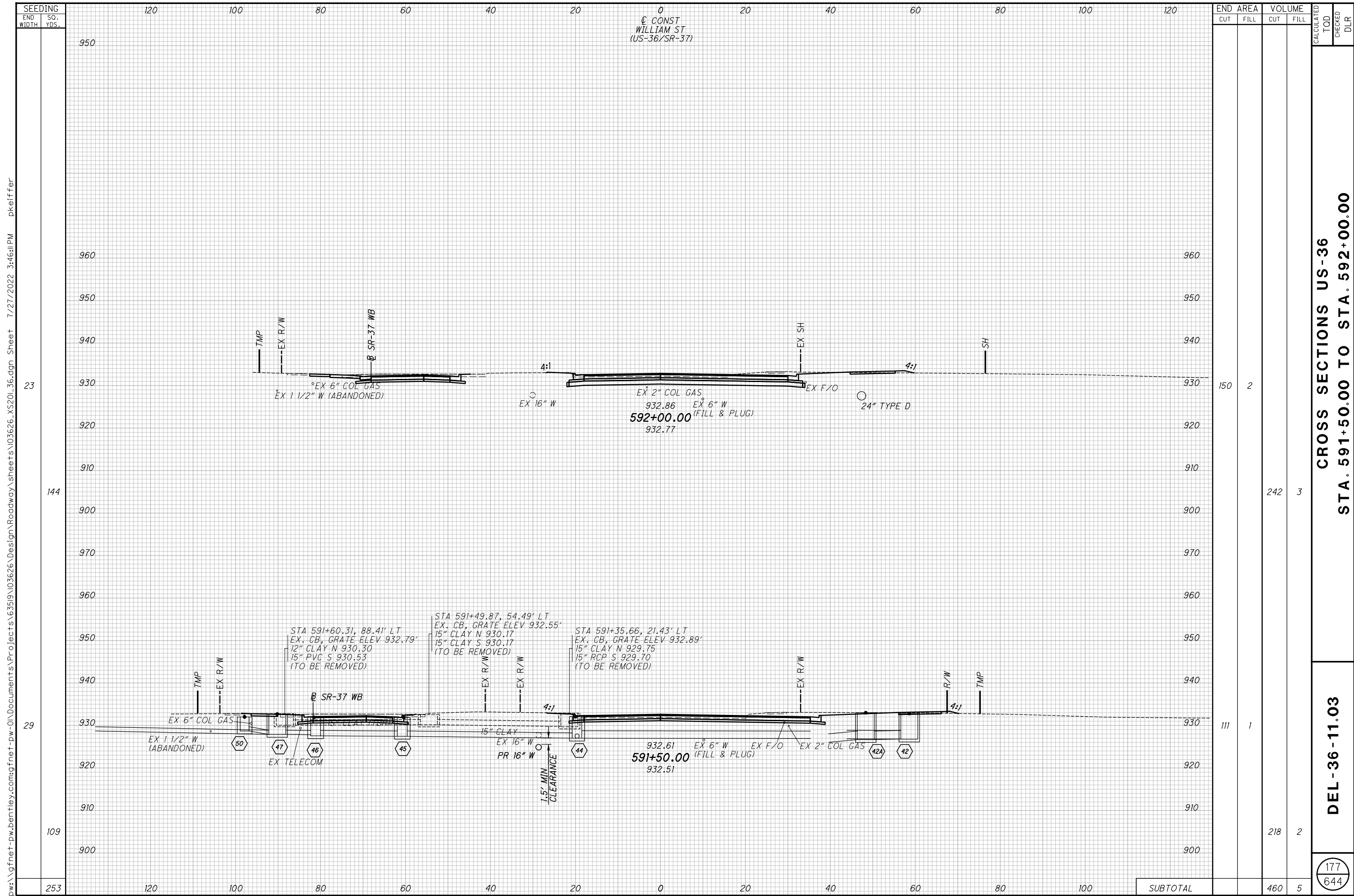
**CROSS SECTIONS US-36  
STA. 590+00.00 TO STA. 591+00.00**

**DEL-36-11.03**

176  
644

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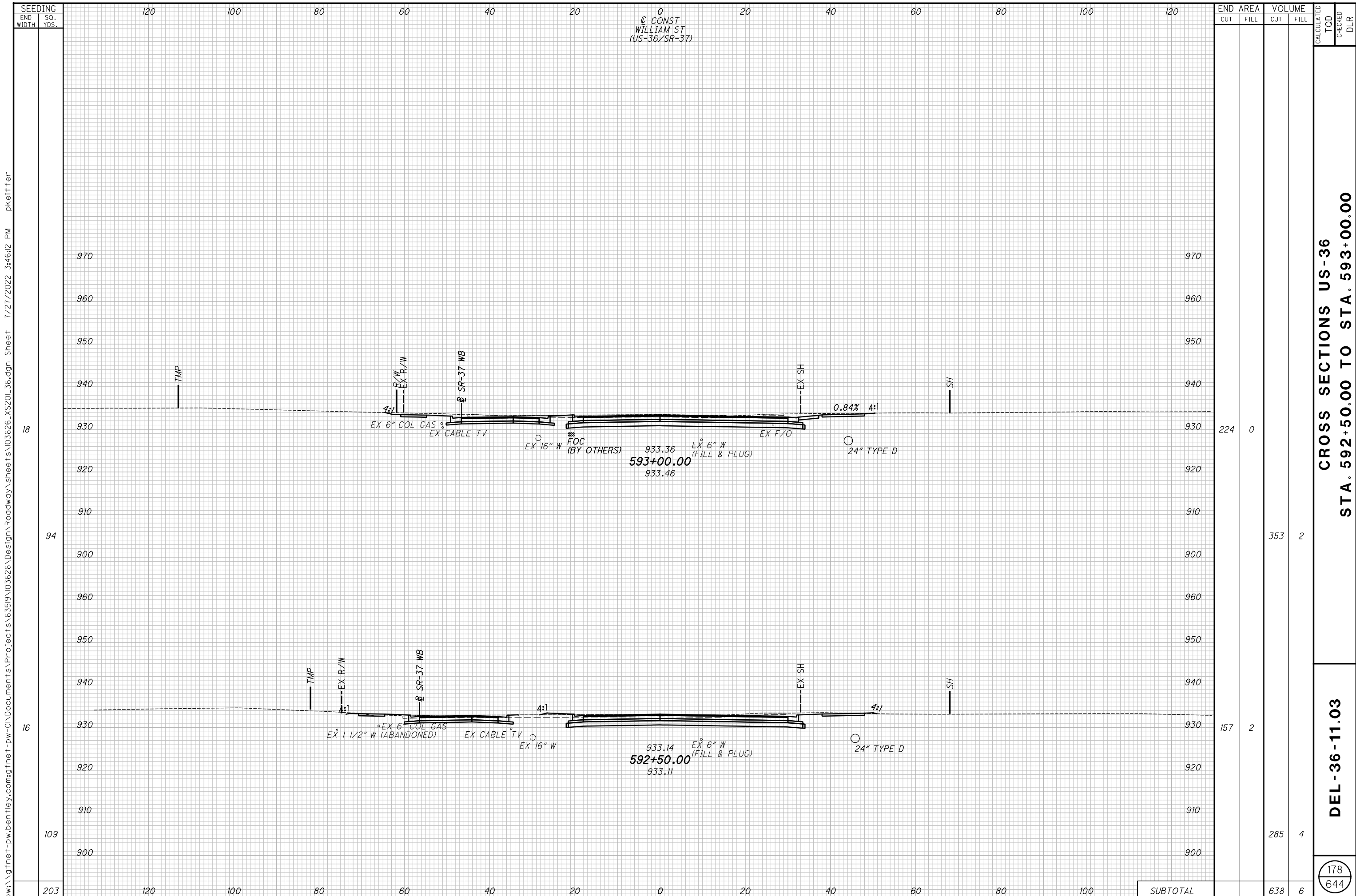


**CROSS SECTIONS US-36**  
**STA. 591+50.00 TO STA. 592+00.00**

**DEL-36-11.03**

177  
 644

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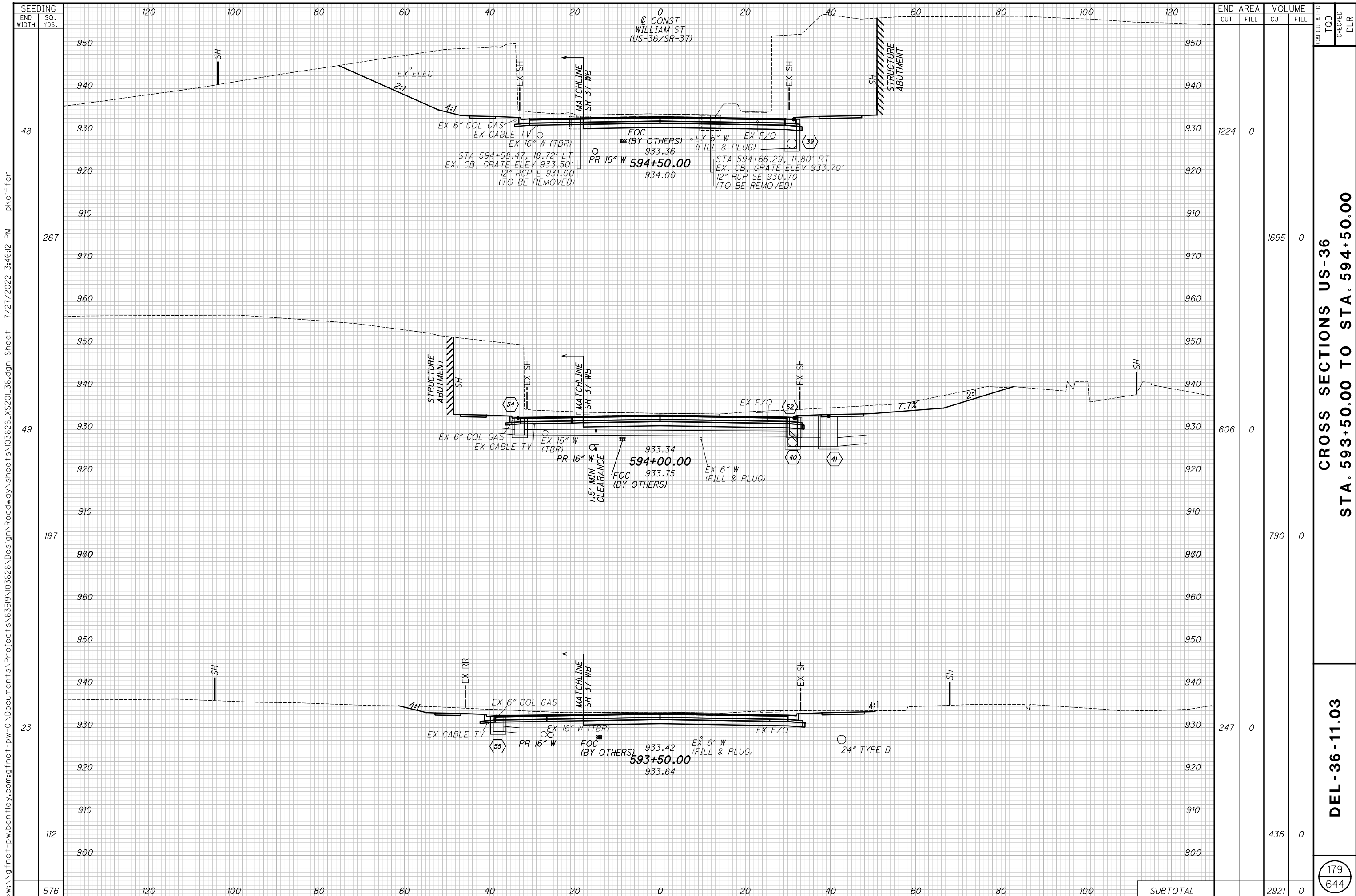


**CROSS SECTIONS US-36**  
**STA. 592+50.00 TO STA. 593+00.00**

**DEL-36-11.03**

178  
 644

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SEEDING	END SO.	
	WIDTH	YDS.
48	120	120
267	100	100
49	120	120
197	100	100
23	120	120
112	100	100
576	120	120

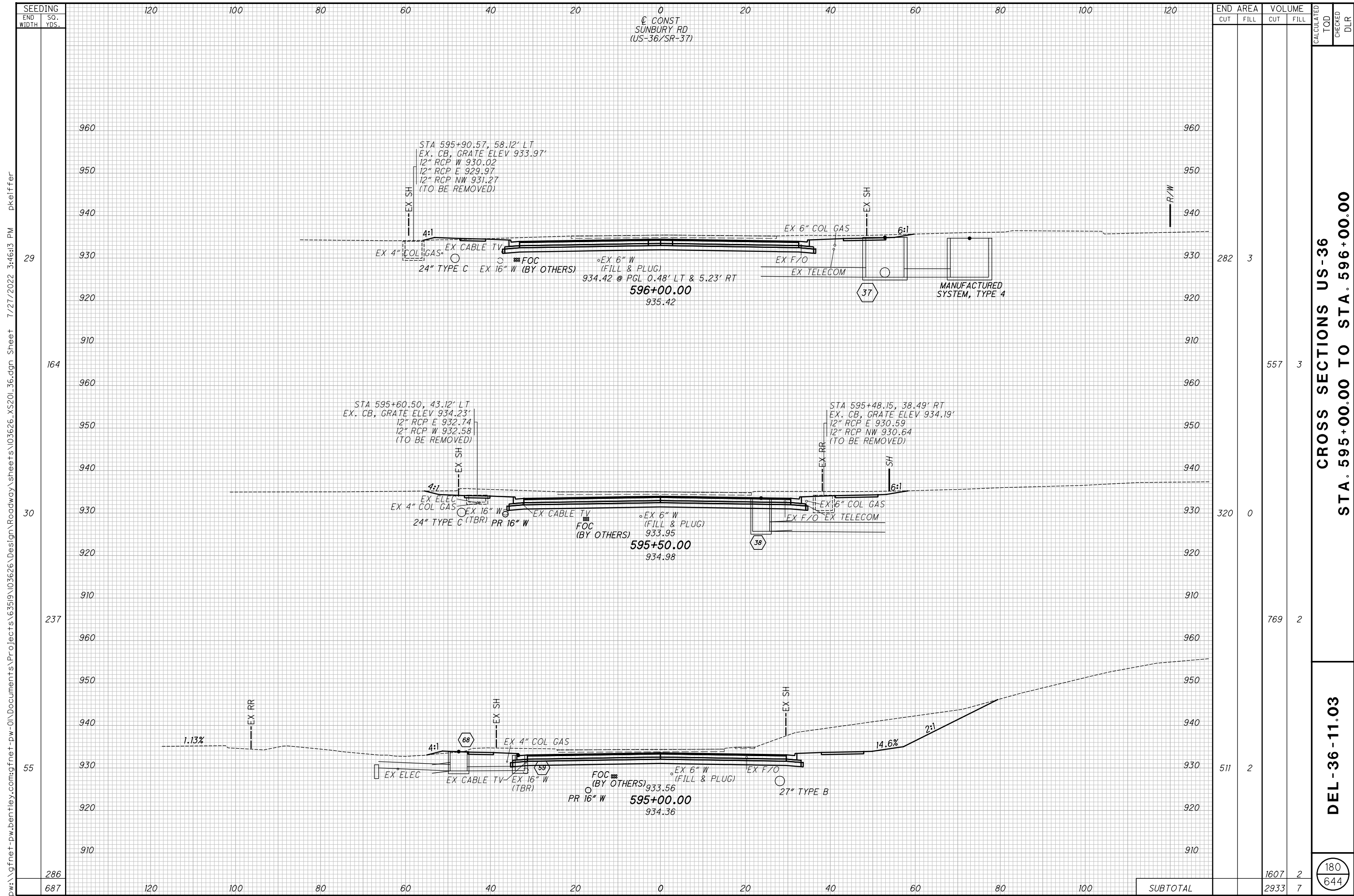
END AREA	VOLUME		CALCULATED	TOD	CHECKED	DLR
	CUT	FILL				
1224	0	0				
606	0	0				
247	0	0				
436	0	0				
<b>SUBTOTAL</b>			2921	0		

**CROSS SECTIONS US-36**  
**STA. 593+50.00 TO STA. 594+50.00**

**DEL-36-11.03**

179  
 644

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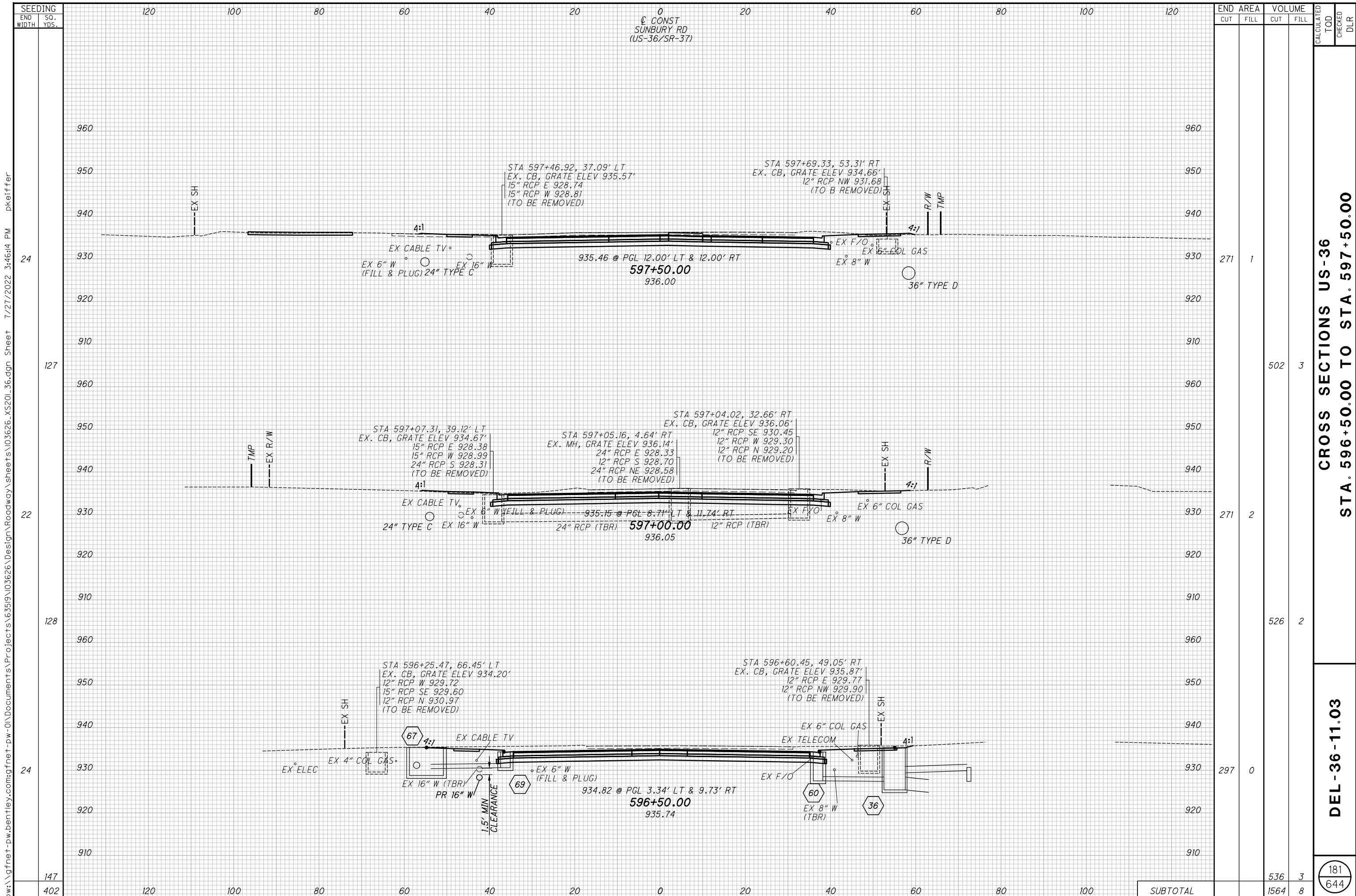
SEEDING	END WIDTH	SO. YDS.													END AREA		VOLUME		CALCULATED TOD	CHECKED DLR						
			120	100	80	60	40	20	0	20	40	60	80	100	120	CUT	FILL	CUT			FILL					
29																	282	3								
164																							557	3		
30																							320	0		
237																							769	2		
55																							511	2		
286																							1607	2		
687																							SUBTOTAL		2933	7

CROSS SECTIONS US-36  
 STA. 595+00.00 TO STA. 596+00.00

DEL-36-11.03

180

644



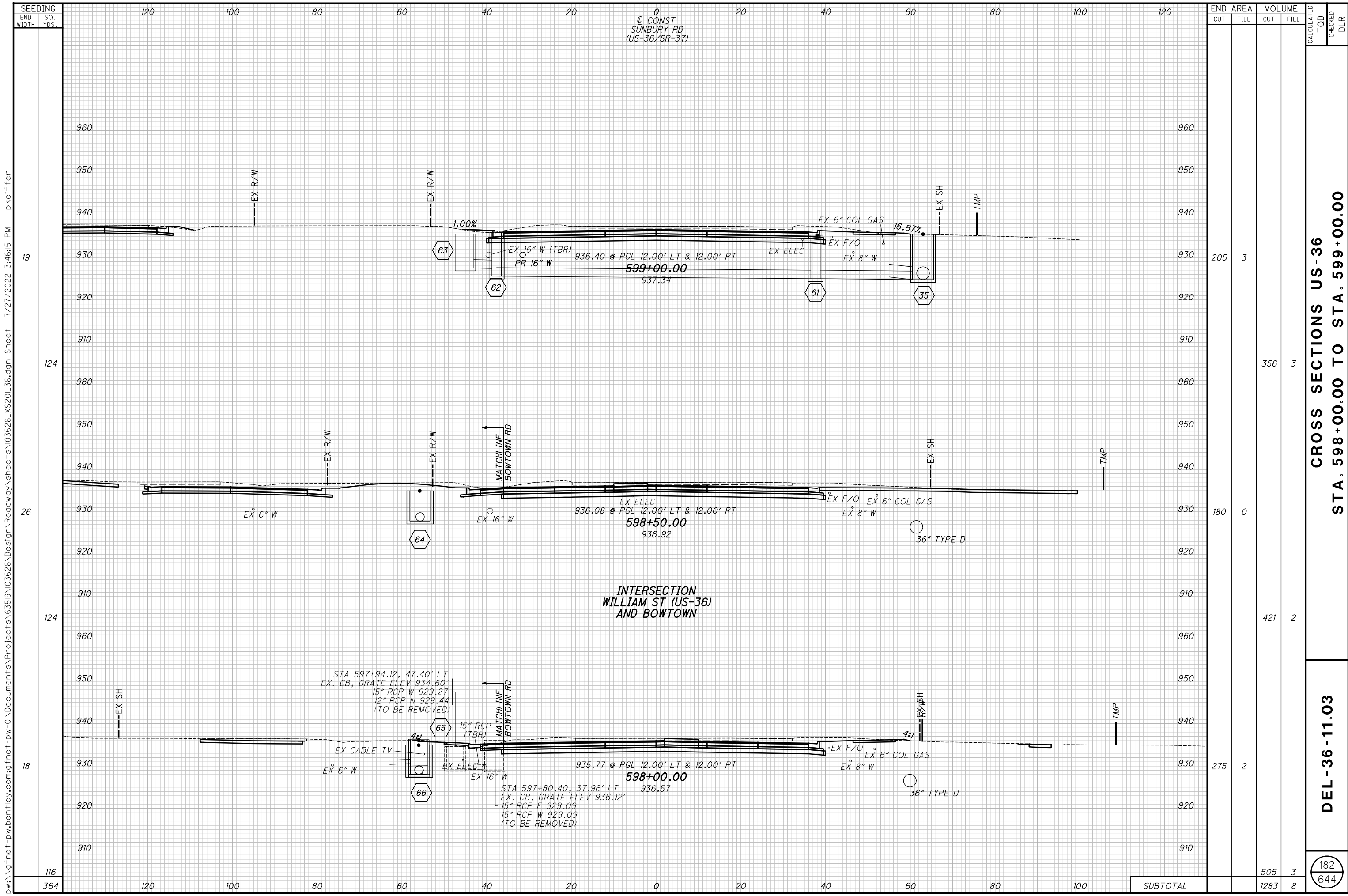
END STA	END AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
	CUT	FILL	CUT	FILL				
24	271	1						
127			502	3				
22	271	2						
128			526	2				
24	297	0						
147			536	3				
402			1564	8				
SUBTOTAL								

**CROSS SECTIONS US-36**  
**STA. 596+50.00 TO STA. 597+50.00**

**DEL-36-11.03**

181  
 644

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CONST  
SUNBURY RD  
(US-36/SR-37)

**INTERSECTION  
WILLIAM ST (US-36)  
AND BOWTOWN**

STA 597+94.12, 47.40' LT  
EX. CB, GRATE ELEV 934.60'  
15" RCP W 929.27  
12" RCP N 929.44  
(TO BE REMOVED)

STA 597+80.40, 37.96' LT  
EX. CB, GRATE ELEV 936.12'  
15" RCP E 929.09  
15" RCP W 929.09  
(TO BE REMOVED)

SEEDING	
END WIDTH	SO. YDS.

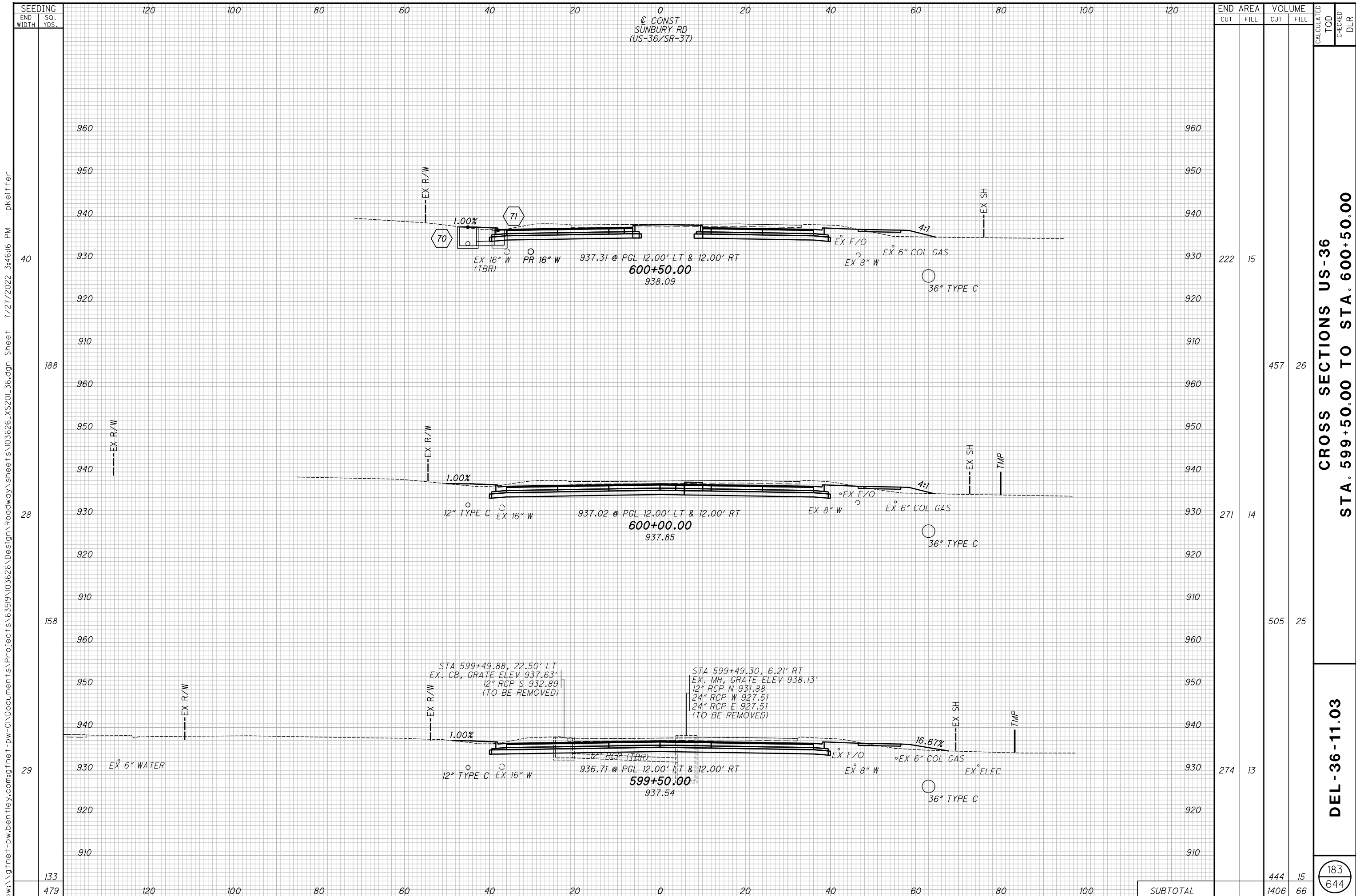
END AREA	VOLUME	CALCULATED	TOD	CHECKED	DLR
205	3				
180	0				
275	2				
<b>SUBTOTAL</b>					
505	3				
1283	8				

**CROSS SECTIONS US-36  
STA. 598+00.00 TO STA. 599+00.00**

**DEL-36-11.03**

182  
644

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CONST  
SUNBURY RD  
(US-36/SR-37)

SEEDING	END SO.	
	WIDTH	YDS.
	40	
	188	
	28	
	158	
	29	
133		
479		

END AREA	VOLUME		CALCULATED	TOD	CHECKED	DLR
	CUT	FILL				
	222	15				
			457	26		
	271	14				
			505	25		
	274	13				
			444	15		
<b>SUBTOTAL</b>			<b>1406</b>	<b>66</b>		

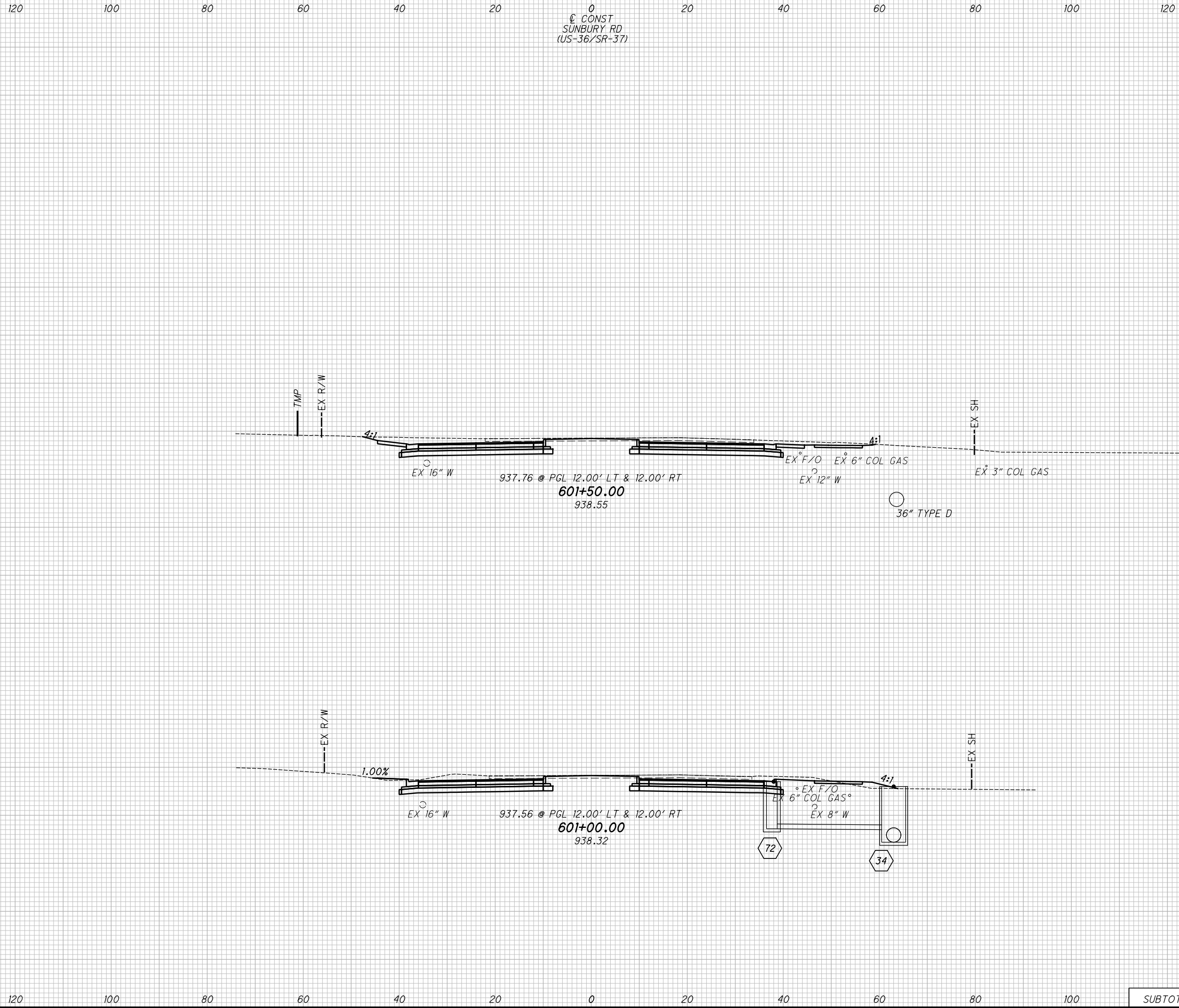
**CROSS SECTIONS US-36**  
**STA. 599+50.00 TO STA. 600+50.00**

**DEL-36-11.03**

183  
644

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SEEDING  
 END SO.  
 WIDTH YDS.



0  
 C CONST  
 SUNBURY RD  
 (US-36/SR-37)

END AREA	VOLUME		CALCULATED	TOD	CHECKED	DLR
	CUT	FILL				
240	0					
213	8	420	8			
		403	21			
SUBTOTAL		823	29	184	644	

CROSS SECTIONS US-36  
 STA. 601+00.00 TO STA. 601+50.00

DEL-36-11.03

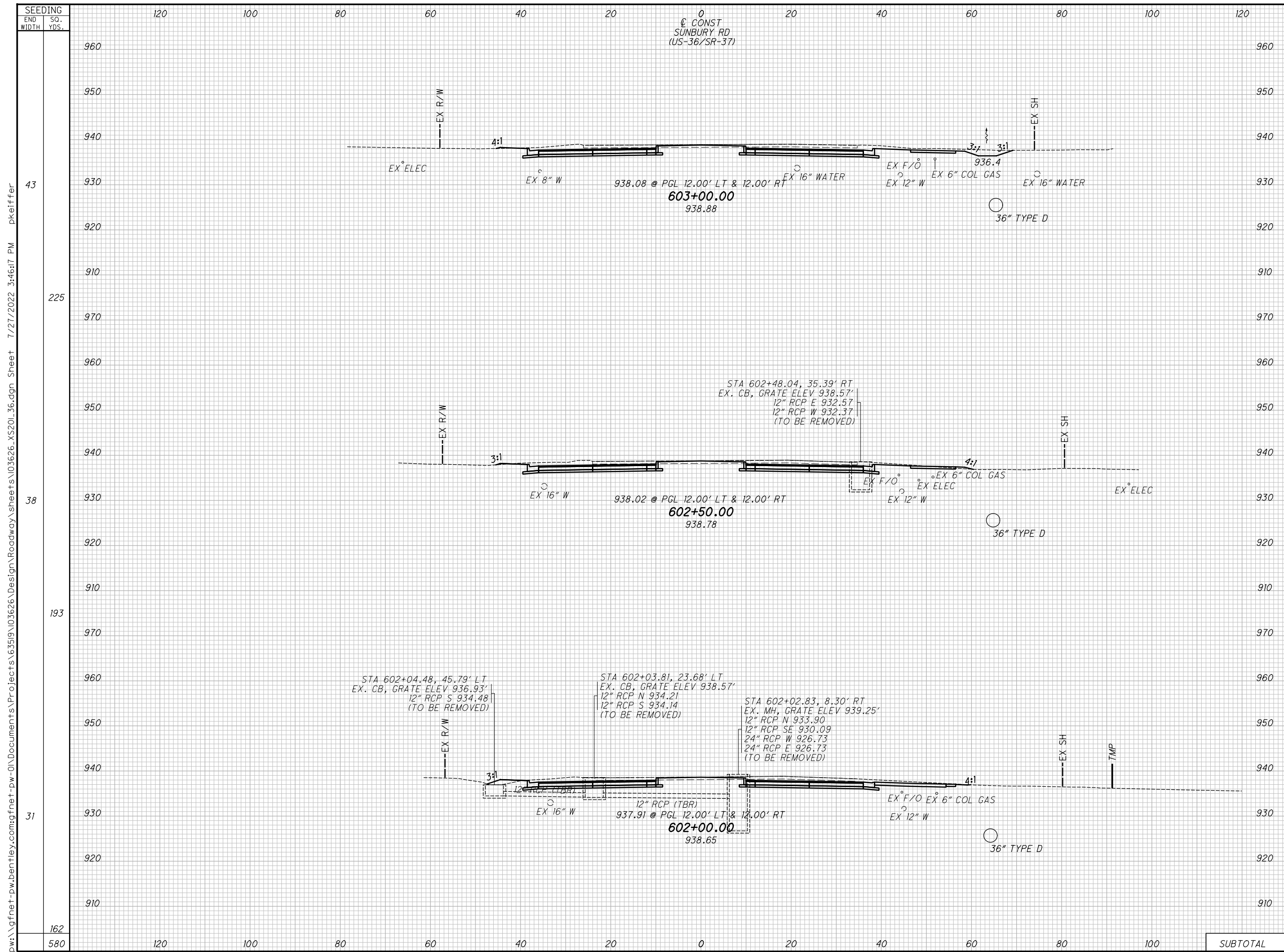
7/27/2022 3:46:16 PM pkeiffer

27  
 191  
 42

27  
 191  
 42

417





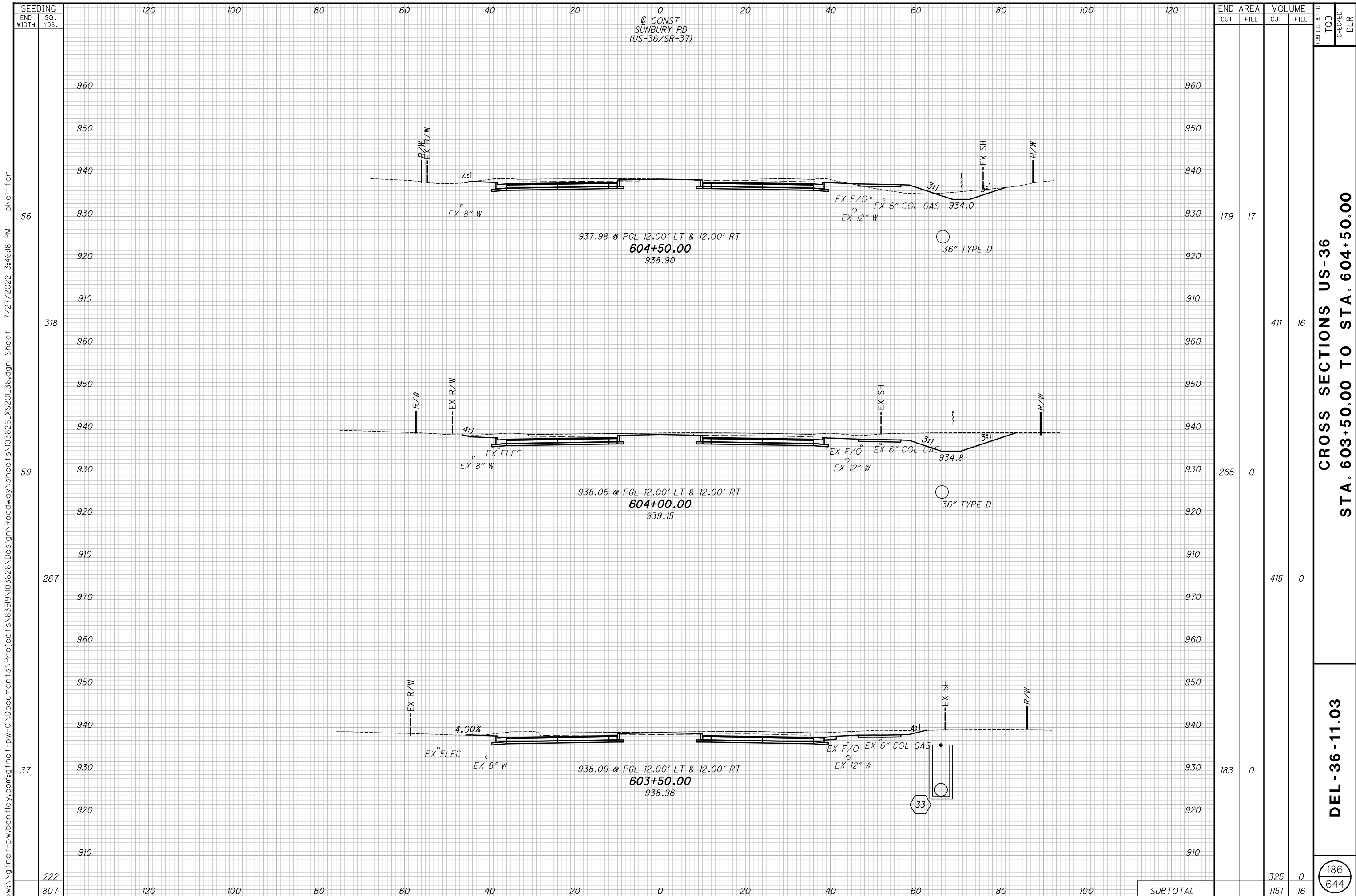
SEEDING END WIDTH	SO. YDS.	END AREA		VOLUME		CALCULATED TOD	CHECKED DLR
		CUT	FILL	CUT	FILL		
43				168	0		
225				292	2		
38				148	1		
193				280	6		
31				154	5		
162				365	5		
580				937	13		
SUBTOTAL							

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**CROSS SECTIONS US-36  
 STA. 602+00.00 TO STA. 603+00.00**

**DEL-36-11.03**

185  
 644



SEEDING  
END WIDTH SO. YDS.

56  
318  
59  
267  
37  
222  
807

120 100 80 60 40 20 0 20 40 60 80 100 120

960  
950  
940  
930  
920  
910  
960  
950  
940  
930  
920  
910  
970  
960  
950  
940  
930  
920  
910

0 CONST  
SUNBURY RD  
(US-36/SR-37)

EX 8" W  
EX 8" W  
EX 8" W  
EX 8" W  
EX 8" W

EX F/O  
EX 6" COL GAS  
EX 12" W  
EX 6" COL GAS  
EX 6" COL GAS  
EX 6" COL GAS  
EX 6" COL GAS  
EX 6" COL GAS  
EX 6" COL GAS  
EX 6" COL GAS

EX SH  
EX SH  
EX SH  
EX SH  
EX SH

R/W  
R/W  
R/W  
R/W  
R/W

4:1  
3:1  
3:1  
4:1  
4:1

937.98 @ PGL 12.00' LT & 12.00' RT  
**604+50.00**  
938.90

938.06 @ PGL 12.00' LT & 12.00' RT  
**604+00.00**  
939.15

938.09 @ PGL 12.00' LT & 12.00' RT  
**603+50.00**  
938.96

36" TYPE D  
36" TYPE D  
33

4.00%

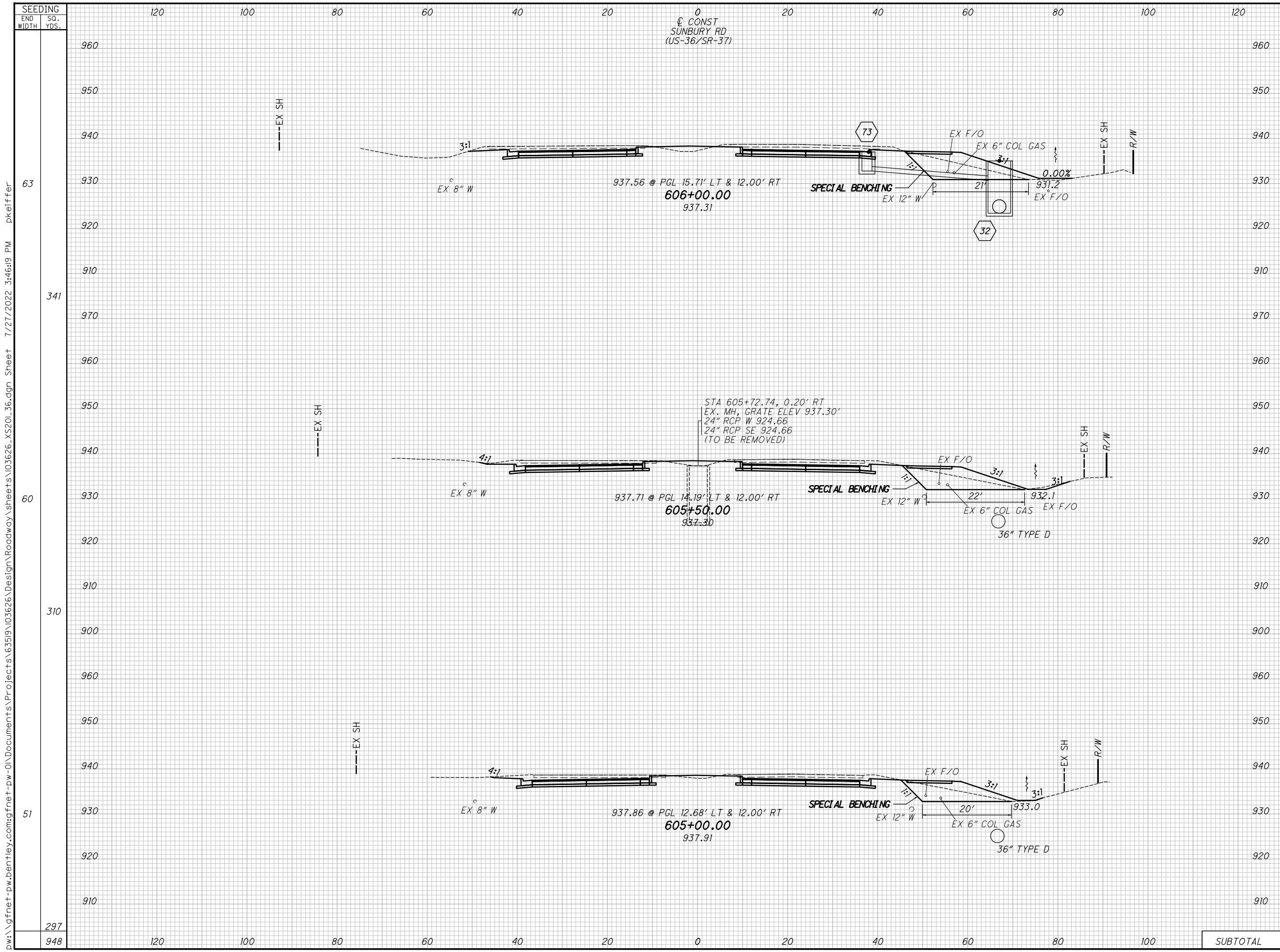
END AREA	VOLUME	CALCULATED		TOD	CHECKED	DLR
		CUT	FILL			
179	17					
265	0					
183	0					
<b>SUBTOTAL</b>						
		325	0			
		1151	16			

**CROSS SECTIONS US-36  
STA. 603+50.00 TO STA. 604+50.00**

**DEL-36-11.03**

186  
644

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SEEDING END WIDTH	SO. YDS.	END AREA		VOLUME	
		CUT	FILL	CUT	FILL
63		168	52		
341				305	82
60		162	37		
310				295	64
51		157	32		
297				311	45
948				911	191
SUBTOTAL					

CONST  
SUNBURY RD  
(US-36/SR-37)

937.56 @ PGL 15.71' LT & 12.00' RT  
**606+00.00**  
937.31

937.71 @ PGL 14.19' LT & 12.00' RT  
**605+50.00**  
937.30

937.86 @ PGL 12.68' LT & 12.00' RT  
**605+00.00**  
937.91

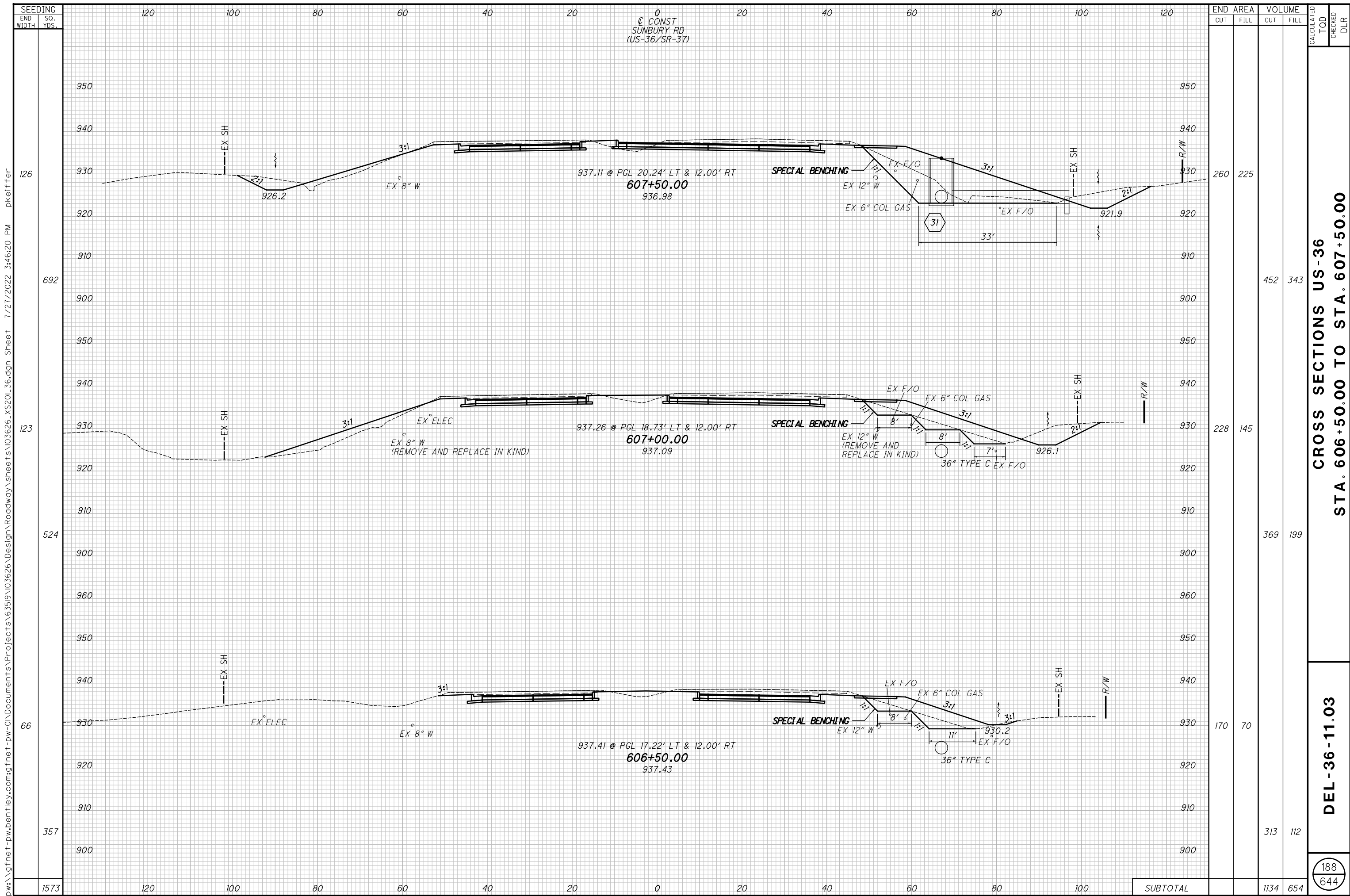
STA 605+72.74, 0.20' RT  
EX. MH, GRATE ELEV 937.30'  
24" RCP W 924.66  
24" RCP SE 924.66  
(TO BE REMOVED)

CROSS SECTIONS US-36  
STA. 605+00.00 TO STA. 606+00.00

DEL-36-11.03

187  
644

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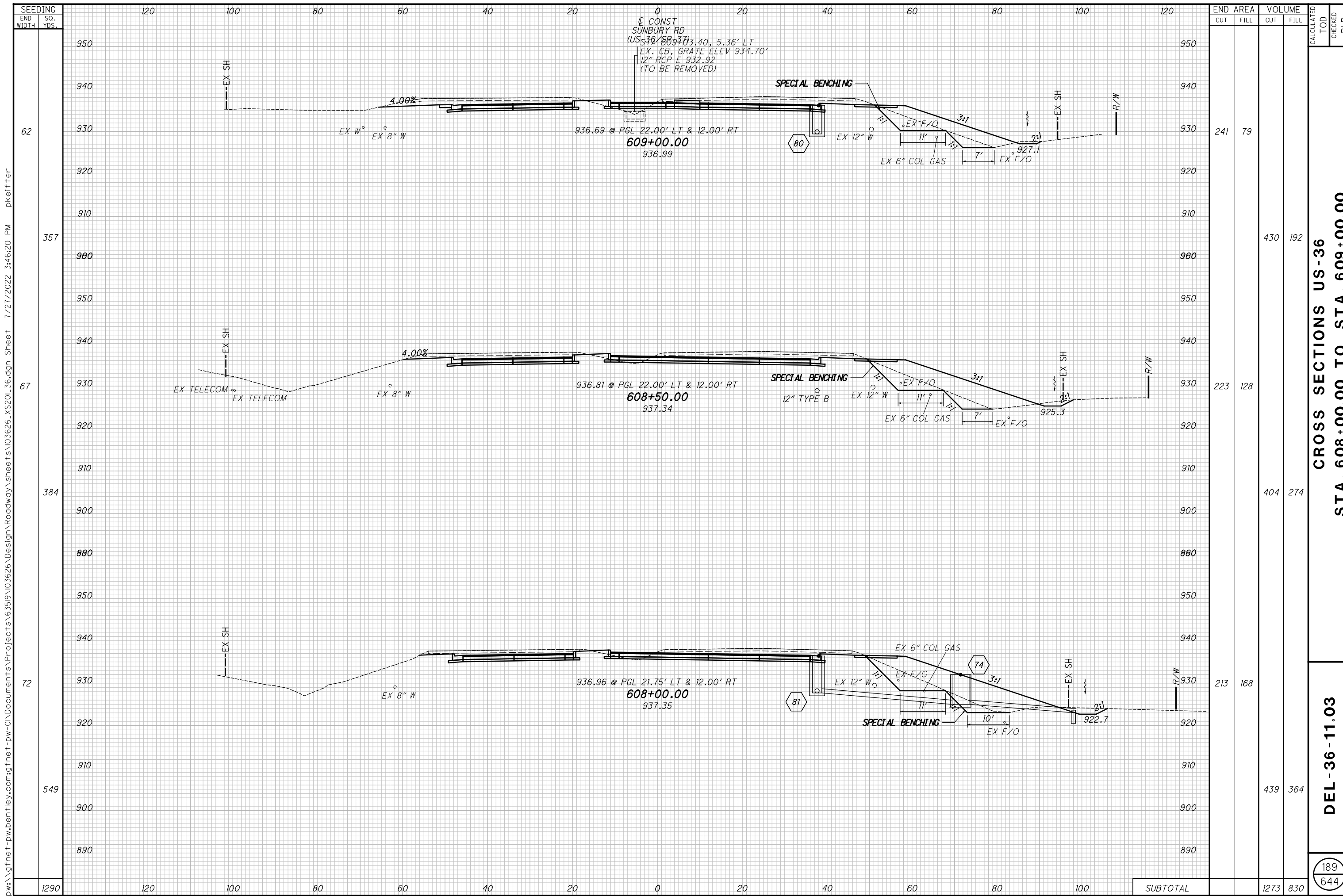
END AREA	VOLUME	CALCULATED	TOD	CHECKED	DLR
260	225				
228	145				
170	70				
<b>SUBTOTAL</b>					
		1134	654		

**CROSS SECTIONS US-36  
STA. 606+50.00 TO STA. 607+50.00**

**DEL-36-11.03**

188  
644

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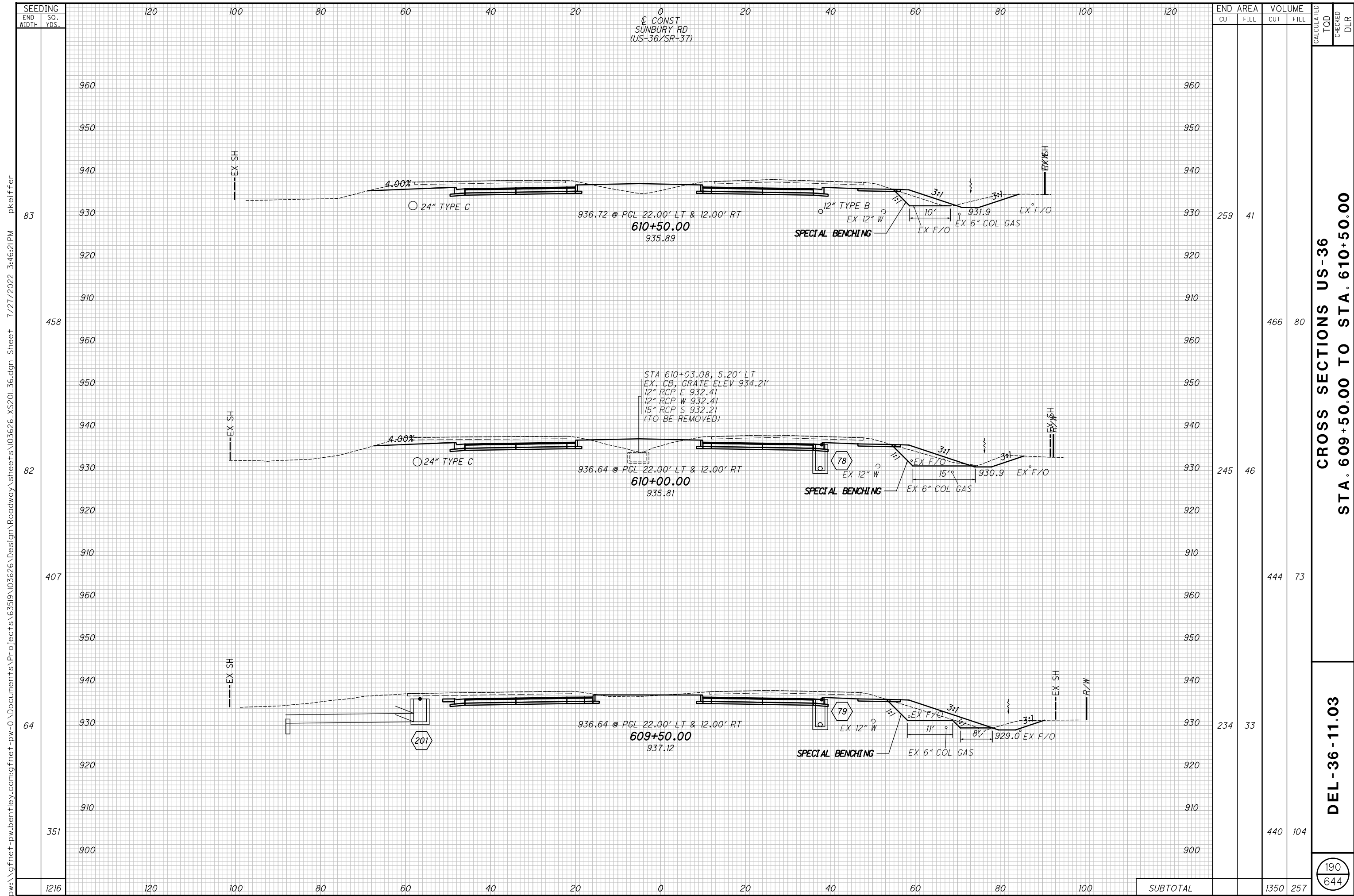


SEEDING END WIDTH	SO. YDS.	END AREA		VOLUME		CALCULATED TOD	CHECKED DLR
		CUT	FILL	CUT	FILL		
62		241	79				
357				430	192		
67		223	128				
384				404	274		
72		213	168				
549				439	364		
1290		SUBTOTAL		1273	830	189	644

**CROSS SECTIONS US-36**  
**STA. 608+00.00 TO STA. 609+00.00**

**DEL-36-11.03**

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SEEDING	
END WIDTH	SO. YDS.
83	
458	
82	
407	
64	
351	
1216	

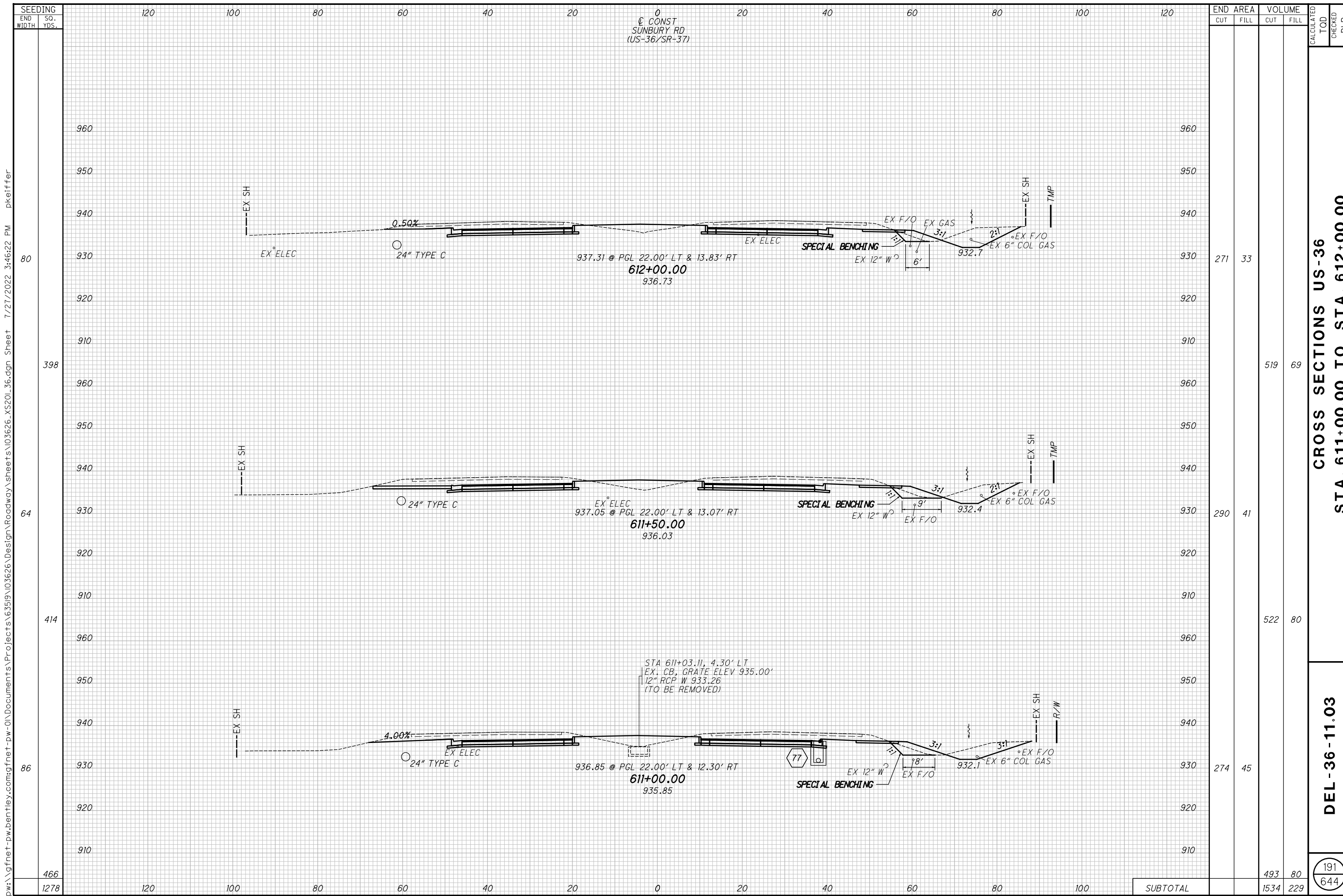
END AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
CUT	FILL	CUT	FILL				
259	41						
		466	80				
		444	73				
		234	33				
		440	104				
SUBTOTAL		1350	257				

**CROSS SECTIONS US-36**  
**STA. 609+50.00 TO STA. 610+50.00**

**DEL-36-11.03**

190  
 644

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END AREA	VOLUME	CALCULATED	TOD	CHECKED	DLR
271	33				
290	41				
274	45				
493	80				
1534	229				
<b>DEL -36 -11.03</b>					
<b>CROSS SECTIONS US-36</b>					
<b>STA. 611+00.00 TO STA. 612+00.00</b>					

SEEDING  
END SO.  
WIDTH YDS.

120 100 80 60 40 20 0 20 40 60 80 100 120

0  
CONST  
SUNBURY RD  
(US-36/SR-37)

960  
950  
940  
930  
920  
910  
960  
950  
940  
930  
920  
910  
960  
950  
940  
930  
920  
910  
960  
950  
940  
930  
920  
910

80  
398  
64  
414  
86  
466

120 100 80 60 40 20 0 20 40 60 80 100 120

EX SH  
EX SH  
EX SH  
EX SH  
EX SH

EX ELEC  
EX ELEC  
EX ELEC  
EX ELEC

24" TYPE C  
24" TYPE C  
24" TYPE C  
24" TYPE C

0.50%  
4.00%

937.31 @ PGL 22.00' LT & 13.83' RT  
612+00.00  
936.73

937.05 @ PGL 22.00' LT & 13.07' RT  
611+50.00  
936.03

936.85 @ PGL 22.00' LT & 12.30' RT  
611+00.00  
935.85

EX F/O  
EX GAS  
EX F/O  
EX 6" COL GAS

SPECIAL BENCHING  
EX 12" W  
EX 12" W  
EX 12" W  
EX 12" W

3:1  
3:1  
3:1  
3:1

EX SH  
TMP  
EX SH  
TMP  
EX SH  
R/W

271 33  
290 41  
274 45  
493 80  
1534 229

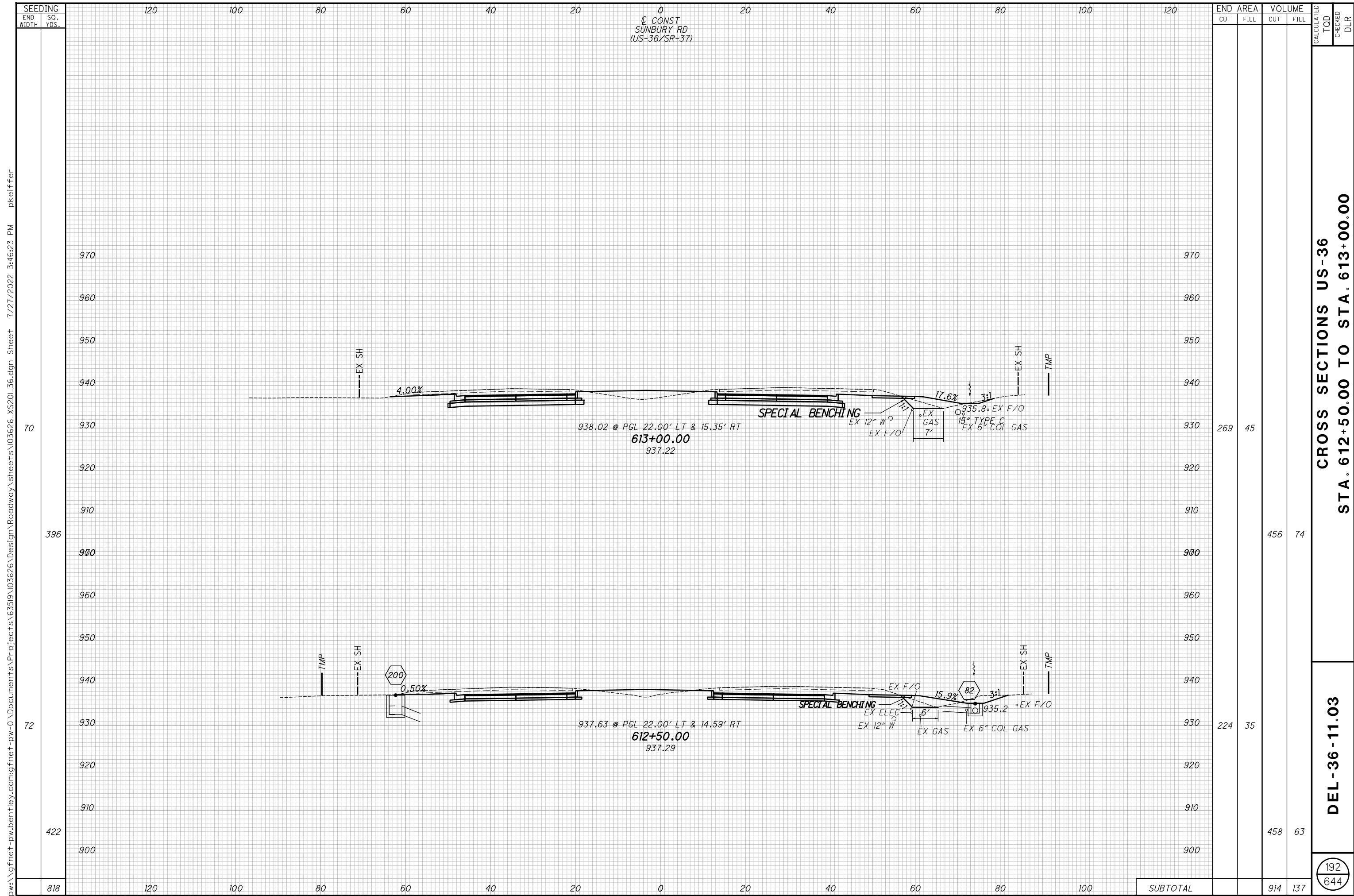
519 69  
522 80

191  
644

120 100 80 60 40 20 0 20 40 60 80 100 120

466  
1278

SUBTOTAL



SEEDING	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
70	269	45		
396			456	74
72	224	35		
422			458	63
818	SUBTOTAL		914	137

CALCULATED	TOD	CHECKED	DLR

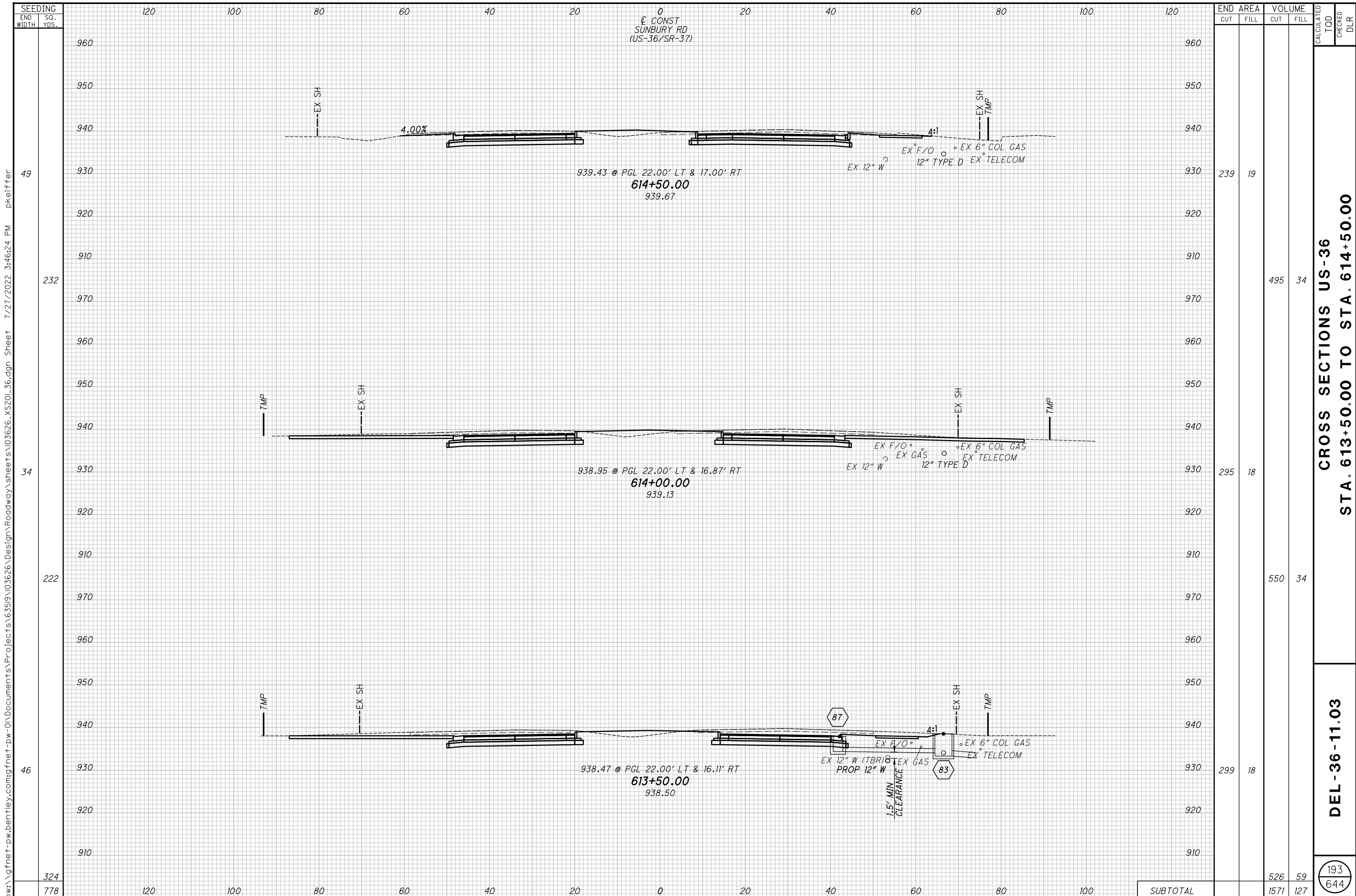
**CROSS SECTIONS US-36  
STA. 612+50.00 TO STA. 613+00.00**

**DEL-36-11.03**

192  
644

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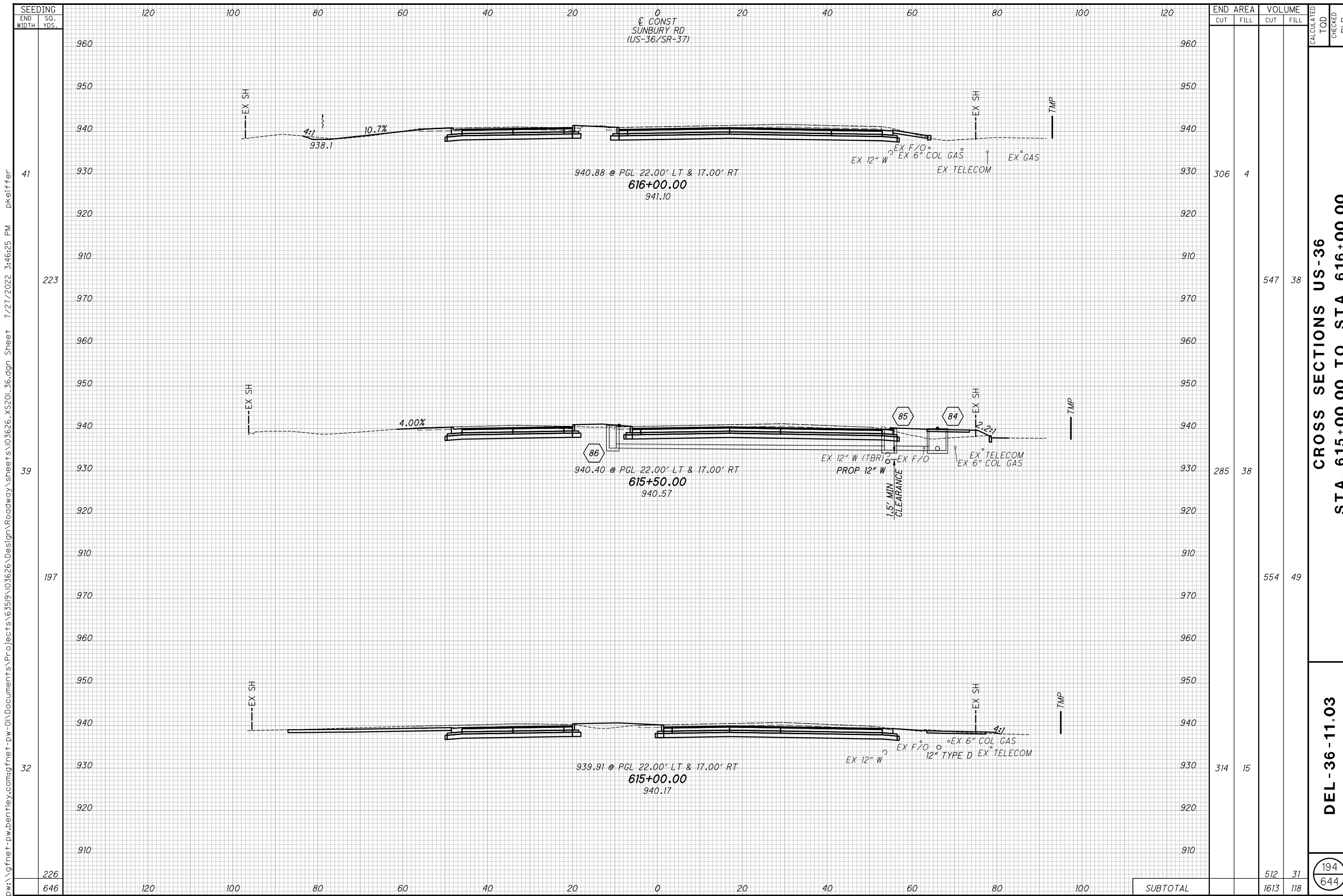
SEEDING														END AREA		VOLUME		CALCULATED				
END WIDTH	SO. YDS.	120	100	80	60	40	20	0	20	40	60	80	100	120	CUT	FILL	CUT	FILL	TOD	CHECKED	DLR	
49														239	19							
232																495	34					
34														295	18							
222																550	34					
46														299	18							
324																526	59					
778														SUBTOTAL		1571	127					

**CROSS SECTIONS US-36**  
**STA. 613+50.00 TO STA. 614+50.00**

**DEL-36-11.03**

193  
 644

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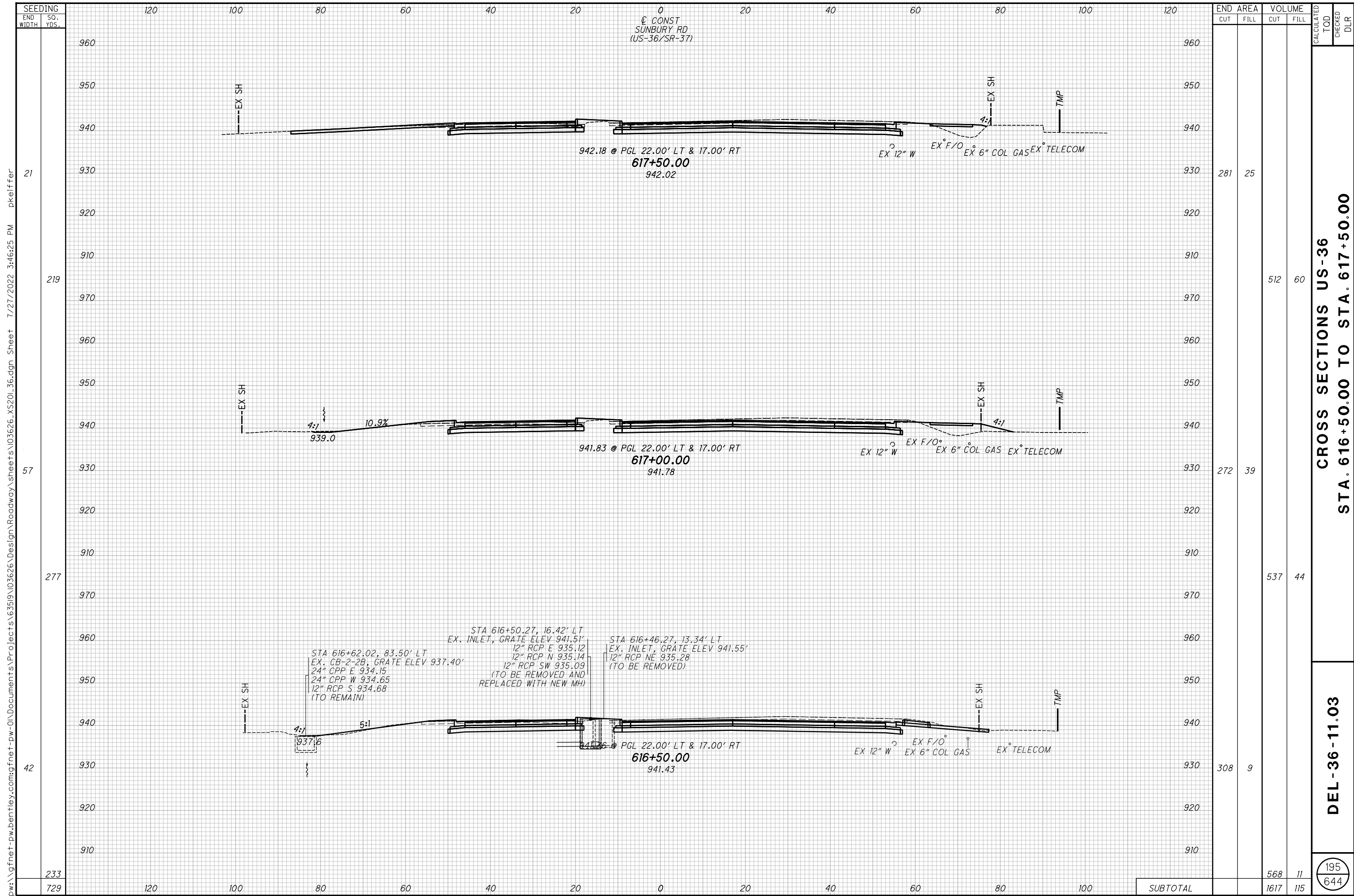
SEEDING END WIDTH	SO. YDS.	END AREA		VOLUME		CALCULATED TOD	CHECKED DLR
		CUT	FILL	CUT	FILL		
41	223			306	4		
39	197			285	38		
32	226			314	15		
646				512	31		
SUBTOTAL				1613	118		

**CROSS SECTIONS US-36**  
**STA. 615+00.00 TO STA. 616+00.00**

**DEL-36-11.03**

194  
 644

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SEEDING	END SO.	
	WIDTH	YDS.
	120	100
21		
219		
57		
277		
42		
233		
729	120	100

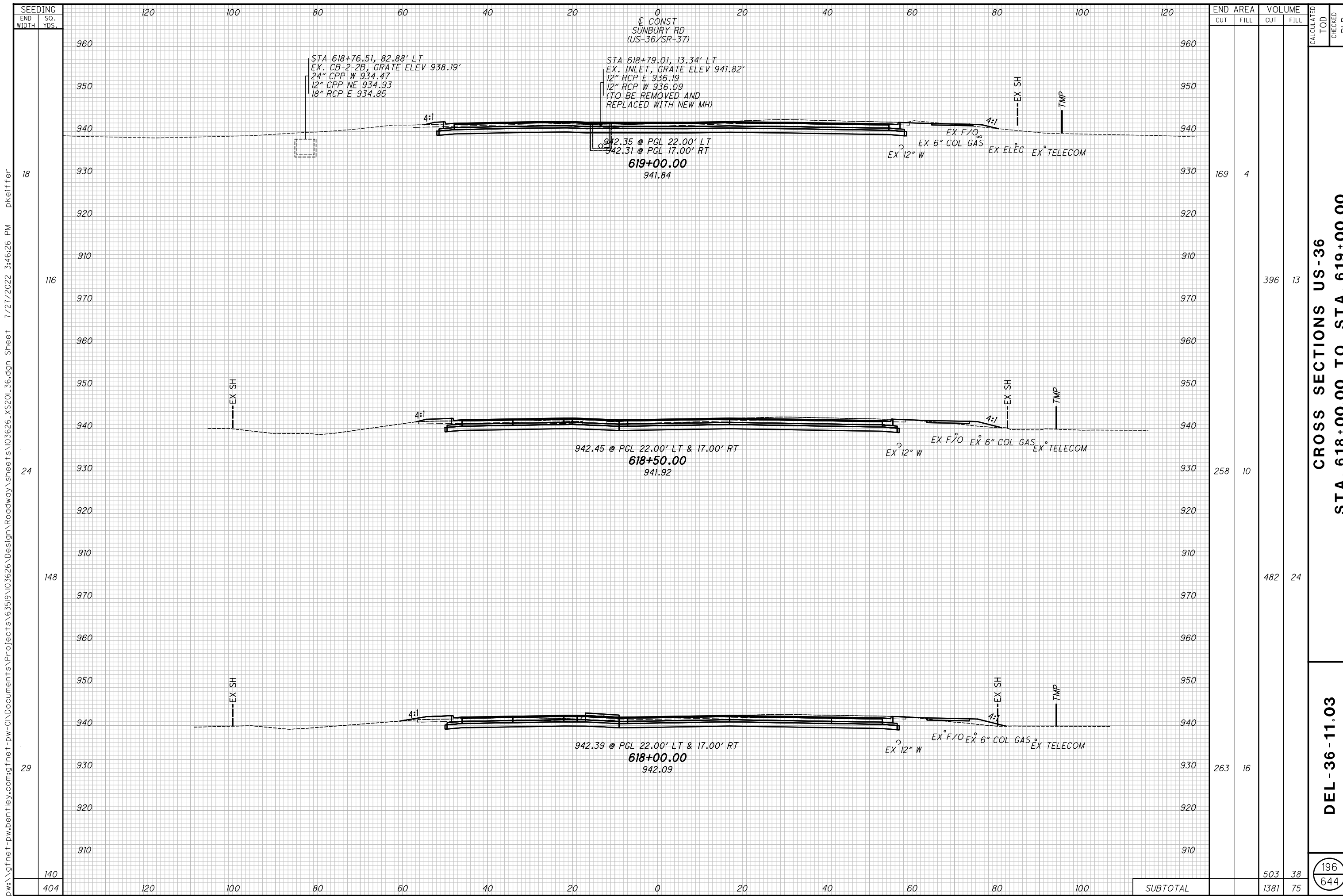
END AREA	VOLUME		CALCULATED	TOD	CHECKED	DLR
	CUT	FILL				
	281	25				
			512	60		
			537	44		
	308	9				
			568	11		
<b>SUBTOTAL</b>			1617	115		

**CROSS SECTIONS US-36**  
**STA. 616+50.00 TO STA. 617+50.00**

**DEL-36-11.03**

195  
 644

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SEEDING	
END WIDTH	SO. YDS.
18	
116	
24	
148	
29	
140	
404	

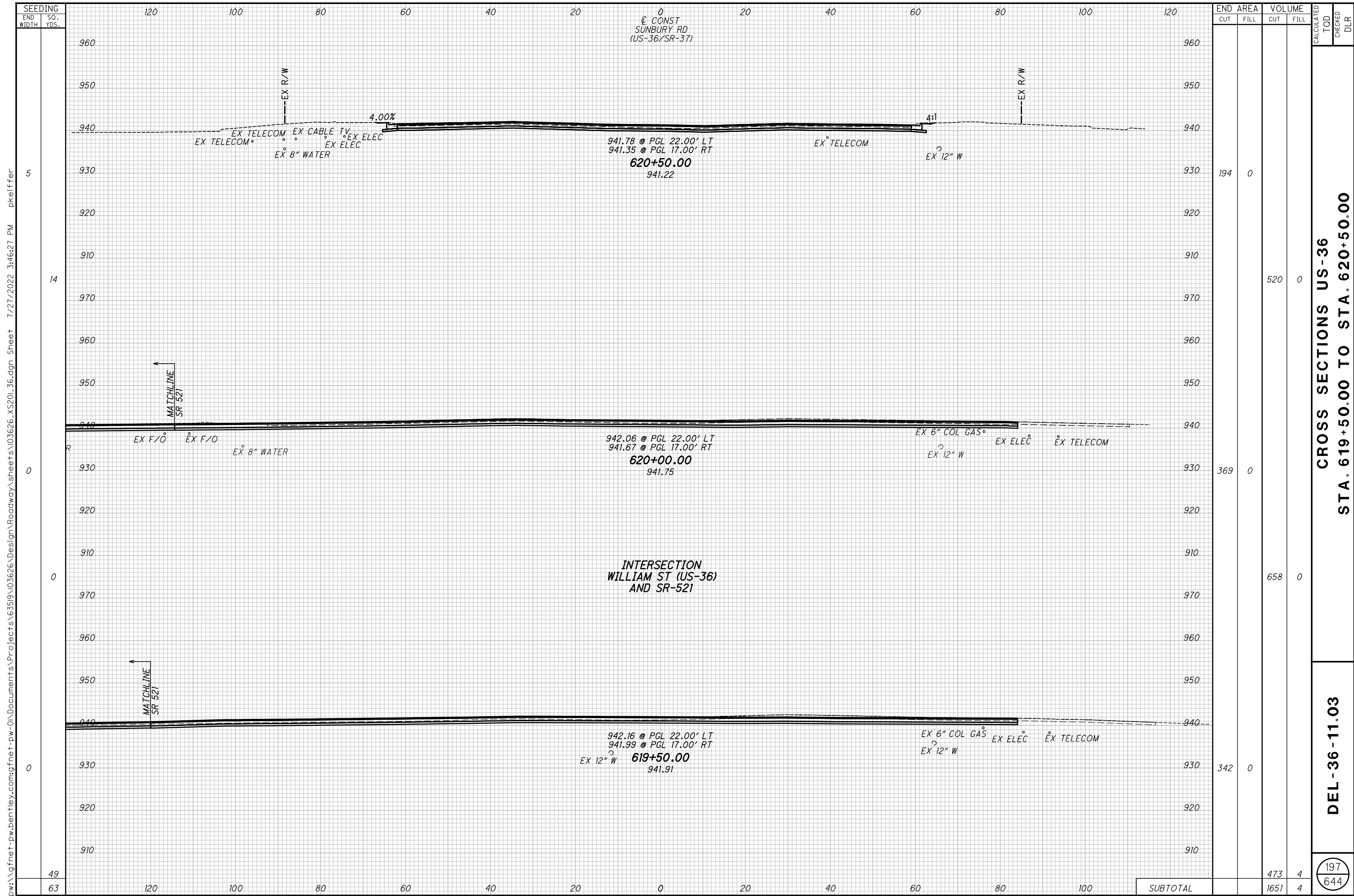
END AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
CUT	FILL	CUT	FILL				
169	4						
		396	13				
258	10						
		482	24				
263	16						
		503	38				
SUBTOTAL		1381	75				

**CROSS SECTIONS US-36**  
**STA. 618+00.00 TO STA. 619+00.00**

**DEL-36-11.03**

196  
 644

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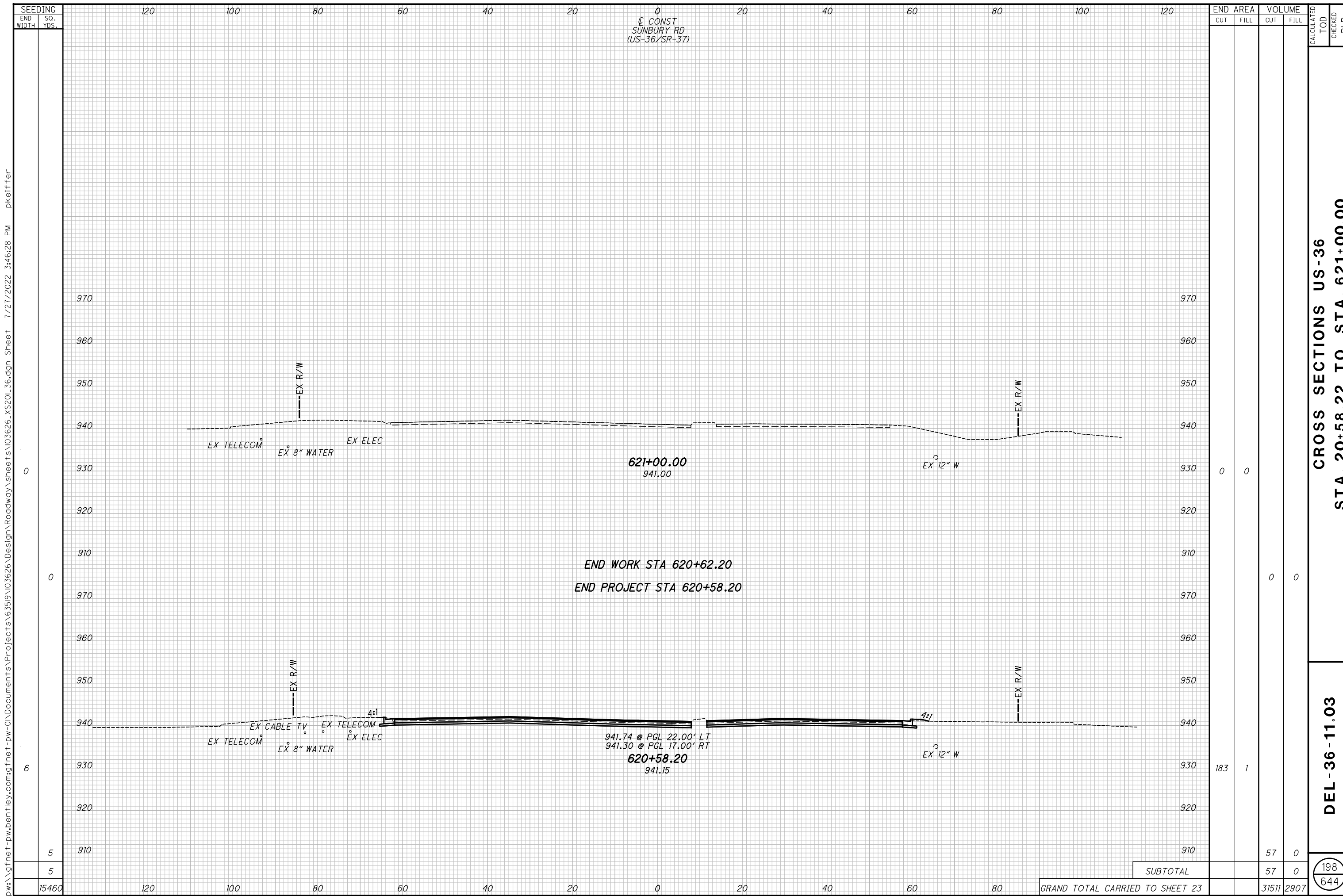
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SEEDING	END AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
	CUT	FILL	CUT	FILL				
5			194	0				
14				520				
0			369	0				
0				658				
0			342	0				
49				473				
63				1651				
			SUBTOTAL					

**CROSS SECTIONS US-36  
 STA. 619+50.00 TO STA. 620+50.00**

**DEL-36-11.03**

197  
 644



SEEDING	
END WIDTH	SO. YDS.
15460	5
	5

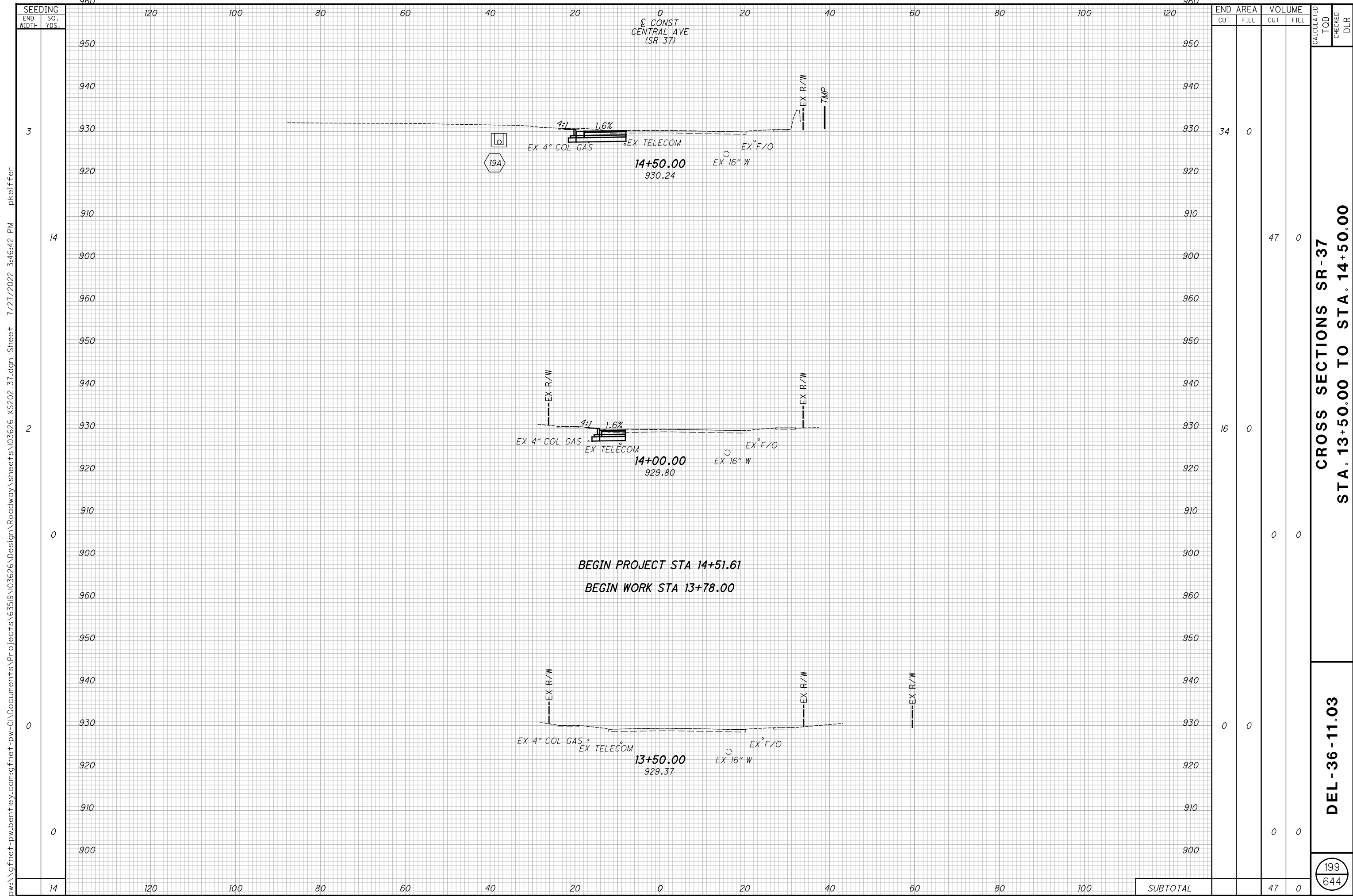
END AREA		VOLUME		CALCULATED TOD	CHECKED DLR
CUT	FILL	CUT	FILL		
0	0	0	0		
183	1	57	0		
SUBTOTAL		57	0		
GRAND TOTAL CARRIED TO SHEET 23		31511	2907		

**CROSS SECTIONS US-36**  
**STA. 20+58.22 TO STA. 621+00.00**

**DEL-36-11.03**

198  
 644

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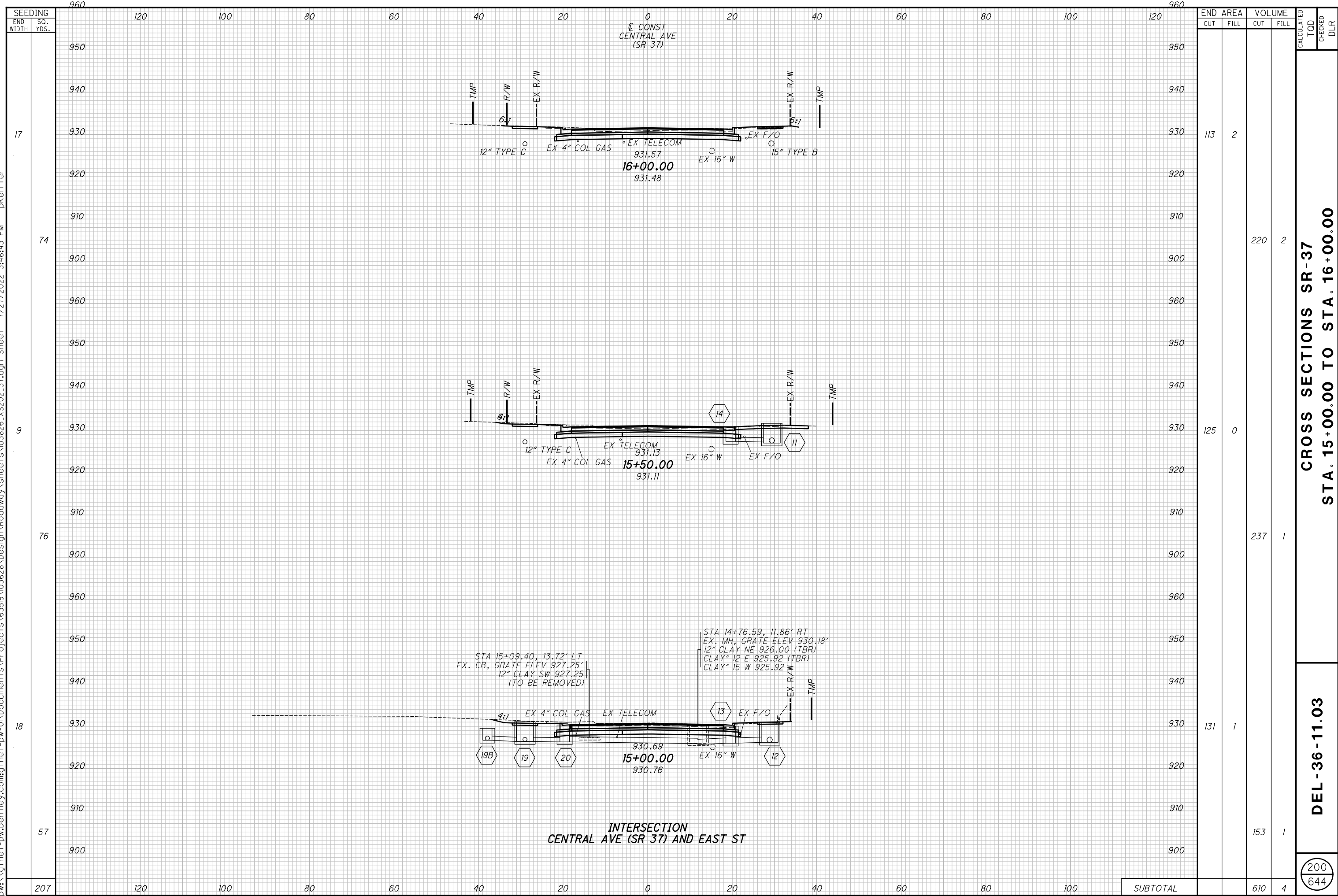
SEEDING	END AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
	CUT	FILL	CUT	FILL				
3	34	0						
14			47	0				
2	16	0						
0			0	0				
0			0	0				
0			0	0				
14			47	0				
	SUBTOTAL							

**CROSS SECTIONS SR-37  
 STA. 13+50.00 TO STA. 14+50.00**

**DEL-36-11.03**

199  
 644

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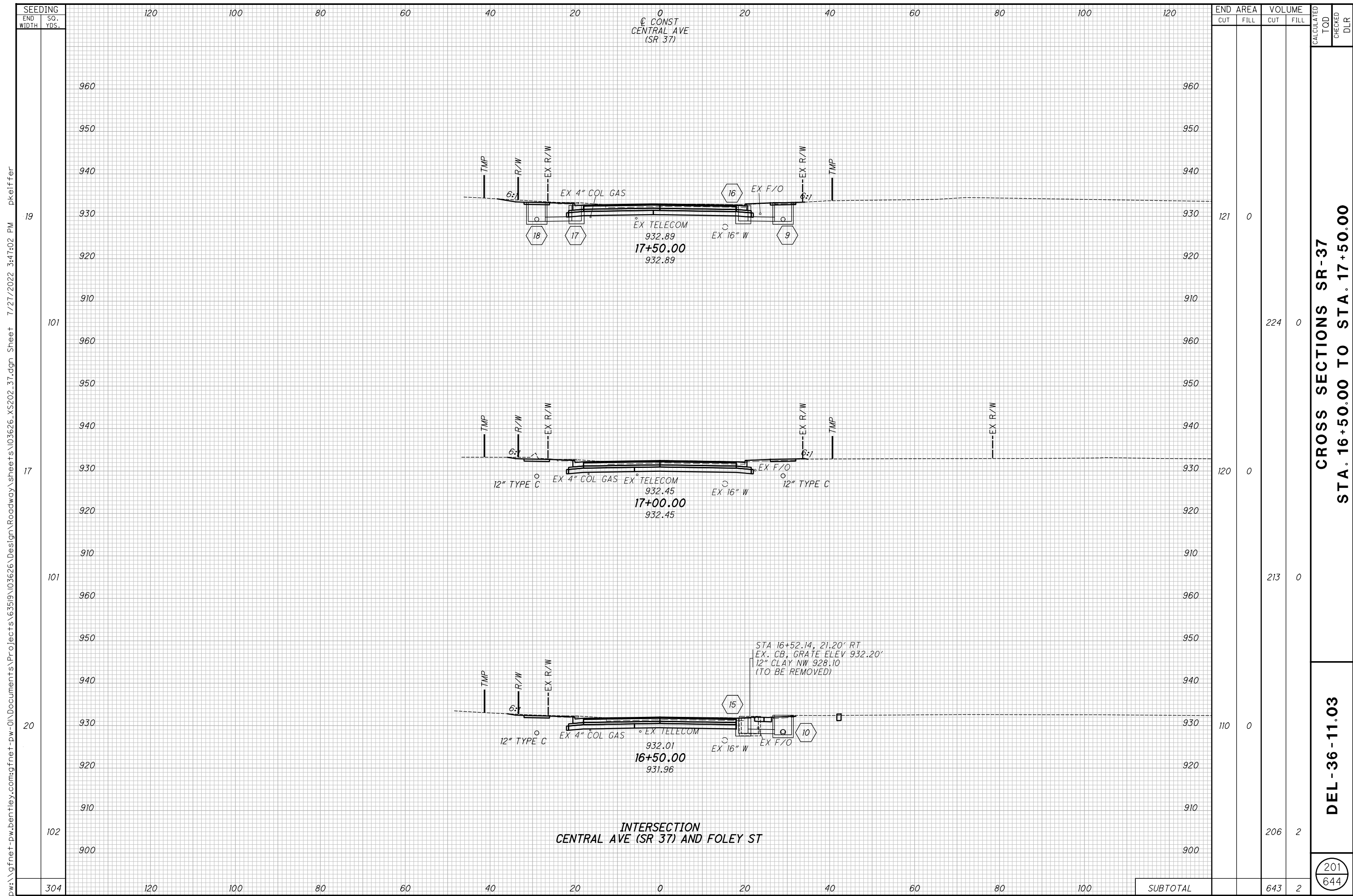
END AREA	VOLUME	CALCULATED	TOD	CHECKED	DLR
113	2				
125	0				
131	1				
		220	2		
		237	1		
		153	1		
<b>SUBTOTAL</b>		610	4		

**CROSS SECTIONS SR-37  
 STA. 15+00.00 TO STA. 16+00.00**

**DEL-36-11.03**

200  
644





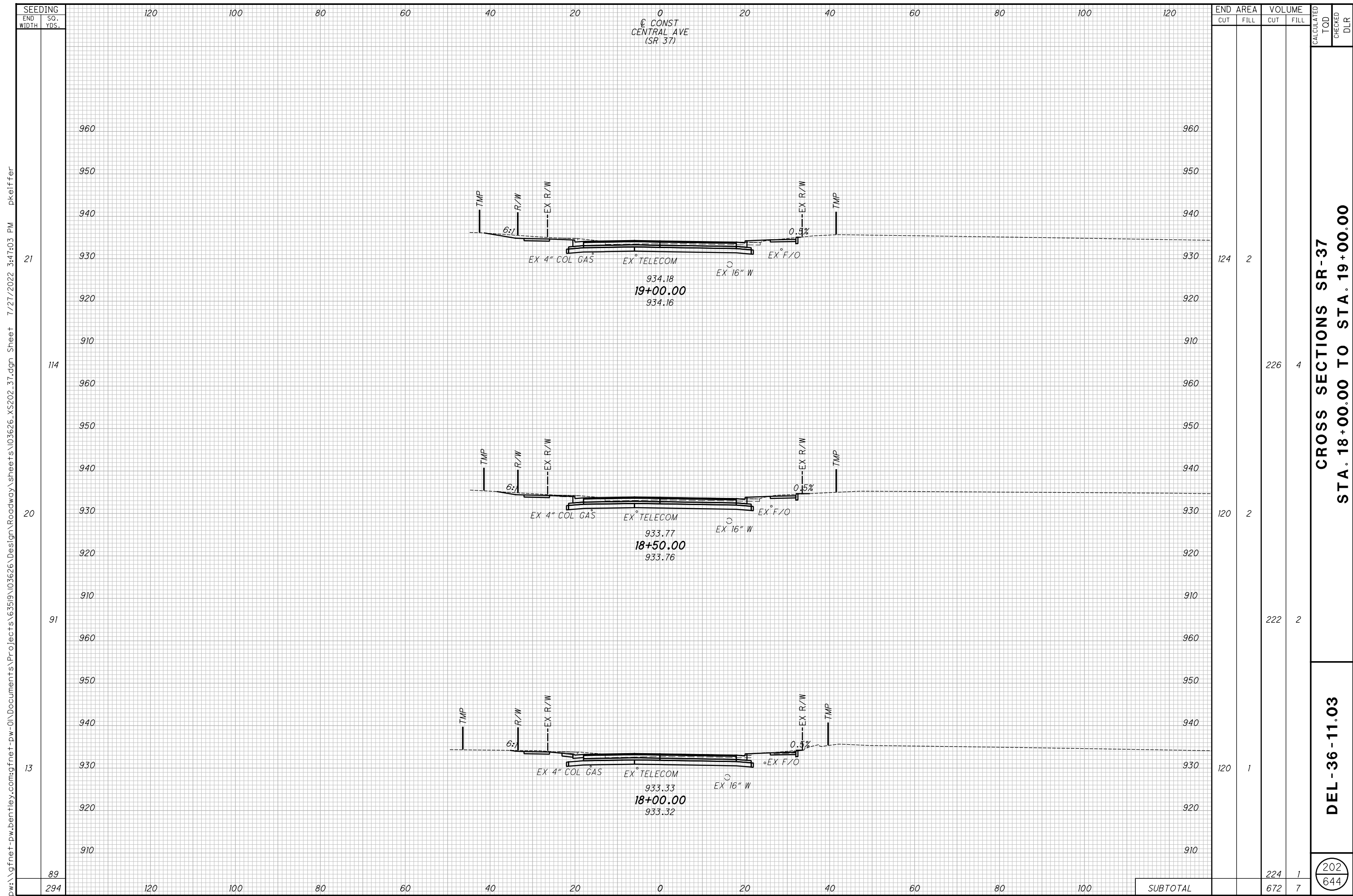
SEEDING END WIDTH	SO. YDS.	END AREA		VOLUME		CALCULATED TOD	CHECKED DLR
		CUT	FILL	CUT	FILL		
19	19	121	0	224	0		
17	17	120	0	213	0		
20	20	110	0	206	2		
304		SUBTOTAL		643	2		

**CROSS SECTIONS SR-37**  
**STA. 16+50.00 TO STA. 17+50.00**

**DEL-36-11.03**

201  
 644

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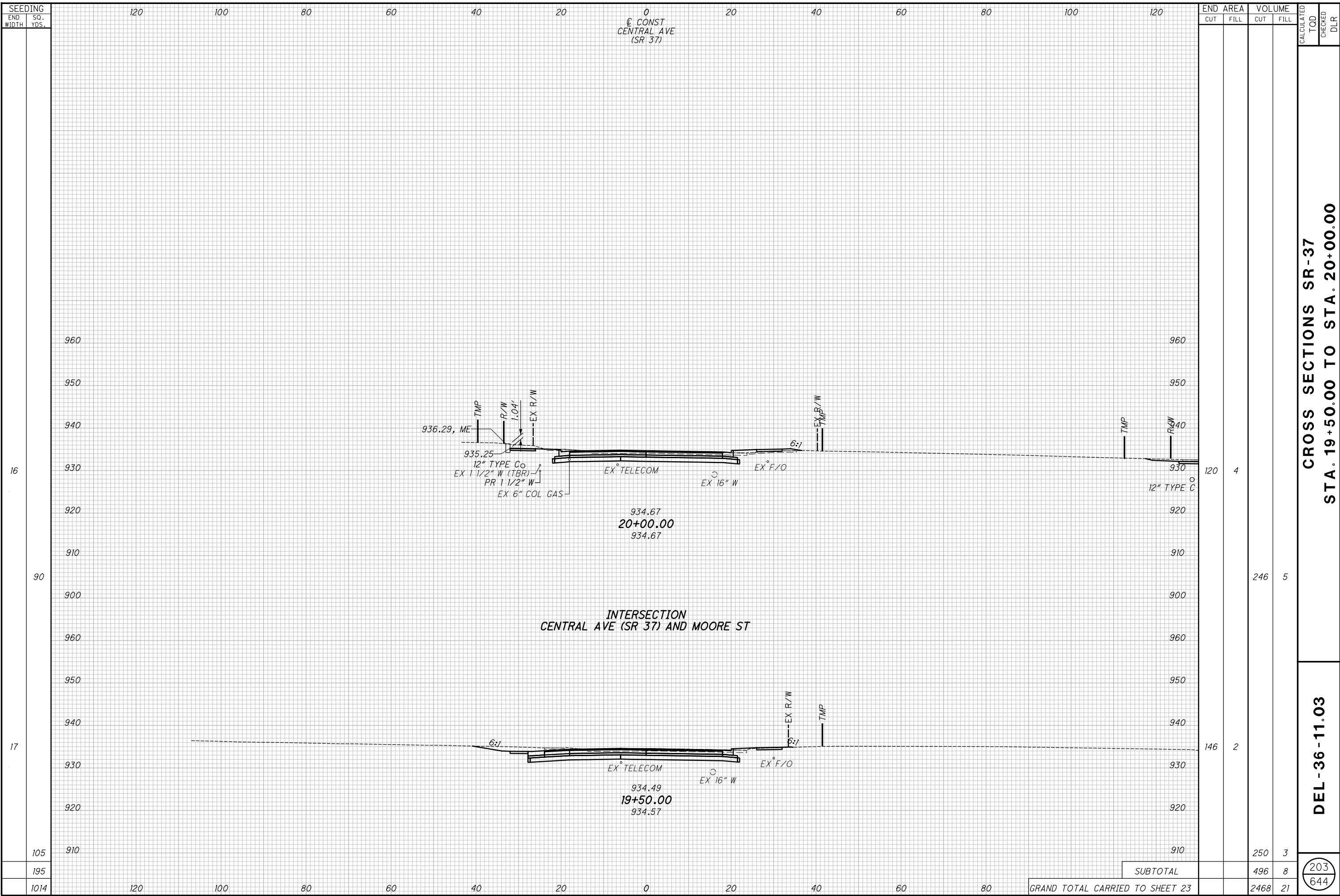


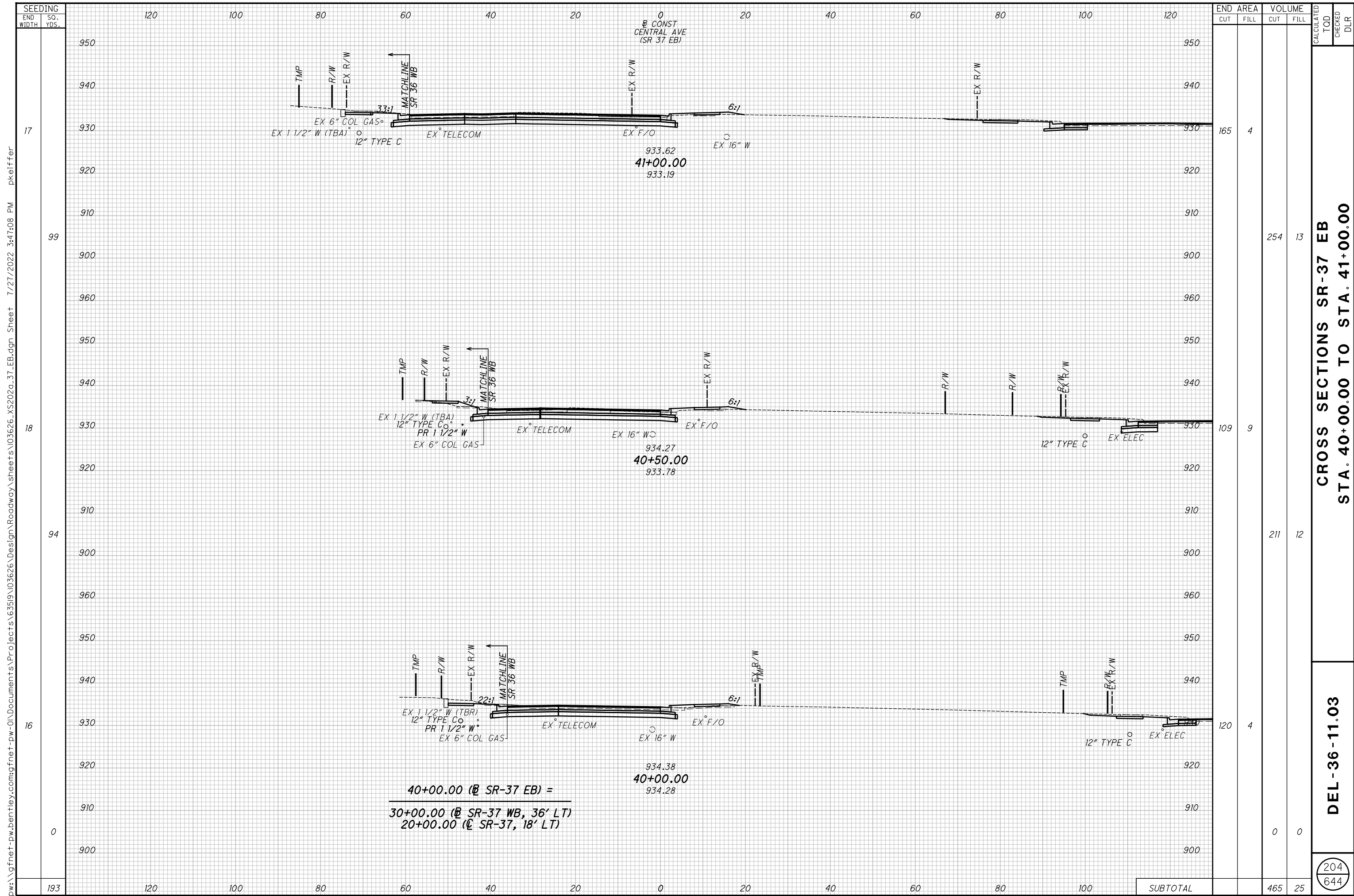
CROSS SECTIONS SR-37  
STA. 18+00.00 TO STA. 19+00.00

DEL-36-11.03

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40+00.00 (SR-37 EB) =  
 30+00.00 (SR-37 WB, 36' LT)  
 20+00.00 (SR-37, 18' LT)

END STA	AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
	CUT	FILL	CUT	FILL				
17	165	4						
99			254	13				
18	109	9						
94			211	12				
16	120	4						
0			0	0				
193	SUBTOTAL		465	25				

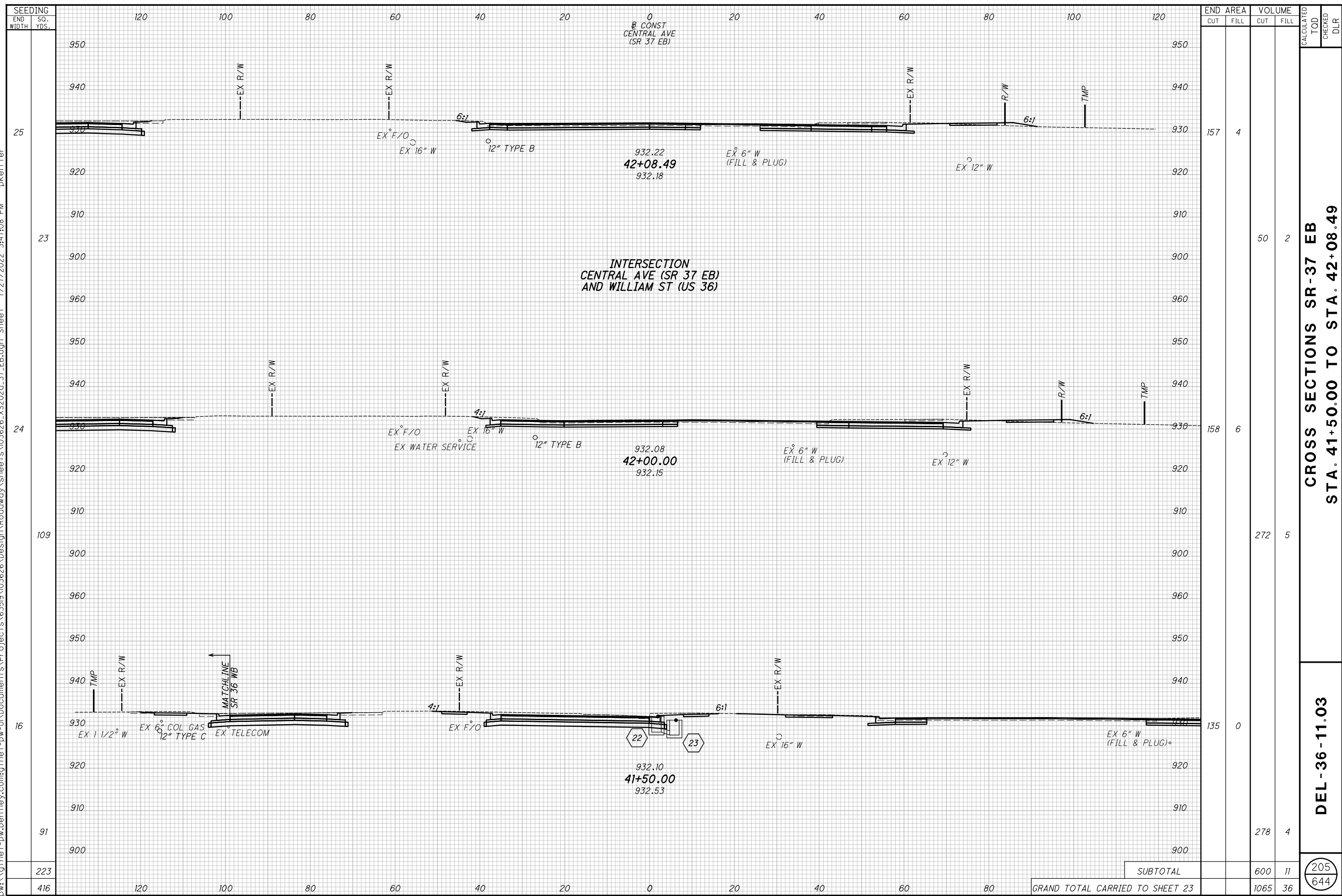
CROSS SECTIONS SR-37 EB  
 STA. 40+00.00 TO STA. 41+00.00

DEL-36-11.03

204  
 644

pw:\gfnnet-pw-bentley.com\gfnnet-pw-0\Documents\Projects\63519\03626\Design\Roadway\Sheets\03626a\_37\_EB.dgn Sheet 7/27/2022 3:47:08 PM pkeiff

pw:\gfnnet-pw.bentley.com\gfnnet-pw-0\Documents\Projects\63519\03626\Design\Roadway\sheet\03626\_xs202a\_37\_EB.dgn Sheet 7/27/2022 3:47:08 PM pkeiff



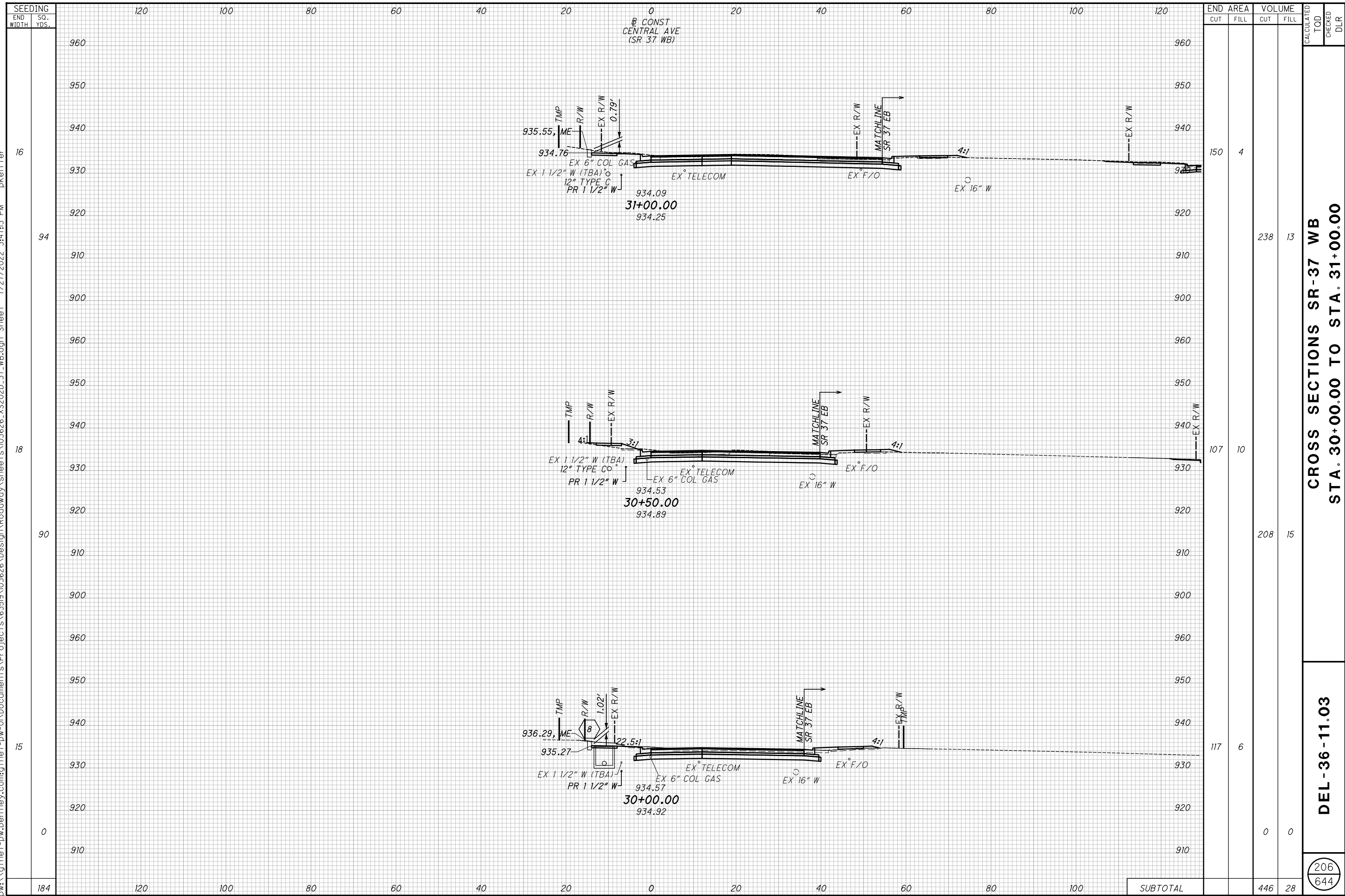
SEEDING END WIDTH	SO. YDS.	END AREA		VOLUME		CALCULATED TOD	CHECKED DLR
		CUT	FILL	CUT	FILL		
25		157	4				
23				50	2		
24		158	6				
109				272	5		
16		135	0				
91				278	4		
223		SUBTOTAL				600	11
416		GRAND TOTAL CARRIED TO SHEET 23				1065	36

**CROSS SECTIONS SR-37 EB  
STA. 41+50.00 TO STA. 42+08.49**

**DEL-36-11.03**

205  
644

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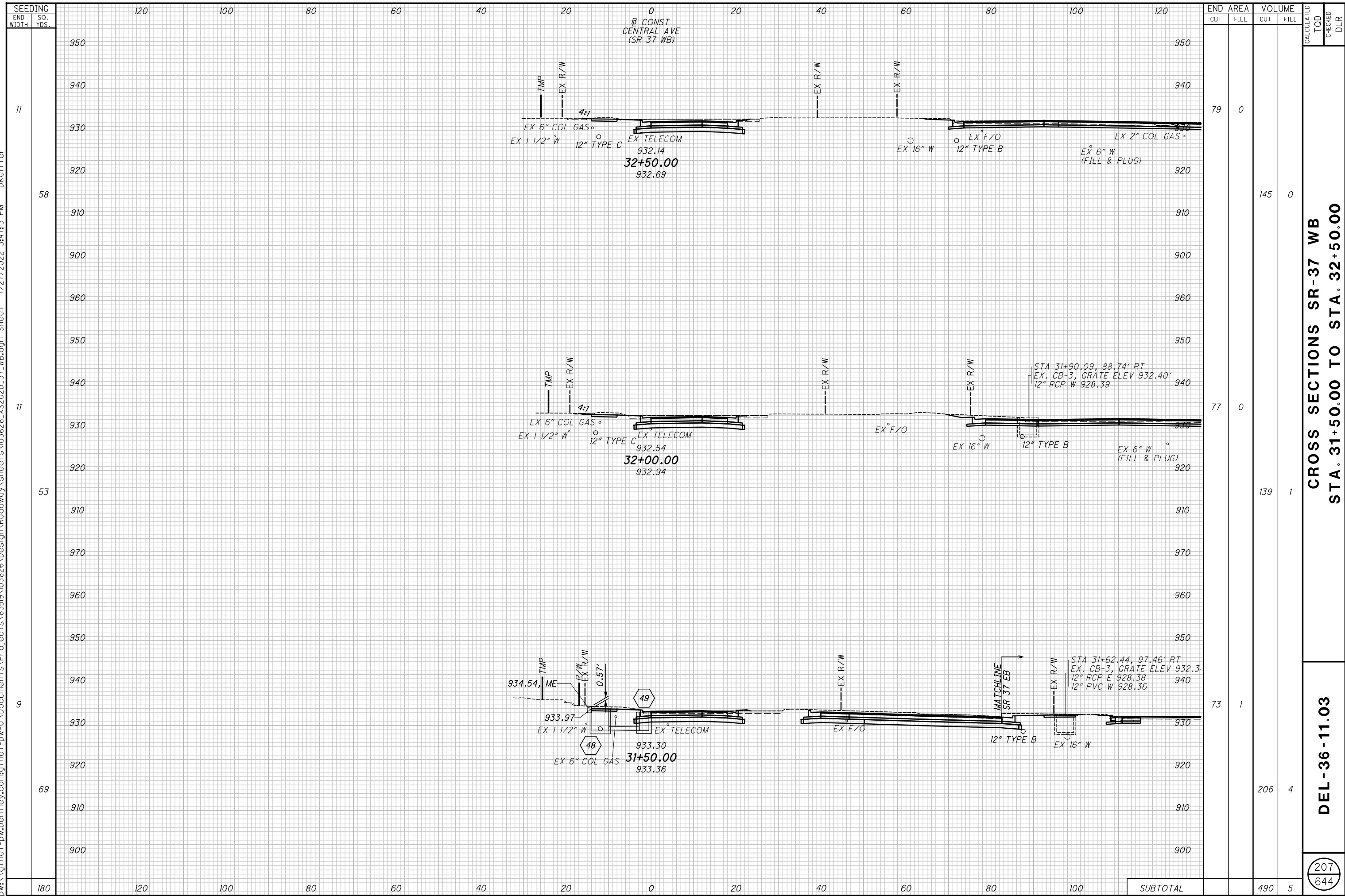


**CROSS SECTIONS SR-37 WB**  
**STA. 30+00.00 TO STA. 31+00.00**

**DEL-36-11.03**

206  
 644

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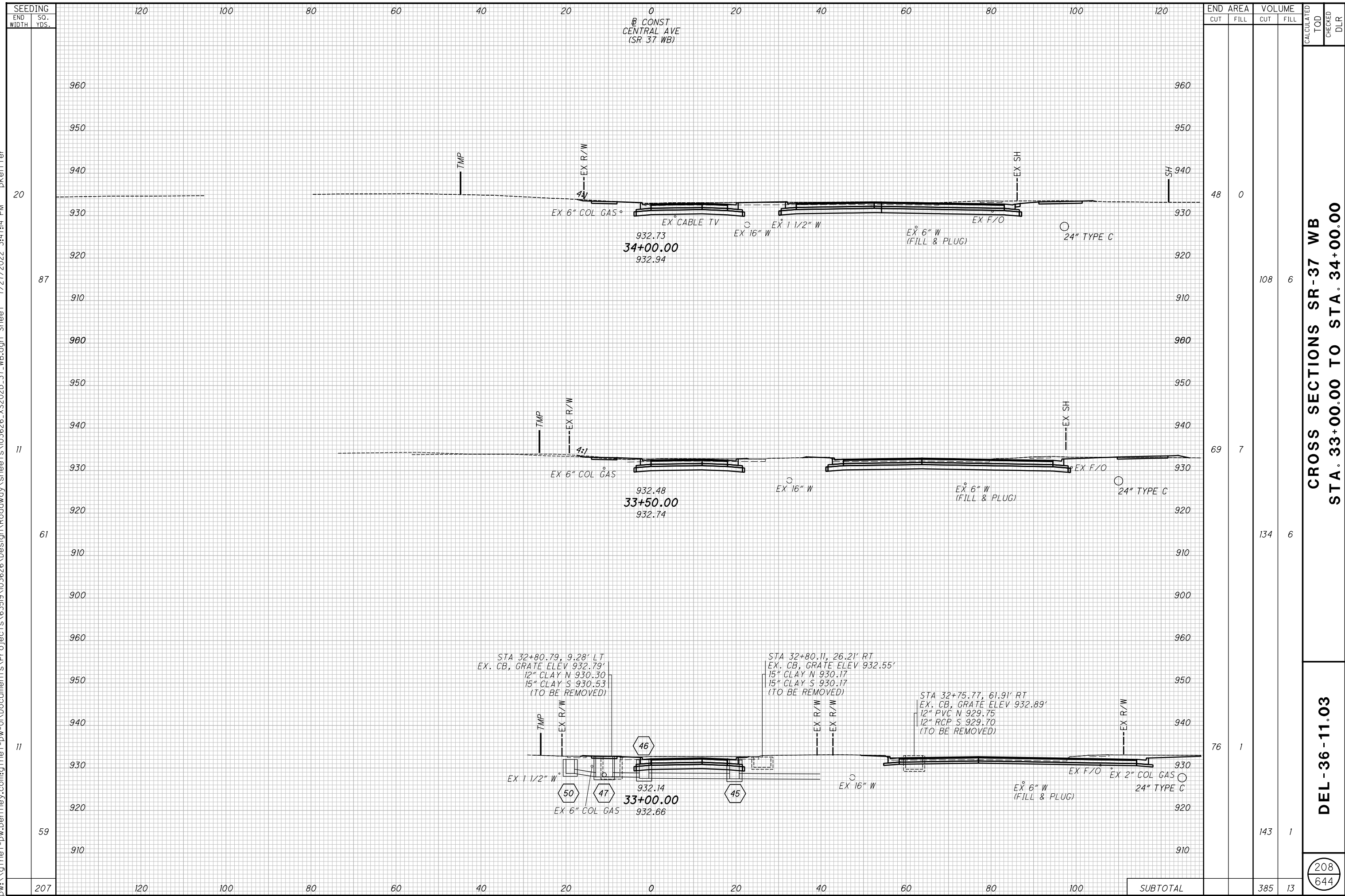


**CROSS SECTIONS SR-37 WB  
STA. 31+50.00 TO STA. 32+50.00**

**DEL-36-11.03**

207  
644

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SEEDING	END AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
	CUT	FILL	CUT	FILL				
20	48	0						
87			108	6				
11	69	7	134	6				
61								
11	76	1						
59			143	1				
207	SUBTOTAL		385	13				

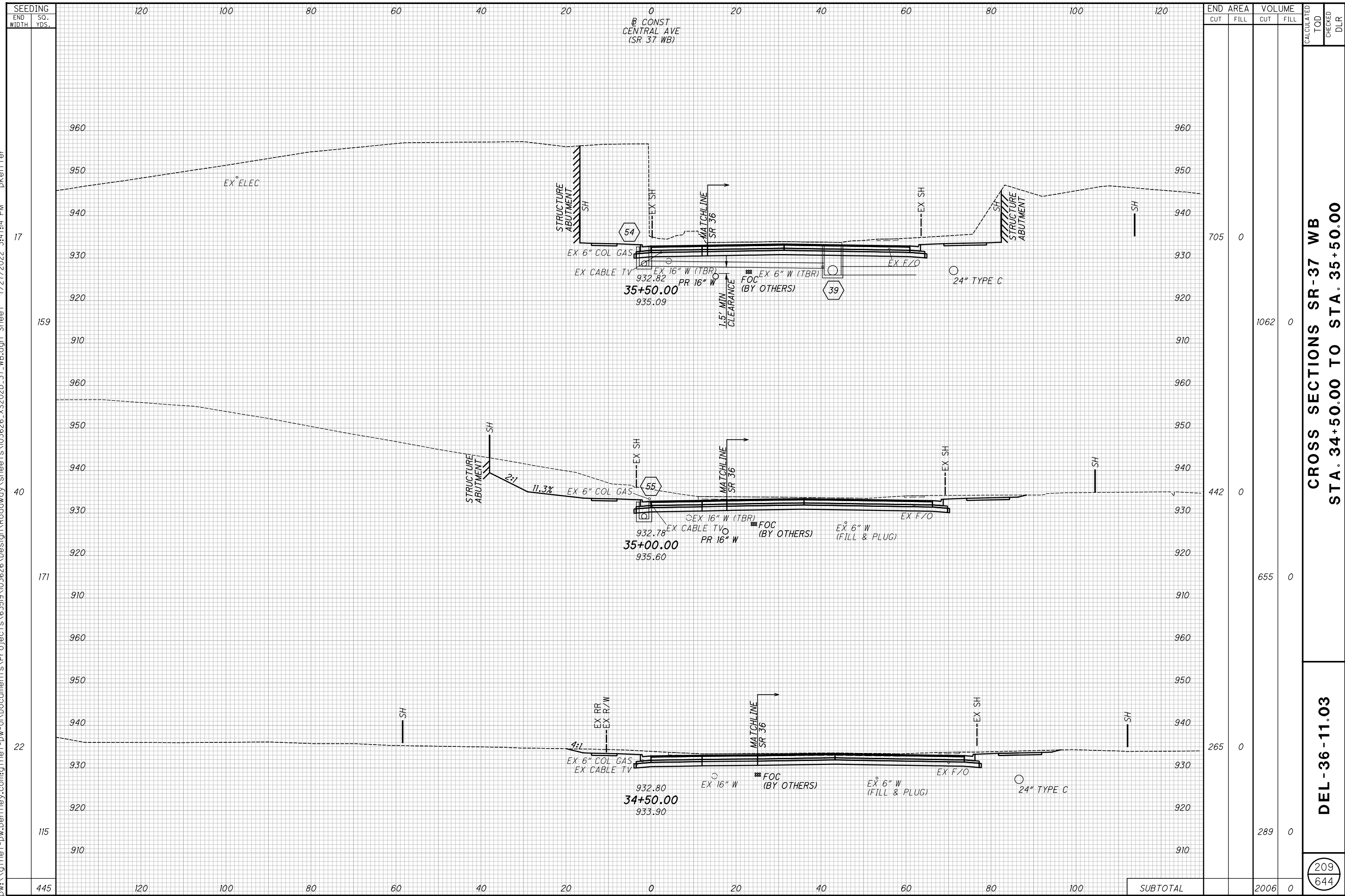
**CROSS SECTIONS SR-37 WB**  
**STA. 33+00.00 TO STA. 34+00.00**

**DEL-36-11.03**

208  
 644



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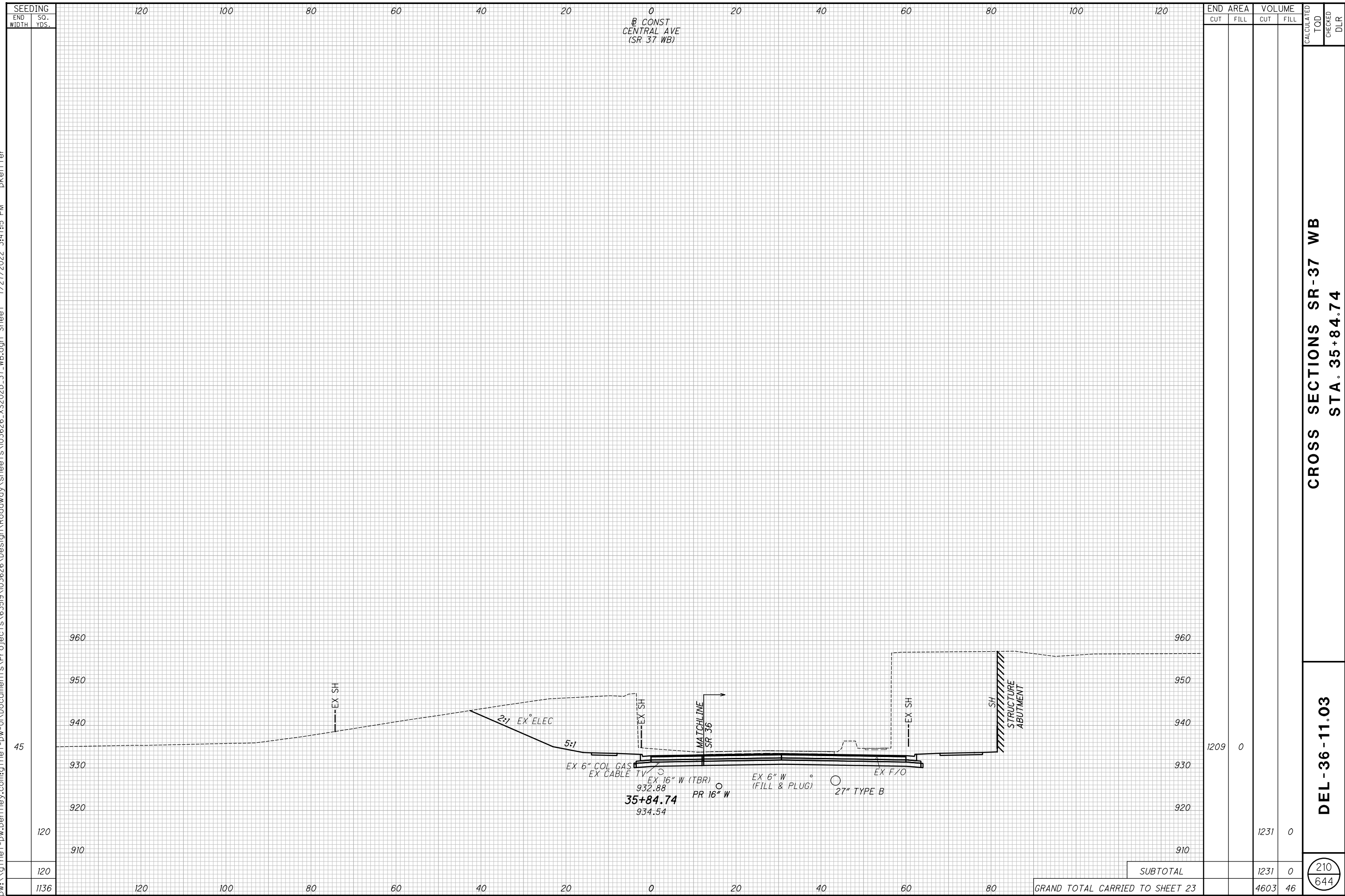
SEEDING	END AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
	END WIDTH	SO. YDS.	CUT	FILL				
17			705	0				
159					1062	0		
40			442	0				
171					655	0		
22			265	0				
115					289	0		
445			SUBTOTAL		2066	0		

**CROSS SECTIONS SR-37 WB**  
**STA. 34+50.00 TO STA. 35+50.00**

**DEL-36-11.03**

209  
 644

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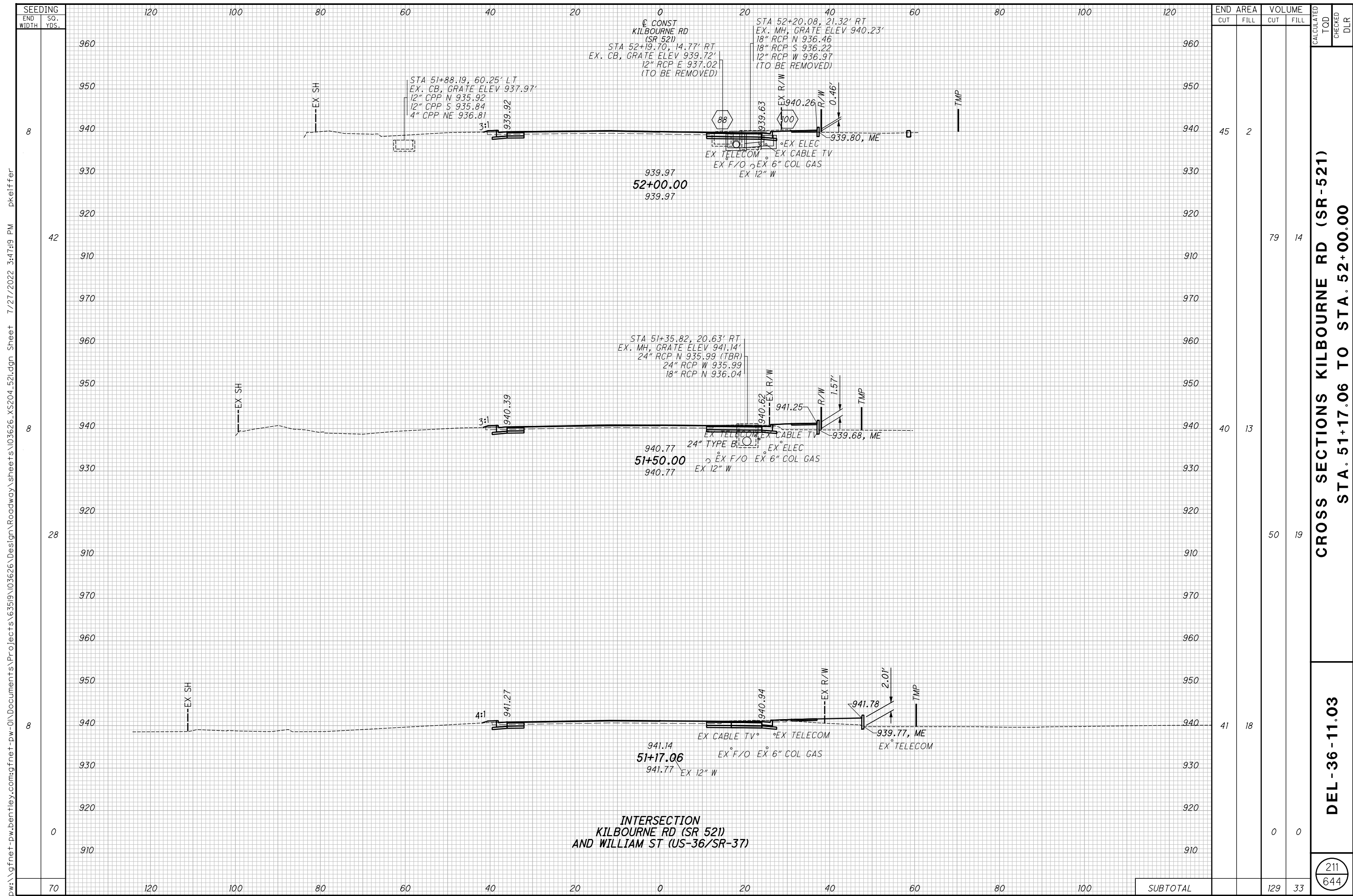
SEEDING	
END WIDTH	SO. YDS.
120	
120	
1136	

END AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
CUT	FILL	CUT	FILL				
1209	0	1231	0				
SUBTOTAL							
GRAND TOTAL CARRIED TO SHEET 23				4603	46		

**CROSS SECTIONS SR-37 WB  
STA. 35+84.74**

**DEL-36-11.03**

210  
644



SEEDING	END SO.	
	WIDTH	YDS.
8	8	8
42	42	42
8	8	8
28	28	28
8	8	8
0	0	0
70	70	70

END AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
CUT	FILL	CUT	FILL				
45	2	79	14				
40	13	50	19				
41	18	0	0				
SUBTOTAL		129	33				

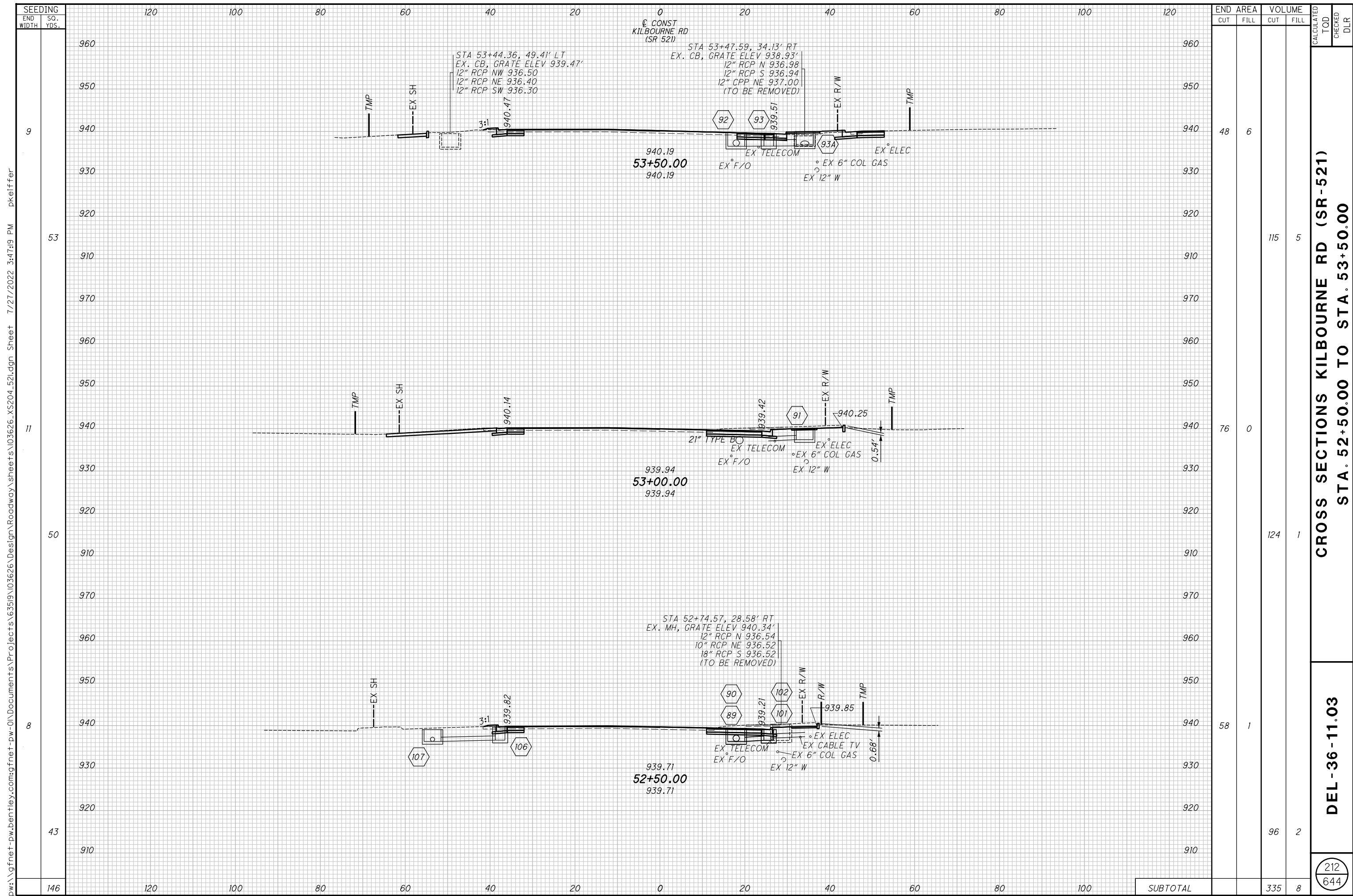
**CROSS SECTIONS KILBOURNE RD (SR-521)**  
**STA. 51+17.06 TO STA. 52+00.00**

**DEL-36-11.03**

211  
 644

**INTERSECTION**  
**KILBOURNE RD (SR 521)**  
**AND WILLIAM ST (US-36/SR-37)**

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SEEDING														END AREA		VOLUME		CALCULATED						
END WIDTH	SO. YDS.	120	100	80	60	40	20	0	20	40	60	80	100	120	CUT	FILL	CUT	FILL	TOT	CHECKED	DLR			
9															48	6								
53																	115	5						
11															76	0								
50																	124	1						
8															58	1								
43																	96	2						
146															SUBTOTAL				335	8				

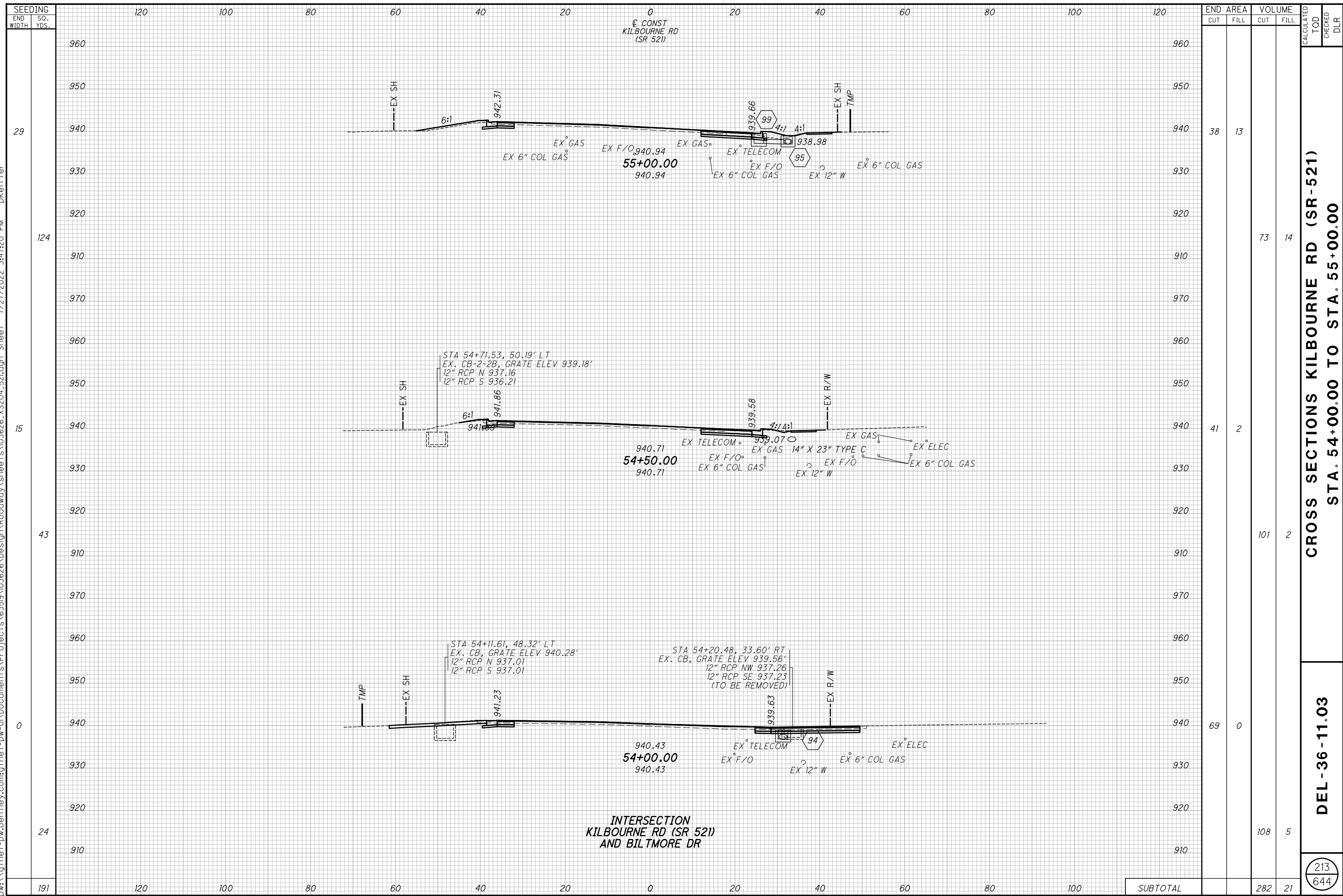
**CROSS SECTIONS KILBOURNE RD (SR-521)**  
**STA. 52+50.00 TO STA. 53+50.00**

**DEL-36-11.03**

212  
 644

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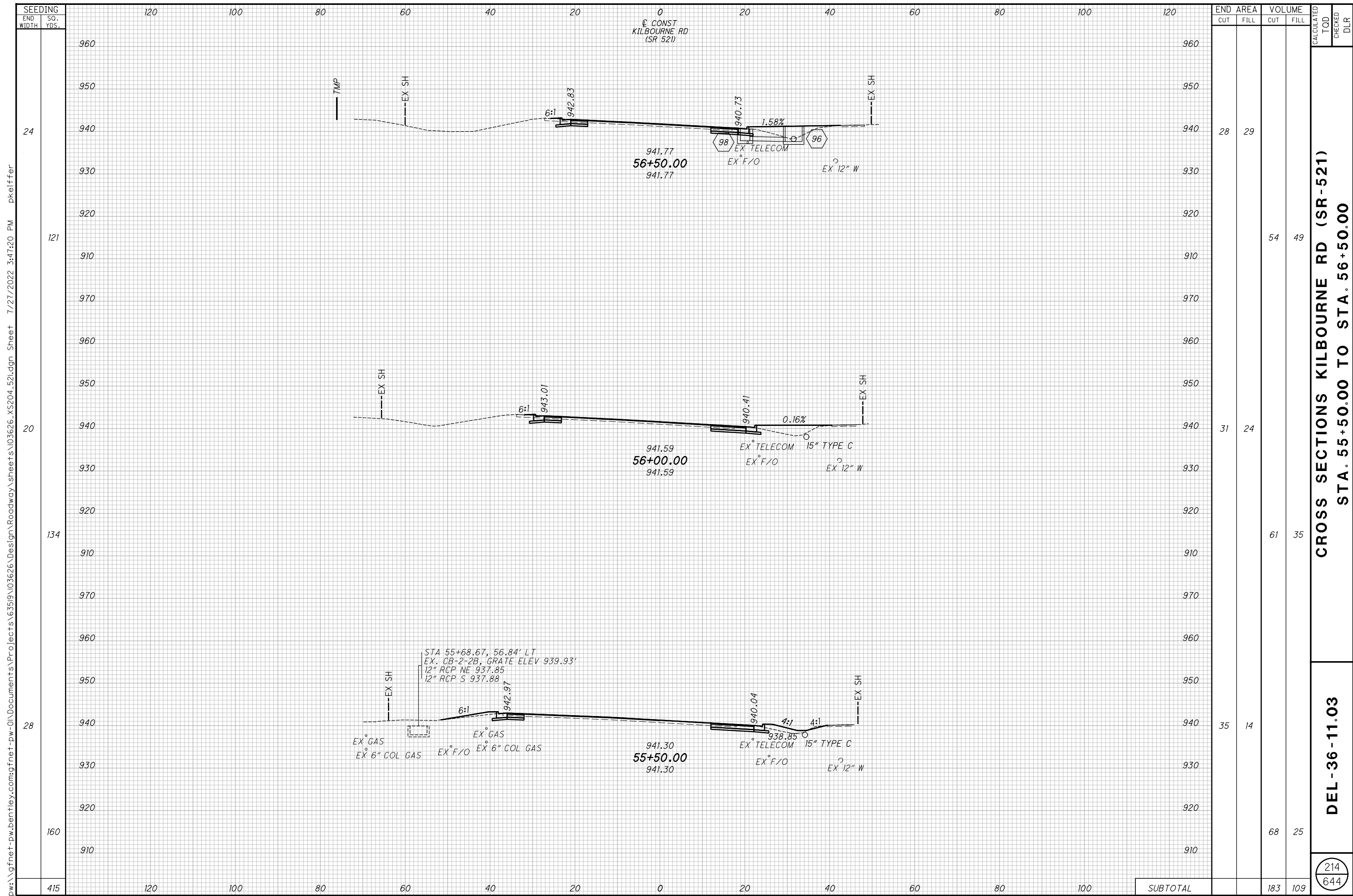
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**CROSS SECTIONS KILBOURNE RD (SR-521)  
STA. 54+00.00 TO STA. 55+00.00**

**DEL-36-11.03**

213  
644



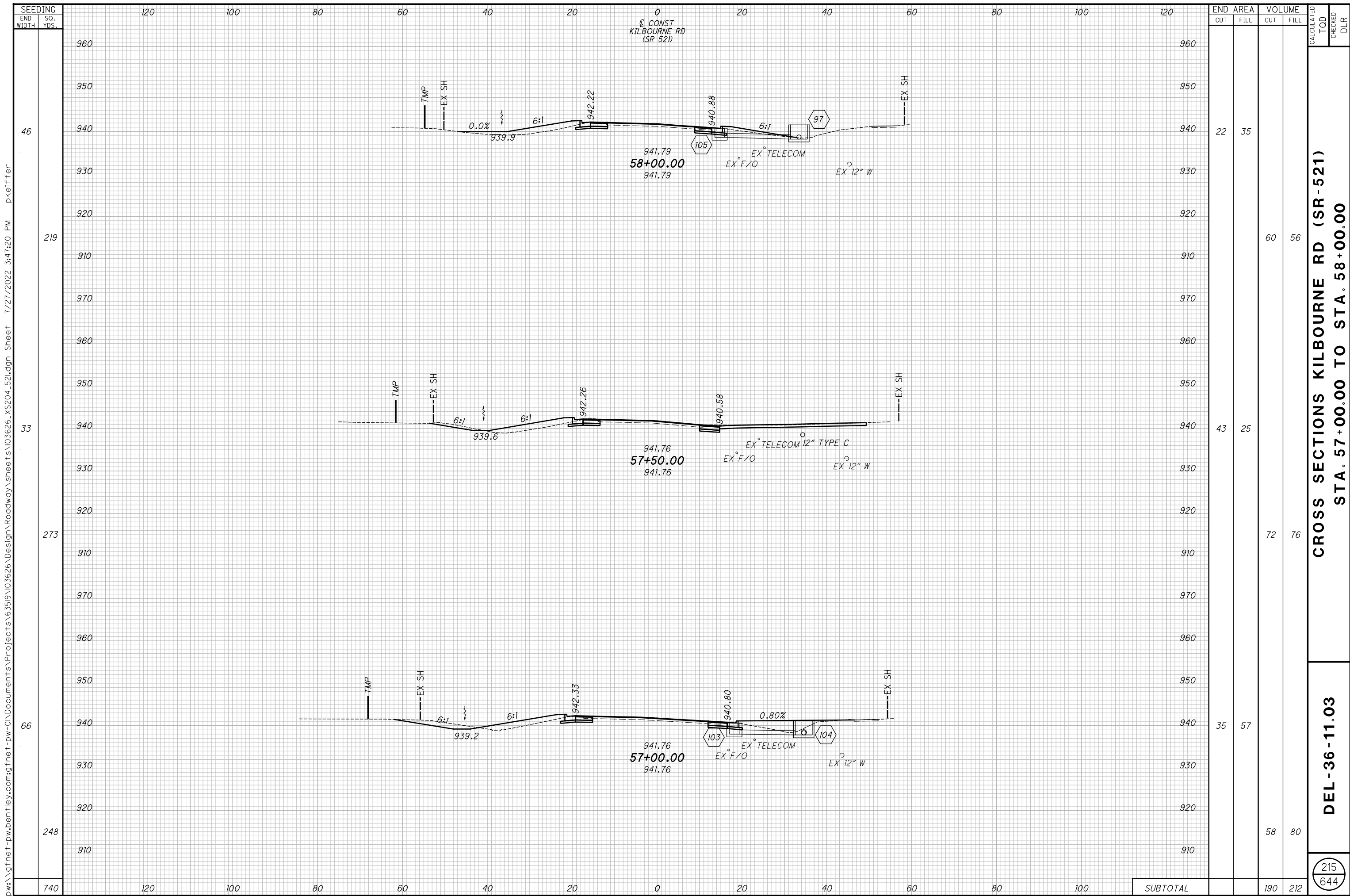
SEEDING	END AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
	CUT	FILL	CUT	FILL				
24	28	29	54	49				
121	31	24	61	35				
134	35	14	68	25				
160								
415	SUBTOTAL		183	109				

CROSS SECTIONS KILBOURNE RD (SR-521)  
 STA. 55+50.00 TO STA. 56+50.00

DEL-36-11.03

214  
 644

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SEEDING	
END WIDTH	SO. YDS.
46	219
33	273
66	248
740	

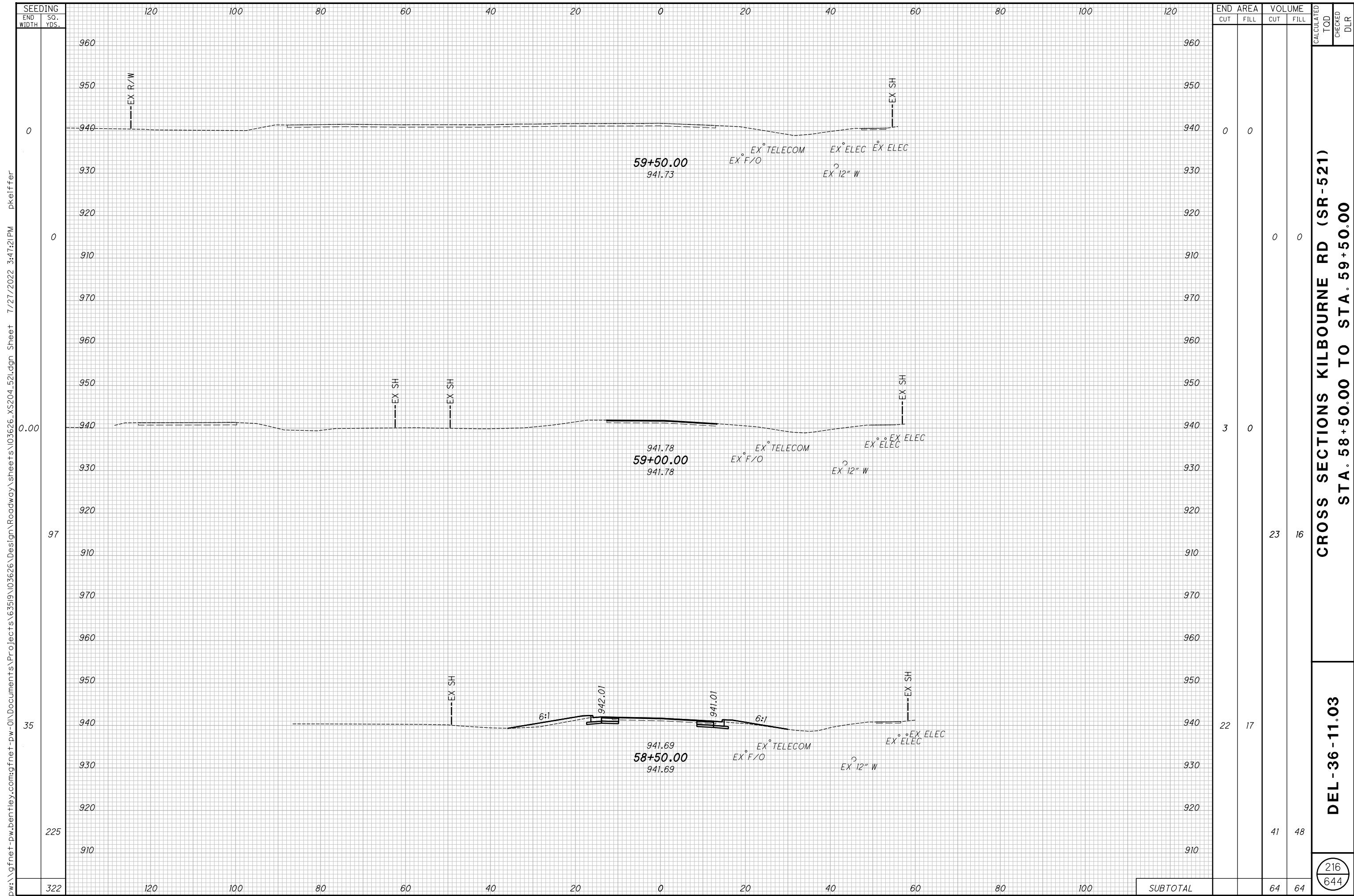
END AREA		VOLUME		CALCULATED TOD	CHECKED DLR
CUT	FILL	CUT	FILL		
22	35	60	56		
43	25	72	76		
35	57	58	80		
SUBTOTAL		190	212		

**CROSS SECTIONS KILBOURNE RD (SR-521)**  
**STA. 57+00.00 TO STA. 58+00.00**

**DEL-36-11.03**

215  
 644

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SEEDING	END AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
	CUT	FILL	CUT	FILL				
0	0	0	0	0				
0.00	3	0	23	16				
97	22	17	41	48				
225								
322	SUBTOTAL		64	64				

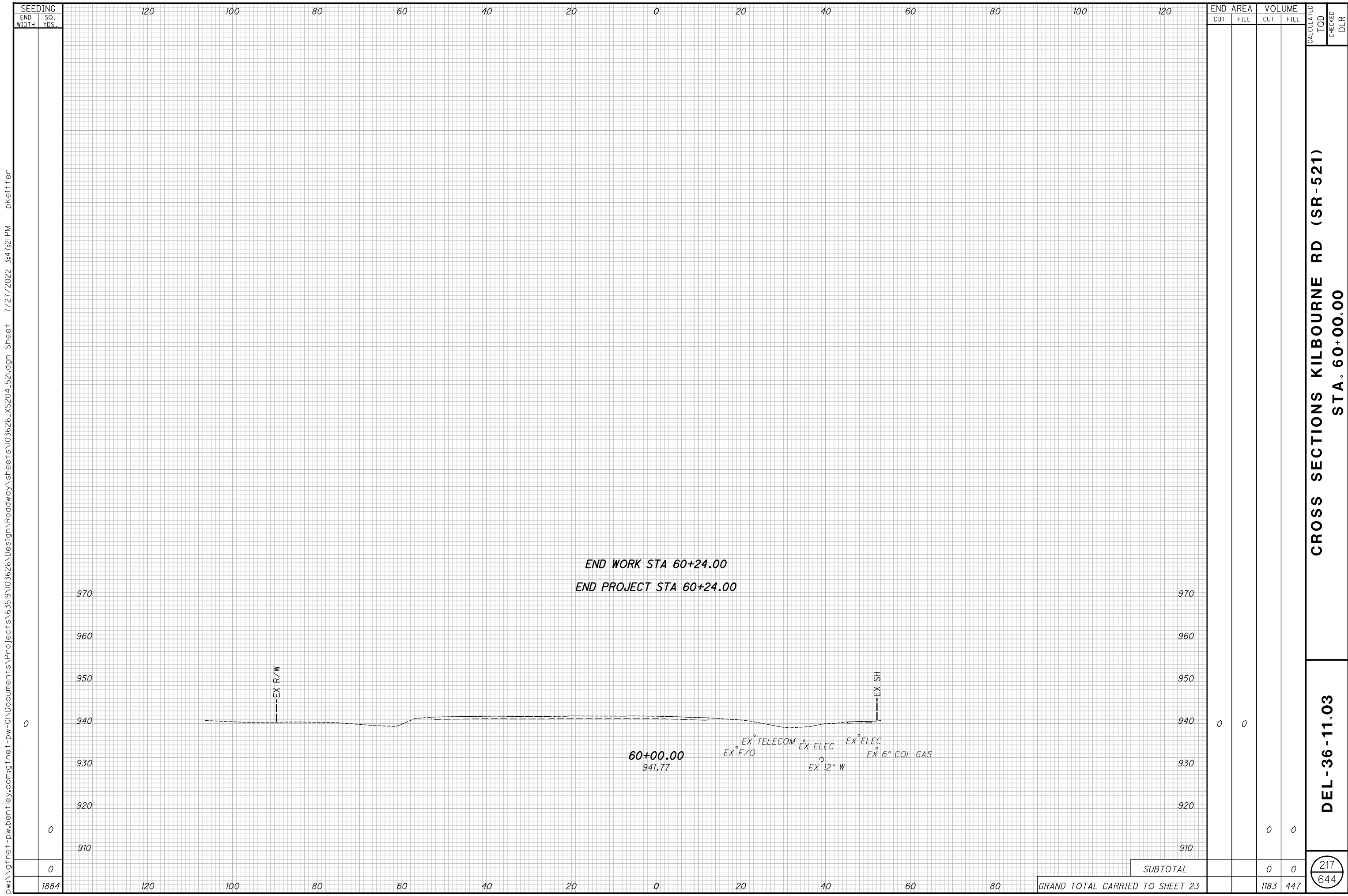
**CROSS SECTIONS KILBOURNE RD (SR-521)**  
**STA. 58+50.00 TO STA. 59+50.00**

**DEL-36-11.03**

216  
 644

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END WORK STA 60+24.00  
 END PROJECT STA 60+24.00

60+00.00  
 941.77

EX TELECOM  
 EX F/O  
 EX 12" W  
 EX ELEC  
 EX 6" COL GAS

SUBTOTAL

GRAND TOTAL CARRIED TO SHEET 23

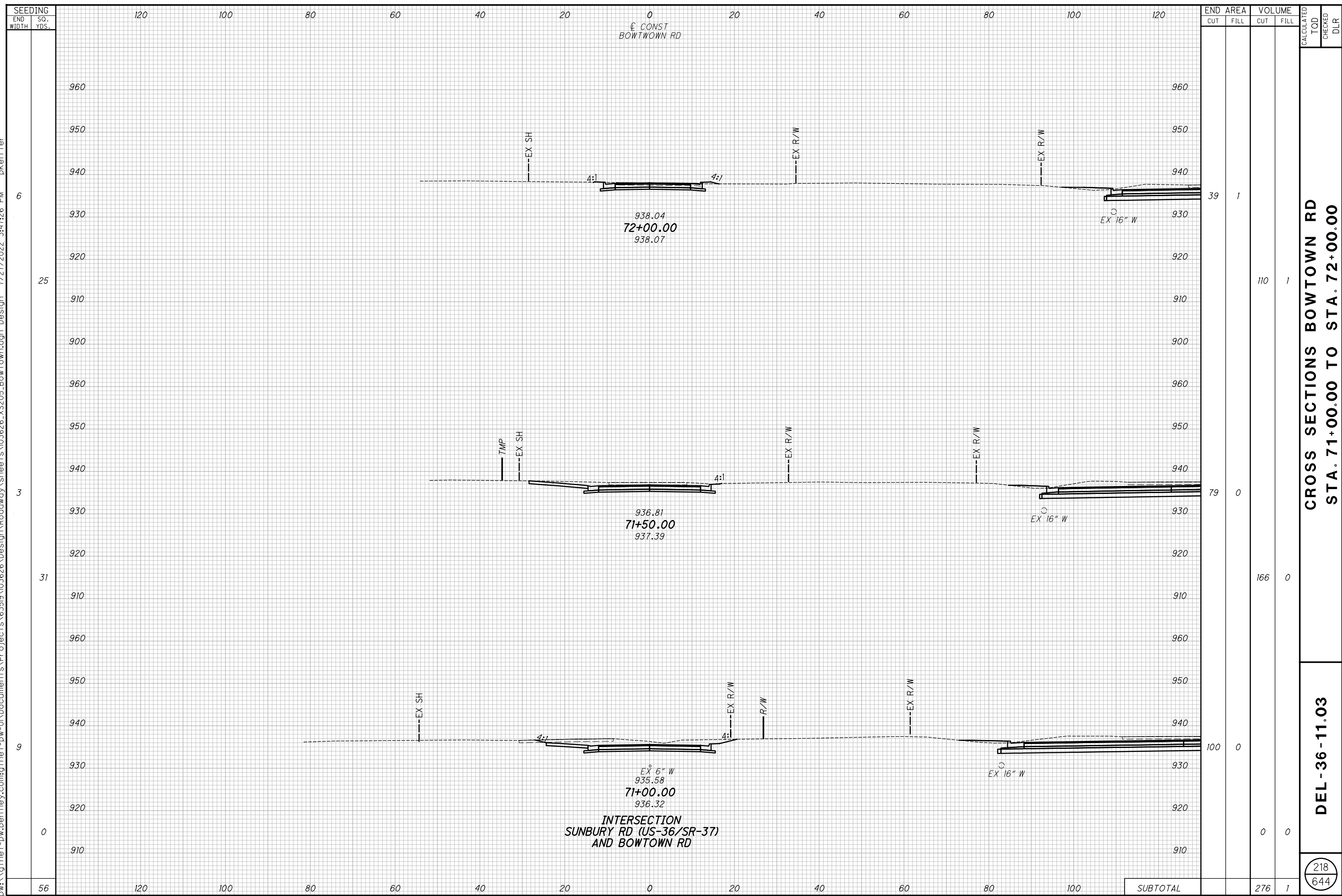
SEEDING		END AREA		VOLUME		CALCULATED	
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL	TOD	DLR
0	0	0	0	0	0	0	0
1884	0			1183	447	217	644

CROSS SECTIONS KILBOURNE RD (SR-521)  
 STA. 60+00.00

DEL-36-11.03

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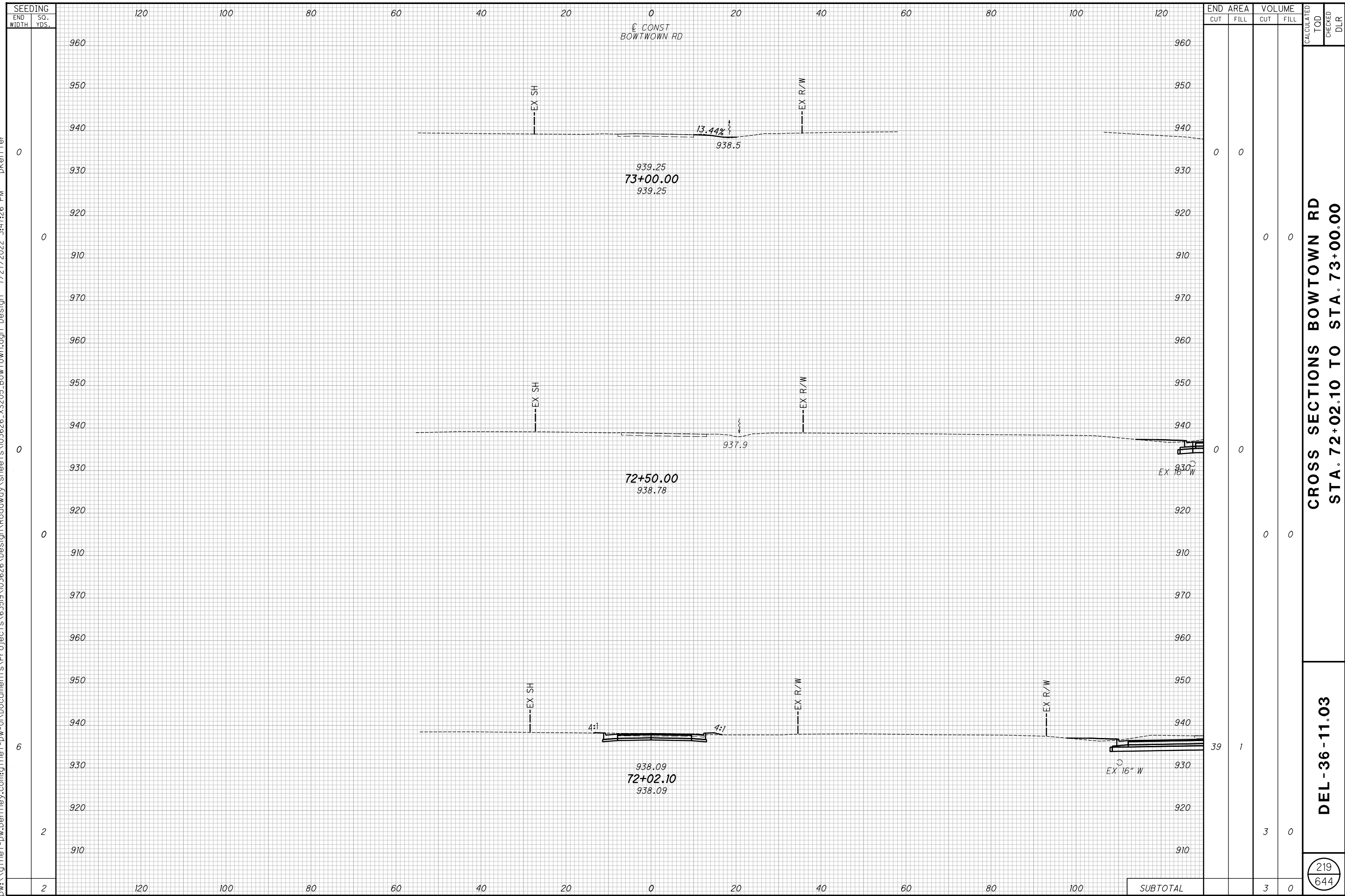
END STA.	AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
	CUT	FILL	CUT	FILL				
72+00.00	39	1						
71+50.00	79	0						
71+00.00	100	0						
<b>SUBTOTAL</b>			276	1				

**CROSS SECTIONS BOWTOWN RD  
 STA. 71+00.00 TO STA. 72+00.00**

**DEL-36-11.03**

218  
 644

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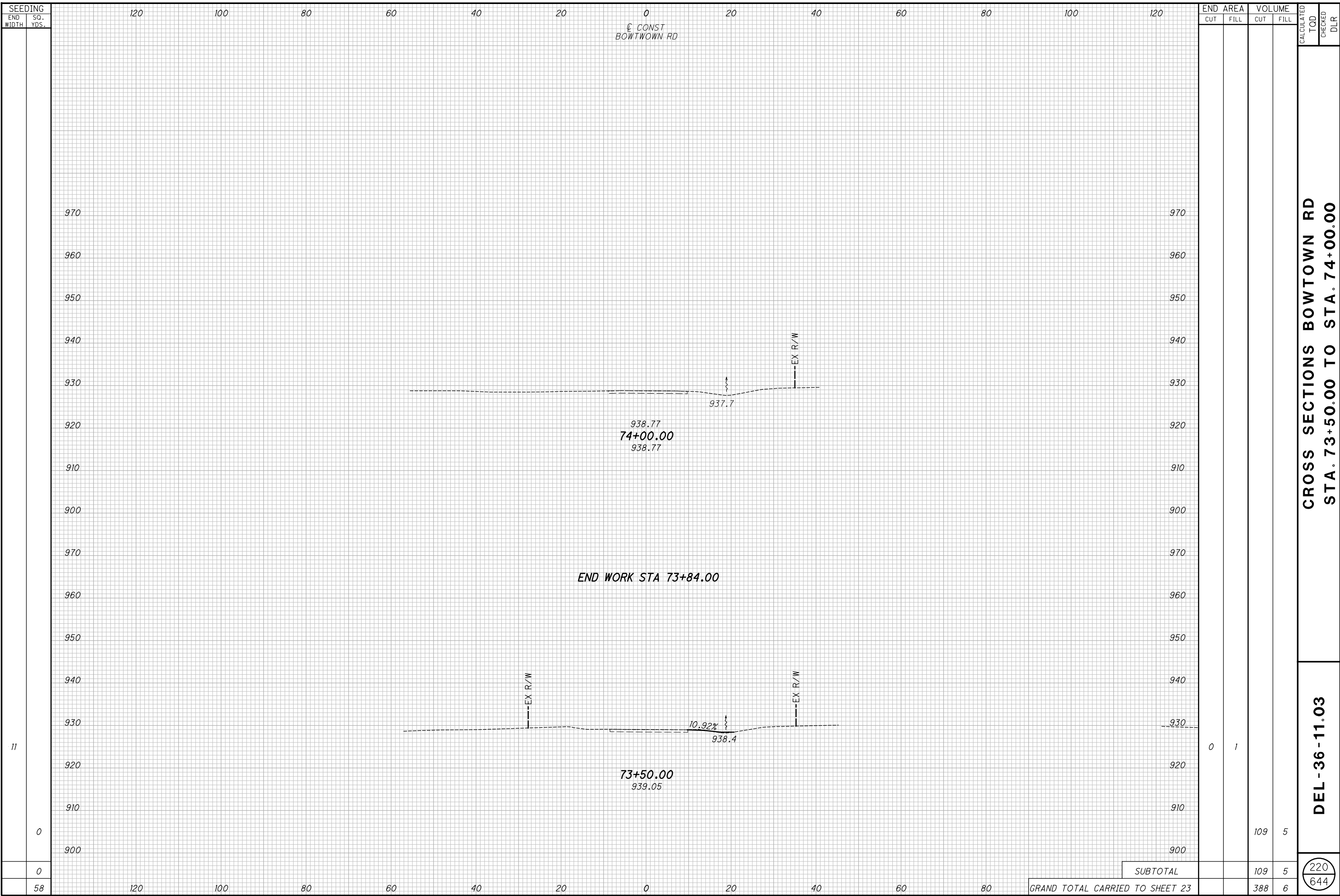


**CROSS SECTIONS BOWTOWN RD  
STA. 72+02.10 TO STA. 73+00.00**

**DEL-36-11.03**

219  
644

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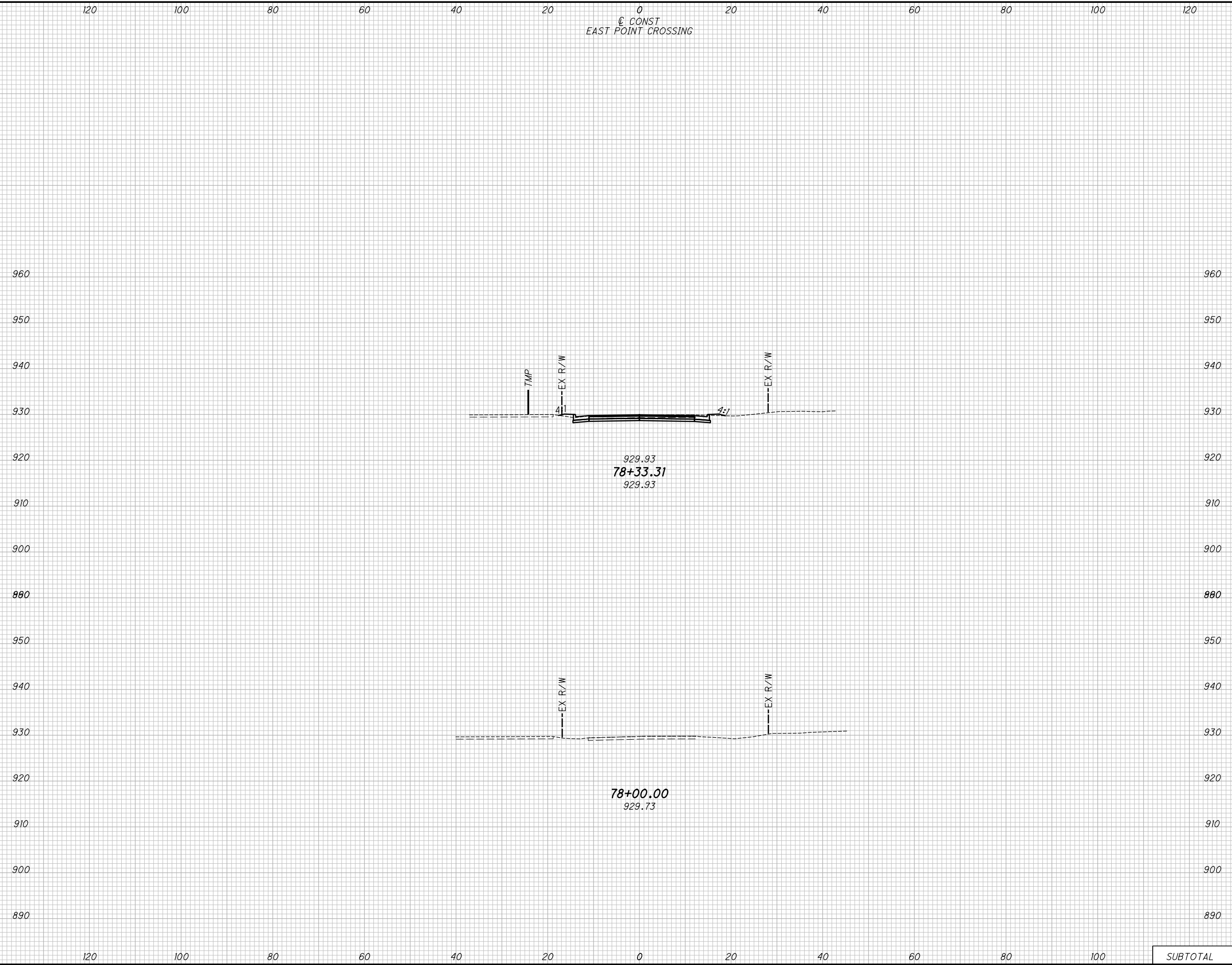
SEEDING		END AREA		VOLUME		CALCULATED	
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL	TOD	DLR
0	0	0	1	109	5		
0	0					220	
58	58	GRAND TOTAL CARRIED TO SHEET 23		388	6	644	

**CROSS SECTIONS BOWTOWN RD**  
**STA. 73+50.00 TO STA. 74+00.00**

**DEL-36-11.03**

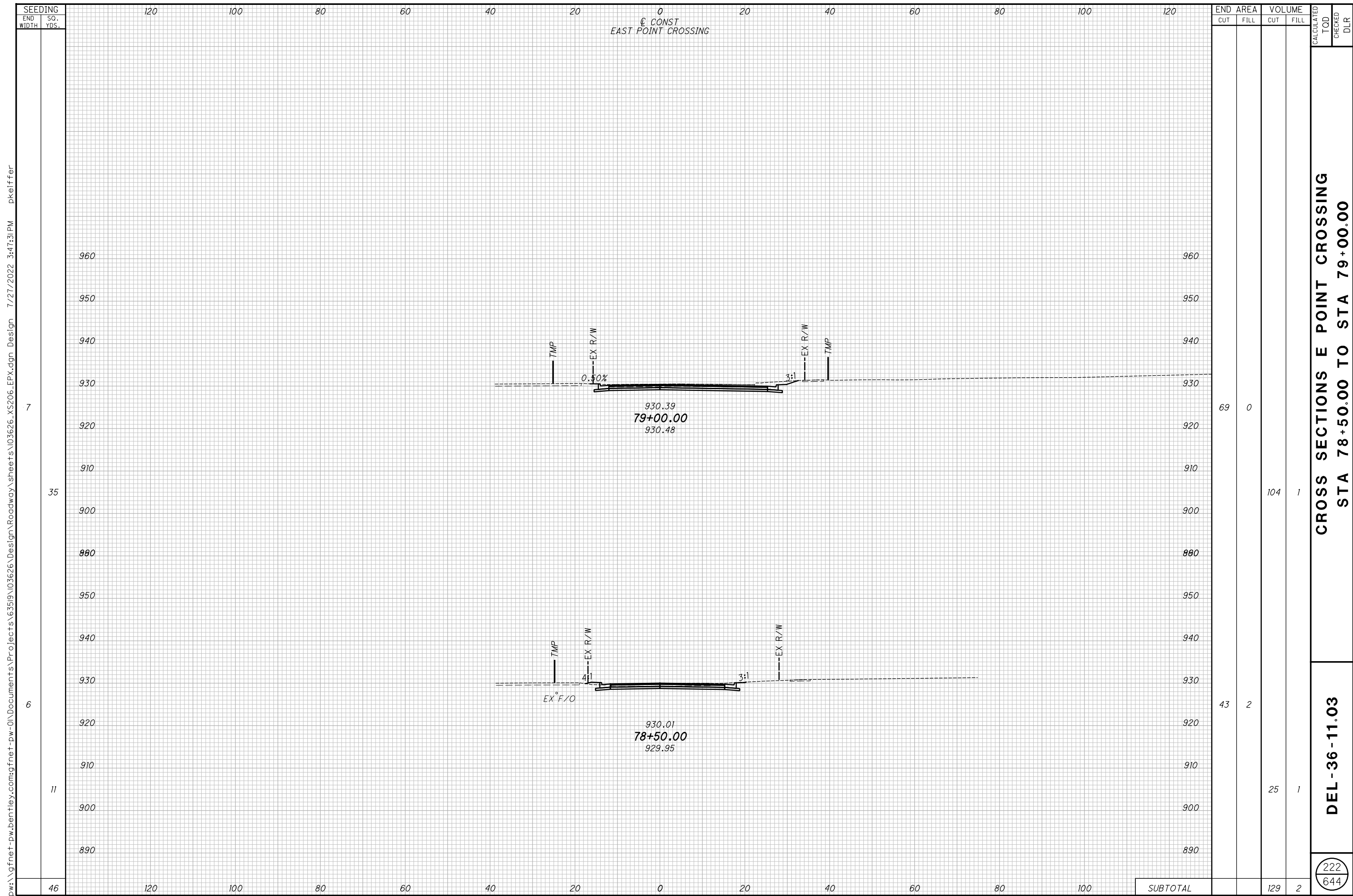
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SEEDING	
END WIDTH	SO. YDS.
120	0
100	0
80	0
60	0
40	0
20	0
0	0
20	0
40	0
60	0
80	0
100	0
120	0



END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0	0	0
0	0	0	0
38	2	0	0
38	2	0	0
<b>SUBTOTAL</b>		0	0

CALCULATED TOD CHECKED DLR	<b>CROSS SECTIONS E POINT CROSSING</b> <b>STA 78+00.00 TO STA 78+33.31</b>
221 644	



SEEDING	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
7	69	0		
35			104	1
6	43	2		
11			25	1
46	SUBTOTAL		129	2

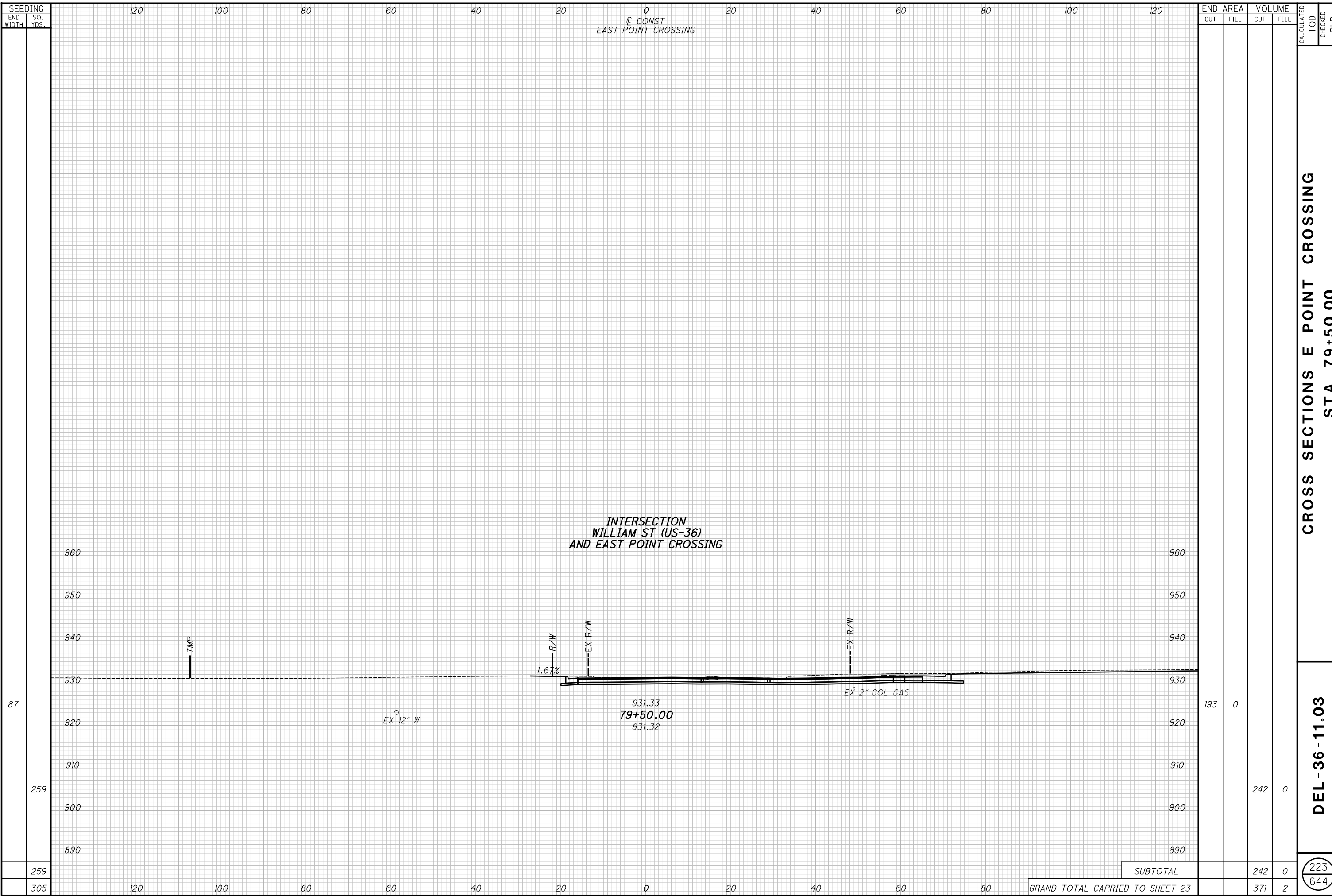
CROSS SECTIONS E POINT CROSSING  
 STA 78+50.00 TO STA 79+00.00

DEL-36-11.03

222  
 644

pw:\gfnnet-pw-bentley.com\gfnnet-pw-01\Documents\Projects\63519\103626\Design\Roadway\Sheets\03626\_XS206\_EPX.dgn Design 7/27/2022 3:47:31PM pkeiffner

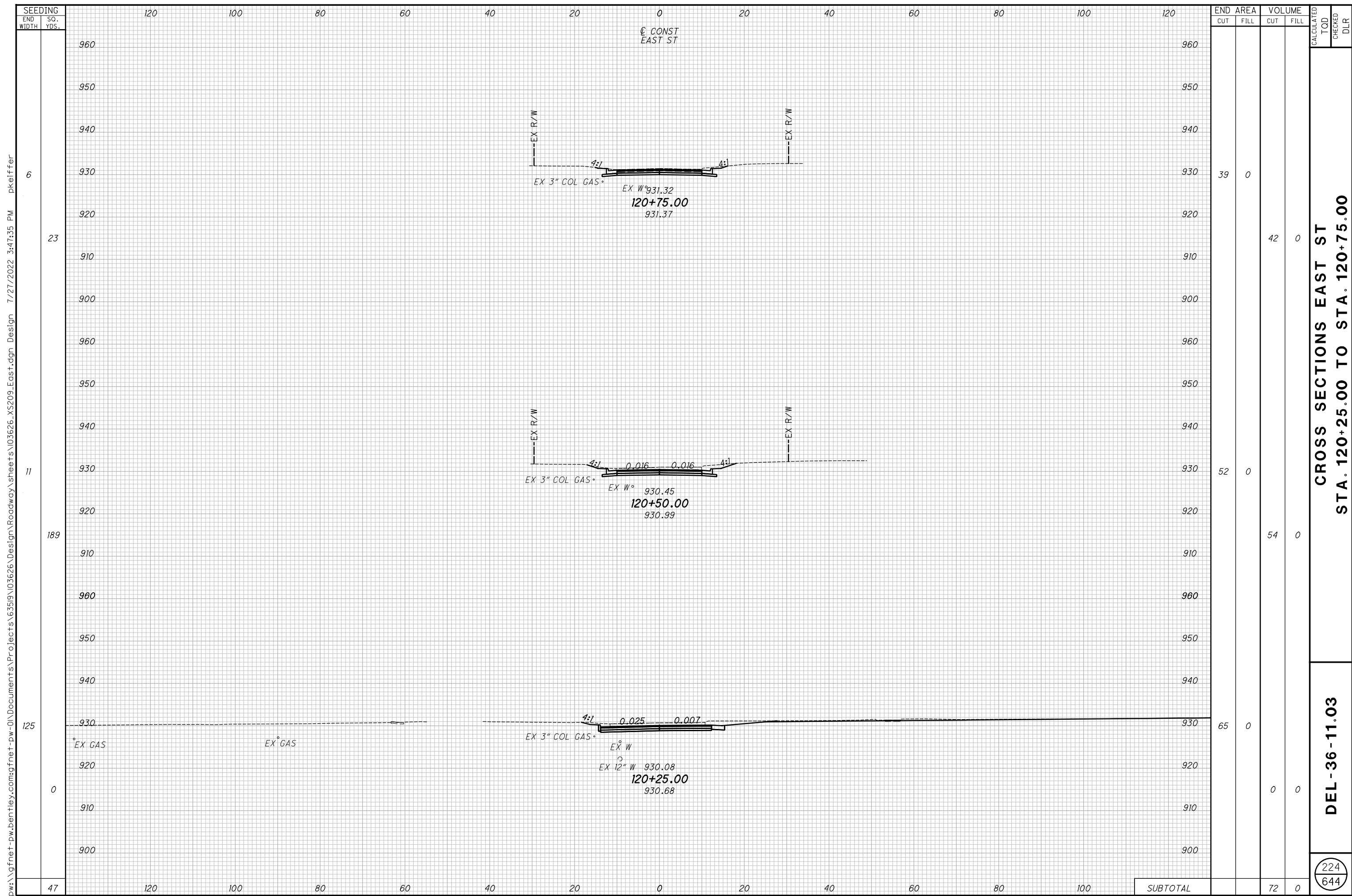
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**CROSS SECTIONS E POINT CROSSING  
STA 79+50.00**

**DEL -36 -11.03**

223  
644



END STA	AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
	CUT	FILL	CUT	FILL				
120+75.00	39	0	42	0				
120+50.00	52	0	54	0				
120+25.00	65	0	0	0				
<b>SUBTOTAL</b>			72	0				

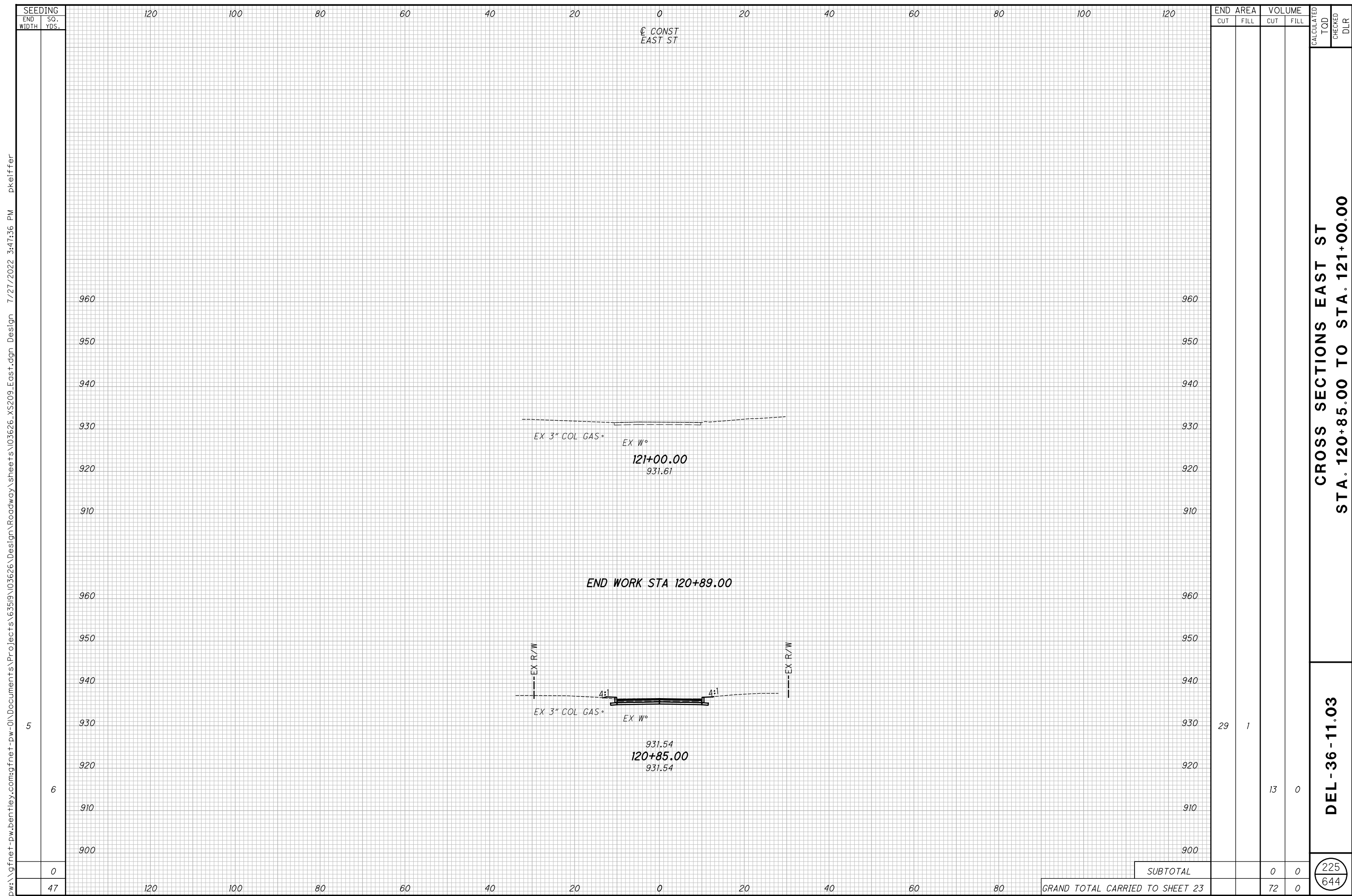
**CROSS SECTIONS EAST ST  
 STA. 120+25.00 TO STA. 120+75.00**

**DEL-36-11.03**

224  
 644

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SEEDING	END AREA		VOLUME		CALCULATED	TOD	CHECKED	DLR
	CUT	FILL	CUT	FILL				
0			0	0				
47			72	0				

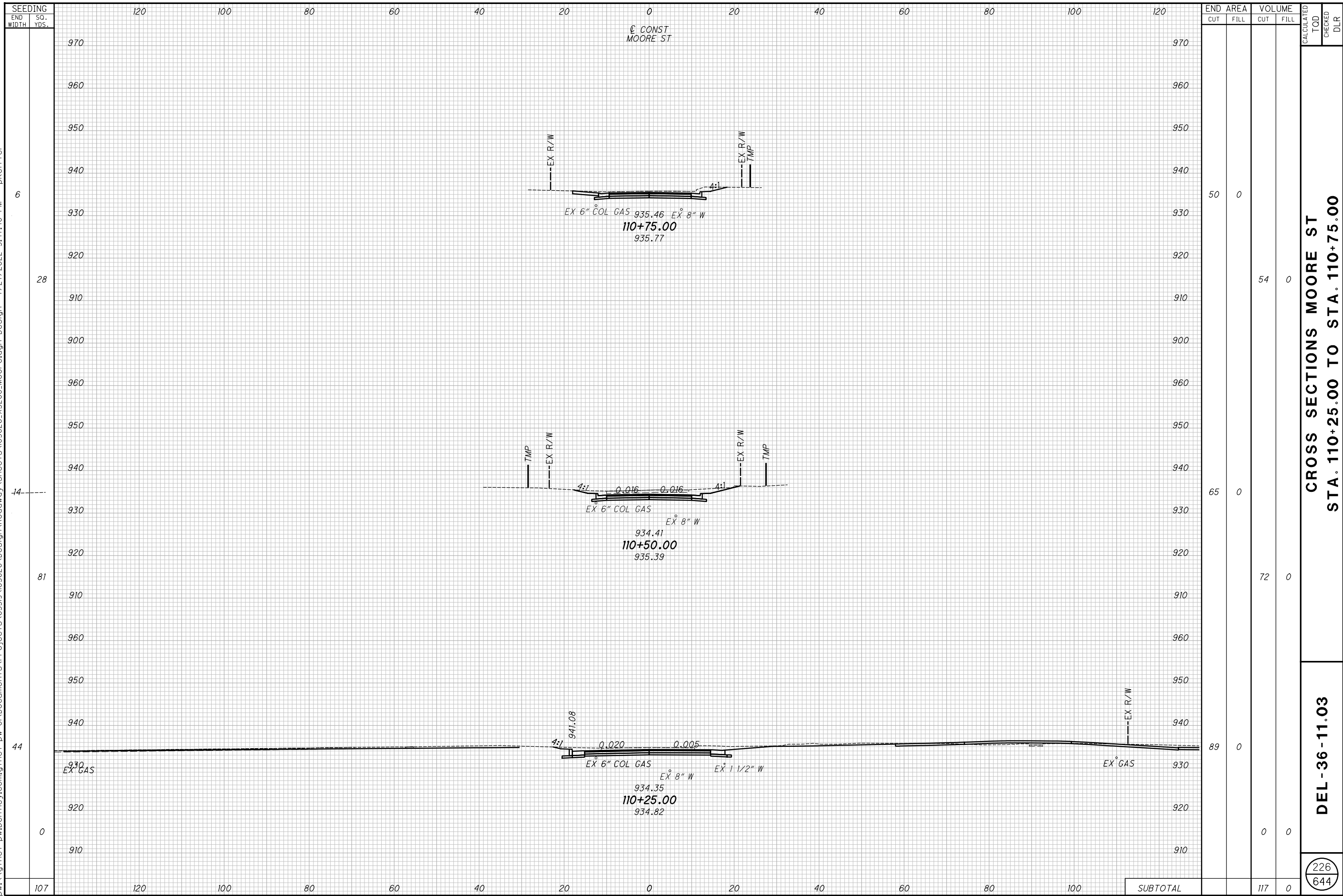
**CROSS SECTIONS EAST ST**  
**STA. 120+85.00 TO STA. 121+00.00**

**DEL-36-11.03**

225  
 644

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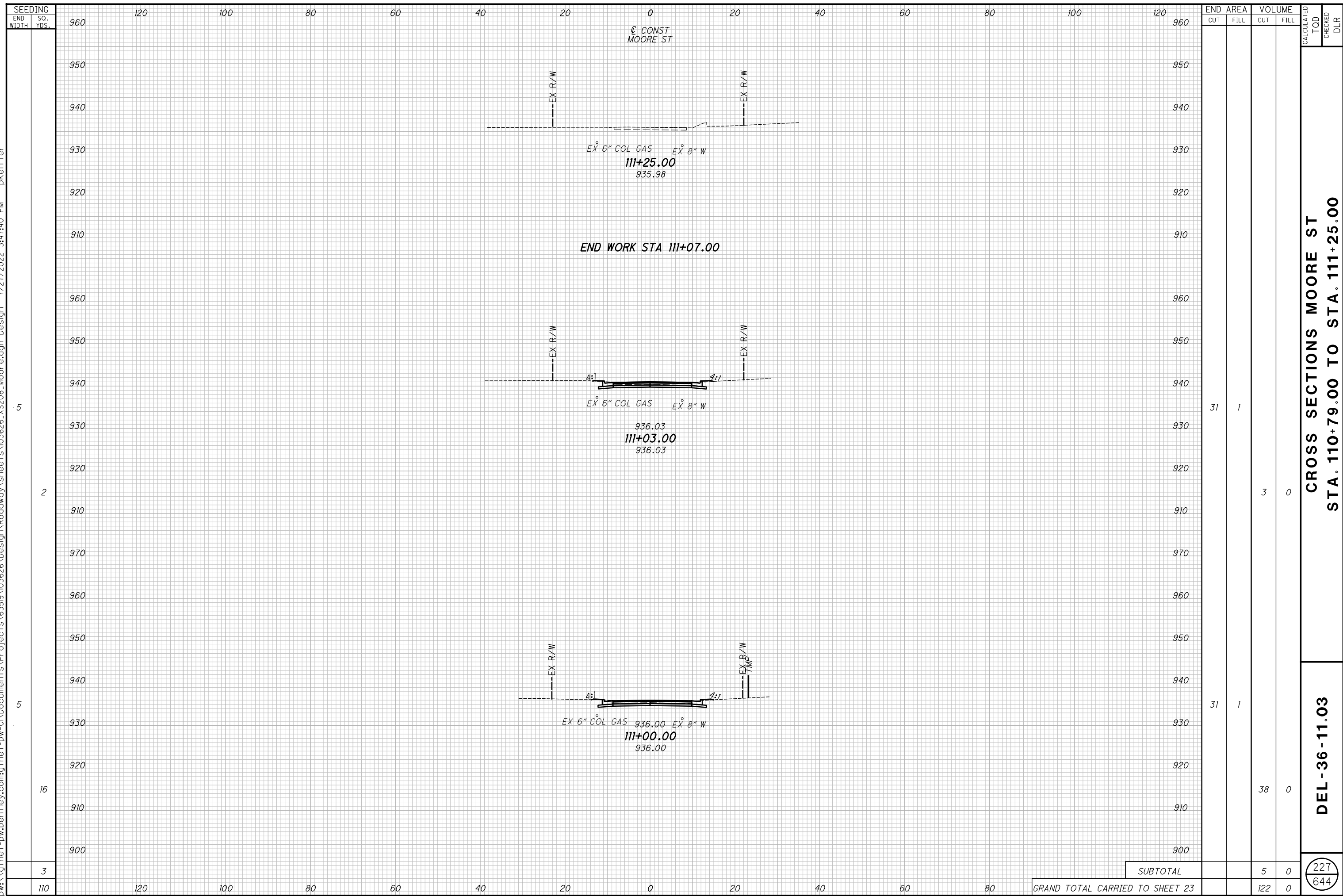


**CROSS SECTIONS MOORE ST  
STA. 110+25.00 TO STA. 110+75.00**

**DEL-36-11.03**

226  
644

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END STA	AREA		VOLUME		CALCULATED TOD	CHECKED DLR
	CUT	FILL	CUT	FILL		
111+00.00	31	1	3	0		
111+03.00	31	1	38	0		
111+25.00	31	1	5	0		
<b>SUBTOTAL</b>					5	0
<b>GRAND TOTAL CARRIED TO SHEET 23</b>					122	0

**CROSS SECTIONS MOORE ST  
STA. 110+79.00 TO STA. 111+25.00**

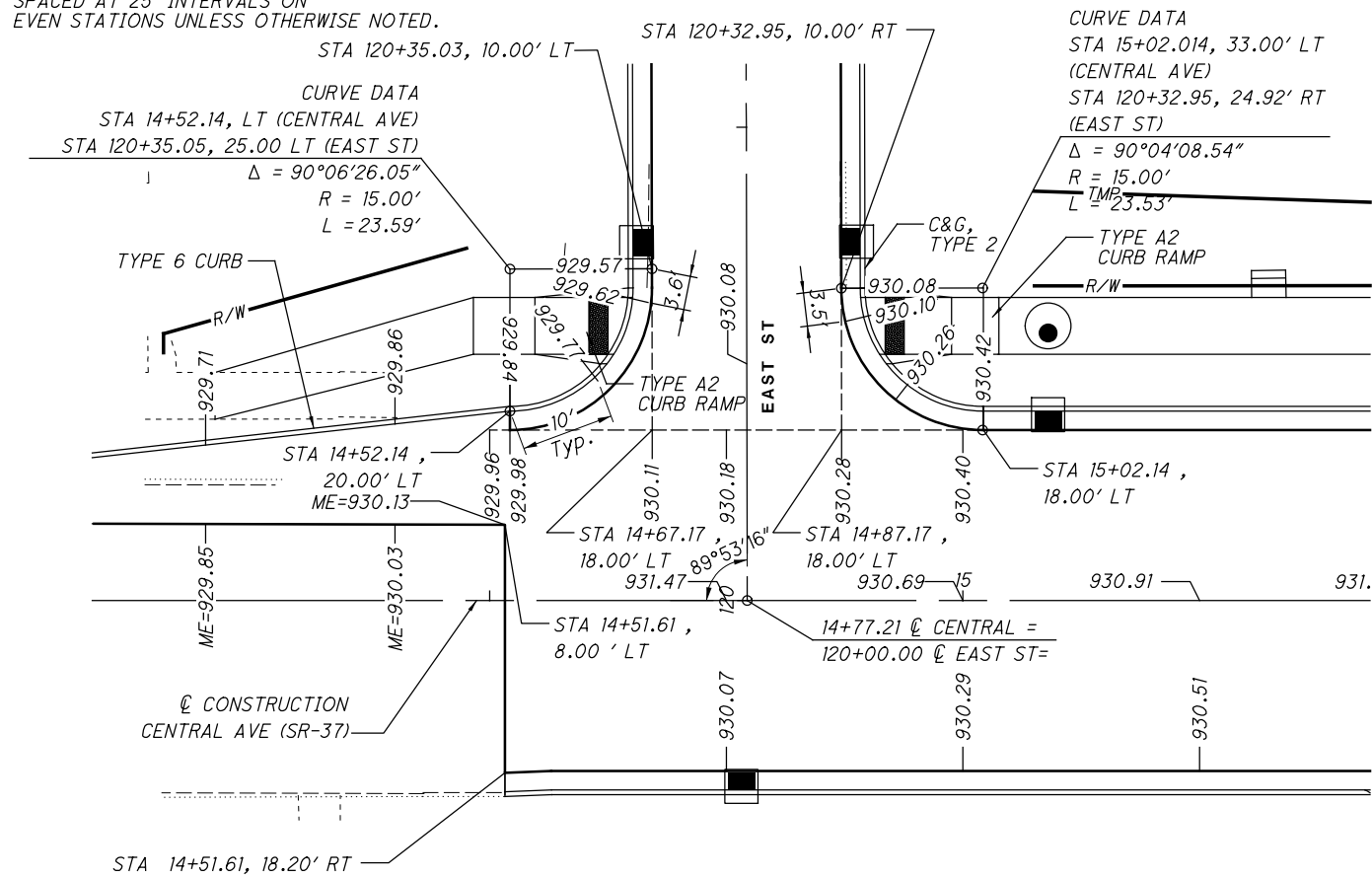
**DEL-36-11.03**

227  
644

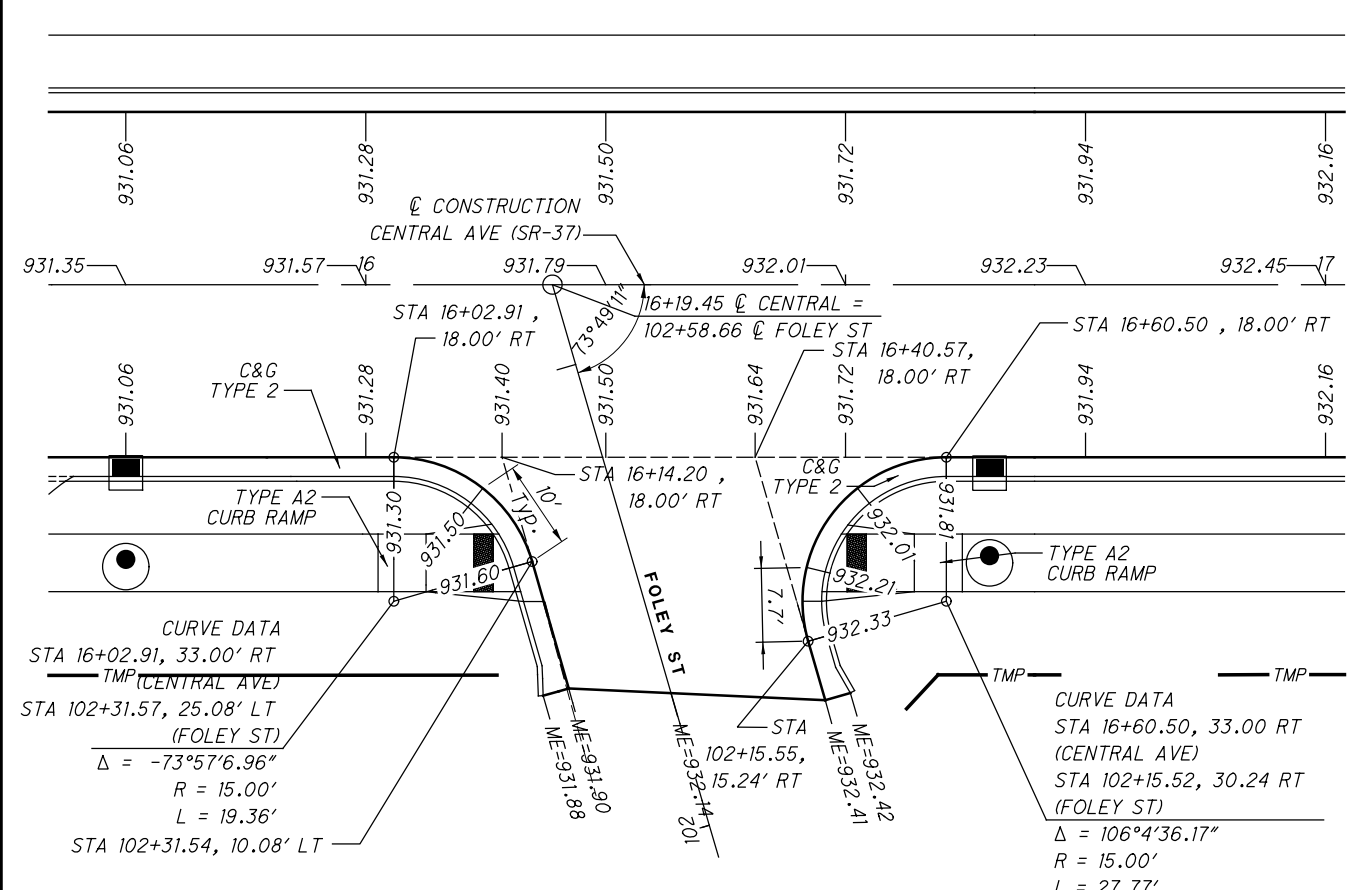
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NOTES:  
ABBREVIATION: ME = MATCH EXISTING  
ALL ELEVATIONS ARE MEASURED TO  
PAVEMENT SURFACE. ALL ELEVATIONS  
SPACED AT 25' INTERVALS ON  
EVEN STATIONS UNLESS OTHERWISE NOTED.

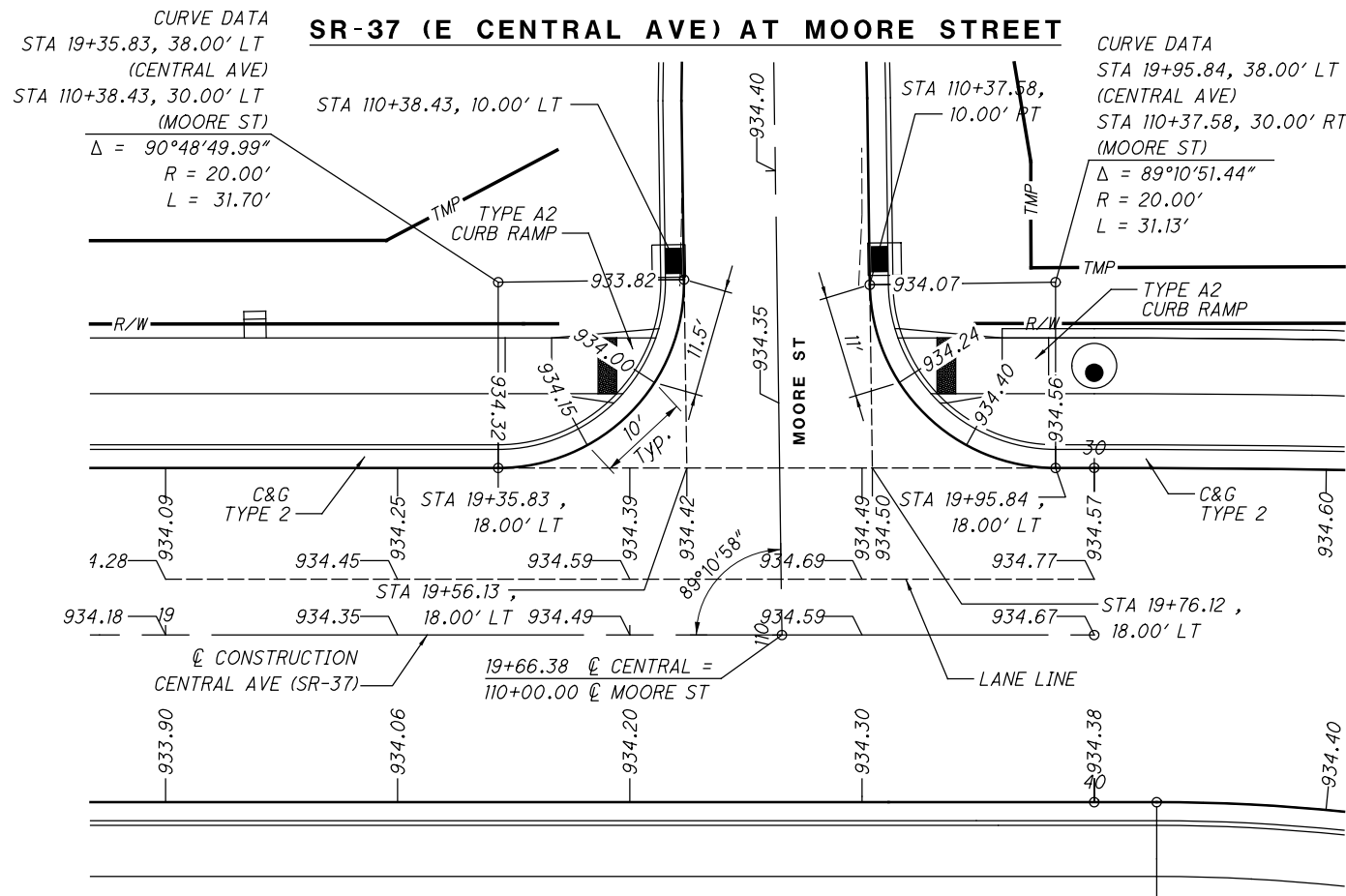
### SR-37 (E CENTRAL AVE) AT EAST STREET



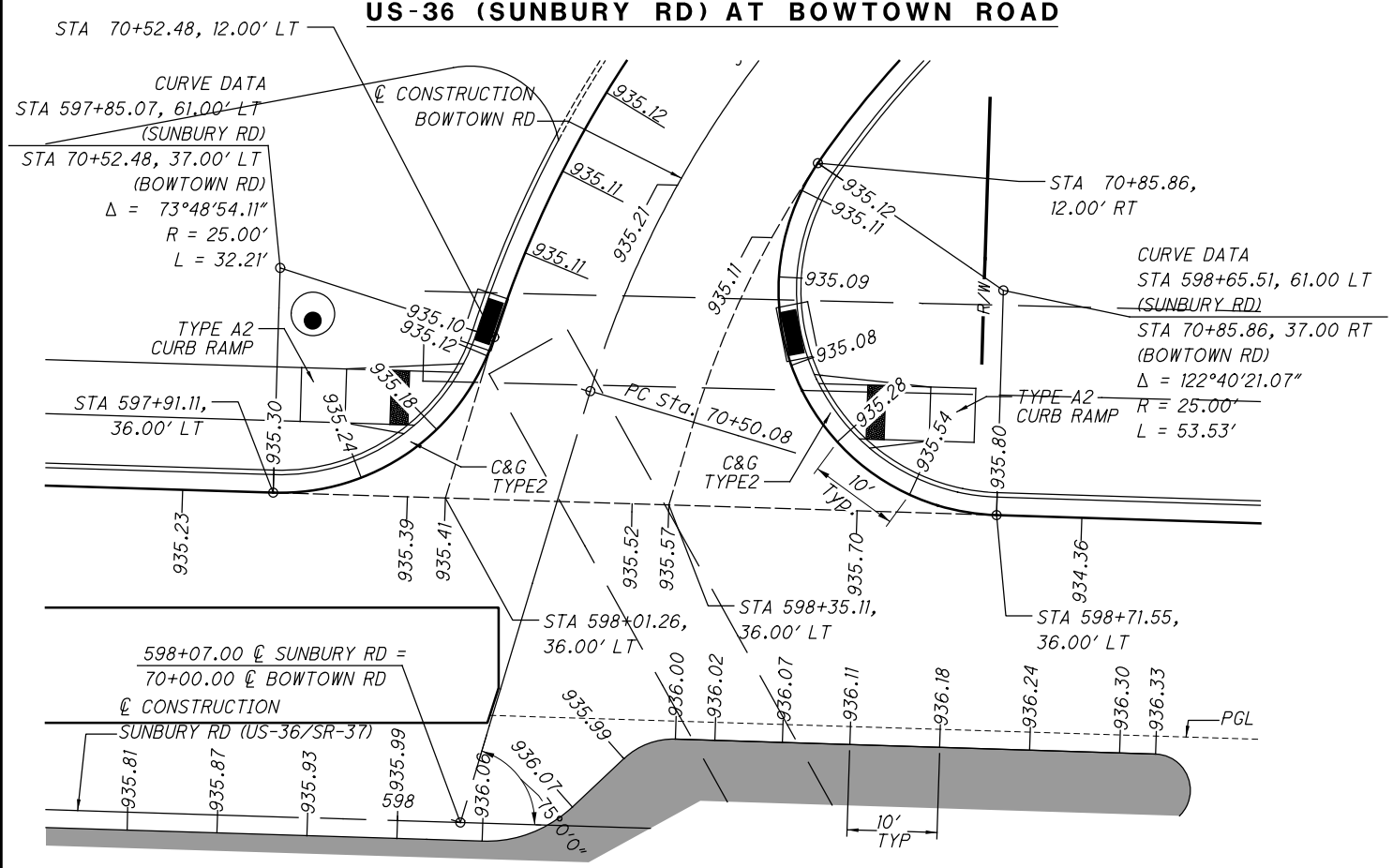
### SR-37 (E CENTRAL AVE) AT FOLEY STREET



### SR-37 (E CENTRAL AVE) AT MOORE STREET



### US-36 (SUNBURY RD) AT BOWTOWN ROAD



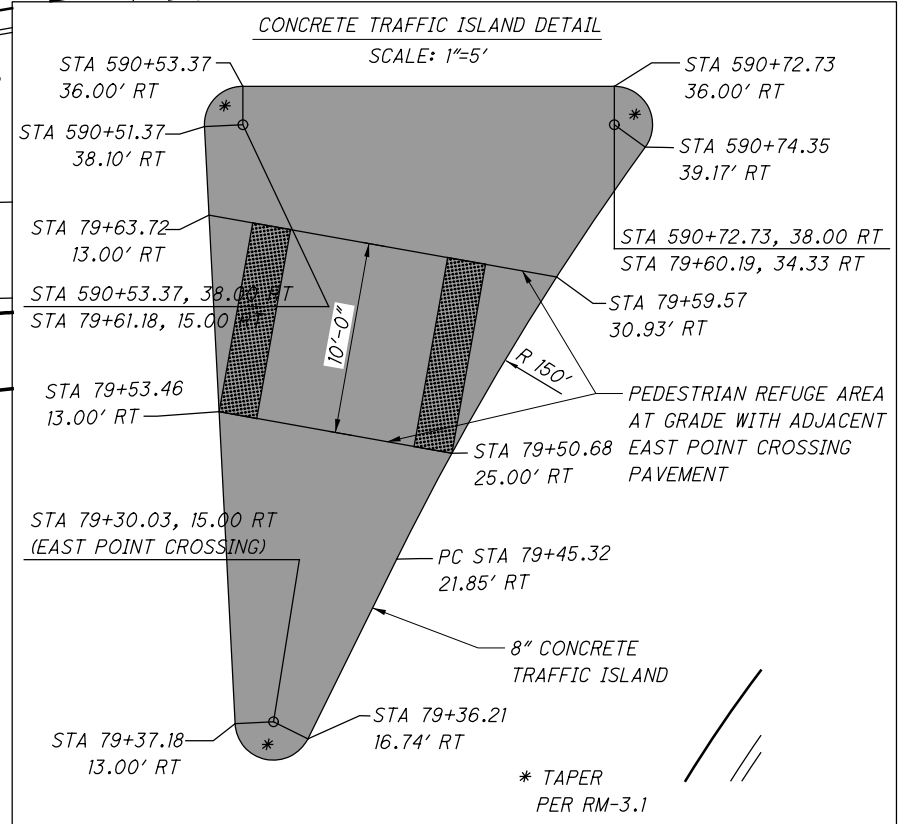
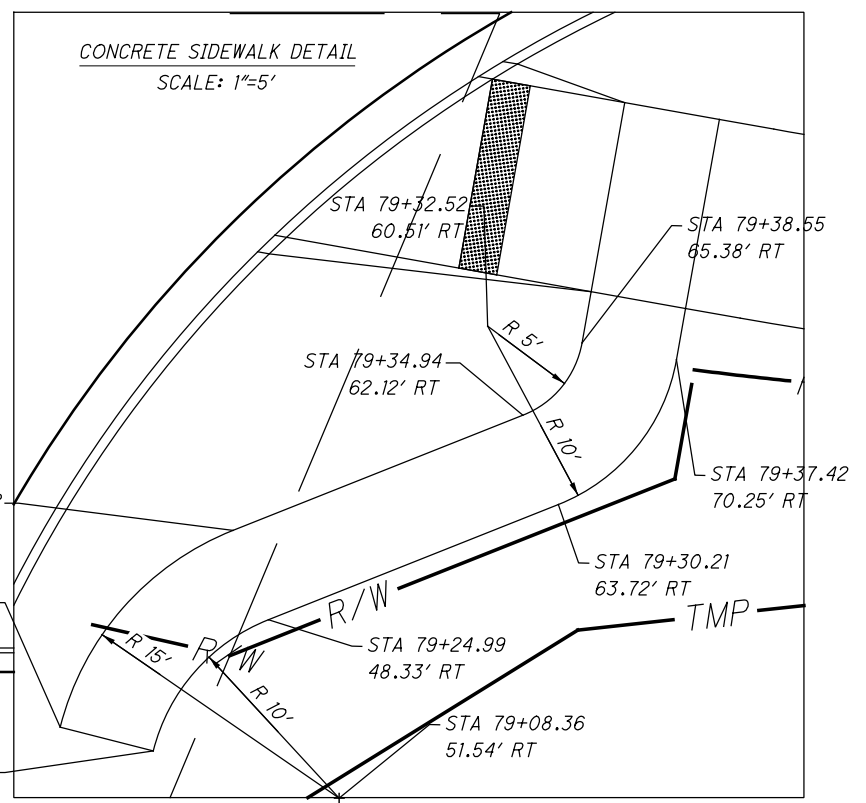
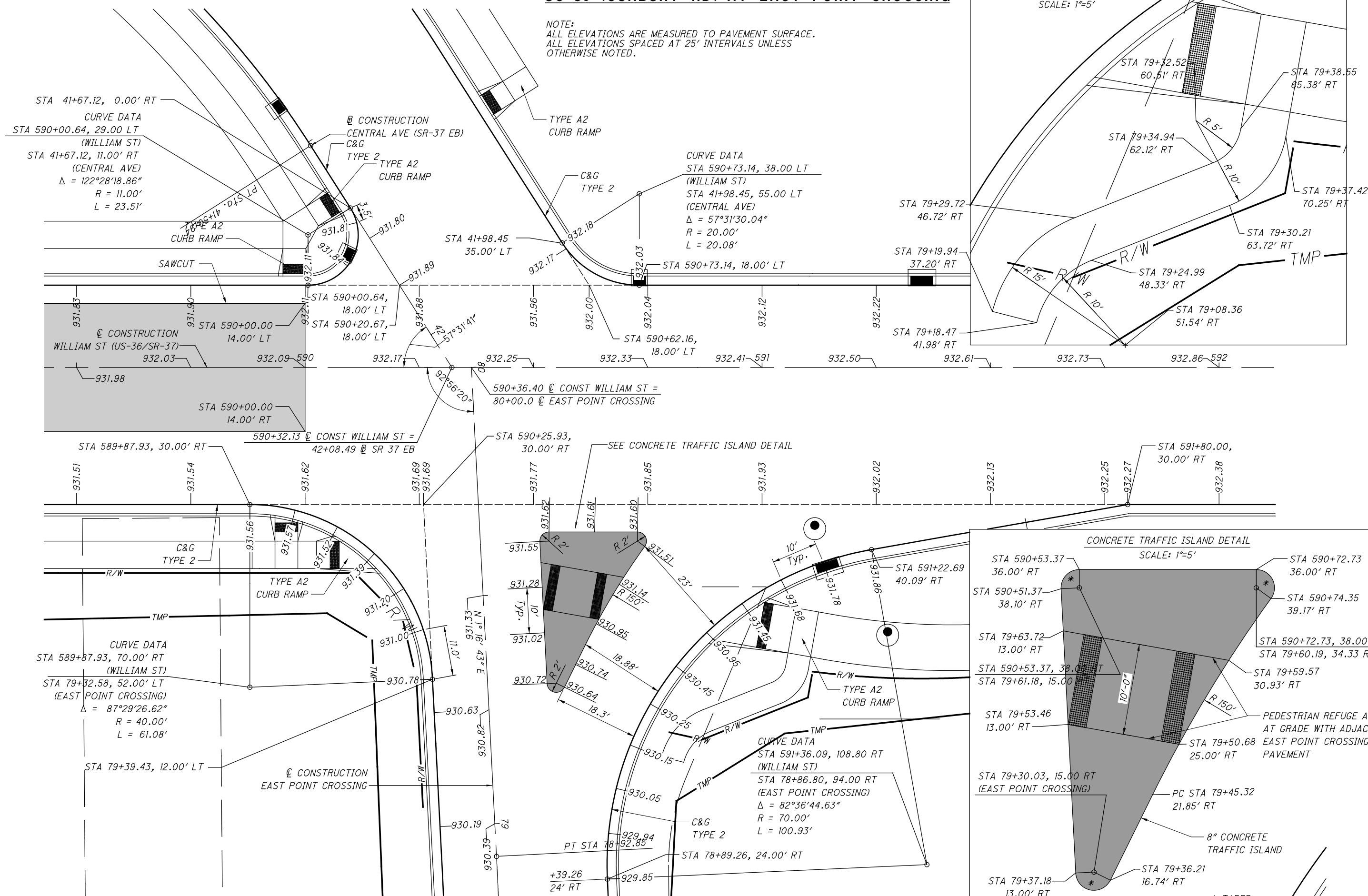
INTERSECTION DETAILS  
SR-37 AT EAST / MOORE / FOLEY ST AND US-36 AT BOWTOWN

DEL-36-11.03  
228  
644

# US-36 (SUNBURY RD) AT EAST POINT CROSSING

NOTE:  
ALL ELEVATIONS ARE MEASURED TO PAVEMENT SURFACE.  
ALL ELEVATIONS SPACED AT 25' INTERVALS UNLESS OTHERWISE NOTED.

CONCRETE SIDEWALK DETAIL  
SCALE: 1"=5'



INTERSECTION DETAILS  
US-36 AT EAST POINT CROSSING

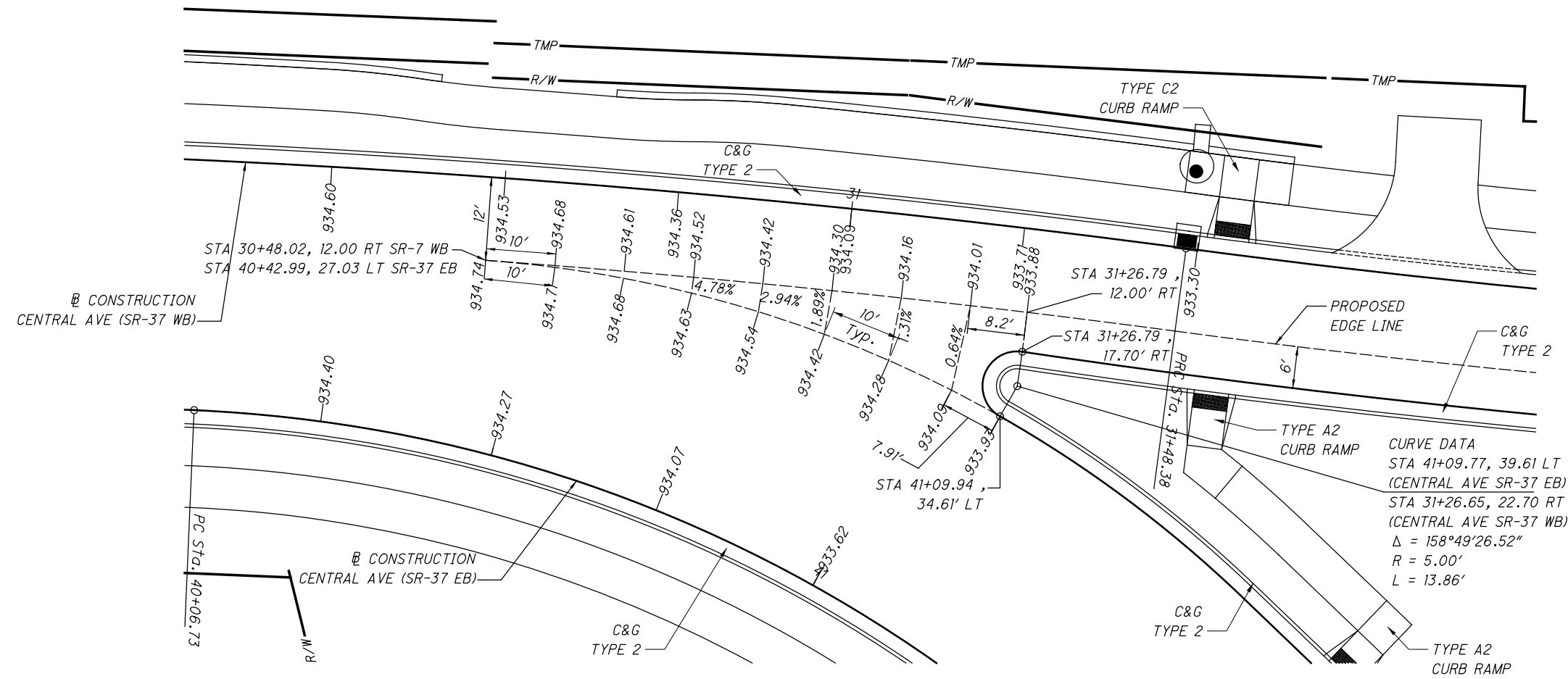
DEL-36-11.03

229  
644

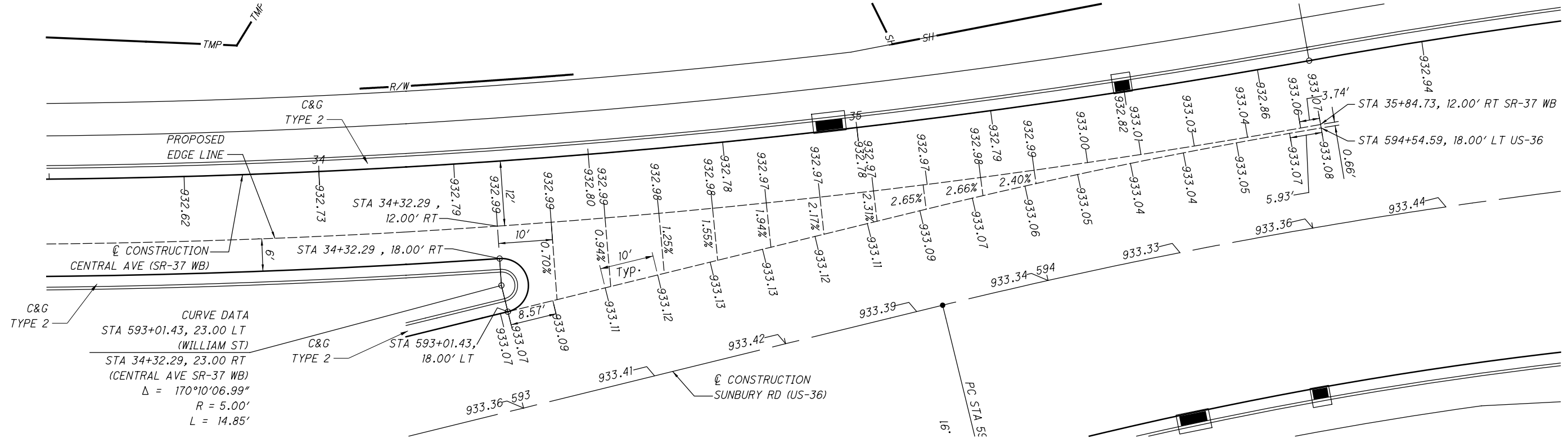
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NOTE:  
 ALL ELEVATIONS ARE MEASURED TO PAVEMENT SURFACE.  
 ALL ELEVATIONS SPACED AT 25' INTERVALS UNLESS  
 OTHERWISE NOTED.

**SR-37 (E CENTRAL AVE) EAST/WEST SPLIT**



**US-36 (SUNBURY RD)/ SR-37 (E CENTRAL AVE) SPLIT**



CALCULATED  
 TOD  
 CHECKED  
 DLR

**INTERSECTION DETAILS  
 SR-37 SPLIT AND US-36 / SR-37 SPLIT**

**DEL-36-11.03**

230  
 644

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CALCULATED  
TOD  
CHECKED  
DLR

**INTERSECTION DETAILS  
US-36 AT SR-521 (KILBOURNE RD)**

**DEL-36-11.03**

**US-36 (SUNBURY RD.) AT SR-521 (KILBOURNE RD.)**

NOTE:  
ABBREVIATION: ME = MATCH EXISTING  
ALL ELEVATIONS ARE MEASURED TO PAVEMENT SURFACE.  
ALL ELEVATIONS SPACED AT 25' INTERVALS UNLESS OTHERWISE NOTED.

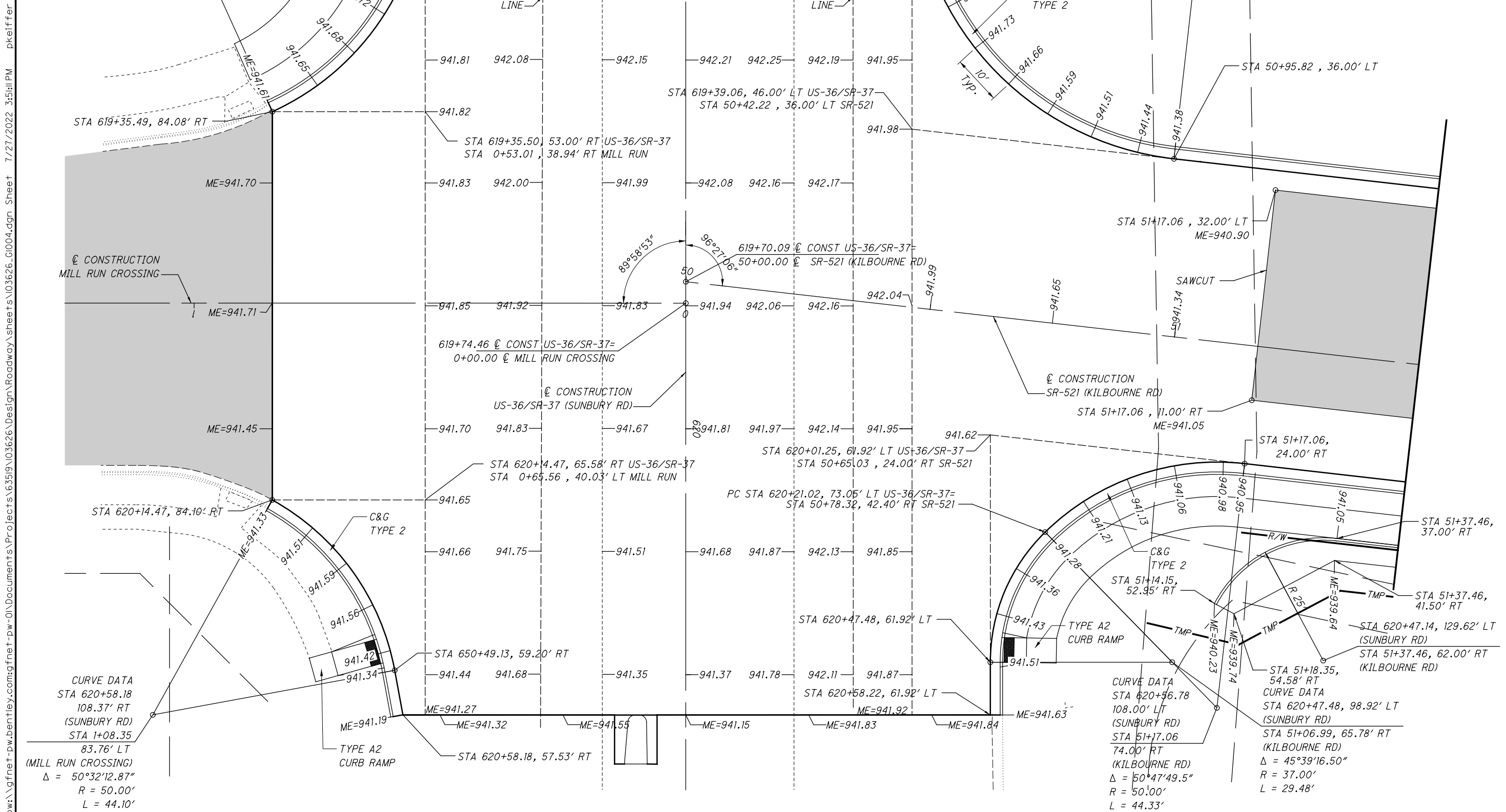
CURVE DATA  
STA 618+85.47, 106.00' LT  
(SUNBURY RD)  
STA 50+95.82, 96.00' LT  
(KILBOURNE RD)  
 $\Delta = 83^{\circ}32'55.59''$   
 $R = 60.00'$   
 $L = 87.49'$

CURVE DATA  
STA 618+87.24  
106.00' RT  
(SUNBURY RD)  
STA 1+06.03  
87.19' RT  
(MILL RUN CROSSING)  
 $\Delta = 65^{\circ}34'06.89''$   
 $R = 53.00'$   
 $L = 60.65'$

CURVE DATA  
STA 620+58.18  
108.37' RT  
(SUNBURY RD)  
STA 1+08.35  
83.76' LT  
(MILL RUN CROSSING)  
 $\Delta = 50^{\circ}32'12.87''$   
 $R = 50.00'$   
 $L = 44.10'$

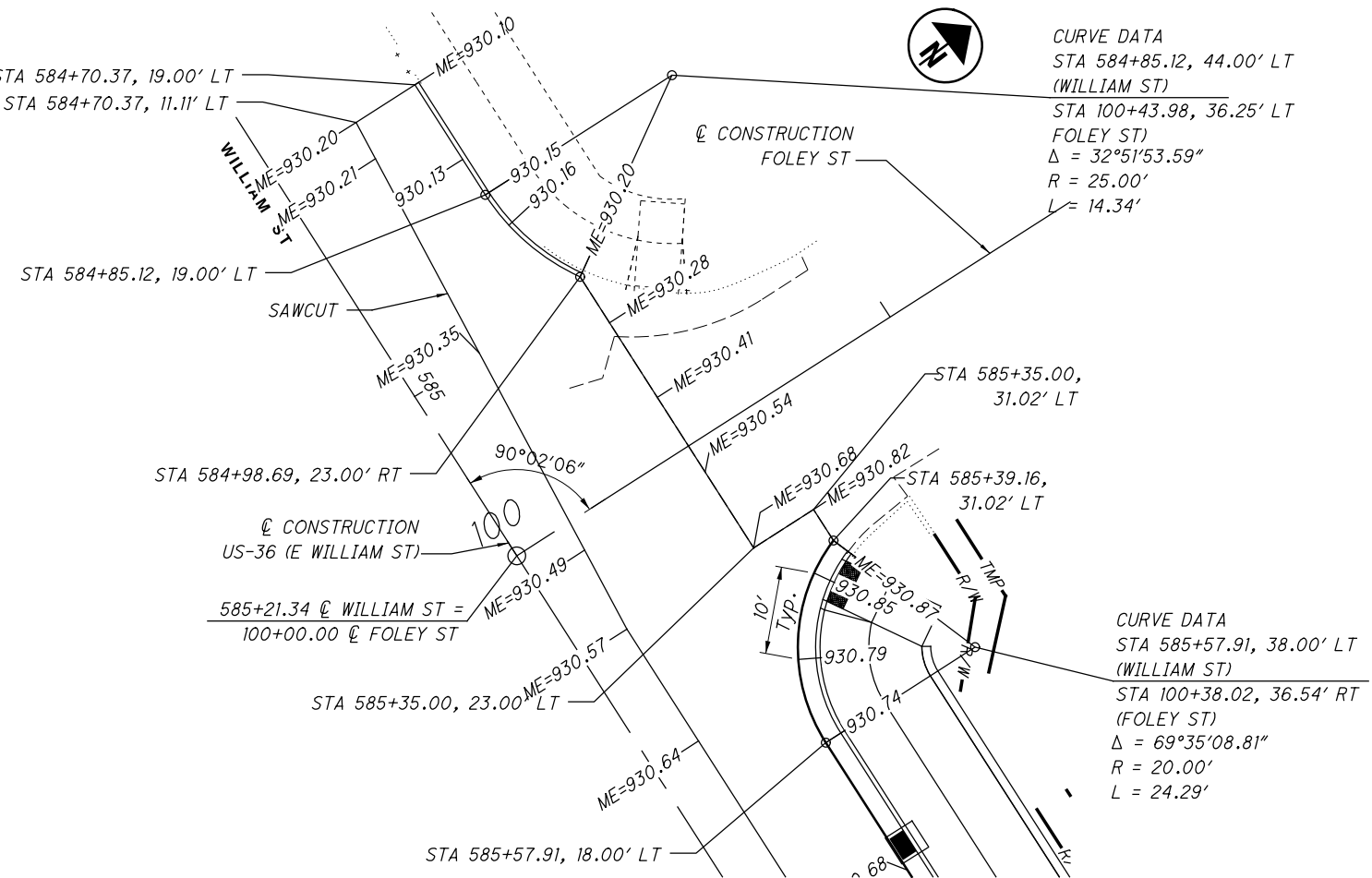
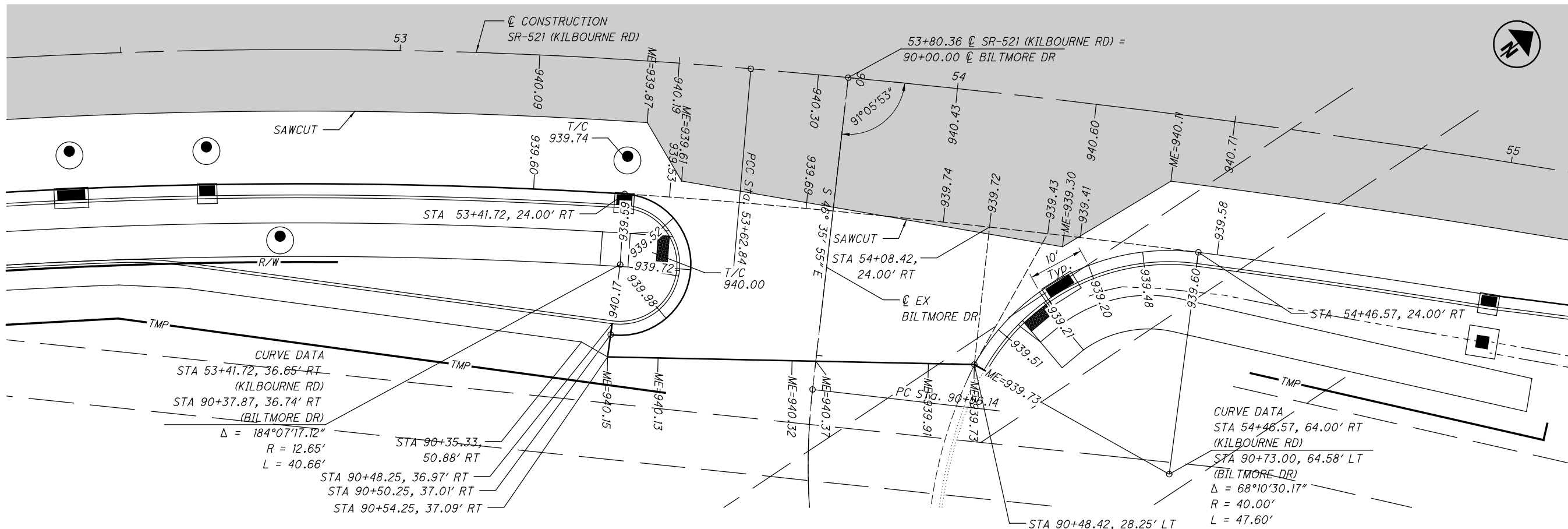
CURVE DATA  
STA 620+56.78  
108.00' LT  
(SUNBURY RD)  
STA 51+17.06  
74.00' RT  
(KILBOURNE RD)  
 $\Delta = 50^{\circ}47'49.5''$   
 $R = 50.00'$   
 $L = 44.33'$

SAWCUT AND RESURFACING LIMITS



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SR-521 (KILBOURNE AVE) AT BILTMORE DRIVE



NOTE:  
 ABBREVIATION: ME = MATCH EXISTING  
 ALL ELEVATIONS ARE MEASURED TO PAVEMENT SURFACE.  
 ALL ELEVATIONS SPACED AT INTERVALS OF 25' UNLESS OTHERWISE NOTED.  
 ELEVATIONS TO MATCH EXISTING WILL BE REVISED IN A FUTURE SUBMITTAL ONCE AS BUILT SURVEY IN COLLECTED AFTER THE CONSTRUCTION OF THE DEL-36-10.59 PROJECT.

PAVEMENT PLANNING AND RESURFACING, TYP

CALCULATED	0
TOD	20
CHECKED	DLR

INTERSECTION DETAILS  
 SR-521 AT BILTMORE DR AND US-36 AT FOLEY ST

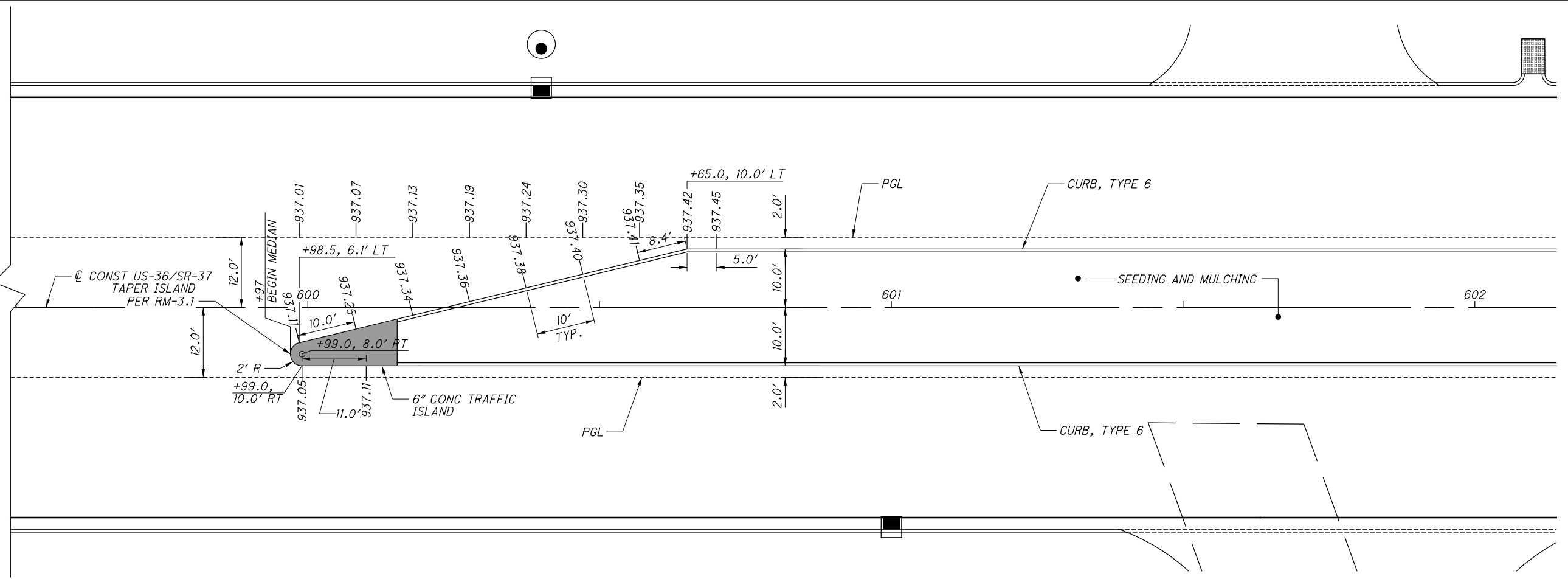
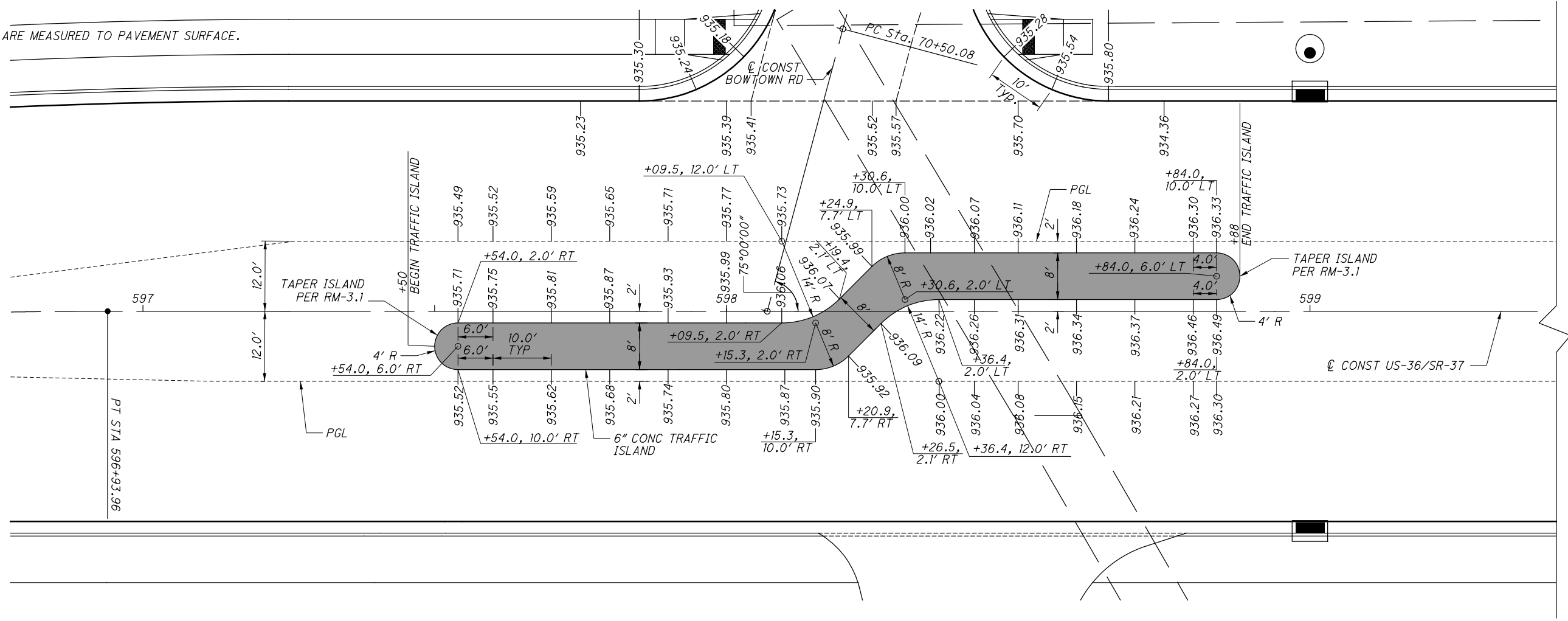
DEL-36-11.03

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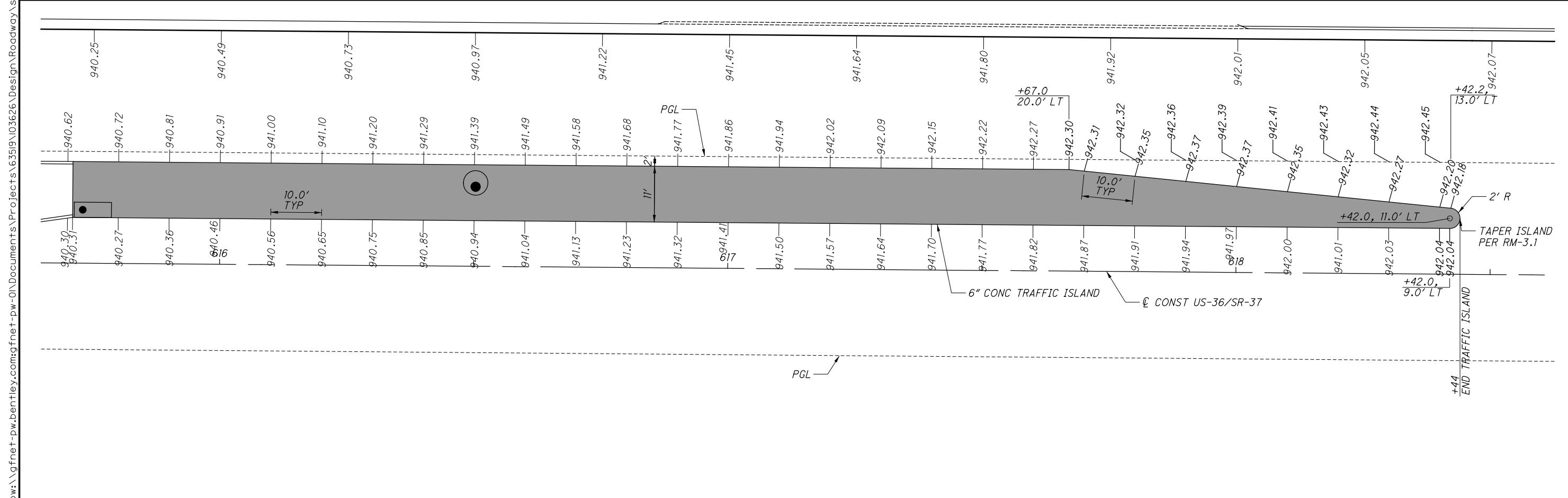
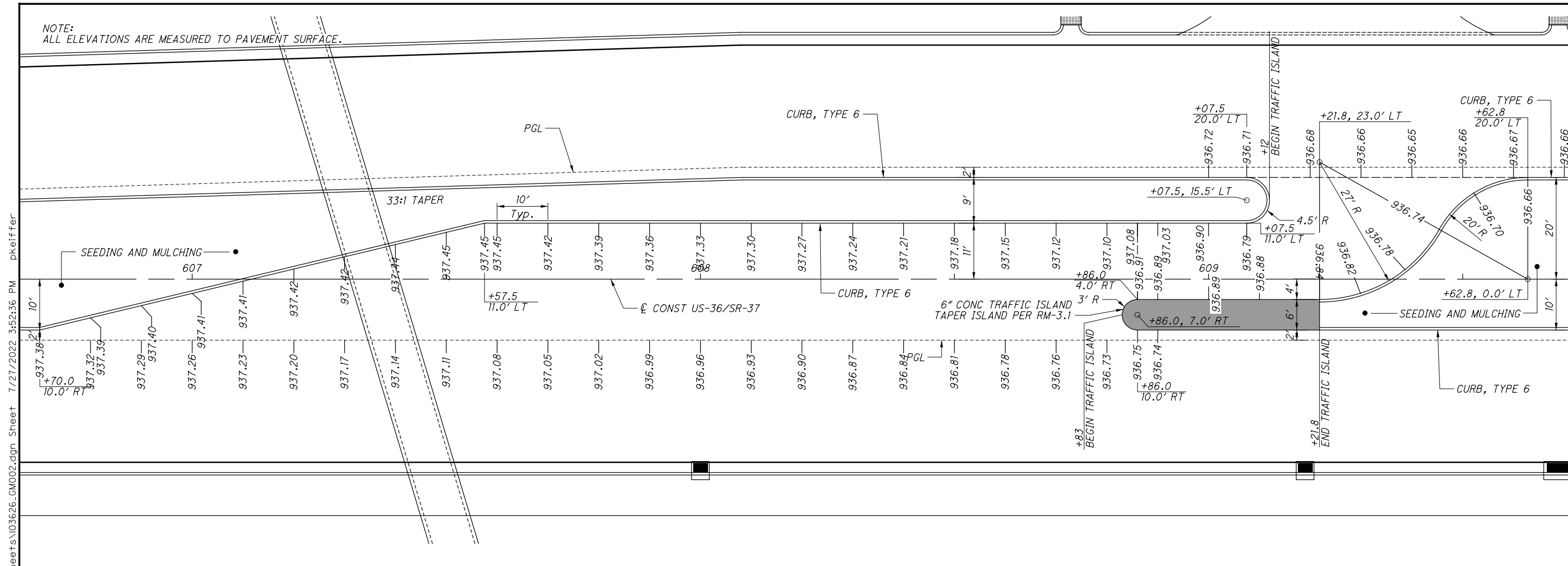
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NOTE:  
ALL ELEVATIONS ARE MEASURED TO PAVEMENT SURFACE.



MEDIAN DETAIL

DEL-36-11.03



7/27/2022 3:52:36 PM pkeiffer

DEL-36-11.03

234  
644

HORIZONTAL SCALE IN FEET

0 5 10 20

CALCULATED  
TOD  
CHECKED  
DLR

MEDIAN DETAIL

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US 36/SR 37		SHEET NUMBER										
236												SR 521
99												237
												36
												14
739												80
862												141
12												13
3275												570
314												37
82												10
53												6
73												9
148												
1733												338
303												86
37												46

ITEM	TOTAL	UNIT	DESCRIPTION
202	135	SY	PAVEMENT REMOVED
202	14	SY	TRAFFIC ISLAND REMOVED
202	819	FT	CURB REMOVED
203	1003	CY	EXCAVATION
203	25	CY	EMBANKMENT
204	3845	SY	SUBGRADE COMPACTION
304	351	CY	AGGREGATE BASE
407	92	GAL	NON-TRACKING TACK COAT
441	59	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), (DRIVEWAYS)
441	82	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449), (DRIVEWAYS)
452	148	SY	6" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC MS
452	2071	SY	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC MS
609	389	FT	CURB, TYPE 6
609	83	SY	8" CONCRETE TRAFFIC ISLAND

CALCULATED	WMM
	CHECKED
PEK	
<b>DRIVEWAY SUBSUMMARY</b>	
<b>DEL - 36 - 11.03</b>	
235 644	

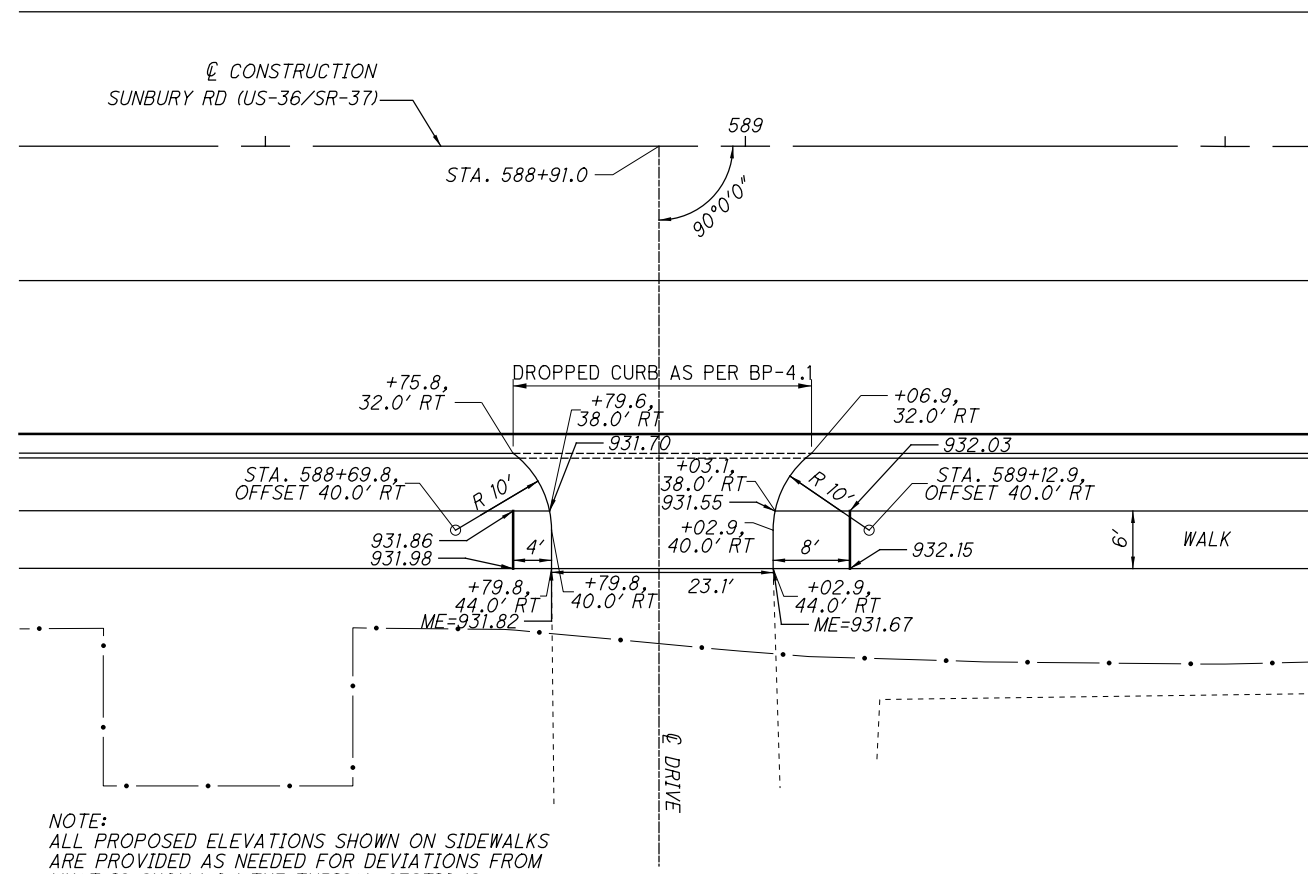


REF NO.	SHEET NO.	STATION	SIDE	DRIVE TYPE	APRON AREA (CADD)	DRIVE AREA (CADD)	202	203	203	204	304	407	441	441	452	202	202	609	609		
							DEPTH	DEPTH	DEPTH	DEPTH	T=8.00"	RATE=0.055	T=1.25"	T=1.75"	T=8.00"	DEPTH	DEPTH	DEPTH	DEPTH		
					SF	SF	PAVEMENT REMOVED	EXCAVATION	EMBANKMENT	SUBGRADE COMPACTION	AGGREGATE BASE	NON-TRACKING TACK COAT	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), (DRIVEWAYS)	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449), (DRIVEWAYS)	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS CC MS	TRAFFIC ISLAND REMOVED	CURB REMOVED	CURB, TYPE 6	8" CONCRETE TRAFFIC ISLAND		
							SY	CY	CY	SY	CY	GAL	CY	CY	SY	SY	FT	FT	SY		
DR-16	242	521	51+49.72	RT	COMMERCIAL	266	466														
DR-25	245	521	53+05.42	LT	COMMERCIAL	1162		23	3	82	11.6	2.9	2	4	30		41.4	29	34.5		
DR-26	245	521	53+87.18	LT	COMMERCIAL	1164	15	29		129					129			31			
DR-27	245	521	54+31.47	LT	COMMERCIAL	221	12	29		129					129			26			
DR-28	245	521	55+21.27	LT	COMMERCIAL	219	4	14	3	52	6.1	1.6	1	1	25						
DR-29	246	521	57+64.32	RT	COMMERCIAL	616	6	14	4	52	6	1.5	1	1	25						
								33	3	126	12.8	3.2	2	3		13.7	38		11.5		
<b>SUBTOTAL</b>							36	141	13	570	37	9.2	6	9	338	13.7	79.4	86	46		
<b>TOTALS CARRIED TO SUBSUMMARY</b>							235	36	141	13	570	37	10	6	9	338	14	80	86	46	

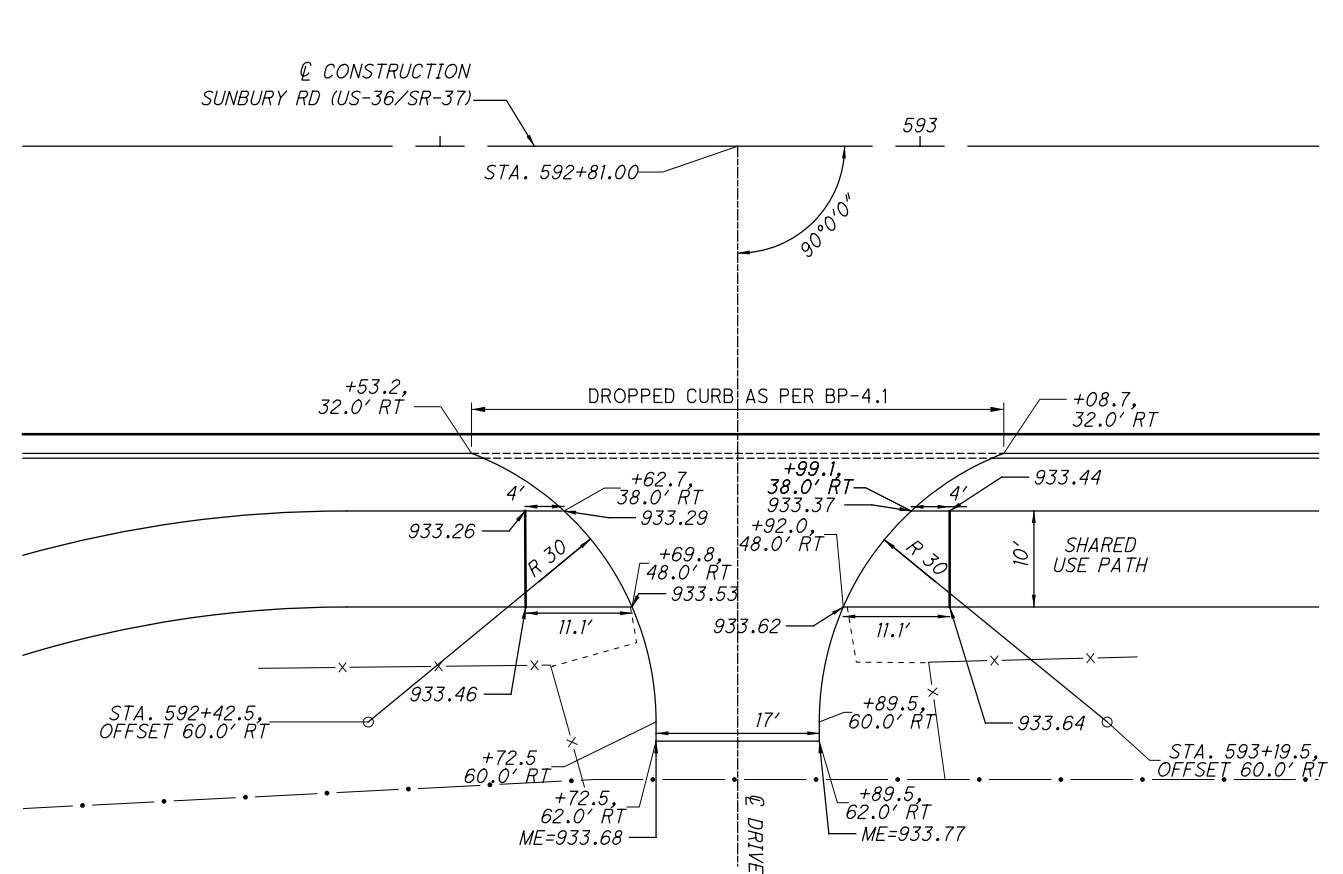
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<b>DRIVEWAY QUANTITIES - SR-521</b>	CALCULATED WMM CHECKED PEK
<b>DEL-36-11.03</b>	237 644

### DRIVEWAY DR 1



### DRIVEWAY DR 2



### DRIVEWAY DR 3 (NOT USED)

CALCULATED  
 TOD  
 CHECKED  
 DR

0 10 20  
 HORIZONTAL  
 SCALE IN FEET

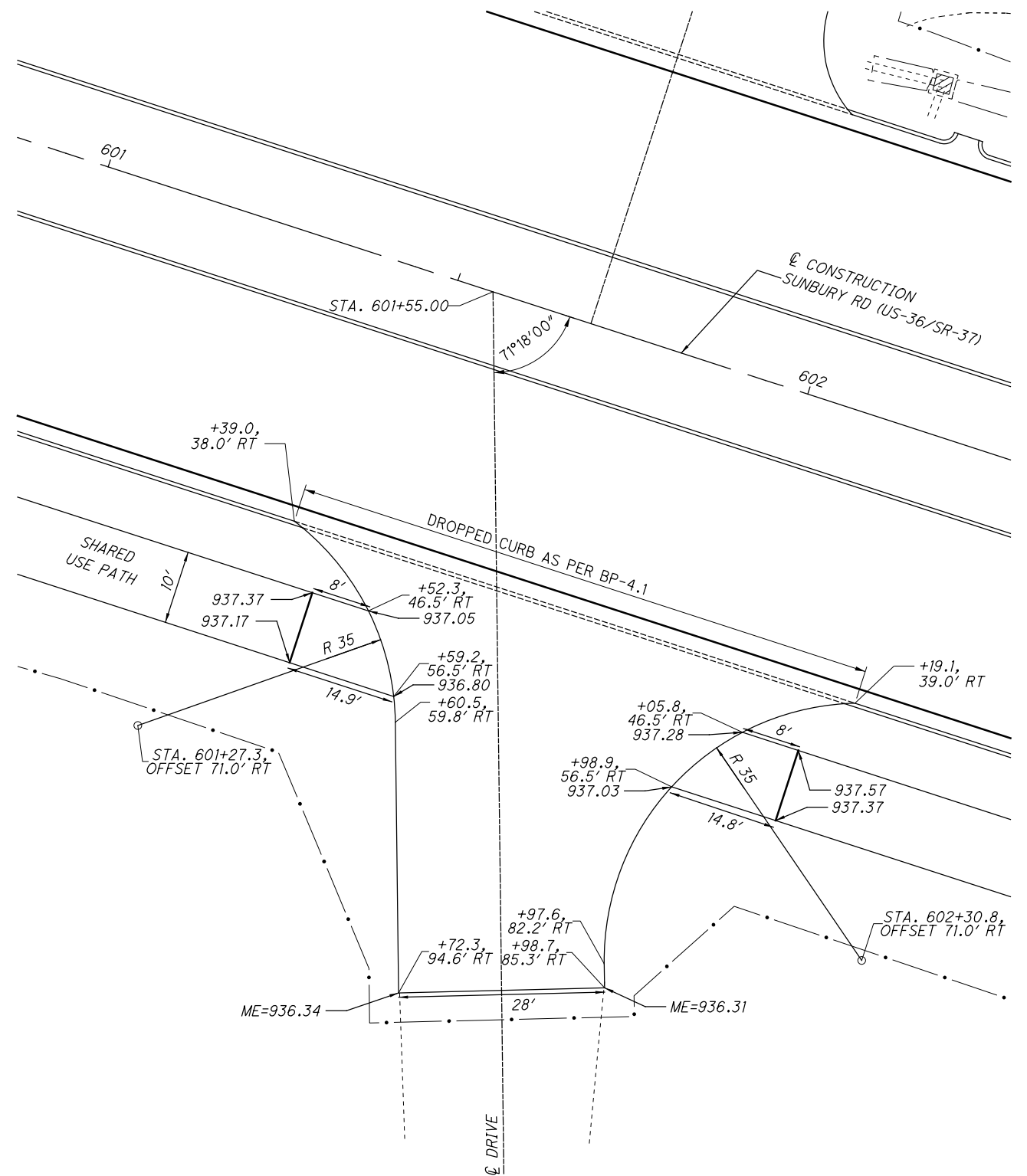
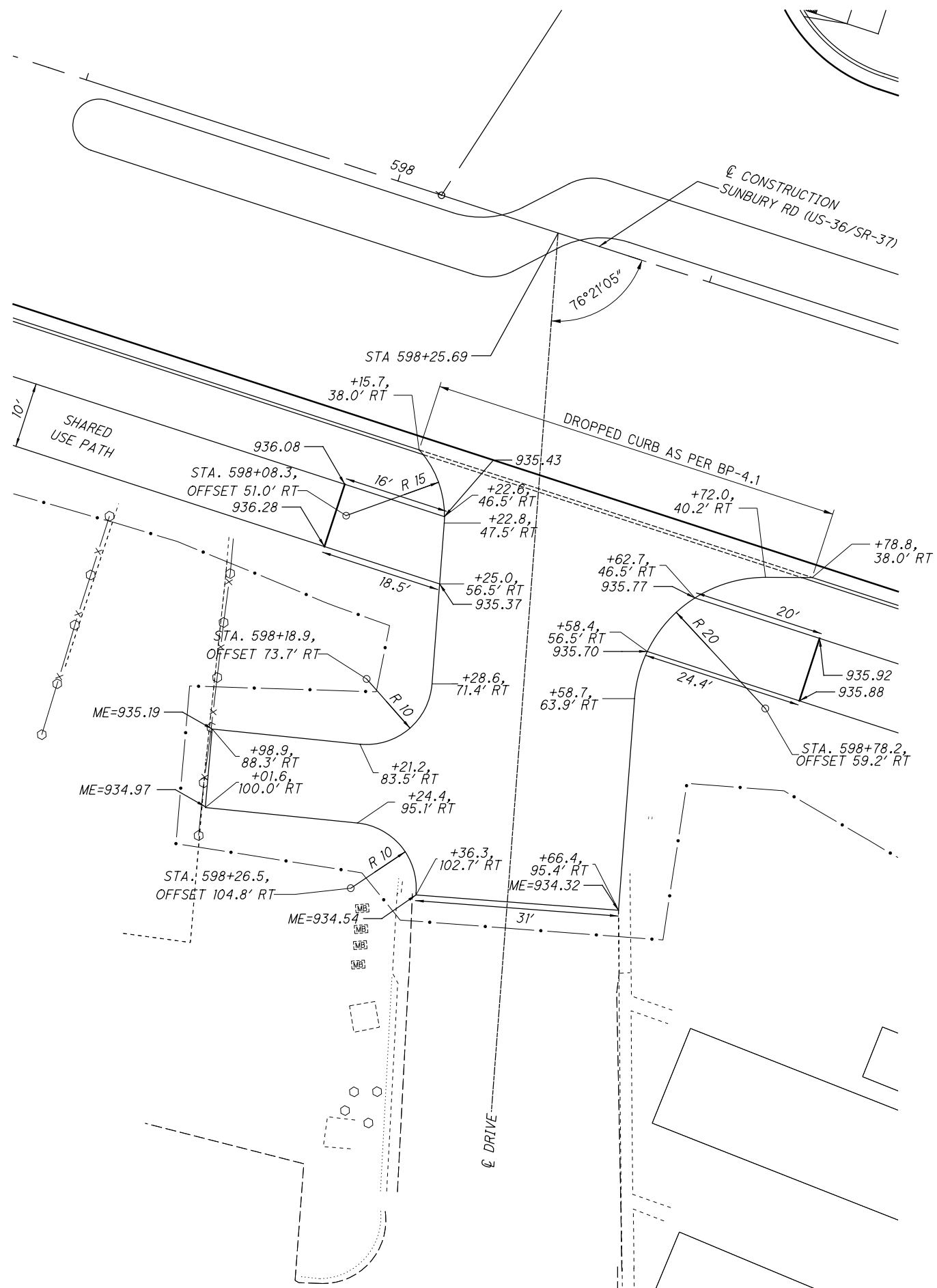
US-36 DRIVEWAY DETAILS

DEL-36-11.03

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# DRIVEWAY DR 4

# DRIVEWAY DR 5



NOTE:  
ALL PROPOSED ELEVATIONS SHOWN ON SIDEWALKS  
ARE PROVIDED AS NEEDED FOR DEVIATIONS FROM  
WHAT IS SHOWN ON THE TYPICAL SECTIONS.

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CALCULATED  
TOD  
CHECKED  
DR

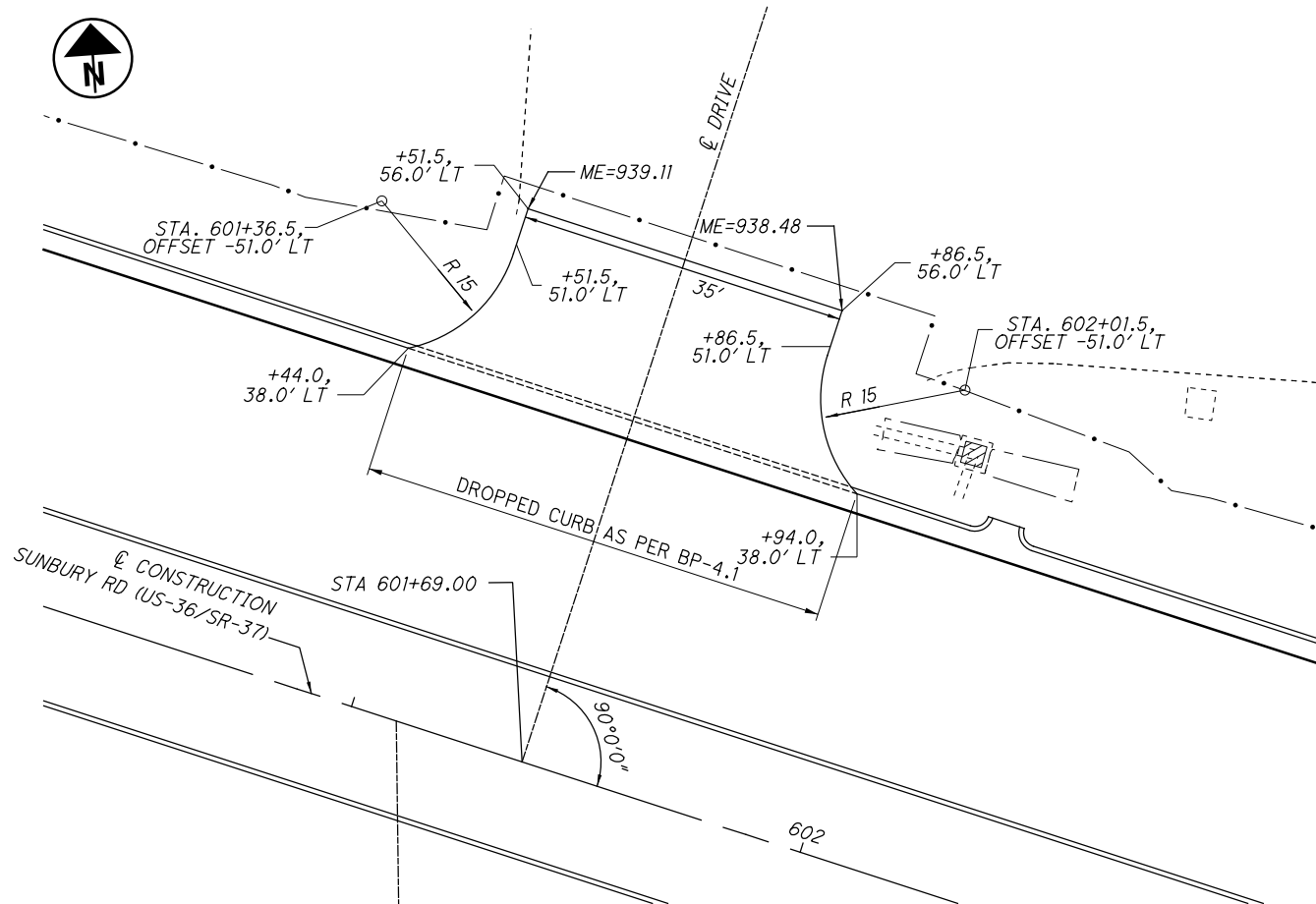
0 5 10 20  
HORIZONTAL  
SCALE IN FEET

US-36 DRIVEWAY DETAILS

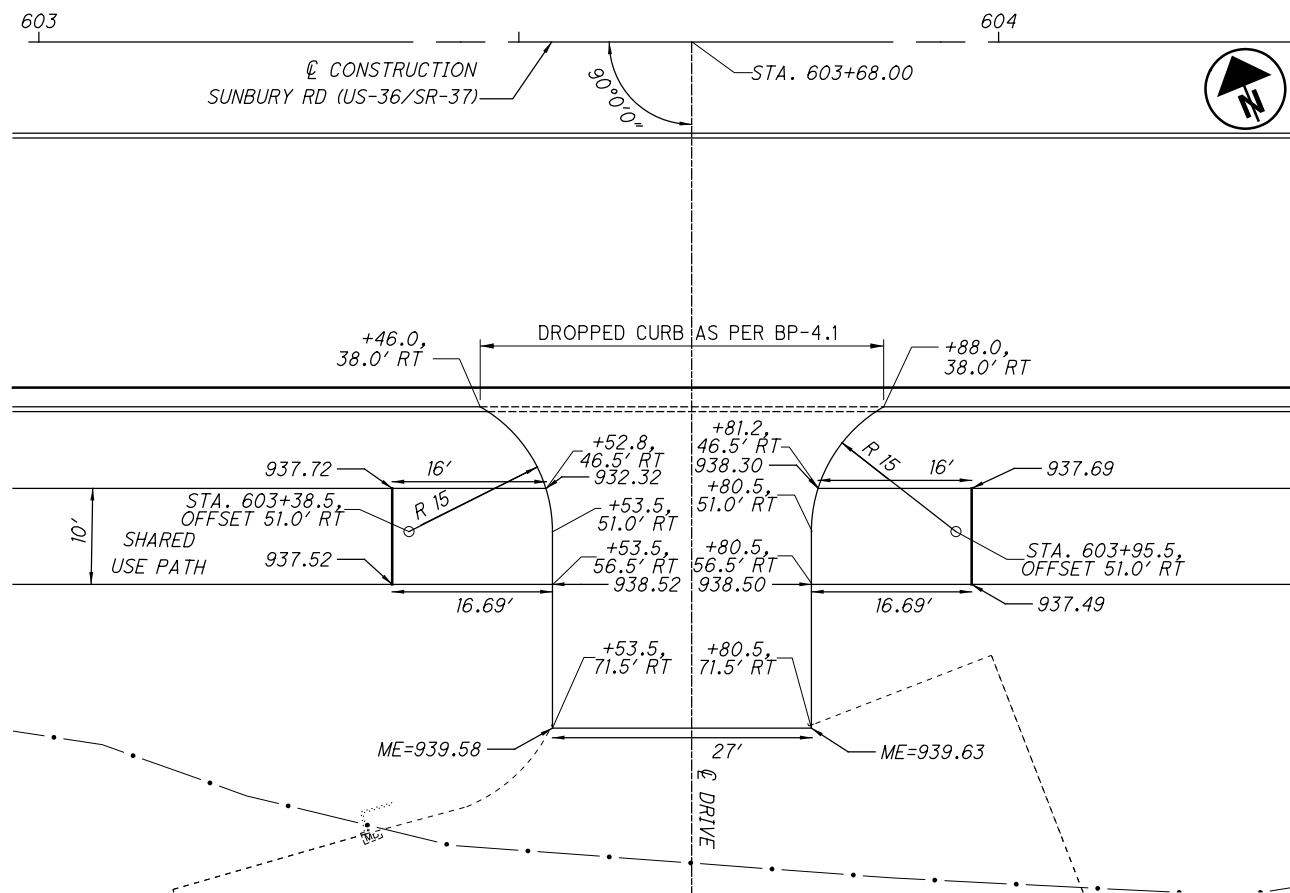
DEL-36-11.03

239  
644

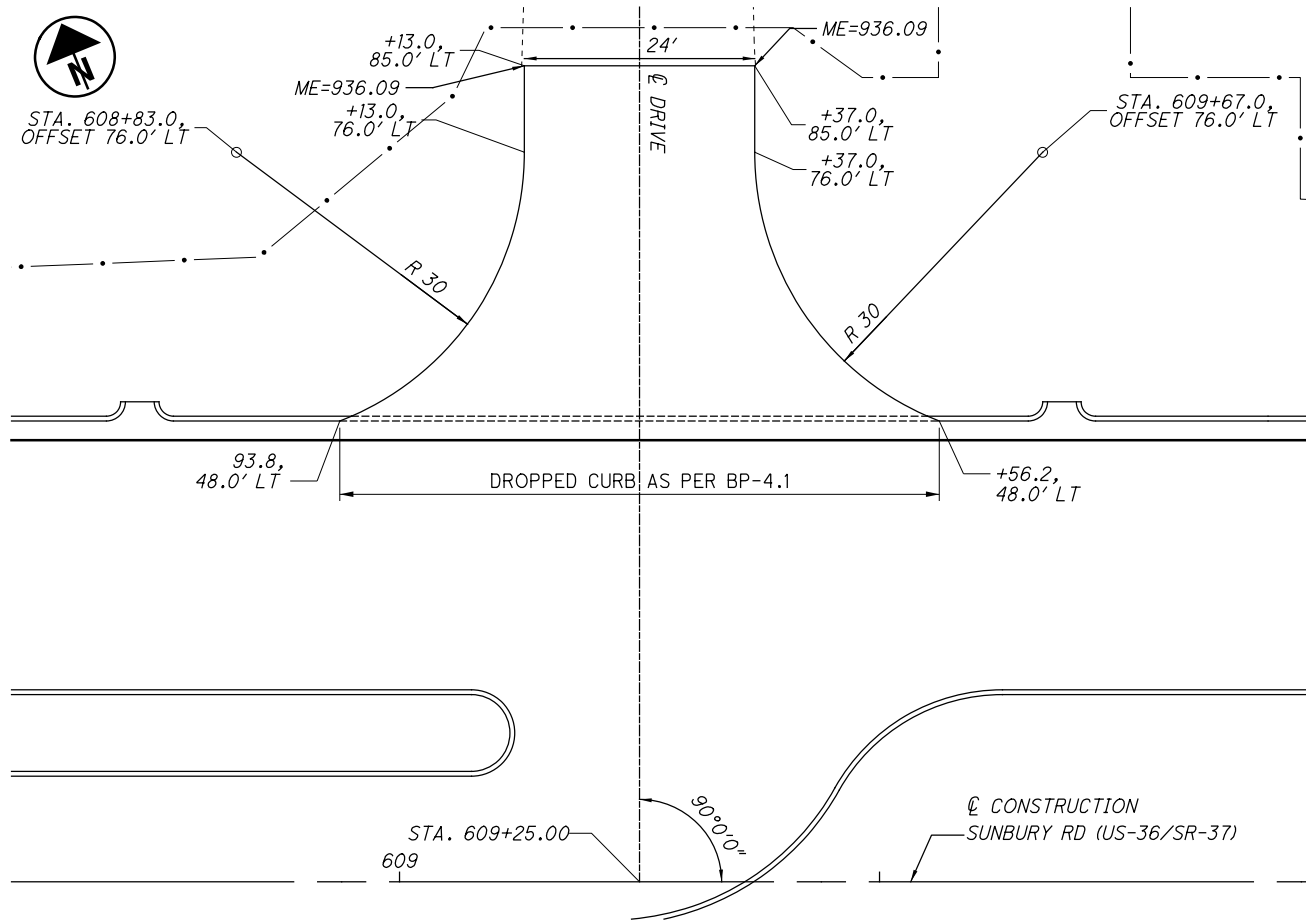
### DRIVEWAY DR 6



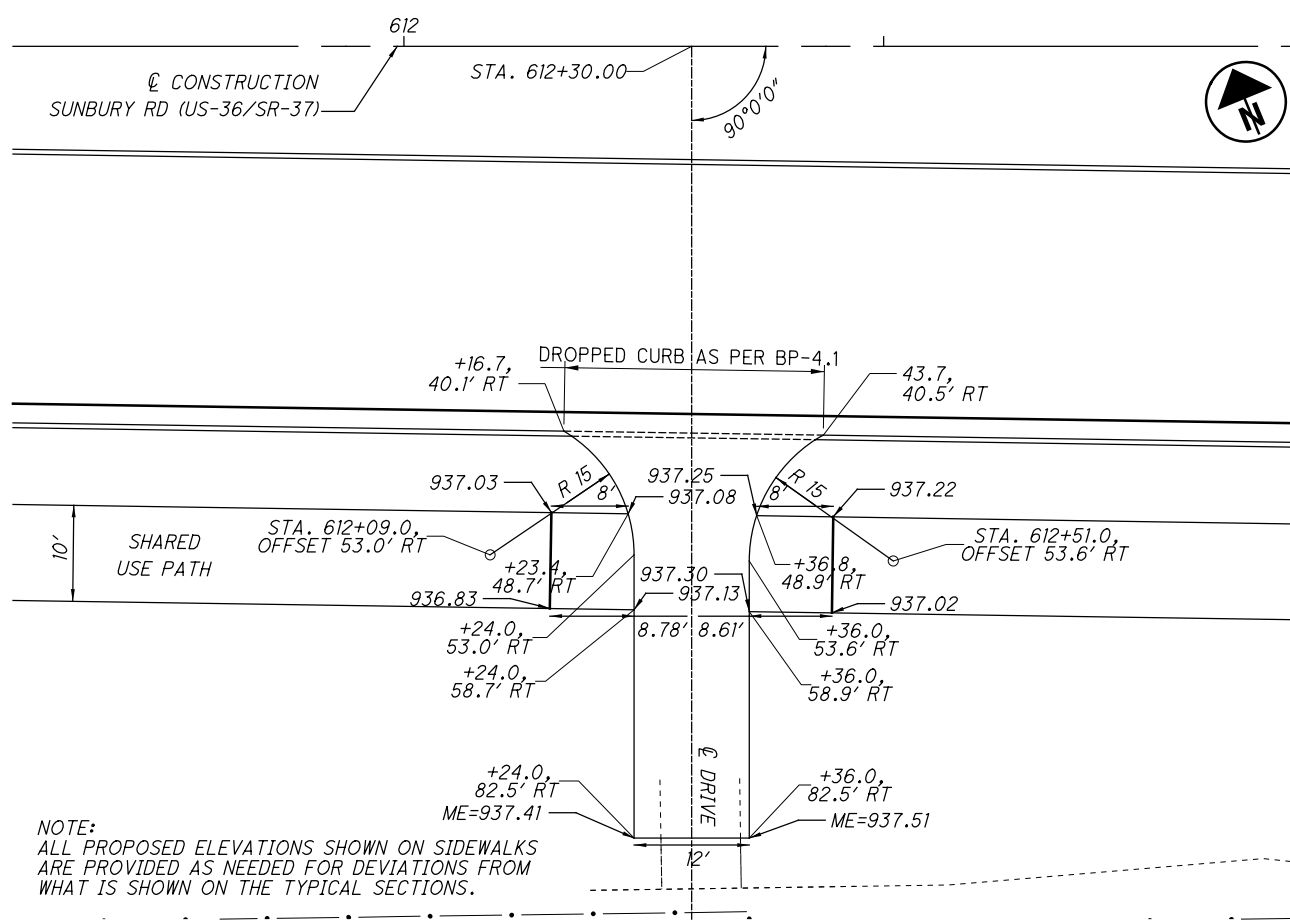
### DRIVEWAY DR 7



### DRIVEWAY DR 8



### DRIVEWAY DR 9



NOTE:  
ALL PROPOSED ELEVATIONS SHOWN ON SIDEWALKS  
ARE PROVIDED AS NEEDED FOR DEVIATIONS FROM  
WHAT IS SHOWN ON THE TYPICAL SECTIONS.

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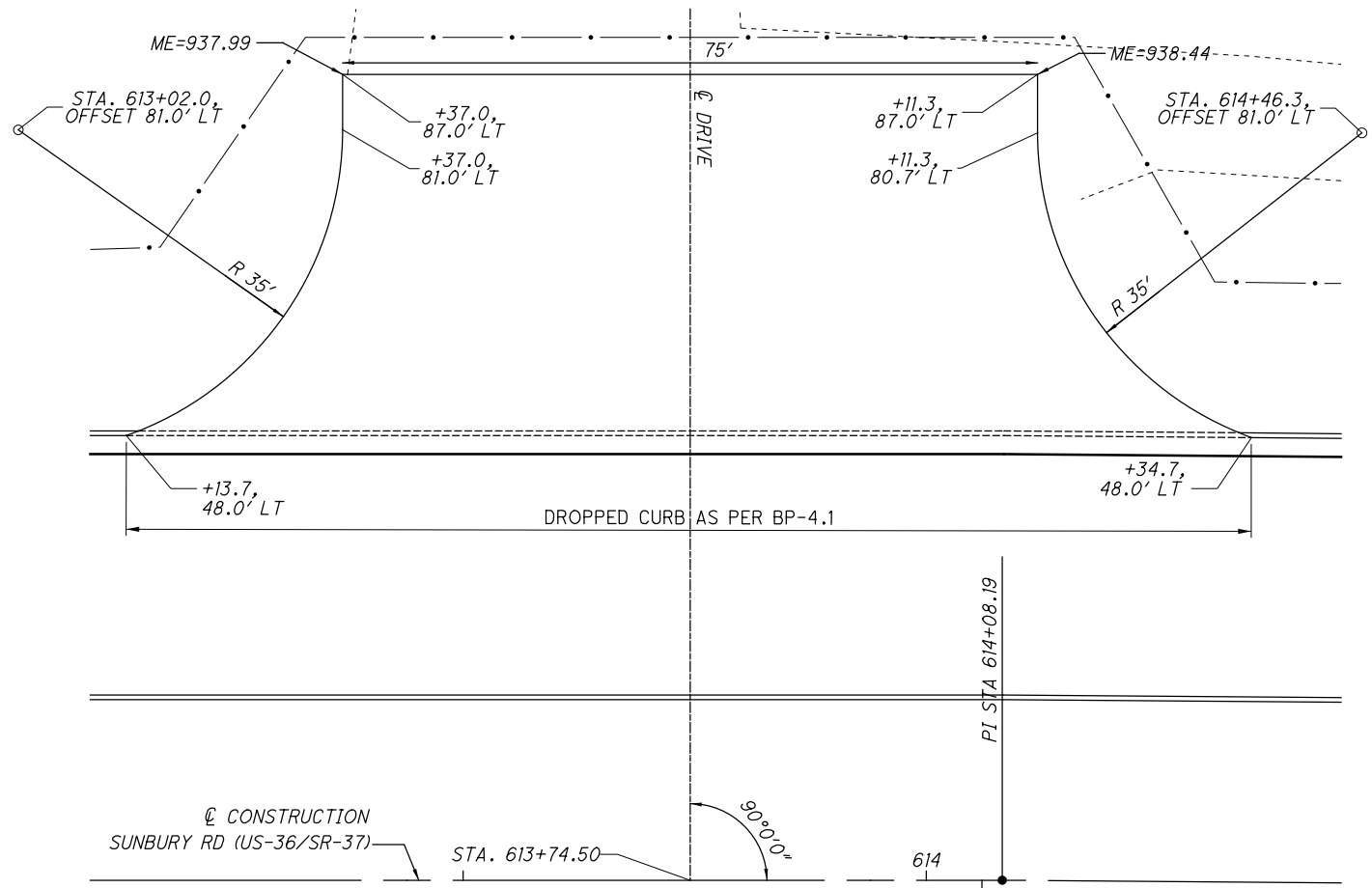
CALCULATED	0
TOD	20
CHECKED	DR

US-36 DRIVEWAY DETAILS

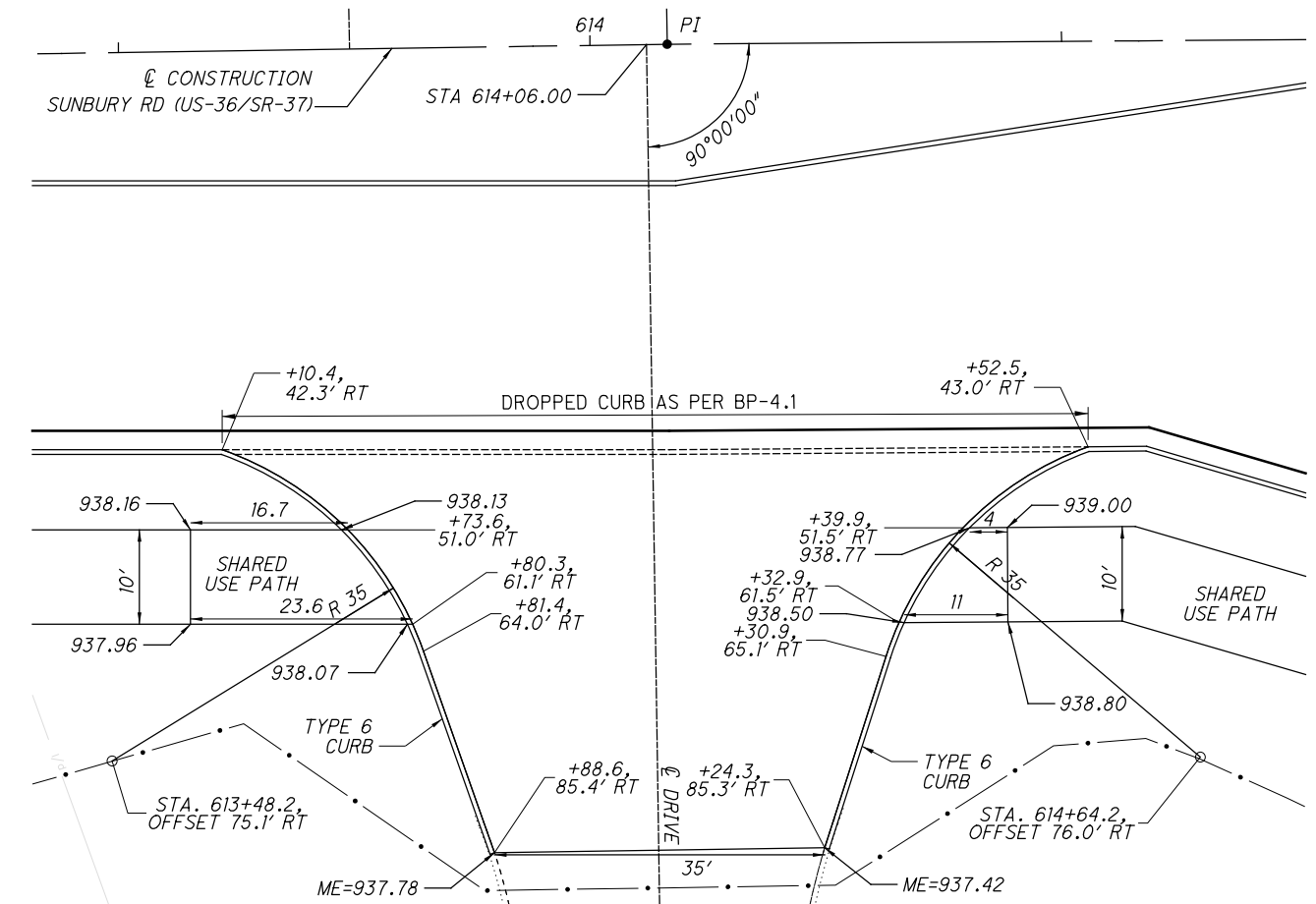
DEL-36-11.03



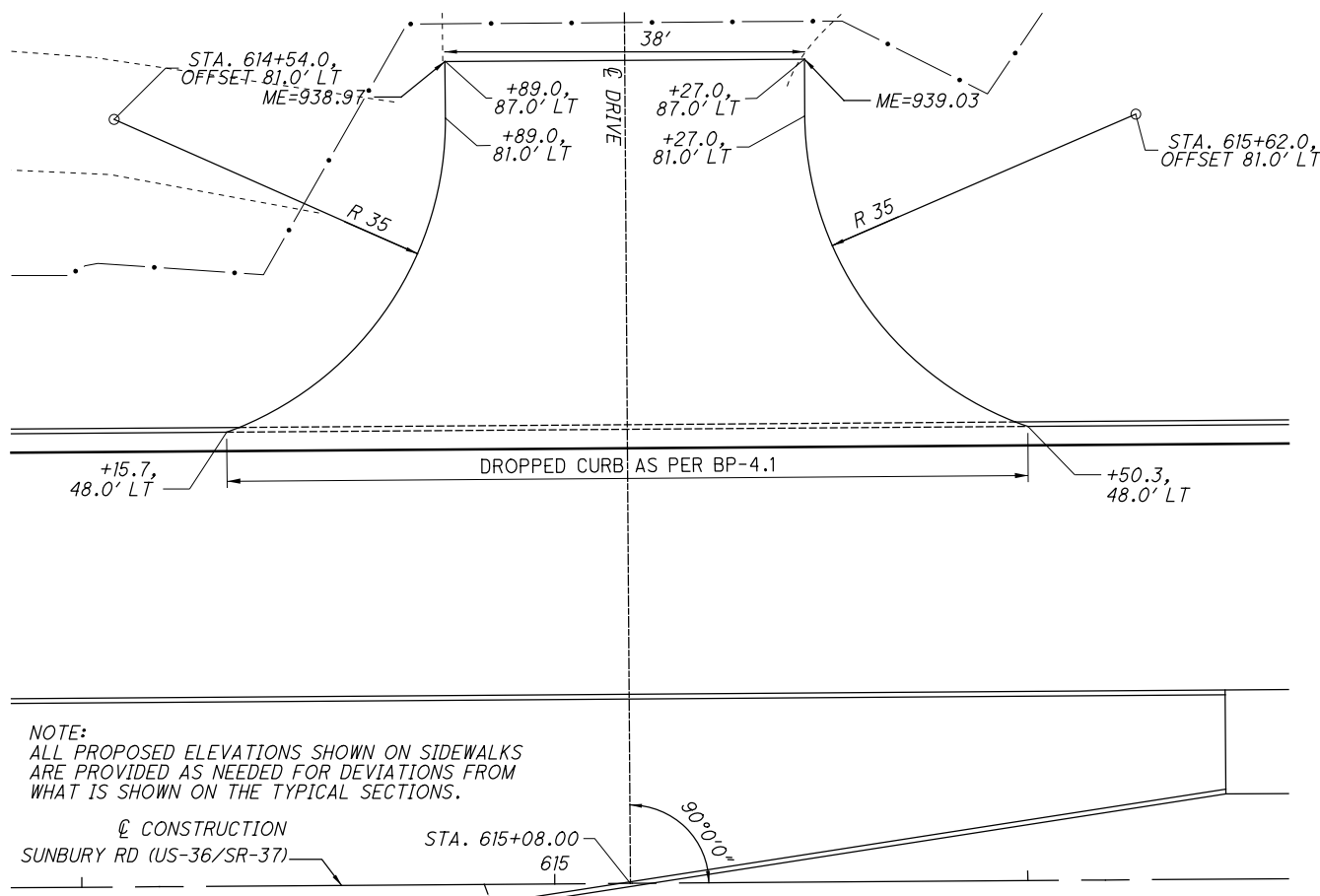
### DRIVEWAY DR 10



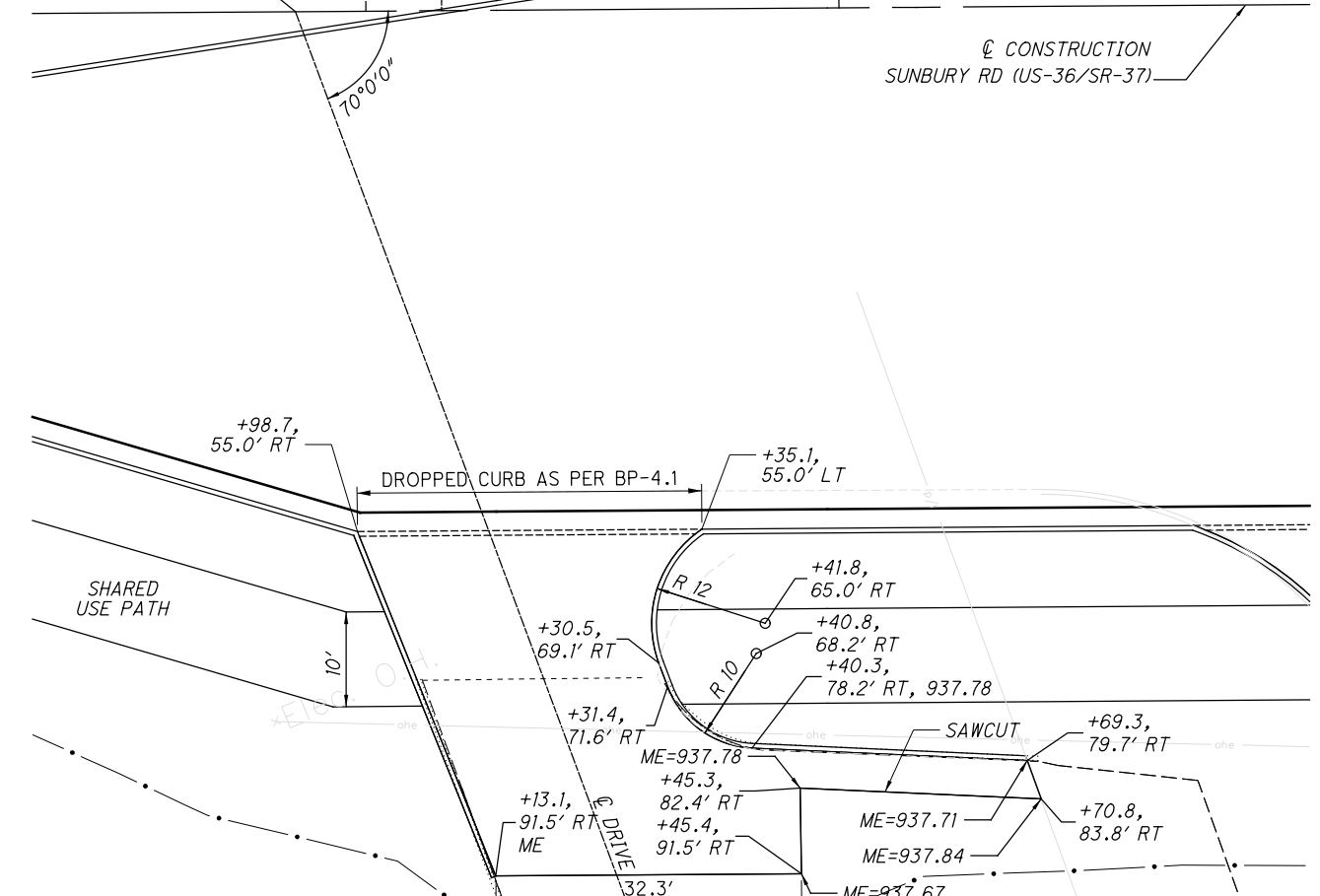
### DRIVEWAY DR 11



### DRIVEWAY DR 12



### DRIVEWAY DR 13



NOTE:  
ALL PROPOSED ELEVATIONS SHOWN ON SIDEWALKS  
ARE PROVIDED AS NEEDED FOR DEVIATIONS FROM  
WHAT IS SHOWN ON THE TYPICAL SECTIONS.

CALCULATED  
TOD  
CHECKED  
DR

0 10 20  
5  
HORIZONTAL  
SCALE IN FEET

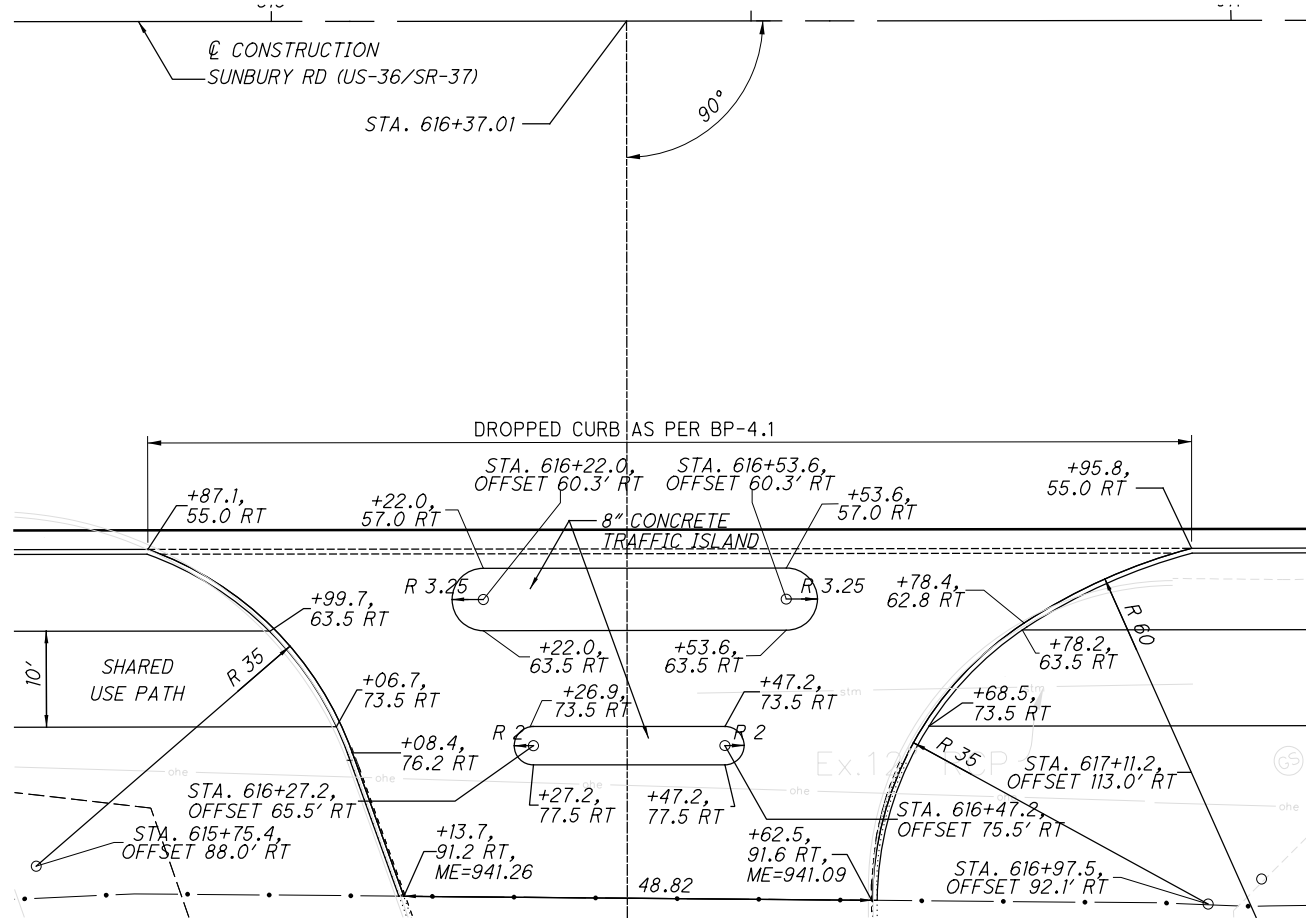
US-36 DRIVEWAY DETAILS

DEL-36-11.03

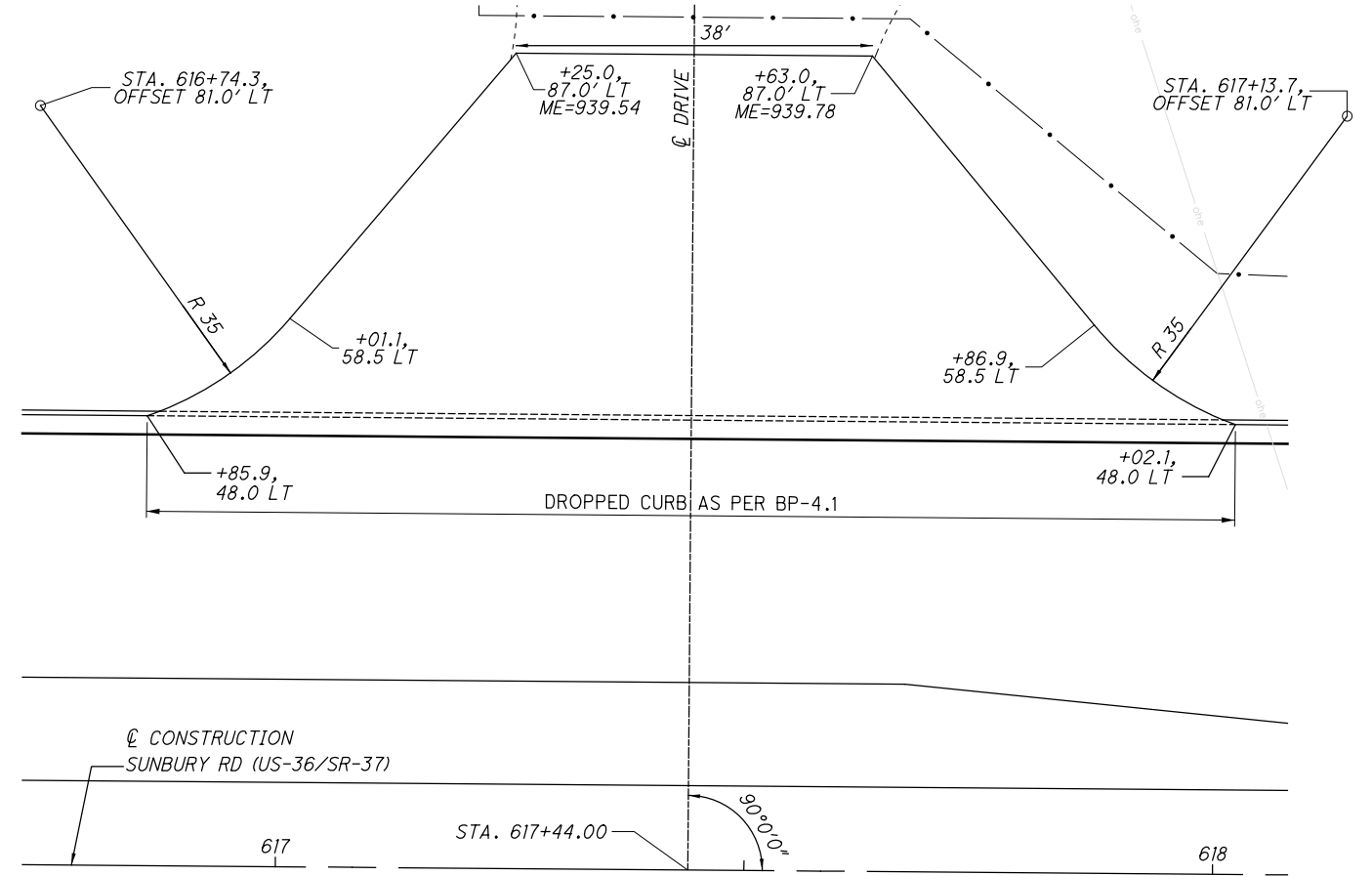
241  
644

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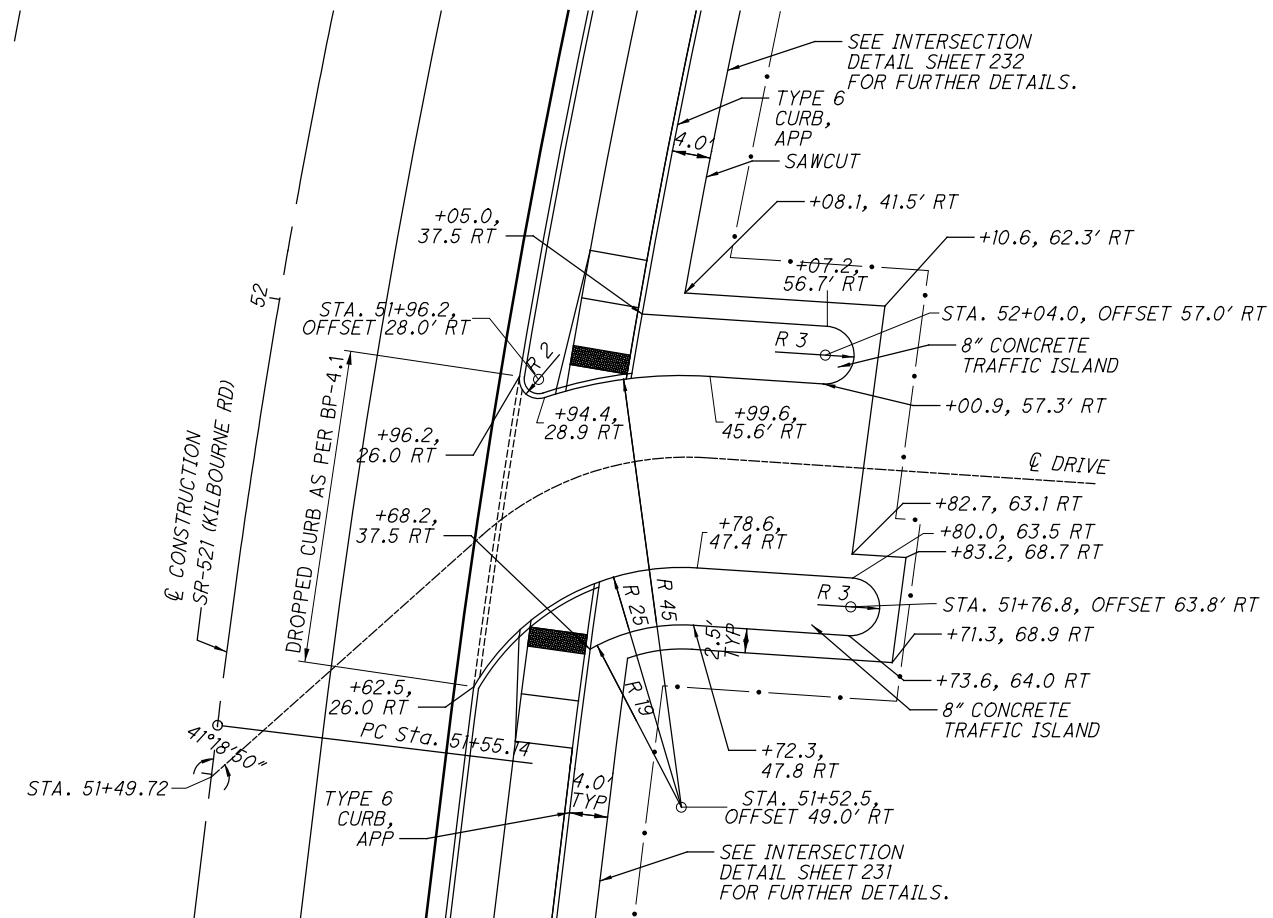
### DRIVEWAY DR 14



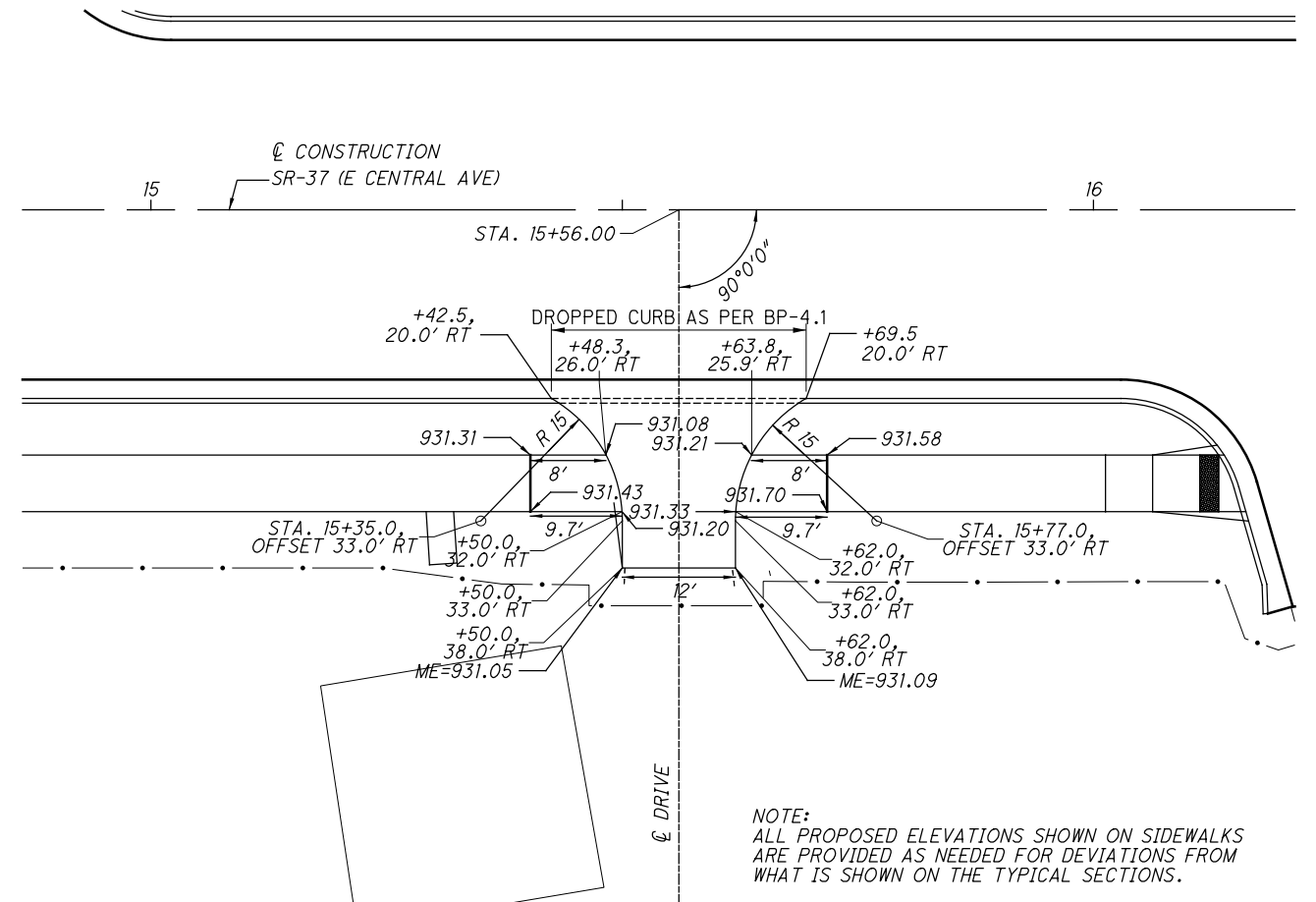
### DRIVEWAY DR 15



### DRIVEWAY DR 16



### DRIVEWAY DR 17



NOTE:  
ALL PROPOSED ELEVATIONS SHOWN ON SIDEWALKS  
ARE PROVIDED AS NEEDED FOR DEVIATIONS FROM  
WHAT IS SHOWN ON THE TYPICAL SECTIONS.

CALCULATED  
TOD  
CHECKED  
DR

0 10 20  
5  
HORIZONTAL  
SCALE IN FEET

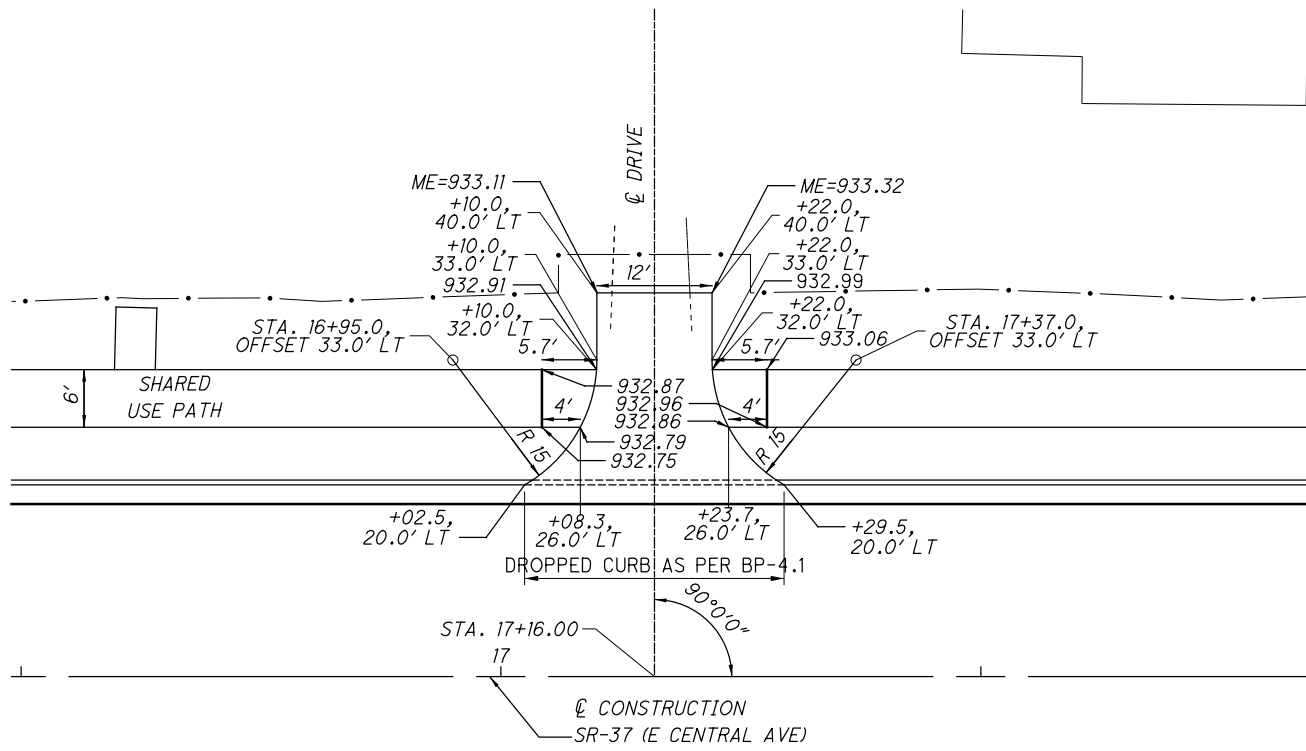
US-36 DRIVEWAY DETAILS

DEL-36-11.03

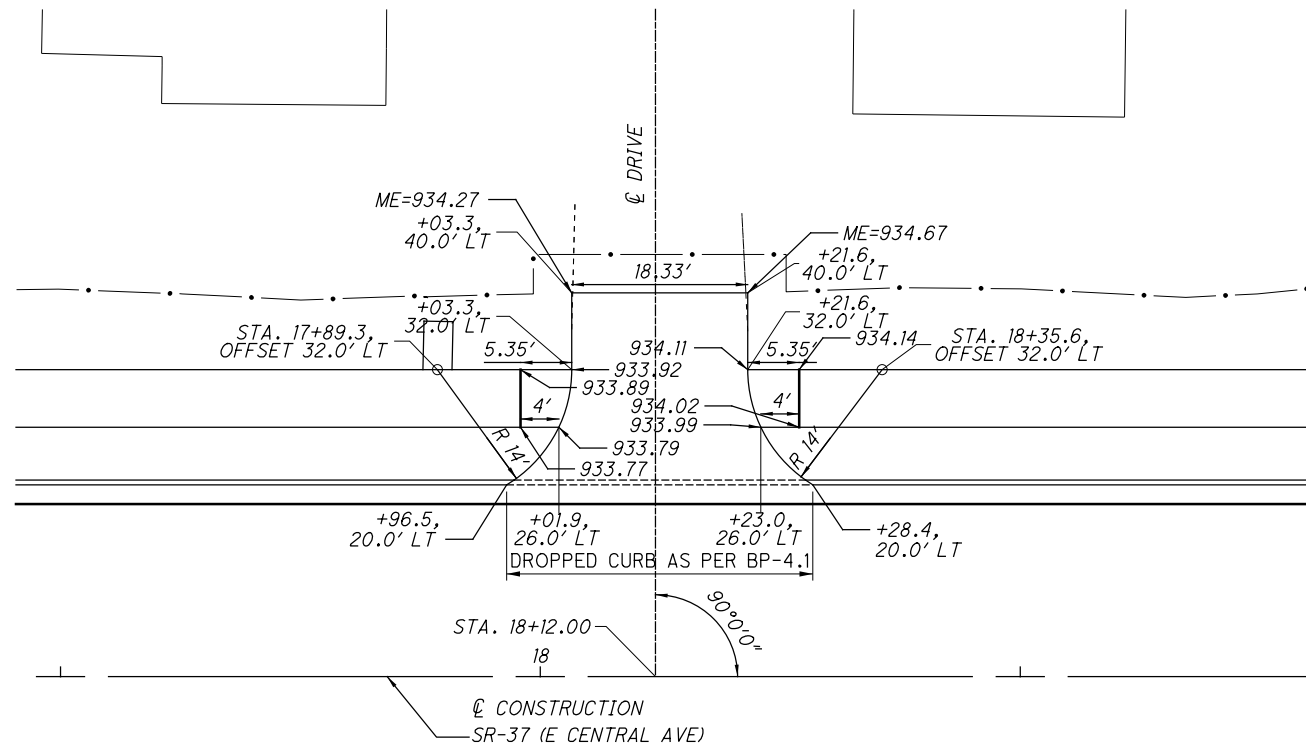
242  
644

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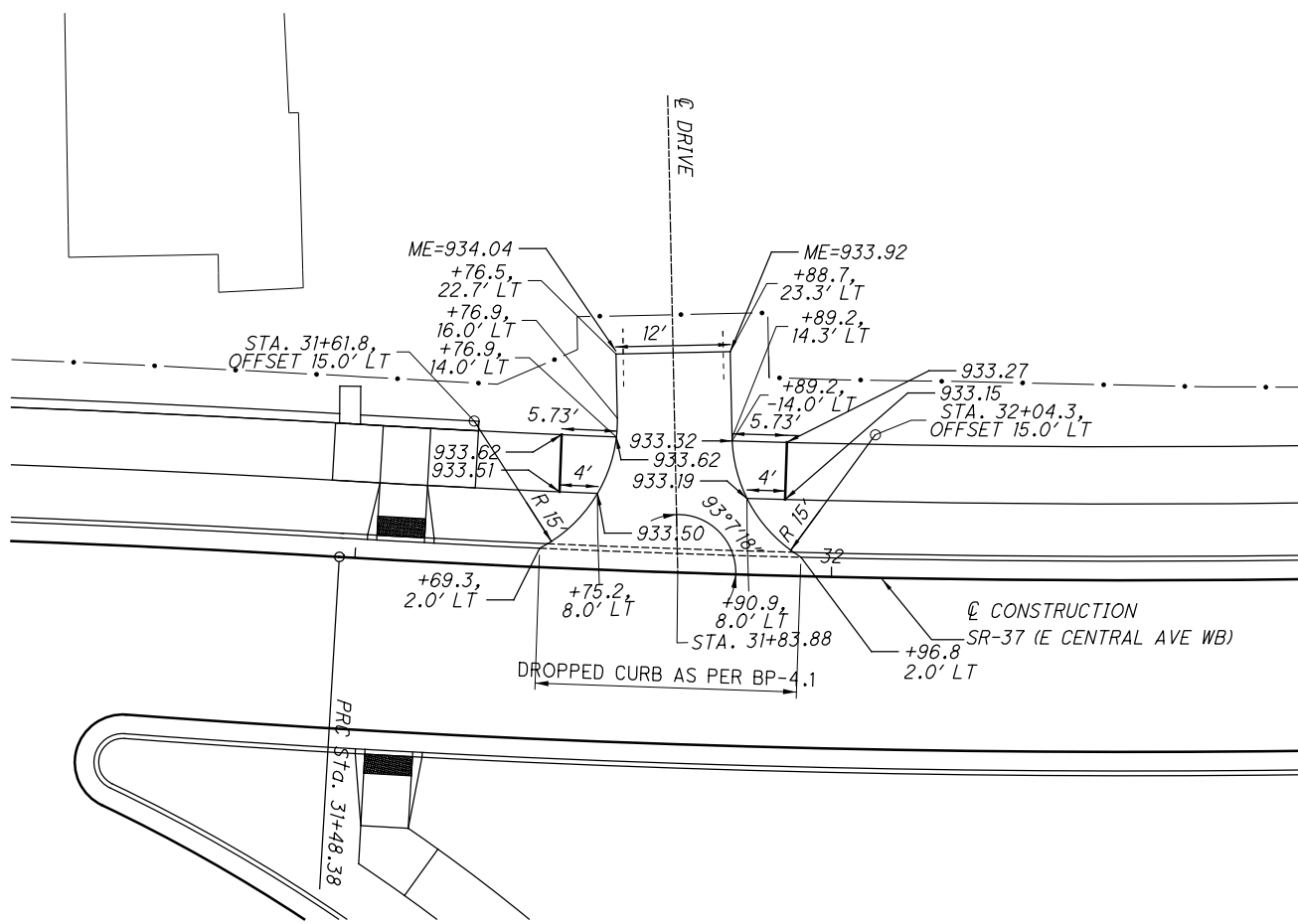
**DRIVEWAY DR 18**



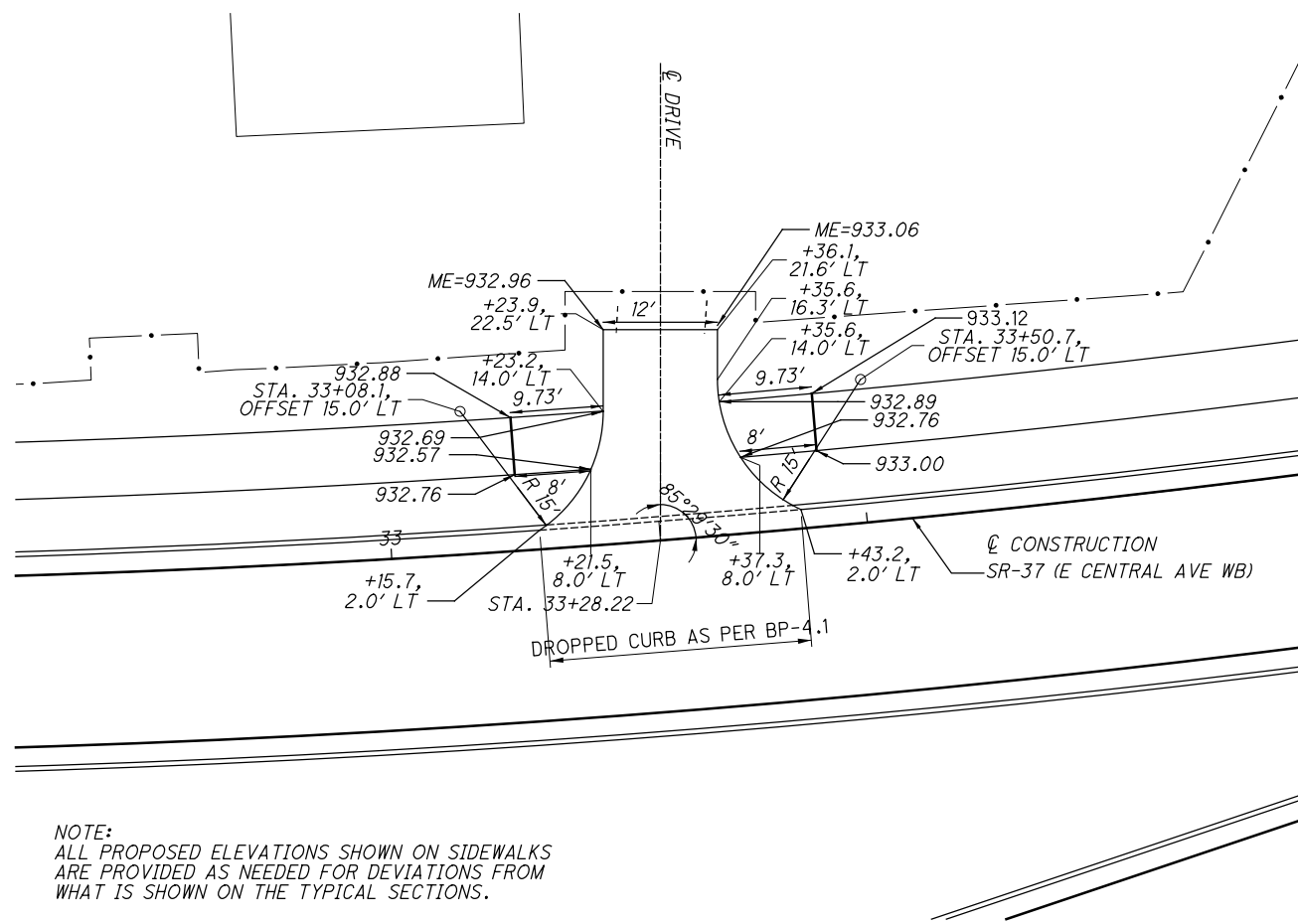
**DRIVEWAY DR 19**



**DRIVEWAY DR 20**



**DRIVEWAY DR 21**



NOTE:  
ALL PROPOSED ELEVATIONS SHOWN ON SIDEWALKS  
ARE PROVIDED AS NEEDED FOR DEVIATIONS FROM  
WHAT IS SHOWN ON THE TYPICAL SECTIONS.

CALCULATED  
TOD  
CHECKED  
DR

HORIZONTAL  
SCALE IN FEET

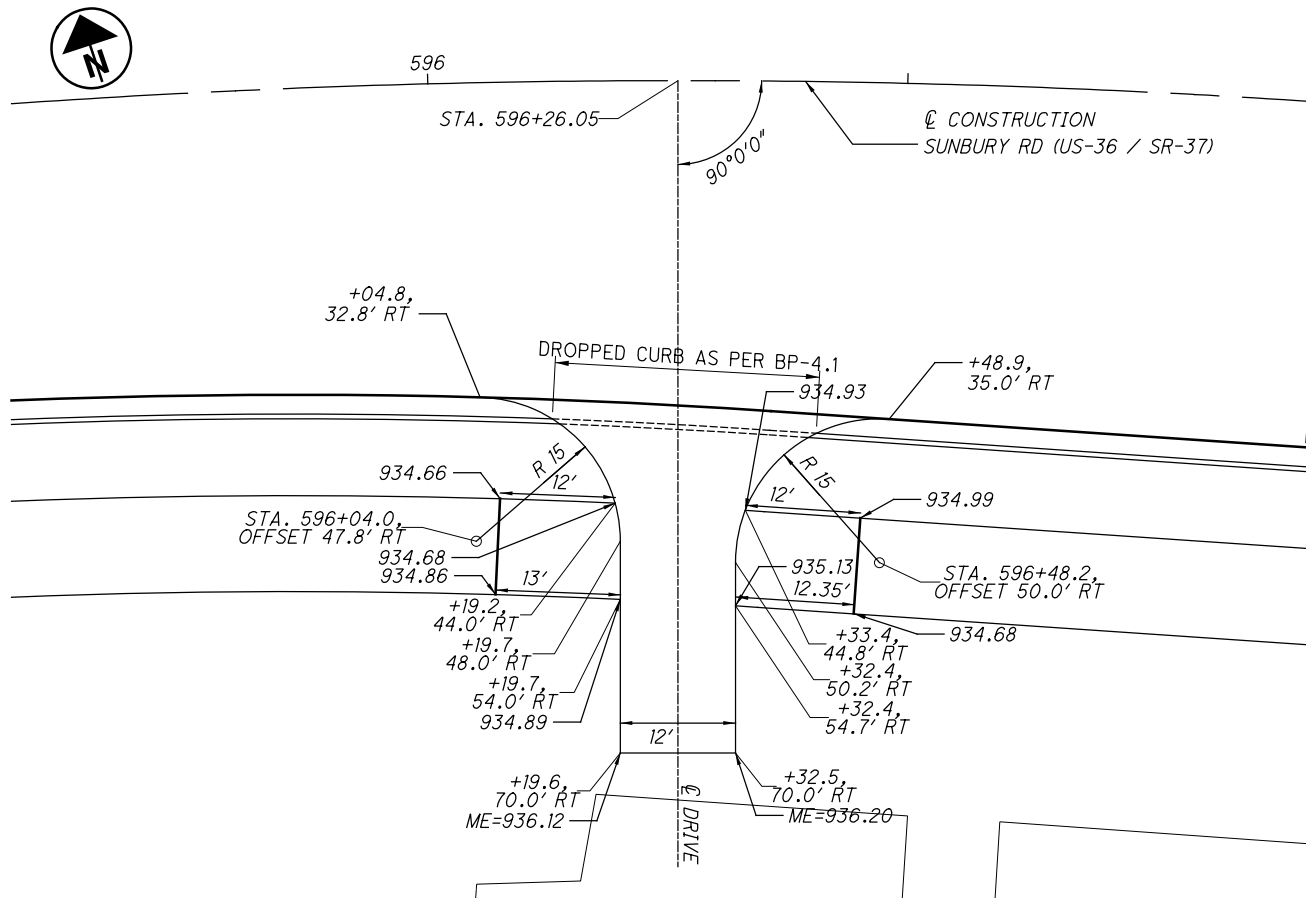
US-36 DRIVEWAY DETAILS

DEL-36-11.03

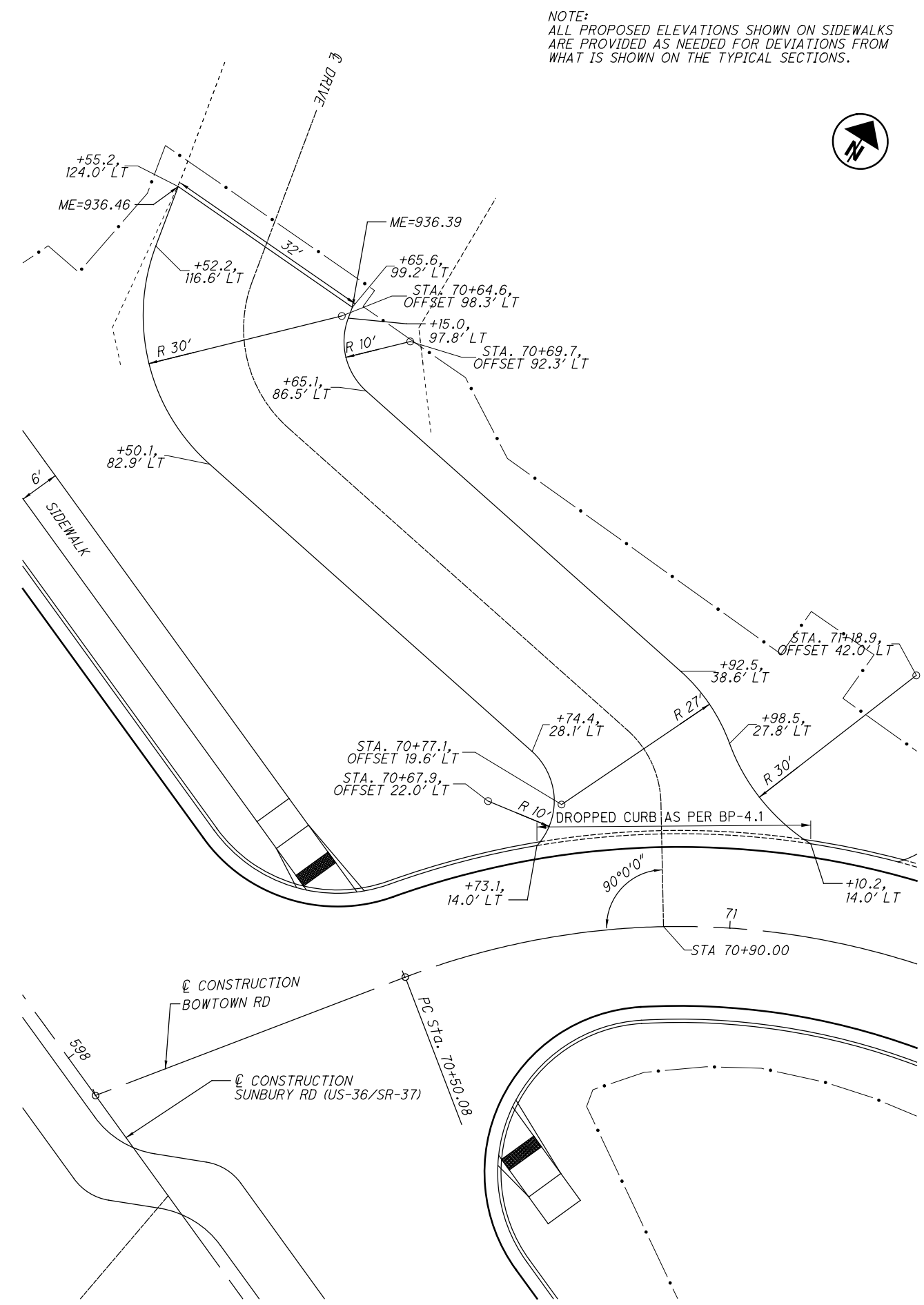
243  
644

pw:\gfnnet-pw-bentley.com\gfnnet-pw-01\Documents\Projects\63519\03626\Design\Roadway\sheets\03626\_gd0001.dgn Sheet 7/27/2022 3:56:02 PM pkeiffner

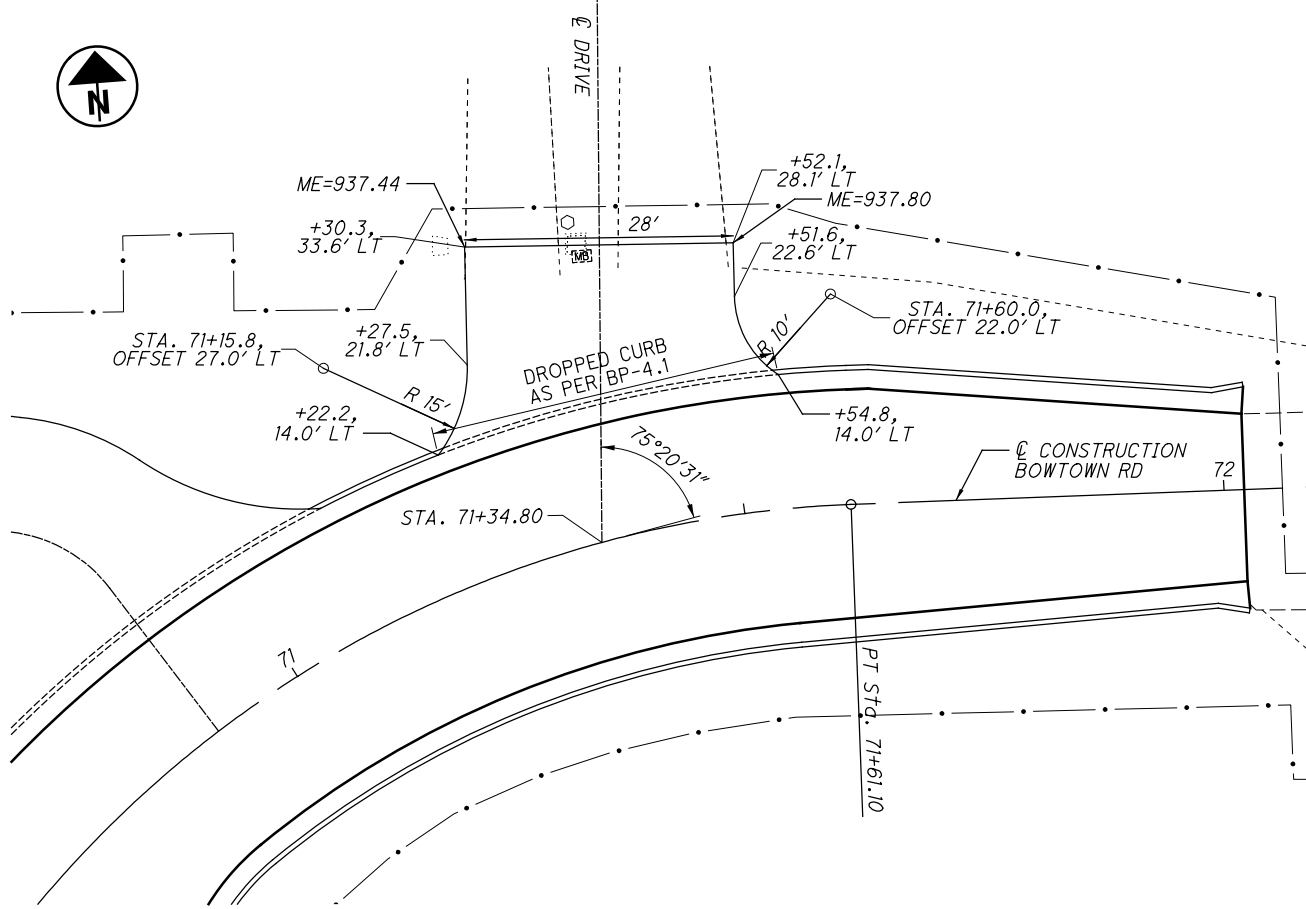
### DRIVEWAY DR 22



### DRIVEWAY DR 23



### DRIVEWAY DR 24



CALCULATED	0
TOD	5
CHECKED	20
DR	

US-36 DRIVEWAY DETAILS

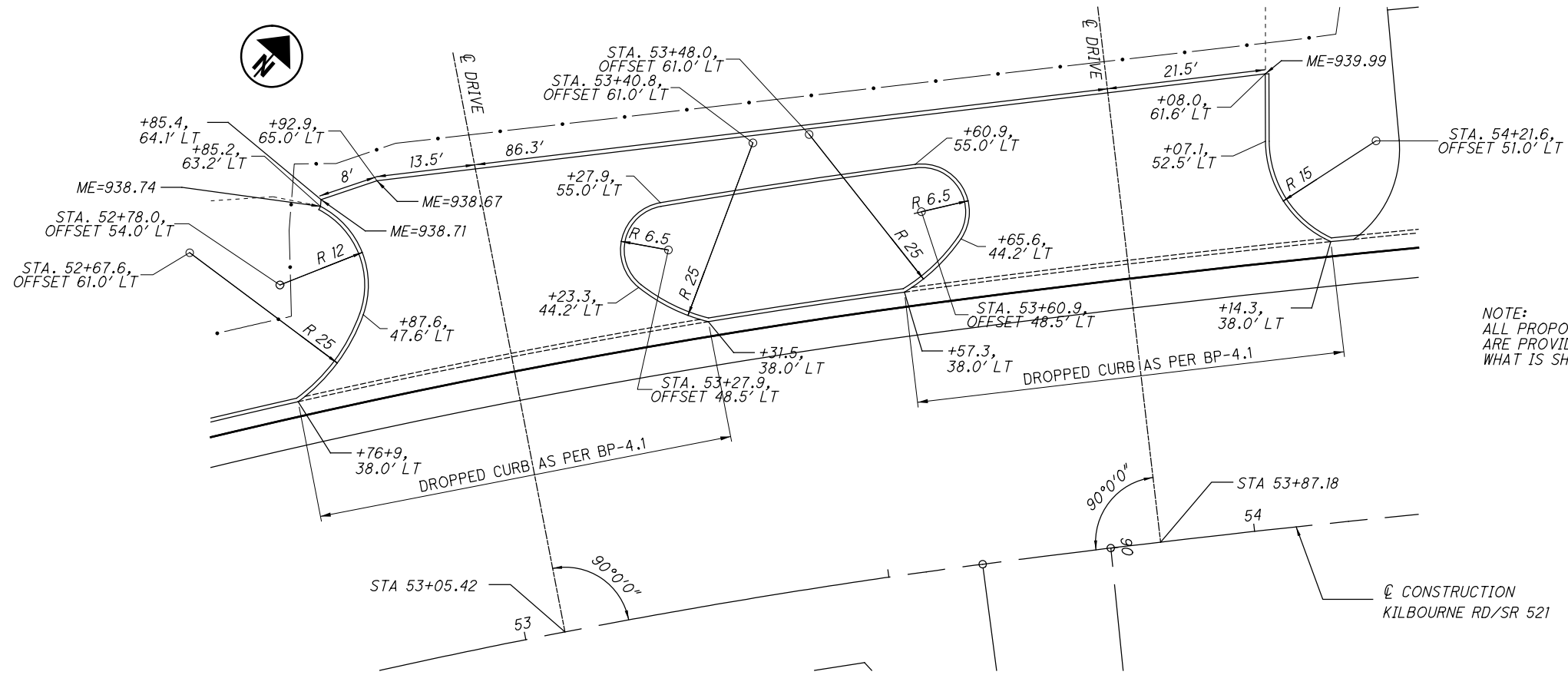
DEL-36-11.03

244  
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**DRIVEWAY DR 25**

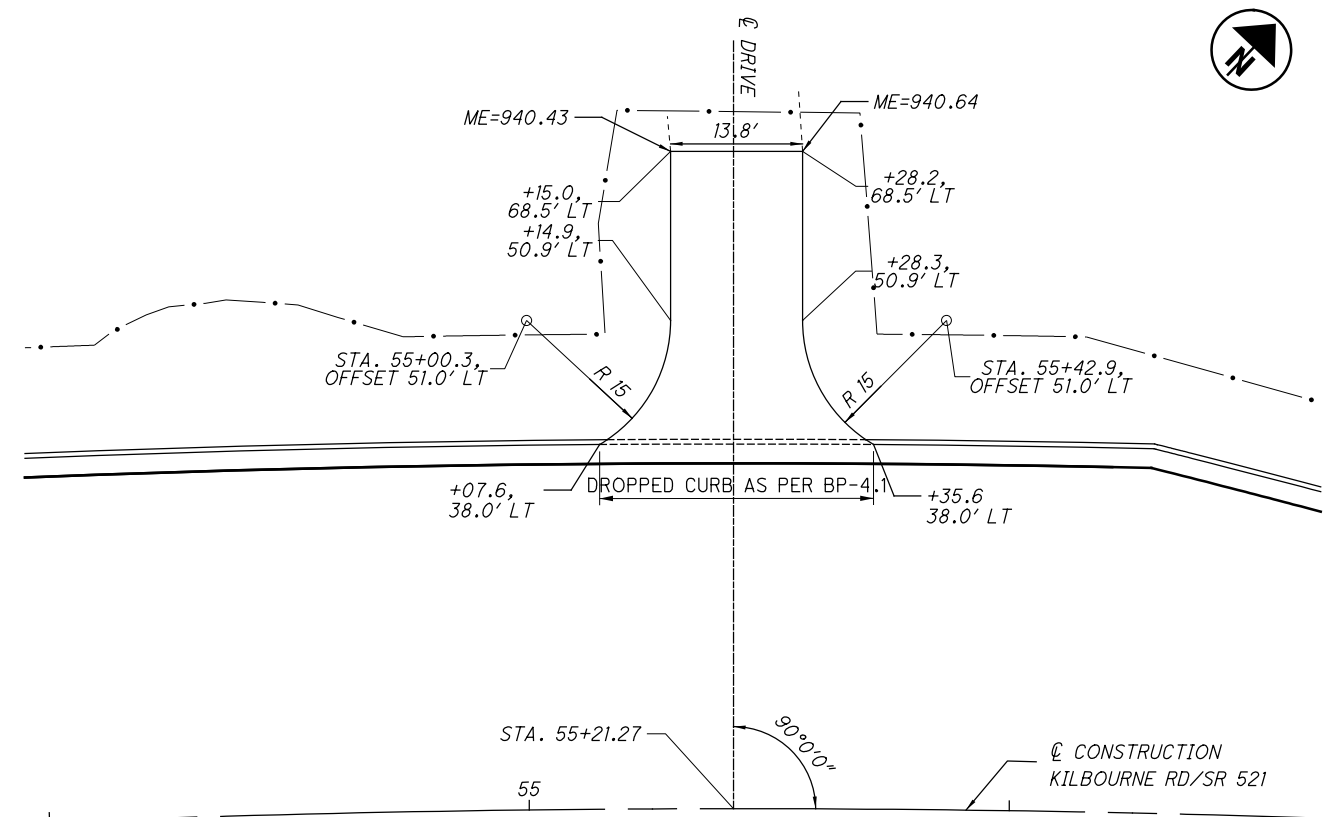
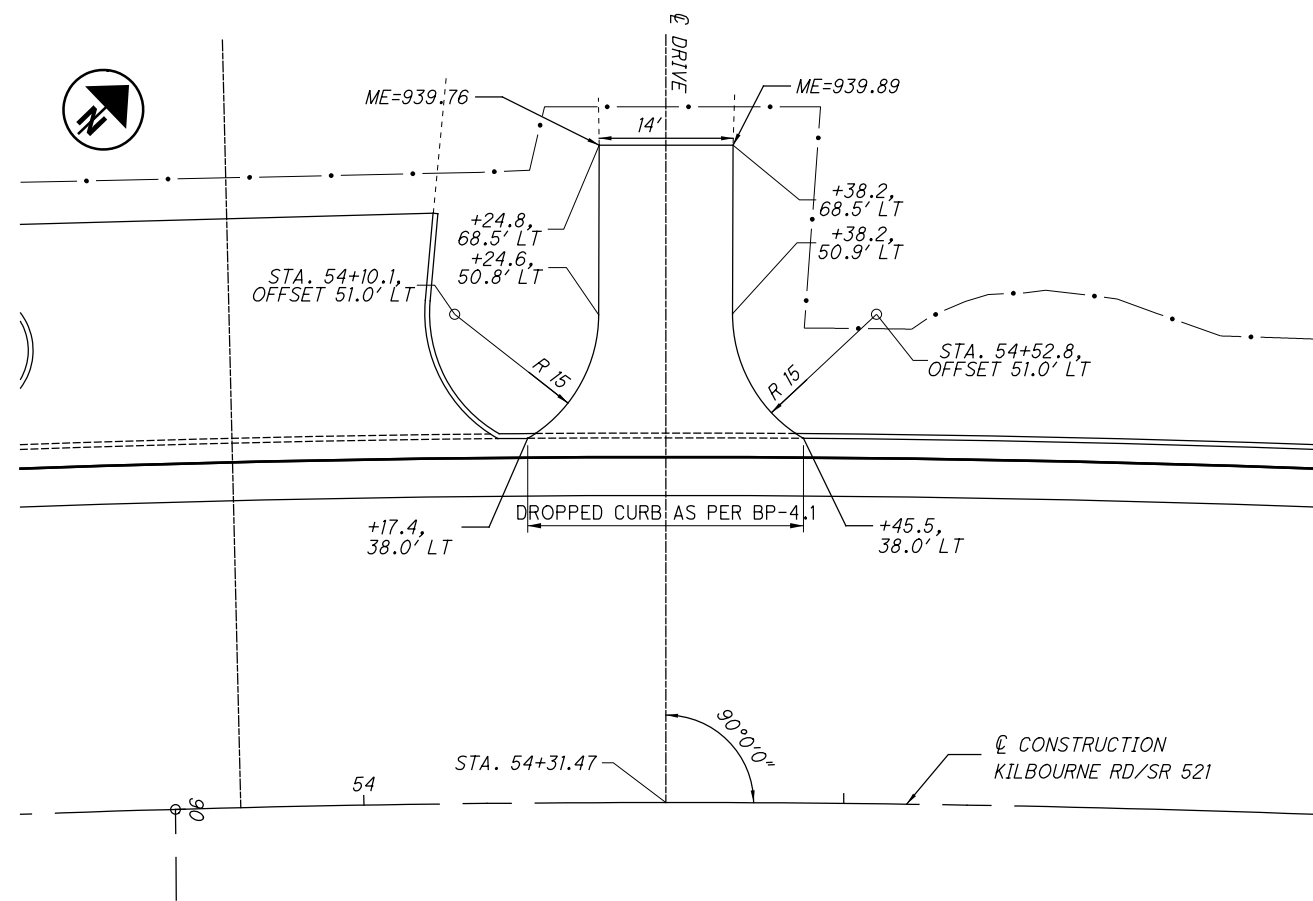
**DRIVEWAY DR 26**



NOTE:  
ALL PROPOSED ELEVATIONS SHOWN ON SIDEWALKS  
ARE PROVIDED AS NEEDED FOR DEVIATIONS FROM  
WHAT IS SHOWN ON THE TYPICAL SECTIONS.

**DRIVEWAY DR 27**

**DRIVEWAY DR 28**



CALCULATED	0
TOD	5
CHECKED	20
DR	

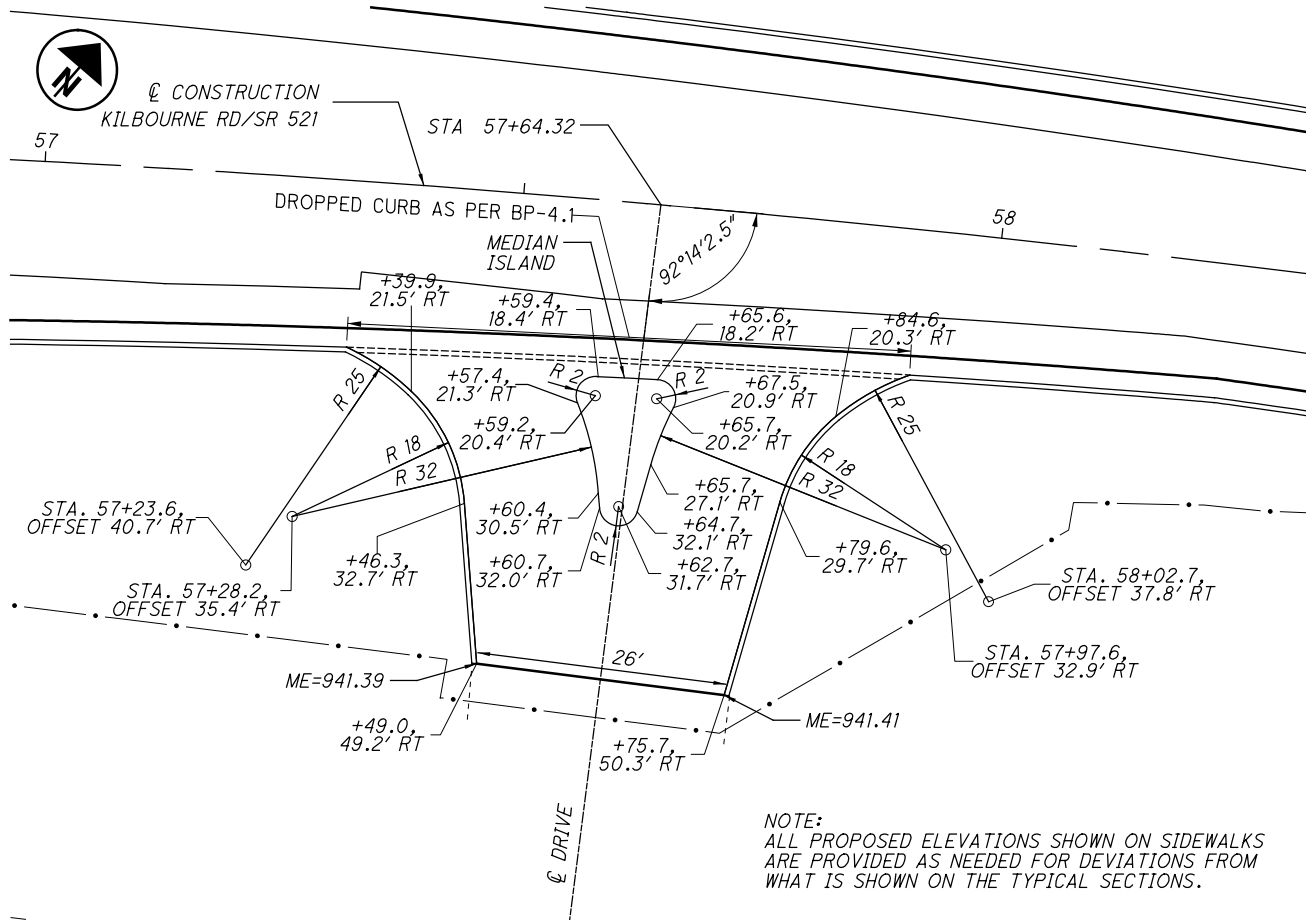
US-36 DRIVEWAY DETAILS

DEL-36-11.03

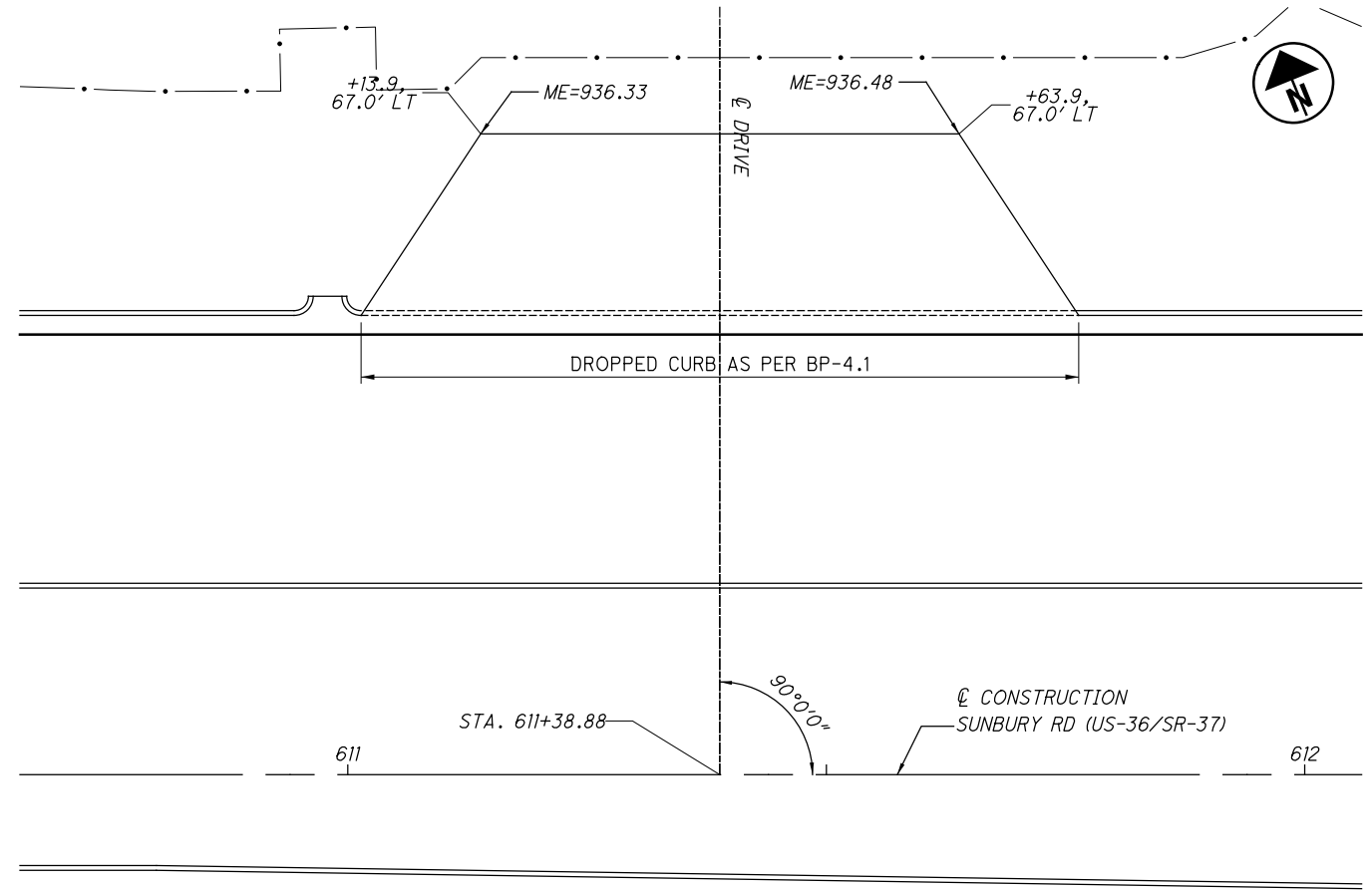
245  
644

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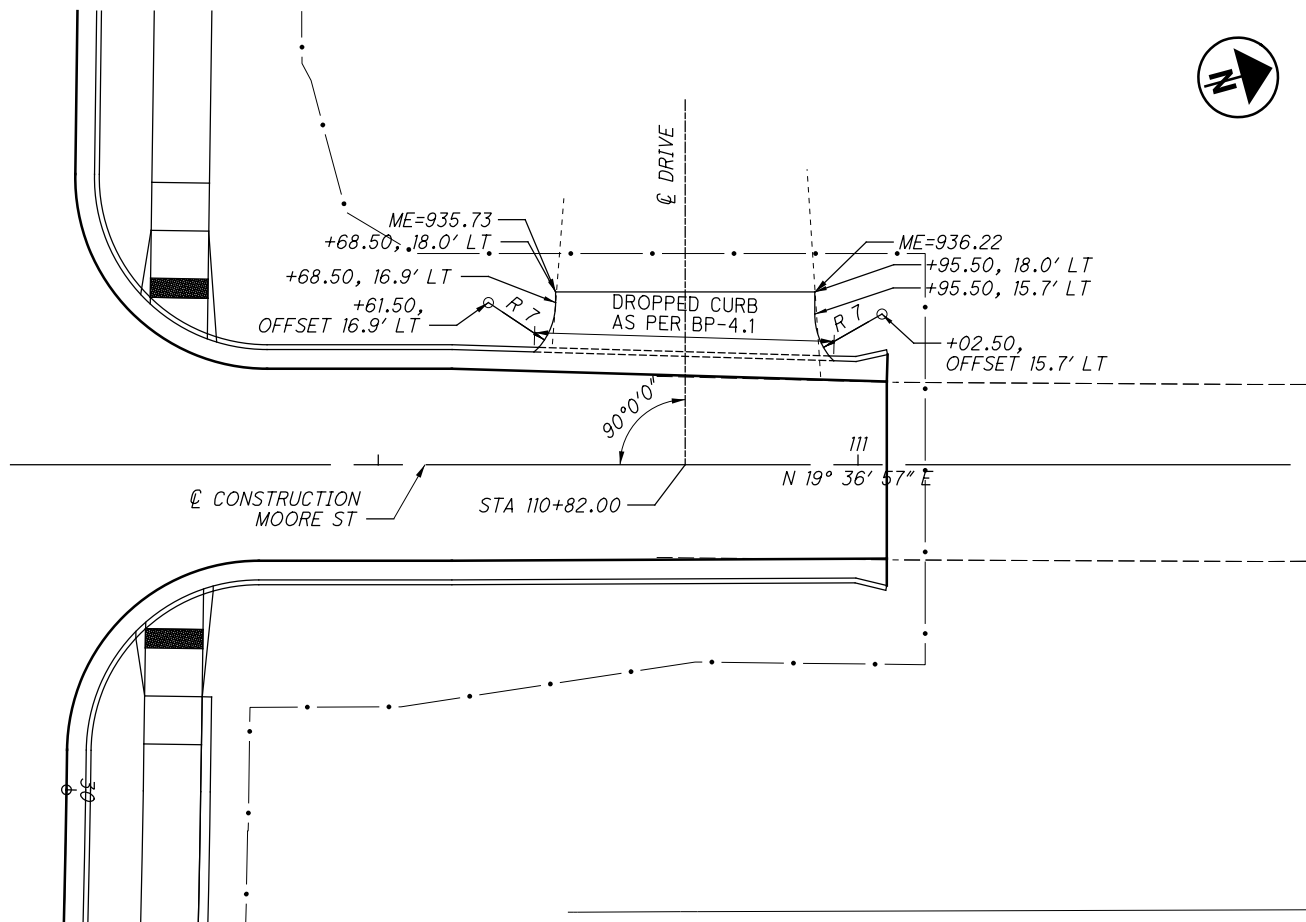
**DRIVEWAY DR 29**



**PARKING 1**



**DRIVEWAY DR 30**



CALCULATED	0
TOD	5
CHECKED	20
DR	

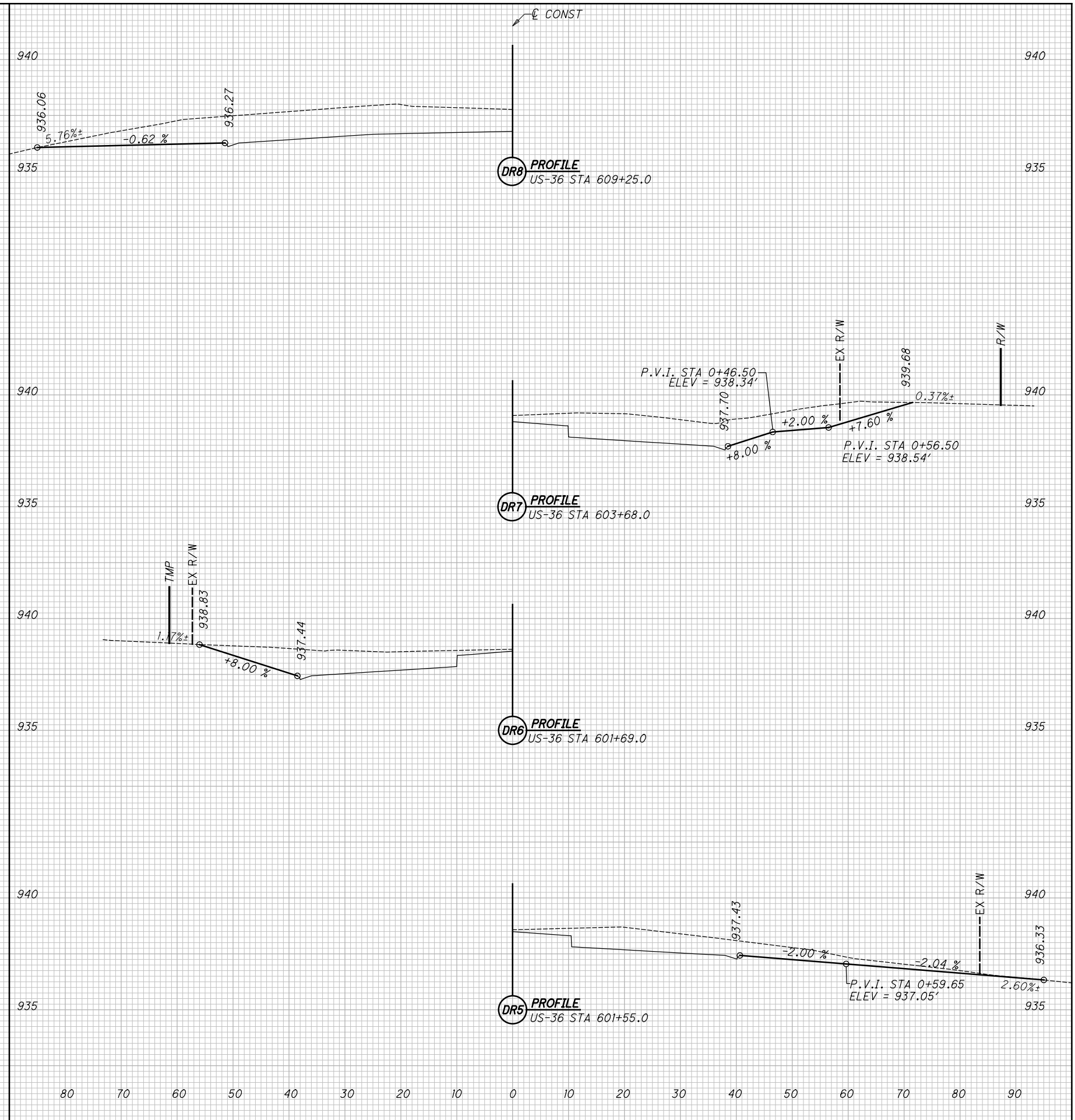
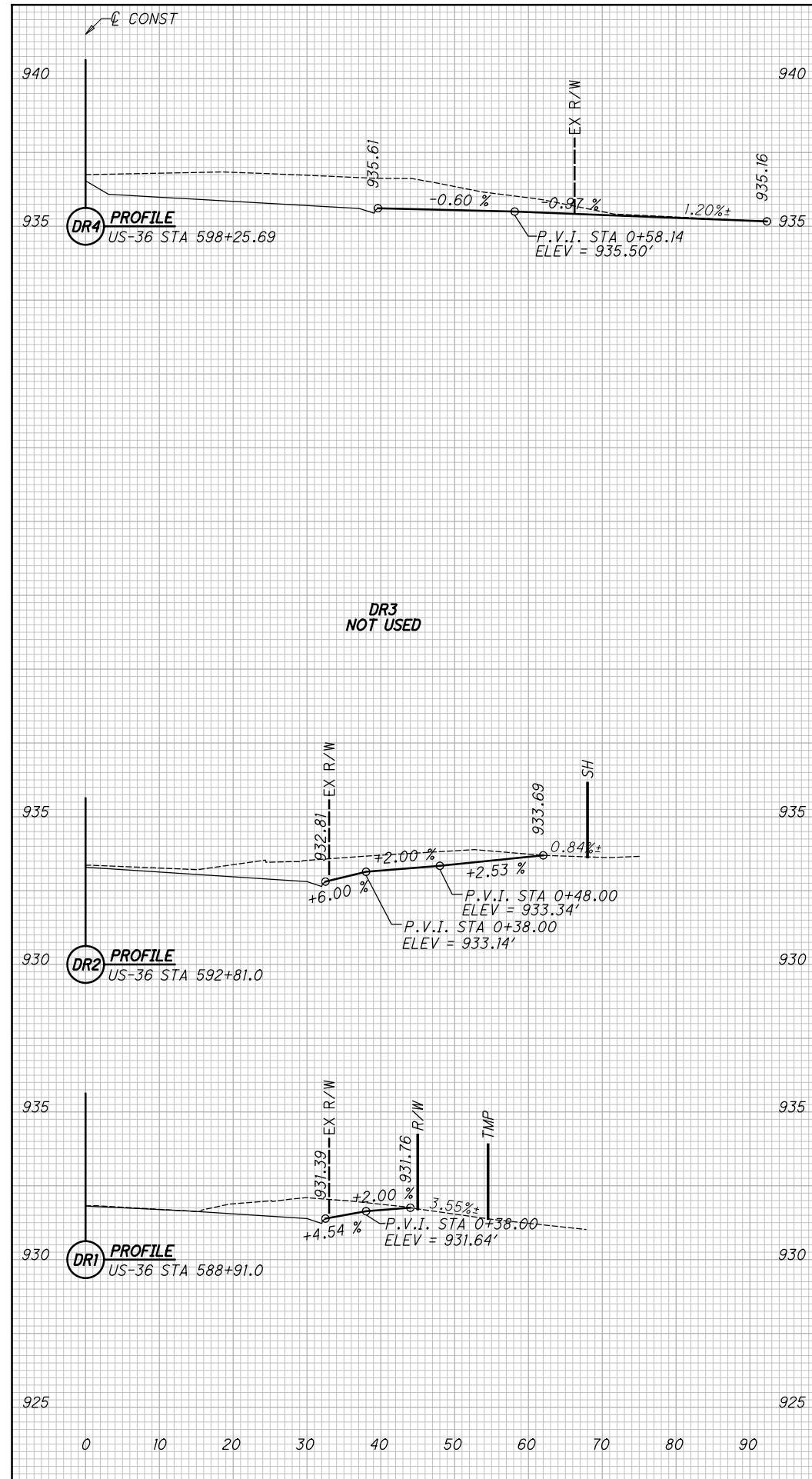
HORIZONTAL SCALE IN FEET

US-36 DRIVEWAY DETAILS

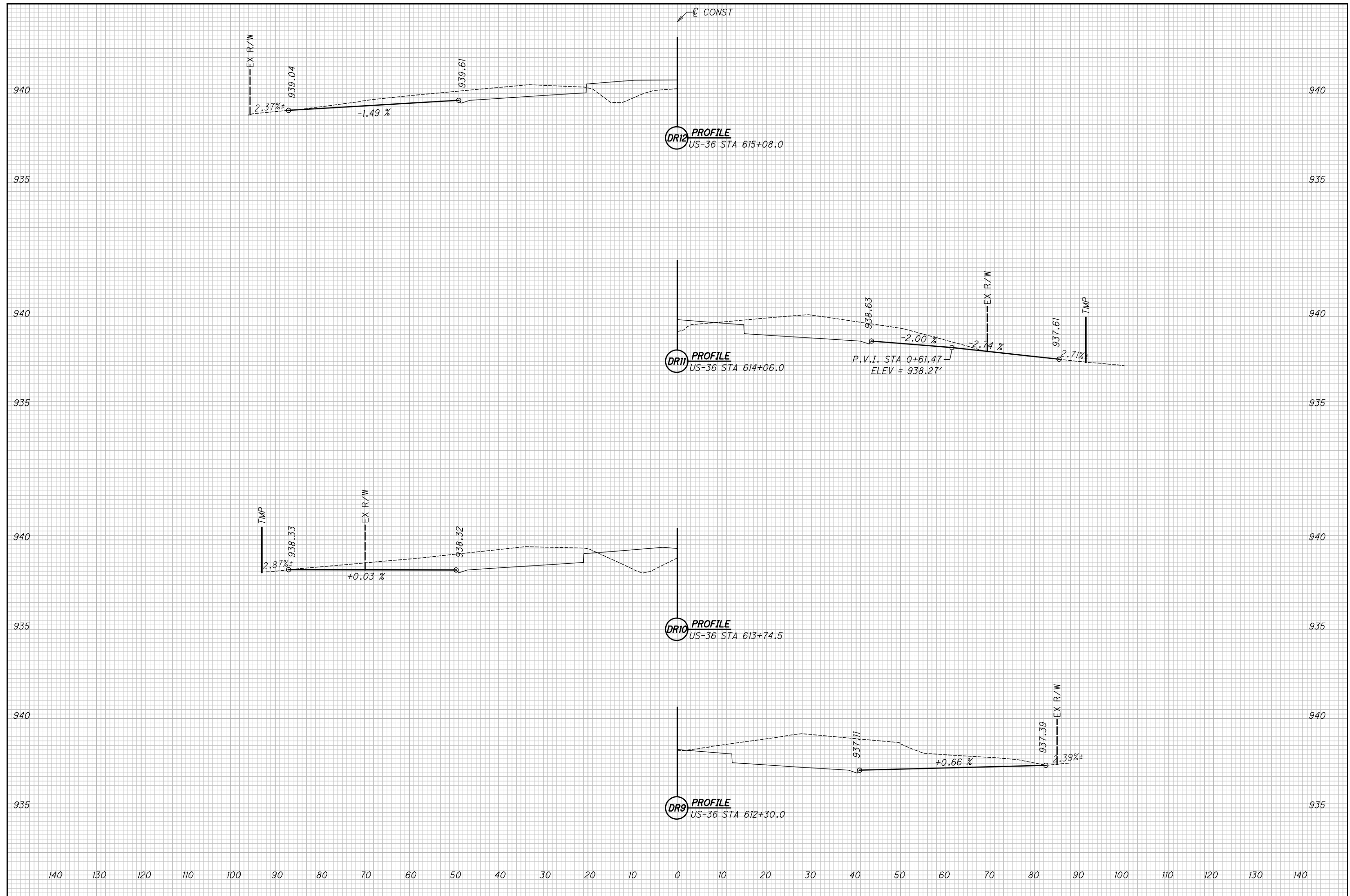
DEL-36-11.03

246  
644

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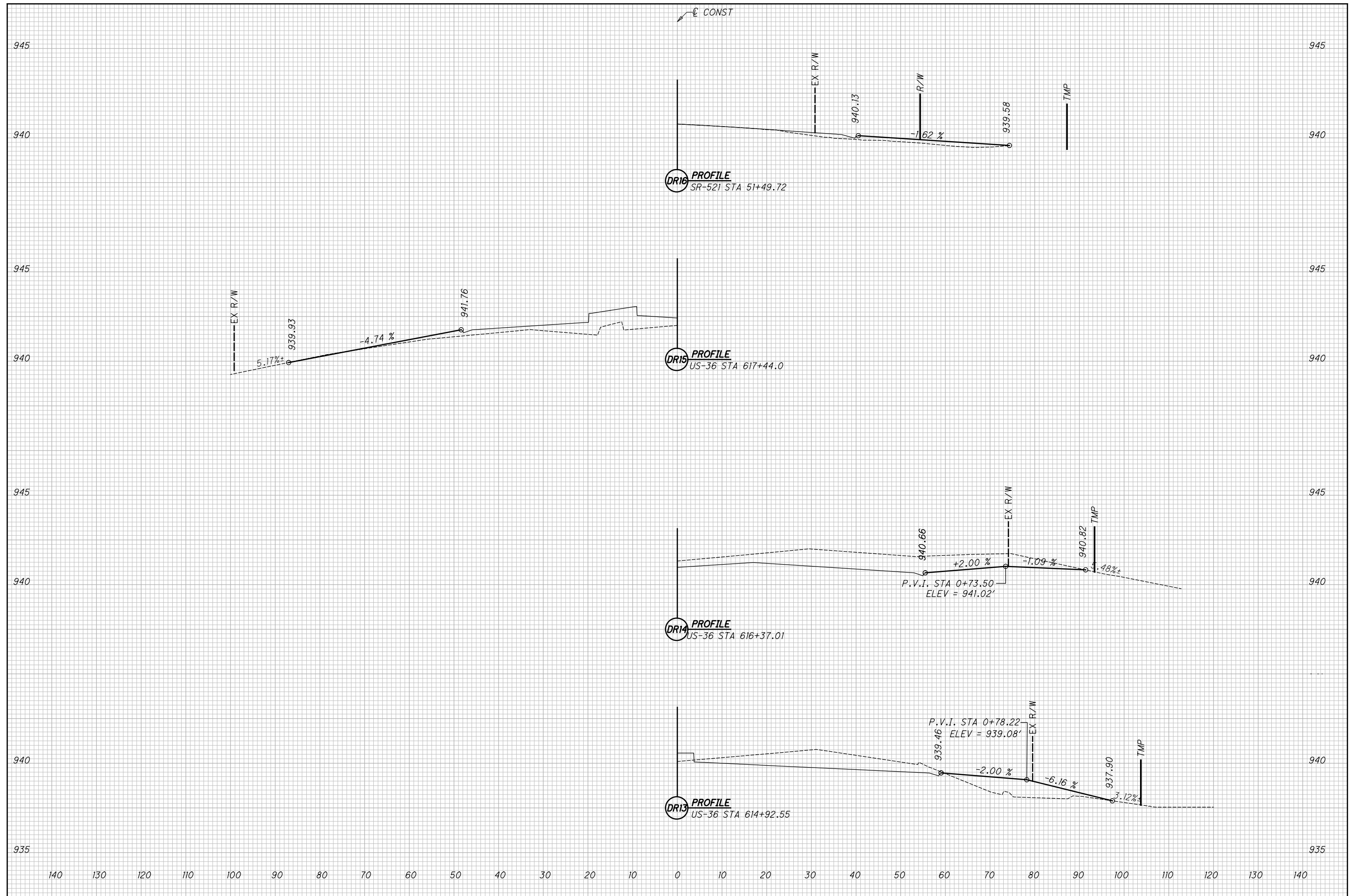
CALCULATED  
TOD  
CHECKED  
DR

DRIVE PROFILES

DEL-36-11.03



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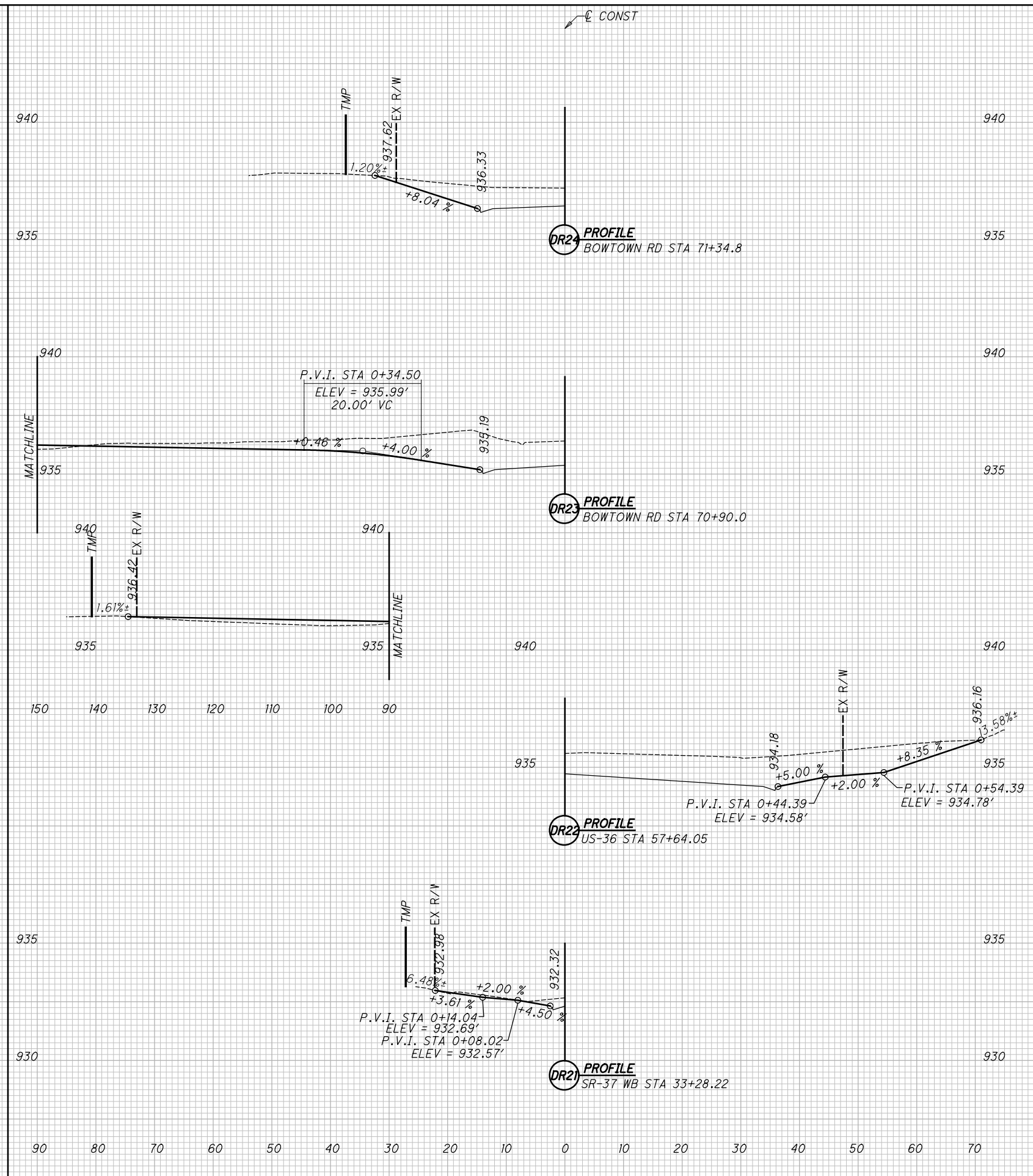
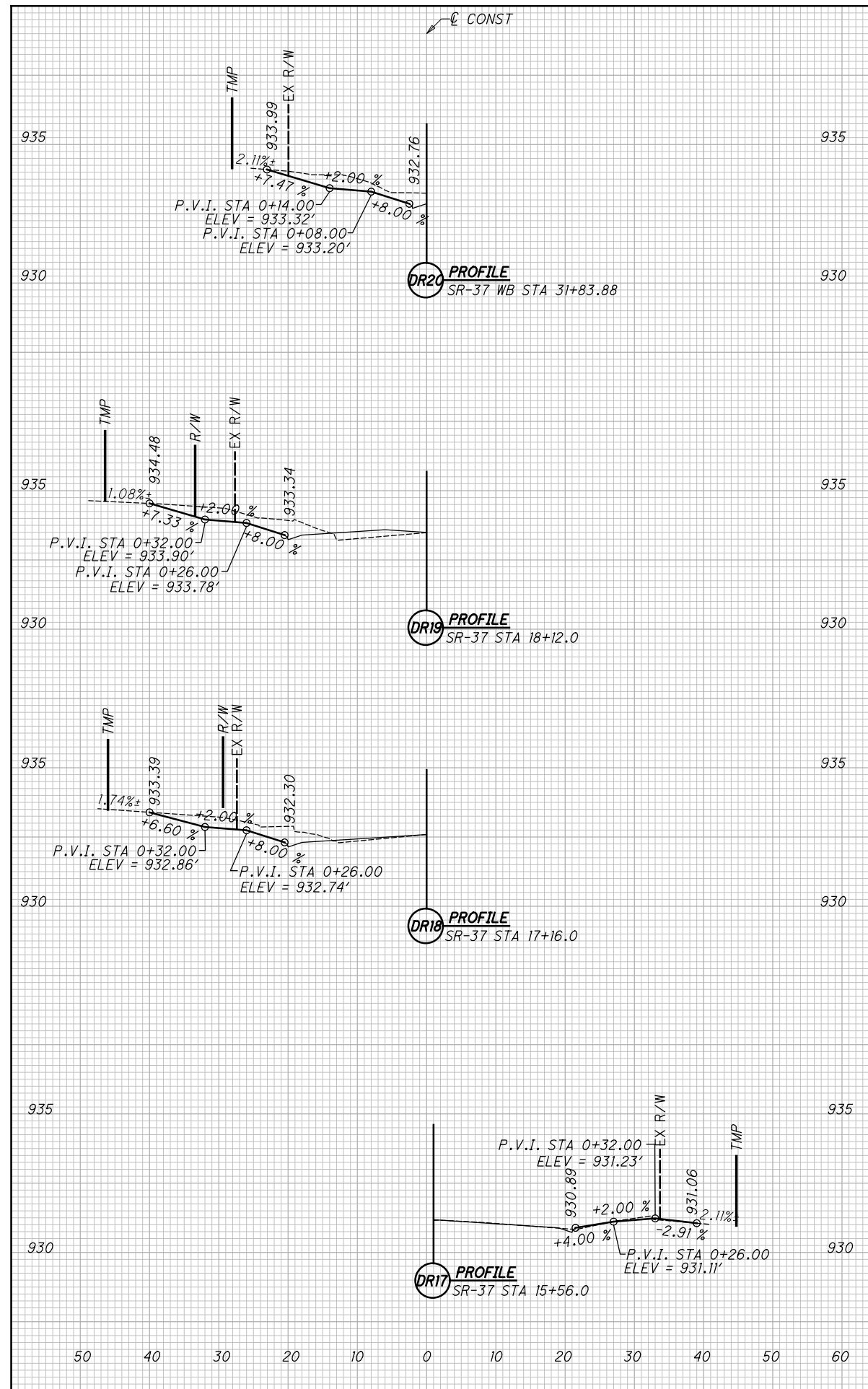


CALCULATED  
TOD  
CHECKED  
DR

DRIVE PROFILES

DEL-36-11.03

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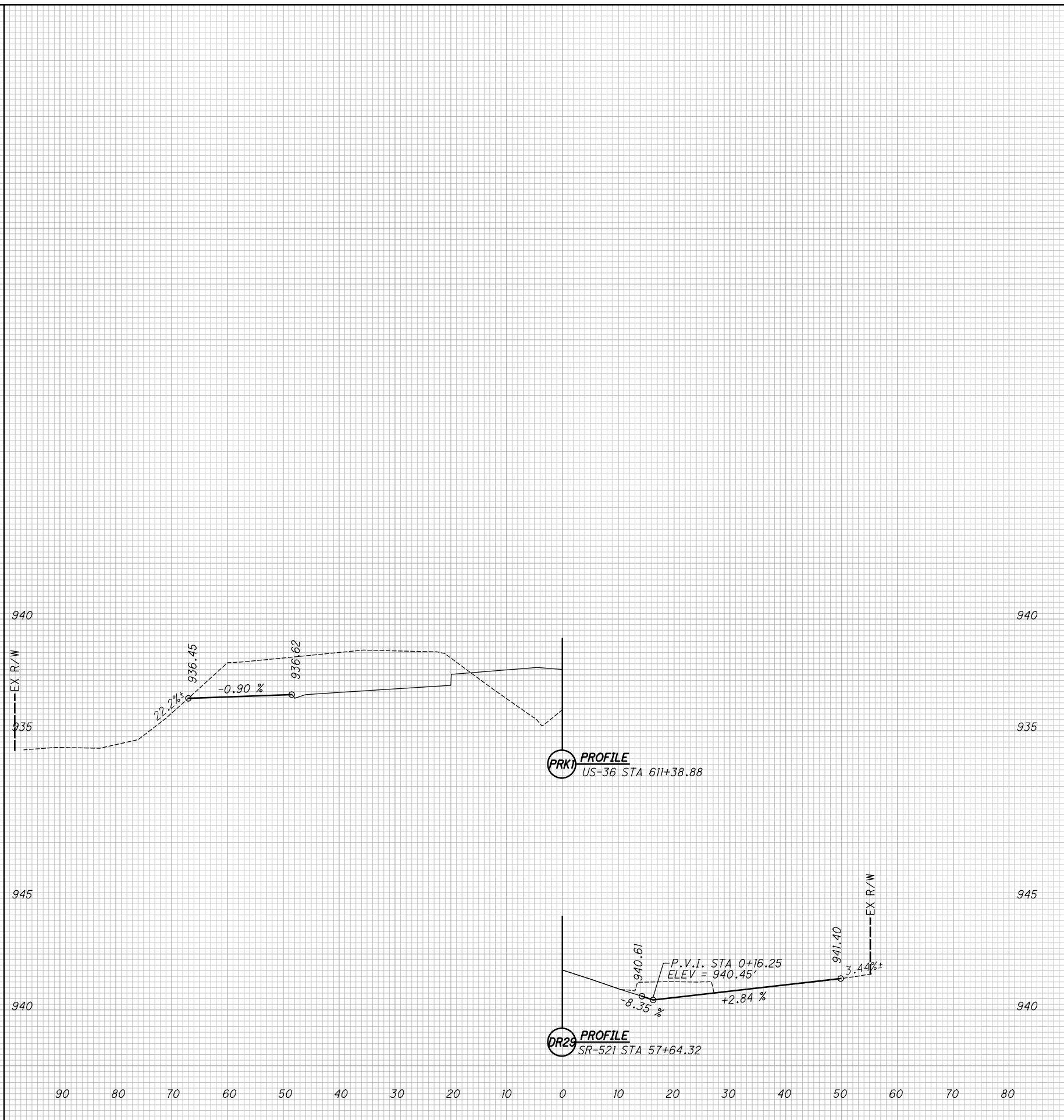
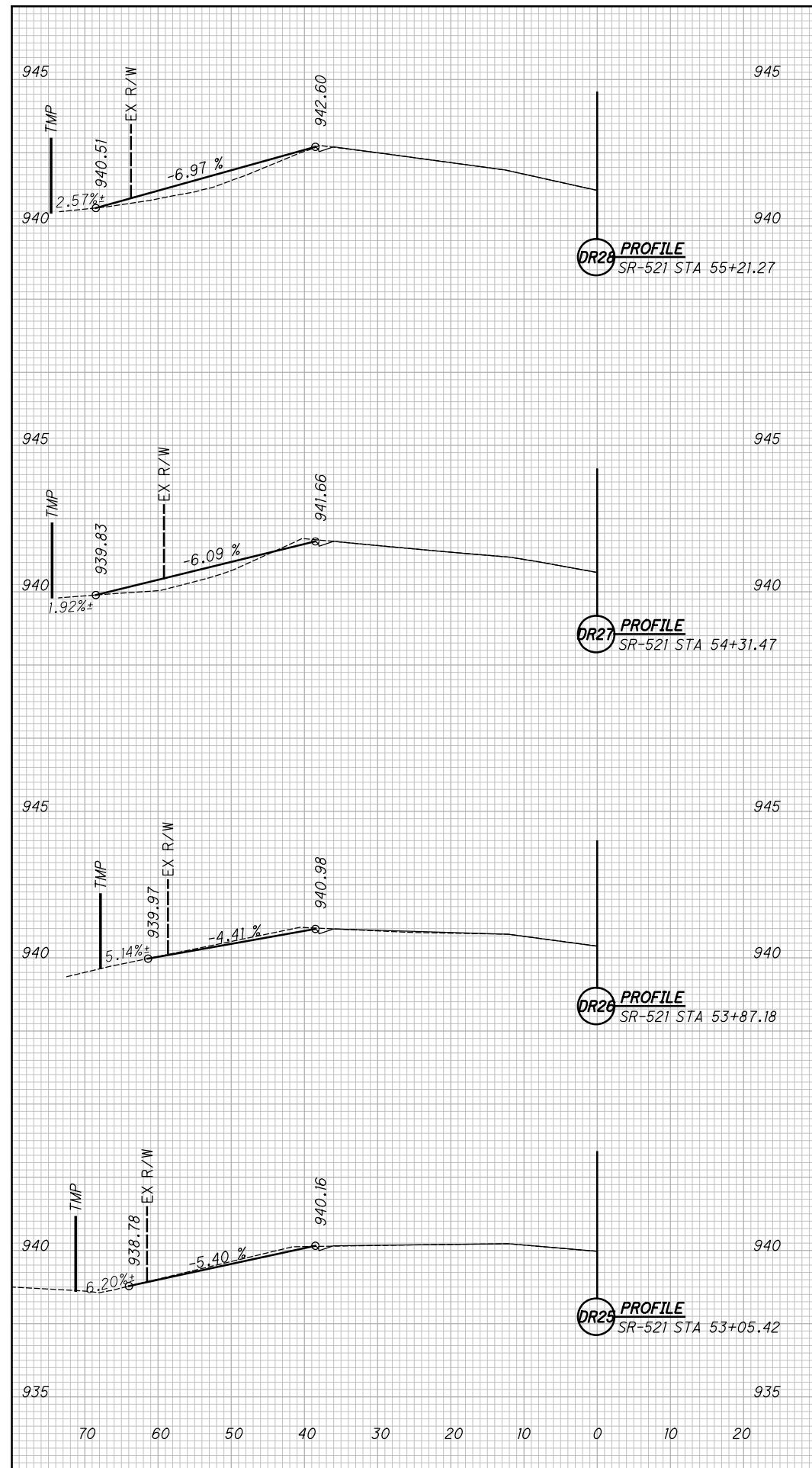
CALCULATED  
TOD  
CHECKED  
DR

DRIVE PROFILES

DEL-36-11.03

250  
644

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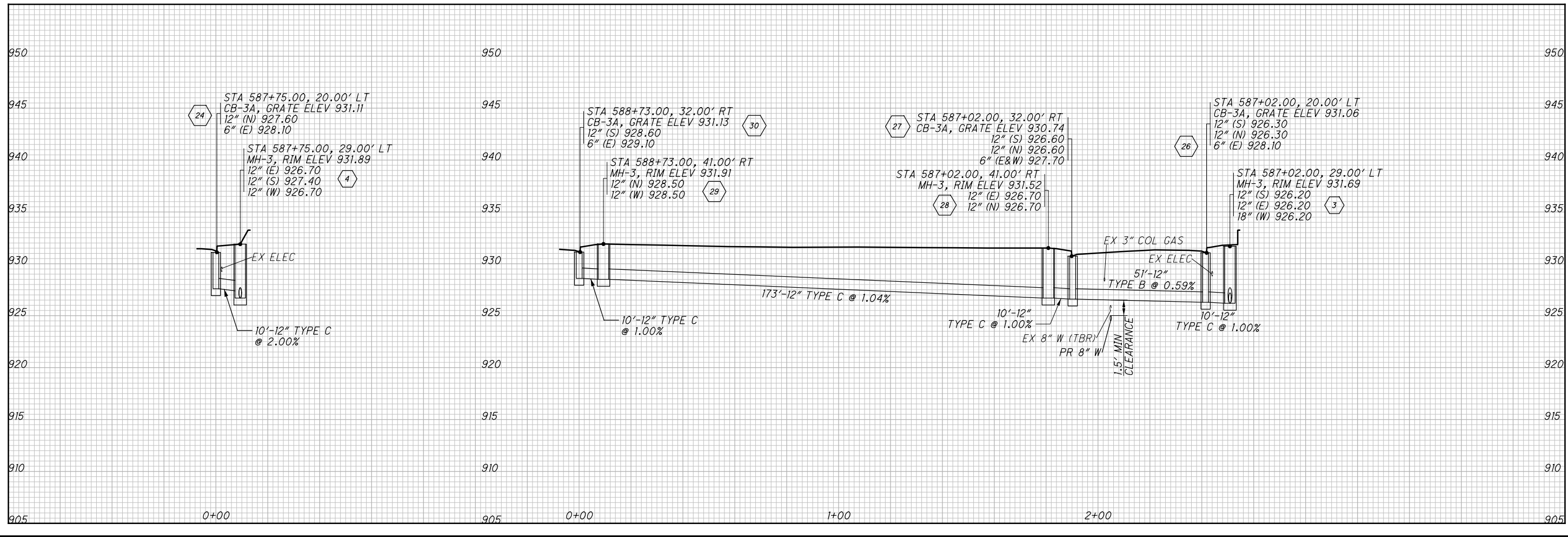
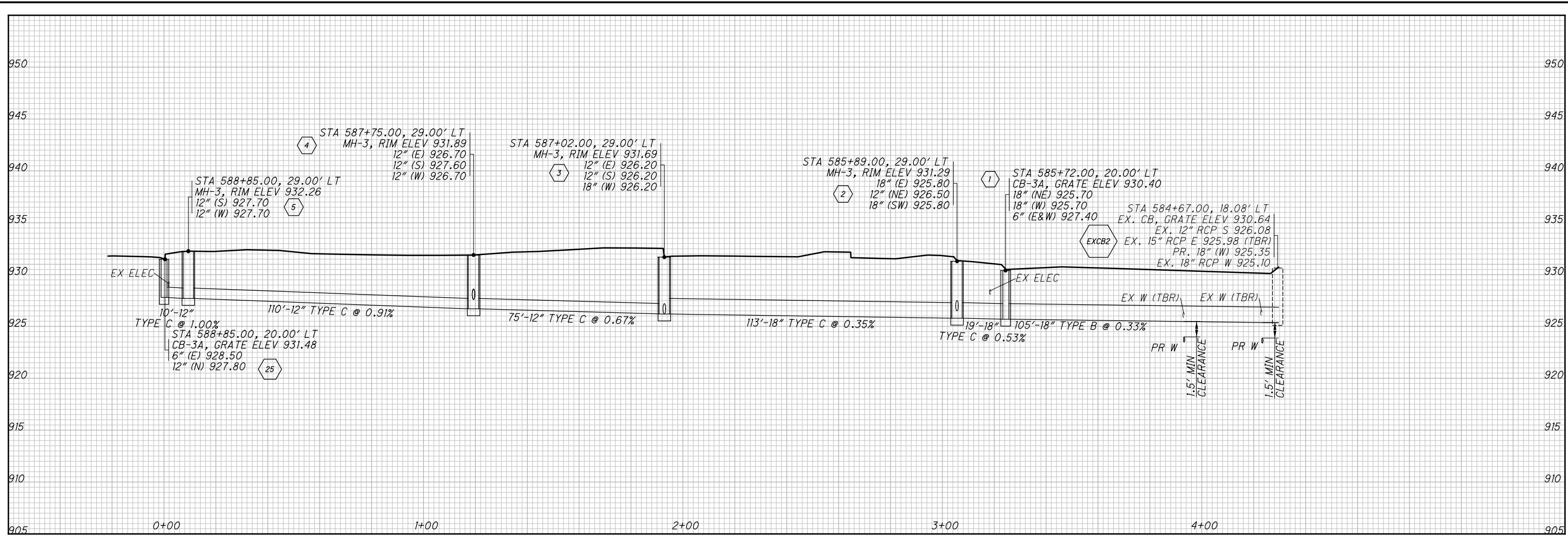


CALCULATED  
TOD  
CHECKED  
DR

DRIVE PROFILES

DEL-36-11.03

p:\gfn\p-w\ben\ty.com\gfn\p-w\0\Documents\Projects\6359\103626\Design\Drainage\sheet\03626\_DF001.dgn WILLIAM ST PROFILE 7/27/2022 3:58:05 PM pkeiffer

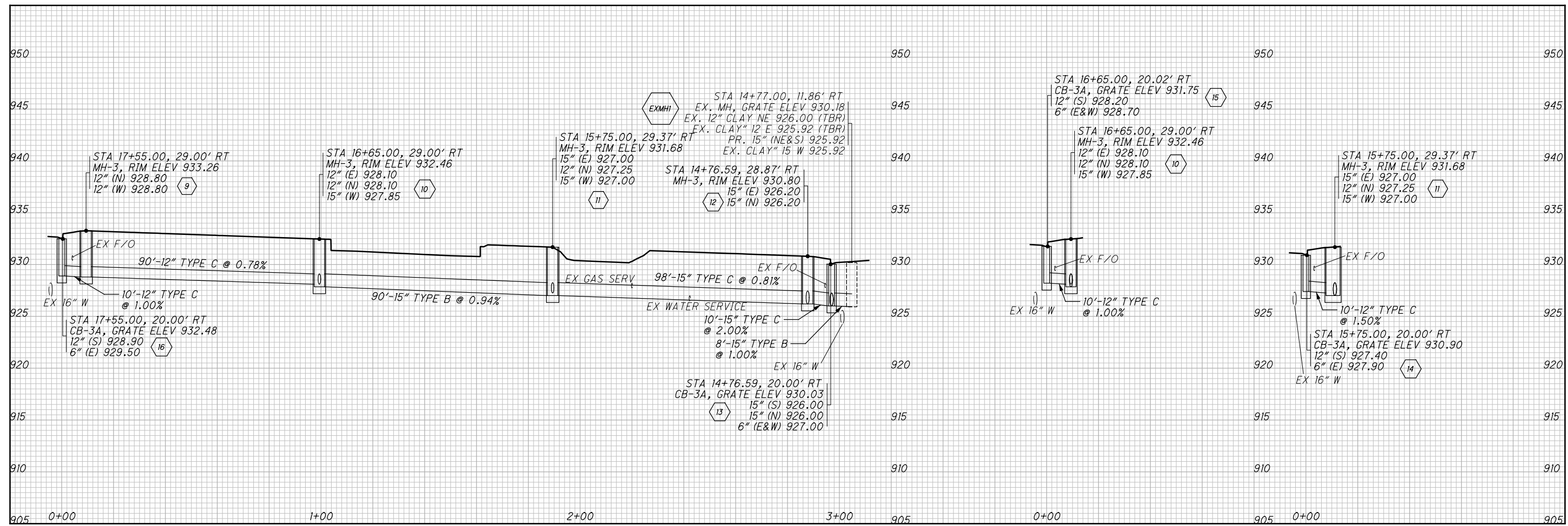
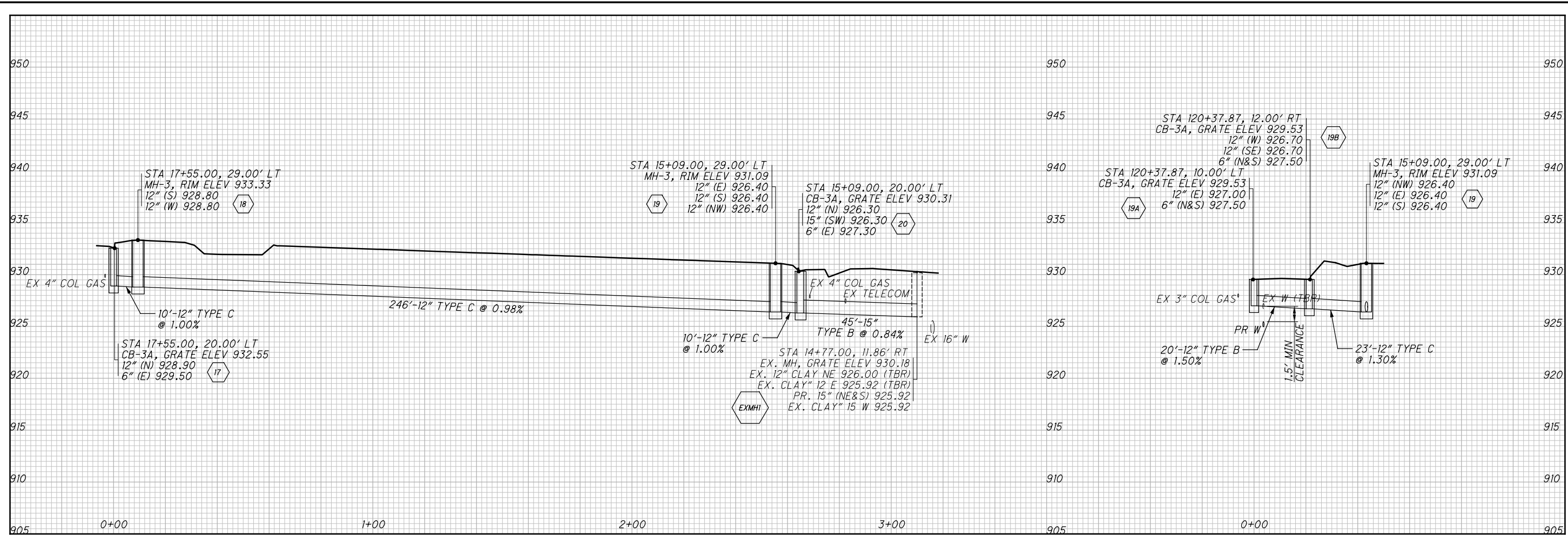


CALCULATED  
CJM  
CHECKED  
PEK

STORM SEWER PROFILE - US -36

DEL -36 -11.03

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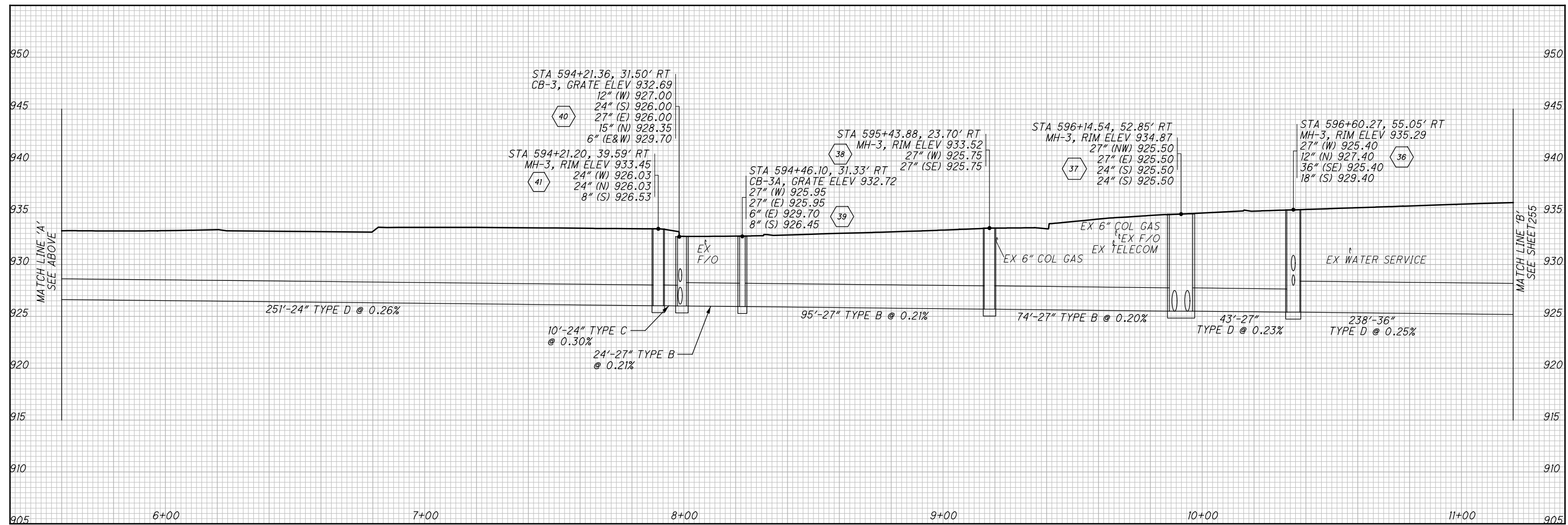
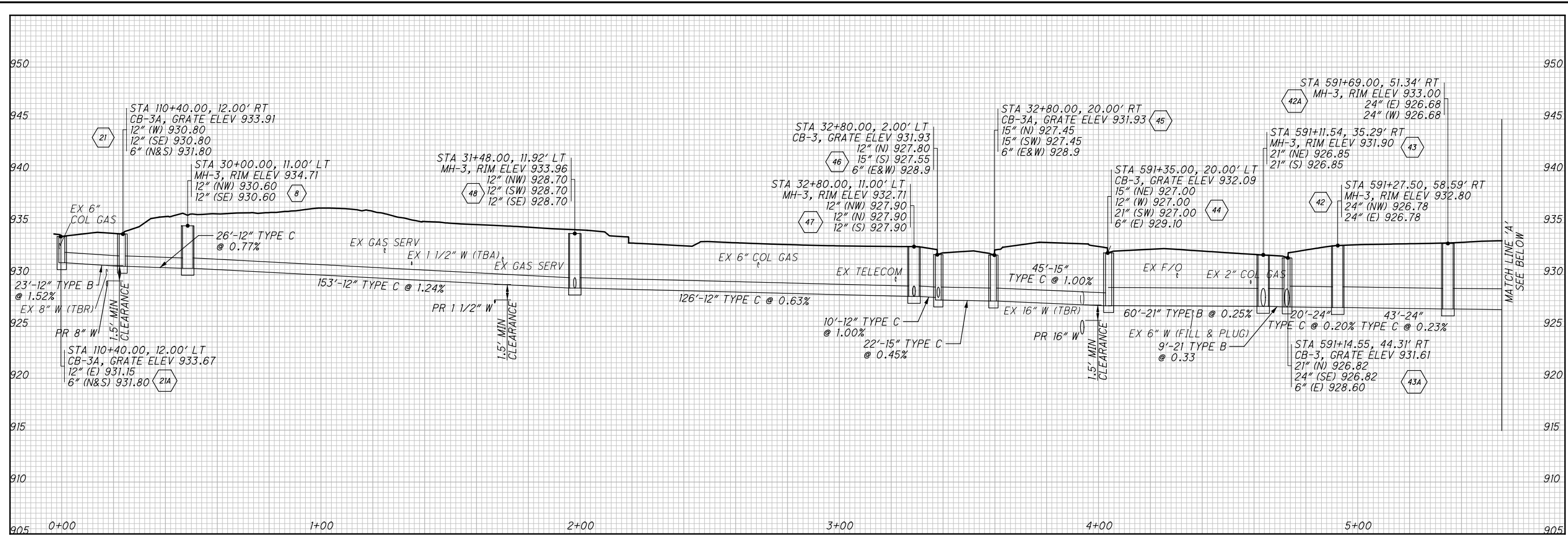


CALCULATED  
CJM  
CHECKED  
PEK

STORM SEWER PROFILE - SR-37

DEL-36-11.03

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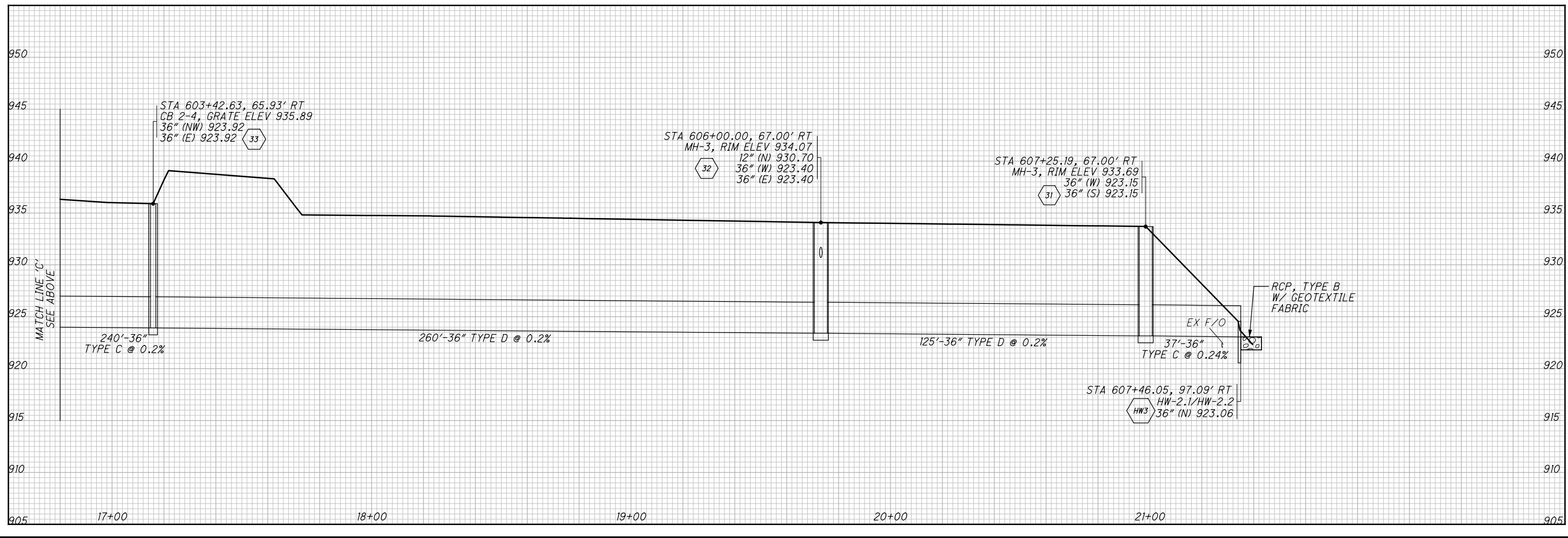
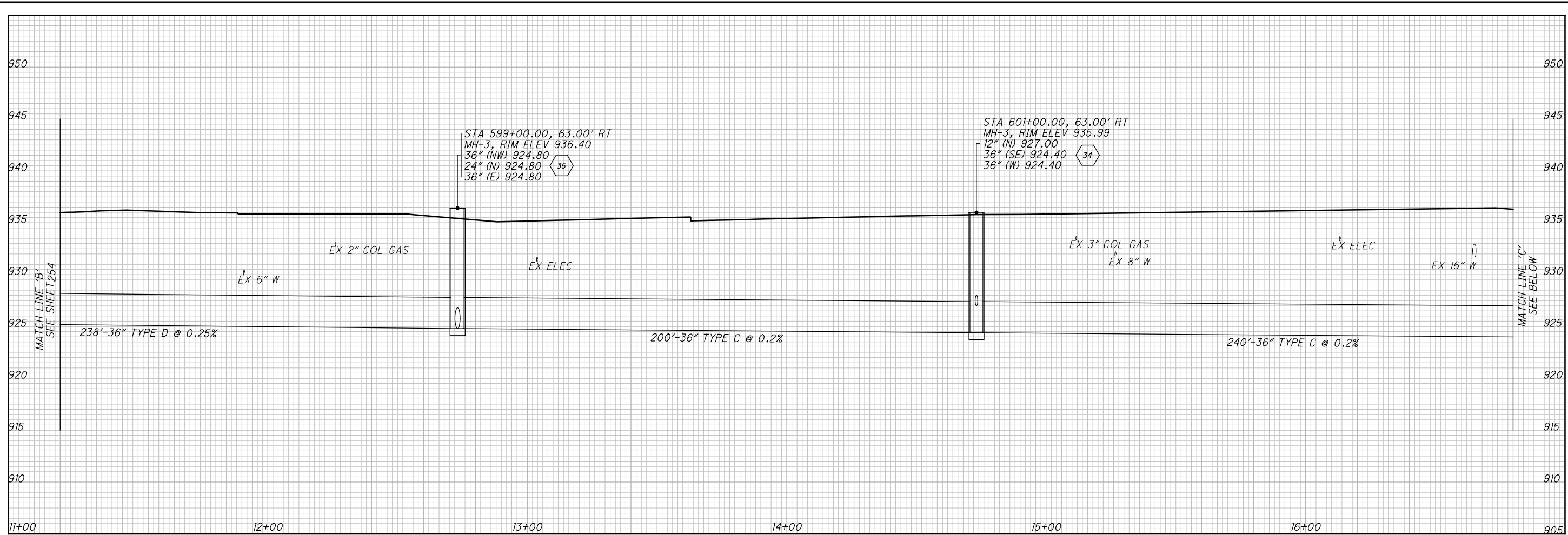
CALCULATED  
CJM  
CHECKED  
PEK

STORM SEWER PROFILE - US-36 / SR-37

DEL-36-11.03

254  
644

pw:\gfn\p-w-bentley.com\pnet-pw-0\Documents\Projects\6359\03626\Design\Drainage\Drawings\03626-DF001.dgn WEST TO CULV I 7/27/2022 3:58:08 PM pkeiffer



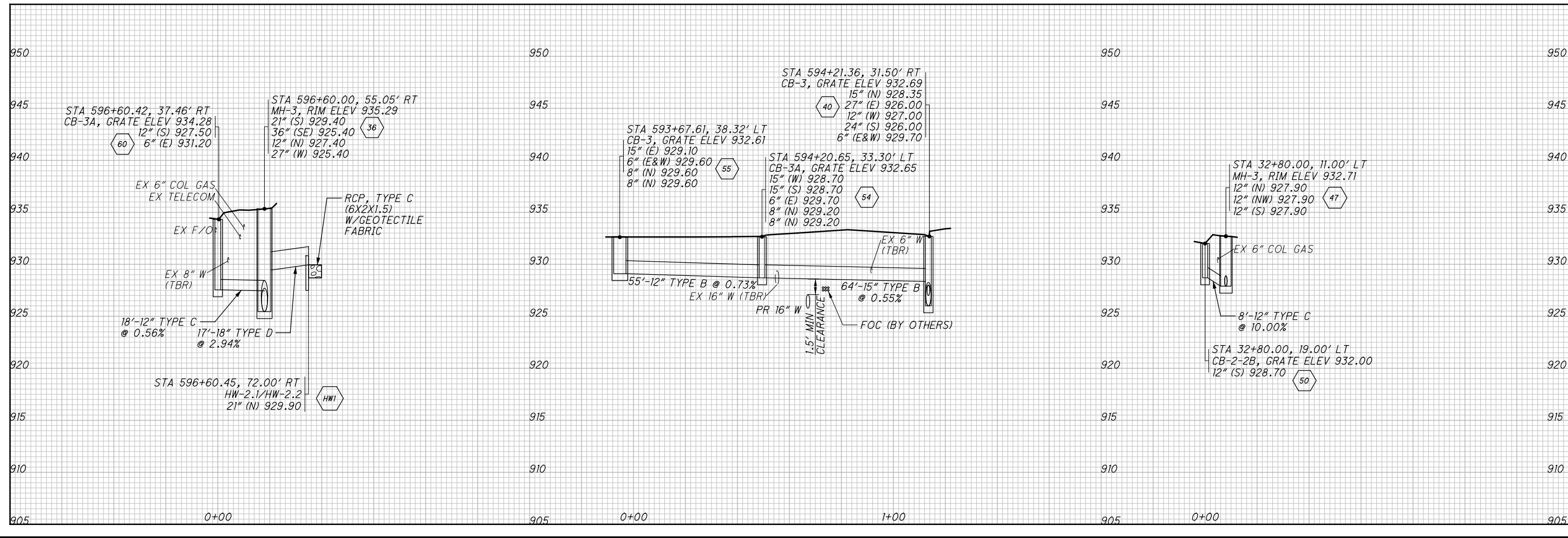
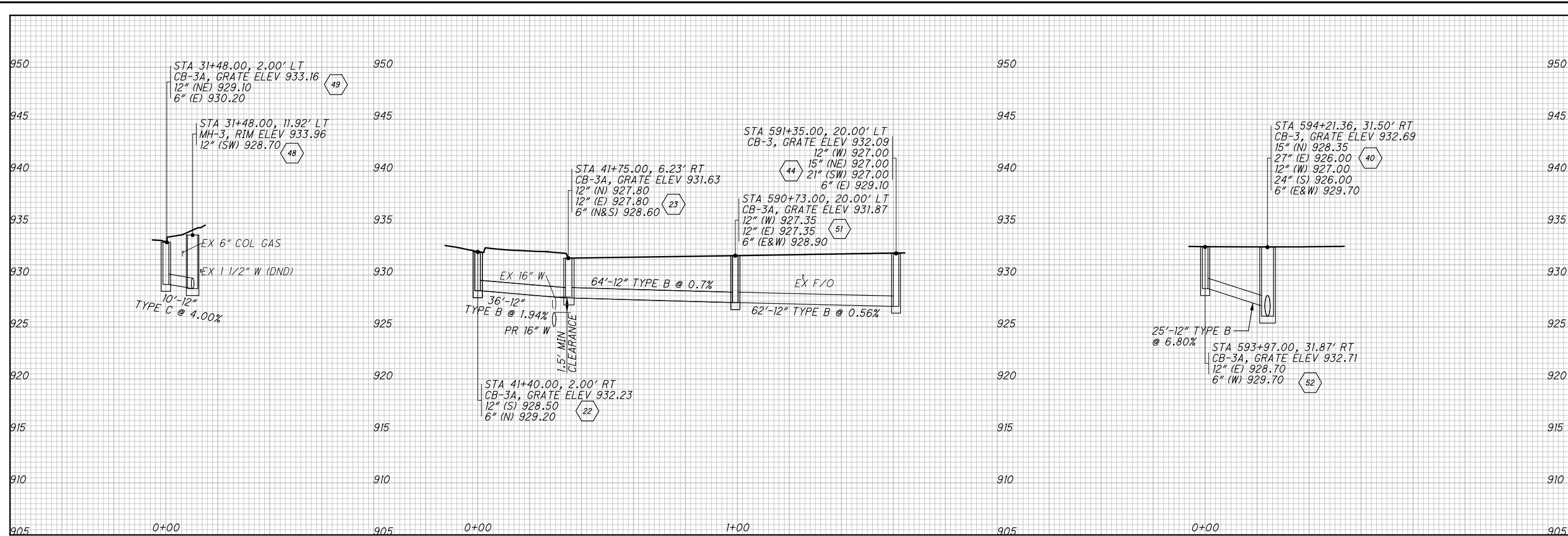
CALCULATED  
CJM  
CHECKED  
PEK

STORM SEWER PROFILE - US-36 / SR-37

DEL-36-11.03

255  
644

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CALCULATED CUM CHECKED PEK

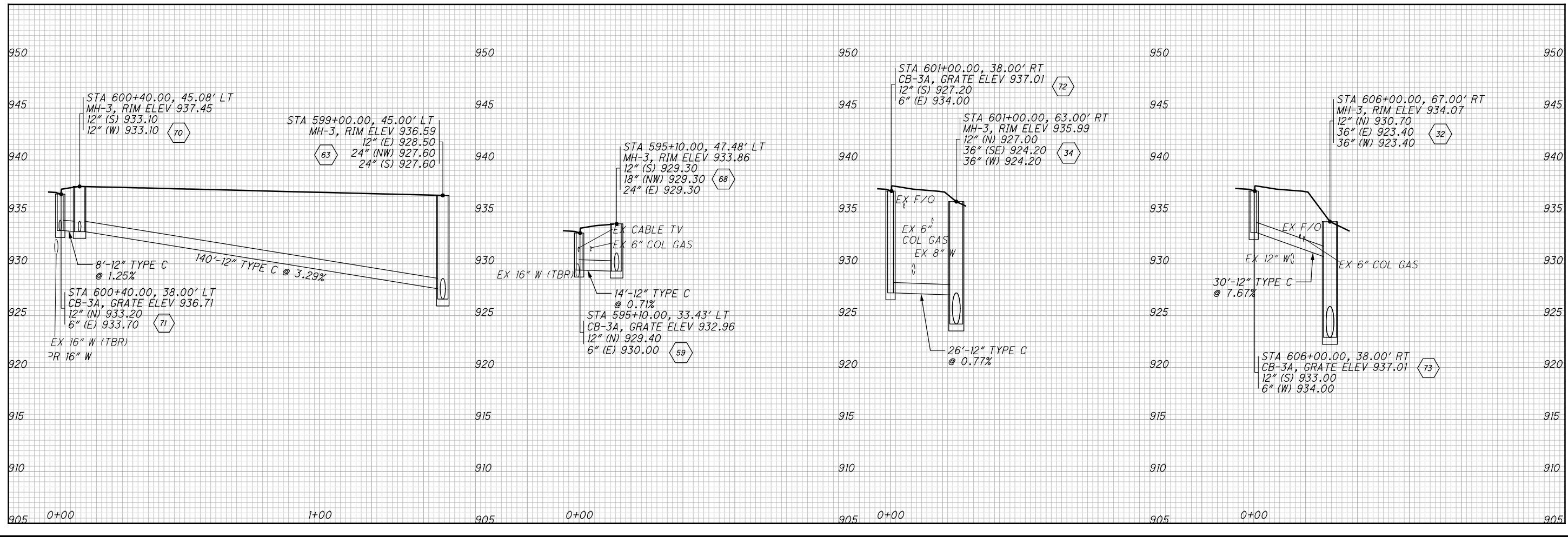
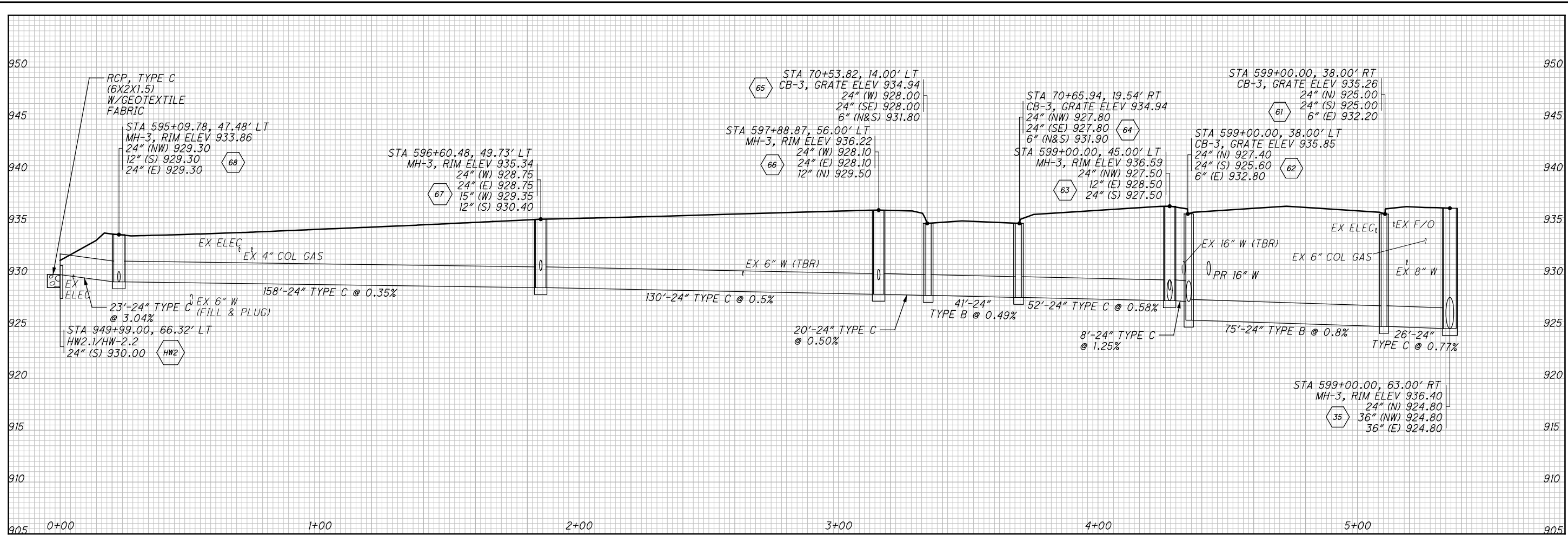
STORM SEWER PROFILE - US-36 / SR-37

DEL-36-11.03

256  
644



p:\gfn\p-w\ben\tyey.com\gfn\p-w\0\Documents\Projects\63519\103626\Design\Drainage\sheets\103626-DF001.dgn WEST TO CULV 3 7/27/2022 3:58:10 PM pkeiffer



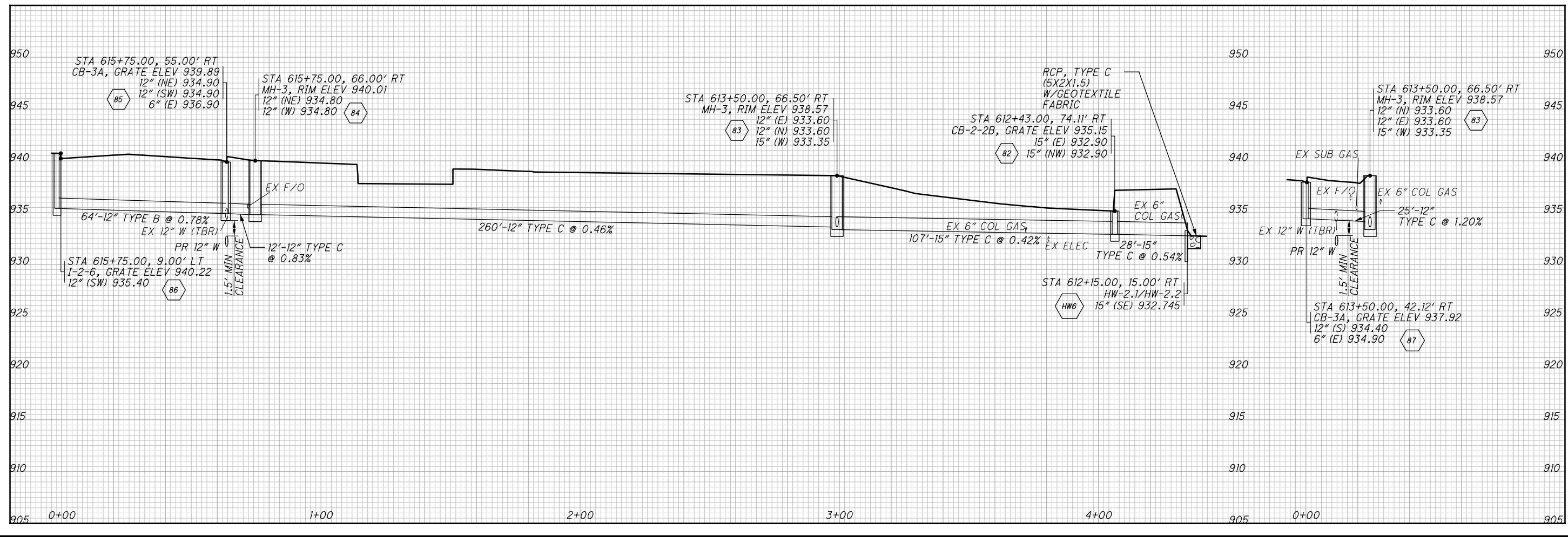
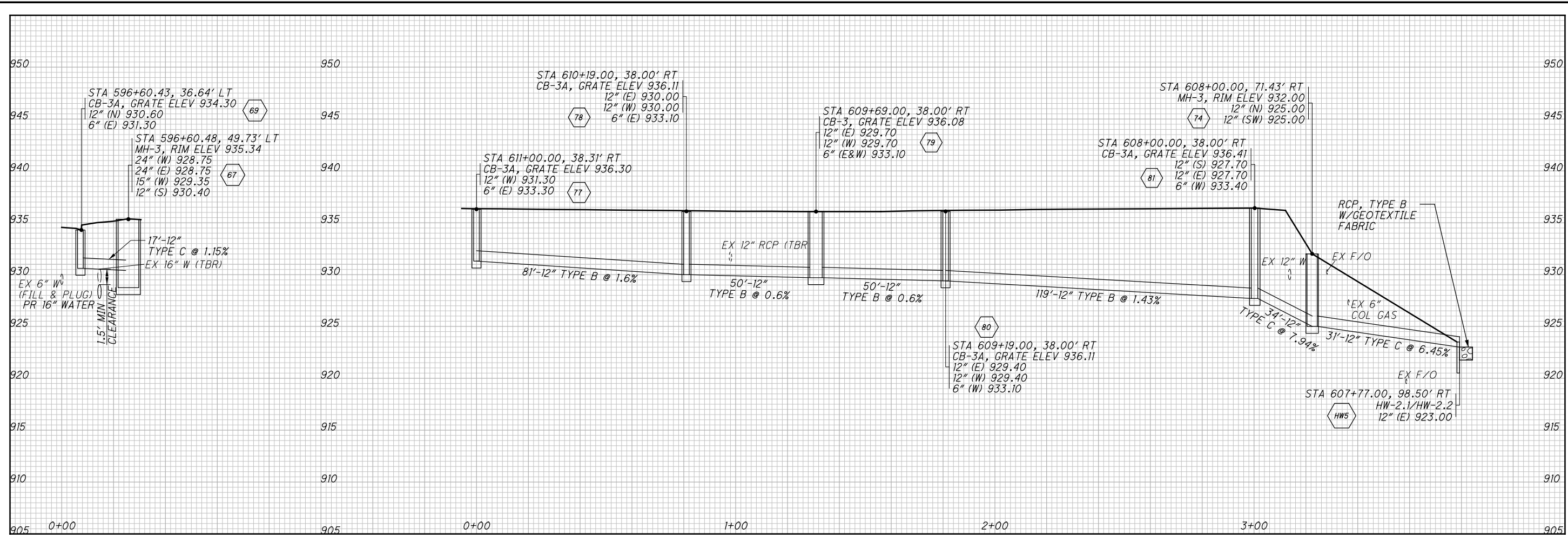
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CJM  
CHECKED  
PEK

STORM SEWER PROFILE - US -36

DEL -36 -11.03

257  
644

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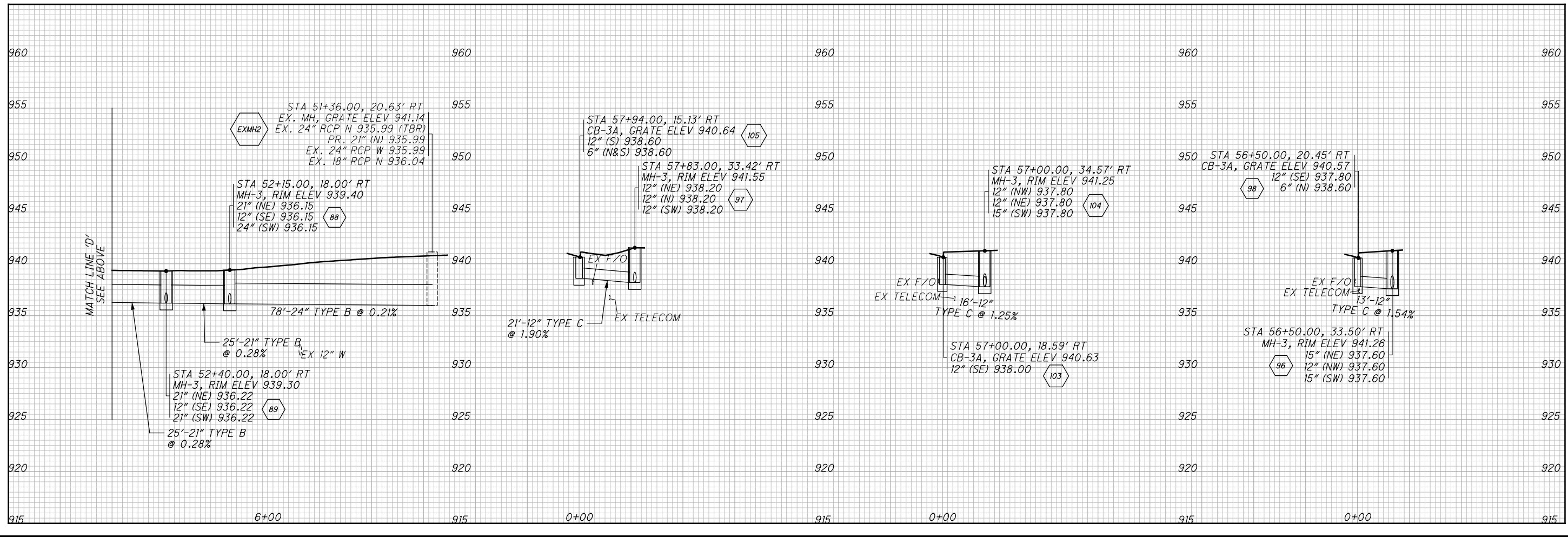
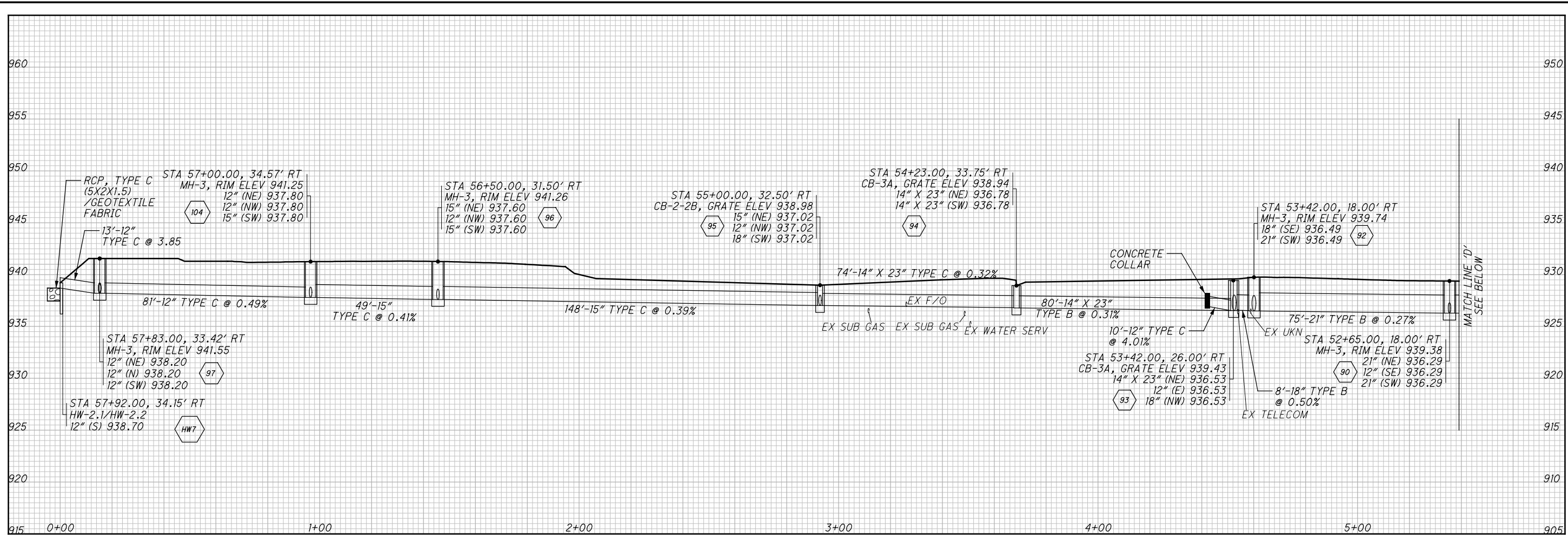


CALCULATED  
CJM  
CHECKED  
PEK

STORM SEWER PROFILE - US-36

DEL-36-11.03

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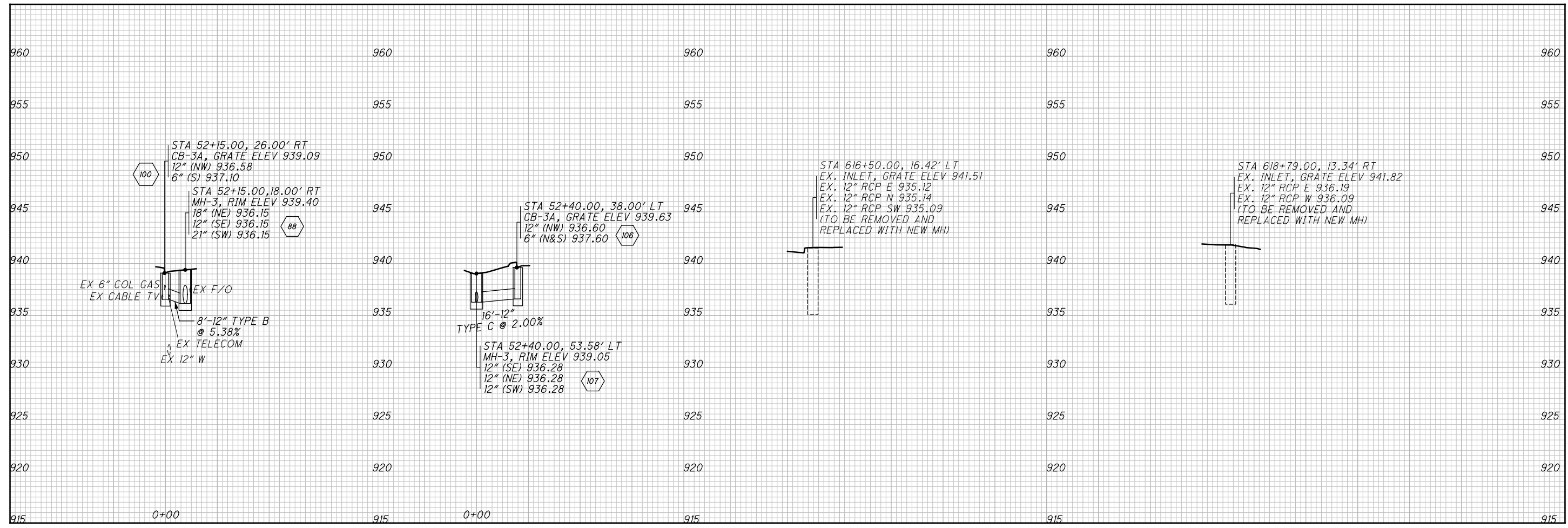
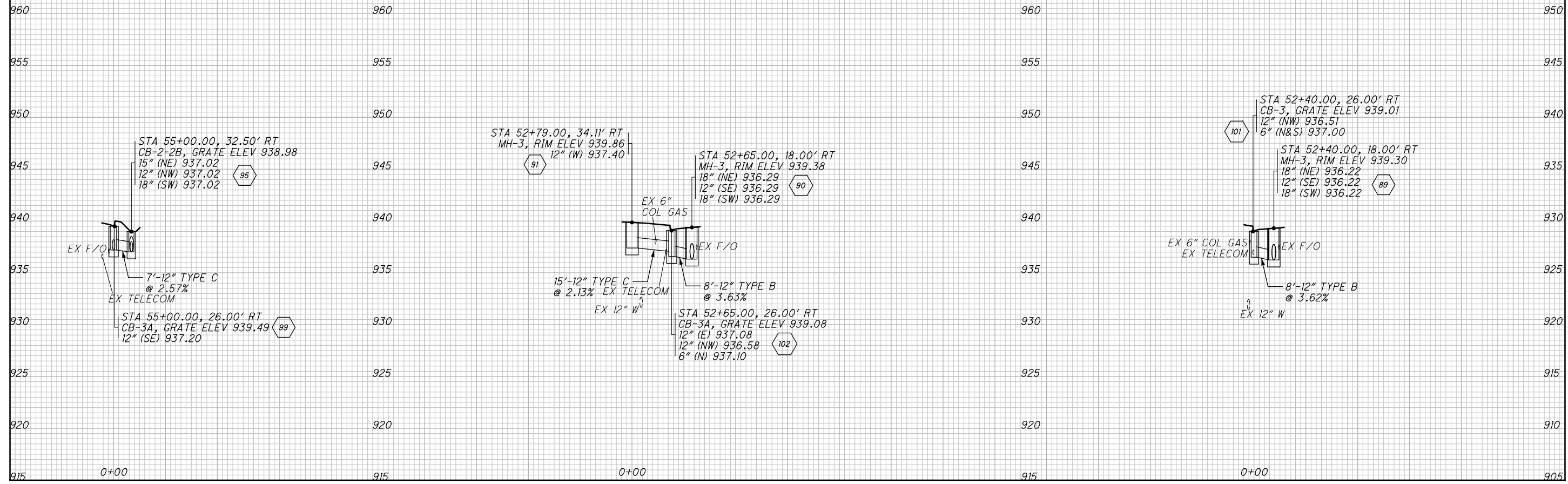


CALCULATED  
CJM  
CHECKED  
PEK

STORM SEWER PROFILE - SR-521

DEL-36-11.03

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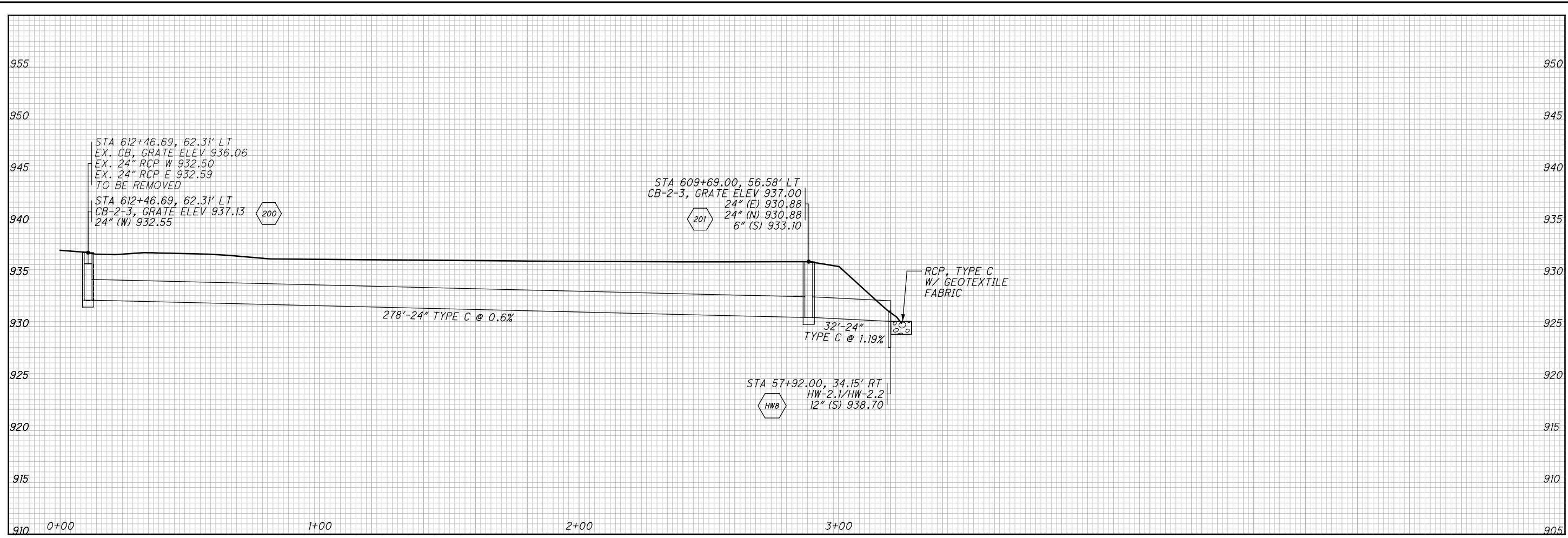
CALCULATED  
CJM  
CHECKED  
PEK

STORM SEWER PROFILE - SR-521 AND EXISTING US-36

DEL-36-11.03

260  
644

p:\gfn\p-w\ben\p-w\Documents\Projects\63519\103626\Design\Drainage\Drawings\03626-DF001.dgn 36.200 TO HW8 7/27/2022 3:58:13 PM pkeiffer



CALCULATED  
CJM  
CHECKED  
PEK

STORM SEWER PROFILE - US-36

DEL-36-11.03

261  
644



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**HYDRAULIC DESIGN DATA**

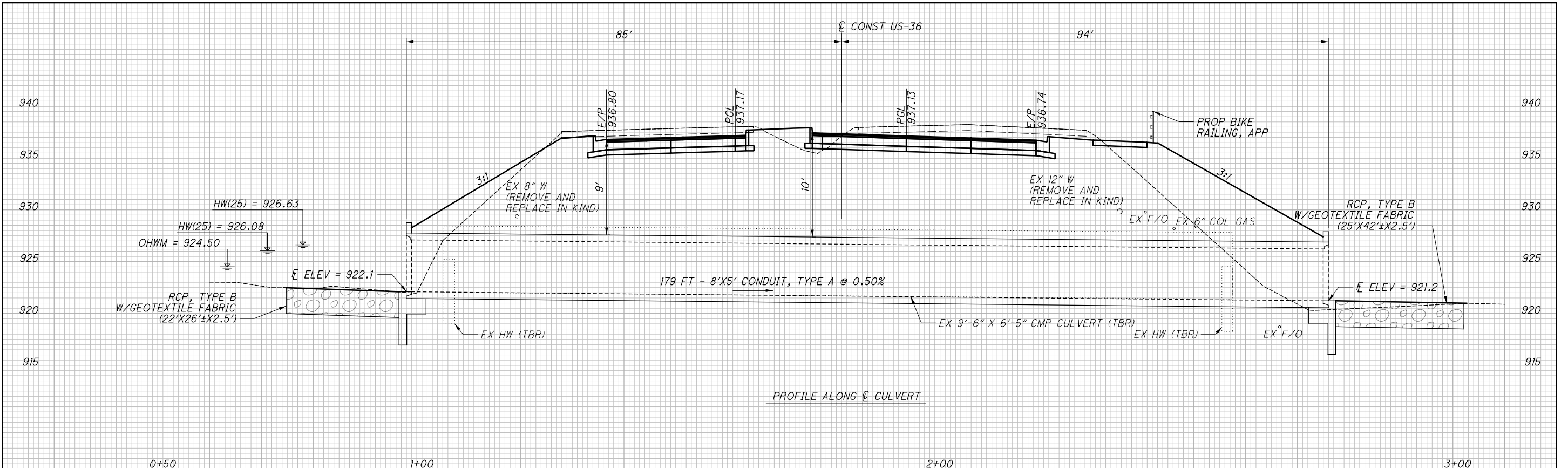
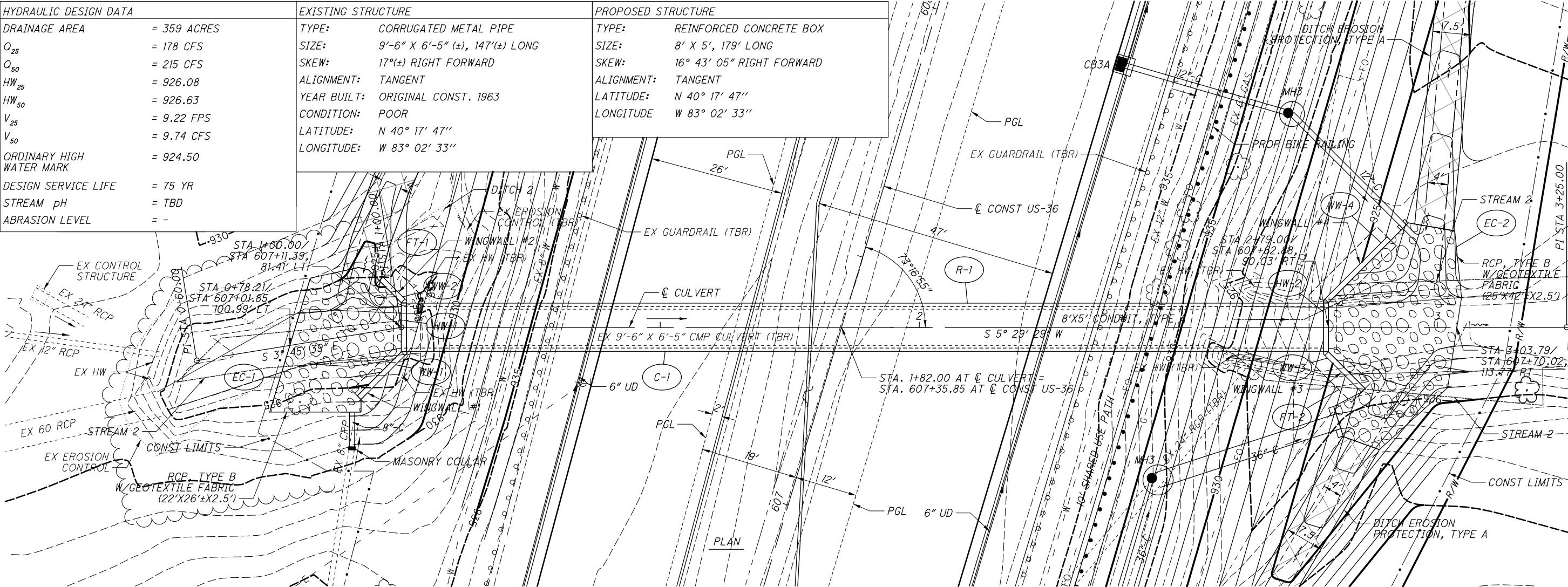
DRAINAGE AREA	= 359 ACRES
Q <sub>25</sub>	= 178 CFS
Q <sub>50</sub>	= 215 CFS
HW <sub>25</sub>	= 926.08
HW <sub>50</sub>	= 926.63
V <sub>25</sub>	= 9.22 FPS
V <sub>50</sub>	= 9.74 CFS
ORDINARY HIGH WATER MARK	= 924.50
DESIGN SERVICE LIFE	= 75 YR
STREAM pH	= TBD
ABRASION LEVEL	= -

**EXISTING STRUCTURE**

TYPE:	CORRUGATED METAL PIPE
SIZE:	9'-6" X 6'-5" (±), 147'(±) LONG
SKEW:	17°(±) RIGHT FORWARD
ALIGNMENT:	TANGENT
YEAR BUILT:	ORIGINAL CONST. 1963
CONDITION:	POOR
LATITUDE:	N 40° 17' 47"
LONGITUDE:	W 83° 02' 33"

**PROPOSED STRUCTURE**

TYPE:	REINFORCED CONCRETE BOX
SIZE:	8' X 5', 179' LONG
SKEW:	16° 43' 05" RIGHT FORWARD
ALIGNMENT:	TANGENT
LATITUDE:	N 40° 17' 47"
LONGITUDE:	W 83° 02' 33"



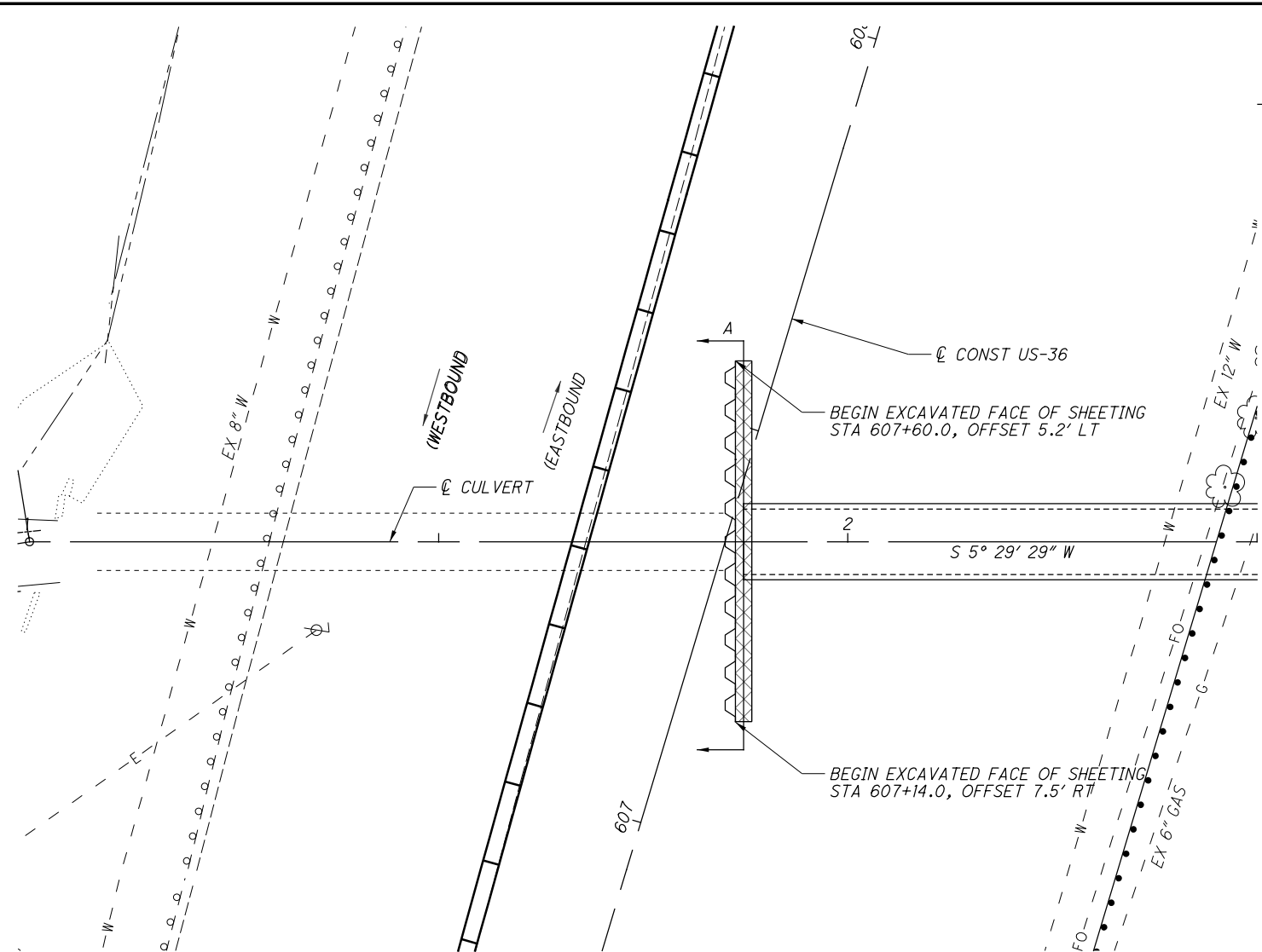
CALCULATED PEK CHECKED AH  
 HORIZONTAL SCALE IN FEET  
 0 5 10 20

**CULVERT DETAIL  
STA. 607+35.85**

**DEL-36-11.03**

263  
644

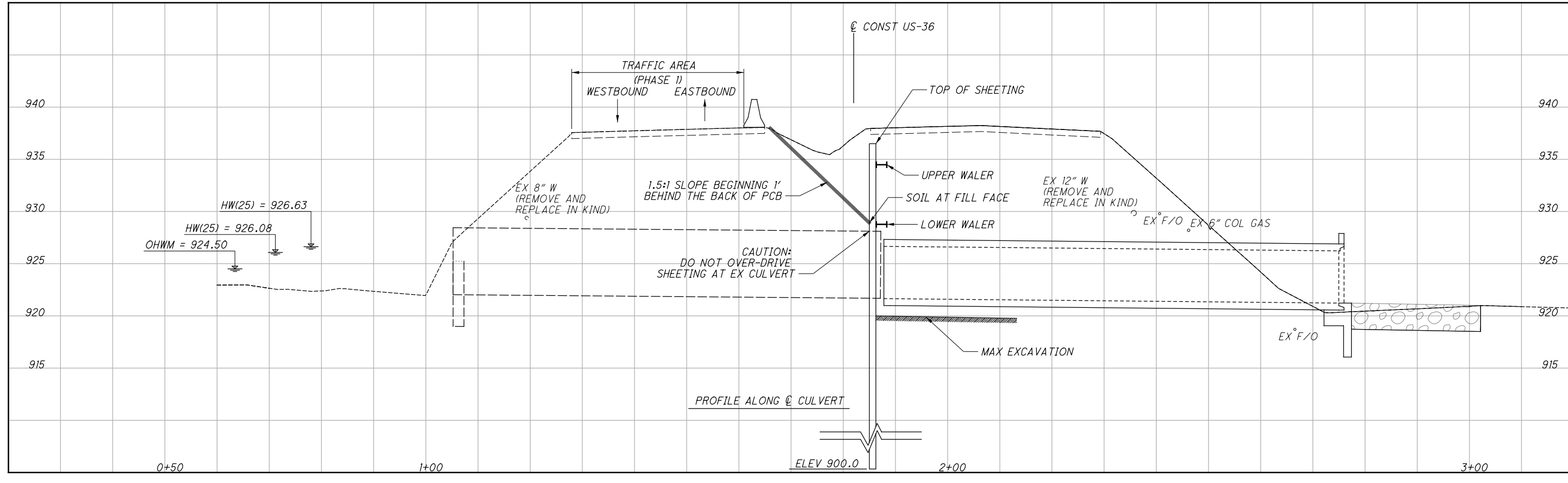
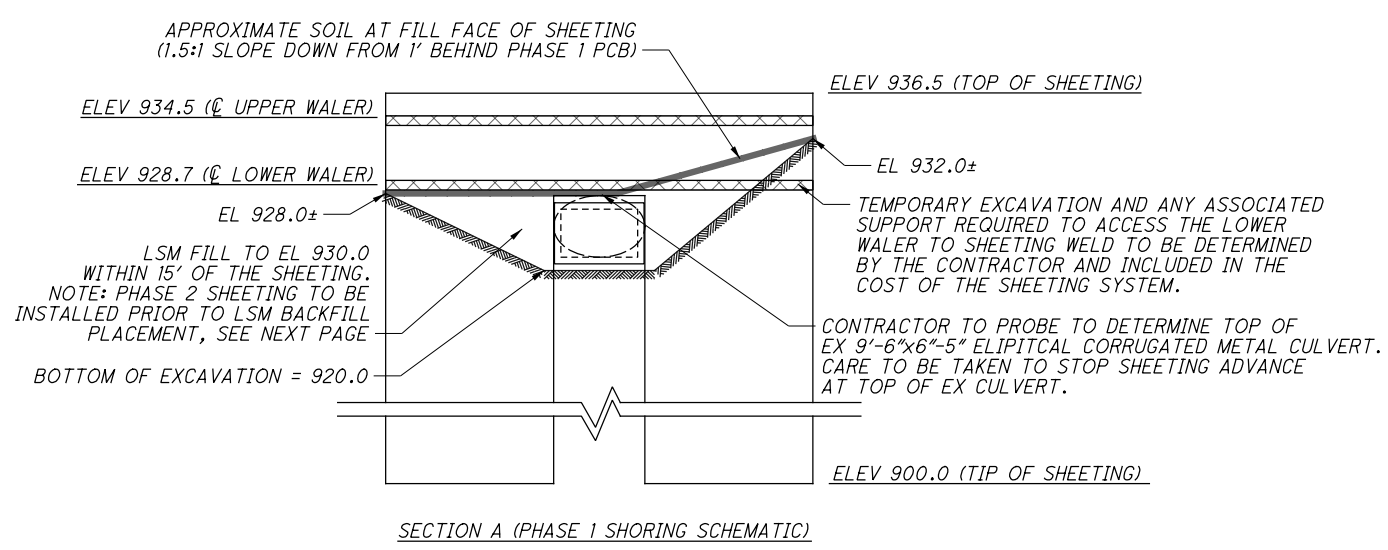
pw:\gfnnet-pw-bentley.com\gfnnet-pw-0\Documents\Projects\103626\Design\Structures\Culvert\sheet\02\_103626\_CFNXXXXX.dgn Shoring\_South 8/1/2022 12:54:04 PM pkeiffner



☒ WHALER WELDED TO THE FLATS OF THE SHEET PILING  
 (MIN DEPTH = 24", MIN Ix = 2370 IN<sup>4</sup>, MIN Sx = 196 IN<sup>3</sup>, Fy = 50ksi)

~~~~~ SHEET PILING, INSTALLED FULL DEPTH OUTSIDE OF CULVERT LIMITS,  
 AND TO TOP OF EXISTING CULVERT WITHIN CULVERT LIMITS.  
 (MIN Ix = 361 IN<sup>4</sup> / FOOT, MIN Sx = 48 IN<sup>3</sup> / FOOT, Fy = 50ksi)

**NOTE: BOTH PHASES OF SHEETING SHARE WALERS AND PORTIONS OF THE PHASE 1 SHEETING.  
 PHASE 2 SHEETING INSTALLED WHILE PHASE 1 SHEETING IS STILL IN PLACE AND ACTIVE,  
 DO NOT PLACE PHASE 1 LSM BACKFILL UNTIL AFTER PHASE 2 SHORING IS INSTALLED.**

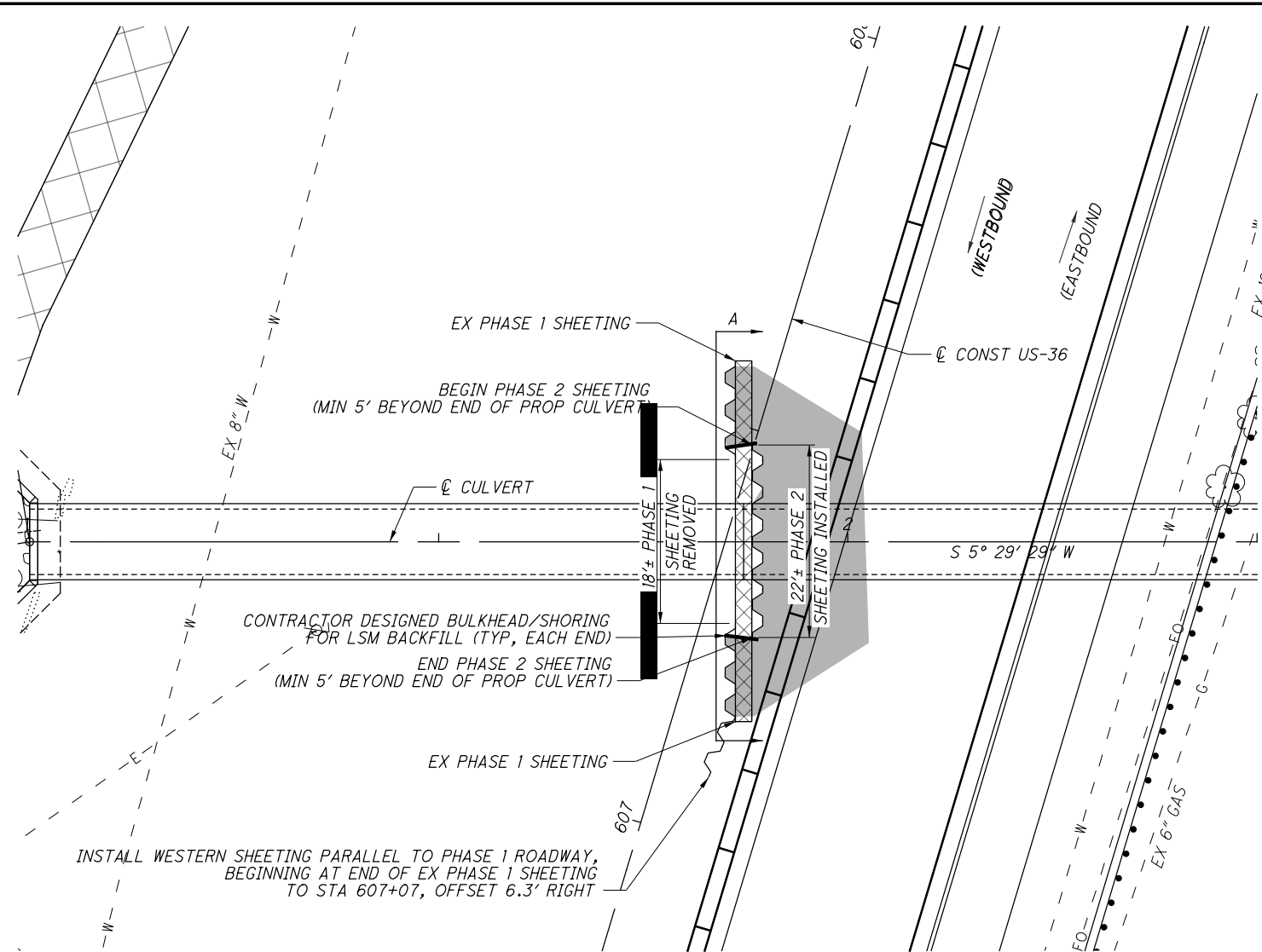


SHORING DETAIL  
 PHASE 1 SHORING INSTALLATION

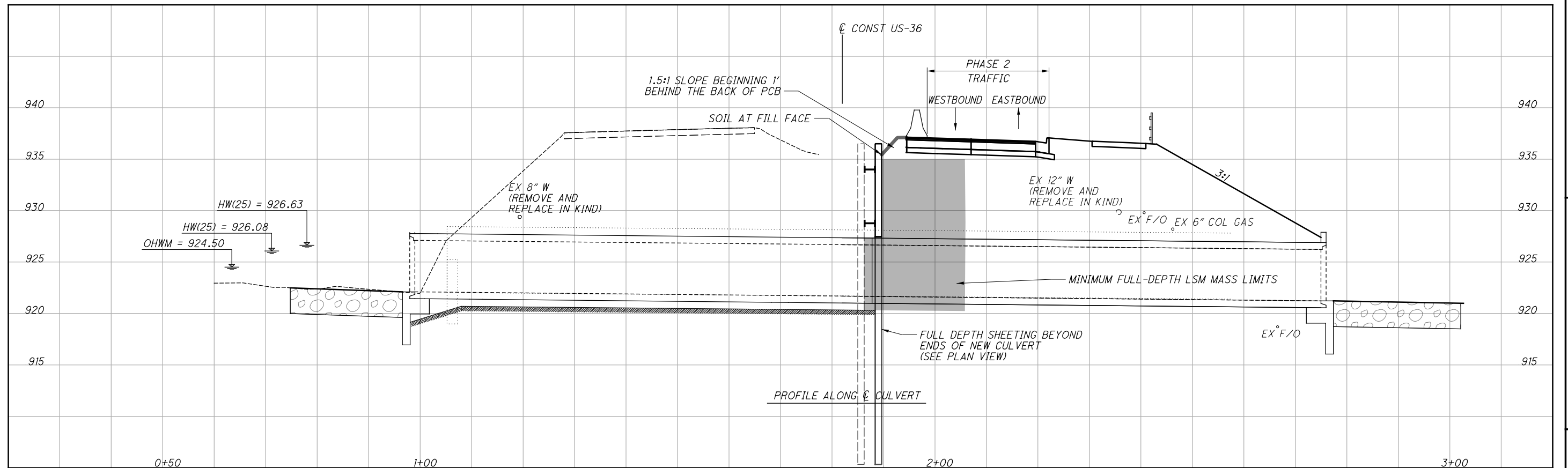
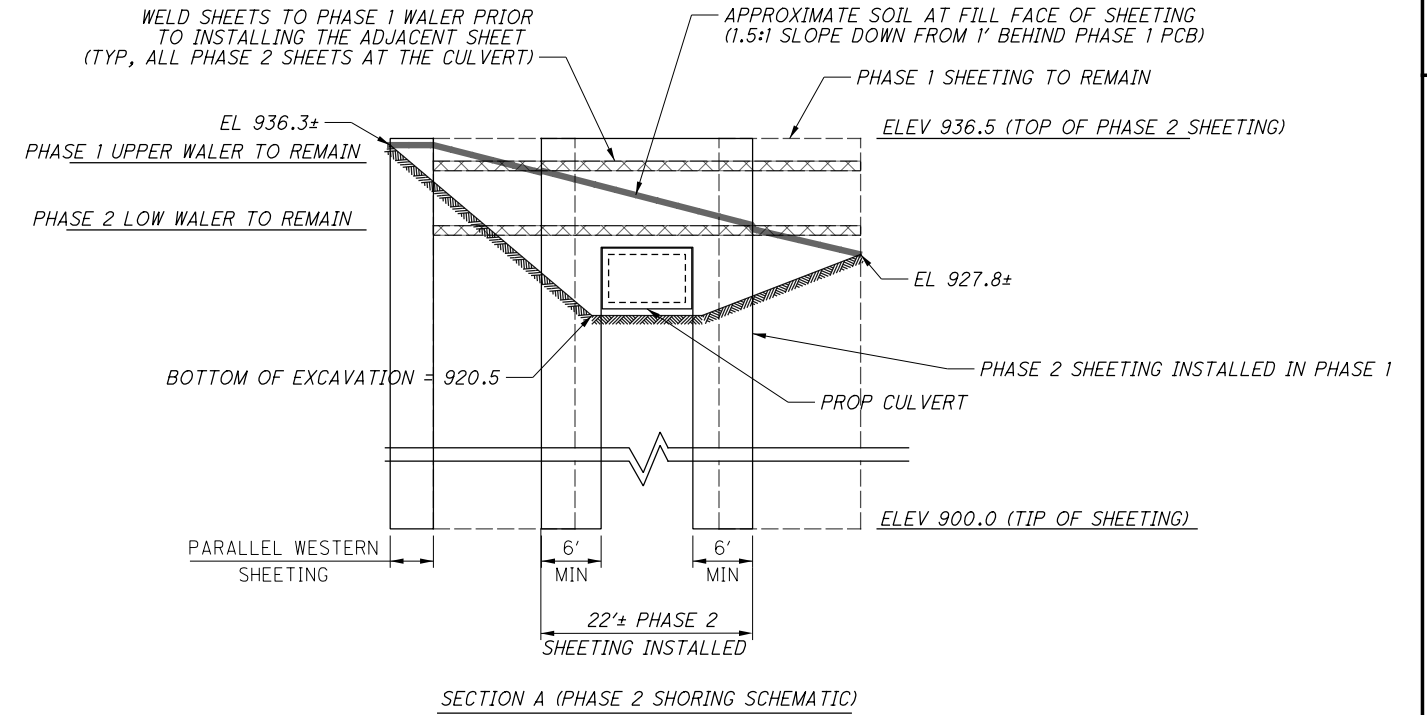
DEL-36-11.03  
 263A  
 644



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- SUGGESTED INSTALLATION SEQUENCE OF PHASE 2 SHORING:**  
 (AFTER INSTALLATION OF PHASE 1 CULVERT, BEFORE PHASE 1 LSM BACKFILL)
1. INSTALL HEADWALL SHEETING ATOP PROPOSED CULVERT PLACED AGAINST PHASE 1 WALER  
 UPPER WALER WELDED TO SHEETING FULL LENGTH FROM TOP  
 LOWER WALER WELDED TO FLATS ON EACH SHEET PRIOR TO SETTING NEXT SHEET.
  2. INSTALL FULL DEPTH SHEETING ADJACENT TO PROPOSED BOX  
 FULL DEPTH SHEETING TO EXTEND AT LEAST 6 FEET BEYOND EACH SIDE OF PROPOSED BOX.  
 WALERS WELDED TO PHASE TO SHEETING AS DESCRIBED IN STEP 1, WITH EACH SHEET WELDED PRIOR TO DRIVING THE NEXT
  3. INSTALL FORMWORK BETWEEN PHASE 1 AND PHASE 2 SHEETING (CONTRACTOR DESIGNED).
  4. BEGIN LSM BACKFILL PLACEMENT.

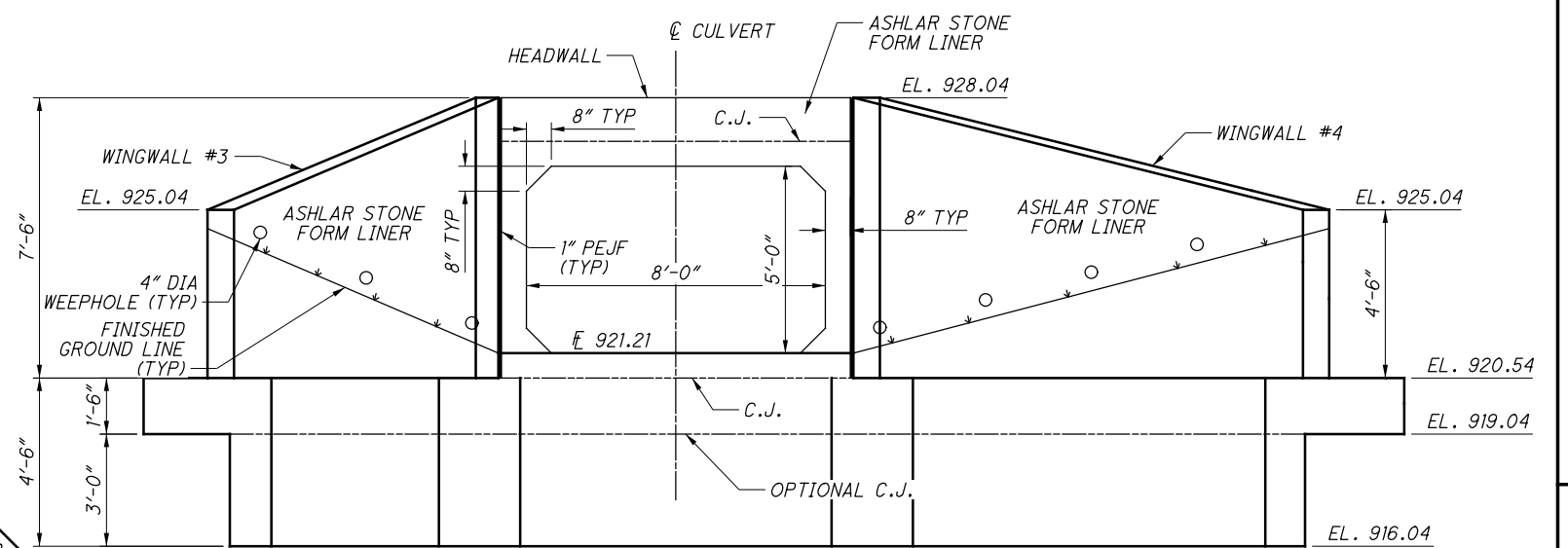
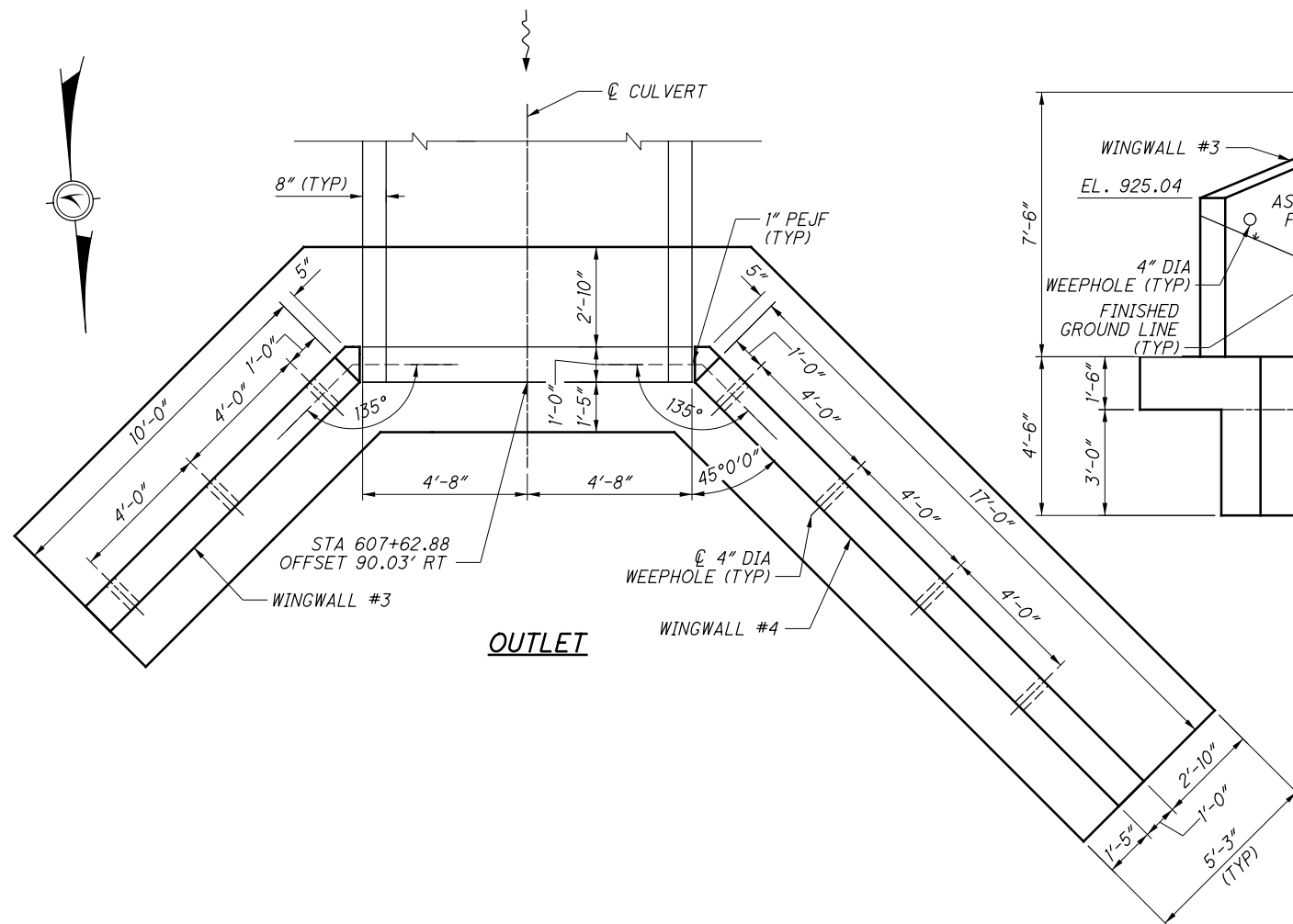
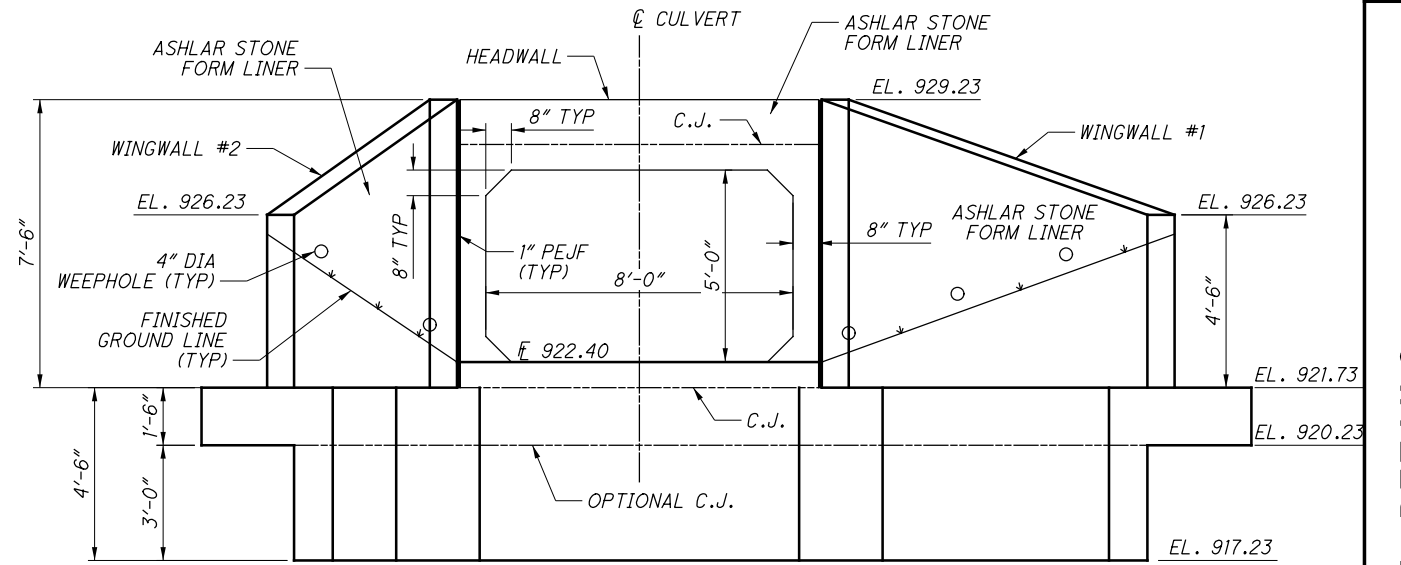
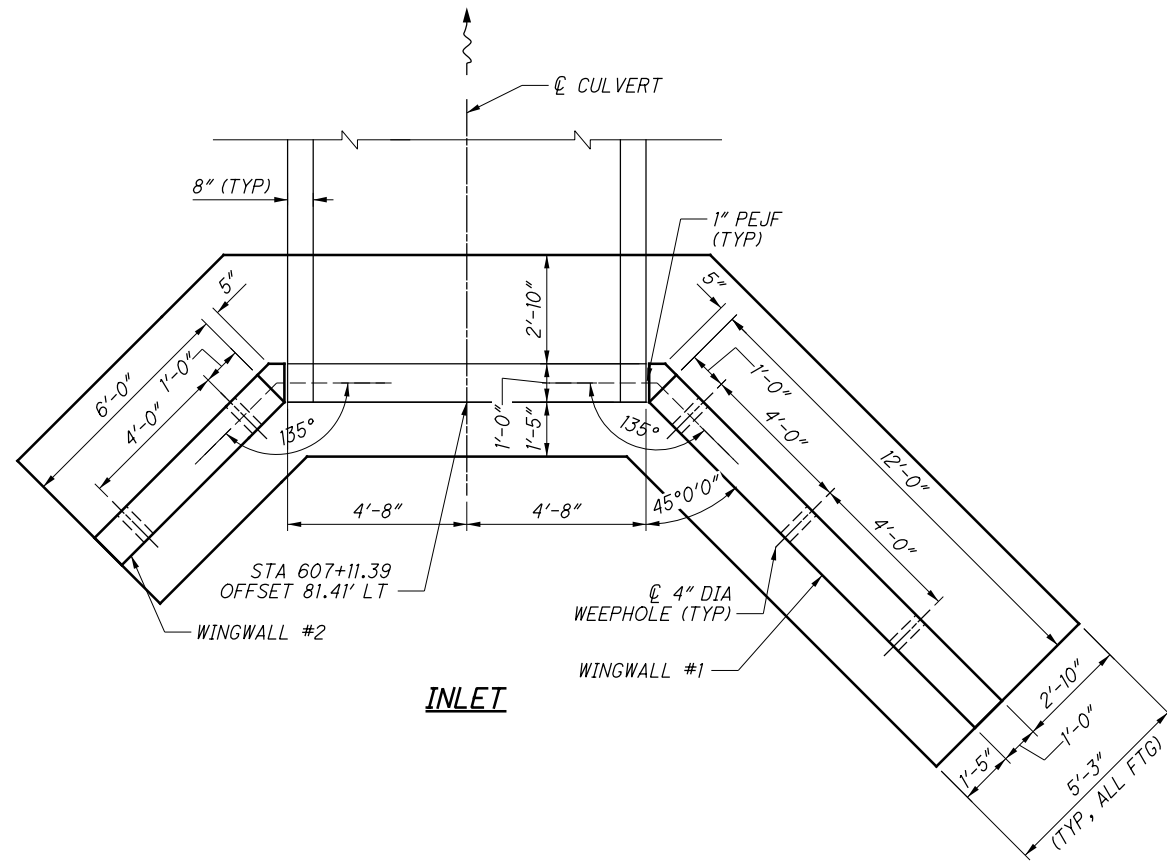


**SHORING DETAIL**  
**PHASE 2 SHORING INSTALLATION**

**DEL-36-11.03**

263B  
 644

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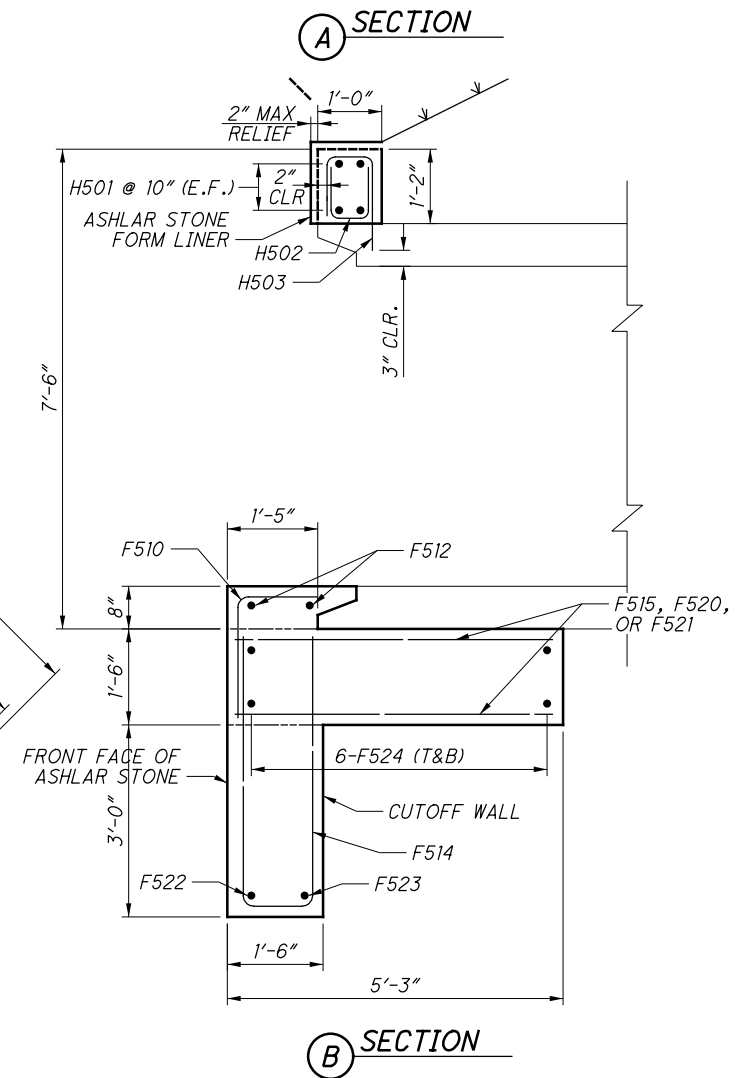
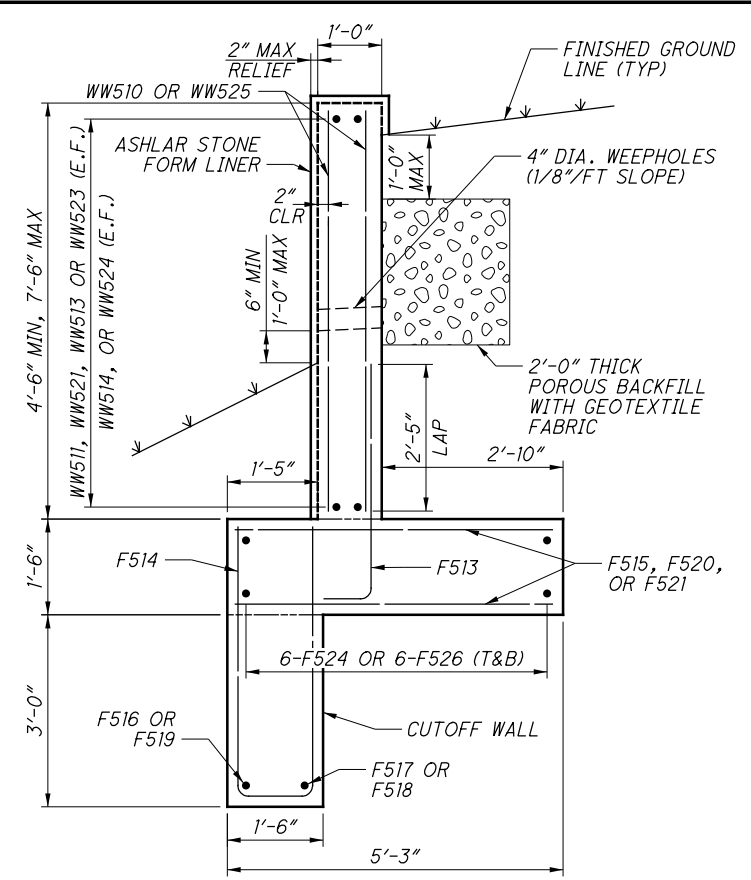
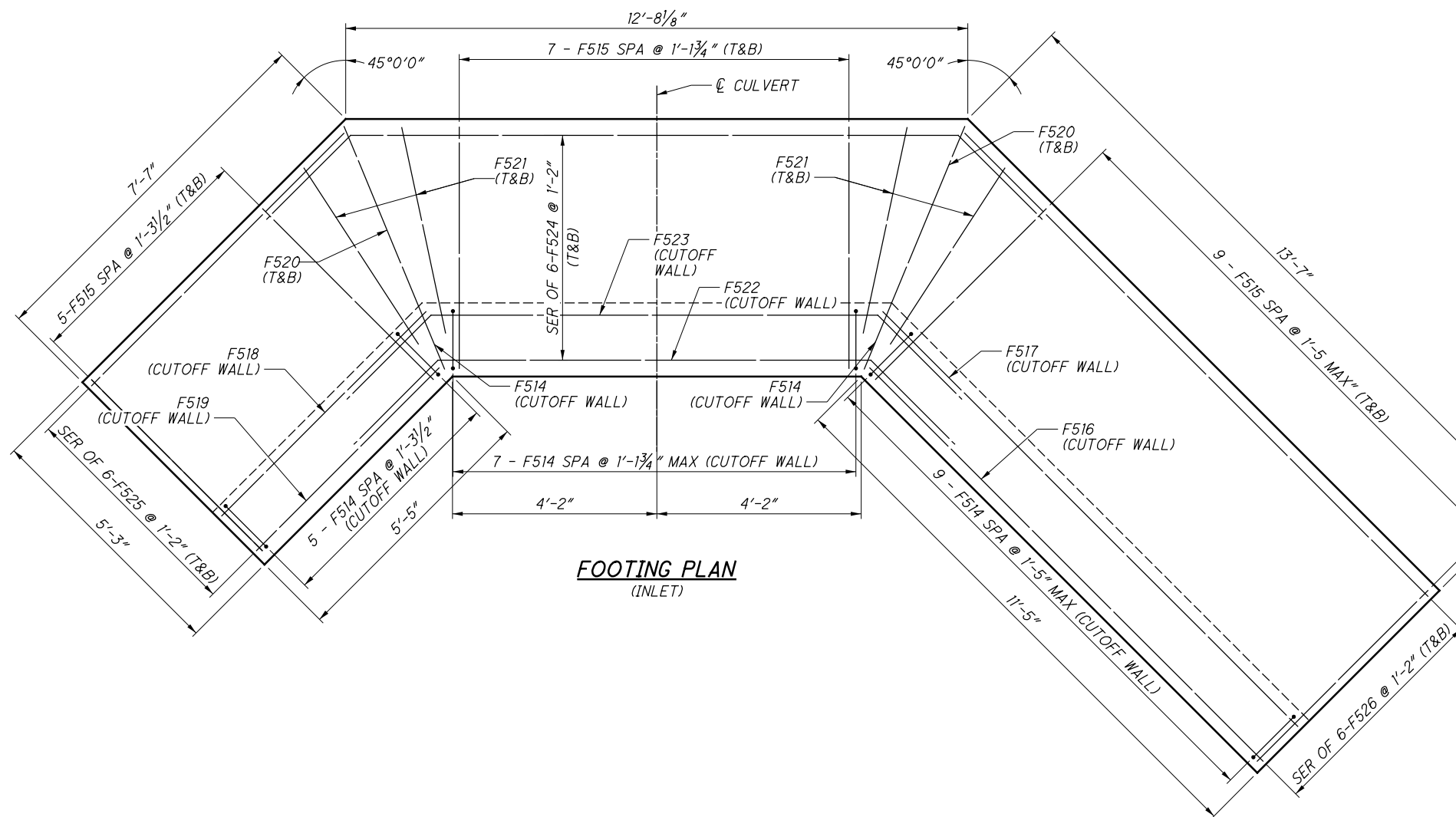
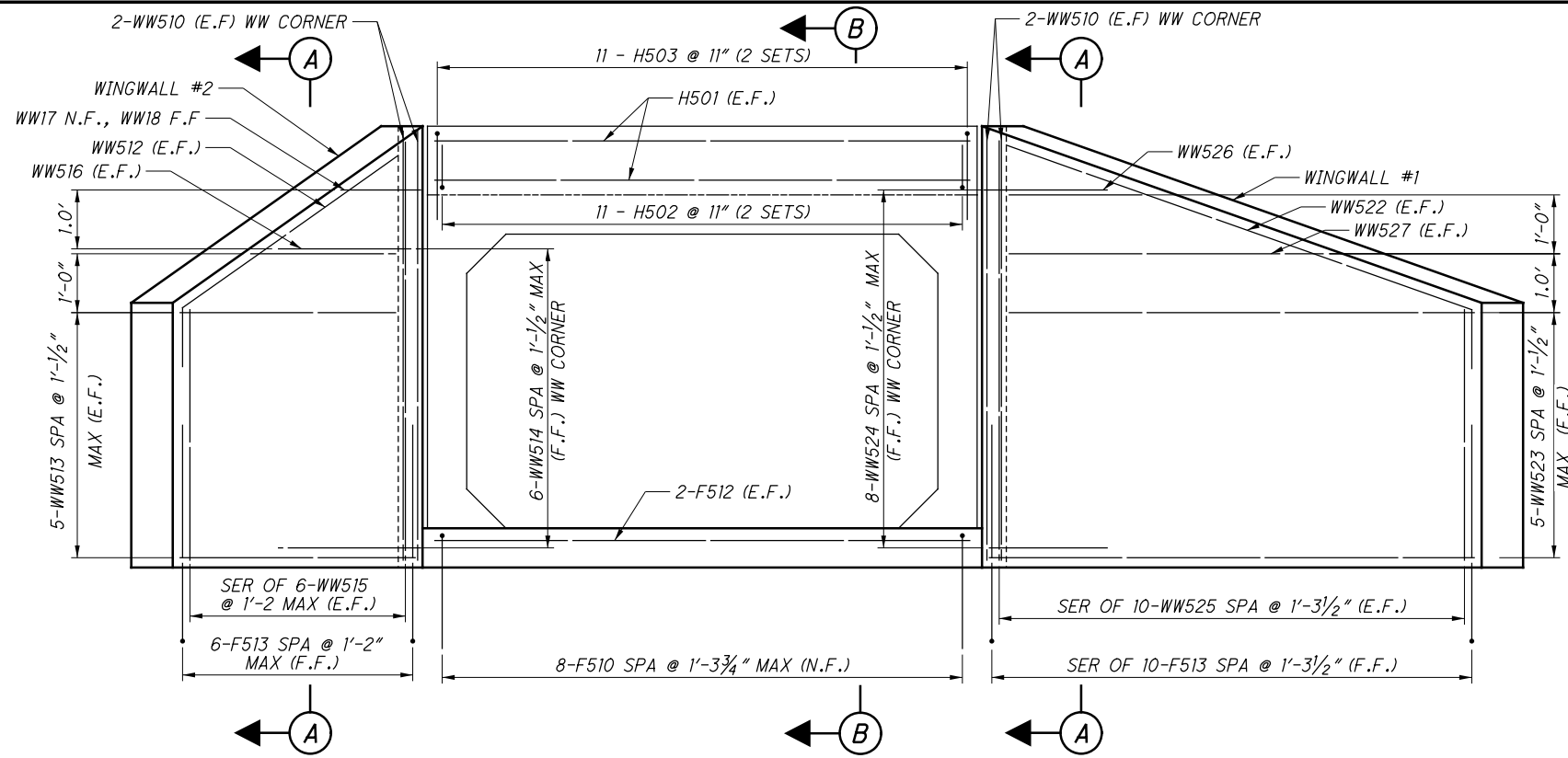
CALCULATED  
PEK  
CHECKED  
AH

CULVERT & WINGWALL DETAILS

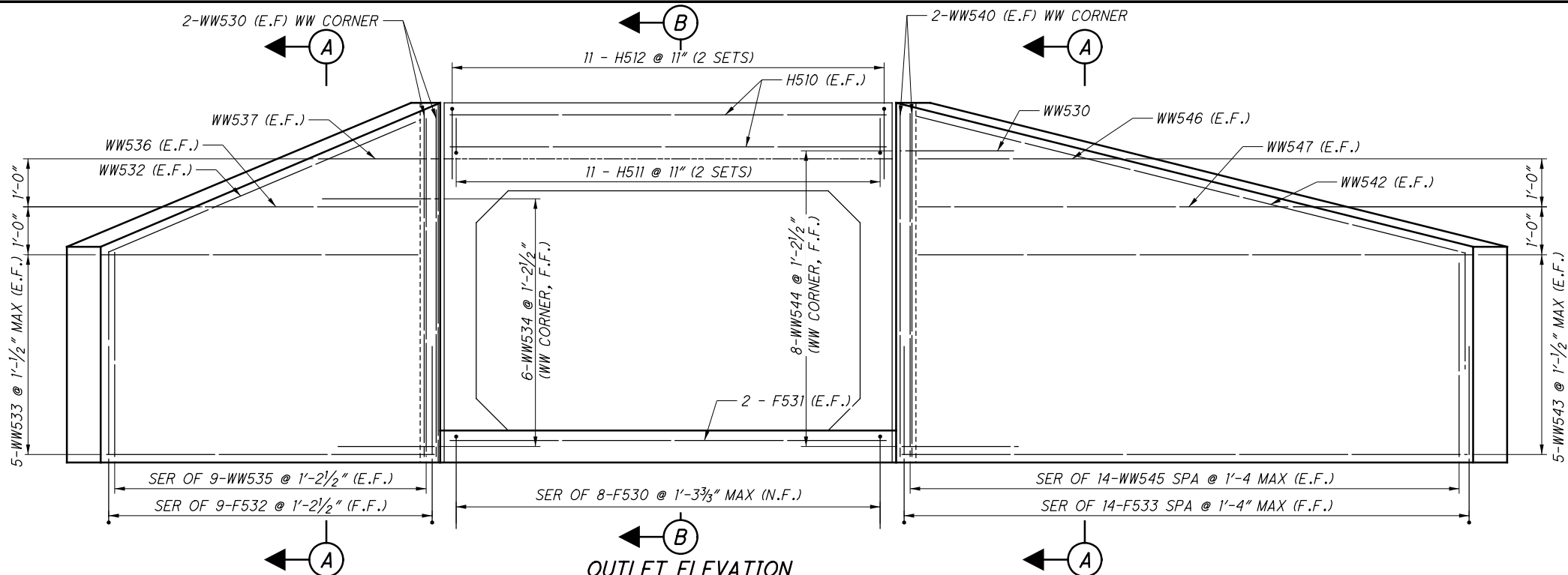
DEL-36-11.03

264  
644

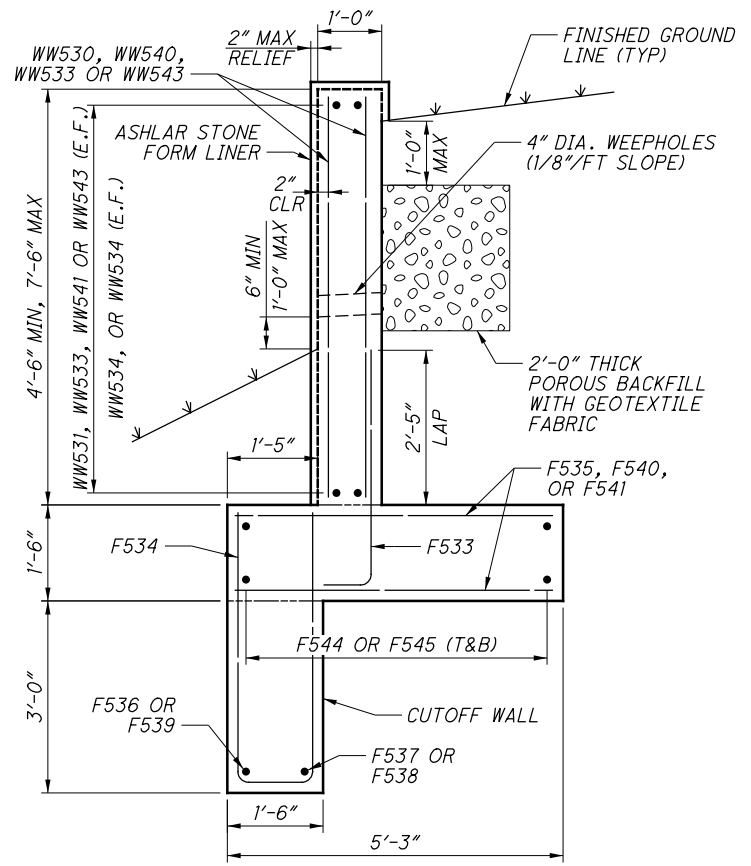
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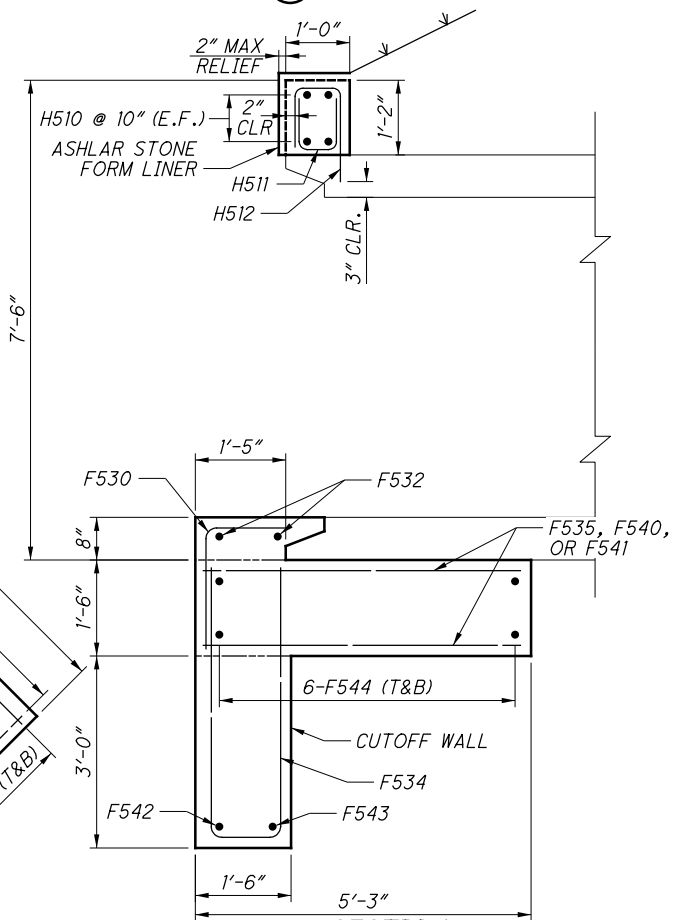
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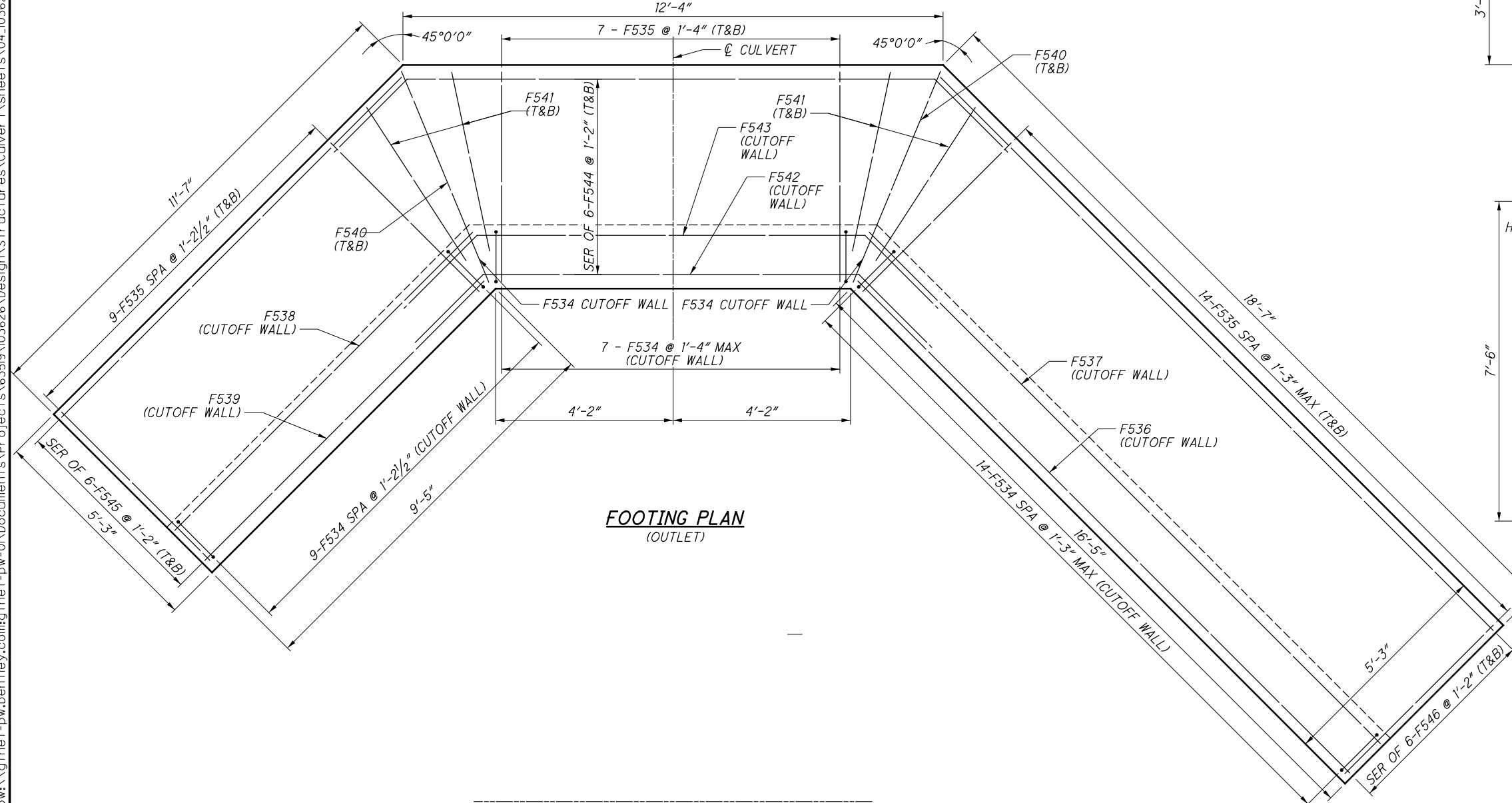
**OUTLET ELEVATION**  
(FOOTING NOT SHOWN FOR CLARITY)



**SECTION A**



**SECTION B**  
INLET SHOWN, OUTLET SIMILAR



**FOOTING PLAN**  
(OUTLET)

CALCULATED  
PEK  
CHECKED  
AH

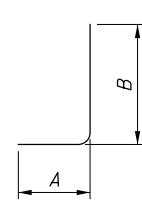
**WINGWALL & REINFORCING OUTLET DETAILS**

**DEL-36-11.03**

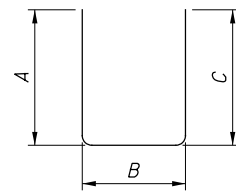
266  
644

pw:\gfnnet-pw-bentley.com\gfnnet-pw-0\Documents\Projects\6359\03626\Design\Structures\Culvert\Sheets\05\_103626\_CFNXXXXX\_RL00.dgn Sheet 8/1/2022 2:54:34 PM pkeiffer

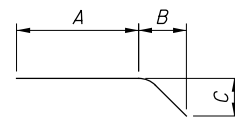
| Mark           | NUMBER |        |        |        |        |        | TOTAL  | LENGTH    | WEIGHT |        |       | TYPE | DIMENSIONS |           |           |           |           |   |     |
|----------------|--------|--------|--------|--------|--------|--------|--------|-----------|--------|--------|-------|------|------------|-----------|-----------|-----------|-----------|---|-----|
|                | INLET  |        |        | OUTLET |        |        |        |           | INLET  | OUTLET | TOTAL |      | A          | B         | C         | D         | E         | R | INC |
|                | Col #1 | Col #2 | Col #3 | Col #4 | Col #5 | Col #6 |        |           |        |        |       |      |            |           |           |           |           |   |     |
| <b>FOOTING</b> |        |        |        |        |        |        |        |           |        |        |       |      |            |           |           |           |           |   |     |
| F510           |        | 8      |        |        |        |        | 8      | 3'-0"     | 26     |        | 26    | 1    | 1'-3"      | 1'-10"    |           |           |           |   |     |
| F512           |        | 2      |        |        |        |        | 2      | 9'-2"     | 20     |        | 20    | STR. |            |           |           |           |           |   |     |
| F513           | 6      |        | 10     |        |        |        | 16     | 4'-8"     | 78     |        | 78    | 1    | 1'-0"      | 3'-9"     |           |           |           |   |     |
| F514           | 6      | 7      | 10     |        |        |        | 23     | 9'-3"     | 222    |        | 222   | 2    | 4'-2"      | 1'-2"     | 4'-2"     |           |           |   |     |
| F515           | 10     | 14     | 18     |        |        |        | 42     | 4'-9"     | 209    |        | 209   | STR. |            |           |           |           |           |   |     |
| F516           |        |        | 1      |        |        |        | 1      | 11'-3"    | 12     |        | 12    | STR. |            |           |           |           |           |   |     |
| F517           |        |        | 1      |        |        |        | 1      | 11'-10"   | 13     |        | 13    | STR. |            |           |           |           |           |   |     |
| F518           | 1      |        |        |        |        |        | 1      | 5'-8"     | 6      |        | 6     | STR. |            |           |           |           |           |   |     |
| F519           | 1      |        |        |        |        |        | 1      | 5'-3"     | 6      |        | 6     | STR. |            |           |           |           |           |   |     |
| F520           | 2      |        |        | 2      |        |        | 4      | 5'-4"     | 23     |        | 23    | STR. |            |           |           |           |           |   |     |
| F521           | 4      |        |        | 4      |        |        | 8      | 4'-4"     | 37     |        | 37    | STR. |            |           |           |           |           |   |     |
| F522           |        | 1      |        |        |        |        | 1      | 13'-8"    | 15     |        | 15    | 20   | 1'-8 1/2"  | 1'-8 1/2" | 8'-9 3/4" | 1'-8 1/2" | 1'-8 1/2" |   |     |
| F523           |        | 1      |        |        |        |        | 1      | 13'-11"   | 15     |        | 15    | 20   | 1'-8 1/2"  | 1'-8 1/2" | 9'-1 1/4" | 1'-8 1/2" | 1'-8 1/2" |   |     |
|                |        | 2      |        |        |        |        | 2      | 13'-8"    |        |        |       |      |            |           | 8'-9 3/4" |           |           |   |     |
| F524           |        | SER OF |        |        |        |        | SER OF | to        | 194    |        | 194   | 20   | 1'-8 1/2"  | 1'-8 1/2" | to        | 1'-8 1/2" | 1'-8 1/2" |   |     |
|                |        | 6      |        |        |        |        | 6      | 17'-3"    |        |        |       |      |            |           | 12'-5"    |           |           |   |     |
|                | 2      |        |        |        |        |        | 2      | 5'-8"     |        |        |       |      |            |           |           |           |           |   |     |
| F525           | SER OF |        |        |        |        |        | SER OF | to        | 81     |        | 81    | STR. |            |           |           |           | 3 3/4"    |   |     |
|                | 6      |        |        |        |        |        | 6      | 7'-3"     |        |        |       |      |            |           |           |           |           |   |     |
|                |        |        |        |        |        |        | 2      | 11'-3"    |        |        |       |      |            |           |           |           |           |   |     |
| F526           |        | SER OF |        |        |        |        | SER OF | to        | 154    |        | 154   | STR. |            |           |           |           | 4 3/4"    |   |     |
|                |        | 6      |        |        |        |        | 6      | 13'-3"    |        |        |       |      |            |           |           |           |           |   |     |
| F530           |        |        |        |        | 8      |        | 8      | 3'-0"     | 26     |        | 26    | 1    | 1'-3"      | 1'-10"    |           |           |           |   |     |
| F531           |        |        |        |        | 8      |        | 8      | 3'-0"     | 26     |        | 26    | 1    | 1'-3"      | 1'-10"    |           |           |           |   |     |
| F532           |        |        |        |        | 2      |        | 2      | 9'-2"     | 20     |        | 20    | STR. |            |           |           |           |           |   |     |
| F533           |        |        |        | 9      |        | 14     | 23     | 4'-8"     | 112    |        | 112   | 1    | 1'-0"      | 3'-9"     |           |           |           |   |     |
| F534           |        |        |        | 10     | 7      | 15     | 32     | 9'-3"     | 309    |        | 309   | 2    | 4'-2"      | 1'-2"     | 4'-2"     |           |           |   |     |
| F535           |        |        |        | 18     | 14     | 28     | 60     | 4'-9"     | 298    |        | 298   | STR. |            |           |           |           |           |   |     |
| F536           |        |        |        |        |        | 1      | 1      | 16'-3"    | 17     |        | 17    | STR. |            |           |           |           |           |   |     |
| F537           |        |        |        |        |        | 1      | 1      | 16'-9"    | 18     |        | 18    | STR. |            |           |           |           |           |   |     |
| F538           |        |        |        | 1      |        |        | 1      | 9'-9"     | 11     |        | 11    | STR. |            |           |           |           |           |   |     |
| F539           |        |        |        | 1      |        |        | 1      | 9'-3"     | 10     |        | 10    | STR. |            |           |           |           |           |   |     |
| F540           |        |        |        | 2      |        | 2      | 4      | 5'-4"     | 23     |        | 23    | STR. |            |           |           |           |           |   |     |
| F541           |        |        |        | 4      |        | 4      | 8      | 4'-4"     | 37     |        | 37    | STR. |            |           |           |           |           |   |     |
| F542           |        |        |        |        | 1      |        | 1      | 13'-8"    | 15     |        | 15    | 20   | 1'-8 1/2"  | 1'-8 1/2" | 8'-9 3/4" | 1'-8 1/2" | 1'-8 1/2" |   |     |
| F543           |        |        |        |        | 1      |        | 1      | 13'-11"   | 15     |        | 15    | 20   | 1'-8 1/2"  | 1'-8 1/2" | 9'-1 1/4" | 1'-8 1/2" | 1'-8 1/2" |   |     |
|                |        |        |        |        | 2      |        | 2      | 13'-8"    |        |        |       |      |            |           | 8'-9 3/4" |           |           |   |     |
| F544           |        |        |        | SER OF |        |        | SER OF | to        | 194    |        | 194   | 20   | 1'-8 1/2"  | 1'-8 1/2" | to        | 1'-8 1/2" | 1'-8 1/2" |   |     |
|                |        |        |        | 6      |        |        | 6      | 17'-3"    |        |        |       |      |            |           | 12'-5"    |           |           |   |     |
|                |        |        |        | 2      |        |        | 2      | 9'-3"     |        |        |       |      |            |           |           |           |           |   |     |
| F545           |        | SER OF |        |        |        |        | SER OF | to        | 131    |        | 131   | STR. |            |           |           |           | 5 1/2"    |   |     |
|                |        | 6      |        |        |        |        | 6      | 11'-7"    |        |        |       |      |            |           |           |           |           |   |     |
|                |        |        |        |        |        | 2      | 2      | 16'-5"    |        |        |       |      |            |           |           |           |           |   |     |
| F546           |        |        |        | SER OF |        |        | SER OF | to        | 220    |        | 220   | STR. |            |           |           |           | 5"        |   |     |
|                |        |        |        | 6      |        | 6      | 6      | 18'-7"    |        |        |       |      |            |           |           |           |           |   |     |
|                |        |        |        |        |        |        |        | SUB-TOTAL | 1,111  |        | 1,482 |      |            |           |           |           |           |   |     |



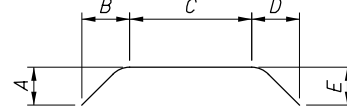
TYPE-1



TYPE-2



TYPE-19



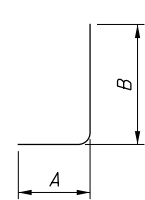
TYPE-20

**REINFORCING STEEL LIST**

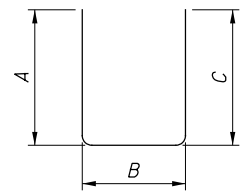
**DEL-36-11.03**

CALCULATED  
PEK  
CHECKED  
AH

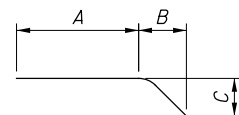
| WINGWALL              |    |    |        |    |        |        |        |       |       |       |      |       |           |
|-----------------------|----|----|--------|----|--------|--------|--------|-------|-------|-------|------|-------|-----------|
| WW510                 | 4  |    | 4      |    |        | 8      | 7'-2"  | 60    |       | 60    | STR. |       |           |
| WW512                 | 2  |    |        |    |        | 2      | 4'-6"  | 10    |       | 10    | STR. |       |           |
| WW513                 | 10 |    |        |    |        | 10     | 5'-8"  | 60    |       | 60    | STR. |       |           |
| WW514                 |    | 6  |        |    |        | 6      | 2'-8"  | 17    |       | 17    | STR. |       |           |
| WW515                 |    |    | 2      |    |        | 2      | 4'-2"  |       |       |       |      |       |           |
|                       |    |    | SER OF |    |        | SER OF | To     |       | 71    | 71    | STR. |       | 7"        |
|                       |    |    | 6      |    |        | 6      | 7'-2"  |       |       |       |      |       |           |
| WW516                 | 2  |    |        |    |        | 2      | 3'-10" | 8     |       | 8     | STR. |       |           |
| WW517                 | 1  |    |        |    |        | 1      | 1'-10" | 2     |       | 2     | STR. |       |           |
| WW518                 | 1  |    |        |    |        | 1      | 2'-3"  | 3     |       | 3     | STR. |       |           |
| WW521                 |    |    | 2      |    |        | 2      | 3'-10" | 8     |       | 8     | STR. |       |           |
| WW522                 |    |    | 2      |    |        | 2      | 8'-5"  | 18    |       | 18    | STR. |       |           |
| WW523                 |    |    | 10     |    |        | 10     | 11'-8" | 122   |       | 122   | STR. |       |           |
| WW524                 |    | 8  |        |    |        | 8      | 2'-8"  | 23    |       | 23    | STR. |       |           |
| WW525                 |    |    | 2      |    |        | 2      | 4'-2"  |       |       |       |      |       |           |
|                       |    |    | SER OF |    |        | SER OF | To     |       | 119   | 119   | STR. |       | 4"        |
|                       |    |    | 10     |    |        | 10     | 7'-2"  |       |       |       |      |       |           |
| WW526                 |    |    | 2      |    |        | 2      | 3'-10" | 8     |       | 8     | STR. |       |           |
| WW527                 |    |    | 2      |    |        | 2      | 7'-10" | 17    |       | 17    | STR. |       |           |
| WW532                 |    |    |        | 2  |        | 2      | 9'-5"  |       | 20    | 20    | 19   | 2'-5" | 2'-9 3/4  |
| WW533                 |    |    |        | 10 |        | 10     | 9'-8"  |       | 101   | 101   | STR. |       | 6'-5 3/4" |
| WW534                 |    |    |        |    | 6      | 6      | 2'-8"  |       | 17    | 17    | STR. |       |           |
| WW535                 |    |    |        | 2  |        | 2      | 4'-2"  |       |       |       |      |       |           |
|                       |    |    | SER OF |    |        | SER OF | To     |       | 107   | 107   | STR. |       | 4 1/2"    |
|                       |    |    | 9      |    |        | 9      | 7'-2"  |       |       |       |      |       |           |
| WW536                 |    |    | 2      |    |        | 2      | 6'-6"  |       | 14    | 14    | STR. |       |           |
| WW537                 |    |    | 2      |    |        | 2      | 3'-2"  |       | 7     | 7     | STR. |       |           |
| WW541                 |    |    |        |    | 2      | 2      | 14'-2" |       | 30    | 30    | 19   | 2'-5" | 2'-10 1/4 |
| WW542                 |    |    |        |    | 2      | 2      | 14'-2" |       | 30    | 30    | 19   | 2'-5" | 2'-10 1/4 |
| WW543                 |    |    |        |    | 10     | 10     | 16'-8" |       | 174   | 174   | STR. |       |           |
| WW544                 |    |    |        |    | 8      | 8      | 2'-8"  |       | 23    | 23    | STR. |       |           |
| WW545                 |    |    |        |    | 2      | 2      | 4'-2"  |       |       |       |      |       |           |
|                       |    |    |        |    | SER OF | SER OF | To     |       | 166   | 166   | STR. |       | 2 3/4"    |
|                       |    |    |        |    | 14     | 14     | 7'-2"  |       |       |       |      |       |           |
| WW546                 |    |    |        |    | 2      | 2      | 5'-6"  |       | 12    | 12    | STR. |       |           |
| WW547                 |    |    |        |    | 2      | 2      | 11'-2" |       | 24    | 24    | STR. |       |           |
| SUB-TOTAL             |    |    |        |    |        |        |        | 475   | 796   | 1,271 |      |       |           |
| HEADWALL              |    |    |        |    |        |        |        |       |       |       |      |       |           |
| H501                  |    | 4  |        |    |        | 4      | 9'-0"  | 38    |       | 38    | STR. |       |           |
| H502                  |    | 22 |        |    |        | 22     | 2'-2"  | 50    |       | 50    | 2    | 10"   | 8 1/2"    |
| H503                  |    | 22 |        |    |        | 22     | 2'-9"  | 64    |       | 64    | 2    | 10"   | 8 1/2"    |
| H510                  |    |    |        | 4  |        | 4      | 9'-0"  |       | 38    | 38    | STR. |       | 1'-5"     |
| H511                  |    |    |        | 22 |        | 22     | 2'-2"  |       | 50    | 50    | 2    | 10"   | 8 1/2"    |
| H512                  |    |    |        | 22 |        | 22     | 2'-9"  |       | 64    | 64    | 2    | 10"   | 8 1/2"    |
| SUB-TOTAL             |    |    |        |    |        |        |        | 152   | 152   | 304   |      |       |           |
| TOTAL ALL REINFORCING |    |    |        |    |        |        |        | 1,738 | 2,430 | 4,168 |      |       |           |



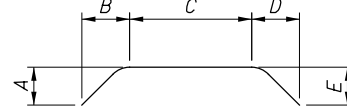
TYPE-1



TYPE-2

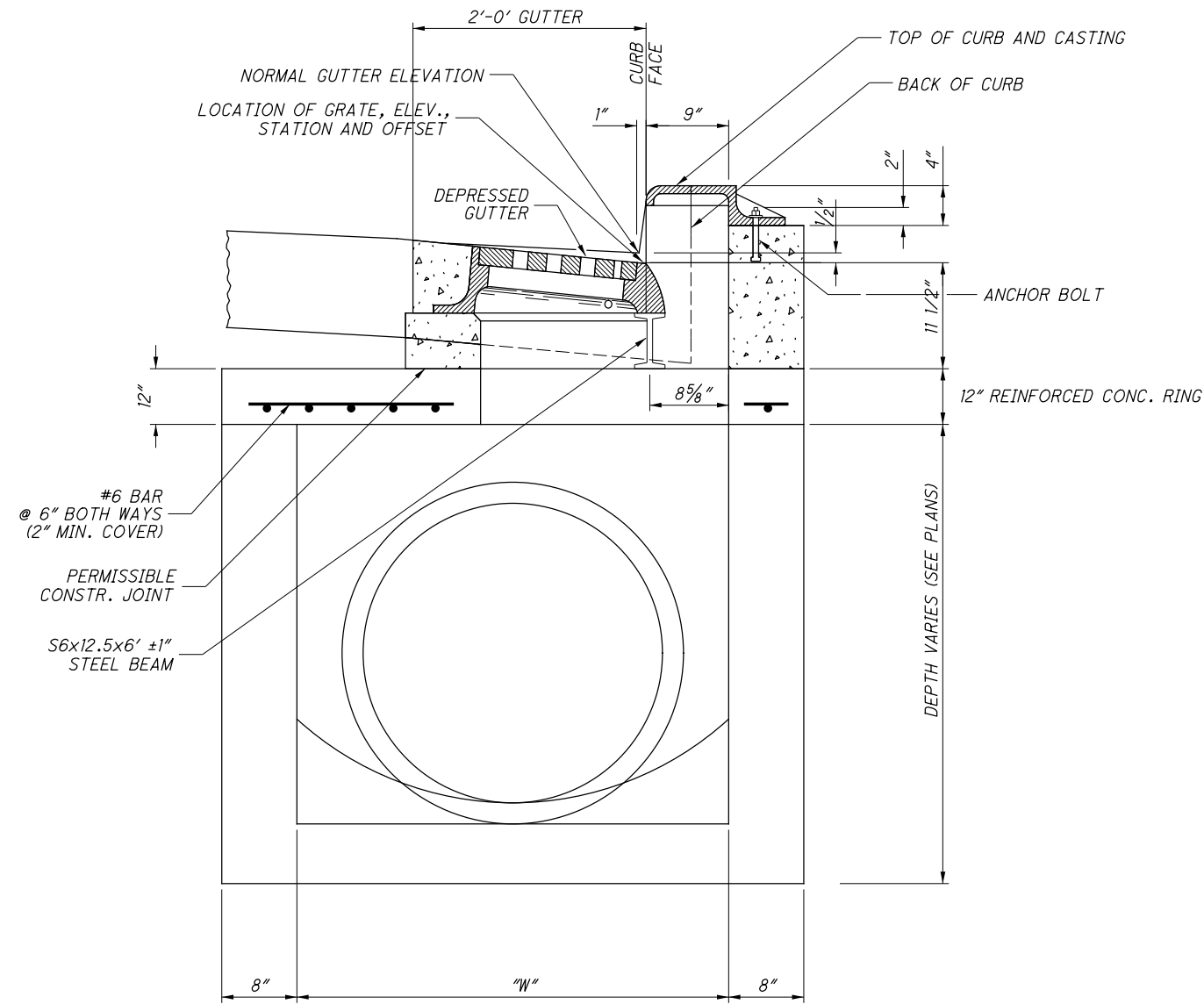


TYPE-19



TYPE-20

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USE STANDARD FOR 12" AND 15" DIAMETER  
 18" DIAMETER CONDUIT = 30"  
 21" DIAMETER CONDUIT = 33"  
 24" DIAMETER CONDUIT = 36"  
 27" DIAMETER CONDUIT = 39"  
 30" DIAMETER CONDUIT = 42"  
 36" DIAMETER CONDUIT = 48"  
 48" DIAMETER CONDUIT = 60"

CATCH BASIN NO. 3 AND NO. 3A, AS PER PLAN  
 N.T.S.

ITEM 611 - CATCH BASIN NO. 3 AND NO. 3A, AS PER PLAN  
 CATCH BASIN NO. 3 AND NO. 3A AS PER PLAN SHALL BE CONSTRUCTED IN CONFORMANCE WITH ITEM 611 AND ACCORDING TO STANDARD CONSTRUCTION DRAWING CB-2.1, EXCEPT THAT SECTION B-B OF THE AFOREMENTIONED STANDARD DRAWING SHALL BE MODIFIED AS SHOWN AND THAT NO BRICK OR CONCRETE BLOCK CONSTRUCTION SHALL BE PERMITTED.

|            |     |
|------------|-----|
| CALCULATED | CJM |
| CHECKED    | XXX |

DRAINAGE DETAILS

DEL - 36 - 11.03







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| REF NO.                            | SHEET NO. | UNDERDRAIN LOCATION |             |                    |                          |                                           | BEGIN ELEVATION | END ELEVATION | HIGH POINT STATION | 605                     |              | 611        |                   | FOR INFORMATION ONLY  |                       |                         |                       |  |  |        | OUTLET NO. 1 STATION | OUTLET NO. 1 INVERT ELEVATION | OUTLET NO. 1 OFFSET | OUTLET NO. 2 STATION | OUTLET NO. 2 INVERT ELEVATION | OUTLET NO. 2 OFFSET |  |  |  |  |
|------------------------------------|-----------|---------------------|-------------|--------------------|--------------------------|-------------------------------------------|-----------------|---------------|--------------------|-------------------------|--------------|------------|-------------------|-----------------------|-----------------------|-------------------------|-----------------------|--|--|--------|----------------------|-------------------------------|---------------------|----------------------|-------------------------------|---------------------|--|--|--|--|
|                                    |           | BEGIN STATION       | END STATION | NORMAL OFFSET (FT) | 6" BASE PIPE UNDERDRAINS | 6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS |                 |               |                    | OUTLET INTO CATCH BASIN | OUTLET ANGLE | 6" END CAP | 6" TEE CONNECTION | 6" 90° ELL CONNECTION | 6" 45° ELL CONNECTION | 6" 22.5° ELL CONNECTION | 6" 45° WYE CONNECTION |  |  |        |                      |                               |                     |                      |                               |                     |  |  |  |  |
| UD-51                              | 159       | 37                  | 16+51       | 37                 | 16+65                    | VARIES                                    | 929.20          | 928.70        |                    | 22                      | 10           | 1          |                   |                       |                       |                         |                       |  |  | 16+65  | 928.70               | 21                            |                     |                      |                               |                     |  |  |  |  |
| UD-52                              | 159       | 37                  | 17+55       | 37                 | 16+65                    | 21.0                                      | 929.50          | 928.70        |                    | 77                      | 10           | 1          |                   |                       |                       |                         |                       |  |  | 16+65  | 928.70               | 21                            |                     |                      |                               |                     |  |  |  |  |
| UD-53                              | 159       | 37                  | 17+55       | 37                 | 15+07                    | 21.0                                      | 929.50          | 927.30        |                    | 233                     | 10           | 1          |                   |                       |                       |                         |                       |  |  | 15+09  | 927.30               | 21                            |                     |                      |                               |                     |  |  |  |  |
| UD-54                              | 160       | 37                  | 17+55       | MOR                | 110+40                   | VARIES                                    | 929.50          | 931.80        | 19+36              | 187                     | 20           | 2          |                   |                       |                       |                         |                       |  |  | 17+55  | 929.50               | 21                            | 110+40              | 931.8                | 13.0'                         |                     |  |  |  |  |
| UD-55                              | 160       | MOR                 | 111+03      | MOR                | 110+40                   | VARIES                                    | 932.70          | 931.80        |                    | 51                      | 10           | 1          |                   |                       |                       |                         |                       |  |  | 110+40 | 931.80               | 21                            |                     |                      |                               |                     |  |  |  |  |
| UD-56                              | 160       | MOR                 | 111+03      | MOR                | 110+40                   | VARIES                                    | 935.70          | 931.80        |                    | 51                      | 10           | 1          |                   |                       |                       |                         |                       |  |  | 110+40 | 931.80               | 13                            |                     |                      |                               |                     |  |  |  |  |
| UD-57                              | 160       | MOR                 | 110+40      | 37                 | 31+48                    | VARIES                                    | 931.80          | 930.20        | 30+25              | 159                     | 20           | 2          |                   |                       |                       |                         |                       |  |  | 110+40 | 931.80               | 13                            | 31+48               | 930.2                | 3.0'                          |                     |  |  |  |  |
| <b>SUBTOTAL</b>                    |           |                     |             |                    |                          |                                           |                 |               |                    | 780                     | 90           | 9          |                   |                       |                       |                         |                       |  |  |        |                      |                               |                     |                      |                               |                     |  |  |  |  |
| <b>TOTALS CARRIED TO SHEET 270</b> |           |                     |             |                    |                          |                                           |                 |               |                    | 780                     | 90           |            |                   |                       |                       |                         |                       |  |  |        |                      |                               |                     |                      |                               |                     |  |  |  |  |

|                                                 |                     |
|-------------------------------------------------|---------------------|
| <p><b>UNDERDRAIN TABLES - US-36 / SR-37</b></p> | <p>DEL-36-11.03</p> |
| <p>CALCULATED<br/>CJM<br/>CHECKED<br/>PEK</p>   | <p>272<br/>644</p>  |

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| REF NO.                     | SHEET NO. | UNDERDRAIN LOCATION |             |                    |                          |                                  | BEGIN ELEVATION | END ELEVATION | HIGH POINT STATION | FOR INFORMATION ONLY                      |                         |              |            |                   |                       |                       | OUTLET NO. 1 STATION | OUTLET NO. 1 INVERT ELEVATION | OUTLET NO. 1 OFFSET | OUTLET NO. 2 STATION | OUTLET NO. 2 INVERT ELEVATION | OUTLET NO. 2 OFFSET |                         |                       |  |
|-----------------------------|-----------|---------------------|-------------|--------------------|--------------------------|----------------------------------|-----------------|---------------|--------------------|-------------------------------------------|-------------------------|--------------|------------|-------------------|-----------------------|-----------------------|----------------------|-------------------------------|---------------------|----------------------|-------------------------------|---------------------|-------------------------|-----------------------|--|
|                             |           | BEGIN STATION       | END STATION | NORMAL OFFSET (FT) | 6" BASE PIPE UNDERDRAINS | 6" UNCLASSIFIED PIPE UNDERDRAINS |                 |               |                    | 6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS | OUTLET INTO CATCH BASIN | OUTLET ANGLE | 6" END CAP | 6" TEE CONNECTION | 6" 90° ELL CONNECTION | 6" 45° ELL CONNECTION |                      |                               |                     |                      |                               |                     | 6" 22.5° ELL CONNECTION | 6" 45° WYE CONNECTION |  |
|                             |           |                     |             |                    |                          |                                  |                 |               | FT                 | FT                                        | FT                      | EACH         | DEG        | EACH              | EACH                  | EACH                  | EACH                 | EACH                          | FT                  |                      | FT                            |                     |                         |                       |  |
| UD-58                       | 164       | 36                  | 618+85      | 521                | 52+40                    | VARIES                           | 939.80          | 937.60        |                    |                                           |                         | 1            |            | 1                 |                       |                       |                      |                               | 52+40               | 937.30               | 39                            |                     |                         |                       |  |
| UD-59                       | 165       | 521                 | 58+94       | 521                | 52+40                    | VARIES                           | 938.70          | 937.60        |                    | 657                                       |                         | 1            |            | 1                 |                       |                       |                      |                               | 52+40               | 937.30               | 39                            |                     |                         |                       |  |
| UD-60                       | 164       | 36                  | 620+58      | 521                | 52+15                    | VARIES                           | 939.50          | 937.10        |                    |                                           |                         | 1            |            | 1                 |                       |                       |                      |                               | 52+15               | 937.40               | 27                            |                     |                         |                       |  |
| UD-61                       | 164       | 521                 | 52+15       | 521                | 52+40                    | 27.0                             | 937.10          | 937.00        |                    |                                           |                         | 1            |            | 1                 |                       |                       |                      |                               | 52+40               | 937.30               | 27                            |                     |                         |                       |  |
| UD-62                       | 164       | 521                 | 52+65       | 521                | 52+40                    | 27.0                             | 937.10          | 937.00        |                    |                                           |                         | 1            |            | 1                 |                       |                       |                      |                               | 52+40               | 937.30               | 27                            |                     |                         |                       |  |
| UD-63                       | 164       | 521                 | 53+42       | 521                | 52+65                    | 27.0                             | 937.40          | 937.10        |                    | 33                                        |                         | 1            |            | 1                 |                       |                       |                      |                               | 52+65               | 937.30               | 27                            |                     |                         |                       |  |
| UD-64                       | 164       | 521                 | 53+41       | 521                | 53+42                    | VARIES                           | 939.90          | 937.40        |                    |                                           | 20                      | 1            |            | 1                 |                       |                       |                      |                               | 53+42               | 937.50               | 27                            |                     |                         |                       |  |
| ud-65                       | NOT USED  |                     |             |                    |                          |                                  |                 |               |                    |                                           |                         |              |            |                   |                       |                       |                      |                               |                     |                      |                               |                     |                         |                       |  |
| UD-66                       | 164       | 521                 | 55+00       | 521                | 53+42                    | VARIES                           | 937.50          | 937.40        |                    |                                           |                         | 1            |            | 1                 |                       |                       |                      |                               | 54+23               | 937.50               | 27                            |                     |                         |                       |  |
| UD-67                       | 165       | 521                 | 56+50       | 521                | 55+00                    | VARIES                           | 938.60          | 937.50        |                    | 135                                       |                         | 1            |            | 1                 |                       |                       |                      |                               | 55+00               | 937.50               | 26.8                          |                     |                         |                       |  |
| UD-68                       | 165       | 521                 | 57+00       | 521                | 56+50                    | VARIES                           | 938.60          | 938.60        |                    |                                           | 36                      | 1            |            | 1                 |                       |                       |                      |                               | 56+50               | 938.60               | 21.3                          |                     |                         |                       |  |
| UD-69                       | 165       | 521                 | 57+00       | 521                | 57+94                    | VARIES                           | 938.60          | 938.60        |                    |                                           | 79                      | 1            |            | 1                 |                       |                       |                      |                               | 57+94               | 938.60               | 16                            |                     |                         |                       |  |
| UD-70                       | 165       | 521                 | 58+94       | 521                | 57+94                    | VARIES                           | 938.90          | 938.60        |                    |                                           | 88                      | 1            |            | 1                 |                       |                       |                      |                               | 57+94               | 938.60               | 16                            |                     |                         |                       |  |
| SUBTOTAL                    |           |                     |             |                    |                          |                                  |                 |               | 571                | 1022                                      | 120                     | 12           |            | 12                |                       |                       |                      |                               |                     |                      |                               |                     |                         |                       |  |
| TOTALS CARRIED TO SHEET 270 |           |                     |             |                    |                          |                                  |                 |               | 571                | 1022                                      | 120                     |              |            |                   |                       |                       |                      |                               |                     |                      |                               |                     |                         |                       |  |

|                                               |                     |
|-----------------------------------------------|---------------------|
| <p><b>UNDERDRAIN TABLES - SR-521</b></p>      | <p>DEL-36-11.03</p> |
| <p>CALCULATED<br/>CJM<br/>CHECKED<br/>PEK</p> | <p>273<br/>644</p>  |

| US 36/SR 37 |     | SHEET NUMBER |  |  |  |  |  |  |  |  |     | SR 521 |         | ITEM  | ITEM EXT. | TOTAL | UNIT                                                                                    | DESCRIPTION | SEE SHEET NO. |
|-------------|-----|--------------|--|--|--|--|--|--|--|--|-----|--------|---------|-------|-----------|-------|-----------------------------------------------------------------------------------------|-------------|---------------|
| 275         | 276 |              |  |  |  |  |  |  |  |  | 277 |        |         |       |           |       |                                                                                         |             |               |
| 790         |     |              |  |  |  |  |  |  |  |  |     |        | SPECIAL | 70000 | 790       | FT    | FILL AND PLUG EXISTING CONDUIT, 6"                                                      |             |               |
| 251         |     |              |  |  |  |  |  |  |  |  |     |        | SPECIAL | 70000 | 251       | FT    | FILL AND PLUG EXISTING CONDUIT, 12"                                                     |             |               |
|             | 1   |              |  |  |  |  |  |  |  |  |     |        | 638     | 07490 | 1         | EACH  | 8" GATE VALVE                                                                           |             |               |
| 4           |     |              |  |  |  |  |  |  |  |  |     |        | 638     | 10400 | 4         | EACH  | FIRE HYDRANT ADJUSTED TO GRADE                                                          |             |               |
| 6           | 4   |              |  |  |  |  |  |  |  |  | 1   |        | 638     | 10480 | 11        | EACH  | FIRE HYDRANT REMOVED                                                                    |             |               |
| 16          | 5   |              |  |  |  |  |  |  |  |  | 2   |        | 638     | 10800 | 23        | EACH  | VALVE BOX ADJUSTED TO GRADE                                                             |             |               |
| 23          |     |              |  |  |  |  |  |  |  |  |     |        | SPECIAL | 20048 | 23        | FT    | 6" WATER MAIN DIP CLASS 53 MECHANICAL JOINTS AND FITTINGS (CITY OF DELAWARE, WTRD-3.0)  |             |               |
| 159         | 44  |              |  |  |  |  |  |  |  |  |     |        | SPECIAL | 20088 | 203       | FT    | 8" WATER MAIN DIP CLASS 53 MECHANICAL JOINTS AND FITTINGS (CITY OF DELAWARE, WTRD-3.0)  |             |               |
| 40          | 57  |              |  |  |  |  |  |  |  |  |     |        | SPECIAL | 20176 | 97        | FT    | 12" WATER MAIN DIP CLASS 53 MECHANICAL JOINTS AND FITTINGS (CITY OF DELAWARE, WTRD-3.0) |             |               |
| 384         | 26  |              |  |  |  |  |  |  |  |  |     |        | SPECIAL | 20216 | 410       | FT    | 16" WATER MAIN DIP CLASS 53 MECHANICAL JOINTS AND FITTINGS (CITY OF DELAWARE, WTRD-3.0) |             |               |
| 3           | 1   |              |  |  |  |  |  |  |  |  | 1   |        | SPECIAL | 20750 | 5         | EACH  | 6" FIRE HYDRANT (CITY OF DELAWARE, WTRD-9.0)                                            |             |               |
| 2           | 3   |              |  |  |  |  |  |  |  |  |     |        | SPECIAL | 20750 | 5         | EACH  | 6" FIRE HYDRANT (CITY OF DELAWARE, WTRD-10.0)                                           |             |               |
|             | 192 |              |  |  |  |  |  |  |  |  |     |        | SPECIAL | 20776 | 192       | FT    | 1 1/2" POLYETHYLENE WATER SERVICE LINE (CITY OF DELAWARE)                               |             |               |
| 1           | 3   |              |  |  |  |  |  |  |  |  |     |        | 638     | 98000 | 4         | EACH  | WATER WORKS, MISC.: CURB STOP (CITY OF DELAWARE)                                        |             |               |
|             | 3   |              |  |  |  |  |  |  |  |  |     |        | 638     | 98000 | 3         | EACH  | WATER WORKS, MISC.: METER PIT (CITY OF DELAWARE)                                        |             |               |
| 1           | 1   |              |  |  |  |  |  |  |  |  |     |        | 638     | 98000 | 2         | EACH  | WATER WORKS, MISC.: CURB STOP ADJUSTED TO GRADE (CITY OF DELAWARE)                      |             |               |
| 3           | 4   |              |  |  |  |  |  |  |  |  |     |        | 638     | 98000 | 7         | EACH  | WATER WORKS, MISC.: METER PIT ADJUSTED TO GRADE (CITY OF DELAWARE)                      |             |               |
| 2           | 3   |              |  |  |  |  |  |  |  |  |     |        | 638     | 98000 | 5         | EACH  | WATER WORKS, MISC.: CURB STOP REMOVED (CITY OF DELAWARE)                                |             |               |
|             | 3   |              |  |  |  |  |  |  |  |  |     |        | 638     | 98000 | 3         | EACH  | WATER WORKS, MISC.: METER PIT REMOVED (CITY OF DELAWARE)                                |             |               |
| 12          | 6   |              |  |  |  |  |  |  |  |  | 1   |        | 638     | 98000 | 19        | EACH  | WATER WORKS, MISC.: VALVE AND VALVE BOX REMOVED                                         |             |               |
| 2           | 2   |              |  |  |  |  |  |  |  |  |     |        | 638     | 98000 | 4         | EACH  | WATER WORKS, MISC.: WATER SERVICE LOWERING (CITY OF DELAWARE, WTRD-1.1)                 |             |               |
| 608         | 127 |              |  |  |  |  |  |  |  |  |     |        | 638     | 98600 | 735       | FT    | WATER WORKS, MISC.: PIPE REMOVED                                                        |             |               |
|             | 155 |              |  |  |  |  |  |  |  |  |     |        | 638     | 98600 | 155       | FT    | WATER WORKS, MISC.: PIPE ABANDONED (CITY OF DELAWARE)                                   |             |               |
| 168         |     |              |  |  |  |  |  |  |  |  |     |        | 638     | 98600 | 168       | FT    | WATER WORKS, MISC.: 30" STEEL PIPE ENCASEMENT, OPEN CUT                                 |             |               |

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|                                                                                                                                                                                                                                                                      |     |         |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------|-----|
| CALCULATED                                                                                                                                                                                                                                                           | PEK | CHECKED | CJM |
| WATER WORKS SUBSUMMARY                                                                                                                                                                                                                                               |     |         |     |
| DEL - 36 - 11.03                                                                                                                                                                                                                                                     |     |         |     |
| <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;"> <span style="font-size: 0.8em;">274</span><br/> <span style="font-size: 0.8em;">644</span> </div> |     |         |     |





| REF NO.                                      | SHEET NO. |     | STATION  |     | SIDE     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------------------------|-----------|-----|----------|-----|----------|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
|                                              |           |     | FROM     | TO  |          |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W-1                                          | 292       | 521 | 51+02.00 |     | RT       |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W-2                                          | 292       | 521 | 51+47.66 | 521 | 51+49.01 | RT |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W-3                                          | 292       | 521 | 52+90.00 |     | RT       |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W-4                                          | 292       | 521 | 54+98.88 |     | RT       |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SUBTOTAL                                     |           |     |          |     |          |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TOTALS CARRIED TO WATER WORKS SUBSUMMARY 274 |           |     |          |     |          |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

638      638      638      638

FIRE HYDRANT REMOVED  
 VALVE BOX ADJUSTED TO GRADE  
 SPECIAL - 6" FIRE HYDRANT (CITY OF DELAWARE, WTRD-9.0)  
 WATER WORKS, MISC.: VALVE AND VALVE BOX REMOVED

EACH      EACH      EACH      EACH

CALCULATED PEK  
 CHECKED CJM

WATER WORK QUANTITIES - SR - 521

DEL-36-11.03

277  
644





**ITEM 638 - WATER WORKS, MISC.: VALVE AND VALVE BOX REMOVED**

THE CONTRACTOR SHALL REMOVE ALL VALVE AND VALVE BOXES AT THE LOCATIONS IDENTIFIED IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

PROPERLY DISPOSE OF ALL MATERIALS ASSOCIATED WITH REMOVAL OFF PROJECT SITE.

ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 638 - WATER WORKS, MISC.: VALVE AND VALVE BOX REMOVED.

**ITEM 638 - WATER WORKS, MISC.: WATER SERVICE LOWERING (CITY OF DELAWARE, WTRD-1.1)**

THE CONTRACTOR SHALL APPLY CITY OF DELAWARE STANDARD DRAWING WTRD-1.1 FOR ALL WATER SERVICE LOWERINGS AT THE LOCATIONS IDENTIFIED IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 638 - WATER WORKS, MISC.: WATER SERVICE LOWERING (CITY OF DELAWARE, WTRD-1.1)

**ITEM 638 - WATER WORKS, MISC.: PIPE REMOVED**

THE CONTRACTOR SHALL REMOVE WATER LINE AT THE LOCATIONS IDENTIFIED IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

PROPERLY DISPOSE OF ALL MATERIALS ASSOCIATED WITH REMOVAL OFF PROJECT SITE.

ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 638 - WATER WORKS, MISC.: PIPE REMOVED.

**ITEM 638 - WATER WORKS, MISC.: PIPE ABANDONED (CITY OF DELAWARE)**

THE CONTRACTOR SHALL ABANDONED WATER LINE AT THE LOCATIONS IDENTIFIED IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 638 - WATER WORKS, MISC.: PIPE ABANDONED (CITY OF DELAWARE)

|                             |                     |                 |
|-----------------------------|---------------------|-----------------|
| <br>Public Works Department | STANDARD DETAIL     | WATER           |
|                             | TYPICAL AIR RELEASE | WTRD-2.0        |
|                             |                     | Rev. 12/31/2018 |

|                             |                             |                 |
|-----------------------------|-----------------------------|-----------------|
| <br>Public Works Department | STANDARD DETAIL             | WATER           |
|                             | TYPICAL WATER LINE LOWERING | WTRD-3.0        |
|                             |                             | Rev. 12/31/2018 |

|                             |                                                              |                 |
|-----------------------------|--------------------------------------------------------------|-----------------|
| <br>Public Works Department | STANDARD DETAIL                                              | WATER           |
|                             | WATER SERVICE STREET CROSSINGS<br>(2 SERVICES IN ONE TRENCH) | WTRD-4.0        |
|                             |                                                              | Rev. 12/31/2018 |

| FLANGE SIZE (in.) | A (in.) | B (in.) | C (in.) | D (in.) | E (in.) | F (in.) |
|-------------------|---------|---------|---------|---------|---------|---------|
| 3                 | 12      | 5       | 4-1/32  | 3-1/2   | 6       | 3/4     |
| 4                 | 12      | 5       | 5-1/32  | 4-1/2   | 6       | 3/4     |
| 6                 | 12      | 5       | 7-1/32  | 6-1/2   | 6       | 3/4     |
| 8                 | 16      | 5-1/8   | 9-1/32  | 8-1/8   | 8       | 3/4     |
| 10                | 20      | 5-1/2   | 11-1/16 | 10-1/4  | 10      | 3/4     |
| 12                | 24      | 5-3/4   | 13-1/16 | 12-1/4  | 12      | 3/4     |

FOR OUTLETS 1/4" AND LARGER THE MANUFACTURER OF THE TAPPING VALVE MUST BE SPECIFIED TO ASSURE PROPER ALIGNMENT RECESS DIMENSION.  
SIZE ON SIZE TAPPING SLEEVE REQUIRES 1/2" UNDER SIZE CUTTER TO ASSURE PROPER CUTTER CLEARANCE AND COMPLETE SEVERANCE OF THE COPPER ON NOMINAL PIPE SIZE 7.45 AND SMALLER DIMENSION D IS 6-1/8"

|                             |                     |                 |
|-----------------------------|---------------------|-----------------|
| <br>Public Works Department | STANDARD DETAIL     | WATER           |
|                             | FULL BODY WATER TAP | WTRD-6.0        |
|                             |                     | Rev. 12/31/2018 |

|                             |                                                           |                 |
|-----------------------------|-----------------------------------------------------------|-----------------|
| <br>Public Works Department | STANDARD DETAIL                                           | WATER           |
|                             | CONCRETE VALVE SUPPORT<br>HORIZONTAL GATE VALVE W/BY-PASS | WTRD-8.0        |
|                             |                                                           | Rev. 12/31/2018 |

|                             |                                     |                 |
|-----------------------------|-------------------------------------|-----------------|
| <br>Public Works Department | STANDARD DETAIL                     | WATER           |
|                             | TYPICAL HYDRANT SETTING<br>TYPE "A" | WTRD-9.0        |
|                             |                                     | Rev. 12/31/2018 |

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CALCULATED  
PEK  
CHECKED  
CJM

CITY OF DELAWARE STANDARD DRAWINGS AND NOTES

DEL-36-11.03

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| MAIN LINE | DIMENSION "L" |               |
|-----------|---------------|---------------|
|           | TYPE "B"      | TYPE "B" MOD. |
| 6"        | 24"           | 19"           |
| 8"        | 25"           | 20"           |
| 12"       | 28"           | 23"           |
| 16"       | 31"           | 26"           |

**NOTES:**

- FIRE HYDRANTS SHALL BE SET A MINIMUM OF 6'-0" FROM ALL DRIVEWAY OPENINGS.
- FIRE HYDRANT SHALL HAVE A MAXIMUM BURY OF 7'-0". MODIFICATION OF THE HYDRANT LEAD TO MEET THIS REQUIREMENT SHALL BE IN THAT SECTION FROM THE VALVE TO THE HYDRANT.
- A LAYER OF POLYETHYLENE SHEETING REQUIRED BETWEEN CONCRETE AND WATERLINE, VALVES, ETC.

STANDARD DETAIL WATER  
**SPECIAL HYDRANT SETTING**  
TYPE "B" AND "B" MODIFIED  
WTRD-10.0  
Rev. 12/31/2018  
Public Works Department

| R   | BRANCH |    |     |    |    |     |    |    |     |    |     |     |     |    |     |    |    |      |    |    |      |    |    |      |
|-----|--------|----|-----|----|----|-----|----|----|-----|----|-----|-----|-----|----|-----|----|----|------|----|----|------|----|----|------|
|     | 3"     |    | 4"  |    | 6" |     | 8" |    | 12" |    | 16" |     | 20" |    | 24" |    |    |      |    |    |      |    |    |      |
| N   | L      | D  | V   | L  | D  | V   | L  | D  | V   | L  | D   | V   | L   | D  | V   | L  | D  | V    | L  | D  | V    | L  | D  | V    |
| 3"  | 12     | 5  | 0.5 |    |    |     |    |    |     |    |     |     |     |    |     |    |    |      |    |    |      |    |    |      |
| 4"  | 10     | 6  | 0.5 | 11 | 8  | 0.8 |    |    |     |    |     |     |     |    |     |    |    |      |    |    |      |    |    |      |
| 6"  | 9      | 7  | 0.5 | 11 | 8  | 0.8 | 18 | 12 | 1.9 |    |     |     |     |    |     |    |    |      |    |    |      |    |    |      |
| 8"  | 8      | 8  | 0.5 | 10 | 9  | 0.7 | 18 | 12 | 1.9 | 23 | 16  | 3.5 |     |    |     |    |    |      |    |    |      |    |    |      |
| 12" | 6      | 12 | 0.6 | 8  | 12 | 0.8 | 18 | 12 | 1.9 | 23 | 16  | 3.5 | 38  | 22 | 8.7 |    |    |      |    |    |      |    |    |      |
| 16" | 6      | 16 | 0.8 | 6  | 16 | 0.8 | 14 | 16 | 2.0 | 18 | 20  | 3.3 | 36  | 23 | 8.7 | 49 | 30 | 13.6 |    |    |      |    |    |      |
| 20" | 6      | 20 | 1.0 | 6  | 20 | 1.0 | 11 | 20 | 1.9 | 18 | 20  | 3.3 | 35  | 24 | 8.7 | 46 | 32 | 13.6 | 60 | 38 | 26.5 |    |    |      |
| 24" | 6      | 24 | 1.2 | 6  | 24 | 1.2 | 9  | 24 | 1.9 | 15 | 24  | 3.3 | 30  | 28 | 8.7 | 42 | 36 | 14.0 | 54 | 42 | 26.3 | 68 | 48 | 45.4 |

**NOTES:**

- REINFORCING STEEL WILL BE USED AS REQUIRED BY THE ENGINEER.
- DIMENSIONS "L" AND "D" ARE PROVIDED IN INCHES.
- THE APPROXIMATE VOLUME OF CONCRETE "V" IS IN CUBIC FEET.

**NOTES:**

- BACKER DESIGNED FOR 3000 PSF SOIL BEARING.
- CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH.
- PROVIDE CLEARANCE FOR REMOVAL OF BOLTS.
- A LAYER OF POLYETHYLENE SHEETING REQUIRED BETWEEN CONCRETE AND WATERLINE, VALVES, ETC.

STANDARD DETAIL WATER  
**BACKING FOR TEES**  
WTRD-11.0  
Rev. 12/31/2018  
Public Works Department

| SIZE OF PIPE | 11 1/2" |    |          | 22 1/2" |    |          | 45" |    |          |    |    |      |
|--------------|---------|----|----------|---------|----|----------|-----|----|----------|----|----|------|
|              | L"      | D" | V (c.f.) | L"      | D" | V (c.f.) | L"  | D" | V (c.f.) |    |    |      |
| 3"           | 4       | 3  | 0.1      | 6       | 4  | 0.2      | 10  | 4  | 0.3      | 10 | 4  | 0.3  |
| 4"           | 5       | 4  | 0.2      | 9       | 5  | 0.4      | 14  | 5  | 0.6      | 14 | 5  | 0.6  |
| 6"           | 8       | 6  | 0.5      | 12      | 7  | 0.7      | 20  | 8  | 1.4      | 18 | 9  | 1.7  |
| 8"           | 9       | 8  | 0.7      | 16      | 9  | 1.4      | 24  | 12 | 2.7      | 25 | 11 | 4.0  |
| 12"          | 14      | 12 | 1.8      | 24      | 14 | 3.6      | 36  | 18 | 6.8      | 32 | 18 | 10.7 |
| 16"          | 18      | 16 | 3.4      | 32      | 18 | 6.7      | 36  | 32 | 13.4     | 41 | 26 | 25.4 |
| 20"          | 25      | 20 | 6.4      | 30      | 30 | 11.5     | 49  | 36 | 20.5     | 50 | 32 | 46.5 |
| 24"          | 27      | 24 | 9.0      | 39      | 34 | 18.4     | 60  | 42 | 35.0     | 58 | 40 | 77.7 |

**NOTES:**

- BACKER TO BE CENTERED HORIZONTALLY IN BEND.
- A LAYER OF POLYETHYLENE SHEETING REQUIRED BETWEEN CONCRETE AND WATERLINE, VALVES, ETC.

STANDARD DETAIL WATER  
**BACKING FOR VERTICAL BENDS (OVER BENDS ONLY)**  
WTRD-12.0  
Rev. 12/31/2018  
Public Works Department

| SIZE OF PIPE | DEGREE OF BEND |          |         |    |          |      |    |          |      |    |    |      |
|--------------|----------------|----------|---------|----|----------|------|----|----------|------|----|----|------|
|              | 11 1/2"        |          | 22 1/2" |    | 45"      |      |    |          |      |    |    |      |
| L"           | D"             | V (c.f.) | L"      | D" | V (c.f.) | L"   | D" | V (c.f.) |      |    |    |      |
| 3"           | 4              | 3        | 0.1     | 6  | 4        | 0.2  | 10 | 4        | 0.3  | 10 | 4  | 0.3  |
| 4"           | 5              | 4        | 0.2     | 9  | 5        | 0.4  | 14 | 5        | 0.6  | 14 | 5  | 0.6  |
| 6"           | 8              | 6        | 0.5     | 12 | 7        | 0.7  | 20 | 8        | 1.4  | 18 | 9  | 1.7  |
| 8"           | 9              | 8        | 0.7     | 16 | 9        | 1.4  | 24 | 12       | 2.7  | 25 | 11 | 4.0  |
| 12"          | 14             | 12       | 1.8     | 24 | 14       | 3.6  | 36 | 18       | 6.8  | 32 | 18 | 10.7 |
| 16"          | 18             | 16       | 3.4     | 32 | 18       | 6.7  | 36 | 32       | 13.4 | 41 | 26 | 25.4 |
| 20"          | 25             | 20       | 6.4     | 30 | 30       | 11.5 | 49 | 36       | 20.5 | 50 | 32 | 46.5 |
| 24"          | 27             | 24       | 9.0     | 39 | 34       | 18.4 | 60 | 42       | 35.0 | 58 | 40 | 77.7 |

**NOTES:**

- BACKER DESIGNED FOR 3000 PSF SOIL BEARING.
- CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH.
- A LAYER OF POLYETHYLENE SHEETING REQUIRED BETWEEN CONCRETE AND WATERLINE, VALVES, ETC.

STANDARD DETAIL WATER  
**BACKING FOR BENDS HORIZONTAL AND VERTICAL SAG**  
WTRD-13.0  
Rev. 12/31/2018  
Public Works Department

**NOTES:**

- BACKER DESIGNED FOR 3000 PSF SOIL BEARING.
- END OF PIPE CAPPED OR PLUGGED.
- GREASE STEEL PLATE WHERE IN CONTACT WITH CONCRETE BACKER.
- PLACE CONCRETE AGAINST UNDISTURBED SOIL.
- THOROUGHLY COMPACT BACKFILL BETWEEN VALVE AND END OF PIPE.
- A LAYER OF POLYETHYLENE SHEETING REQUIRED BETWEEN CONCRETE AND WATERLINE, VALVES, ETC.

| PIPE DIAMETER | H   | B  | L   | VOLUME CU. FT. |
|---------------|-----|----|-----|----------------|
| 3"            | 5"  | 1" | 10' | 1.43           |
| 4"            | 6"  | 1" | 10' | 1.76           |
| 6"            | 8"  | 1" | 10' | 2.52           |
| 8"            | 12" | 1" | 10' | 4.00           |
| 12"           | 23" | 3" | 18' | 8.64           |
| 16"           | 37" | 3" | 18' | 15.39          |

STANDARD DETAIL WATER  
**THRUST BLOCK DETAIL**  
WTRD-14.0  
Rev. 12/31/2018  
Public Works Department

**NOTES:**

- FOR 16" DIAMETER AND SMALLER WITH 10' OR LESS DEPTH OF COVER, PROVIDE 6" BEDDING IF ROCK OR UNSUITABLE MATERIAL IS FOUND AT THE BOTTOM OF TRENCH EXCAVATION.
- FOR 16" DIAMETER AND SMALLER WITH OVER 10' DEPTH OF COVER, PROVIDE 6" BEDDING.
- FOR ALL PIPE LARGER THAN 16" DIAMETER, PROVIDE 6" BEDDING.
- BEDDING SHALL BE NO. 57 STONE.

STANDARD DETAIL WATER  
**TYPICAL WATER TRENCH**  
WTRD-15.0  
Rev. 12/31/2018  
Public Works Department

**NOTES:**

- USE OF THIS DETAIL ONLY APPLIES TO PRIVATE WATER SYSTEMS NOT CONTAINING INDIVIDUAL METERS AT EACH SERVICE. FOR DOMESTIC WATER SERVICES ON PUBLIC WATER SYSTEMS, SEE WTRD-1.2.
- THE CURB BOX SHALL BE PLACED 1'-0" FROM THE EDGE OF THE SIDEWALK OR 2'-0" INSIDE THE RIGHT-OF-WAY OR EASEMENT LINE WHEN NO SIDEWALK IS PRESENT OR PROPOSED.
- THE CURB STOP SHALL BE INSTALLED WITH VALVE OPENING FACING THE STRUCTURE TO BE SERVED. THE CURB STOP SHALL TURN 1/2 TURN CLOCKWISE ON TO POSITION (TYPICAL).
- CURB BOXES SHALL BE PLACED A MINIMUM OF 20'-0" FROM ANY EXISTING OR PROPOSED FOUNDATION OR STRUCTURE.

STANDARD DETAIL WATER  
**DOMESTIC WATER SERVICE PRIVATE WATER MAINS**  
WTRD-1.1  
Rev. 12/31/2018  
Public Works Department

**NOTES:**

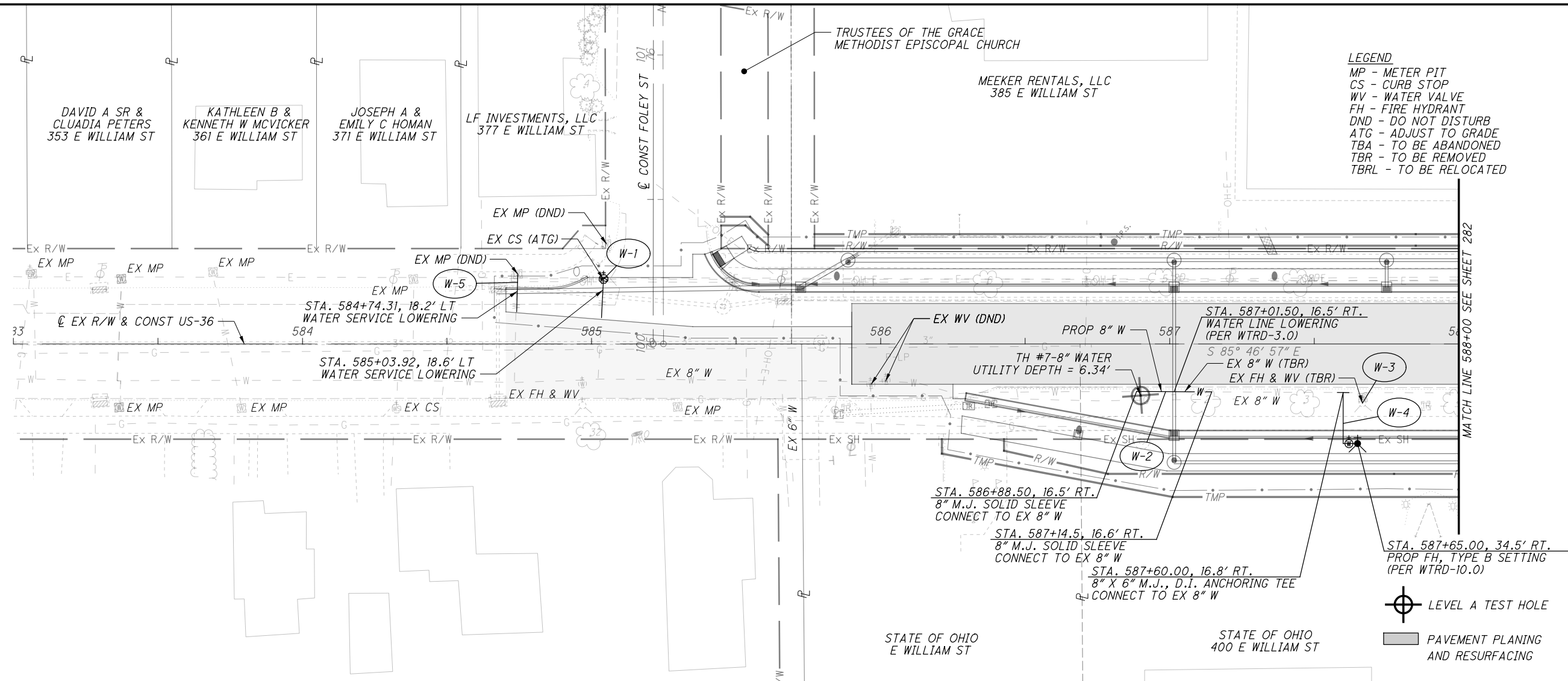
- CASING PIPE SIZE BASED ON TYPICAL BELL O.D. OF D.I. RESTRAINED JOINT PIPE MANUFACTURED AND NOMINAL CONCRETE PIPE SIZE.
- RESTRAINED JOINT DUCTILE IRON PIPE PER DIVISION OF WATER APPROVED MATERIALS LIST.

\* NUMBER OF RUNNERS/RISERS PER MANUFACTURER'S STANDARD.

CITY OF COLUMBUS DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER  
APPROVED: *R.C. Weathersfield* 1-26-18 DATE  
ADMINISTRATOR

STANDARD DETAIL  
**CASING PIPE, SPACERS AND END SEALS**  
L-6324

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- LEGEND**
- MP - METER PIT
  - CS - CURB STOP
  - WV - WATER VALVE
  - FH - FIRE HYDRANT
  - DND - DO NOT DISTURB
  - ATG - ADJUST TO GRADE
  - TBA - TO BE ABANDONED
  - TBR - TO BE REMOVED
  - TBRL - TO BE RELOCATED

CALCULATED PEK  
CHECKED CJM

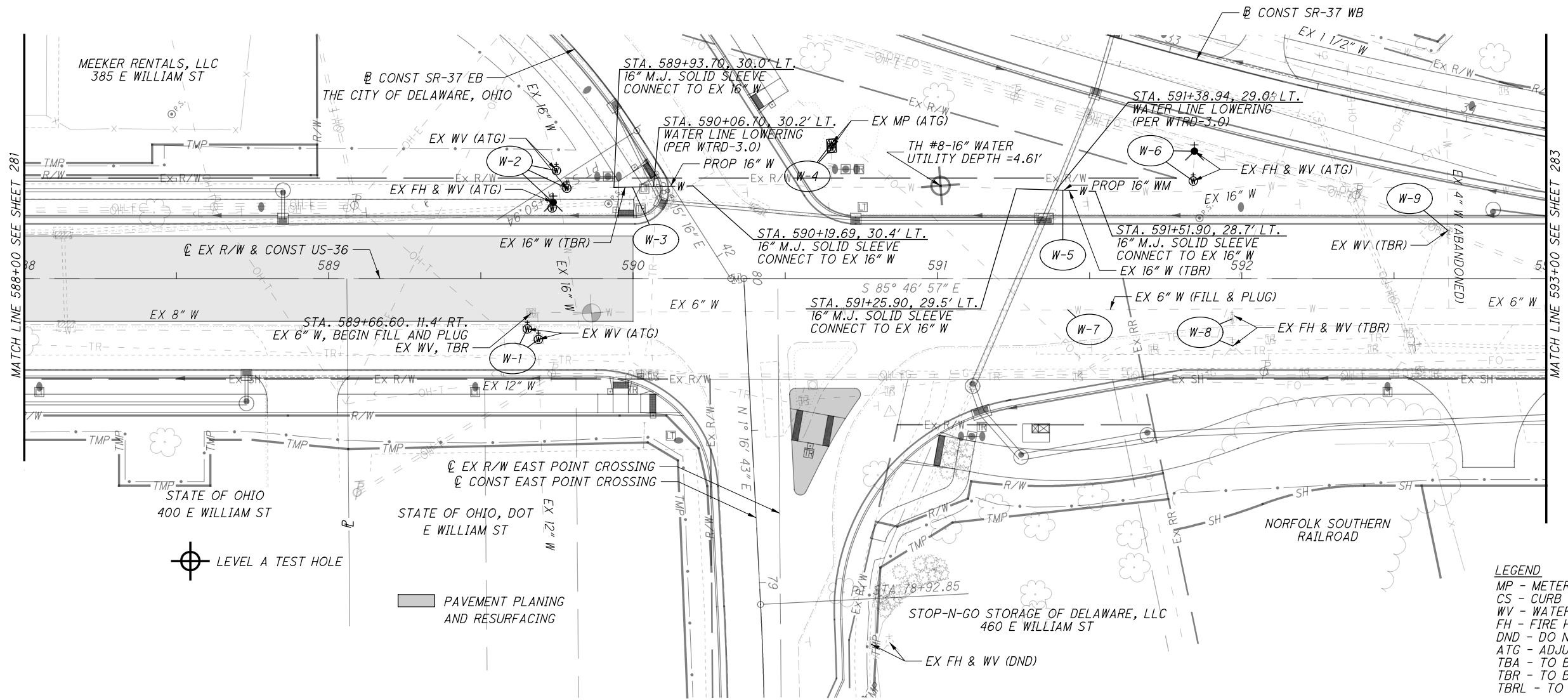
0 20 40  
HORIZONTAL SCALE IN FEET

**WATER WORKS - US-36  
STA 585+35.60 TO STA 588+00**

**DEL-36-11.03**

ALL WATERLINE LOWERINGS WILL BE IN ACCORDANCE WITH CITY OF DELAWARE STANDARD CONSTRUCTION DRAWING WTRD-3.0.

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ALL WATERLINE LOWERINGS WILL BE IN ACCORDANCE WITH CITY OF DELAWARE STANDARD CONSTRUCTION DRAWING WTRD-3.0.

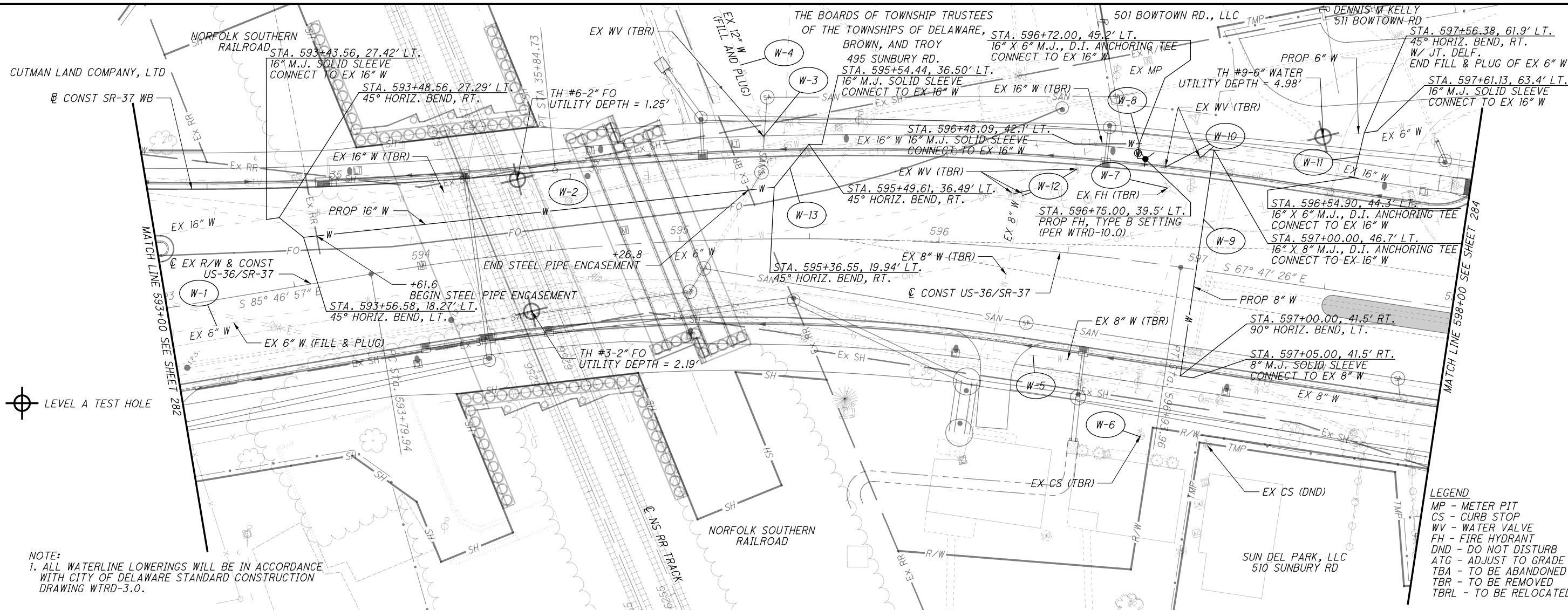


WATER WORKS - US-36  
STA 588+00 TO STA 593+00

DEL-36-11.03

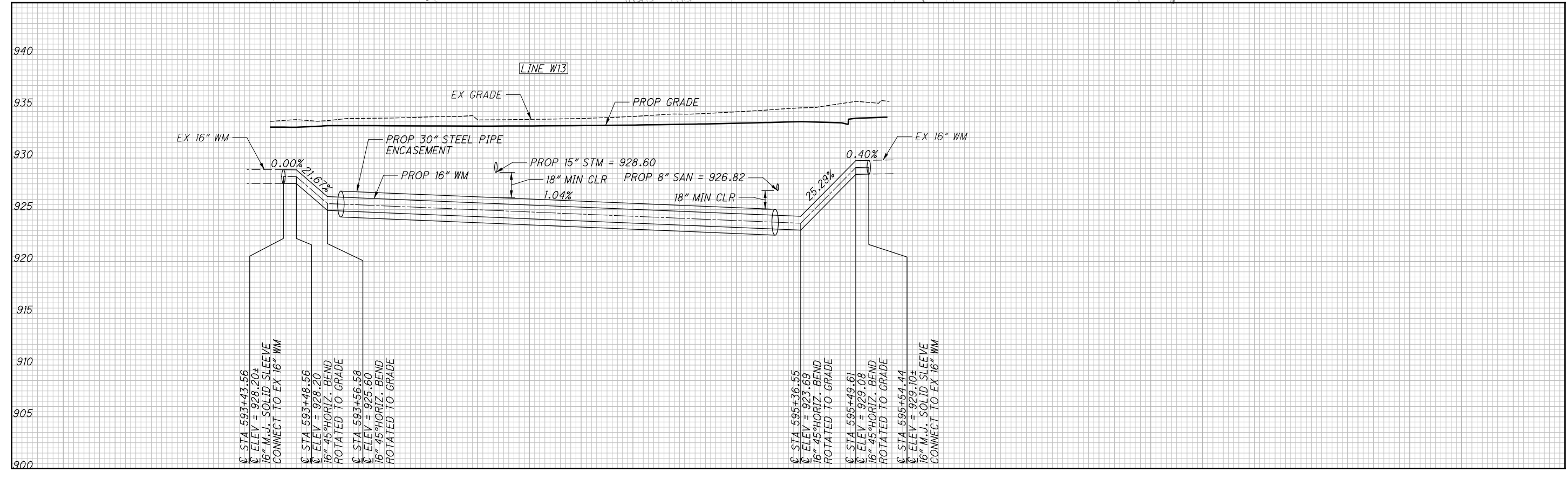
282  
644

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NOTE:  
1. ALL WATERLINE LOWERINGS WILL BE IN ACCORDANCE WITH CITY OF DELAWARE STANDARD CONSTRUCTION DRAWING WTRD-3.0.

- LEGEND
- MP - METER PIT
  - CS - CURB STOP
  - WV - WATER VALVE
  - FH - FIRE HYDRANT
  - DND - DO NOT DISTURB
  - ATG - ADJUST TO GRADE
  - TBA - TO BE ABANDONED
  - TBR - TO BE REMOVED
  - TBR/L - TO BE RELOCATED



0 20 40  
HORIZONTAL SCALE IN FEET

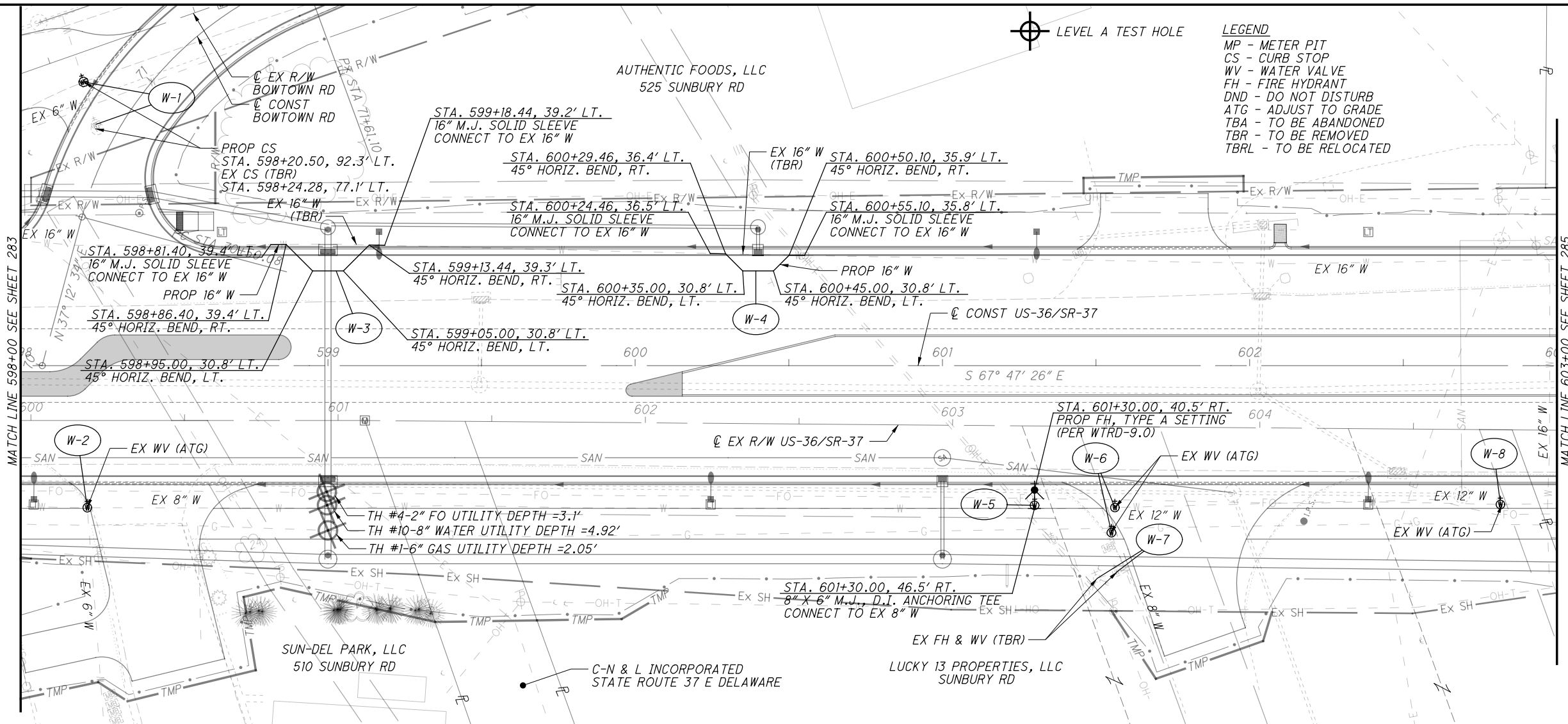
CALCULATED  
PEK  
CHECKED  
CJM

WATER WORKS - US-36 / SR-37  
STA 593+00 TO STA 598+00

DEL-36-11.03

283  
644

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ALL WATERLINE LOWERINGS WILL BE IN ACCORDANCE WITH CITY OF DELAWARE STANDARD CONSTRUCTION DRAWING WTRD-3.0.

LEGEND  
 MP - METER PIT  
 CS - CURB STOP  
 WV - WATER VALVE  
 FH - FIRE HYDRANT  
 DND - DO NOT DISTURB  
 ATG - ADJUST TO GRADE  
 TBA - TO BE ABANDONED  
 TBR - TO BE REMOVED  
 TBRL - TO BE RELOCATED

CALCULATED PEK  
 CHECKED CJM

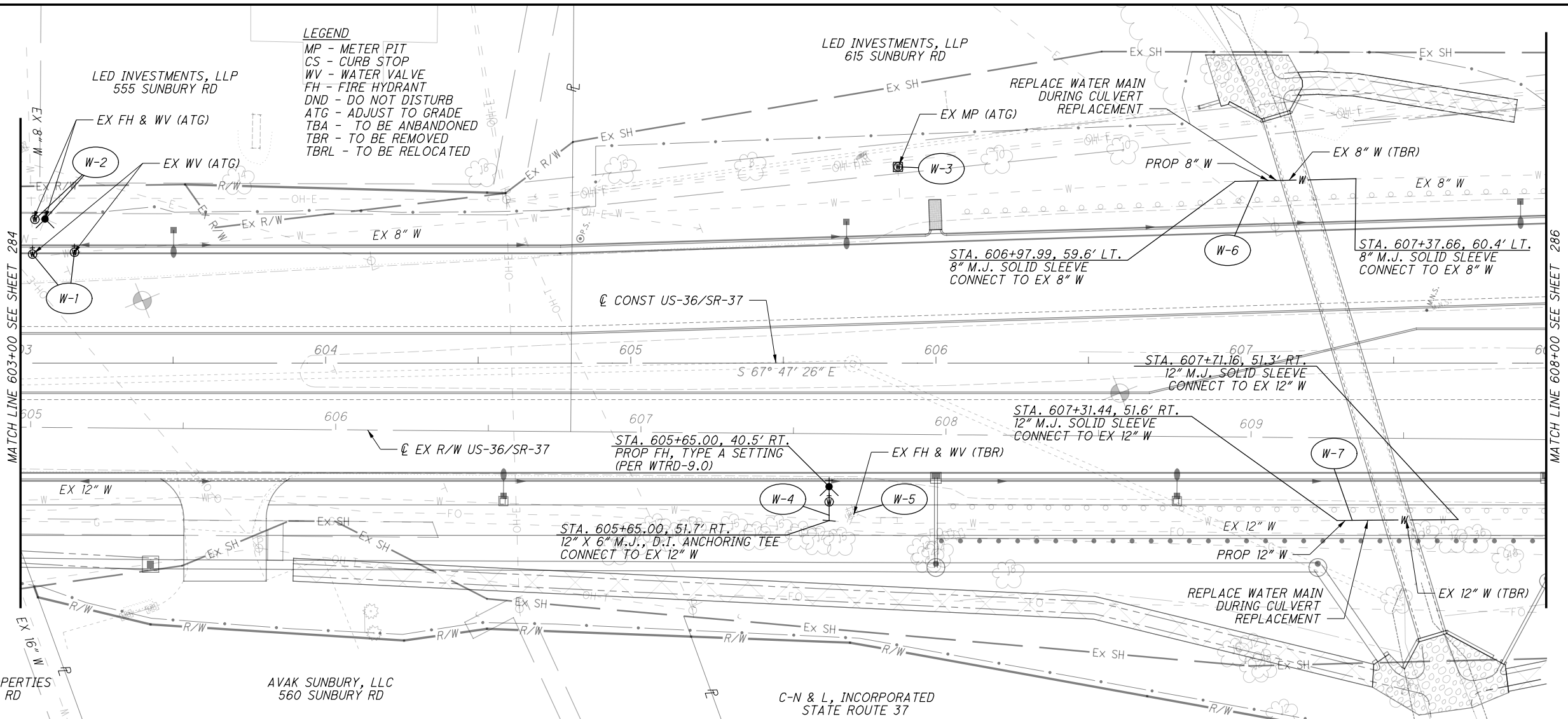
0 20 40  
 HORIZONTAL SCALE IN FEET

WATER WORKS - US-36 / SR-37  
 STA 598+00 TO STA 603+00

DEL-36-11.03

284  
 644

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**LEGEND**  
 MP - METER PIT  
 CS - CURB STOP  
 WV - WATER VALVE  
 FH - FIRE HYDRANT  
 DND - DO NOT DISTURB  
 ATG - ADJUST TO GRADE  
 TBA - TO BE ANBANDONED  
 TBR - TO BE REMOVED  
 TBRL - TO BE RELOCATED

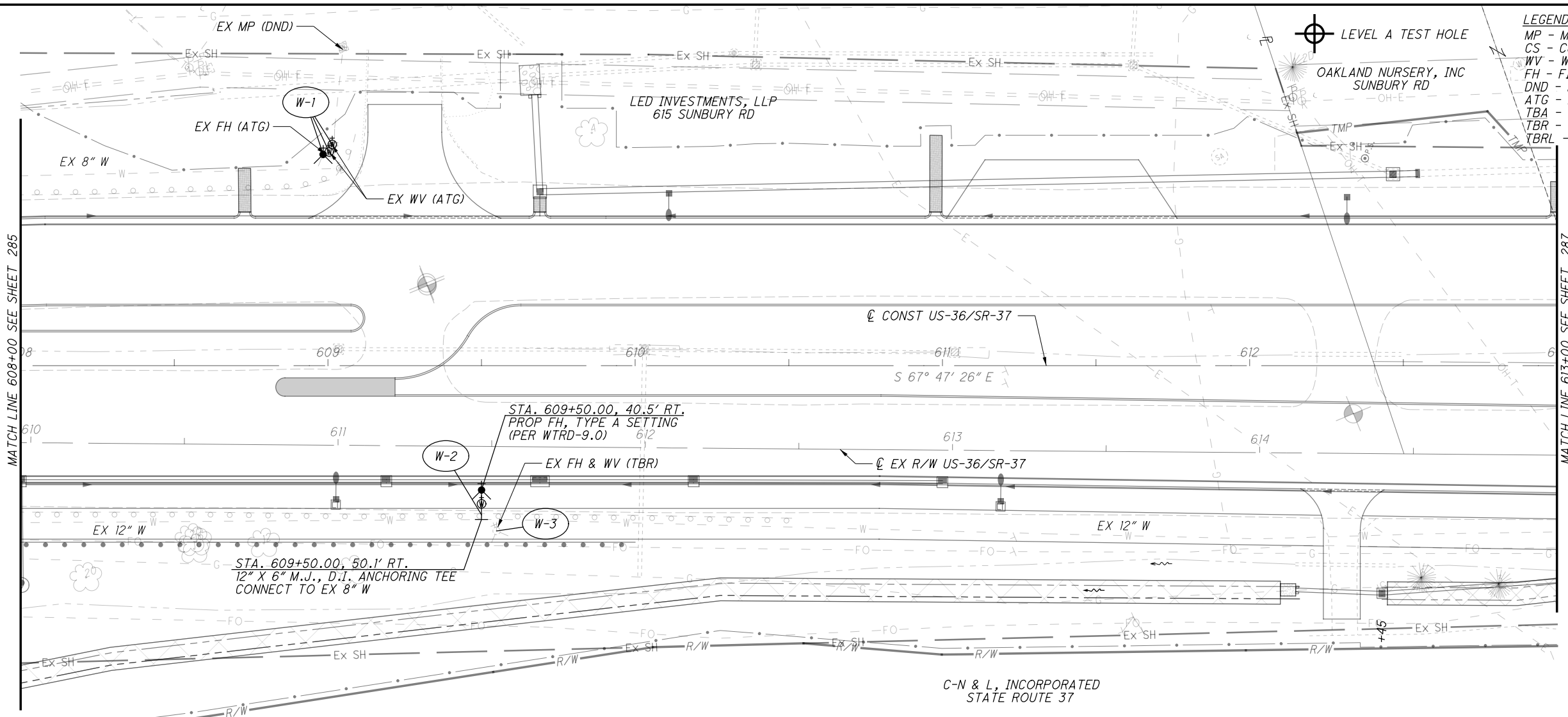
CALCULATED PEK  
 CHECKED CJM

0 20 40  
 HORIZONTAL SCALE IN FEET

**WATER WORKS - US-36 / SR-37  
 STA 603+00 TO STA 608+00**

**DEL-36-11.03**

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- LEGEND**
- MP - METER PIT
  - CS - CURB STOP
  - WV - WATER VALVE
  - FH - FIRE HYDRANT
  - DND - DO NOT DISTURB
  - ATG - ADJUST TO GRADE
  - TBA - TO BE ABANDONED
  - TBR - TO BE REMOVED
  - TBRL - TO BE RELOCATED

CALCULATED PEK  
CHECKED CJM

0 20 40  
HORIZONTAL SCALE IN FEET

MATCH LINE 608+00 SEE SHEET 285

MATCH LINE 613+00 SEE SHEET 287

STA. 609+50.00, 50.1' RT.  
12" X 6" M.J., D.I. ANCHORING TEE  
CONNECT TO EX 8" W

STA. 609+50.00, 40.5' RT.  
PROP FH, TYPE A SETTING  
(PER WTRD-9.0)

C-N & L, INCORPORATED  
STATE ROUTE 37

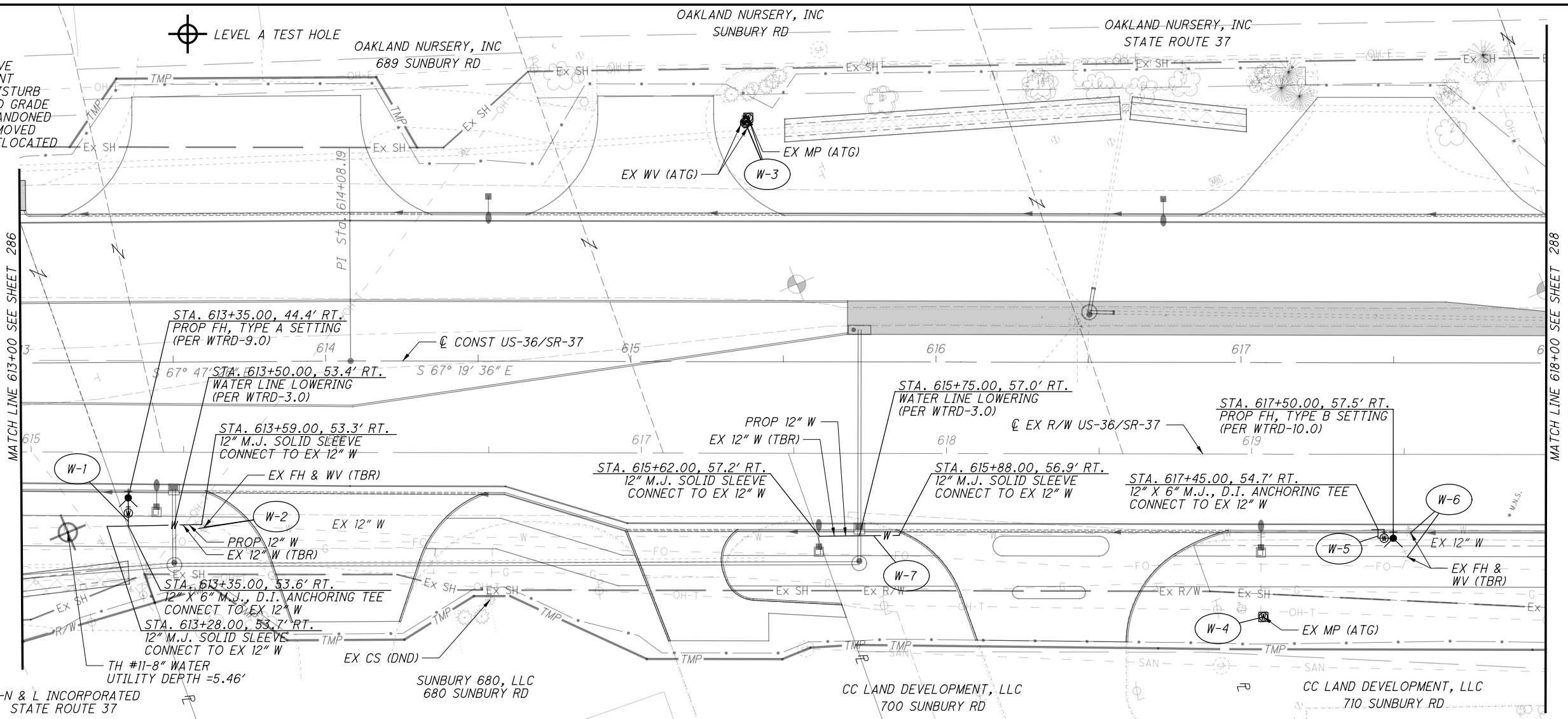
**WATER WORKS - US-36 / SR-37**  
**STA 608+00 TO STA 613+00**

**DEL-36-11.03**

286  
644



**LEGEND**  
 MP - METER PIT  
 CS - CURB STOP  
 WV - WATER VALVE  
 FH - FIRE HYDRANT  
 DND - DO NOT DISTURB  
 ATG - ADJUST TO GRADE  
 TBA - TO BE ABANDONED  
 TBR - TO BE REMOVED  
 TBRL - TO BE RELOCATED



CALCULATED  
 PEK  
 CHECKED  
 CJM

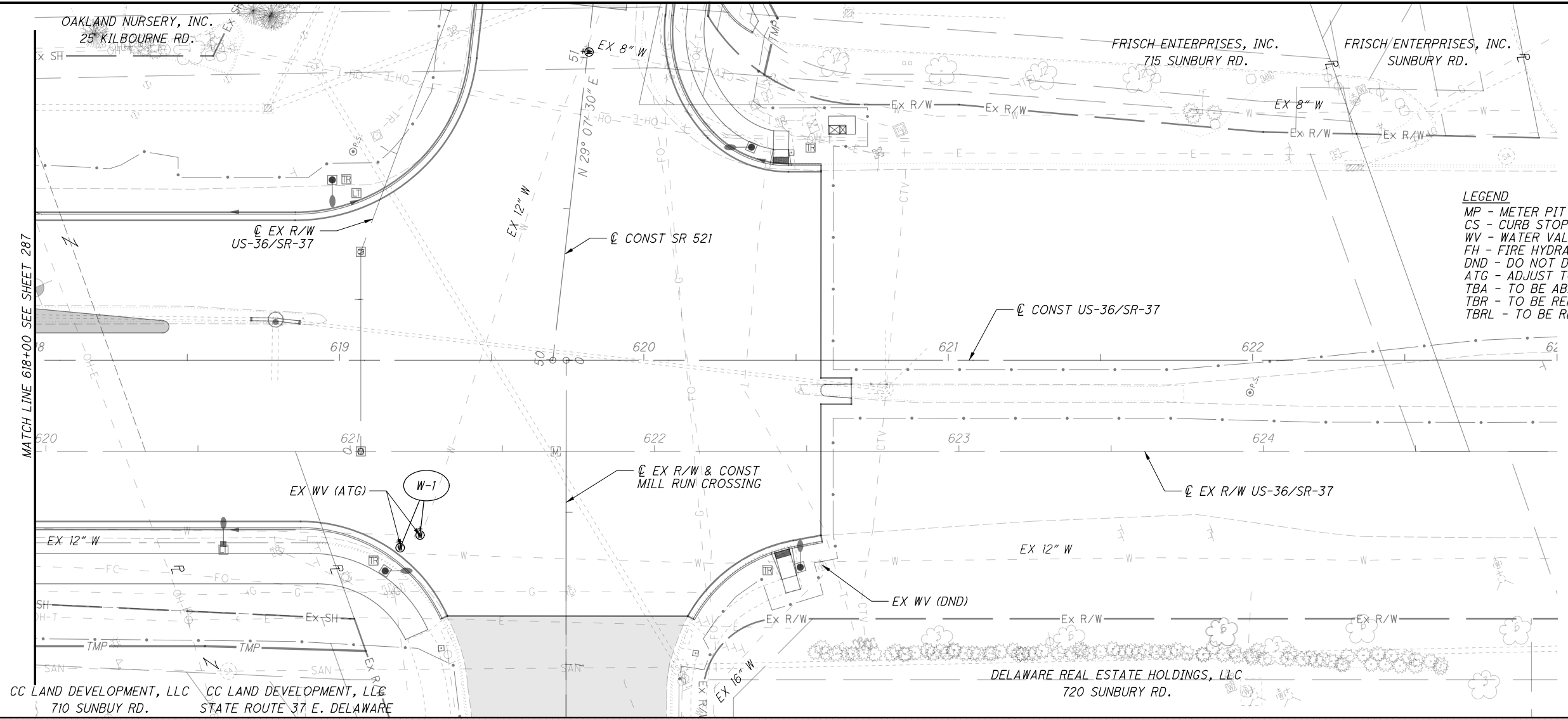
0 20 40  
 HORIZONTAL SCALE IN FEET

**WATER WORKS - US-36 / SR-37  
 STA 613+00 TO STA 618+00**

**DEL-36-11.03**

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- LEGEND**
- MP - METER PIT
  - CS - CURB STOP
  - WV - WATER VALVE
  - FH - FIRE HYDRANT
  - DND - DO NOT DISTURB
  - ATG - ADJUST TO GRADE
  - TBA - TO BE ABANDONED
  - TBR - TO BE REMOVED
  - TBRL - TO BE RELOCATED

CALCULATED PEK CHECKED CJM

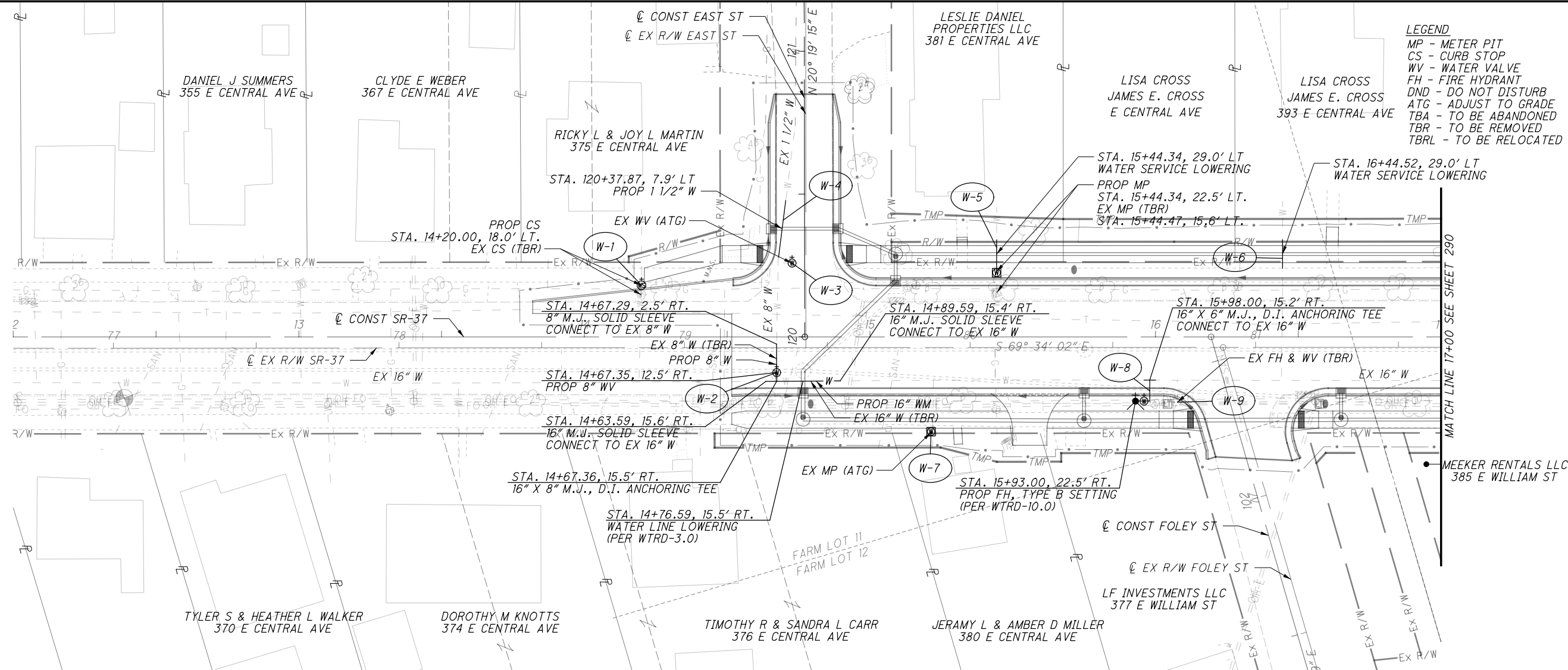
0 20 40  
HORIZONTAL SCALE IN FEET

**WATER WORKS - US-36 / SR-37**  
**STA 618+00 TO STA 623+00**

**DEL-36-11.03**

288  
644

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**LEGEND**  
 MP - METER PIT  
 CS - CURB STOP  
 WV - WATER VALVE  
 FH - FIRE HYDRANT  
 DND - DO NOT DISTURB  
 ATG - ADJUST TO GRADE  
 TBA - TO BE ABANDONED  
 TBR - TO BE REMOVED  
 TBRL - TO BE RELOCATED



CALCULATED PEK  
 CHECKED CJM

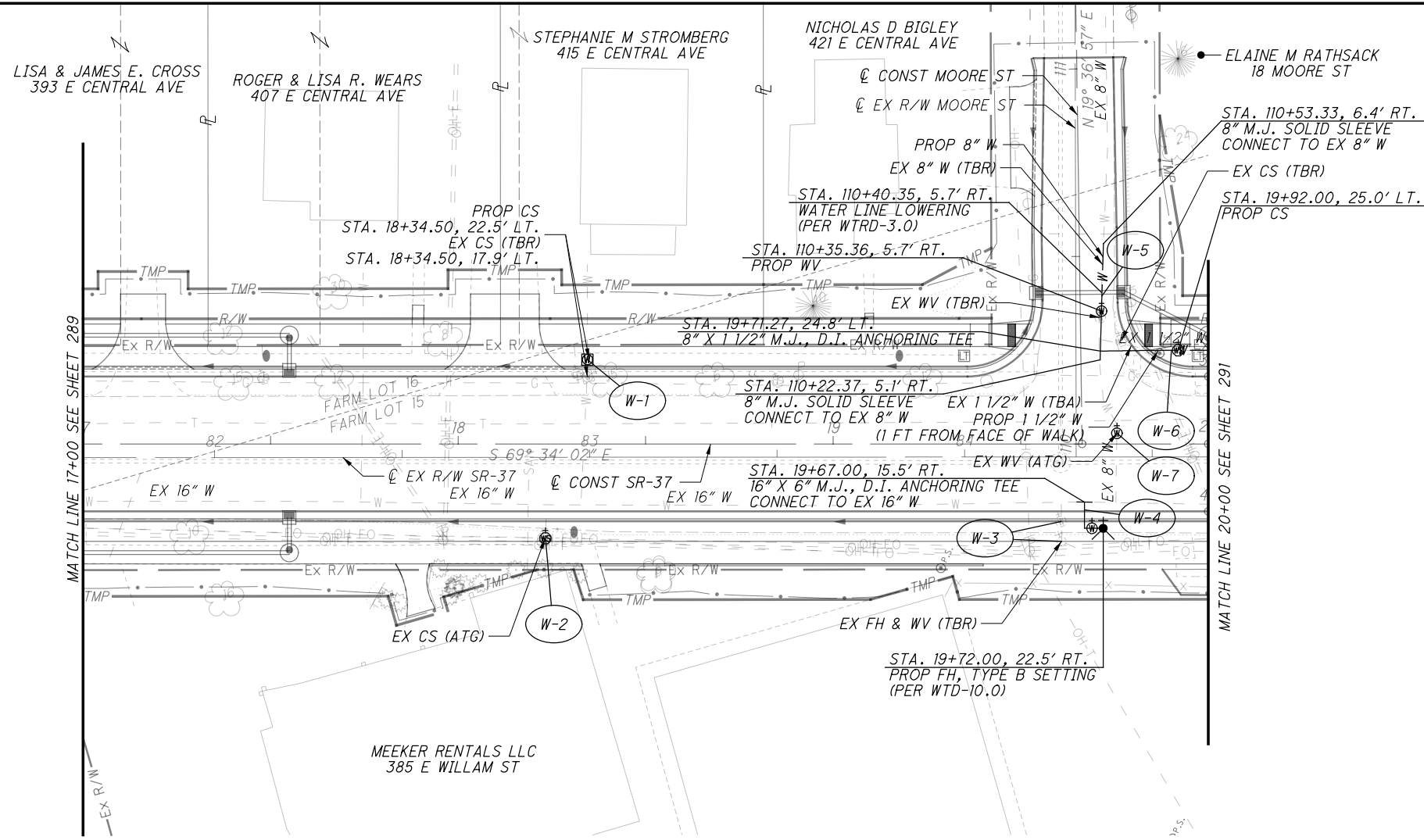
**WATER WORKS - SR-37**  
**STA 12+00 TO STA 17+00**

ALL WATERLINE LOWERINGS WILL BE IN ACCORDANCE WITH CITY OF DELAWARE STANDARD CONSTRUCTION DRAWING WTRD-3.0.

**DEL-36-11.03**

289  
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**LEGEND**  
 MP - METER PIT  
 CS - CURB STOP  
 WV - WATER VALVE  
 FH - FIRE HYDRANT  
 DND - DO NOT DISTURB  
 ATG - ADJUST TO GRADE  
 TBA - TO BE ABANDONED  
 TBR - TO BE REMOVED  
 TBRL - TO BE RELOCATED



CALCULATED PEK  
 CHECKED CJM

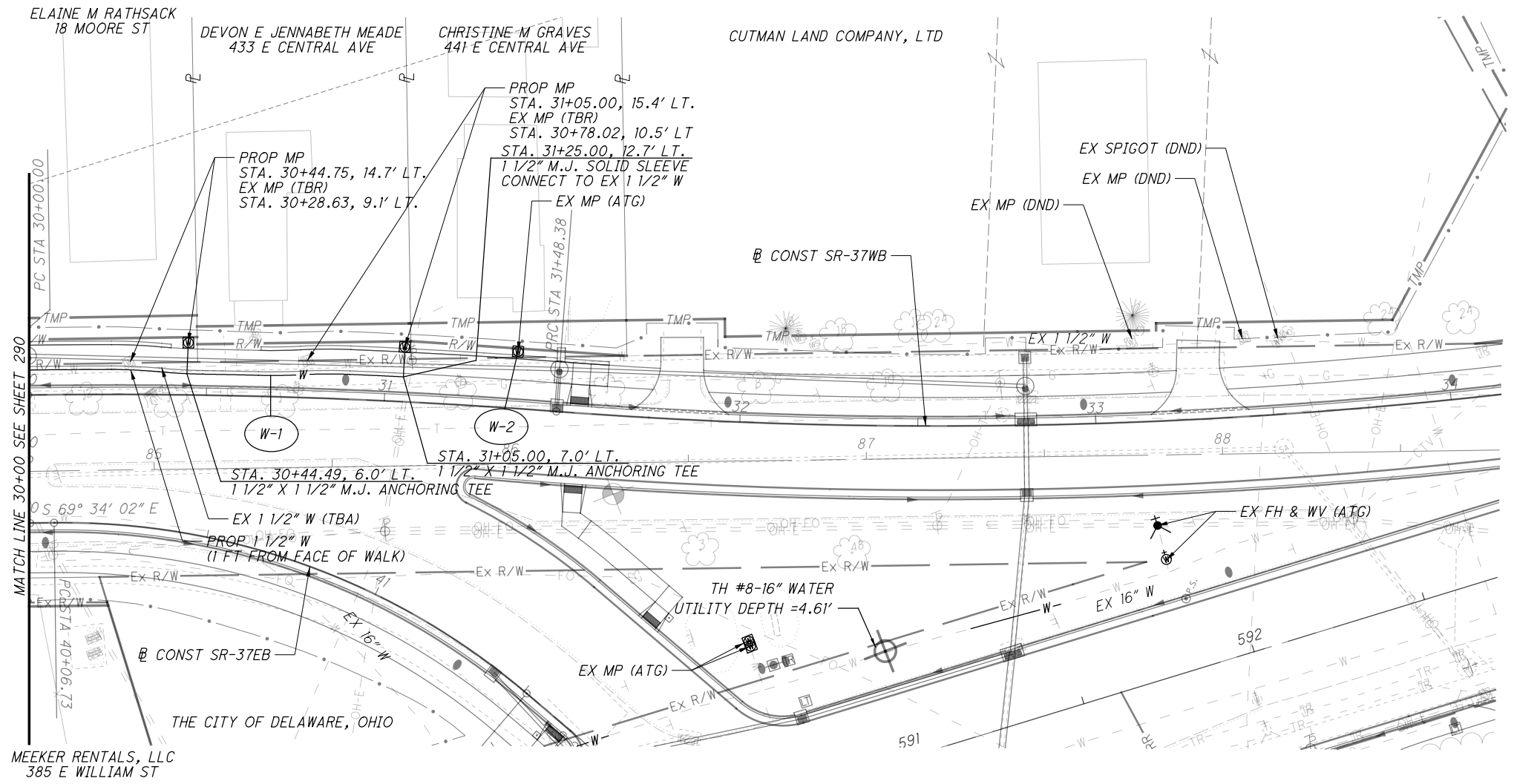
**WATER WORKS - SR-37**  
**SR-37 STA 17+00 TO STA 20+00.00**

ALL WATERLINE LOWERINGS WILL BE IN ACCORDANCE WITH CITY OF DELAWARE STANDARD CONSTRUCTION DRAWING WTRD-3.0.

**DEL-36-11.03**

290  
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**LEGEND**  
 MP - METER PIT  
 CS - CURB STOP  
 WV - WATER VALVE  
 FH - FIRE HYDRANT  
 DND - DO NOT DISTURB  
 ATG - ADJUST TO GRADE  
 TBA - TO BE ABANDONED  
 TBR - TO BE REMOVED  
 TBRL - TO BE RELOCATED



MEEKER RENTALS, LLC  
 385 E WILLIAM ST

ALL WATERLINE LOWERINGS WILL BE IN ACCORDANCE WITH CITY OF DELAWARE STANDARD CONSTRUCTION DRAWING WTRD-3.0.

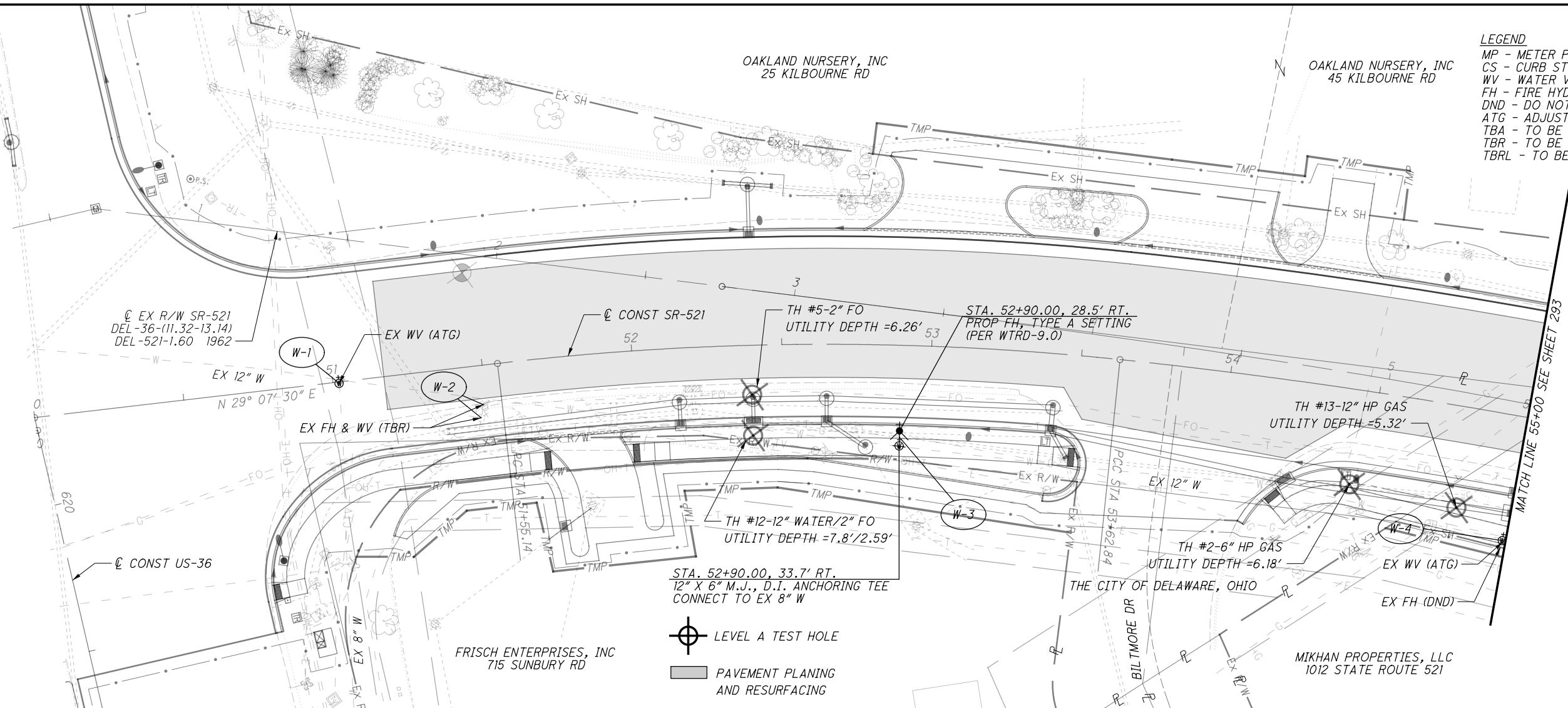
CALCULATED  
 PEK  
 CHECKED  
 CJM

0 20 40  
 HORIZONTAL  
 SCALE IN FEET

**WATER WORKS - SR-37 WB  
 STA 30+00 TO STA 34+00**

**DEL-36-11.03**

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**LEGEND**  
 MP - METER PIT  
 CS - CURB STOP  
 WV - WATER VALVE  
 FH - FIRE HYDRANT  
 DND - DO NOT DISTURB  
 ATG - ADJUST TO GRADE  
 TBA - TO BE ABANDONED  
 TBR - TO BE REMOVED  
 TBRL - TO BE RELOCATED

CALCULATED PEK CHECKED CJM

0 20 40  
 HORIZONTAL SCALE IN FEET

**WATER WORKS - SR-521  
 STA 50+00 TO STA 55+00**

⊕ LEVEL A TEST HOLE  
 ▒ PAVEMENT PLANING AND RESURFACING

ALL WATERLINE LOWERINGS WILL BE IN ACCORDANCE WITH CITY OF DELAWARE STANDARD CONSTRUCTION DRAWING WTRD-3.0.

**DEL-36-11.03**

292  
 644

OAKLAND NURSERY, INC  
45 KILBOURNE RD

HODA MOSTAFA  
BOWTOWN RD

MIKHAN PROPERTIES, LLC  
1012 STATE ROUTE 521

JIM GILL PROPERTIES, LLC

MATCH LINE 55+00 SEE SHEET 292

EX R/W SR-521  
DEL-36-(11.32-13.14)  
DEL-521-1.60 1962

CONST SR-521

EX 12" W

EX FH & WV (DND)

PAVEMENT PLANING  
AND RESURFACING

- LEGEND**
- MP - METER PIT
  - CS - CURB STOP
  - WV - WATER VALVE
  - FH - FIRE HYDRANT
  - DND - DO NOT DISTURB
  - ATG - ADJUST TO GRADE
  - TBA - TO BE ABANDONED
  - TBR - TO BE REMOVED
  - TBRL - TO BE RELOCATED

CALCULATED PEK CHECKED CJM

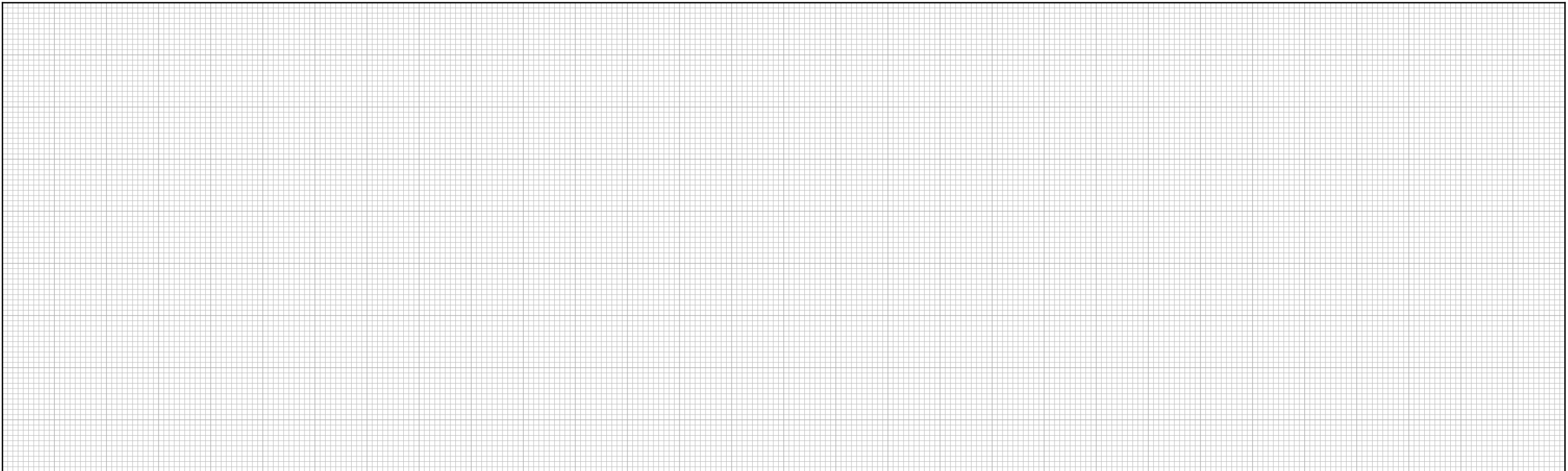
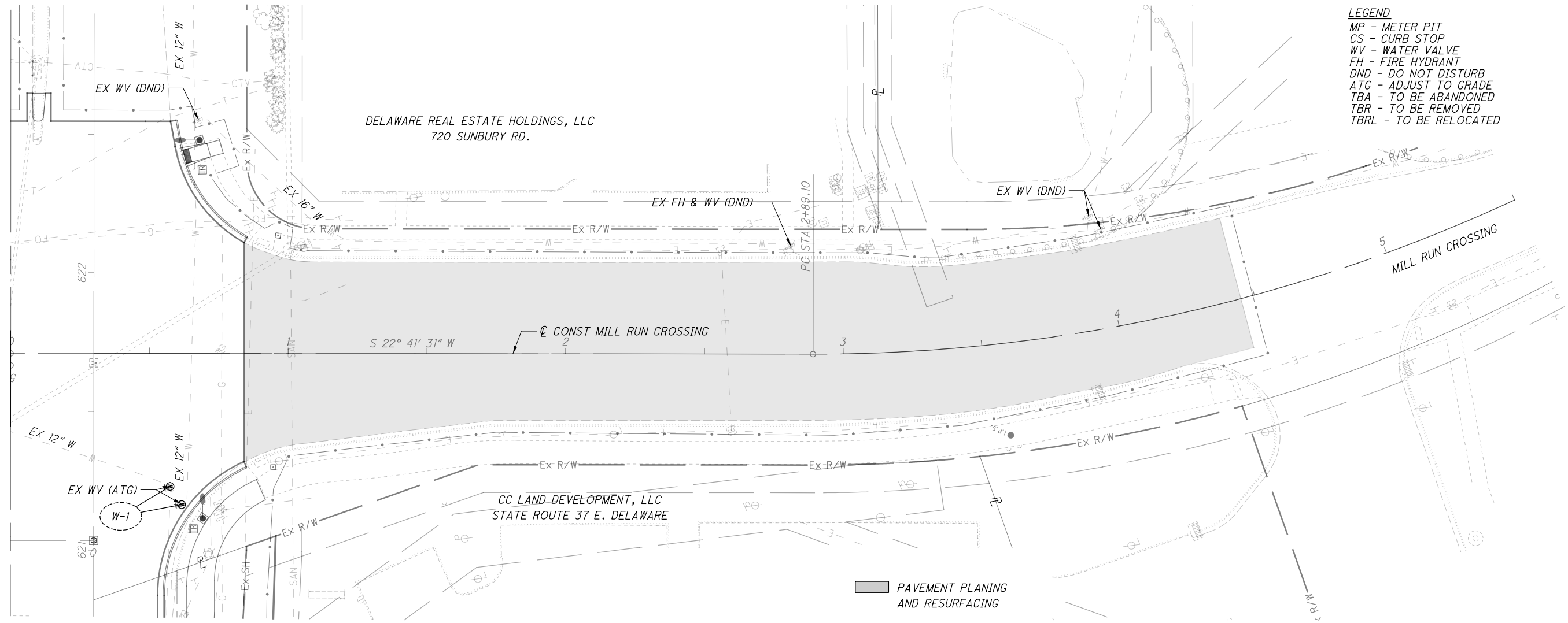
0 20 40  
HORIZONTAL SCALE IN FEET

**WATER WORKS - SR-521**  
**STA 55+00 TO STA 60+00**

**DEL-36-11.03**

293  
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LEGEND  
 MP - METER PIT  
 CS - CURB STOP  
 WV - WATER VALVE  
 FH - FIRE HYDRANT  
 DND - DO NOT DISTURB  
 ATG - ADJUST TO GRADE  
 TBA - TO BE ABANDONED  
 TBR - TO BE REMOVED  
 TBRL - TO BE RELOCATED

CALCULATED PEK  
 CHECKED CJM

**WATER WORKS - MILL RUN CROSSING**  
**STA 00+00 TO STA 5+50**

**DEL-36-11.03**



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SAS-1 ALL SANITARY SEWER SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS CONTAINED WITHIN THE MOST RECENT EDITION OF THE COC CMS, EXCEPT AS MODIFIED WITHIN THE CITY OF DELAWARE GENERAL NOTES, STANDARD DRAWINGS AND INFRASTRUCTURE DESIGN MANUAL. THE CONTRACTOR'S SPECIFIC ATTENTION IS DIRECTED TO THE REQUIREMENTS OF EITHER THE INFILTRATION OR EXFILTRATION AS SPECIFIED BY THE COC CMS SECTION 900. ALL SANITARY SEWERS, MANHOLES AND SERVICES SHALL BE TESTED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. ALL SANITARY SEWERS SHALL BE SUBJECT TO, AND PASS THE INFILTRATION OR EXFILTRATION TEST PRIOR TO ACCEPTANCE, INCLUDING VACUUM TESTING OF MANHOLES. AN AIR TEST IS ACCEPTABLE TO THE CITY. THIS AIR TEST SHALL BE PERFORMED ACCORDING TO THE CURRENT REGULATIONS.

SAS-2 CLEAN WATER CONNECTIONS INCLUDING ROOF DRAINS, FOUNDATION DRAINS, SUMPS, ETC. ARE PROHIBITED FROM BEING CONNECTED TO THE SANITARY SEWER SYSTEM.

SAS-3 THE MINIMUM REQUIREMENT FOR SANITARY SEWER PIPE SHALL BE ASTM D3034 POLYVINYL CHLORIDE (PVC) SEWER PIPE, 46 PSI PIPE STIFFNESS (SDR35), ASTM C1784 CELL CLASSIFICATION OF 12454 OR 12364, WITH ASTM D3212 PIPE JOINTS; ASTM F679 PVC SEWER PIPE, 46 PSI PIPE STIFFNESS, ASTM CELL CLASSIFICATION 12454 OR 12364, WITH ASTM D3212 PIPE JOINTS; OR CENTRIFUGALLY CAST FIBERGLASS REINFORCED POLYMER CEMENT (CCFRPM) PIPE, ASTM D3262-TYPE 1, LINER 2, GRADE 3, STIFFNESS 72 PSI, UNLESS OTHERWISE SHOWN ON THE PLANS. PVC PIPE FOR INSTALLATIONS WITH A DEPTH OF COVER OF GREATER THAN 20- FEET SHALL BE THE SAME AS SPECIFIED ABOVE EXCEPT WITH A PIPE STIFFNESS OF 115 PSI (SDR26) FOR ASTM D3034 AND A PIPE STIFFNESS OF 115 PSI FOR ASTM F679. PIPE MANUFACTURERS MUST BE ON THE CURRENT COC APPROVED LIST, AND REQUIRE THE ADDITIONAL APPROVAL OF THE CITY PUBLIC UTILITIES DEPARTMENT DIRECTOR.

SAS-4 SANITARY SEWER SERVICES SHALL BE PVC PIPE WITH THE SAME SPECIFICATION AS THE SEWER MAIN AND SHALL BE 6-INCH DIAMETER, UNLESS APPROVED OTHERWISE. THE SERVICES ARE SUBJECT TO EITHER THE INFILTRATION OR EXFILTRATION TESTING REQUIREMENTS. ALL SERVICE EXTENSIONS SHALL BE INSTALLED AT A MINIMUM GRADE OF 1/4" PER FOOT AND SHALL BE CONSTRUCTED AT THE TIME OF CONSTRUCTION OF THE MAIN SEWER, UNLESS OTHERWISE DIRECTED BY THE CITY.

SAS-5 ALL PVC PIPE SHALL BE DEFLECTION TESTED THIRTY DAYS OR MORE AFTER THE TRENCH HAS BEEN BACKFILLED TO FINISHED GRADE. A RIGID MANDREL SHALL BE USED FOR THE TESTING. NO MECHANICAL PULLING DEVICES SHALL BE USED. PIPE DEFLECTION SHALL NOT EXCEED FIVE 5%.

SAS-6 CLAY DAMS ARE TO BE INSTALLED ALONG MAIN LINE SEWERS AT HALF THE DISTANCE BETWEEN EACH PAIR OF MANHOLES, BUT NO CLOSER THAN 10'-0" FROM A LATERAL SERVICE. DAMS SHALL BE A MINIMUM OF 6'-0" LONG.

SAS-7 PUBLIC SANITARY MANHOLE COVERS ARE TO BE EAST JORDAN IRON WORKS NO. 1661-A2, NEENAH FOUNDRY OR EQUIVALENT, WITH ENCLOSED PICK HOLES AND EMBOSSED "CITY OF DELAWARE SANITARY SEWER". PRIVATE MANHOLE COVERS SHALL BE EMBOSSED "PRIVATE SEWER".

SAS-8 6'-0" LONG CLAY (TRENCH) DAMS ARE TO BE INSTALLED ON ALL SANITARY LATERALS (BOTH LONG AND SHORT LATERALS). DAMS ARE TO BE INSTALLED BY THE CONTRACTOR INITIALLY INSTALLING THE LATERALS. NO PART OF THE CLAY DAM SHALL BE INSTALLED WITHIN THE TRENCH BACKFILL FOR THE SEWER MAIN OR UNDER THE ROADWAY PAVEMENT.

SAS-9 ALL SANITARY MANHOLES AND LATERAL SERVICES ARE TO BE MARKED WITH A 4"x4"x10'-0" PRESSURE TREATED WOOD WYE-POLE PROJECTING 4'-0 ABOVE THE FINISHED GRADE AND WITH THE TOP 1'-0 PAINTED GREEN ON FOUR SIDES. ADDITIONALLY A 2"x2" HARDWOOD WYE POLE IS TO BE WIRED TO THE BASE OF EACH 4"x4" POLE AND EXTENDED DOWN TO THE END OF EACH LATERAL SERVICE. COST TO BE INCLUDED IN THE VARIOUS ITEMS. INDIVIDUAL LATERAL SERVICE WYE-POLES ARE TO BE INSTALLED AS EACH LATERAL IS CONSTRUCTED.

SAS-10 WHERE THE COVER TO FINISHED GRADE OVER A SANITARY WYE IS IN EXCESS OF 12'-0, A LENGTH OF RISER PIPE AND A 45°BEND SHALL BE INSTALLED ALONG WITH A MINIMUM OF ONE WHOLE LENGTH OF 6" PIPE SUCH THAT THE END OF THE SERVICE WILL BE 10'-0 BELOW GRADE.

SAS-11 WHERE THE SANITARY SEWER CROSSES UNDER A PROPOSED STORM SEWER OR WATERLINE THE TRENCH SHALL BE BACKFILLED TO THE BOTTOM OF THE PROPOSED STORM SEWER OR WATERLINE WITH COMPACTED GRANULAR MATERIAL ITEM 912, FOR A LENGTH OF 10 LF CENTERED ON THE STORM SEWER OR WATERLINE.

SAS-12 PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY EXISTING TIE-IN MANHOLE FLOWLINE AND TOP-OF-CASTING ELEVATIONS. MANHOLES SHALL BE BUILT OR ADJUSTED SO THE TOPS CONFORM TO THE ELEVATIONS SHOWN ON THESE PLANS. ALL MANHOLE CASTING ADJUSTMENTS SHALL BE ACCOMPLISHED WITH PRE-CAST CONCRETE OR HDPE PREFORMED ADJUSTMENT RINGS.

SAS-13 ALL SANITARY LINES SHALL BE INSTALLED WITH STONE OR GRAVEL BEDDING AS SHOWN IN THE STANDARD DRAWINGS.

SAS-14 SANITARY TRENCH DETAILS SHALL BE IN ACCORDANCE WITH CITY STANDARD DRAWINGS.

SAS-15 TEMPORARY BULKHEADS SHALL BE PLACED WHERE INDICATED ON THE PLANS AND SHALL REMAIN IN PLACE UNTIL REMOVAL IS DIRECTED BY THE CITY.

SAS-16 SANITARY LATERALS TO ADJACENT LOTS SHALL BE INSTALLED IN A 4'-0 WIDE COMMON TRENCH, SPACED WITH 2' -0 CENTER TO CENTER SEPARATION, AND WITH 1'-0 MINIMUM BEDDING AROUND PIPES. THE ENDS OF THE SERVICES ARE TO BE FLARED APART TO A MINIMUM 10'-0 CENTER TO CENTER SEPARATION AT 5'-0" OUTSIDE THE RIGHT OF WAY LINE.

SAS-17 ALL SANITARY SEWER MANHOLES JOINTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C443. ALL MANHOLES SHALL HAVE WRAPIDSEAL MANHOLE ENCAPSULATION SYSTEM OR AN APPROVED EQUAL INSTALLED. THE ENCAPSULATION SHALL INCLUDE THE FRAME AND THE TOP OF THE CONE ONLY.

SAS-18 ALL SANITARY SEWERS ARE TO BE VIDEO INSPECTED 3 MONTHS BEFORE THE EXPIRATION OF THE MAINTENANCE BOND. ALL MUD AND DEBRIS SHALL BE REMOVED PRIOR TO THE MAINTENANCE BOND BEING RETURNED.

SAS-19 SHOP DRAWINGS ARE REQUIRED FOR BE SUBMITTED FOR REVIEW AND APPROVAL PER THE CITY OF COLUMBUS CMS PRIOR TO THE COMMENCEMENT OF ORDERING MATERIALS/CONSTRUCTION, THIS INCLUDES BUT IS NOT LIMITED TO, ALL SANITARY STRUCTURES, PIPE, FITTINGS, MANHOLE ENCAPSULATION SYSTEM, FRAMES, GRATES, AND COVERS. ADDITIONAL SHOP DRAWINGS SHALL BE PROVIDED AS REQUESTED BY THE CITY OF DELAWARE.

ITEM 202 - MANHOLE REMOVED, AS PER PLAN THIS ITEM SHALL CONSIST OF REMOVING THE CASTING AND TOP TWO FEET OF THE STRUCTURE THEN FILLING AND BURYING THE REMAINING STRUCTURE.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR EACH, ITEM 202 MANHOLE REMOVED, AS PER PLAN.

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CITY OF DELAWARE SANITARY SEWER NOTES

DEL -36 -11.03

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**INSIDE DROP (HALF SECTION)**

**OUTSIDE DROP (HALF SECTION)**

**NOTES:**

- DROP IS REQUIRED WHEN INVERT DIFFERENTIAL IS 24" OR GREATER.
- HEIGHT OF DROP PIPE IS TO BE AS SHOWN ON THE PLANS OR WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.
- ALL WORK AND MATERIALS REQUIRED TO CONSTRUCT THE INSIDE OR OUTSIDE DROP SHOULD BE INCLUDED FOR PAYMENT UNDER ITEM 604, MANHOLES, OR ITEM 901, PIPE SEWERS COMPLETE IN PLACE.
- WHERE CALLED FOR, AND UNLESS OTHERWISE REQUIRED BY THE PLANS, THE OUTSIDE DROP WILL BE CONSTRUCTED WITH NEW MANHOLES.
- MATERIALS FOR THE TEE, DROP PIPE AND BEND SHALL BE OF ONE TYPE AND BE ONE OF THE FOLLOWING - INSIDE DROP: DUCTILE IRON OR PVC. OUTSIDE DROP: DUCTILE IRON OR PVC.
- OUTSIDE DROP PIPES REQUIRE A 5" THICK (MINIMUM) CLASS "C" CONCRETE ENCASUREMENT ON THREE SIDES OF PIPE AND TIED TO MANHOLE WALL WITH 5/8"-U" RODS X 6" LONG @ 12".
- INSIDE DROP MAY BE USED ON NEW CONSTRUCTION PROVIDED THAT 60" BASE AND RISER SECTIONS ARE USED.
- IN LIEU OF A TEE FITTING FOR INSIDE DROPS, DROP BOWL AND HOOD ASSEMBLY BY DURAN-RELINER OR APPROVED EQUAL MAY BE UTILIZED IN CONJUNCTION WITH A FLEXIBLE WATERTIGHT CONNECTION FOR THE INCOMING SEWER.

| PIPE DIAMETER |     |
|---------------|-----|
| D1            | D2  |
| 8"            | 8"  |
| 10"           | 8"  |
| 12"           | 8"  |
| 15"           | 10" |
| 18"           | 10" |
| 21"           | 10" |
| 24"           | 12" |

**DEL AWARE** PUBLIC WORKS DEPARTMENT  
 STANDARD DETAIL: INSIDE & OUTSIDE DROP PIPES FOR SANITARY SEWER MANHOLES  
 UTILITIES: SEWD-3.0  
 Rev. 12/31/2018

**MINIMUM DEPTH OF SANITARY SEWER SERVICE**

**NOTE:** THE DEPTH OF BURY FOR THE SANITARY SERVICE WILL INCREASE FOR BASEMENTS WITH GREATER DEPTH THAN SHOWN. PROVIDE CLEARANCE BELOW FOOTER AS SHOWN FOR DEEPER BASEMENTS.

**DEL AWARE** PUBLIC WORKS DEPARTMENT  
 STANDARD DETAIL: MINIMUM DEPTH OF SANITARY SEWER SERVICE  
 UTILITIES: SEWD-18.0  
 Rev. 12/31/2018

**COVER SECTION**

**PICKHOLE DETAIL**

**GROOVE DETAIL**

**SECTION A-A**

**SECTION B-B**

**FRAME**

**NOTE:**

- DIMENSIONS SHOWN ARE EQUIVALENT DECIMALS OF 1/8" INCH FRACTIONAL SIZES. TOLERANCES SHALL BE ACCEPTED FOUNDRY STANDARDS AS OUTLINED IN THE IRON CASTINGS HANDBOOK PUBLISHED BY THE AMERICAN CAST METALS INSTITUTE. ALL CASTINGS SHALL MEET THE REQUIREMENTS OF 604.02.
- COVERS SHALL BE EAST JORDAN IRON WORKS EJ 1020 AGS, NEENAH R-1530, OR APPROVED EQUAL.
- FRAMES SHALL BE EAST JORDAN IRON WORKS EJ 1030 2A, NEENAH R-1530, OR APPROVED EQUAL.

| DIA | Wn  | L   |
|-----|-----|-----|
| 6"  | 30" | 12" |
| 8"  | 30" | 12" |
| 10" | 30" | 12" |
| 12" | 32" | 12" |
| 15" | 36" | 12" |
| 18" | 40" | 12" |
| 21" | 44" | 12" |
| 24" | 48" | 12" |
| 27" | 52" | 12" |
| 30" | 56" | 15" |
| 36" | 64" | 18" |
| 42" | 72" | 21" |
| 48" | 80" | 24" |
| 60" | 96" | 30" |

**DEL AWARE** PUBLIC WORKS DEPARTMENT  
 STANDARD DETAIL: MANHOLE FRAME & COVER CASTINGS (SANITARY SEWERS)  
 UTILITIES: SEWD-4.0  
 Rev. 12/31/2018

**CLEANOUT (OPTIONAL)**

**ALLOWABLE CONNECTION - SANITARY HOUSE CONNECTION TO BUILDING WASTE LINE OF DIFFERING MATERIAL**

**ALLOWABLE CONNECTION - SANITARY HOUSE CONNECTION TO BUILDING WASTE LINE OF SAME MATERIAL**

**NOTE:**

- WHEN MAKING CONNECTION TO EXISTING BUILDING WASTE LINE OF A DIFFERENT MATERIAL, UTILIZE FLEXIBLE COUPLINGS, FERROCO SERIES 1000 OR APPROVED EQUAL.
- WHEN MAKING CONNECTION TO EXISTING BUILDING WASTE LINE OF THE SAME MATERIAL (I.E. PVC TO PVC), UTILIZE SOLID SLEEVE COUPLING.

**DEL AWARE** PUBLIC WORKS DEPARTMENT  
 STANDARD DETAIL: TYPICAL SANITARY HOUSE CONNECTION SERVICE  
 UTILITIES: SEWD-20.0  
 Rev. 12/31/2018

**SECTION WITH ENCASEMENT**

**SECTION WITH BEDDING MATERIAL**

**NOTE:**

- SECTION SYMMETRICAL ABOUT C/L
- DIMENSIONS ARE EXPRESSED IN INCHES.
- ENCASEMENTS TO BE CLASS "A" CONCRETE, ITEM 905.
- ON SANITARY SEWER CONSTRUCTION TRENCH DAMS ARE REQUIRED AS SPECIFIED UNDER 901.11
- PROVIDE EMBEDMENT IN ACCORDANCE WITH THE RECOMMENDATIONS OF ASTM D2321, 7.5.
- THE PIPE SHALL BE SUPPORTED BY 12" CONCRETE BLOCKING WHEN CONCRETE ENCASEMENT IS REQUIRED.
- BLOCKING SHALL HAVE THE LENGTH SHOWN IN THE CHART OR OF SUFFICIENT LENGTH SO THAT THE PIPE LOAD ON THE SUBGRADE SHALL NOT EXCEED 3,000 LBS/SF. SEE CHART FOR MINIMUM BLOCKING LENGTHS.

| DIA | Wn  | L   |
|-----|-----|-----|
| 6"  | 30" | 12" |
| 8"  | 30" | 12" |
| 10" | 30" | 12" |
| 12" | 32" | 12" |
| 15" | 36" | 12" |
| 18" | 40" | 12" |
| 21" | 44" | 12" |
| 24" | 48" | 12" |
| 27" | 52" | 12" |
| 30" | 56" | 15" |
| 36" | 64" | 18" |
| 42" | 72" | 21" |
| 48" | 80" | 24" |
| 60" | 96" | 30" |

**DEL AWARE** PUBLIC WORKS DEPARTMENT  
 STANDARD DETAIL: TYPE 1 BEDDING  
 FOR FLEXIBLE SEWER PIPE 6-INCHES TO 60 INCHES IN DIAMETER  
 UTILITIES: SEWD-12.0  
 Rev. 12/31/2018

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CITY OF DELAWARE SANITARY SEWER DRAWINGS

DEL-36-11.03

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| REF NO.                           | SHEET NO. | STATION |           |    |           | SIDE | 202                         |                 | 202                          |                             | 202                         |                | 611                       |  | 611 |  | 611 |  | 611 |   |  |  |
|-----------------------------------|-----------|---------|-----------|----|-----------|------|-----------------------------|-----------------|------------------------------|-----------------------------|-----------------------------|----------------|---------------------------|--|-----|--|-----|--|-----|---|--|--|
|                                   |           | FROM    | TO        |    |           |      | PIPE REMOVED, 24" AND UNDER | MANHOLE REMOVED | MANHOLE REMOVED, AS PER PLAN | 8" CONDUIT, TYPE B (748.02) | 8" CONDUIT, TYPE C (748.02) | MANHOLE, NO. 3 | MANHOLE ADJUSTED TO GRADE |  |     |  |     |  |     |   |  |  |
|                                   |           |         |           |    |           | FT   | EACH                        | EACH            | FT                           | FT                          | EACH                        | EACH           |                           |  |     |  |     |  |     |   |  |  |
| RS-1                              | 298       | 36      | 594+94.90 | 36 | 595+01.20 | RT   | 26                          | 1               |                              |                             |                             |                |                           |  |     |  |     |  |     |   |  |  |
| RS-2                              | 298       | 36      | 597+85.40 |    |           | RT   |                             | 1               |                              |                             |                             |                |                           |  |     |  |     |  |     |   |  |  |
| RS-3                              | 298       | 36      | 595+27.70 | 36 | 595+34.80 | LT   | 14                          |                 |                              |                             |                             |                |                           |  |     |  |     |  |     |   |  |  |
| SA-1                              | 299       | 36      | 601+94.50 | 36 | 597+83.30 | RT   |                             |                 | 412                          |                             | 1                           |                |                           |  |     |  |     |  |     |   |  |  |
| SA-2                              | 298       | 36      | 597+83.30 | 36 | 596+36.50 | RT   |                             |                 | 153                          |                             | 1                           |                |                           |  |     |  |     |  |     |   |  |  |
| SA-3                              | 298       | 36      | 596+36.50 | 36 | 595+03.00 | RT   |                             |                 | 126                          |                             | 1                           |                |                           |  |     |  |     |  |     |   |  |  |
| SA-4                              | 298       | 36      | 595+08.80 | 36 | 595+03.00 | RT   |                             |                 | 18                           |                             | 1                           |                |                           |  |     |  |     |  |     |   |  |  |
| SA-5                              | 298       | 36      | 595+03.00 | 36 | 594+10.00 | RT   |                             |                 | 91                           |                             | 1                           |                |                           |  |     |  |     |  |     |   |  |  |
| SA-6                              | 298       | 36      | 596+61.70 | 36 | 595+34.30 | LT   | 8                           |                 |                              | 143                         | 1                           |                |                           |  |     |  |     |  |     |   |  |  |
| SA-7                              | 298       | 36      | 595+34.30 | 36 | 595+31.80 | LT   |                             |                 | 29                           |                             | 1                           |                |                           |  |     |  |     |  |     |   |  |  |
| SA-8                              | 298       | 36      | 595+31.80 | 36 | 595+27.70 | LT   | 8                           |                 | 8                            |                             | 1                           |                |                           |  |     |  |     |  |     |   |  |  |
| SA-9                              | 152       | 36      | 592+55.80 |    |           | RT   |                             |                 |                              |                             |                             |                |                           |  |     |  |     |  |     | 1 |  |  |
| SA-10                             | 152       | 37      | 33+52.20  |    |           | RT   |                             |                 |                              |                             |                             |                |                           |  |     |  |     |  |     | 1 |  |  |
| SA-11                             | 154       | 36      | 601+94.50 |    |           | RT   |                             |                 |                              |                             |                             |                |                           |  |     |  |     |  |     | 1 |  |  |
| SA-12                             | 154       | 36      | 602+69.10 |    |           | RT   |                             |                 |                              |                             |                             |                |                           |  |     |  |     |  |     | 1 |  |  |
| SA-13                             | 154       | 36      | 602+82.0  |    |           | LT   |                             |                 |                              |                             | 1                           |                |                           |  |     |  |     |  |     |   |  |  |
| SA-14                             | 159       | 37      | 15+75.40  |    |           | RT   |                             |                 |                              |                             |                             |                |                           |  |     |  |     |  |     | 1 |  |  |
| SA-15                             | 160       | 37      | 19+61     |    |           | RT   |                             |                 |                              |                             |                             |                |                           |  |     |  |     |  |     | 1 |  |  |
| SA-16                             | 156       | 36      | 611+90.30 |    |           | LT   |                             |                 |                              |                             |                             |                |                           |  |     |  |     |  |     | 1 |  |  |
| SA-17                             | 164       | 521     | 54+69.10  |    |           | LT   |                             |                 |                              |                             |                             |                |                           |  |     |  |     |  |     | 1 |  |  |
| SA-18                             | 166       | BOW     | 70+43.60  |    |           | LT   |                             |                 |                              |                             |                             |                |                           |  |     |  |     |  |     | 1 |  |  |
| SUBTOTAL                          |           |         |           |    |           |      | 56                          | 2               | 2                            | 837                         | 143                         | 8              | 8                         |  |     |  |     |  |     |   |  |  |
| TOTALS CARRIED TO GENERAL SUMMARY |           |         |           |    |           |      | 56                          | 2               | 2                            | 837                         | 143                         | 8              | 8                         |  |     |  |     |  |     |   |  |  |

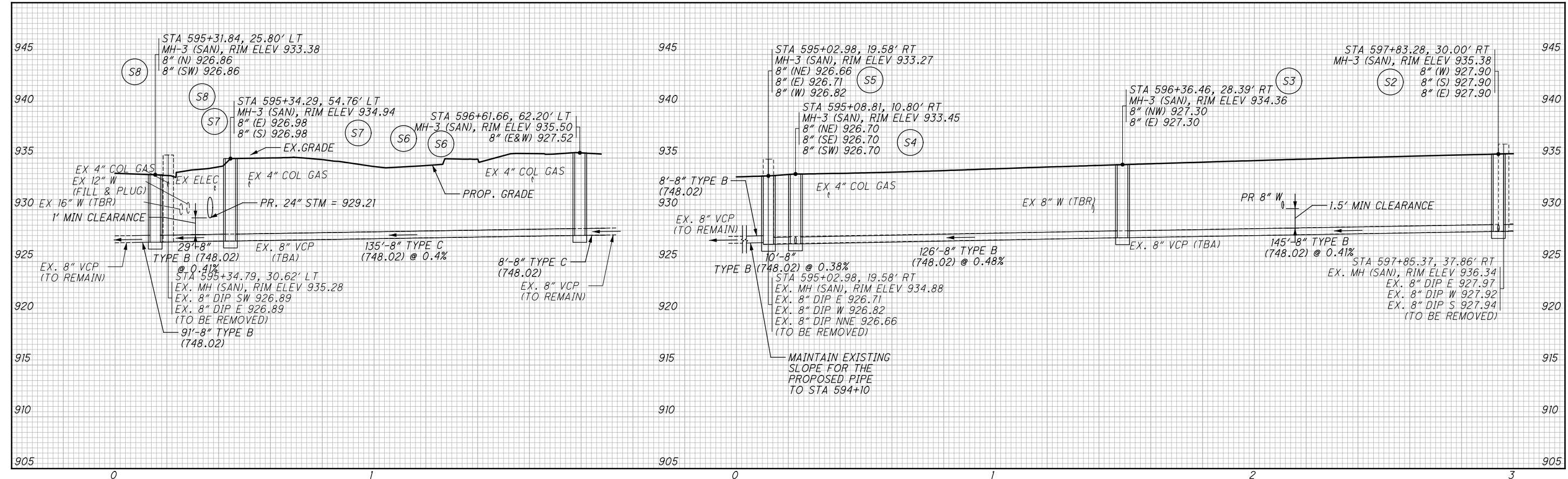
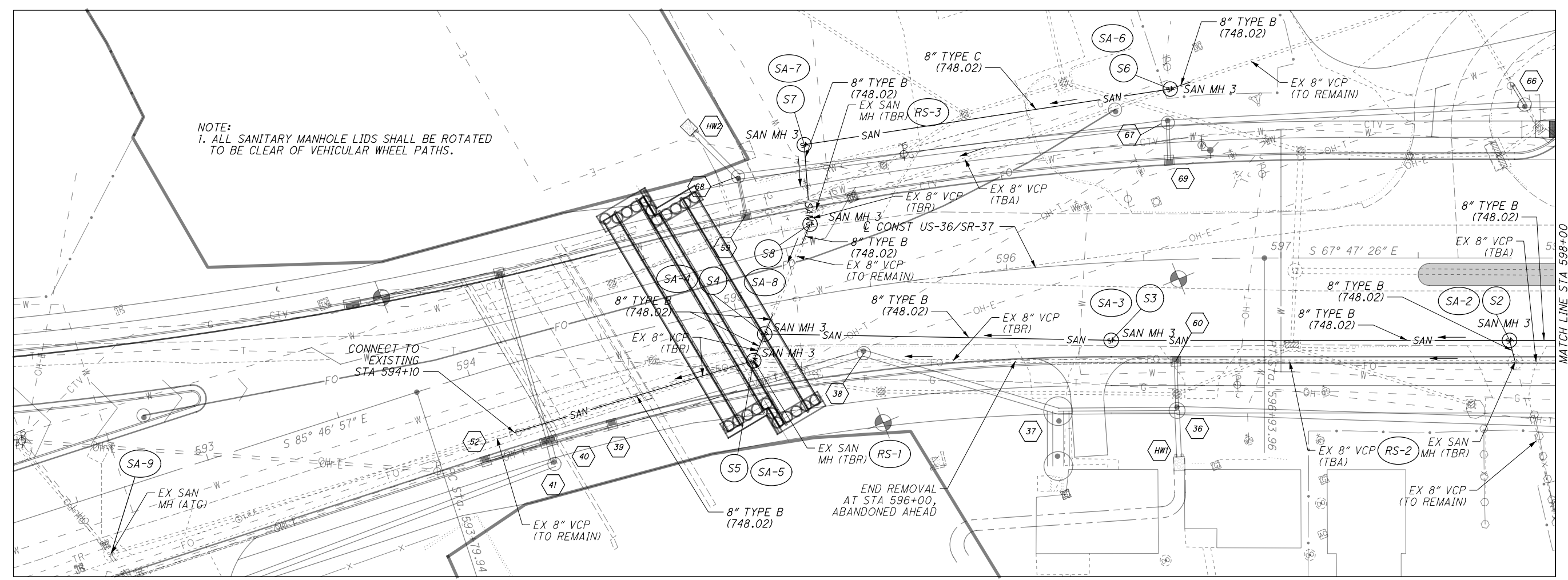


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**SANITARY PLAN AND PROFILE**  
**STA 593+00 TO STA 598+00**

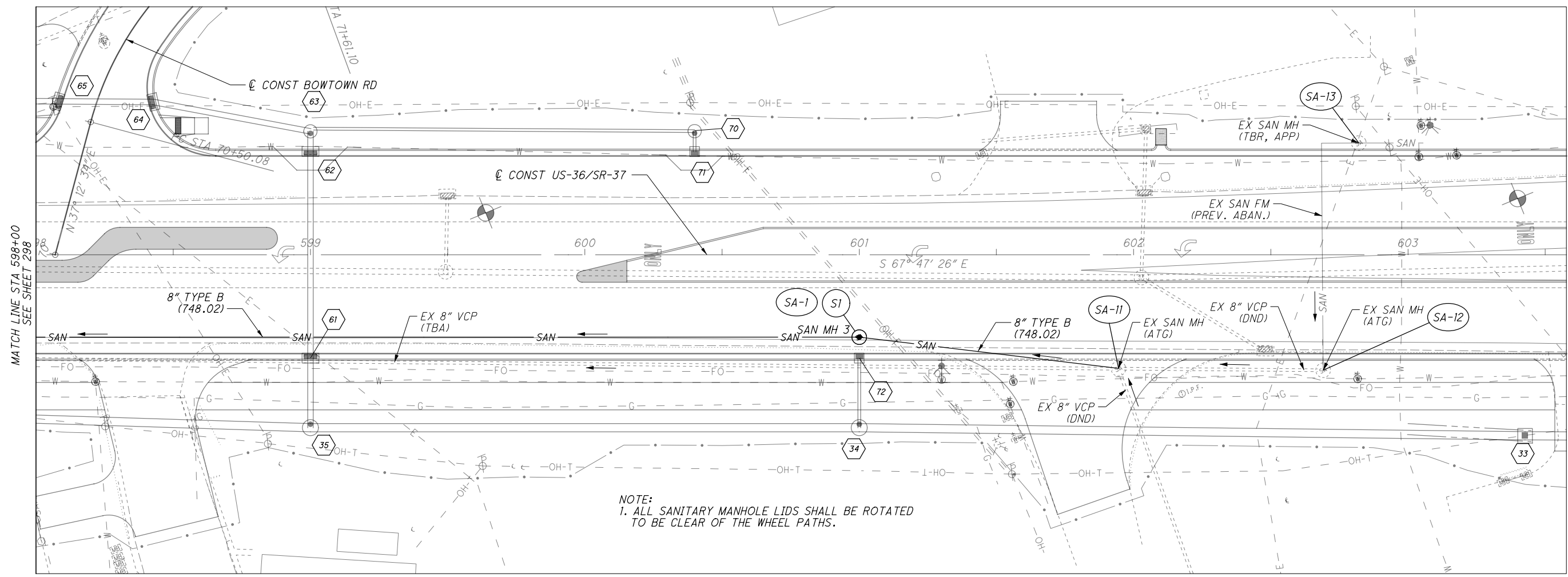
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NOTE:  
1. ALL SANITARY MANHOLE LIDS SHALL BE ROTATED TO BE CLEAR OF VEHICULAR WHEEL PATHS.

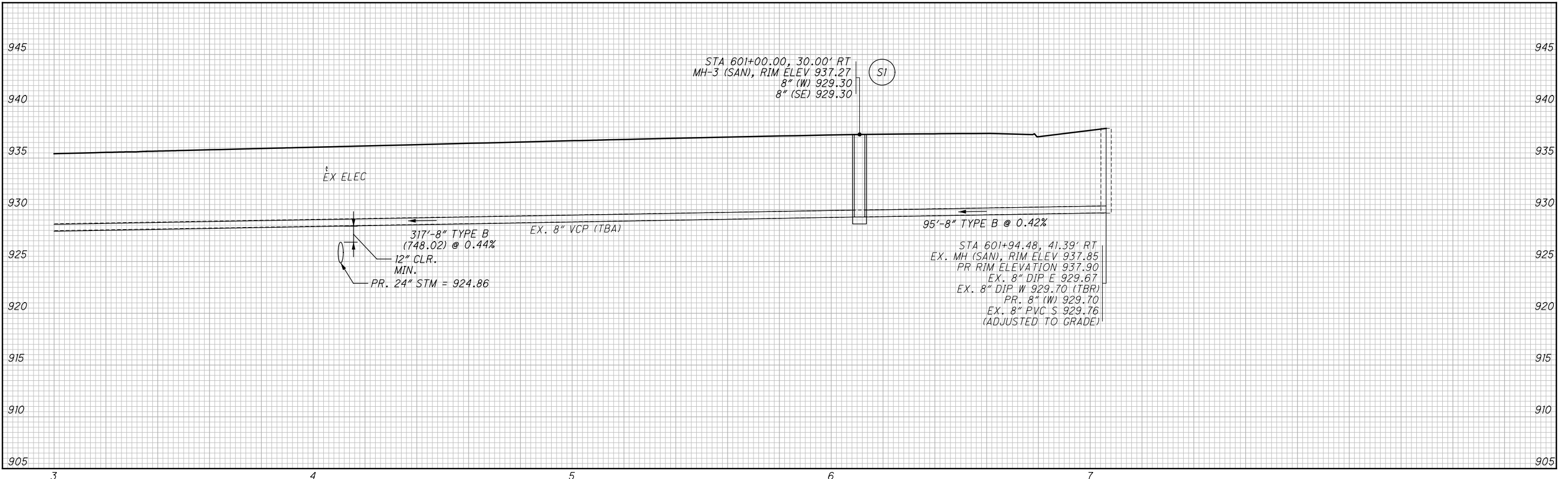


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NOTE:  
1. ALL SANITARY MANHOLE LIDS SHALL BE ROTATED TO BE CLEAR OF THE WHEEL PATHS.



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**SANITARY PLAN AND PROFILE**  
**STA 598+00 TO STA 603+00**

**DEL-36-11.03**

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**GRADING PLAN - US-36 / SR-37  
PARCEL 8**

**DEL-36-11.03**

300  
644

**621 RAISED PAVEMENT MARKERS**

INSTALL RAISED PAVEMENT MARKERS ACCORDING TO STANDARD CONSTRUCTION DRAWINGS TC-65.10 AND TC-65.11.

RAISED PAVEMENT MARKERS SHALL BE FROM ODOT'S QPL.

**644 PAVEMENT MARKING, MISC.: (BY TYPE AND WIDTH)**

STRIPING SHALL BE AS PER ITEM 644 EXCEPT THAT THE STRIPING LINE AND WIDTH SHALL BE AS DESIGNATED IN THE ITEM DESCRIPTION.

**630 SIGNING MISC.: PORTABLE CHANGEABLE MESSAGE SIGN**

THIS WORK SHALL CONFORM WITH ITEM 614 PORTABLE CHANGEABLE MESSAGE SIGN EXCEPT AS NOTED AS FOLLOWS:

1. THE SIGN IS NOT FOR USE DURING CONSTRUCTION AND SHALL BE DELIVERED TO CITY FOR SEMI-PERMANENT USE AT THE LOCATION SHOWN ON THE PLANS APPROXIMATE STA. 611+50, LEFT.
2. THE DELIVERY LOCATION IS  
DELAWARE PUBLIC WORKS DEPARTMENT  
440 E. WILLIAM STREET  
DELAWARE, OHIO 43015.
3. ALL SIGN SUPPORTS, TRAILER AND OTHER COMPONENTS SHALL BE PAINTED, POWDER COATED BLACK, 37031.
4. THE SIGN SHALL BE TESTED ON SITE BEFORE ACCEPTANCE AND PAYMENT.

ALL COSTS INCLUDING BUT NOT LIMITED TO MATERIALS, DELIVERY, AND ON-SITE TESTING SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 630 SIGN MISC.: PORTABLE CHANGEABLE MESSAGE SIGN PER EACH.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE TRAFFIC SIGNING SUBSUMMARY SHEET, 302, ITEM 630 SIGNING MISC.: PORTABLE CHANGEABLE MESSAGE SIGN 1 EACH

**631 SIGN LIGHTING MISC.: RECTANGULAR RAPID-FLASHING BEACONS**

THIS WORK SHALL CONFORM WITH ITEM 630 TRAFFIC SIGNS AND SIGN SUPPORTS AND ITEM 631 SIGN LIGHTING AND ELECTRICAL SIGNS EXCEPT AS NOTED AS FOLLOWS:

1. THE SIGN IS FOR THE RECTANGULAR RAPID FLASHING BEACONS AT THE LOCATIONS SHOWN ON PLAN.
2. THE BEACONS SHALL BE TAPCO RRFB PEDESTRIAN CROSSWALK SYSTEM OR APPROVED EQUAL CONSISTING OF:
  - A. LED-ENHANCED WARNING ALERT (RECTANGULAR RAPID FLASHING BEACONS)- SINGLE AND DOUBLE SIDED AS SHOWN ON THE PLAN.
  - B. BULLDOG PUSH BUTTON - TOUCH ACTIVATED, TWO TONE AUDIBLE ACTIVATION CONFIRMATION AND LED VISUAL CONFIRMATION.

ALL COSTS INCLUDING BUT NOT LIMITED TO MATERIALS, DELIVERY, INSTALLATION AND ON-SITE TESTING SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 631 SIGN MISC.: RECTANGULAR RAPID-FLASHING BEACONS PER EACH.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO TRAFFIC SIGNING SUBSUMMARY SHEET, 302, ITEM 631 SIGNING MISC.:RECTANGULAR RAPID-FLASHING BEACONS 12 EACH (SINGLE SIDED-4, DOUBLE SIDED -8)

**630 OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12, AS PER PLAN**

THIS WORK SHALL CONFORM WITH ITEM 630 OVERHEAD SIGN SUPPORT EXCEPT AS NOTED AS FOLLOWS:

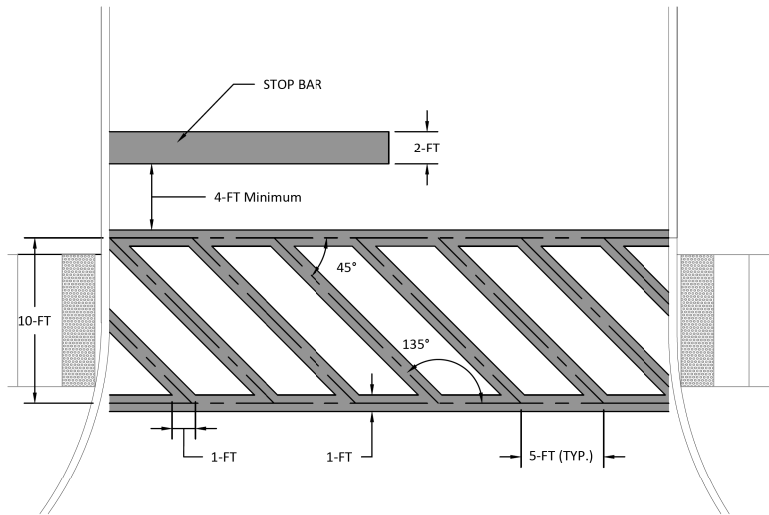
1. THE CANTILEVER ARM AND SUPPORT POLE AND ASSOCIATED BOLTS, NUTS, BRACKETS, INCLUDING ANCHORING HARDWARE AND OTHER NECESSARY HARDWARE AND ITEMS SHALL BE PAINTED, POWDER COATED BLACK, 37031.

ALL COSTS INCLUDING BUT NOT LIMITED TO MATERIALS, DELIVERY, AND INSTALLATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 630.

OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12, AS PER PLAN

**CROSSWALK MARKING DETAIL:**

CONTRACTOR SHALL BE RESPONSIBLE TO FOLLOW THE BELOW DETAILS FOR CROSSWALK MARKING. MORE DETAILS CAN BE FOUND IN THE CITY OF DELAWARE STANDARDS COD RDWD - 38.0.



Not To Scale  
centerlines and outlines are shown for clarification only

Notes:

1. Stop bar shall be placed 4-FT in advance of the nearest crosswalk line
2. All crosswalk lines shall be 1-FT wide
3. All crosswalks shall be 10-FT wide from centerline to centerline
4. All crosswalks shall be laid out starting at the right hand side, closest to the stop bar, of the crosswalk

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CALCULATED  
SA  
CHECKED  
ABS

TRAFFIC CONTROL NOTES

DEL -36.11.03

301  
644

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| SHEET NUM. |     |     |     |     |     |     |     |     |     |     |     |            |            | PART. |       | ITEM  | ITEM EXT | GRAND TOTAL                                                  | UNIT | DESCRIPTION | SEE SHEET NO. |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------------|------------|-------|-------|-------|----------|--------------------------------------------------------------|------|-------------|---------------|
| 301        | 303 | 304 | 305 | 306 | 307 | 308 | 309 | 310 | 311 | 307 | 338 | 01/NHS/P V | 02/S>2/P V |       |       |       |          |                                                              |      |             |               |
|            |     |     |     | 1   |     |     | 1   |     |     |     |     | 2          |            | 625   | 32000 | 2     | EACH     | GROUND ROD                                                   |      |             |               |
|            | 12  |     |     |     | 27  | 14  | 60  | 40  | 50  | 27  |     | 139        | 64         | 630   | 02100 | 203   | FT       | GROUND MOUNTED SUPPORT, NO. 2 POST                           |      |             |               |
|            | 220 | 165 | 242 | 196 | 138 | 53  | 81  | 151 | 152 | 138 |     | 1,285      | 260        | 630   | 03100 | 1,545 | FT       | GROUND MOUNTED SUPPORT, NO. 3 POST                           |      |             |               |
|            |     |     | 13  |     |     |     | 43  |     | 13  |     |     | 56         | 38         | 630   | 08520 | 94    | FT       | STREET NAME SIGN SUPPORT, NO. 3 POST                         |      |             |               |
|            | 4   | 1   | 9   | 3   | 7   | 1   | 2   | 5   | 2   | 7   |     | 32         | 7          | 630   | 08600 | 39    | EACH     | SIGN POST REFLECTOR                                          |      |             |               |
|            |     |     |     |     |     |     | 1   |     |     |     |     | 1          |            | 630   | 21200 | 1     | EACH     | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12              |      |             |               |
|            |     |     |     | 1   |     |     |     |     |     |     |     | 1          |            | 630   | 21201 | 1     | EACH     | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12, AS PER PLAN | 301  |             |               |
|            |     |     |     | 3   |     |     | 3   |     |     |     |     | 6          |            | 630   | 75000 | 6     | EACH     | SIGN ATTACHMENT ASSEMBLY                                     |      |             |               |
|            | 118 | 95  | 127 | 129 | 79  | 50  | 62  | 95  | 118 | 79  |     | 756        | 213        | 630   | 80100 | 969   | SF       | SIGN, FLAT SHEET                                             |      |             |               |
|            |     |     |     | 102 |     |     | 102 |     |     |     |     | 204        |            | 630   | 80224 | 204   | SF       | SIGN, OVERHEAD EXTRUSHEET                                    |      |             |               |
|            |     |     | 2   |     |     |     | 6   |     | 2   |     |     | 8          | 6          | 630   | 80500 | 14    | EACH     | SIGN, DOUBLE FACED, STREET NAME                              |      |             |               |
|            |     |     |     | 102 |     |     | 102 |     |     |     |     | 204        |            | 630   | 81200 | 204   | SF       | SIGN ERECTED, EXTRUSHEET                                     |      |             |               |
|            |     |     |     | 1   |     |     | 1   |     |     |     |     | 2          |            | 630   | 84510 | 2     | EACH     | RIGID OVERHEAD SIGN SUPPORT FOUNDATION                       |      |             |               |
|            | 19  | 38  | 8   | 25  | 28  | 7   | 13  | 13  | 15  | 28  |     | 150        | 30         | 630   | 84900 | 180   | EACH     | REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL                  |      |             |               |
|            |     |     |     |     |     |     |     |     |     |     | 2   | 2          |            | 630   | 85000 | 2     | EACH     | REMOVAL OF GROUND MOUNTED SIGN AND STORAGE                   | 338  |             |               |
|            |     | 11  | 20  | 5   | 12  | 17  | 8   | 9   | 11  | 11  | 17  | 92         | 24         | 630   | 86002 | 116   | EACH     | REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL          |      |             |               |
|            |     |     |     |     |     |     |     |     |     |     | 2   | 2          |            | 630   | 97700 | 2     | EACH     | SIGNING, MISC.: FOUNDATION GROUND MOUNTED SIGN               | 338  |             |               |
|            | 1   |     |     |     |     |     |     |     |     |     |     | 1          |            | 630   | 97700 | 1     | EACH     | SIGNING, MISC.: PORTABLE CHANGEABLE MESSAGE SIGN             | 301  |             |               |
|            | 12  |     |     |     |     |     |     |     |     |     |     | 12         |            | 631   | 97700 | 12    | EACH     | SIGN LIGHTING MISC.: RECTANGULAR RAPID-FLASHING BEACONS      | 301  |             |               |

**SIGNING SUBSUMMARY**

**DEL - 36.11.03**



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| SHEET NO.                             | REF NO. | LOCATION         | STATION | SIDE | CODE                                                       | SIZE (INCHES)                                       | 630                                | 630                                | 630                  | 630                                             | 630                                                          | 630                                  | 630                             | 630                      | 630                                  | 630                       | 630                       | 630                                         | 625                                                 | 630        |                                        |  |  |
|---------------------------------------|---------|------------------|---------|------|------------------------------------------------------------|-----------------------------------------------------|------------------------------------|------------------------------------|----------------------|-------------------------------------------------|--------------------------------------------------------------|--------------------------------------|---------------------------------|--------------------------|--------------------------------------|---------------------------|---------------------------|---------------------------------------------|-----------------------------------------------------|------------|----------------------------------------|--|--|
|                                       |         |                  |         |      |                                                            |                                                     | GROUND MOUNTED SUPPORT, NO. 2 POST | GROUND MOUNTED SUPPORT, NO. 3 POST | SIGN POST REFLECTOR  | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12 | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12, AS PER PLAN | STREET NAME SIGN SUPPORT, NO. 3 POST | SIGN, DOUBLE FACED, STREET NAME | SIGN ATTACHMENT ASSEMBLY | SIGN, FLAT SHEET                     | SIGN, OVERHEAD EXTRUSHEET | SIGN ERRECTED, EXTRUSHEET | REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL | REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL | GROUND ROD | RIGID OVERHEAD SIGN SUPPORT FOUNDATION |  |  |
|                                       |         |                  |         |      |                                                            |                                                     | FT                                 | FT                                 | EACH                 | EACH                                            | EACH                                                         | FT                                   | EACH                            | EACH                     | SF                                   | SF                        | SF                        | EACH                                        | EACH                                                | EACH       | EACH                                   |  |  |
| 320                                   | S1      | US 36            | 548+85  | LT   | R3-9b-24                                                   | 24"x36"                                             |                                    | 13.50                              |                      |                                                 |                                                              |                                      |                                 |                          | 6.00                                 |                           |                           | 2.00                                        | 1.00                                                |            |                                        |  |  |
| 320                                   | S1A     | US 36            | 548+85  | RT   | R3-9b-24                                                   | 24"x36"                                             |                                    | 13.50                              |                      |                                                 |                                                              |                                      |                                 |                          | 6.00                                 |                           |                           | 2.00                                        | 1.00                                                |            |                                        |  |  |
| 320                                   | S1B     | US 36            | 586+00  | LT   | R2-1-30                                                    | 30"x36"                                             |                                    | 13.50                              |                      |                                                 |                                                              |                                      |                                 |                          | 7.50                                 |                           |                           |                                             |                                                     |            |                                        |  |  |
| 320                                   | S1C     | US 36            | 587+00  | RT   | R3-H8bk-36                                                 | 36"x30"                                             |                                    | 13.00                              |                      |                                                 |                                                              |                                      |                                 |                          | 7.50                                 |                           |                           |                                             |                                                     |            |                                        |  |  |
| 320                                   | S2      | US 36            | 587+45  | RT   | R7-1-12                                                    | 12"x18"                                             | 12.00                              |                                    |                      |                                                 |                                                              |                                      |                                 |                          | 1.50                                 |                           |                           | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 320                                   | S3      | US 36            | 587+95  | LT   | M4-5-24<br>M3-4-24<br>M1-4-24-2<br>M3-3-24<br>M1-4-24-2    | 24"x12"<br>24"x12"<br>24"x24"<br>24"x12"<br>24"x24" |                                    | 29.00                              |                      |                                                 |                                                              |                                      |                                 |                          | 2.00<br>2.00<br>4.00<br>2.00<br>4.00 |                           |                           |                                             |                                                     |            |                                        |  |  |
| 321                                   | S1      | US 36            | 589+04  | RT   | R1-1-30                                                    | 30"x30"                                             |                                    | 13.00                              | 1.00                 |                                                 |                                                              |                                      |                                 |                          | 6.25                                 |                           |                           | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 321                                   | R1      | US 36            | 589+12  | LT   |                                                            |                                                     |                                    |                                    |                      |                                                 |                                                              |                                      |                                 |                          |                                      |                           |                           | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 321                                   | S2      | US 36            | 589+60  | LT   | R3-9cP-24<br>R3-9b-24                                      | 24"x6"<br>24"x36"                                   |                                    | 14.00                              |                      |                                                 |                                                              |                                      |                                 |                          | 1.00<br>6.00                         |                           |                           |                                             |                                                     |            |                                        |  |  |
| 321                                   | S2A     | US 36            | 589+60  | RT   | R3-9dP-24<br>R3-9b-24                                      | 24"x6"<br>24"x36"                                   |                                    | 14.00                              |                      |                                                 |                                                              |                                      |                                 |                          | 1.00<br>6.00                         |                           |                           | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 321                                   | S2B     | US 36            | 589+90  | LT   | M4-5-24<br>D11-2-18<br>D3-1-24<br>M6-1R-21                 | 24"x12"<br>18"x18"<br>24"x6"<br>21"x15"             |                                    | 15.00                              |                      |                                                 |                                                              |                                      |                                 |                          | 2.00<br>2.25<br>1.00<br>2.19         |                           |                           |                                             |                                                     |            |                                        |  |  |
| 321                                   | S2C     | US 36            | 589+90  | RT   | M4-5-24<br>D11-2-18<br>D3-1-30<br>M6-1L-21                 | 24"x12"<br>18"x18"<br>30"x6"<br>21"x15"             |                                    | 15.00                              |                      |                                                 |                                                              |                                      |                                 |                          | 2.00<br>2.25<br>1.25<br>2.19         |                           |                           |                                             |                                                     |            |                                        |  |  |
| 321                                   | S3      | SR-37EB          | 41+52   | RT   | R3-H8be-30                                                 | 30"x30"                                             |                                    | 13.00                              |                      |                                                 |                                                              |                                      |                                 |                          | 6.25                                 |                           |                           |                                             |                                                     |            |                                        |  |  |
| 321                                   | S4      | SR-37EB          | 41+69   | RT   | R6-1R-36<br>R6-1L-36<br>R5-1-30                            | 36"x12"<br>36"x12"<br>30"x30"                       |                                    | 14.00                              |                      |                                                 |                                                              |                                      |                                 |                          | 3.00<br>3.00<br>6.25                 |                           |                           | 3.00                                        | 1.00                                                |            |                                        |  |  |
| 321                                   | S4A     | SR-37EB          | 41+55   | LT   | R9-3bP                                                     | 18"x12"                                             |                                    | 12.00                              |                      |                                                 |                                                              |                                      |                                 |                          | 1.50                                 |                           |                           |                                             |                                                     |            |                                        |  |  |
| 321                                   | S5      | SR-37EB          | 42+02   | LT   | R6-1R-36<br>R6-1L-36<br>R5-1-30<br>R3-5L-36<br>R10-H6bR-24 | 36"x12"<br>36"x12"<br>30"x30"<br>36"x30"<br>24"x30" |                                    | 14.00                              | 1.00<br>1.00<br>1.00 |                                                 |                                                              |                                      |                                 |                          | 3.00<br>3.00<br>6.25                 |                           |                           | 5.00                                        | 1.00                                                |            |                                        |  |  |
| 321                                   | R2      | SR-37EB          | 41+90   | LT   |                                                            |                                                     |                                    |                                    |                      |                                                 |                                                              |                                      |                                 |                          |                                      |                           |                           | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 321                                   | R3      | SR-37EB          | 42+00   | LT   |                                                            |                                                     |                                    |                                    |                      |                                                 |                                                              |                                      |                                 |                          |                                      |                           |                           | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 321                                   | S6      | E POINT CROSSING | 78+54   | LT   | R2-1-30                                                    | 30"x36"                                             |                                    | 13.50                              |                      |                                                 |                                                              |                                      |                                 |                          | 7.50                                 |                           |                           | 1.00                                        | 1.00                                                |            |                                        |  |  |
| TOTALS CARRIED TO SUBSUMMARY ON SHEET |         |                  |         |      |                                                            |                                                     | 302                                | 12.00                              | 220.00               | 4.00                                            |                                                              |                                      |                                 |                          | 118.00                               |                           |                           | 19.00                                       | 11.00                                               |            |                                        |  |  |

| SHEET NO.                             | REF NO. | LOCATION         | STATION | SIDE | CODE                                                                                                              | SIZE (INCHES)                                                                                              | 630                                | 630                                | 630                 | 630                                             | 630                                                          | 630                                  | 630                             | 630                      | 630                                                                          | 630                       | 630                      | 630                                         | 625                                                 | 630        |                                        |  |  |
|---------------------------------------|---------|------------------|---------|------|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------|---------------------|-------------------------------------------------|--------------------------------------------------------------|--------------------------------------|---------------------------------|--------------------------|------------------------------------------------------------------------------|---------------------------|--------------------------|---------------------------------------------|-----------------------------------------------------|------------|----------------------------------------|--|--|
|                                       |         |                  |         |      |                                                                                                                   |                                                                                                            | GROUND MOUNTED SUPPORT, NO. 2 POST | GROUND MOUNTED SUPPORT, NO. 3 POST | SIGN POST REFLECTOR | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12 | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12, AS PER PLAN | STREET NAME SIGN SUPPORT, NO. 3 POST | SIGN, DOUBLE FACED, STREET NAME | SIGN ATTACHMENT ASSEMBLY | SIGN, FLAT SHEET                                                             | SIGN, OVERHEAD EXTRUSHEET | SIGN ERECTED, EXTRUSHEET | REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL | REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL | GROUND ROD | RIGID OVERHEAD SIGN SUPPORT FOUNDATION |  |  |
|                                       |         |                  |         |      |                                                                                                                   |                                                                                                            | FT                                 | FT                                 | EACH                | EACH                                            | EACH                                                         | FT                                   | EACH                            | EACH                     | SF                                                                           | SF                        | SF                       | EACH                                        | EACH                                                | EACH       | EACH                                   |  |  |
| 321                                   | S7      | E POINT CROSSING | 78+55   | RT   | R3-H8bd-30                                                                                                        | 30"x30"                                                                                                    |                                    | 13.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 6.25                                                                         |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 321                                   | S8      | E POINT CROSSING | 79+30   | RT   | W11-15-30<br>W11-15P-24                                                                                           | 30"x30"<br>24"x18"                                                                                         |                                    | 14.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 6.25<br>3.00                                                                 |                           |                          |                                             |                                                     |            |                                        |  |  |
| 321                                   | R4      | E POINT CROSSING | 79+65   | RT   |                                                                                                                   |                                                                                                            |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 321                                   | S9      | US 36            | 590+80  | LT   | R3-1-30                                                                                                           | 30"x30"                                                                                                    |                                    | 13.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 6.25                                                                         |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 321                                   | R5      | US 36            | 591+50  | LT   |                                                                                                                   |                                                                                                            |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                                              |                           |                          | 5.00                                        | 2.00                                                |            |                                        |  |  |
| 321                                   | S10     | US 36            | 592+00  | RT   | M3-2-24<br>M1-4-24-2<br>M1-5-24-2                                                                                 | 24"x12"<br>24"x24"<br>24"x24"                                                                              |                                    | 15.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 2.00<br>4.00<br>4.00                                                         |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 321                                   | R6      | US 36            | 592+95  | LT   |                                                                                                                   |                                                                                                            |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                                              |                           |                          | 10.00                                       | 2.00                                                |            |                                        |  |  |
| 322                                   | S1      | US 36            | 593+75  | RT   | R2-1-30                                                                                                           | 30"x36"                                                                                                    |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 7.50                                                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| 322                                   | S2      | US 36            | 594+50  | LT   | R3-H8b-48                                                                                                         | 48"x30"                                                                                                    |                                    | 26.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 10.00                                                                        |                           |                          |                                             |                                                     |            |                                        |  |  |
| 322                                   | R1      | US 36            | 594+70  | LT   |                                                                                                                   |                                                                                                            |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 322                                   | R2      | US 36            | 594+90  | LT   |                                                                                                                   |                                                                                                            |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                                              |                           |                          | 11.00                                       | 3.00                                                |            |                                        |  |  |
| 322                                   | R3      | US 36            | 595+00  | LT   |                                                                                                                   |                                                                                                            |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 322                                   | R4      | US 36            | 595+25  | LT   |                                                                                                                   |                                                                                                            |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 322                                   | R5      | US 36            | 595+60  | LT   |                                                                                                                   |                                                                                                            |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 322                                   | R6      | US 36            | 596+40  | LT   |                                                                                                                   |                                                                                                            |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 322                                   | S3      | US 36            | 596+45  | RT   | R3-H8ca-48                                                                                                        | 48"x30"                                                                                                    |                                    | 26.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 10.00                                                                        |                           |                          |                                             |                                                     |            |                                        |  |  |
| 322                                   | S4      | US 36            | 596+50  | LT   | R14-1-24<br>M3-4-24<br>M1-4-24-2<br>M6-2-21<br>M3-4-24<br>M1-4-24-2<br>M6-2-21<br>M3-4-24<br>M1-4-24-2<br>M6-2-21 | 24"x18"<br>24"x12"<br>24"x24"<br>21"x15"<br>24"x12"<br>24"x24"<br>21"x15"<br>24"x12"<br>24"x24"<br>21"x15" |                                    | 29.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 3.00<br>2.00<br>4.00<br>2.19<br>2.00<br>4.00<br>2.19<br>2.00<br>4.00<br>2.19 |                           |                          |                                             |                                                     |            |                                        |  |  |
| 322                                   | R7      | US 36            | 596+50  | LT   |                                                                                                                   |                                                                                                            |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 322                                   | R8      | US 36            | 597+00  | LT   |                                                                                                                   |                                                                                                            |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                                              |                           |                          | 1.00                                        | 2.00                                                |            |                                        |  |  |
| 322                                   | R9      | US 36            | 597+40  | LT   |                                                                                                                   |                                                                                                            |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 322                                   | S4A     | US 36            | 597+55  | MED  | R4-7-30                                                                                                           | 30"x36"                                                                                                    |                                    | 13.50                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 7.50                                                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| TOTALS CARRIED TO SUBSUMMARY ON SHEET |         |                  |         |      |                                                                                                                   |                                                                                                            | 302                                | 165.00                             | 1.00                |                                                 |                                                              |                                      |                                 |                          | 95.00                                                                        |                           |                          | 38.00                                       | 20.00                                               |            |                                        |  |  |

| SHEET NO.                             | REF NO. | LOCATION | STATION | SIDE | CODE                                                                                     | SIZE (INCHES)                                                                        | 630                                | 630                                | 630                 | 630                                             | 630                                                          | 630                                  | 630                             | 630                      | 630                                                          | 630                       | 630                      | 630                                         | 625                                                 | 630        |                                        |  |  |
|---------------------------------------|---------|----------|---------|------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------|------------------------------------|---------------------|-------------------------------------------------|--------------------------------------------------------------|--------------------------------------|---------------------------------|--------------------------|--------------------------------------------------------------|---------------------------|--------------------------|---------------------------------------------|-----------------------------------------------------|------------|----------------------------------------|--|--|
|                                       |         |          |         |      |                                                                                          |                                                                                      | GROUND MOUNTED SUPPORT, NO. 2 POST | GROUND MOUNTED SUPPORT, NO. 3 POST | SIGN POST REFLECTOR | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12 | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12, AS PER PLAN | STREET NAME SIGN SUPPORT, NO. 3 POST | SIGN, DOUBLE FACED, STREET NAME | SIGN ATTACHMENT ASSEMBLY | SIGN, FLAT SHEET                                             | SIGN, OVERHEAD EXTRUSHEET | SIGN ERECTED, EXTRUSHEET | REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL | REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL | GROUND ROD | RIGID OVERHEAD SIGN SUPPORT FOUNDATION |  |  |
|                                       |         |          |         |      |                                                                                          |                                                                                      | FT                                 | FT                                 | EACH                | EACH                                            | EACH                                                         | FT                                   | EACH                            | EACH                     | SF                                                           | SF                        | SF                       | EACH                                        | EACH                                                | EACH       | EACH                                   |  |  |
| 322                                   | S5      | US 36    | 597+60  | LT   | R3-7-30                                                                                  | 30"x30"                                                                              |                                    | 13.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 6.25                                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| 322                                   | R10     | US 36    | 597+90  | LT   | D3-1-30<br>D3-1-24                                                                       | 30"x12"<br>24"x12"                                                                   |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                              |                           |                          | 2.00                                        | 1.00                                                |            |                                        |  |  |
| 322                                   | S5A     | US 36    | 597+90  | LT   | R9-3-18<br>R9-2-12                                                                       | 18"x18"<br>12"x18"                                                                   |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 2.25<br>1.50                                                 |                           |                          |                                             |                                                     |            |                                        |  |  |
| 322                                   | S6      | US 36    | 597+98  | RT   | R6-1R-36                                                                                 | 36"x12"                                                                              |                                    | 11.50                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 3.00                                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| 323                                   | S1      | BOWTOWN  | 70+53   | LT   | R1-1-30<br>R3-5R-30                                                                      | 30"x30"<br>30"x36"                                                                   |                                    | 15.50                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 6.25<br>7.50                                                 |                           |                          |                                             |                                                     |            |                                        |  |  |
| 323                                   | S2      | BOWTOWN  | 70+66   | RT   | D3-1-30<br>D3-1-30                                                                       | 30"x12"<br>30"x12"                                                                   |                                    |                                    |                     |                                                 | 12.50                                                        | 1.00                                 |                                 |                          | 2.50<br>2.50                                                 |                           |                          |                                             |                                                     |            |                                        |  |  |
| 323                                   | S3      | BOWTOWN  | 71+10   | LT   | W1-6L-48                                                                                 | 48"x24"                                                                              |                                    | 12.50                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 8.00                                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| 323                                   | R1      | BOWTOWN  | 72+40   | LT   |                                                                                          |                                                                                      |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                              |                           | 1.00                     | 1.00                                        |                                                     |            |                                        |  |  |
| 323                                   | S4      | BOWTOWN  | 73+32   | LT   | W1-2L-30                                                                                 | 30"x30"                                                                              |                                    | 13.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 6.25                                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| 323                                   | S4A     | US 36    | 598+65  | LT   | R9-3-18<br>R9-2-12                                                                       | 18"x18"<br>12"x18"                                                                   |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 2.25<br>1.50                                                 |                           |                          |                                             |                                                     |            |                                        |  |  |
| 323                                   | S5      | US 36    | 598+21  | RT   | W14-2-30                                                                                 | 30"x30"                                                                              |                                    | 13.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 6.25                                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| 323                                   | R2      | US 36    | 598+30  | RT   |                                                                                          |                                                                                      |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                              |                           | 1.00                     | 1.00                                        |                                                     |            |                                        |  |  |
| 323                                   | S6      | US 36    | 598+40  | MED  | R6-1R-36                                                                                 | 36"x12"                                                                              |                                    | 11.50                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 3.00                                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| 323                                   | S7      | US 36    | 598+61  | RT   | R1-1-30<br>R3-5R-30                                                                      | 30"x30"<br>30"x36"                                                                   |                                    | 15.50                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 6.25<br>7.50                                                 |                           |                          |                                             |                                                     |            |                                        |  |  |
| 323                                   | S7A     | US 36    | 598+85  | MED  | R4-7-24                                                                                  | 24"x30"                                                                              |                                    | 13.00                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 5.00                                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| 323                                   | S8      | US 36    | 600+05  | MED  | R4-7-24                                                                                  | 24"x30"                                                                              |                                    | 13.00                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 5.00                                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| 323                                   | R3      | US 36    | 600+50  | LT   |                                                                                          |                                                                                      |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                              |                           | 2.00                     | 1.00                                        |                                                     |            |                                        |  |  |
| 323                                   | S9      | US 36    | 600+75  | LT   | R3-H8cg-48                                                                               | 48"x30"                                                                              |                                    | 26.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 10.00                                                        |                           |                          |                                             |                                                     |            |                                        |  |  |
| 323                                   | S10     | US 36    | 601+65  | MED  | R6-1R-36<br>R6-1R-36                                                                     | 36"x12"<br>36"x12"                                                                   |                                    | 11.50                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 6.00                                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| 323                                   | S11     | US 36    | 602+20  | LT   | M4-5-24<br>M3-3-24<br>M1-4-24-2<br>M5-4-24<br>M4-5-24<br>M3-1-24<br>M1-4-24-2<br>M5-6-24 | 24"x12"<br>24"x12"<br>24"x24"<br>24"x18"<br>24"x12"<br>24"x12"<br>24"x24"<br>24"x18" |                                    | 32.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 2.00<br>2.00<br>4.00<br>3.00<br>2.00<br>2.00<br>4.00<br>3.00 |                           |                          |                                             |                                                     |            |                                        |  |  |
| 323                                   | S12     | US 36    | 602+60  | LT   | D9-2-24<br>M6-2-21                                                                       | 24"x24"<br>21"x15"                                                                   |                                    | 13.75                              |                     |                                                 |                                                              |                                      |                                 |                          | 4.00<br>2.19                                                 |                           | 2.00                     | 1.00                                        |                                                     |            |                                        |  |  |
| TOTALS CARRIED TO SUBSUMMARY ON SHEET |         |          |         |      |                                                                                          |                                                                                      | 302                                |                                    | 242.00              | 9.00                                            |                                                              |                                      | 13.00                           | 2.00                     |                                                              | 127.00                    |                          | 8.00                                        | 5.00                                                |            |                                        |  |  |

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| SHEET NO.                             | REF NO. | LOCATION | STATION | SIDE | CODE        | SIZE (INCHES) | 630                                | 630                                | 630                 | 630                                             | 630                                                          | 630                                  | 630                             | 630                      | 630              | 630                       | 630                      | 630                                         | 625                                                 | 630        |                                        |  |  |
|---------------------------------------|---------|----------|---------|------|-------------|---------------|------------------------------------|------------------------------------|---------------------|-------------------------------------------------|--------------------------------------------------------------|--------------------------------------|---------------------------------|--------------------------|------------------|---------------------------|--------------------------|---------------------------------------------|-----------------------------------------------------|------------|----------------------------------------|--|--|
|                                       |         |          |         |      |             |               | GROUND MOUNTED SUPPORT, NO. 2 POST | GROUND MOUNTED SUPPORT, NO. 3 POST | SIGN POST REFLECTOR | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12 | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12, AS PER PLAN | STREET NAME SIGN SUPPORT, NO. 3 POST | SIGN, DOUBLE FACED, STREET NAME | SIGN ATTACHMENT ASSEMBLY | SIGN, FLAT SHEET | SIGN, OVERHEAD EXTRUSHEET | SIGN ERECTED, EXTRUSHEET | REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL | REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL | GROUND ROD | RIGID OVERHEAD SIGN SUPPORT FOUNDATION |  |  |
|                                       |         |          |         |      |             |               | FT                                 | FT                                 | EACH                | EACH                                            | EACH                                                         | FT                                   | EACH                            | EACH                     | SF               | SF                        | SF                       | EACH                                        | EACH                                                | EACH       | EACH                                   |  |  |
| 324                                   | S1      | US 36    | 603+16  | LT   | R2-1-30     | 30"x36"       |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 7.50             |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 324                                   | S2      | US 36    | 603+70  | MED  | R6-1R-36    | 36"x12"       |                                    | 11.50                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 3.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
| 324                                   | R1      | US 36    | 604+05  | RT   |             |               |                                    |                                    | 1.00                |                                                 |                                                              |                                      |                                 |                          |                  |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 324                                   | S3      | US 36    | 604+50  | LT   | W3-3-36     | 36"x36"       |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 9.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
| 324                                   | S4      | US 36    | 604+58  | RT   | R2-1-30     | 30"x36"       |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 7.50             |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 324                                   | R2      | US 36    | 604+60  | LT   |             |               |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                  |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 324                                   | R3      | US 36    | 605+25  | LT   |             |               |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                  |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 324                                   | S5      | US 36    | 605+50  | LT   | M4-5-24     | 24"x12"       |                                    | 32.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 2.00             |                           |                          | 8.00                                        | 2.00                                                |            |                                        |  |  |
|                                       |         |          |         |      | M3-3-24     | 24"x12"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 2.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |          |         |      | M1-4-24-2   | 24"x24"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 4.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |          |         |      | M5-4-24     | 24"x18"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 3.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |          |         |      | M4-5-24     | 24"x12"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 2.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |          |         |      | M3-1-24     | 24"x12"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 2.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |          |         |      | M1-4-24-2   | 24"x24"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 4.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |          |         |      | M5-6-24     | 24"x18"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 3.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
| 324                                   | S6      | US 36    | 606+60  | RT   | R3-H8ca-48  | 48"x24"       |                                    | 12.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 8.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
| 324                                   | S7      | US 36    | 607+00  | LT   | LEVEL 3     | 204"x72"      |                                    |                                    |                     |                                                 | 1.00                                                         |                                      |                                 | 3.00                     |                  | 102.00                    | 102.00                   |                                             |                                                     | 1.00       | 1.00                                   |  |  |
| 325                                   | S1      | US 36    | 609+07  | MED  | R5-1-36     | 36"x36"       |                                    | 14.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 9.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |          |         |      | R6-1R-36    | 36"x12"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 3.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
| 325                                   | S2      | US 36    | 609+54  | MED  | R5-1-36     | 36"x36"       |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 9.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
| 325                                   | S3      | US 36    | 611+20  | MED  | W3-3-36     | 36"x36"       |                                    | 30.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 9.00             |                           |                          | 5.00                                        | 2.00                                                |            |                                        |  |  |
|                                       |         |          |         |      | W16-H8aP-48 | 48"x16"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 5.32             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |          |         |      | M2-1-21     | 21"x15"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 2.19             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |          |         |      | M1-5-30-3   | 30"x24"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 5.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |          |         |      | M6-1-21     | 21"x15"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 2.19             |                           |                          |                                             |                                                     |            |                                        |  |  |
| 325                                   | S4      | US 36    | 611+20  | RT   | W3-3-36     | 36"x36"       |                                    | 30.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 9.00             |                           |                          | 5.00                                        | 2.00                                                |            |                                        |  |  |
|                                       |         |          |         |      | W16-H8aP-48 | 48"x16"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 5.32             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |          |         |      | M2-1-21     | 21"x15"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 2.19             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |          |         |      | M1-5-30-3   | 30"x24"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 5.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |          |         |      | M6-1-21     | 21"x15"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 2.19             |                           |                          |                                             |                                                     |            |                                        |  |  |
| 325                                   | R1      | US 36    | 611+90  | LT   |             |               |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                  |                           |                          | 2.00                                        | 1.00                                                |            |                                        |  |  |
| 325                                   | S5      | US 36    | 612+35  | MED  | R6-1R-36    | 36"x12"       |                                    | 11.50                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 3.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
| TOTALS CARRIED TO SUBSUMMARY ON SHEET |         |          |         |      |             |               | 302                                | 196.00                             | 3.00                |                                                 | 1.00                                                         |                                      |                                 | 3.00                     | 129.00           | 102.00                    | 102.00                   | 25.00                                       | 12.00                                               | 1.00       | 1.00                                   |  |  |

| SHEET NO.                                 | REF NO. | LOCATION | STATION | SIDE | CODE                                         | SIZE (INCHES)                            | 630                                | 630                                | 630                 | 630                                             | 630                                                          | 630                                  | 630                             | 630                      | 630                          | 630                       | 630                      | 630                                         | 625                                                 | 630        |                                        |  |  |  |
|-------------------------------------------|---------|----------|---------|------|----------------------------------------------|------------------------------------------|------------------------------------|------------------------------------|---------------------|-------------------------------------------------|--------------------------------------------------------------|--------------------------------------|---------------------------------|--------------------------|------------------------------|---------------------------|--------------------------|---------------------------------------------|-----------------------------------------------------|------------|----------------------------------------|--|--|--|
|                                           |         |          |         |      |                                              |                                          | GROUND MOUNTED SUPPORT, NO. 2 POST | GROUND MOUNTED SUPPORT, NO. 3 POST | SIGN POST REFLECTOR | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12 | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12, AS PER PLAN | STREET NAME SIGN SUPPORT, NO. 3 POST | SIGN, DOUBLE FACED, STREET NAME | SIGN ATTACHMENT ASSEMBLY | SIGN, FLAT SHEET             | SIGN, OVERHEAD EXTRUSHEET | SIGN ERECTED, EXTRUSHEET | REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL | REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL | GROUND ROD | RIGID OVERHEAD SIGN SUPPORT FOUNDATION |  |  |  |
|                                           |         |          |         |      |                                              |                                          | FT                                 | FT                                 | EACH                | EACH                                            | EACH                                                         | FT                                   | EACH                            | EACH                     | SF                           | SF                        | SF                       | EACH                                        | EACH                                                | EACH       | EACH                                   |  |  |  |
| 325                                       | R2      | US 36    | 612+50  | LT   |                                              |                                          |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                              |                           |                          | 9.00                                        | 1.00                                                |            |                                        |  |  |  |
| 326                                       | R1      | US 36    | 613+25  | MED  |                                              |                                          |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |  |
| 326                                       | R2      | US 36    | 613+25  | RT   |                                              |                                          |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |  |
| 326                                       | S1      | US 36    | 614+06  | MED  | R6-IR-36<br>R6-IR-36                         | 36"x12"<br>36"x12"                       |                                    | 11.50                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 3.00<br>3.00                 |                           |                          | 2.00                                        | 1.00                                                |            |                                        |  |  |  |
| 326                                       | S2      | US 36    | 615+13  | MED  | R6-IR-36<br>R6-IR-36                         | 36"x12"<br>36"x12"                       |                                    | 11.50                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 3.00<br>3.00                 |                           |                          | 2.00                                        | 1.00                                                |            |                                        |  |  |  |
| 326                                       | S3      | US 36    | 615+45  | RT   | R3-H8eb-66                                   | 66"x30"                                  |                                    | 26.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 13.75                        |                           |                          |                                             |                                                     |            |                                        |  |  |  |
| 326                                       | S4      | US 36    | 615+61  | LT   | M3-4-24<br>M1-4-24-2<br>M3-4-24<br>M1-5-24-2 | 24"x12"<br>24"x24"<br>24"x12"<br>24"x24" | 27.00                              |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 2.00<br>4.00<br>2.00<br>4.00 |                           |                          | 4.00                                        | 2.00                                                |            |                                        |  |  |  |
| 326                                       | R3      | US 36    | 615+85  | RT   |                                              |                                          |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                              |                           |                          | 1.00                                        | 2.00                                                |            |                                        |  |  |  |
| 326                                       | R4      | US 36    | 616+30  | LT   |                                              |                                          |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |  |
| 326                                       | R5      | US 36    | 616+30  | LT   |                                              |                                          |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                              |                           |                          | 2.00                                        | 1.00                                                |            |                                        |  |  |  |
| 326                                       | R6      | US 36    | 616+30  | RT   |                                              |                                          |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |  |
| 326                                       | S6      | US 36    | 616+75  | LT   | R6-IR-36                                     | 36"x12"                                  |                                    | 11.50                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 3.00<br>3.00                 |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |  |
| 326                                       | S7      | US 36    | 617+45  | LT   | R6-IR-36                                     | 36"x12"                                  |                                    | 11.50                              | 1.00                |                                                 |                                                              |                                      |                                 |                          |                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |  |
| 327                                       | S1      | US 36    | 618+38  | MED  | R3-4-24<br>R4-7b-24                          | 24"x24"<br>24"x30"                       |                                    | 13.00                              |                     | 1.00                                            |                                                              |                                      |                                 |                          | 4.00<br>5.00                 |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |  |
| 327                                       | S2      | US 36    | 618+85  | LT   | R2-1-24                                      | 24"x30"                                  |                                    | 13.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 5.00                         |                           |                          |                                             |                                                     |            |                                        |  |  |  |
| 327                                       | S3      | US 36    | 618+93  | RT   | R3-H8eb-66                                   | 66"x30"                                  |                                    | 26.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 13.75                        |                           |                          |                                             |                                                     |            |                                        |  |  |  |
| 327                                       | S4      | US 36    | 618+93  | RT   | M1-5-30-3<br>M6-1-21                         | 30"x24"<br>21"x15"                       |                                    | 13.75                              |                     |                                                 |                                                              |                                      |                                 |                          | 5.00<br>2.19                 |                           |                          |                                             |                                                     |            |                                        |  |  |  |
| 327                                       | R1      | US 36    | 618+93  | RT   |                                              |                                          |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                              |                           |                          | 1.00                                        | 2.00                                                |            |                                        |  |  |  |
| TOTALS CARRIED TO SUBSUMMARY ON SHEET 302 |         |          |         |      |                                              |                                          | 27.00                              | 138.00                             | 7.00                |                                                 |                                                              |                                      |                                 |                          |                              | 79.00                     |                          |                                             | 28.00                                               | 17.00      |                                        |  |  |  |

| SHEET NO.                             | REF NO. | LOCATION          | STATION | SIDE | CODE                                         | SIZE (INCHES)                            | 630                                | 630                                | 630                 | 630                                             | 630                                                          | 630                                  | 630                             | 630                      | 630                          | 630                       | 630                      | 630                                         | 625                                                 | 630        |                                        |  |  |  |
|---------------------------------------|---------|-------------------|---------|------|----------------------------------------------|------------------------------------------|------------------------------------|------------------------------------|---------------------|-------------------------------------------------|--------------------------------------------------------------|--------------------------------------|---------------------------------|--------------------------|------------------------------|---------------------------|--------------------------|---------------------------------------------|-----------------------------------------------------|------------|----------------------------------------|--|--|--|
|                                       |         |                   |         |      |                                              |                                          | GROUND MOUNTED SUPPORT, NO. 2 POST | GROUND MOUNTED SUPPORT, NO. 3 POST | SIGN POST REFLECTOR | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12 | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12, AS PER PLAN | STREET NAME SIGN SUPPORT, NO. 3 POST | SIGN, DOUBLE FACED, STREET NAME | SIGN ATTACHMENT ASSEMBLY | SIGN, FLAT SHEET             | SIGN, OVERHEAD EXTRUSHEET | SIGN ERECTED, EXTRUSHEET | REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL | REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL | GROUND ROD | RIGID OVERHEAD SIGN SUPPORT FOUNDATION |  |  |  |
|                                       |         |                   |         |      |                                              |                                          | FT                                 | FT                                 | EACH                | EACH                                            | EACH                                                         | FT                                   | EACH                            | EACH                     | SF                           | SF                        | SF                       | EACH                                        | EACH                                                | EACH       | EACH                                   |  |  |  |
| 327                                   | S5      | SR 521            | 50+93   | LT   | M1-4-24-2<br>M6-4-21<br>M1-5-24-2<br>M6-4-21 | 24"x24"<br>21"x15"<br>24"x24"<br>21"x15" | 13.75                              |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 4.00<br>2.19<br>4.00<br>2.19 |                           |                          |                                             |                                                     |            |                                        |  |  |  |
| 327                                   | S6      | SR 521            | 50+93   | LT   | R3-H8b-48                                    | 48"x30"                                  |                                    | 13.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 10.00                        |                           |                          | 1.00                                        | 2.00                                                |            |                                        |  |  |  |
| 327                                   | R2      | SR 521            | 51+25   | RT   |                                              |                                          |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                              |                           | 2.00                     | 1.00                                        |                                                     |            |                                        |  |  |  |
| 327                                   | S7      | NOT USED          |         |      |                                              |                                          |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                              |                           |                          |                                             |                                                     |            |                                        |  |  |  |
| 327                                   | R3      | SR 521            | 51+00   | RT   |                                              |                                          |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                              |                           | 1.00                     | 2.00                                        |                                                     |            |                                        |  |  |  |
| 327                                   | S8      | MILL RUN CROSSING | 0+90    | LT   | R3-H8db-54                                   | 54"x30"                                  |                                    | 13.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 11.25                        |                           |                          |                                             |                                                     |            |                                        |  |  |  |
| 327                                   | R4      | MILL RUN CROSSING | 0+90    | LT   |                                              |                                          |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                              |                           | 1.00                     | 2.00                                        |                                                     |            |                                        |  |  |  |
| 327                                   | S9      | US 36             | 620+66  | LT   | M1-5-30-3<br>M6-1-21                         | 30"x24"<br>21"x15"                       |                                    | 13.75                              |                     |                                                 |                                                              |                                      |                                 |                          | 5.00<br>2.19                 |                           |                          |                                             |                                                     |            |                                        |  |  |  |
| 327                                   | S10     | US 36             | 620+60  | MED  | R3-4-24<br>R4-7b-24                          | 24"x24"<br>24"x30"                       |                                    | 13.00                              |                     | 1.00                                            |                                                              |                                      |                                 |                          | 4.00<br>5.00                 |                           |                          | 2.00                                        | 1.00                                                |            |                                        |  |  |  |
| TOTALS CARRIED TO SUBSUMMARY ON SHEET |         |                   |         |      |                                              |                                          | 302                                | 14.00                              | 53.00               | 1.00                                            |                                                              |                                      |                                 |                          | 50.00                        |                           |                          | 7.00                                        | 8.00                                                |            |                                        |  |  |  |

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| SHEET NO.                             | REF NO. | LOCATION | STATION | SIDE | CODE                          | SIZE (INCHES)                 | 630                                | 630                                | 630                 | 630                                             | 630                                                          | 630                                  | 630                             | 630                      | 630                  | 630                       | 630                      | 630                                         | 625                                                 | 630        |                                        |      |  |  |
|---------------------------------------|---------|----------|---------|------|-------------------------------|-------------------------------|------------------------------------|------------------------------------|---------------------|-------------------------------------------------|--------------------------------------------------------------|--------------------------------------|---------------------------------|--------------------------|----------------------|---------------------------|--------------------------|---------------------------------------------|-----------------------------------------------------|------------|----------------------------------------|------|--|--|
|                                       |         |          |         |      |                               |                               | GROUND MOUNTED SUPPORT, NO. 2 POST | GROUND MOUNTED SUPPORT, NO. 3 POST | SIGN POST REFLECTOR | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12 | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12, AS PER PLAN | STREET NAME SIGN SUPPORT, NO. 3 POST | SIGN, DOUBLE FACED, STREET NAME | SIGN ATTACHMENT ASSEMBLY | SIGN, FLAT SHEET     | SIGN, OVERHEAD EXTRUSHEET | SIGN ERECTED, EXTRUSHEET | REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL | REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL | GROUND ROD | RIGID OVERHEAD SIGN SUPPORT FOUNDATION |      |  |  |
|                                       |         |          |         |      |                               |                               | FT                                 | FT                                 | EACH                | EACH                                            | EACH                                                         | FT                                   | EACH                            | EACH                     | SF                   | SF                        | SF                       | EACH                                        | EACH                                                | EACH       | EACH                                   |      |  |  |
| 328                                   | R1      | US 36    | 625+20  | LT   | W3-H4a-48                     | 48"x48"                       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                      |                           |                          | 1.00                                        | 1.00                                                |            |                                        |      |  |  |
| 328                                   | S1      | US 36    | 626+93  | LT   | LEVEL 3                       | 204"x72"                      |                                    |                                    |                     | 1.00                                            |                                                              |                                      |                                 | 3.00                     |                      | 102.00                    | 102.00                   |                                             |                                                     | 1.00       | 1.00                                   |      |  |  |
| 329                                   | S1      | SR 37    | 12+15   | RT   | R7-1-12<br>R7-2a-12           | 12"x18"<br>12"x18"            | 12.00                              |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 1.50<br>1.50         |                           |                          |                                             |                                                     |            |                                        |      |  |  |
| 329                                   | S2      | SR 37    | 13+50   | RT   | R7-1-12                       | 12"x18"                       | 12.00                              |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 1.50                 |                           |                          |                                             |                                                     |            |                                        |      |  |  |
| 329                                   | S2A     | SR 37    | 14+60   | LT   | R9-3-18<br>R9-2-12            | 18"x18"<br>12"x18"            |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 2.25<br>1.50         |                           |                          |                                             |                                                     |            |                                        |      |  |  |
| 329                                   | S3      | EAST ST  | 120+34  | LT   | R1-1-30<br>D3-1-30<br>D3-1-24 | 30"x30"<br>24"x12"<br>24"x12" |                                    |                                    | 1.00                |                                                 | 15.00                                                        |                                      |                                 |                          | 6.25<br>2.00<br>2.00 |                           |                          | 1.00                                        | 1.00                                                |            |                                        |      |  |  |
| 329                                   | S3A     | SR 37    | 15+00   | LT   | R9-3-18<br>R9-2-12            | 18"x18"<br>12"x18"            |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 2.25<br>1.50         |                           |                          |                                             |                                                     |            |                                        |      |  |  |
| 329                                   | R1      | SR 37    | 15+00   | LT   |                               |                               |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                      |                           |                          | 2.00                                        | 1.00                                                |            |                                        |      |  |  |
| 329                                   | S4      | SR 37    | 15+75   | RT   | R7-1-12<br>R7-2a-12           | 12"x18"<br>12"x18"            | 12.00                              |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 1.50<br>1.50         |                           |                          | 1.00                                        | 1.00                                                |            |                                        |      |  |  |
| 329                                   | S4A     | SR 37    | 16+00   | RT   | R9-3-18<br>R9-2-12            | 18"x18"<br>12"x18"            |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 2.25<br>1.50         |                           |                          |                                             |                                                     |            |                                        |      |  |  |
| 329                                   | S5      | FOLEY ST | 102+16  | RT   | R1-1-30<br>D3-1-30<br>D3-1-24 | 30"x30"<br>24"x12"<br>24"x12" |                                    |                                    | 1.00                |                                                 | 15.00                                                        |                                      |                                 |                          | 6.25<br>2.00<br>2.00 |                           |                          | 3.00                                        | 1.00                                                |            |                                        |      |  |  |
| 329                                   | S5A     | SR 37    | 16+60   | RT   | R9-3-18<br>R9-2-12            | 18"x18"<br>12"x18"            |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 2.25<br>1.50         |                           |                          |                                             |                                                     |            |                                        |      |  |  |
| 329                                   | S6      | SR 37    | 16+70   | RT   | R7-1-12<br>R7-2a-12           | 12"x18"<br>12"x18"            | 12.00                              |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 1.50<br>1.50         |                           |                          | 1.00                                        | 1.00                                                |            |                                        |      |  |  |
| 330                                   | S1      | SR 37    | 17+82   | RT   | R3-H8be-30                    | 30"x30"                       |                                    | 13.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 6.25                 |                           |                          |                                             |                                                     |            |                                        |      |  |  |
| 330                                   | R1      | SR 37    | 18+45   | RT   |                               |                               |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                      |                           |                          | 1.00                                        | 1.00                                                |            |                                        |      |  |  |
| 330                                   | S2      | SR 37    | 19+04   | LT   | R7-1-12                       | 12"x18"                       | 12.00                              |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 1.50                 |                           |                          | 1.00                                        | 1.00                                                |            |                                        |      |  |  |
| 330                                   | S2A     | SR 37    | 19+30   | LT   | R9-3-18<br>R9-2-12            | 18"x18"<br>12"x18"            |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 2.25<br>1.50         |                           |                          |                                             |                                                     |            |                                        |      |  |  |
| 330                                   | S3      | SR 37    | 19+39   | LT   | D3-1-24<br>D3-1-24            | 24"x12"<br>24"x12"            |                                    |                                    |                     |                                                 | 12.50                                                        | 1.00<br>1.00                         |                                 |                          | 2.00<br>2.00         |                           |                          |                                             |                                                     |            |                                        |      |  |  |
| 330                                   | R2      | SR 37    | 19+39   | LT   |                               |                               |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                      |                           |                          | 2.00                                        | 1.00                                                |            |                                        |      |  |  |
| TOTALS CARRIED TO SUBSUMMARY ON SHEET |         |          |         |      |                               |                               | 302                                | 60.00                              | 81.00               | 2.00                                            | 1.00                                                         |                                      | 43.00                           | 6.00                     | 3.00                 | 62.00                     | 102.00                   | 102.00                                      | 13.00                                               | 9.00       | 1.00                                   | 1.00 |  |  |

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| SHEET NO.                             | REF NO. | LOCATION       | STATION | SIDE | CODE                                                                                     | SIZE (INCHES)                                                                      | 630                                | 630                                | 630                 | 630                                             | 630                                                          | 630                                  | 630                             | 630                      | 630                                                          | 630                       | 630                      | 630                                         | 625                                                 | 630        |                                        |  |  |
|---------------------------------------|---------|----------------|---------|------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------|------------------------------------|---------------------|-------------------------------------------------|--------------------------------------------------------------|--------------------------------------|---------------------------------|--------------------------|--------------------------------------------------------------|---------------------------|--------------------------|---------------------------------------------|-----------------------------------------------------|------------|----------------------------------------|--|--|
|                                       |         |                |         |      |                                                                                          |                                                                                    | GROUND MOUNTED SUPPORT, NO. 2 POST | GROUND MOUNTED SUPPORT, NO. 3 POST | SIGN POST REFLECTOR | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12 | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12, AS PER PLAN | STREET NAME SIGN SUPPORT, NO. 3 POST | SIGN, DOUBLE FACED, STREET NAME | SIGN ATTACHMENT ASSEMBLY | SIGN, FLAT SHEET                                             | SIGN, OVERHEAD EXTRUSHEET | SIGN ERECTED, EXTRUSHEET | REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL | REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL | GROUND ROD | RIGID OVERHEAD SIGN SUPPORT FOUNDATION |  |  |
|                                       |         |                |         |      |                                                                                          |                                                                                    | FT                                 | FT                                 | EACH                | EACH                                            | EACH                                                         | FT                                   | EACH                            | EACH                     | SF                                                           | SF                        | SF                       | EACH                                        | EACH                                                | EACH       | EACH                                   |  |  |
| 330                                   | R3      | SR 37          | 19+50   | RT   |                                                                                          |                                                                                    |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 330                                   | S4      | CONST MOORE ST | 110+35  | LT   | R1-1-30                                                                                  | 30"x30"                                                                            |                                    | 13.00                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 6.25                                                         |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 330                                   | S5      | CONST MOORE ST | 110+46  | RT   | R7-2a-12                                                                                 | 12"x18"                                                                            | 12.00                              |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 1.50                                                         |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 330                                   | S5A     | SR 37          | 19+90   | LT   | R9-3-18<br>R9-2-12                                                                       | 18"x18"<br>12"x18"                                                                 |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 2.25<br>1.50                                                 |                           |                          |                                             |                                                     |            |                                        |  |  |
| 331                                   | S1      | SR 37EB        | 40+00   | RT   | M2-1-21<br>M1-4-24-2                                                                     | 21"x15"<br>24"x24"                                                                 | 13.75                              |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 2.19<br>4.00                                                 |                           |                          | 2.00                                        | 1.00                                                |            |                                        |  |  |
| 331                                   | S2      | SR 37WB        | 31+28   | RT   | R5-1-30<br>R4-7b-24                                                                      | 30"x30"<br>24"x30"                                                                 |                                    | 26.00                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 6.25<br>5.00                                                 |                           |                          | 2.00                                        | 2.00                                                |            |                                        |  |  |
| 331                                   | S3      | SR 37WB        | 31+29   | LT   | R5-1-30                                                                                  | 30"x30"                                                                            |                                    | 13.00                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 6.25                                                         |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 331                                   | S3A     | SR 37WB        | 31+45   | LT   | M4-5-24<br>D11-2-18<br>D3-1-24<br>M6-1R-21<br>M4-5-24<br>D11-2-18<br>D3-1-24<br>M6-1L-21 | 24"x12"<br>18"x18"<br>24"x6"<br>21"x15"<br>24"x12"<br>18"x18"<br>24"x6"<br>21"x15" |                                    | 15.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 2.00<br>2.25<br>1.00<br>2.19<br>2.00<br>2.25<br>1.00<br>2.19 |                           |                          |                                             |                                                     |            |                                        |  |  |
| 331                                   | S4      | SR 37WB        | 31+58   | LT   | W11-2-36<br>W16-7PL-24<br>R10-25-9                                                       | 36"x36"<br>24"x12"<br>9"x12"                                                       |                                    | 15.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 9.00<br>2.00<br>0.75                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| 331                                   | S5      | SR 37WB        | 31+58   | RT   | W11-2-36<br>W16-7PR-24<br>R10-25-9                                                       | 36"x36"<br>24"x12"<br>9"x12"                                                       |                                    | 15.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 9.00<br>2.00<br>0.75                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| 331                                   | S6      | SR 37WB        | 31+71   | LT   | R6-2R-24                                                                                 | 24"x30"                                                                            |                                    | 13.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 5.00                                                         |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 331                                   | S7      | SR 37WB        | 32+22   | LT   | R2-1-24                                                                                  | 24"x30"                                                                            |                                    | 13.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 5.00                                                         |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 331                                   | S8      | SR 37WB        | 33+15   | LT   | R6-2R-24                                                                                 | 24"x30"                                                                            |                                    | 13.00                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 5.00                                                         |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 331                                   | S9      | SR 37WB        | 33+58   | LT   | M3-4-24<br>M1-5-24-2                                                                     | 24"x12"<br>24"x24"                                                                 | 13.50                              |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 2.00<br>4.00                                                 |                           |                          | 2.00                                        | 1.00                                                |            |                                        |  |  |
| TOTALS CARRIED TO SUBSUMMARY ON SHEET |         |                |         |      |                                                                                          |                                                                                    | 302                                | 40.00                              | 151.00              | 5.00                                            |                                                              |                                      |                                 |                          | 95.00                                                        |                           |                          | 13.00                                       | 11.00                                               |            |                                        |  |  |



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| SHEET NO.                                 | REF NO. | LOCATION | STATION | SIDE | CODE                                                                     | SIZE (INCHES)                                                | 630                                | 630                                | 630                 | 630                                             | 630                                                          | 630                                  | 630                             | 630                      | 630                                          | 630                       | 630                      | 630                                         | 625                                                 | 630        |                                        |  |  |
|-------------------------------------------|---------|----------|---------|------|--------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------------|------------------------------------|---------------------|-------------------------------------------------|--------------------------------------------------------------|--------------------------------------|---------------------------------|--------------------------|----------------------------------------------|---------------------------|--------------------------|---------------------------------------------|-----------------------------------------------------|------------|----------------------------------------|--|--|
|                                           |         |          |         |      |                                                                          |                                                              | GROUND MOUNTED SUPPORT, NO. 2 POST | GROUND MOUNTED SUPPORT, NO. 3 POST | SIGN POST REFLECTOR | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12 | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12, AS PER PLAN | STREET NAME SIGN SUPPORT, NO. 3 POST | SIGN, DOUBLE FACED, STREET NAME | SIGN ATTACHMENT ASSEMBLY | SIGN, FLAT SHEET                             | SIGN, OVERHEAD EXTRUSHEET | SIGN ERECTED, EXTRUSHEET | REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL | REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL | GROUND ROD | RIGID OVERHEAD SIGN SUPPORT FOUNDATION |  |  |
|                                           |         |          |         |      |                                                                          |                                                              | FT                                 | FT                                 | EACH                | EACH                                            | EACH                                                         | FT                                   | EACH                            | EACH                     | SF                                           | SF                        | SF                       | EACH                                        | EACH                                                | EACH       | EACH                                   |  |  |
| 332                                       | S1      | SR 521   | 52+00   | LT   | R6-3-24                                                                  | 24"x18"                                                      | 12.00                              |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 3.00                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| 332                                       | S2      | SR 521   | 52+00   | RT   | R5-1-30                                                                  | 30"x30"                                                      |                                    | 13.00                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 6.25                                         |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 332                                       | S3      | SR 521   | 52+08   | RT   | M3-1-24<br>M1-5-30-3                                                     | 24"x12"<br>30"x24"                                           |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          |                                              |                           |                          | 2.00                                        | 1.00                                                |            |                                        |  |  |
| 332                                       | S4      | SR 521   | 52+66   | LT   | R3-H8b-48                                                                | 48"x30"                                                      |                                    | 13.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 10.00                                        |                           |                          |                                             |                                                     |            |                                        |  |  |
| 332                                       | R1      | SR 521   | 52+66   | RT   |                                                                          |                                                              |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 332                                       | R2      | SR 521   | 52+68   | LT   |                                                                          |                                                              |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 332                                       | S5      | SR 521   | 52+68   | RT   | W9-1R-24                                                                 | 24"x24"                                                      | 12.50                              |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 4.00                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| 332                                       | S6      | SR 521   | 53+37   | RT   | W12-2-36<br>W16-3aP-30                                                   | 36"x36"<br>30"x12"                                           |                                    | 14.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 9.00<br>2.50                                 |                           |                          |                                             |                                                     |            |                                        |  |  |
| 332                                       | S7      | SR 521   | 54+25   | RT   | R1-1-30                                                                  | 30"x30"                                                      |                                    | 13.00                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 6.25                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| 332                                       | S8      | SR 521   | 54+35   | RT   | D3-1-36<br>D3-1-24                                                       | 36"x12"<br>24"x12"                                           |                                    |                                    |                     |                                                 | 12.50                                                        | 1.00<br>1.00                         |                                 |                          | 3.00<br>2.00                                 |                           |                          | 2.00                                        | 1.00                                                |            |                                        |  |  |
| 332                                       | S9      | SR 521   | 54+55   | RT   | W4-2R-36                                                                 | 36"x36"                                                      |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 9.00                                         |                           |                          |                                             |                                                     |            |                                        |  |  |
| 332                                       | S10     | SR 521   | 55+23   | RT   | R2-1-30                                                                  | 30"x36"                                                      |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 7.50                                         |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 332                                       | S11     | SR 521   | 55+44   | LT   | R3-H8b-48                                                                | 48"x30"                                                      |                                    | 13.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 10.00                                        |                           |                          |                                             |                                                     |            |                                        |  |  |
| 332                                       | R3      | SR 521   | 55+44   | LT   |                                                                          |                                                              |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                              |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 332                                       | R4      | SR 521   | 55+85   | LT   |                                                                          |                                                              |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                                              |                           |                          | 3.00                                        | 1.00                                                |            |                                        |  |  |
| 333                                       | S1      | SR 521   | 57+50   | LT   | M2-1-21<br>M1-4-24-2<br>M1-5-24-2                                        | 21"x15"<br>24"x24"<br>24"x24"                                |                                    | 15.75                              |                     |                                                 |                                                              |                                      |                                 |                          | 2.19<br>4.00                                 |                           |                          |                                             |                                                     |            |                                        |  |  |
| 333                                       | S2      | SR 521   | 57+60   | RT   | R3-2-24                                                                  | 24"x24"                                                      | 12.50                              |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 4.00                                         |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 333                                       | S3      | SR 521   | 57+80   | LT   | R3-2-24                                                                  | 24"x24"                                                      | 12.50                              |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 4.00                                         |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 333                                       | S4      | SR 521   | 57+80   | RT   | R3-5R-30                                                                 | 30"x36"                                                      |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 7.50                                         |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 333                                       | S5      | SR 521   | 59+00   | LT   | W11-2-36<br>W16-7PR-24<br>R10-25-9<br>W11-2-36<br>W16-7PR-24<br>R10-25-9 | 36"x36"<br>24"x12"<br>9"x12"<br>36"x36"<br>24"x12"<br>9"x12" |                                    | 15.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 9.00<br>2.00<br>0.75<br>9.00<br>2.00<br>0.75 |                           |                          |                                             |                                                     |            |                                        |  |  |
| TOTALS CARRIED TO SUBSUMMARY ON SHEET 302 |         |          |         |      |                                                                          |                                                              | 50.00                              | 152.00                             | 2.00                |                                                 |                                                              | 13.00                                | 2.00                            |                          | 118.00                                       |                           |                          | 15.00                                       | 11.00                                               |            |                                        |  |  |

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| SHEET NO.                             | REF NO. | LOCATION       | STATION | SIDE | CODE       | SIZE (INCHES) | 630                                | 630                                | 630                 | 630                                             | 630                                                          | 630                                  | 630                             | 630                      | 630              | 630                       | 630                      | 630                                         | 625                                                 | 630        |                                        |  |  |
|---------------------------------------|---------|----------------|---------|------|------------|---------------|------------------------------------|------------------------------------|---------------------|-------------------------------------------------|--------------------------------------------------------------|--------------------------------------|---------------------------------|--------------------------|------------------|---------------------------|--------------------------|---------------------------------------------|-----------------------------------------------------|------------|----------------------------------------|--|--|
|                                       |         |                |         |      |            |               | GROUND MOUNTED SUPPORT, NO. 2 POST | GROUND MOUNTED SUPPORT, NO. 3 POST | SIGN POST REFLECTOR | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12 | OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 12, AS PER PLAN | STREET NAME SIGN SUPPORT, NO. 3 POST | SIGN, DOUBLE FACED, STREET NAME | SIGN ATTACHMENT ASSEMBLY | SIGN, FLAT SHEET | SIGN, OVERHEAD EXTRUSHEET | SIGN ERECTED, EXTRUSHEET | REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL | REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL | GROUND ROD | RIGID OVERHEAD SIGN SUPPORT FOUNDATION |  |  |
|                                       |         |                |         |      |            |               | FT                                 | FT                                 | EACH                | EACH                                            | EACH                                                         | FT                                   | EACH                            | EACH                     | SF               | SF                        | SF                       | EACH                                        | EACH                                                | EACH       | EACH                                   |  |  |
| 333                                   | S6      | SR 521         | 59+00   | RT   | W11-2-36   | 36"x36"       |                                    | 15.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 9.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |                |         |      | W16-7PR-24 | 24"x12"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 2.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |                |         |      | R10-25-9   | 9"x12"        |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 0.75             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |                |         |      | W11-2-36   | 36"x36"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 9.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |                |         |      | W16-7PR-24 | 24"x12"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 2.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
|                                       |         |                |         |      | R10-25-9   | 9"x12"        |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 0.75             |                           |                          |                                             |                                                     |            |                                        |  |  |
| 333                                   | S7      | SR 521         | 59+40   | LT   | R1-1-30    | 30"x30"       |                                    | 13.00                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 6.25             |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 333                                   | S8      | SR 521         | 59+70   | LT   | R5-1-30    | 30"x30"       |                                    | 13.00                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 6.25             |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 333                                   | S9      | SR 521         | 59+85   | LT   | R1-1-30    | 30"x30"       |                                    | 13.00                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 6.25             |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 333                                   | S10     | SR 521         | 59+85   | LT   | D3-1-24    | 24"x12"       |                                    |                                    |                     |                                                 | 12.50                                                        | 1.00                                 |                                 | 2.00                     |                  |                           |                          | 2.00                                        | 1.00                                                |            |                                        |  |  |
|                                       |         |                |         |      | D3-1-24    | 24"x12"       |                                    |                                    |                     |                                                 |                                                              | 1.00                                 |                                 | 2.00                     |                  |                           |                          |                                             |                                                     |            |                                        |  |  |
| 333                                   | S11     | SR 521         | 61+20   | RT   | R1-1-30    | 30"x30"       |                                    | 13.00                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 6.25             |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 333                                   | S12     | SR 521         | 61+25   | RT   | D3-1-24    | 24"x12"       |                                    |                                    |                     |                                                 | 12.50                                                        | 1.00                                 |                                 | 2.00                     |                  |                           |                          | 2.00                                        | 1.00                                                |            |                                        |  |  |
|                                       |         |                |         |      | D3-1-24    | 24"x12"       |                                    |                                    |                     |                                                 |                                                              | 1.00                                 |                                 | 2.00                     |                  |                           |                          |                                             |                                                     |            |                                        |  |  |
| 333                                   | S13     | SR 521         | 61+35   | RT   | W2-2L-30   | 30"x30"       |                                    | 14.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 6.25             |                           |                          | 2.00                                        | 1.00                                                |            |                                        |  |  |
|                                       |         |                |         |      | W16-8P-30  | 30"x12"       |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          | 2.50             |                           |                          |                                             |                                                     |            |                                        |  |  |
| 333                                   | S14     | SR 521         | 61+85   | RT   | R1-1-30    | 30"x30"       |                                    | 13.00                              | 1.00                |                                                 |                                                              |                                      |                                 |                          | 6.25             |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 334                                   | R1      | CONST MILL RUN | 1+75    | RT   |            |               |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                  |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 334                                   | S1      | CONST MILL RUN | 2+50    | RT   | R3-H8ba-30 | 30"x30"       |                                    | 12.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 5.00             |                           |                          |                                             |                                                     |            |                                        |  |  |
| 334                                   | S2      | CONST MILL RUN | 2+72    | LT   | R3-H8db-54 | 54"x30"       |                                    | 26.00                              |                     |                                                 |                                                              |                                      |                                 |                          | 11.25            |                           |                          |                                             |                                                     |            |                                        |  |  |
| 334                                   | R2      | CONST MILL RUN | 3+20    | RT   |            |               |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                  |                           |                          | 1.00                                        | 1.00                                                |            |                                        |  |  |
| 334                                   | R3      | CONST MILL RUN | 3+40    | LT   |            |               |                                    |                                    |                     |                                                 |                                                              |                                      |                                 |                          |                  |                           |                          | 1.00                                        | 2.00                                                |            |                                        |  |  |
| 334                                   | S3      | CONST MILL RUN | 3+60    | RT   | R2-1-30    | 30"x36"       |                                    | 13.50                              |                     |                                                 |                                                              |                                      |                                 |                          | 7.50             |                           |                          |                                             |                                                     |            |                                        |  |  |
| TOTALS CARRIED TO SUBSUMMARY ON SHEET |         |                |         |      |            |               | 302                                | 147.00                             | 5.00                |                                                 |                                                              | 25.00                                | 4.00                            |                          | 96.00            |                           |                          | 14.00                                       | 12.00                                               |            |                                        |  |  |

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| SHEET NUM. |  |  |  |  |  |      |       |       |      |      | PART. |           | ITEM | ITEM<br>EXT | GRAND<br>TOTAL | UNIT  | DESCRIPTION | SEE<br>SHEET<br>NO.                    |           |
|------------|--|--|--|--|--|------|-------|-------|------|------|-------|-----------|------|-------------|----------------|-------|-------------|----------------------------------------|-----------|
|            |  |  |  |  |  | 314  | 315   | 316   | 317  | 318  | 319   | 01/NHS/PV |      |             |                |       |             |                                        | 02/S>2/PV |
|            |  |  |  |  |  | 34   | 138   | 97    | 63   | 34   | 41    | 366       | 41   | 621         | 00100          | 407   | EACH        | RPM                                    |           |
|            |  |  |  |  |  | 250  | 1,675 | 1,925 | 550  | 625  | 815   | 5,075     | 765  | 644         | 00400          | 5,840 | FT          | CHANNELIZING LINE, 8"                  |           |
|            |  |  |  |  |  | 113  | 28    | 208   | 33   | 58   | 88    | 433       | 95   | 644         | 00500          | 528   | FT          | STOP LINE                              |           |
|            |  |  |  |  |  | 897  | 153   | 397   | 260  | 687  | 572   | 2,279     | 687  | 644         | 00600          | 2,966 | FT          | CROSSWALK LINE, 12"                    |           |
|            |  |  |  |  |  |      | 633   | 100   | 118  | 272  | 90    | 941       | 272  | 644         | 00700          | 1,213 | FT          | TRANSVERSE/DIAGONAL LINE, 24"          |           |
|            |  |  |  |  |  |      | 61    |       |      |      |       | 61        |      | 644         | 00720          | 61    | FT          | CHEVRON MARKING                        |           |
|            |  |  |  |  |  |      |       | 38    |      | 160  |       |           | 198  | 644         | 01200          | 198   | FT          | PARKING LOT STALL MARKING              |           |
|            |  |  |  |  |  | 15   | 10    | 23    | 9    | 9    | 14    | 68        | 12   | 644         | 01300          | 80    | EACH        | LANE ARROW                             |           |
|            |  |  |  |  |  | 38   | 85    | 105   |      | 75   | 10    | 238       | 75   | 644         | 01514          | 313   | FT          | DOTTED LINE, 8"                        |           |
|            |  |  |  |  |  |      |       |       |      | 29   |       |           | 29   | 644         | 30000          | 29    | FT          | REMOVAL OF PAVEMENT MARKING            |           |
|            |  |  |  |  |  | 0.43 | 0.46  | 0.05  | 0.36 | 0.45 | 0.43  | 1.7       | 0.48 | 644         | 50400          | 2.18  | MILE        | PAVEMENT MARKING, MISC.:CENTERLINE, 4" | 301       |
|            |  |  |  |  |  | 0.26 | 1     | 0.61  | 0.59 | 0.19 |       | 2.46      | 0.19 | 644         | 50400          | 2.65  | MILE        | PAVEMENT MARKING, MISC.:EDGE LINE, 4"  | 301       |
|            |  |  |  |  |  | 0.03 | 0.18  | 0.1   | 0.08 | 0.02 |       | 0.38      | 0.03 | 644         | 50400          | 0.41  | MILE        | PAVEMENT MARKING, MISC.:LANE LINE, 5"  | 301       |

CALCULATED TJS CHECKED SA  
**PAVEMENT MARKING SUBSUMMARY**  
**DEL - 36.11.03**  
 313  
 644

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| REF NO.                                   | SHEET NO. | STATION TO STATION |        | SIDE  | 644                        |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
|-------------------------------------------|-----------|--------------------|--------|-------|----------------------------|------------------------|------------|------------------------------------------------------|-------------------------------------------------------|----------------------------------------------|-----------------------------------------------|----------------------------------------------|----------------------------|-----------|-----------------------|---------------------------|-----------------|--------------------------------------|---------------------------------------|-----------------------------|-----------------|-----|--|
|                                           |           |                    |        |       | 621                        | 621                    | 644        | 644                                                  | 644                                                   | 644                                          | 644                                           | 644                                          | 644                        | 644       | 644                   | 644                       | 644             | 644                                  | 644                                   | 644                         | 644             | 644 |  |
|                                           |           |                    | TO     |       | RPM, 2 WAY (YELLOW/YELLOW) | RPM, 2 WAY (WHITE/RED) | LANE ARROW | PAVEMENT MARKING, MISC.:CENTERLINE, BROKEN/SOLID, 4" | PAVEMENT MARKING, MISC.:CENTERLINE, SOLID, DOUBLE, 4" | PAVEMENT MARKING, MISC.:EDGE LINE, WHITE, 4" | PAVEMENT MARKING, MISC.:EDGE LINE, YELLOW, 4" | PAVEMENT MARKING, MISC.:LANE LINE, WHITE, 5" | CROSSWALK LINE, WHITE, 12" | STOP LINE | CHANNELIZING LINE, 8" | PARKING LOT STALL MARKING | DOTTED LINE, 8" | TRANSVERSE/DIAGONAL LINE, WHITE, 24" | TRANSVERSE/DIAGONAL LINE, YELLOW, 24" | REMOVAL OF PAVEMENT MARKING | CHEVRON MARKING |     |  |
|                                           |           |                    |        |       | EACH                       | EACH                   | EACH       | MILE                                                 | MILE                                                  | MILE                                         | MILE                                          | MILE                                         | FT                         | FT        | FT                    | FT                        | FT              | FT                                   | FT                                    | FT                          | FT              | FT  |  |
| US 36                                     |           |                    |        |       |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-1                                      | 320       | 583+45             |        | LT/RT |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-2                                      | 320       | 583+55             |        | LT/RT |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-3                                      | 320       | 585+95             |        | LT/RT |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-4                                      | 320       | 586+05             |        | LT/RT |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CB4-1                                     | 320       | 582+50             | 584+80 | LT/RT | 4                          |                        |            | 0.11                                                 |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CB4-2                                     | 320       | 585+50             | 588+00 | LT/RT | 5                          |                        |            | 0.12                                                 |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| EW4-1                                     | 320       | 585+50             | 588+00 | LT/RT |                            |                        |            |                                                      |                                                       | 0.08                                         |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LL5-1                                     | 320       | 586+30             | 588+00 | RT    |                            | 3                      |            |                                                      |                                                       |                                              |                                               | 0.01                                         |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CW-1                                      | 320       | 585+00             | 585+50 | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              | 100                        |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-1                                      | 321       | 588+45             |        | LT/RT |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-2                                      | 321       | 588+55             |        | LT/RT |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-3                                      | 321       | 588+60             |        | RT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-4                                      | 321       | 589+73             |        | RT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-5                                      | 321       | 79+35              |        | RT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-6                                      | 321       | 79+12              |        | RT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-7                                      | 321       | 78+70              |        | RT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-8                                      | 321       | 591+05             |        | LT/RT |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-9                                      | 321       | 591+58             |        | LT/RT |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-10                                     | 321       | 592+12             |        | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-11                                     | 321       | 592+42             |        | LT/RT |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CB4-1                                     | 321       | 588+00             | 590+00 | LT/RT | 5                          |                        |            | 0.10                                                 |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| EW4-1                                     | 321       | 588+00             | 593+00 | LT/RT |                            |                        |            |                                                      |                                                       | 0.16                                         |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| EW4-2                                     | 321       | 79+30              | 79+70  | RT    |                            |                        |            |                                                      |                                                       | 0.02                                         |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LL5-1                                     | 321       | 588+00             | 590+00 | RT    |                            | 3                      |            |                                                      |                                                       |                                              |                                               | 0.01                                         |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LL5-2                                     | 321       | 591+75             | 593+00 | RT    |                            | 2                      |            |                                                      |                                                       |                                              |                                               | 0.01                                         |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| SL-1                                      | 321       | 589+80             |        | RT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            | 24        |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| SL-2                                      | 321       | 79+40              |        | RT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            | 12        |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| SL-2A                                     | 321       | 79+40              |        | RT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            | 18        |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| SL-3                                      | 321       | 41+50              |        | LT/RT |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            | 35        |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| SL-4                                      | 321       | 590+95             |        | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            | 12        |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| SL-5                                      | 321       | 591+45             |        | LT/RT |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            | 12        |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CW-1                                      | 321       | 590+00             |        | LT/RT |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              | 263                        |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CW-2                                      | 321       | 79+60              |        | LT/RT |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              | 347                        |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CW-3                                      | 321       | 41+65              |        | LT/RT |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              | 187                        |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CL4-1                                     | 321       | 78+40              | 79+40  | LT/RT | 2                          |                        |            | 0.04                                                 |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CL4-2                                     | 321       | 591+45             | 593+00 | RT    | 2                          |                        |            | 0.06                                                 |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CH8-1                                     | 321       | 78+75              | 79+25  | RT    | 3                          |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           | 50                    |                           |                 |                                      |                                       |                             |                 |     |  |
| CH8-2                                     | 321       | 591+00             | 593+00 | LT    | 5                          |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           | 200                   |                           |                 |                                      |                                       |                             |                 |     |  |
| DLW-1                                     | 321       | 590+30             | 591+40 | LT/RT |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           | 38              |                                      |                                       |                             |                 |     |  |
| SUBTOTAL                                  |           |                    |        |       | 26                         | 8                      | 15         | 0.33                                                 | 0.10                                                  | 0.26                                         | 0.00                                          | 0.03                                         | 897                        | 113       | 250                   | 0                         | 38              | 0                                    | 0                                     | 0                           | 0               | 0   |  |
| TOTALS CARRIED TO SUBSUMMARY ON SHEET 313 |           |                    |        |       | 34                         | 15                     | 0.43       | 0.26                                                 | 0.03                                                  | 897                                          | 113                                           | 250                                          | 0                          | 38        | 0                     | 38                        | 0               | 0                                    | 0                                     | 0                           | 0               | 0   |  |

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| REF NO.                                   | SHEET NO. | STATION TO STATION |        | SIDE  | 644                        |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
|-------------------------------------------|-----------|--------------------|--------|-------|----------------------------|------------------------|------------|------------------------------------------------------|-------------------------------------------------------|----------------------------------------------|-----------------------------------------------|----------------------------------------------|----------------------------|-----------|-----------------------|---------------------------|-----------------|--------------------------------------|---------------------------------------|-----------------------------|-----------------|-----|--|
|                                           |           |                    |        |       | 621                        | 621                    | 644        | 644                                                  | 644                                                   | 644                                          | 644                                           | 644                                          | 644                        | 644       | 644                   | 644                       | 644             | 644                                  | 644                                   | 644                         | 644             | 644 |  |
|                                           |           |                    |        |       | RPM, 2 WAY (YELLOW/YELLOW) | RPM, 2 WAY (WHITE/RED) | LANE ARROW | PAVEMENT MARKING, MISC.:CENTERLINE, BROKEN/SOLID, 4" | PAVEMENT MARKING, MISC.:CENTERLINE, SOLID, DOUBLE, 4" | PAVEMENT MARKING, MISC.:EDGE LINE, WHITE, 4" | PAVEMENT MARKING, MISC.:EDGE LINE, YELLOW, 4" | PAVEMENT MARKING, MISC.:LANE LINE, WHITE, 5" | CROSSWALK LINE, WHITE, 12" | STOP LINE | CHANNELIZING LINE, 8" | PARKING LOT STALL MARKING | DOTTED LINE, 8" | TRANSVERSE/DIAGONAL LINE, WHITE, 24" | TRANSVERSE/DIAGONAL LINE, YELLOW, 24" | REMOVAL OF PAVEMENT MARKING | CHEVRON MARKING |     |  |
|                                           |           |                    |        |       | EACH                       | EACH                   | EACH       | MILE                                                 | MILE                                                  | MILE                                         | MILE                                          | MILE                                         | FT                         | FT        | FT                    | FT                        | FT              | FT                                   | FT                                    | FT                          | FT              |     |  |
| US 36                                     |           |                    | TO     |       |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-1                                      | 322       | 593+10             |        | LT/RT |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-2                                      | 322       | 593+75             |        | LT/RT |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-3                                      | 322       | 597+20             |        | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-4                                      | 322       | 597+85             |        | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| EY4-1                                     | 322       | 34+00              | 34+35  | LT    | 1                          |                        |            |                                                      |                                                       |                                              | 0.01                                          |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| EW4-1                                     | 322       | 593+00             | 598+00 | LT/RT |                            |                        |            |                                                      |                                                       | 0.19                                         |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LL5-1                                     | 322       | 593+00             | 598+00 | RT    |                            | 7                      |            |                                                      |                                                       |                                              |                                               | 0.03                                         |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CL4-1                                     | 322       | 593+00             | 597+20 | LT/RT | 10                         |                        |            |                                                      | 0.29                                                  |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CL4-2                                     | 322       | 597+20             | 598+00 | LT/RT | 1                          |                        |            |                                                      | 0.04                                                  |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CH8-1                                     | 322       | 593+00             | 594+50 | LT    |                            | 8                      |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       | 300                       |                 |                                      |                                       |                             |                 |     |  |
| CH8-2                                     | 322       | 593+00             | 594+00 | LT    |                            | 3                      |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       | 100                       |                 |                                      |                                       |                             |                 |     |  |
| CH8-3                                     | 322       | 594+50             | 597+25 | LT    |                            | 7                      |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       | 275                       |                 |                                      |                                       |                             |                 |     |  |
| CH8-4                                     | 322       | 596+80             | 598+00 | RT    |                            | 6                      |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       | 240                       |                 |                                      |                                       |                             |                 |     |  |
| CM-1                                      | 322       | 34+50              | 35+75  | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             | 61              |     |  |
| TLW-1                                     | 322       | 596+80             | 597+50 | RT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 | 34                                   |                                       |                             |                 |     |  |
| TLY-1                                     | 322       | 594+00             | 597+20 | LT/RT |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      | 400                                   |                             |                 |     |  |
| DLW-1                                     | 322       | 597+20             | 598+00 | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           | 20              |                                      |                                       |                             |                 |     |  |
| LA-1                                      | 323       | 70+70              |        | RT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-2                                      | 323       | 598+65             |        | RT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-3                                      | 323       | 599+30             |        | RT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-4                                      | 323       | 599+95             |        | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CH8-1                                     | 323       | 598+00             | 600+20 | LT    |                            | 11                     |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       | 440                       |                 |                                      |                                       |                             |                 |     |  |
| EY4-1                                     | 323       | 599+65             | 603+00 | LT/RT | 9                          |                        |            |                                                      |                                                       |                                              | 0.13                                          |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LL5-1                                     | 323       | 598+00             | 603+00 | RT    |                            | 7                      |            |                                                      |                                                       |                                              |                                               | 0.04                                         |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LL5-2                                     | 323       | 601+20             | 603+00 | RT    |                            | 3                      |            |                                                      |                                                       |                                              |                                               | 0.01                                         |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| SL-1                                      | 323       | 70+60              |        | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            | 12        |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| SL-2                                      | 323       | 598+50             |        | RT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            | 16        |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CW-1                                      | 323       | 70+40              |        | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CW-2                                      | 323       | 598+45             |        | RT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              | 79                         |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CL4-1                                     | 323       | 70+60              | 72+00  | LT/RT | 2                          |                        |            |                                                      | 0.06                                                  |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CL4-2                                     | 323       | 598+50             | 600+15 | RT    | 3                          |                        |            |                                                      | 0.07                                                  |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| TLW-1                                     | 323       | 598+80             | 600+20 | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| DLW-1                                     | 323       | 598+60             | 601+20 | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           | 65              |                                      |                                       |                             |                 |     |  |
| LA-1                                      | 324       | 607+85             |        | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| EW4-1                                     | 324       | 603+00             | 608+00 | RT    |                            |                        |            |                                                      |                                                       | 0.1                                          |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CH8-1                                     | 324       | 607+20             | 608+00 | RT    |                            | 4                      |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       | 160                       |                 |                                      |                                       |                             |                 |     |  |
| EY4-1                                     | 324       | 603+00             | 608+00 | LT/RT | 13                         |                        |            |                                                      |                                                       |                                              | 0.19                                          |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LL5-1                                     | 324       | 603+00             | 608+00 | LT/RT |                            | 13                     |            |                                                      |                                                       |                                              |                                               | 0.05                                         |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| TLW-1                                     | 324       | 607+20             | 608+00 | RT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             | 38              |     |  |
| LA-1                                      | 325       | 608+90             |        | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CH8-1                                     | 325       | 608+00             | 608+80 | RT    |                            | 4                      |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       | 160                       |                 |                                      |                                       |                             |                 |     |  |
| EW4-2                                     | 325       | 608+00             | 613+00 | LT/RT |                            |                        |            |                                                      |                                                       | 0.19                                         |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| EY4-1                                     | 325       | 608+00             | 613+00 | LT    | 13                         |                        |            |                                                      |                                                       |                                              | 0.19                                          |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LL5-1                                     | 325       | 608+00             | 613+00 | LT/RT |                            | 13                     |            |                                                      |                                                       |                                              |                                               | 0.05                                         |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| TLW-1                                     | 325       | 608+00             | 609+00 | RT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             | 76              |     |  |
| SUBTOTAL                                  |           |                    |        |       | 52                         | 86                     | 10         | 0.00                                                 | 0.46                                                  | 0.48                                         | 0.52                                          | 0.18                                         | 153                        | 28        | 1675                  | 0                         | 85              | 233                                  | 400                                   | 0                           | 61              |     |  |
| TOTALS CARRIED TO SUBSUMMARY ON SHEET 313 |           |                    |        |       | 138                        |                        | 10         | 0.46                                                 |                                                       | 1.00                                         |                                               | 0.18                                         | 153                        | 28        | 1675                  | 0                         | 85              | 633                                  |                                       | 0                           | 61              |     |  |

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| REF NO.                                          | SHEET NO. | STATION TO STATION | SIDE  |                                   |                               |                   |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
|--------------------------------------------------|-----------|--------------------|-------|-----------------------------------|-------------------------------|-------------------|-------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------|-----------------------------------|------------------|------------------------------|----------------------------------|------------------------|------------------------------------------------|-------------------------------------------------|---------------------------------------|------------------------|--|--|
|                                                  |           |                    |       | 621<br>RPM, 2 WAY (YELLOW/YELLOW) | 621<br>RPM, 2 WAY (WHITE/RED) | 644<br>LANE ARROW | 644<br>PAVEMENT MARKING,<br>MISC.:CENTERLINE,<br>BROKEN/SOLID, 4" | 644<br>PAVEMENT MARKING,<br>MISC.:CENTERLINE, SOLID,<br>DOUBLE, 4" | 644<br>PAVEMENT MARKING,<br>MISC.:EDGE LINE, WHITE, 4" | 644<br>PAVEMENT MARKING,<br>MISC.:EDGE LINE, YELLOW, 4" | 644<br>PAVEMENT MARKING,<br>MISC.:LANE LINE, WHITE, 5" | 644<br>CROSSWALK LINE, WHITE, 12" | 644<br>STOP LINE | 644<br>CHANNELIZING LINE, 8" | 644<br>PARKING LOT STALL MARKING | 644<br>DOTTED LINE, 8" | 644<br>TRANSVERSE/DIAGONAL LINE,<br>WHITE, 24" | 644<br>TRANSVERSE/DIAGONAL LINE,<br>YELLOW, 24" | 644<br>REMOVAL OF PAVEMENT<br>MARKING | 644<br>CHEVRON MARKING |  |  |
| US 36                                            |           | TO                 |       | EACH                              | EACH                          | EACH              | MILE                                                              | MILE                                                               | MILE                                                   | MILE                                                    | MILE                                                   | FT                                | FT               | FT                           | FT                               | FT                     | FT                                             | FT                                              | FT                                    |                        |  |  |
| LA-1                                             | 326       | 615+90             | LT/RT |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-2                                             | 326       | 615+90             | RT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-3                                             | 326       | 615+90             | RT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-4                                             | 326       | 616+55             | LT/RT |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-5                                             | 326       | 616+55             | RT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-6                                             | 326       | 616+55             | RT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-7                                             | 326       | 617+45             | LT/RT |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-8                                             | 326       | 617+45             | RT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-9                                             | 326       | 617+45             | RT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| EW4-1                                            | 326       | 613+00             | LT/RT |                                   |                               |                   | 618+00                                                            |                                                                    |                                                        | 0.19                                                    |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| EY4-1                                            | 326       | 613+00             | LT/RT | 13                                |                               |                   | 618+00                                                            |                                                                    |                                                        | 0.19                                                    |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LL5-1                                            | 326       | 613+00             | LT/RT |                                   | 13                            |                   | 618+00                                                            |                                                                    |                                                        |                                                         | 0.05                                                   |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| CH8-1                                            | 326       | 615+80             | RT    |                                   | 6                             |                   | 618+00                                                            |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        | 220                                            |                                                 |                                       |                        |  |  |
| CH8-2                                            | 326       | 615+00             | RT    |                                   | 8                             |                   | 618+00                                                            |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        | 300                                            |                                                 |                                       |                        |  |  |
| CH8-3                                            | 326       | 615+20             | RT    |                                   | 7                             |                   | 618+00                                                            |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        | 280                                            |                                                 |                                       |                        |  |  |
| LA-1                                             | 327       | 618+30             | LT/RT |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-2                                             | 327       | 618+30             | RT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-3                                             | 327       | 618+50             | RT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-4                                             | 327       | 51+20              | LT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-5                                             | 327       | 51+20              | LT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-6                                             | 327       | 51+20              | LT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-7                                             | NOT USED  |                    |       |                                   |                               |                   |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-8                                             | 327       | 1+35               | RT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-9                                             | 327       | 1+35               | LT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-10                                            | 327       | 1+35               | LT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-11                                            | 327       | 1+35               | LT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-12                                            | 327       | 620+85             | LT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-13                                            | 327       | 620+85             | LT/RT |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-14                                            | 327       | 621+95             | LT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LA-15                                            | 327       | 622+40             | LT    |                                   |                               | 1                 |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| CL4-1                                            | 327       | 50+80              | LT    | 2                                 |                               |                   | 51+50                                                             |                                                                    |                                                        | 0.03                                                    |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| CL4-2                                            | 327       | 1+00               | RT    |                                   |                               |                   | 1+50                                                              |                                                                    |                                                        | 0.02                                                    |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| EW4-1                                            | 327       | 618+00             | LT/RT |                                   |                               |                   | 619+50                                                            |                                                                    |                                                        | 0.06                                                    |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| EW4-2                                            | 327       | 620+60             | LT    |                                   |                               |                   | 623+00                                                            |                                                                    |                                                        | 0.05                                                    |                                                        |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| EY4-1                                            | 327       | 618+00             | LT/RT | 2                                 |                               |                   | 618+50                                                            |                                                                    |                                                        |                                                         | 0.02                                                   |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| EY4-2                                            | 327       | 620+50             | LT/RT | 7                                 |                               |                   | 623+00                                                            |                                                                    |                                                        |                                                         | 0.1                                                    |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LL5-1                                            | 327       | 618+00             | LT/RT |                                   | 2                             |                   | 619+00                                                            |                                                                    |                                                        |                                                         | 0.01                                                   |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LL5-2                                            | 327       | 50+80              | RT    |                                   | 1                             |                   | 51+50                                                             |                                                                    |                                                        |                                                         | 0.01                                                   |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| LL5-3                                            | 327       | 620+50             | LT/RT |                                   | 7                             |                   | 623+00                                                            |                                                                    |                                                        |                                                         | 0.03                                                   |                                   |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| CW-1                                             | 327       | 1+00               | RT    |                                   |                               |                   |                                                                   |                                                                    |                                                        |                                                         |                                                        | 150                               |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| CW-2                                             | 327       | 620+50             | LT/RT |                                   |                               |                   |                                                                   |                                                                    |                                                        |                                                         |                                                        | 247                               |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| SL-1                                             | 327       | 618+60             | LT/RT |                                   |                               |                   |                                                                   |                                                                    |                                                        |                                                         |                                                        | 24                                |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| SL-2                                             | 327       | 618+80             | RT    |                                   |                               |                   |                                                                   |                                                                    |                                                        |                                                         |                                                        | 36                                |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| SL-3                                             | 327       | 50+80              | LT    |                                   |                               |                   |                                                                   |                                                                    |                                                        |                                                         |                                                        | 37                                |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| SL-4                                             | 327       | 1+10               | RT    |                                   |                               |                   |                                                                   |                                                                    |                                                        |                                                         |                                                        | 47                                |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| SL-5                                             | 327       | 620+60             | LT    |                                   |                               |                   |                                                                   |                                                                    |                                                        |                                                         |                                                        | 64                                |                  |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| CH8-1                                            | 327       | 618+00             | RT    |                                   | 5                             |                   | 619+00                                                            |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        | 200                                            |                                                 |                                       |                        |  |  |
| CH8-2                                            | 327       | 50+80              | LT    |                                   | 4                             |                   | 51+50                                                             |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        | 140                                            |                                                 |                                       |                        |  |  |
| CH8-3                                            | 327       | 1+00               | RT    |                                   | 4                             |                   | 1+50                                                              |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        | 150                                            |                                                 |                                       |                        |  |  |
| CH8-4                                            | 327       | 620+60             | LT    |                                   | 4                             |                   | 622+15                                                            |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        | 155                                            |                                                 |                                       |                        |  |  |
| CH8-5                                            | 327       | 620+60             | LT    |                                   | 12                            |                   | 623+00                                                            |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        | 480                                            |                                                 |                                       |                        |  |  |
| TLW-1                                            | 327       | 620+60             | LT    |                                   |                               |                   | 623+00                                                            |                                                                    |                                                        |                                                         |                                                        |                                   |                  |                              |                                  |                        |                                                | 100                                             |                                       |                        |  |  |
| PLS-1                                            | 327       | 51+30              | LT    |                                   |                               |                   |                                                                   |                                                                    |                                                        |                                                         |                                                        |                                   | 38               |                              |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| DLW-1                                            | 327       | 618+50             | LT/RT |                                   |                               |                   | 620+50                                                            |                                                                    |                                                        |                                                         |                                                        |                                   |                  | 105                          |                                  |                        |                                                |                                                 |                                       |                        |  |  |
| <b>SUBTOTAL</b>                                  |           |                    |       | 24                                | 73                            | 23                | 0.00                                                              | 0.05                                                               | 0.30                                                   | 0.31                                                    | 0.10                                                   | 397                               | 208              | 1925                         | 38                               | 105                    | 100                                            | 0                                               | 0                                     | 0                      |  |  |
| <b>TOTALS CARRIED TO SUBSUMMARY ON SHEET 313</b> |           |                    |       | 97                                |                               | 23                | 0.05                                                              |                                                                    | 0.61                                                   |                                                         | 0.10                                                   | 397                               | 208              | 1925                         | 38                               | 105                    | 100                                            | 0                                               | 0                                     | 0                      |  |  |

**PAVEMENT MARKING QUANTITIES ( 3 OF 6 )**

**DEL - 36.11.03**

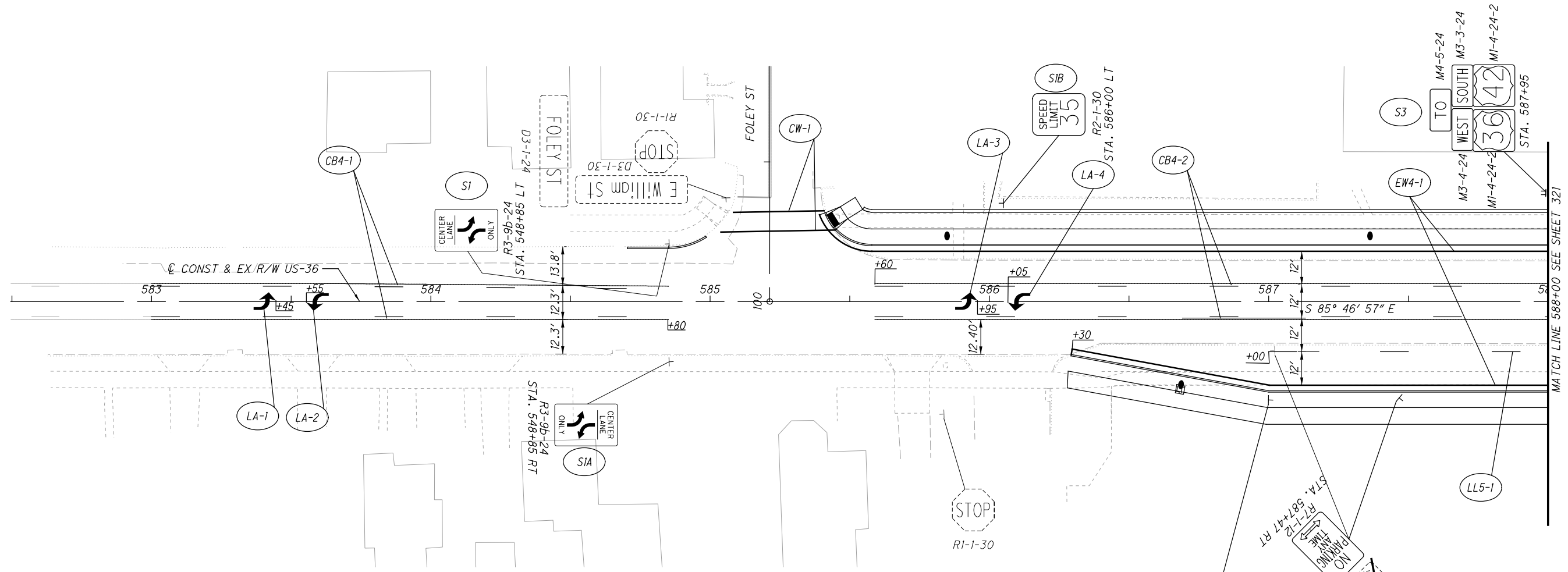
pw:\gfn\pw.bentley.com\gfn\pw-01\Documents\Projects\63519\103626\Design\Traffic\sheets\103626\_ps1011.dgn Sheet 4/28/2022 11:22:07 AM DPHALEN

| REF NO.                                   | SHEET NO. | STATION TO STATION |        | SIDE  | 621  | 621  | 644  | 644  | 644  | 644  | 644  | 644  | 644  | 644 | 644 | 644 | 644 | 644 | 644 |    |    |
|-------------------------------------------|-----------|--------------------|--------|-------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|----|----|
|                                           |           |                    |        |       | EACH | EACH | EACH | MILE | MILE | MILE | MILE | MILE | MILE | FT  | FT  | FT  | FT  | FT  | FT  | FT | FT |
| US 36                                     |           |                    |        |       |      |      |      |      |      |      |      |      |      |     |     |     |     |     |     |    |    |
| LA-1                                      | 328       | 624+25             |        | LT    |      |      | 1    |      |      |      |      |      |      |     |     |     |     |     |     |    |    |
| EW4-1                                     | 328       | 623+00             | 628+00 | LT    |      |      |      |      | 0.1  |      |      |      |      |     |     |     |     |     |     |    |    |
| EY4-1                                     | 328       | 623+00             | 625+50 | RT    | 10   |      |      |      |      | 0.15 |      |      |      |     |     |     |     |     |     |    |    |
| LL5-1                                     | 328       | 623+00             | 628+00 | LT/RT |      | 13   |      |      |      |      | 0.05 |      |      |     |     |     |     |     |     |    |    |
| LL5-2                                     | 328       | 628+00             | 633+50 | LT    |      | 7    |      |      |      |      | 0.03 |      |      |     |     |     |     |     |     |    |    |
| CH8-1                                     | 328       | 623+00             | 624+50 | LT    |      | 5    |      |      |      |      |      |      |      | 200 |     |     |     |     |     |    |    |
| TLW-1                                     | 328       | 623+00             | 623+50 | LT    |      |      |      |      |      |      |      |      |      |     |     | 10  |     |     |     |    |    |
| SR 37                                     |           |                    |        |       |      |      |      |      |      |      |      |      |      |     |     |     |     |     |     |    |    |
| CL4-1                                     | 329       | 14+50              | 17+00  | LT/RT | 5    |      |      |      | 0.15 |      |      |      |      |     |     |     |     |     |     |    |    |
| CL4-2                                     | 329       | 101+50             | 102+20 | RT    | 1    |      |      |      | 0.03 |      |      |      |      |     |     |     |     |     |     |    |    |
| EW4-1                                     | 329       | 13+80              | 17+00  | LT/RT |      |      |      |      |      | 0.11 |      |      |      |     |     |     |     |     |     |    |    |
| CW-1                                      | 329       | 120+40             |        | LT    |      |      |      |      |      |      |      | 40   |      |     |     |     |     |     |     |    |    |
| CW-2                                      | 329       | 102+40             |        | RT    |      |      |      |      |      |      |      | 61   |      |     |     |     |     |     |     |    |    |
| SL-1                                      | 329       | 120+50             |        | LT    |      |      |      |      |      |      |      |      | 7    |     |     |     |     |     |     |    |    |
| SL-2                                      | 329       | 102+30             |        | RT    |      |      |      |      |      |      |      |      | 16   |     |     |     |     |     |     |    |    |
| TLY-1                                     | 329       | 15+75              | 17+00  | LT/RT |      |      |      |      |      |      |      |      |      |     |     |     |     | 60  |     |    |    |
| LA-1                                      | 330       | 18+15              |        | LT/RT |      |      | 1    |      |      |      |      |      |      |     |     |     |     |     |     |    |    |
| LA-2                                      | 330       | 18+15              |        | RT    |      |      | 1    |      |      |      |      |      |      |     |     |     |     |     |     |    |    |
| LA-3                                      | 330       | 19+45              |        | LT/RT |      |      | 1    |      |      |      |      |      |      |     |     |     |     |     |     |    |    |
| LA-4                                      | 330       | 19+45              |        | RT    |      |      | 1    |      |      |      |      |      |      |     |     |     |     |     |     |    |    |
| CL4-1                                     | 330       | 17+00              | 20+00  | LT/RT | 5    |      |      |      | 0.16 |      |      |      |      |     |     |     |     |     |     |    |    |
| EW4-1                                     | 330       | 17+00              | 20+00  | LT/RT |      |      |      |      |      | 0.12 |      |      |      |     |     |     |     |     |     |    |    |
| CH8-1                                     | 330       | 18+00              | 20+00  | RT    |      | 5    |      |      |      |      |      |      |      | 200 |     |     |     |     |     |    |    |
| CW-1                                      | 330       | 110+30             |        | LT    |      |      |      |      |      |      |      | 53   |      |     |     |     |     |     |     |    |    |
| SL-1                                      | 330       | 110+40             |        | LT    |      |      |      |      |      |      |      |      | 10   |     |     |     |     |     |     |    |    |
| TLY-1                                     | 330       | 17+00              | 18+00  | LT/RT |      |      |      |      |      |      |      |      |      |     |     |     |     | 48  |     |    |    |
| LA-1                                      | 331       | 40+75              |        | LT    |      |      | 1    |      |      |      |      |      |      |     |     |     |     |     |     |    |    |
| LA-2                                      | 331       | 40+75              |        | LT    |      |      | 1    |      |      |      |      |      |      |     |     |     |     |     |     |    |    |
| LA-3                                      | 331       | 41+40              |        | LT    |      |      | 1    |      |      |      |      |      |      |     |     |     |     |     |     |    |    |
| LA-4                                      | 331       | 41+40              |        | LT    |      |      | 1    |      |      |      |      |      |      |     |     |     |     |     |     |    |    |
| CL4-1                                     | 331       | 30+00              | 30+50  | RT    | 1    |      |      |      | 0.02 |      |      |      |      |     |     |     |     |     |     |    |    |
| EY4-1                                     | 331       | 30+00              | 34+00  | RT    | 7    |      |      |      |      | 0.11 |      |      |      |     |     |     |     |     |     |    |    |
| CH8-1                                     | 331       | 40+00              | 41+50  | LT    |      | 4    |      |      |      |      |      |      |      |     |     |     |     |     |     |    |    |
| CW-1                                      | 331       | 31+50              |        | RT    |      |      |      |      |      |      |      | 106  |      |     | 150 |     |     |     |     |    |    |
| SUBTOTAL                                  |           |                    |        |       | 29   | 34   | 9    | 0.00 | 0.36 | 0.33 | 0.26 | 0.08 | 260  | 33  | 550 | 0   | 0   | 10  | 108 | 0  | 0  |
| TOTALS CARRIED TO SUBSUMMARY ON SHEET 313 |           |                    |        |       | 63   |      | 9    | 0.36 |      | 0.59 |      | 0.08 | 260  | 33  | 550 | 0   | 0   | 118 |     | 0  | 0  |

| REF NO.                                   | SHEET NO. | STATION TO STATION |       | SIDE  | 644                        |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
|-------------------------------------------|-----------|--------------------|-------|-------|----------------------------|------------------------|------------|------------------------------------------------------|-------------------------------------------------------|----------------------------------------------|-----------------------------------------------|----------------------------------------------|----------------------------|-----------|-----------------------|---------------------------|-----------------|--------------------------------------|---------------------------------------|-----------------------------|-----------------|-----|--|
|                                           |           |                    |       |       | 621                        | 621                    | 644        | 644                                                  | 644                                                   | 644                                          | 644                                           | 644                                          | 644                        | 644       | 644                   | 644                       | 644             | 644                                  | 644                                   | 644                         | 644             | 644 |  |
|                                           |           |                    |       |       | RPM, 2 WAY (YELLOW/YELLOW) | RPM, 2 WAY (WHITE/RED) | LANE ARROW | PAVEMENT MARKING, MISC.:CENTERLINE, BROKEN/SOLID, 4" | PAVEMENT MARKING, MISC.:CENTERLINE, SOLID, DOUBLE, 4" | PAVEMENT MARKING, MISC.:EDGE LINE, WHITE, 4" | PAVEMENT MARKING, MISC.:EDGE LINE, YELLOW, 4" | PAVEMENT MARKING, MISC.:LANE LINE, WHITE, 5" | CROSSWALK LINE, WHITE, 12" | STOP LINE | CHANNELIZING LINE, 8" | PARKING LOT STALL MARKING | DOTTED LINE, 8" | TRANSVERSE/DIAGONAL LINE, WHITE, 24" | TRANSVERSE/DIAGONAL LINE, YELLOW, 24" | REMOVAL OF PAVEMENT MARKING | CHEVRON MARKING |     |  |
|                                           |           |                    |       |       | EACH                       | EACH                   | EACH       | MILE                                                 | MILE                                                  | MILE                                         | MILE                                          | MILE                                         | FT                         | FT        | FT                    | FT                        | FT              | FT                                   | FT                                    | FT                          | FT              | FT  |  |
| SR 521                                    |           |                    | TO    |       |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-1                                      | 332       | 52+25              |       | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-2                                      | 332       | 52+22              |       | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-3                                      | 332       | 52+25              |       | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-4                                      | 332       | 53+25              |       | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-5                                      | 332       | 53+22              |       | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-6                                      | 332       | 53+45              |       | RT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-7                                      | 332       | 54+20              |       | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-8                                      | 332       | 54+52              |       | RT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LA-9                                      | 332       | 55+62              |       | RT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CL4-1                                     | 332       | 51+50              | 53+50 | LT    | 3                          |                        |            | 0.08                                                 |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CL4-2                                     | 332       | 90+50              |       | RT    |                            |                        |            | 0.01                                                 |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CL4-3                                     | 332       | 54+20              | 55+00 | LT/RT | 1                          |                        |            | 0.04                                                 |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CL4-4                                     | 332       | 55+00              | 57+00 | LT/RT | 5                          |                        |            | 0.16                                                 |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| EW4-1                                     | 332       | 51+50              | 57+00 | RT    |                            |                        |            |                                                      | 0.11                                                  |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| LL5-1                                     | 332       | 51+50              | 55+00 | RT    |                            |                        |            |                                                      |                                                       | 0.02                                         |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CH8-1                                     | 332       | 51+50              | 52+40 | LT    |                            | 3                      |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           | 90              |                                      |                                       |                             |                 |     |  |
| CH8-2                                     | 332       | 51+50              | 53+50 | LT    |                            | 5                      |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           | 200             |                                      |                                       |                             |                 |     |  |
| CH8-3                                     | 332       | 53+00              | 53+50 | LT/RT |                            | 2                      |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           | 50              |                                      |                                       |                             |                 |     |  |
| CH8-4                                     | 332       | 90+50              |       | RT    |                            | 2                      |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           | 10              |                                      |                                       |                             |                 |     |  |
| CH8-5                                     | 332       | 54+20              | 55+50 | LT    |                            | 6                      |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           | 210             |                                      |                                       |                             |                 |     |  |
| CH8-6                                     | 332       | 54+20              | 54+85 | LT    |                            | 2                      |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           | 65              |                                      |                                       |                             |                 |     |  |
| CW-1                                      | 332       | 51+75              |       | RT    |                            |                        |            |                                                      |                                                       |                                              |                                               | 40                                           |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CW-2                                      | 332       | 90+50              |       | RT    |                            |                        |            |                                                      |                                                       |                                              |                                               | 134                                          |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| SL-1                                      | 332       | 90+50              |       | RT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              | 29                         |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| PLS-1                                     | 332       | 52+00              | 53+30 | RT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       | 160                       |                 |                                      |                                       |                             |                 |     |  |
| TLY-1                                     | 332       | 55+00              | 57+00 | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 | 152                                  |                                       |                             |                 |     |  |
| DLW-1                                     | 332       | 55+00              | 57+00 | RT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           | 50              |                                      |                                       |                             |                 |     |  |
| CL4-1                                     | 333       | 57+00              | 59+00 | LT/RT | 5                          |                        |            | 0.16                                                 |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| EW4-1                                     | 333       | 57+00              | 59+00 | LT/RT |                            |                        |            |                                                      | 0.08                                                  |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CW-1                                      | 333       | 59+10              |       | LT/RT |                            |                        |            |                                                      |                                                       |                                              |                                               | 157                                          |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CW-2                                      | 333       | 59+50              |       | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               | 199                                          |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| CW-3                                      | 333       | 60+00              |       | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               | 157                                          |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| SL-1                                      | 333       | 59+50              |       | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              | 16                         |           |                       |                           |                 |                                      |                                       |                             | 16              |     |  |
| SL-2                                      | 333       | 60+00              |       | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              | 13                         |           |                       |                           |                 |                                      |                                       |                             | 13              |     |  |
| TLY-1                                     | 333       | 57+00              | 59+00 | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |     |  |
| DLW-1                                     | 333       | 57+00              | 58+00 | RT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           | 25              |                                      |                                       |                             |                 |     |  |
| SUBTOTAL                                  |           |                    |       |       | 14                         | 20                     | 9          | 0.00                                                 | 0.45                                                  | 0.19                                         | 0.00                                          | 0.02                                         | 687                        | 58        | 625                   | 160                       | 75              | 272                                  | 0                                     | 29                          | 0               |     |  |
| TOTALS CARRIED TO SUBSUMMARY ON SHEET 313 |           |                    |       |       | 34                         | 9                      | 0.45       | 0.19                                                 | 0.02                                                  | 687                                          | 58                                            | 625                                          | 160                        | 75        | 272                   | 29                        | 0               |                                      |                                       |                             |                 |     |  |



| REF NO.                                          | SHEET NO. | STATION TO STATION |      | SIDE  | 621                        | 621                    | 644        | 644                                                  | 644                                                   | 644                                          | 644                                           | 644                                          | 644                        | 644       | 644                   | 644                       | 644             | 644                                  | 644                                   |                             |                 |
|--------------------------------------------------|-----------|--------------------|------|-------|----------------------------|------------------------|------------|------------------------------------------------------|-------------------------------------------------------|----------------------------------------------|-----------------------------------------------|----------------------------------------------|----------------------------|-----------|-----------------------|---------------------------|-----------------|--------------------------------------|---------------------------------------|-----------------------------|-----------------|
|                                                  |           |                    |      |       | RPM, 2 WAY (YELLOW/YELLOW) | RPM, 2 WAY (WHITE/RED) | LANE ARROW | PAVEMENT MARKING, MISC.:CENTERLINE, BROKEN/SOLID, 4" | PAVEMENT MARKING, MISC.:CENTERLINE, SOLID, DOUBLE, 4" | PAVEMENT MARKING, MISC.:EDGE LINE, WHITE, 4" | PAVEMENT MARKING, MISC.:EDGE LINE, YELLOW, 4" | PAVEMENT MARKING, MISC.:LANE LINE, WHITE, 5" | CROSSWALK LINE, WHITE, 12" | STOP LINE | CHANNELIZING LINE, 8" | PARKING LOT STALL MARKING | DOTTED LINE, 8" | TRANSVERSE/DIAGONAL LINE, WHITE, 24" | TRANSVERSE/DIAGONAL LINE, YELLOW, 24" | REMOVAL OF PAVEMENT MARKING | CHEVRON MARKING |
|                                                  |           | TO                 |      |       | EACH                       | EACH                   | EACH       | MILE                                                 | MILE                                                  | MILE                                         | MILE                                          | MILE                                         | FT                         | FT        | FT                    | FT                        | FT              | FT                                   | FT                                    | FT                          |                 |
| <b>MILL RUN CROSSING</b>                         |           |                    |      |       |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| LA-1                                             | 334       | 2+45               |      | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| LA-2                                             | 334       | 2+45               |      | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| LA-3                                             | 334       | 2+25               |      | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| LA-4                                             | 334       | 2+25               |      | RT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| LA-5                                             | 334       | 3+10               |      | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| LA-6                                             | 334       | 3+15               |      | RT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| LA-7                                             | 334       | 4+20               |      | RT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| LA-8                                             | 334       | 5+41               |      | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| LA-9                                             | 334       | 6+07               |      | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| CL4-1                                            | 334       | 1+50               | 3+30 | RT    | 3                          |                        |            | 0.07                                                 |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| CL4-2                                            | 334       | 3+30               | 4+50 | LT    | 3                          |                        |            | 0.1                                                  |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| CL4-3                                            | 334       | 5+25               | 6+20 | LT    | 2                          |                        |            | 0.04                                                 |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| CH8-1                                            | 334       | 1+50               | 2+85 | LT    |                            | 4                      |            |                                                      |                                                       |                                              |                                               |                                              |                            | 135       |                       |                           |                 |                                      |                                       |                             |                 |
| CH8-2                                            | 334       | 1+50               | 3+00 | LT    |                            | 4                      |            |                                                      |                                                       |                                              |                                               |                                              |                            | 150       |                       |                           |                 |                                      |                                       |                             |                 |
| CH8-3                                            | 334       | 1+50               | 2+30 | RT    |                            | 2                      |            |                                                      |                                                       |                                              |                                               |                                              |                            | 80        |                       |                           |                 |                                      |                                       |                             |                 |
| CH8-4                                            | 334       | 2+80               | 4+50 | RT    |                            | 5                      |            |                                                      |                                                       |                                              |                                               |                                              |                            | 170       |                       |                           |                 |                                      |                                       |                             |                 |
| CH8-5                                            | 334       | 5+25               | 6+20 | LT    |                            | 3                      |            |                                                      |                                                       |                                              |                                               |                                              |                            | 95        |                       |                           |                 |                                      |                                       |                             |                 |
| TLY-1                                            | 334       | 3+25               | 4+50 | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      | 90                                    |                             |                 |
| <b>E CENTRAL AVE AND LAKE ST</b>                 |           |                    |      |       |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| LA-1                                             | 335       | E CENTRAL AVE      |      | RT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| LA-2                                             | 335       | E CENTRAL AVE      |      | RT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| LA-3                                             | 335       | E CENTRAL AVE      |      | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| LA-4                                             | 335       | E CENTRAL AVE      |      | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| LA-5                                             | 335       | US 42/LAKE ST      |      | LT    |                            |                        | 1          |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| CL4-1                                            | 335       | US 42/LAKE ST      |      | LT/RT | 4                          |                        |            | 0.1                                                  |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| CL4-2                                            | 335       | E CENTRAL AVE      |      | RT    | 2                          |                        |            | 0.02                                                 |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| CL4-3                                            | 335       | US 42/LAKE ST      |      | LT/RT | 2                          |                        |            | 0.05                                                 |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| CL4-4                                            | 335       | E CENTRAL AVE      |      | LT    | 2                          |                        |            | 0.05                                                 |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| SL-1                                             | 335       | US 42/LAKE ST      |      | LT/RT |                            |                        |            |                                                      |                                                       |                                              |                                               | 20                                           |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| SL-2                                             | 335       | E CENTRAL AVE      |      | LT/RT |                            |                        |            |                                                      |                                                       |                                              |                                               | 20                                           |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| SL-3                                             | 335       | US 42/LAKE ST      |      | LT/RT |                            |                        |            |                                                      |                                                       |                                              |                                               | 24                                           |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| SL-4                                             | 335       | E CENTRAL AVE      |      | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               | 12                                           |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| SL-5                                             | 335       | E CENTRAL AVE      |      | RT    |                            |                        |            |                                                      |                                                       |                                              |                                               | 12                                           |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| CH8-1                                            | 335       | E CENTRAL AVE      |      | RT    |                            | 1                      |            |                                                      |                                                       |                                              |                                               |                                              |                            | 40        |                       |                           |                 |                                      |                                       |                             |                 |
| CH8-2                                            | 335       | US 42/LAKE ST      |      | LT    |                            | 2                      |            |                                                      |                                                       |                                              |                                               |                                              |                            | 75        |                       |                           |                 |                                      |                                       |                             |                 |
| CH8-3                                            | 335       | E CENTRAL AVE      |      | LT    |                            | 2                      |            |                                                      |                                                       |                                              |                                               |                                              | 211                        | 70        |                       |                           |                 |                                      |                                       |                             |                 |
| CW-1                                             | 335       | US 42/LAKE ST      |      | LT/RT |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              | 188                        |           |                       |                           |                 |                                      |                                       |                             |                 |
| CW-2                                             | 335       | E CENTRAL AVE      |      | LT/RT |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              | 173                        |           |                       |                           |                 |                                      |                                       |                             |                 |
| CW-3                                             | 335       | US 42/LAKE ST      |      | LT/RT |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           |                       |                           |                 |                                      |                                       |                             |                 |
| DLW-1                                            | 335       | E CENTRAL AVE      |      | LT    |                            |                        |            |                                                      |                                                       |                                              |                                               |                                              |                            |           | 10                    |                           |                 |                                      |                                       |                             |                 |
| <b>SUBTOTAL</b>                                  |           |                    |      |       | 18                         | 23                     | 14         | 0.00                                                 | 0.43                                                  | 0.00                                         | 0.00                                          | 0.00                                         | 572                        | 88        | 815                   | 0                         | 10              | 0                                    | 90                                    | 0                           | 0               |
| <b>TOTALS CARRIED TO SUBSUMMARY ON SHEET 313</b> |           |                    |      |       | 41                         | 14                     | 0.43       | 0.00                                                 | 0.00                                                  | 0.00                                         | 572                                           | 88                                           | 815                        | 0         | 10                    | 90                        | 0               | 0                                    |                                       |                             |                 |



**LEGEND**

ALL PAVEMENT MARKINGS SHALL BE ITEM 644 THERMOPLASTIC

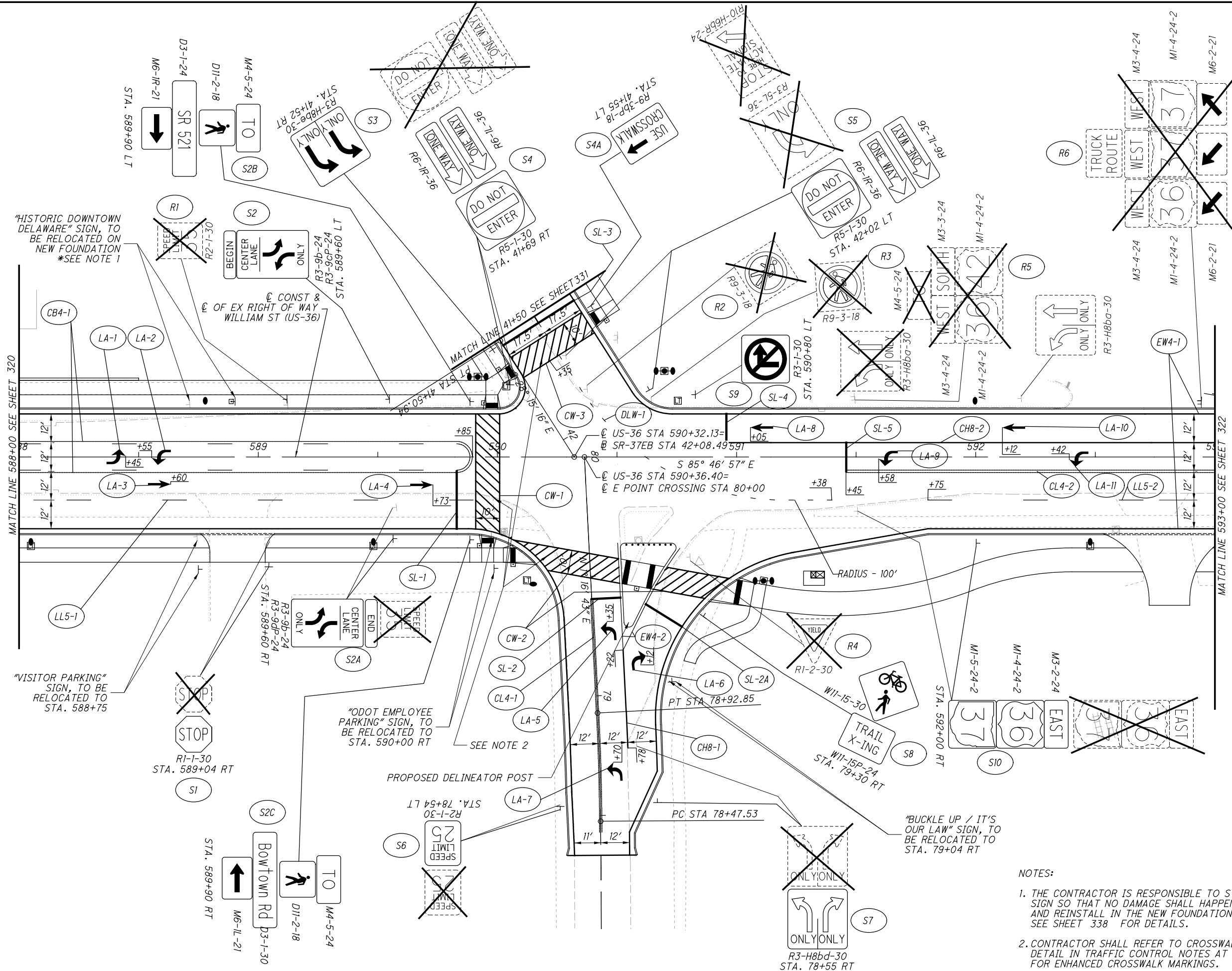
- |  |                                                         |  |                                                            |
|--|---------------------------------------------------------|--|------------------------------------------------------------|
|  | PROPOSED SIGN                                           |  | = DELINEATOR, POST SURFACE MOUNTED (TYPE C, WHITE, 720.03) |
|  | EXISTING SIGN TO REMAIN<br>(RELOCATIONS NOTED IN PLANS) |  | = PROPOSED SIGN (1 OR 2 POSTS)                             |
|  | EXISTING SIGN TO BE REMOVED                             |  | = EXISTING SIGN (1 OR 2 POSTS)                             |
|  | LL5 = LANE LINE, WHITE, 5" (*RPM)                       |  | YL = YIELD LINE, WHITE, 24"                                |
|  | CL4 = CENTERLINE, SOLID, DOUBLE, 4" (*RPM)              |  | TLW = TRANSVERSE/DIAGONAL LINE, WHITE, 24"                 |
|  | CB4 = CENTERLINE, BROKEN/SOLID, 4" (*RPM)               |  | TLY = TRANSVERSE/DIAGONAL LINE, YELLOW, 24"                |
|  | CH8 = CHANNELIZING LINE, WHITE, 8" (*RPM)               |  | CM = CHEVRON MARKING, WHITE, 24"                           |
|  | EW4 = EDGE LINE, WHITE, 4"                              |  | DLW = DOTTED LINE, WHITE, 8"                               |
|  | EY4 = EDGE LINE, YELLOW, 4" (*RPM)                      |  | LA = LANE ARROW                                            |
|  | CW = CROSSWALK LINE, WHITE, 12"                         |  | R = EXISTING MARKING TO BE REMOVED                         |
|  | PLS = PARKING LOT STALL LINE, 4"                        |  |                                                            |
|  | SL = STOP LINE, WHITE, 24"                              |  |                                                            |

\*RPM - RAISED PAVEMENT MARKERS TO BE INSTALLED PER SCD TC-65.10 & TC-65.11

CALCULATED SA CHECKED PHF

**TRAFFIC CONTROL PLAN - US-36  
STA 582+50 TO STA 588+00**

**DEL-36-11.03**



- NOTES:
1. THE CONTRACTOR IS RESPONSIBLE TO STORE THE SIGN SO THAT NO DAMAGE SHALL HAPPEN TO THE SIGN AND REINSTALL IN THE NEW FOUNDATION. SEE SHEET 338 FOR DETAILS.
  2. CONTRACTOR SHALL REFER TO CROSSWALK MARKING DETAIL IN TRAFFIC CONTROL NOTES AT SHEET 301 FOR ENHANCED CROSSWALK MARKINGS.

CALCULATED SA PHF

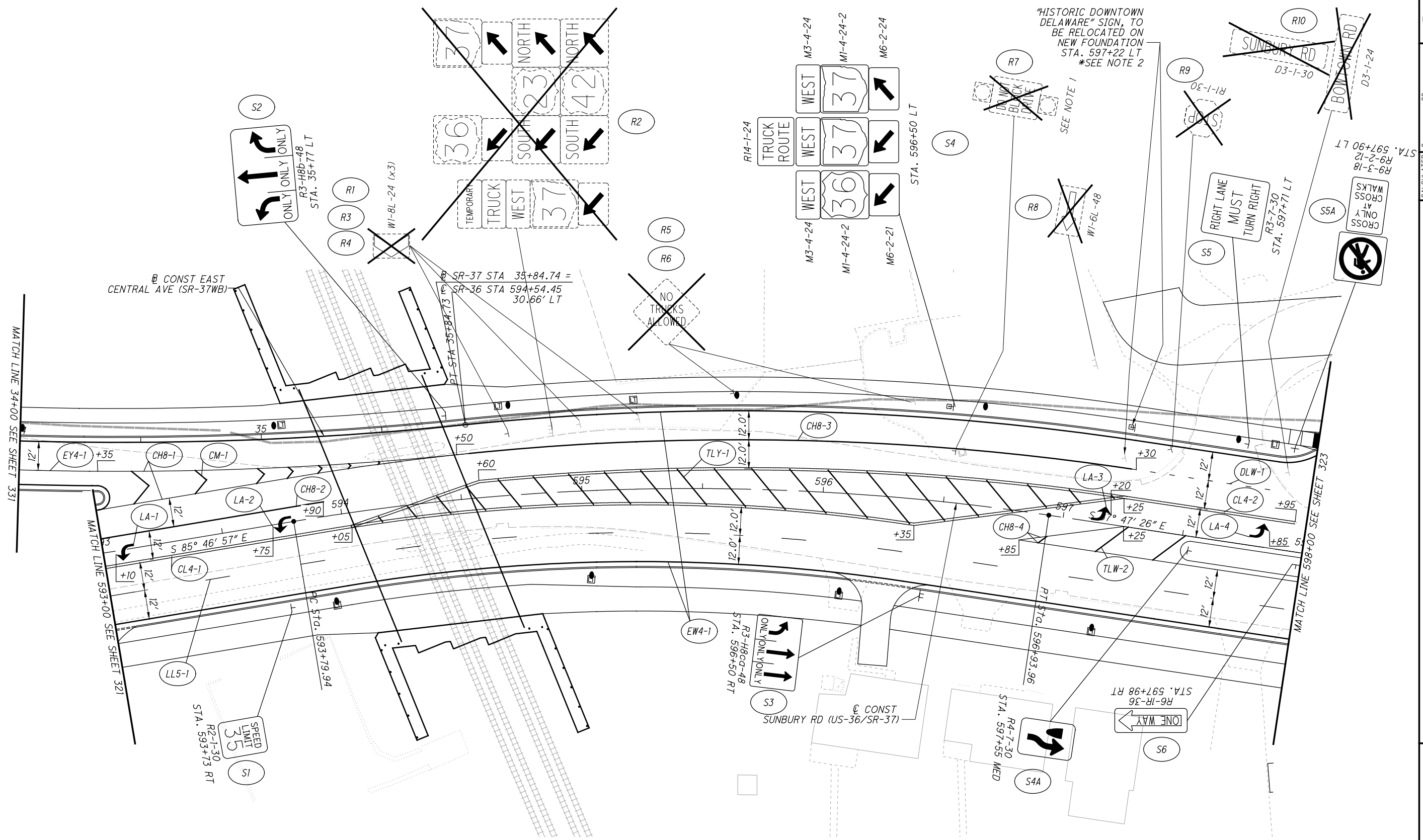
0 20 40

10 HORIZONTAL SCALE IN FEET

40

PHF

TRAFFIC CONTROL PLAN - US-36  
STA 588+00 TO STA 593+00

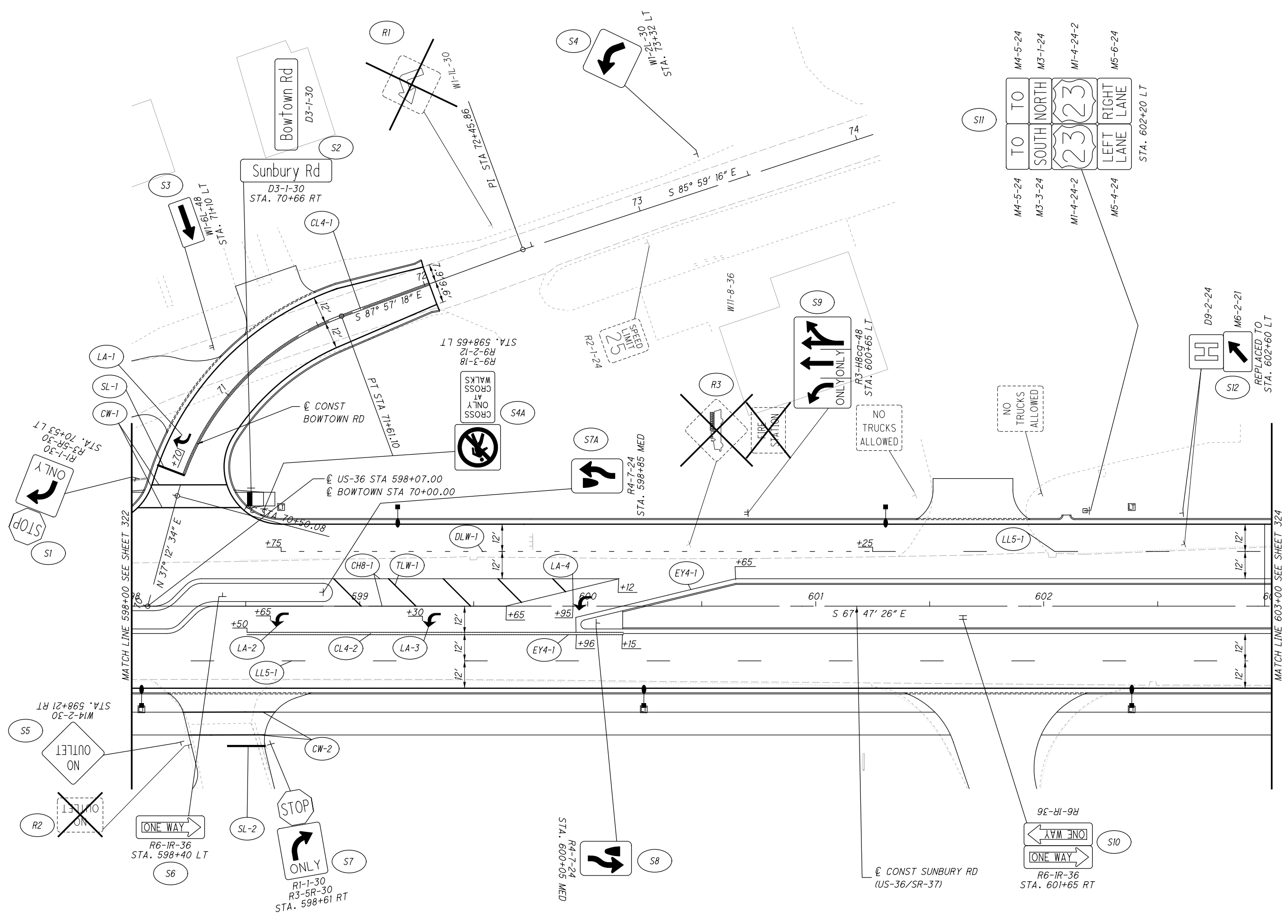


- NOTES:
1. REMOVE EXISTING "DO NOT BLOCK DRIVEWAY" SIGN, FLASHER, CONTROLLER, AERIAL POWER SERVICE, PEDESTAL, AND FOUNDATION.
  2. THE CONTRACTOR IS RESPONSIBLE TO STORE THE SIGN SO THAT NO DAMAGE SHALL HAPPEN TO THE SIGN AND REINSTALL IN THE NEW FOUNDATION. SEE SHEET 338 FOR DETAILS.



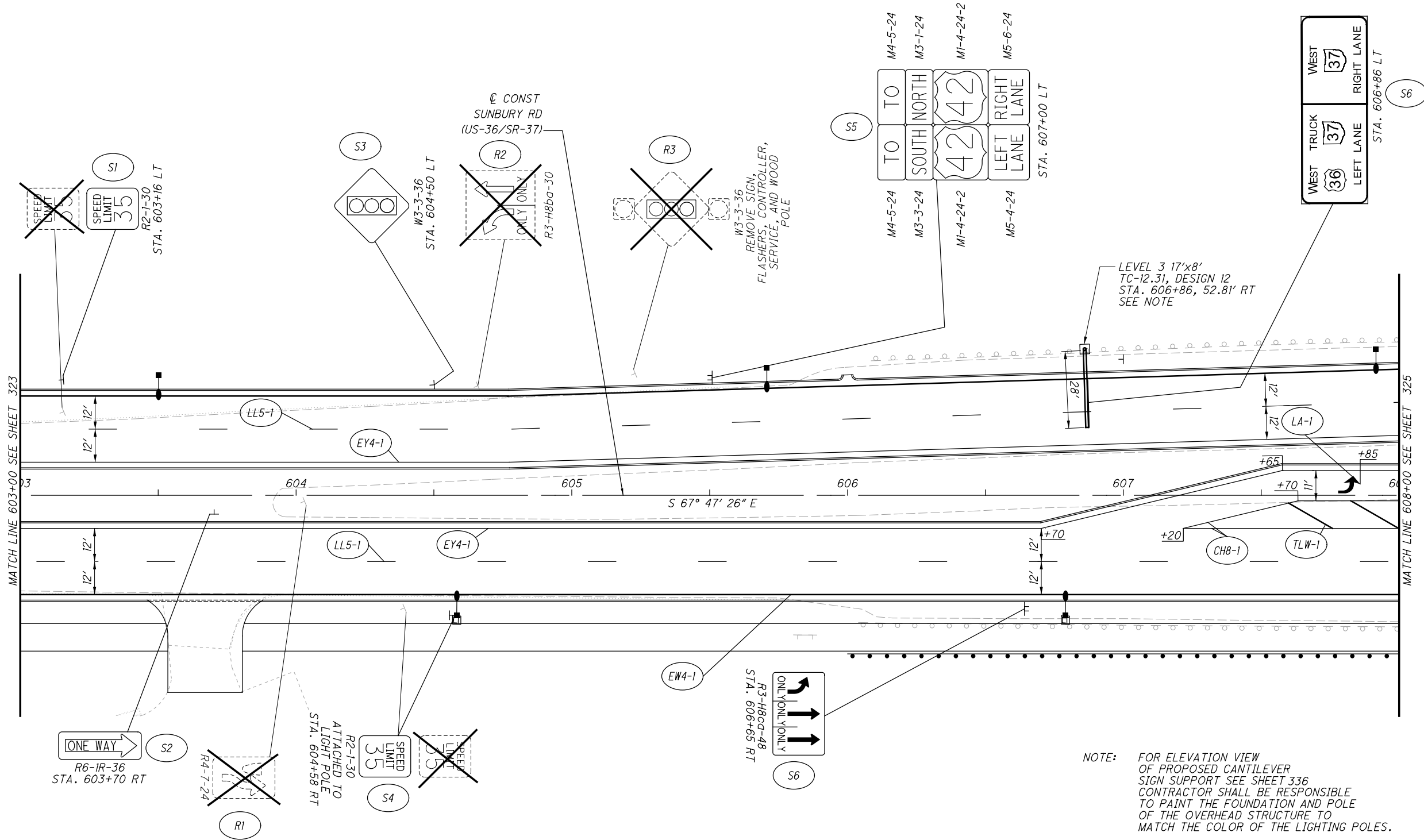
**TRAFFIC CONTROL PLAN - US-36  
STA 593+00 TO STA 598+00**

**DEL-36-11.03**



CALCULATED SA  
 CHECKED PHF  
 0 20 40  
 HORIZONTAL SCALE IN FEET

**TRAFFIC CONTROL PLAN - US-36**  
**STA 598+00 TO STA 603+00**



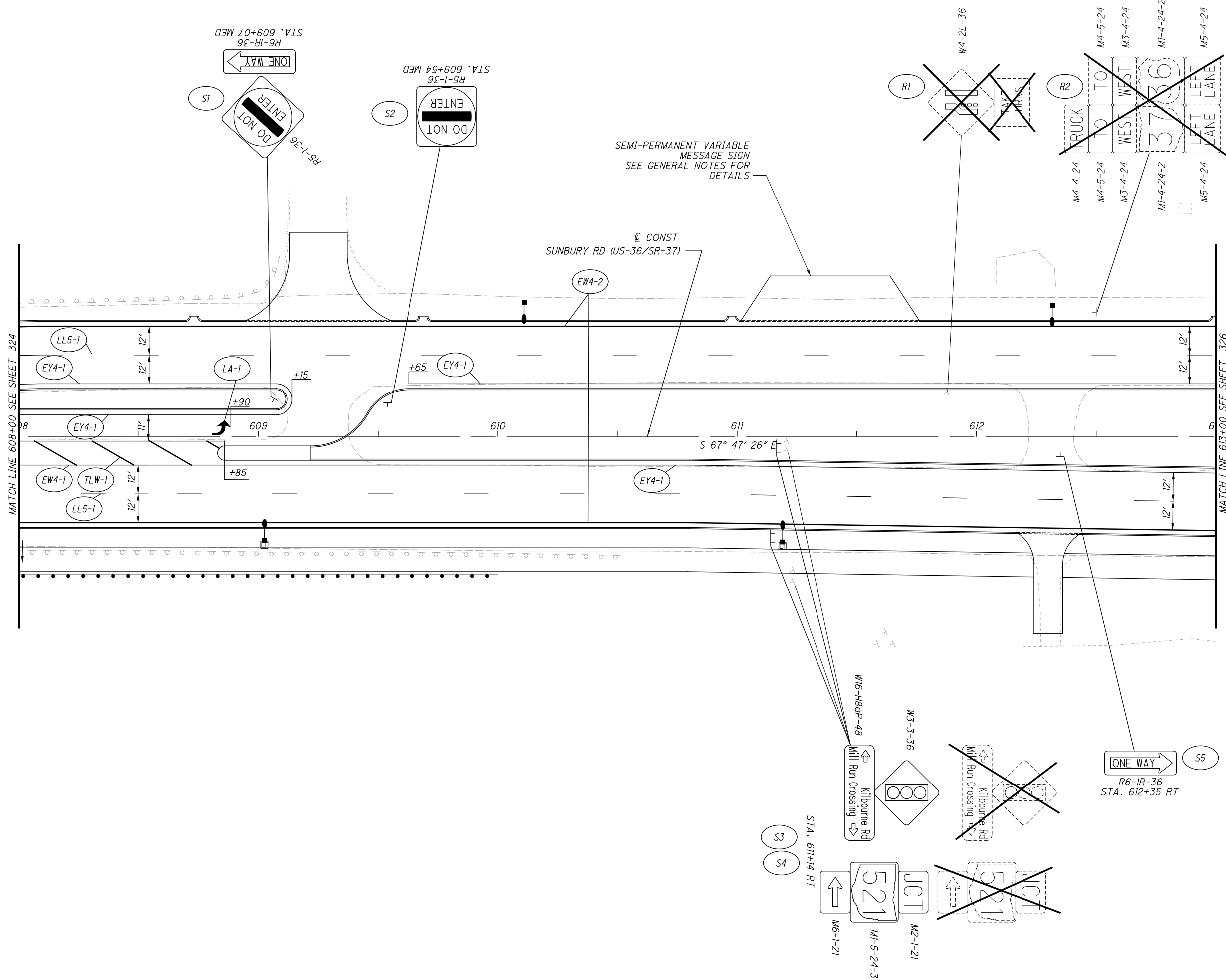
NOTE: FOR ELEVATION VIEW OF PROPOSED CANTILEVER SIGN SUPPORT SEE SHEET 336. CONTRACTOR SHALL BE RESPONSIBLE TO PAINT THE FOUNDATION AND POLE OF THE OVERHEAD STRUCTURE TO MATCH THE COLOR OF THE LIGHTING POLES.

CALCULATED SA CHECKED PHF

0 20 40 HORIZONTAL SCALE IN FEET

TRAFFIC CONTROL PLAN - US-36  
STA 603+00 TO STA 608+00

DEL-36-11.03

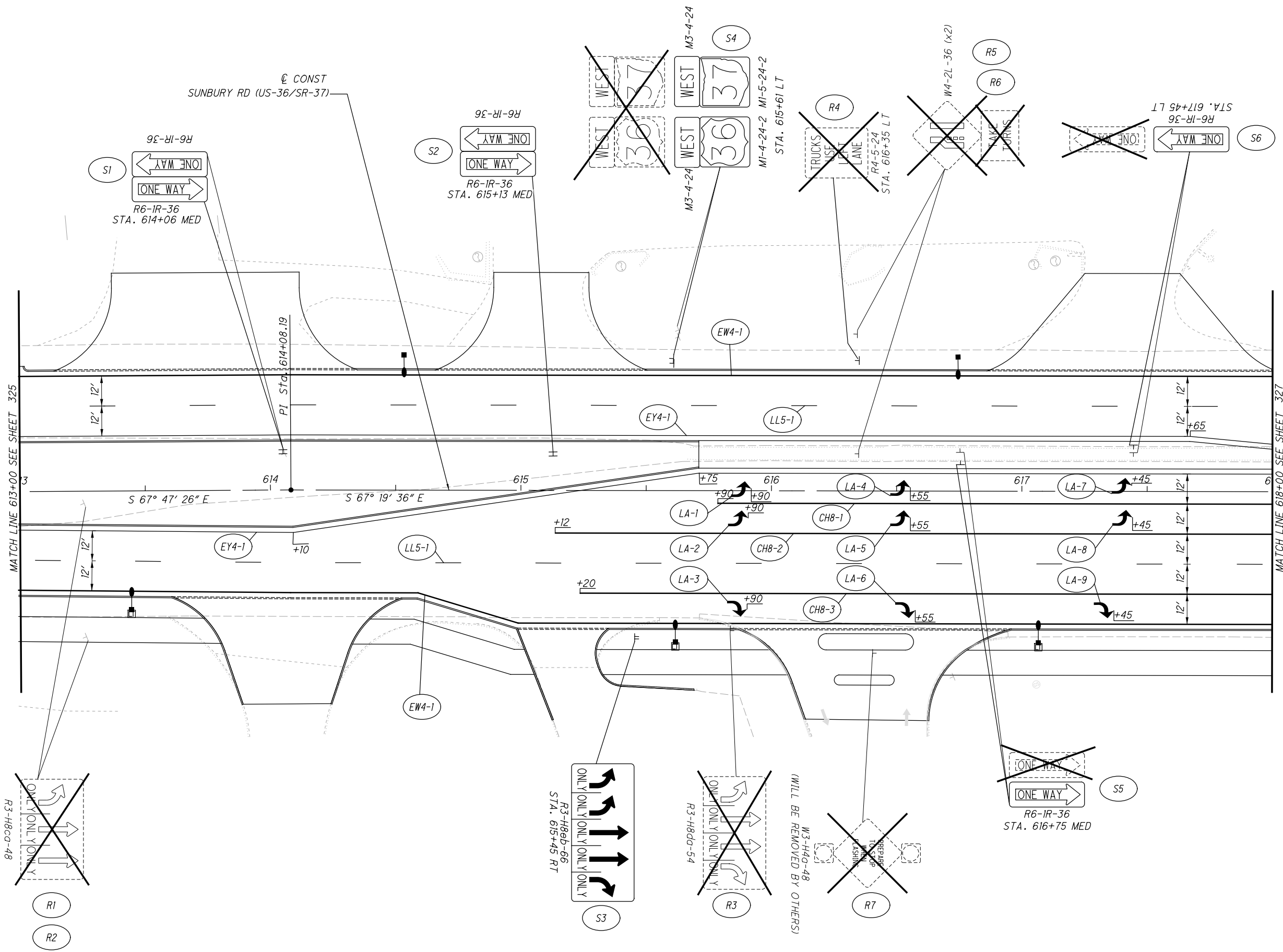


CALCULATED SA PHF

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HORIZONTAL SCALE IN FEET

**TRAFFIC CONTROL PLAN - US-36**  
**STA 608+00 TO STA 613+00**



CALCULATED 0  
 SA  
 CHECKED PHF

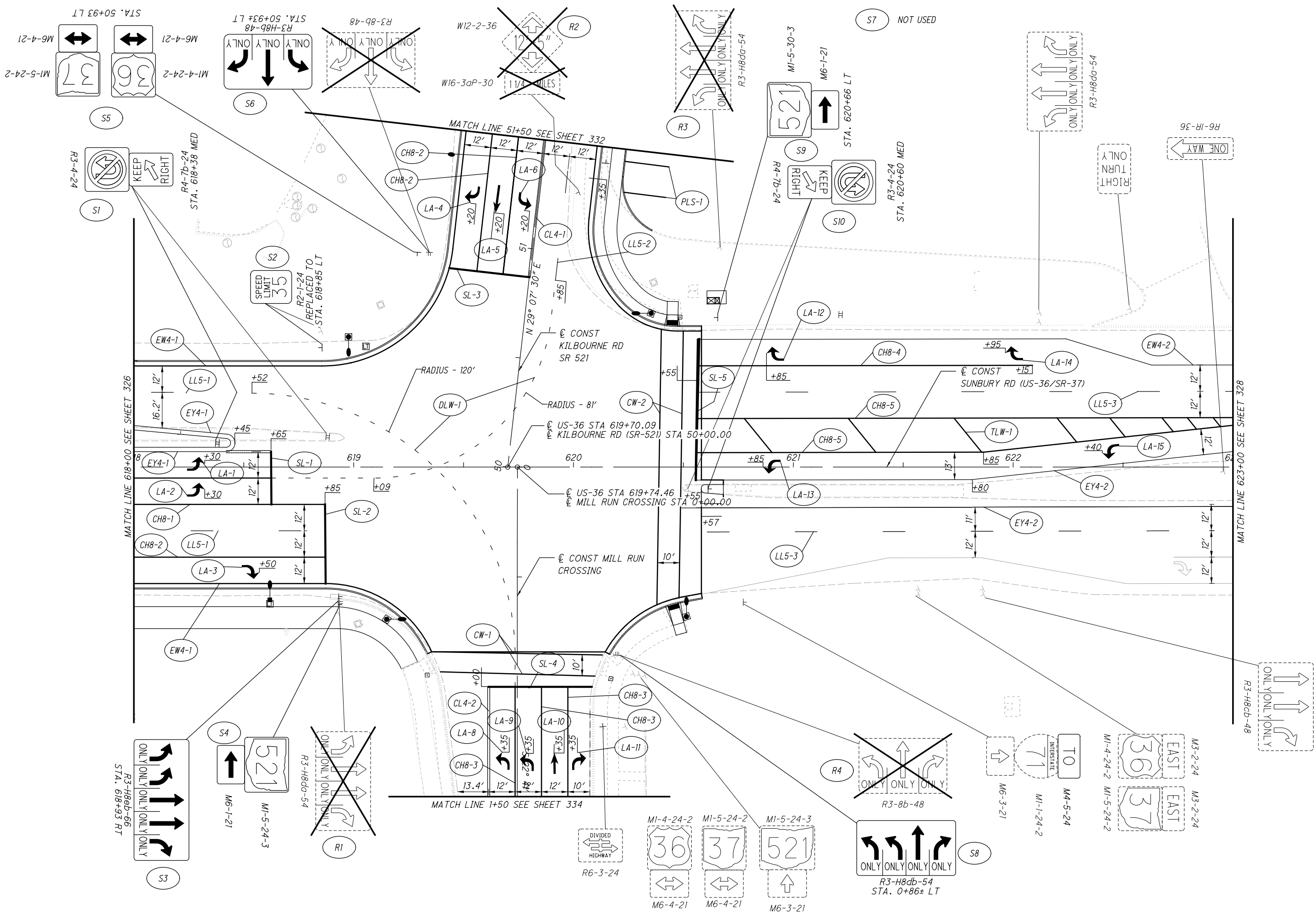
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 1" = 40'  
 HORIZONTAL SCALE IN FEET

**TRAFFIC CONTROL PLAN - US-36**  
**STA 613+00 TO STA 618+00**

**DEL-36-11.03**



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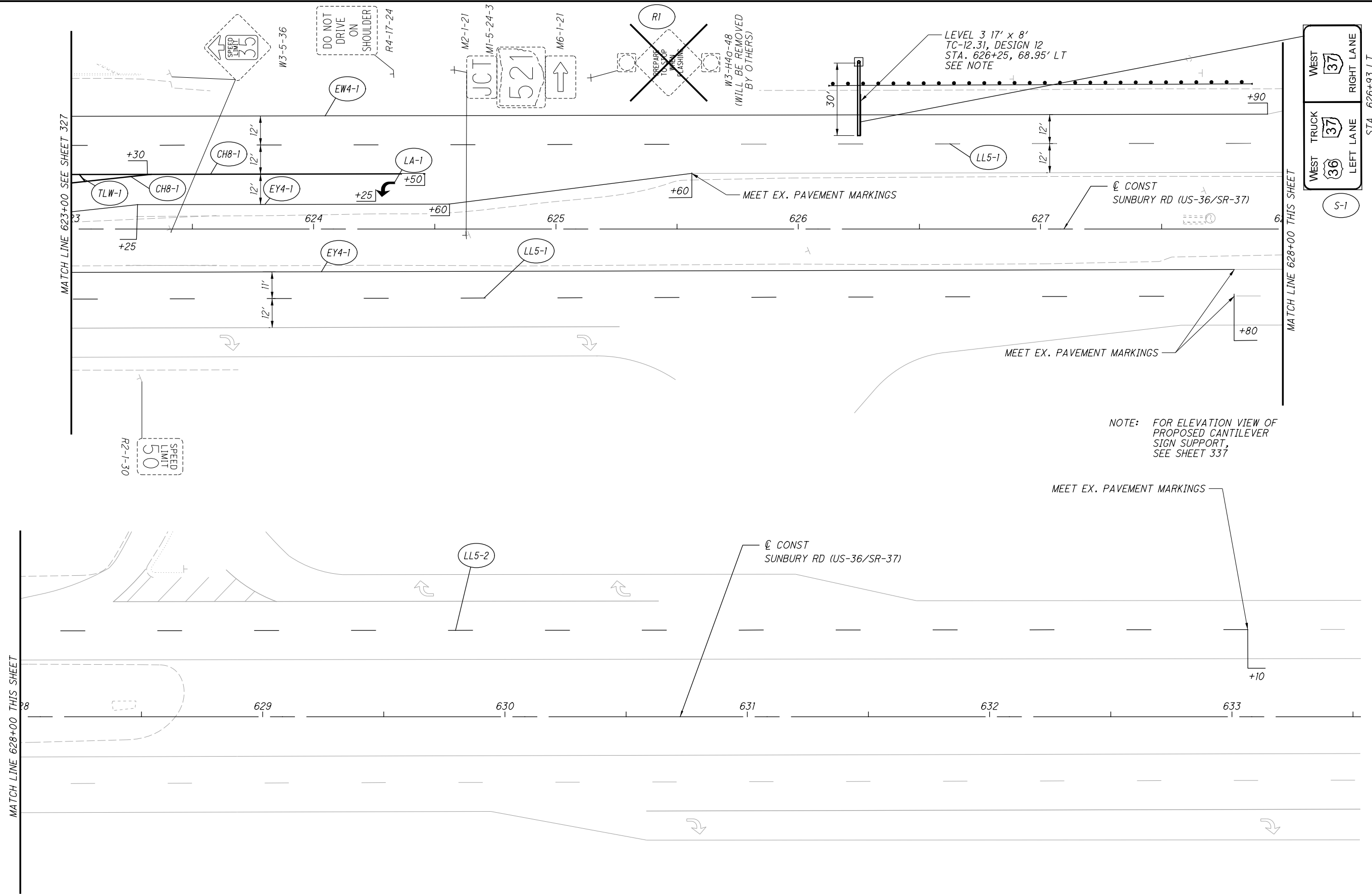
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 CHECKED PHF

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**TRAFFIC CONTROL PLAN - US-36  
 STA 618+00 TO STA 623+00**

**DEL-36-11.03**

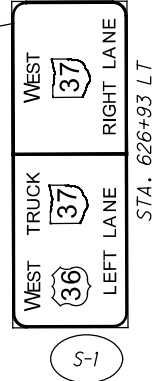
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 644



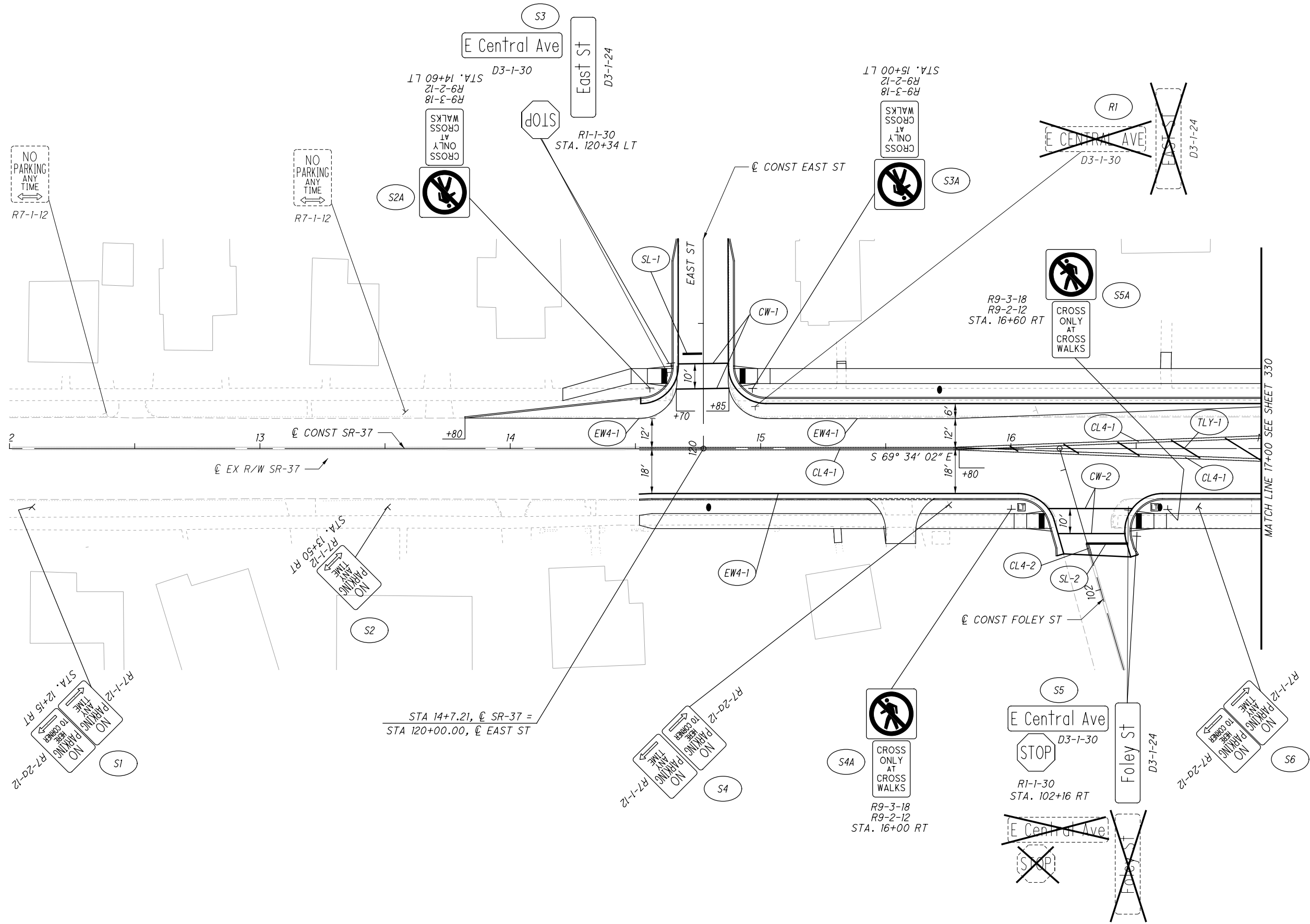
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 CHECKED PHF  
 HORIZONTAL SCALE IN FEET  
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**TRAFFIC CONTROL PLAN - US-36**  
**STA 238+00 TO STA 633+50**

DEL-36-11.03  
 328  
 644



STA. 626+93 LT

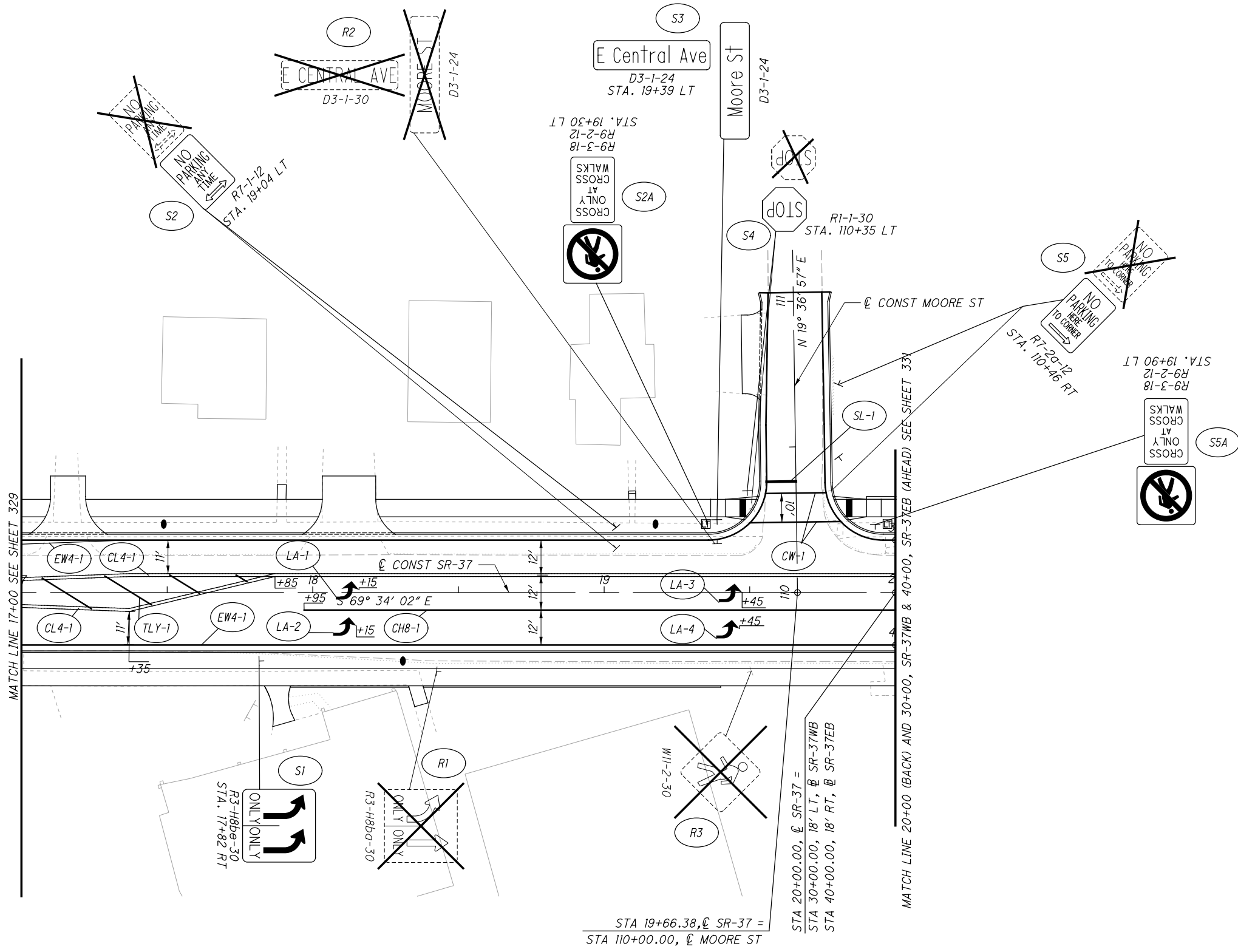


CALCULATED SA PHF  
 CHECKED PHF

0 20 40  
 HORIZONTAL SCALE IN FEET

**TRAFFIC CONTROL PLAN - SR-37  
 STA 12+00 TO STA 17+00**

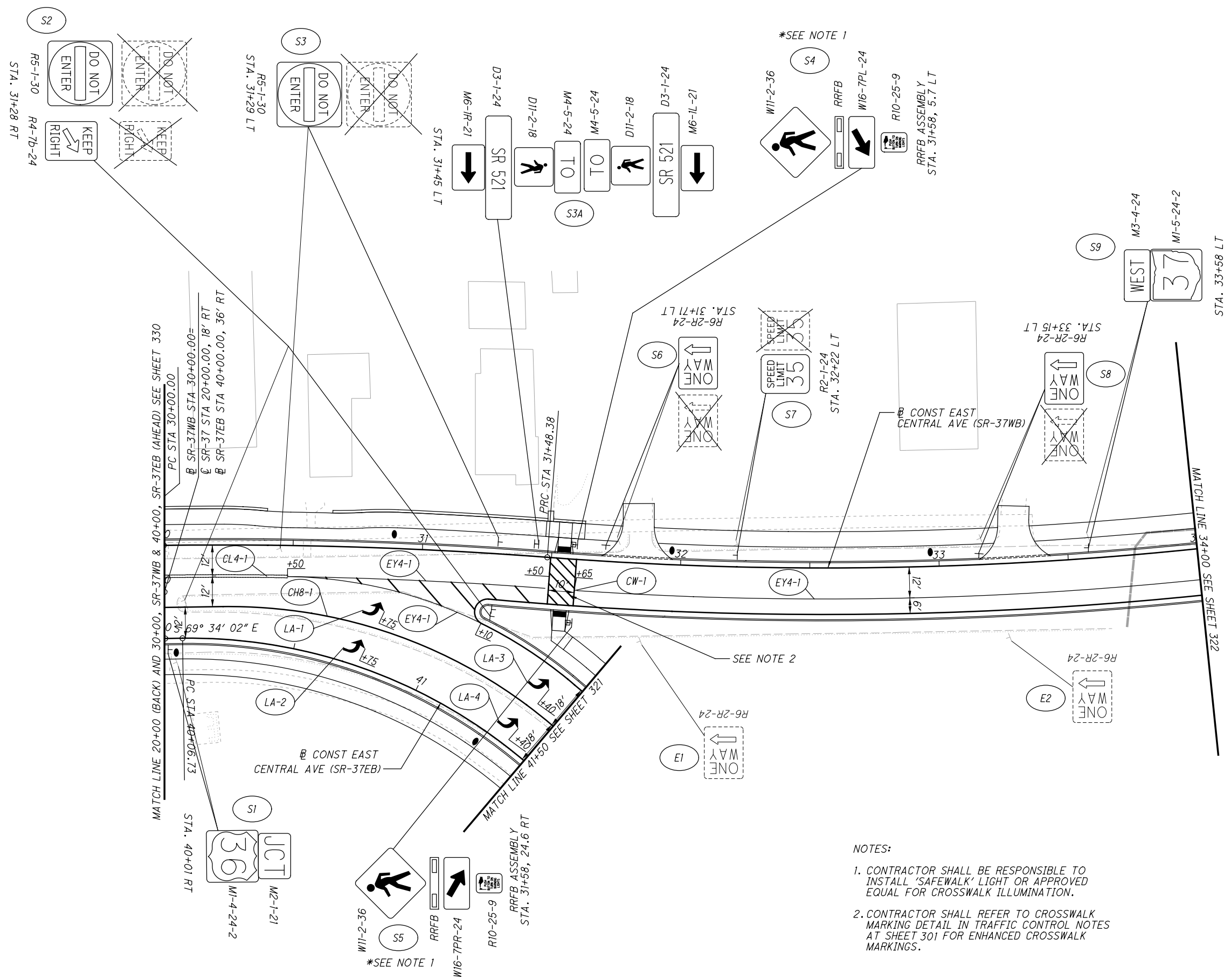
**DEL-36-11.03**



CALCULATED SA PHF  
 CHECKED PHF

0 20 40  
 HORIZONTAL SCALE IN FEET

**TRAFFIC CONTROL PLAN - SR-37  
 STA 17+00 TO STA 20+00**



CALCULATED SA CHECKED PHF

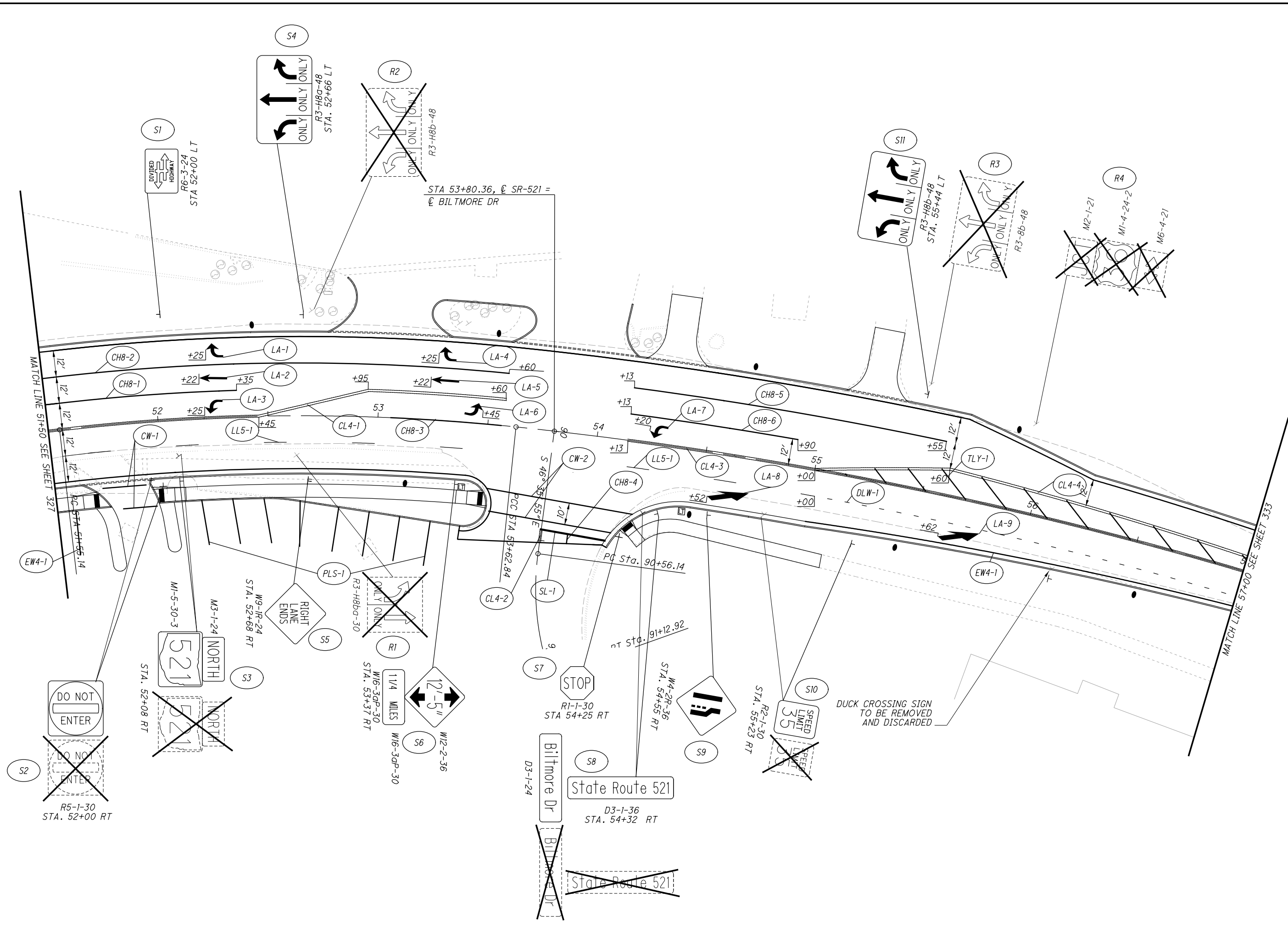
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644

TRAFFIC CONTROL PLAN - SR-37  
STA 30+00 TO STA 34+00

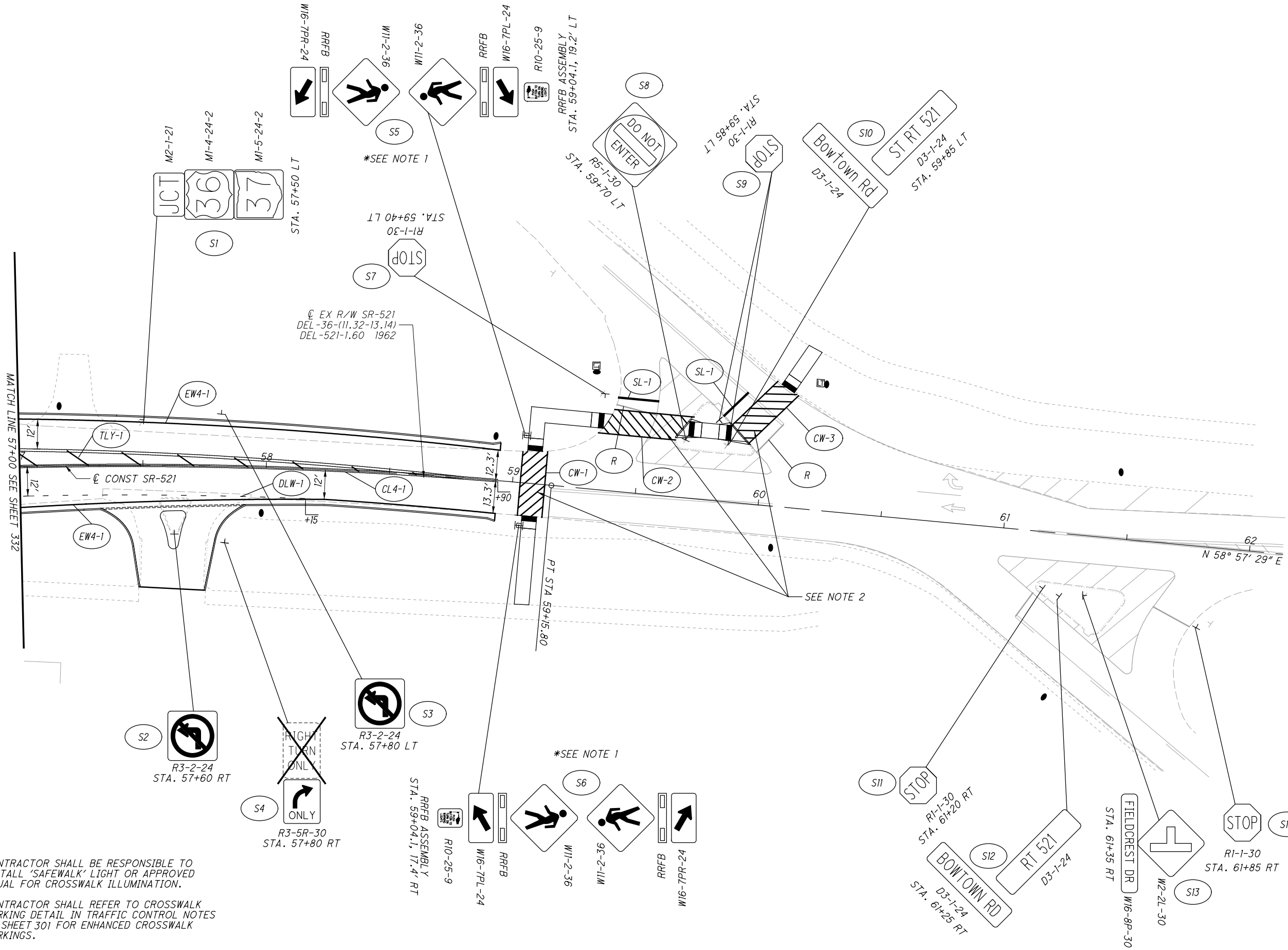
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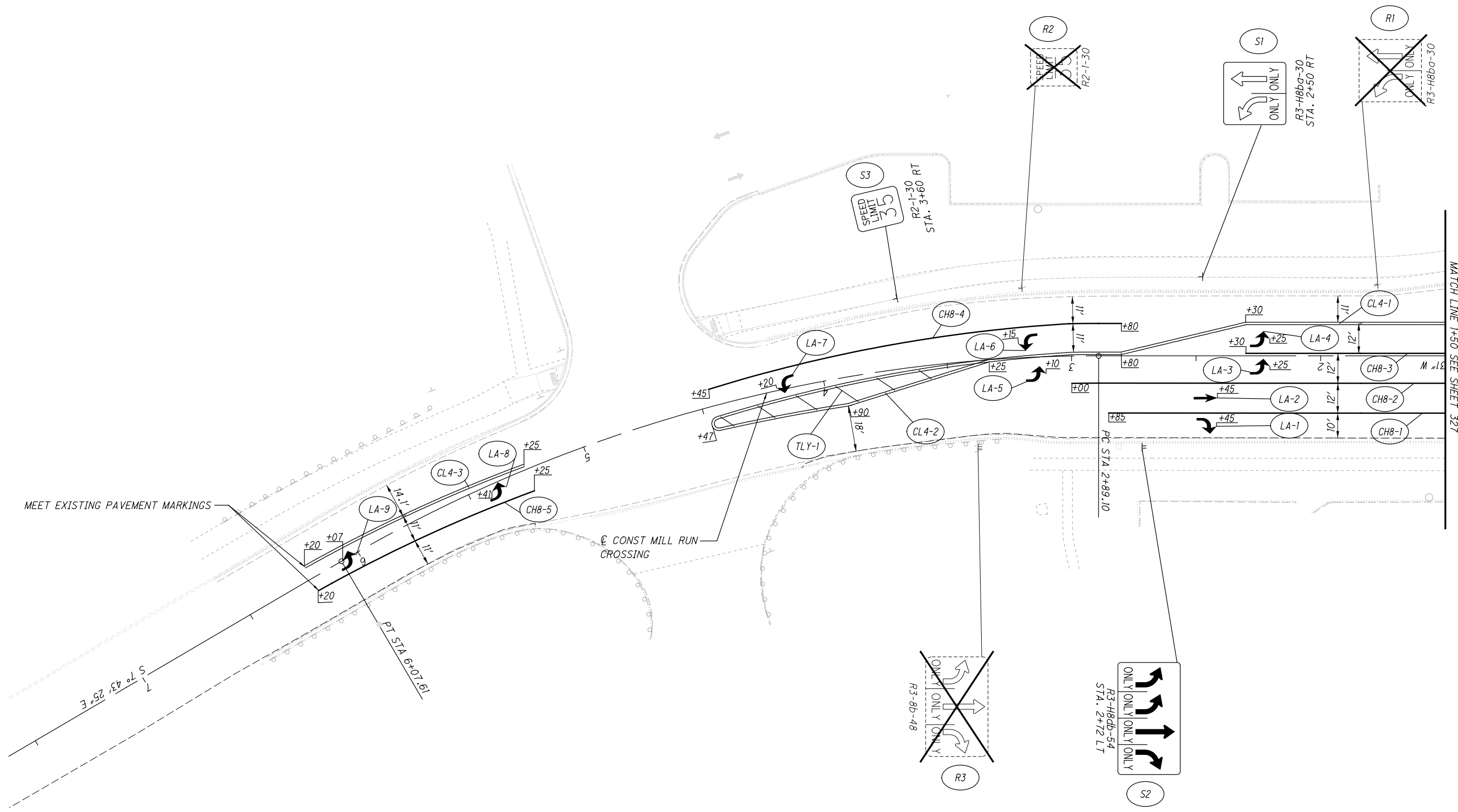
TRAFFIC CONTROL PLAN - SR-521  
STA 51+50 TO STA 57+00

DEL-36-11.03  
332  
644



NOTES:

- CONTRACTOR SHALL BE RESPONSIBLE TO INSTALL 'SAFEWALK' LIGHT OR APPROVED EQUAL FOR CROSSWALK ILLUMINATION.
- CONTRACTOR SHALL REFER TO CROSSWALK MARKING DETAIL IN TRAFFIC CONTROL NOTES AT SHEET 301 FOR ENHANCED CROSSWALK MARKINGS.



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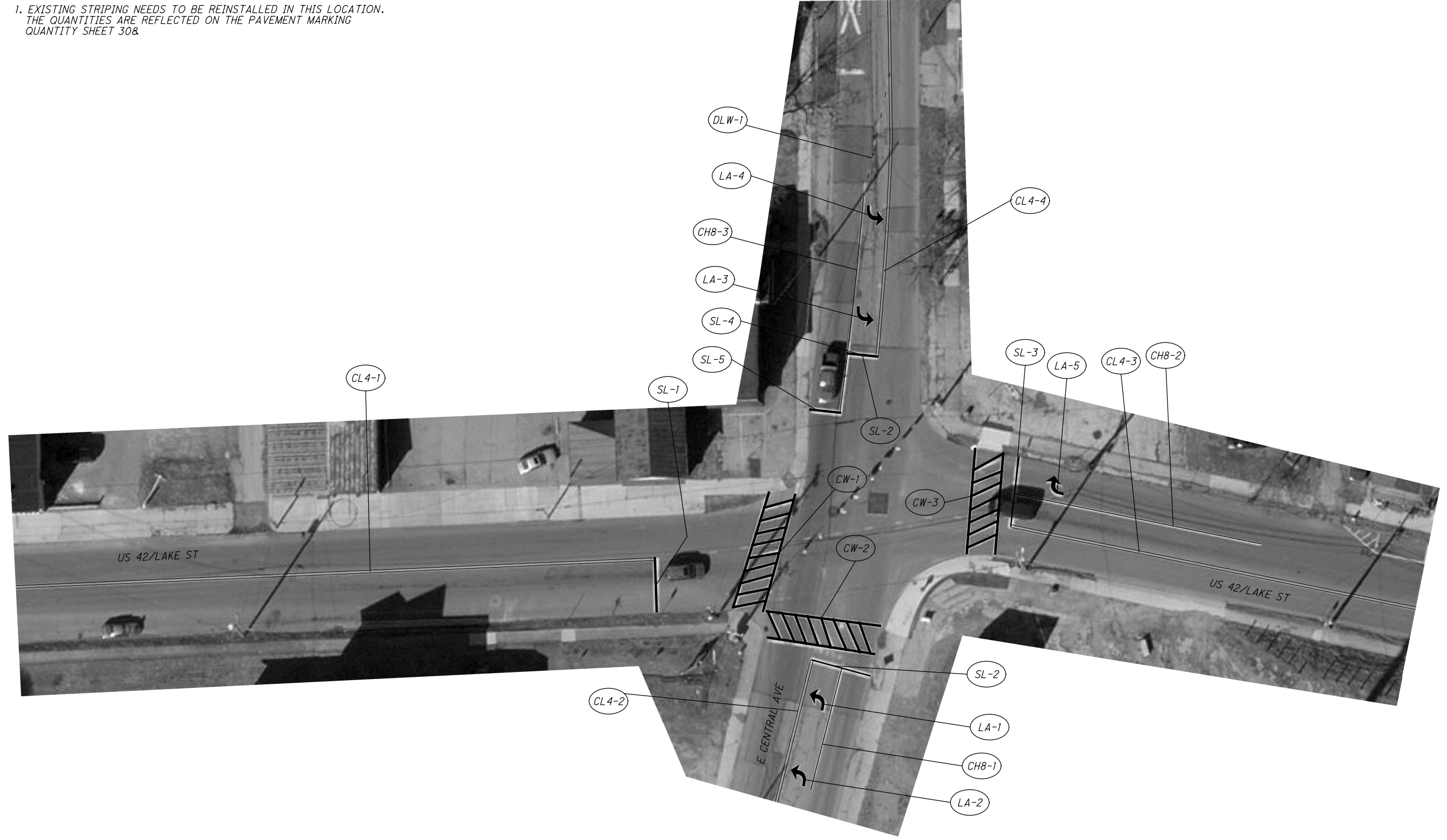
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**TRAFFIC CONTROL PLAN - MILL RUN CROSSING**  
**STA 1+50 TO STA 5+00**



NOTES:

1. EXISTING STRIPING NEEDS TO BE REINSTALLED IN THIS LOCATION. THE QUANTITIES ARE REFLECTED ON THE PAVEMENT MARKING QUANTITY SHEET 308.



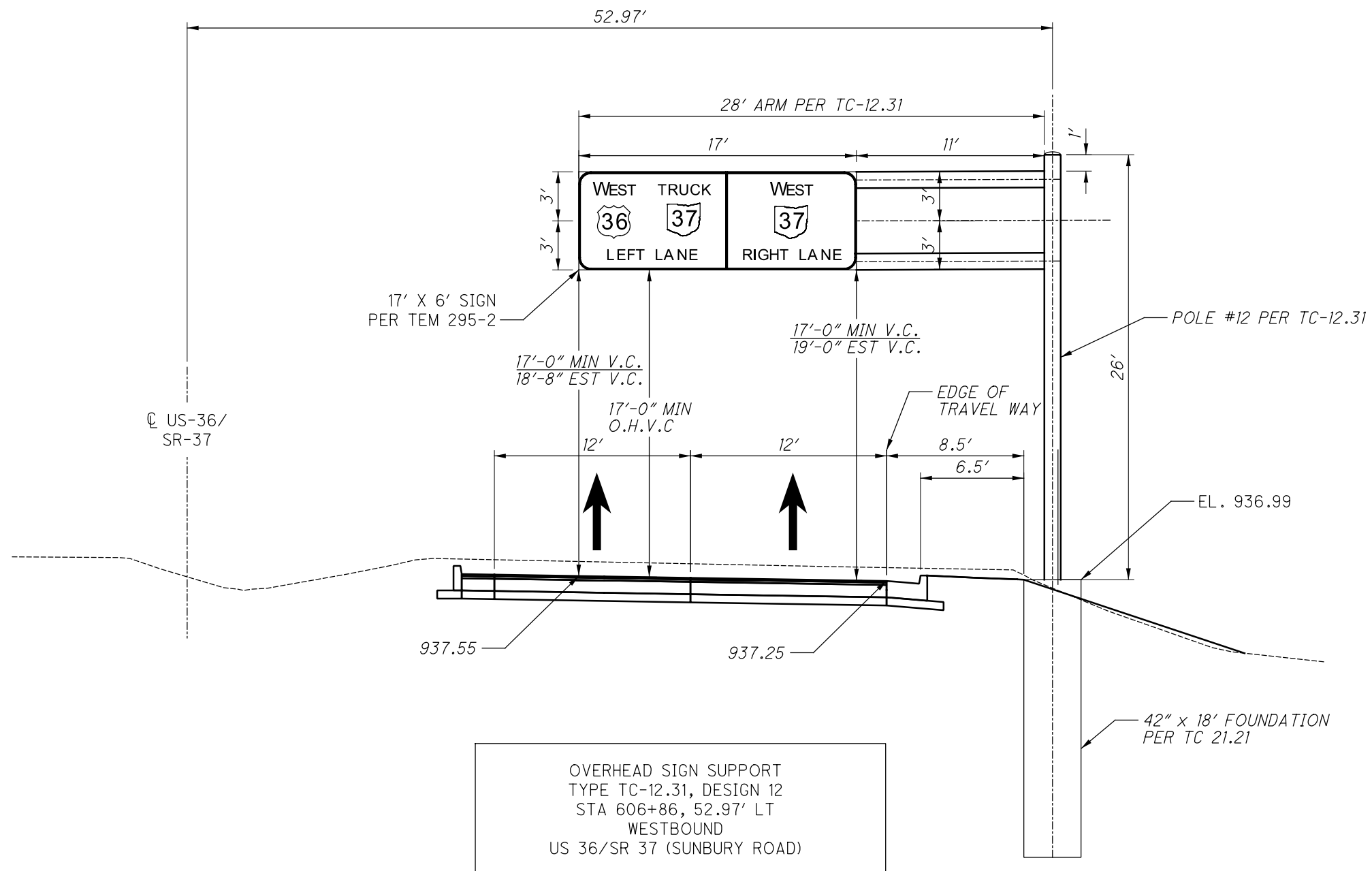
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TRAFFIC CONTROL PLAN - US 42  
E CENTRAL AVE AND LAKE ST

DEL-36-11.03

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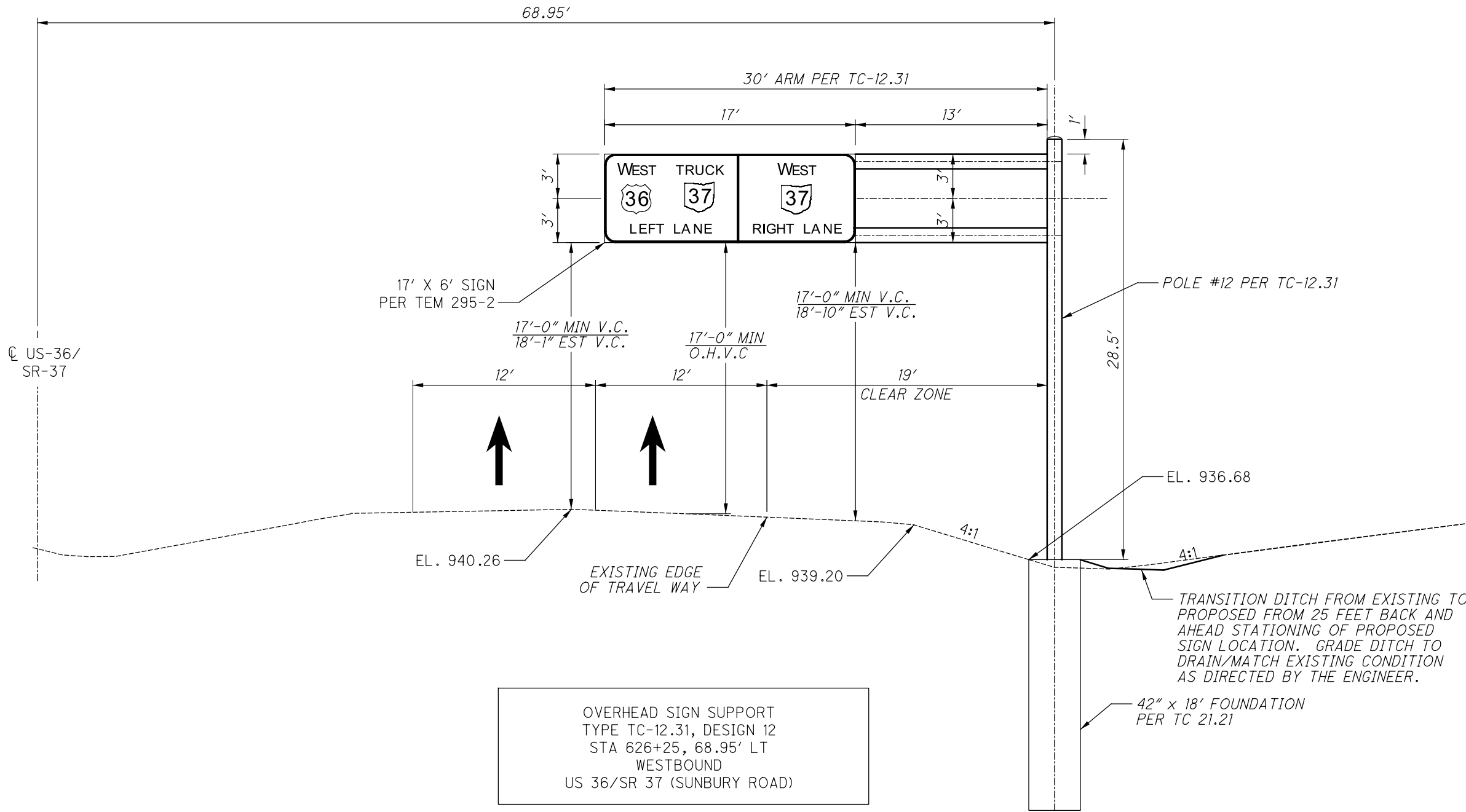
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**TRAFFIC CONTROL-OVERHEAD SIGN DETAILS**  
**STA. 606+86 US 36 / SR37 (SUNBURY ROAD) WESTBOUND**

**DEL-36-11.03**

336  
644

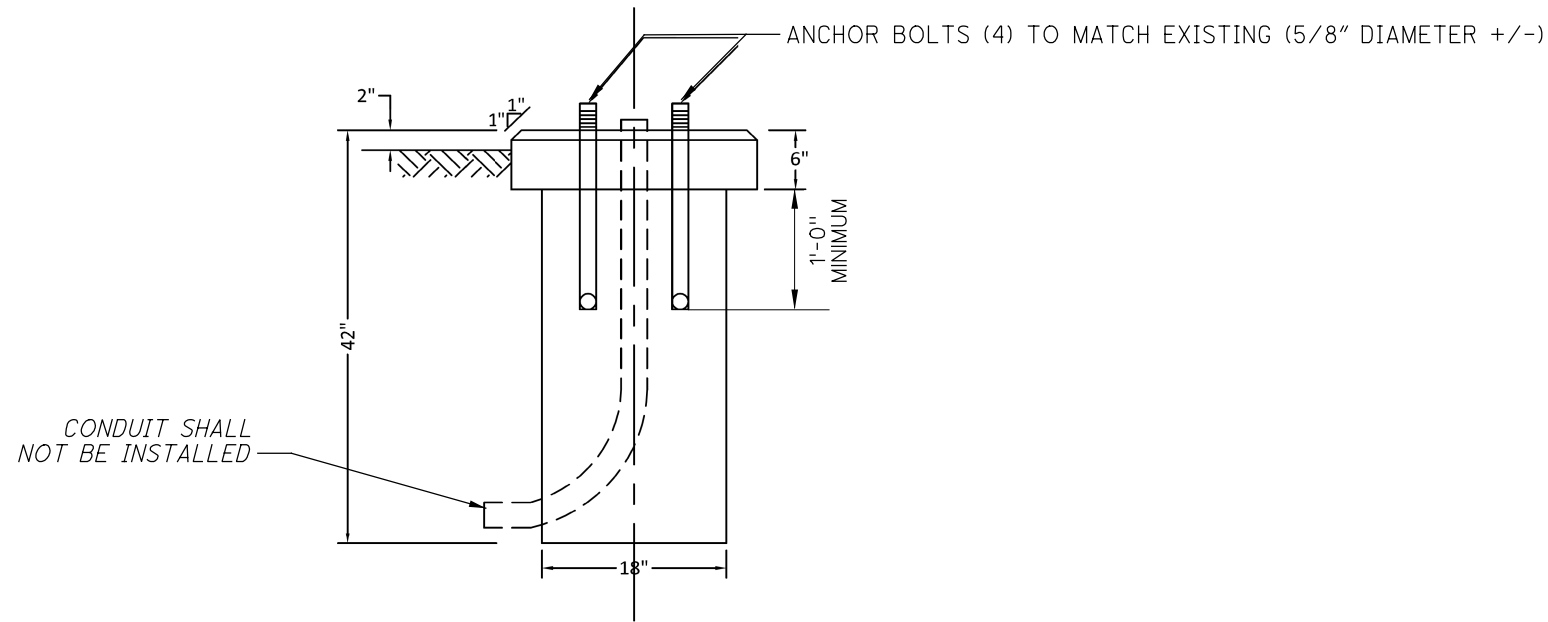
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TRAFFIC CONTROL - OVERHEAD SIGN DETAILS  
 STA 626+93 US 36/ SR 37 (SUNBURY ROAD) WESTBOUND

DEL-36-11.03



ITEM 630 REMOVAL OF GROUND MOUNTED SIGN AND STORAGE  
ITEM 630 SIGNING, MISC.: FOUNDATION GROUND MOUNTED SIGN

1. ALL MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE ODOT CONSTRUCTION AND MATERIALS SPECIFICATIONS, UNLESS OTHERWISE NOTED HEREIN.
2. THE CONTRACTOR SHALL REMOVE THE EXISTING SIGN, STORE IT DURING CONSTRUCTION SO AS NOT TO BE DAMAGED WHILE IN STORAGE, CONSTRUCT A NEW FOUNDATION WITH ANCHOR BOLTS, AND REINSTALL THE EXISTING SIGN ON THE NEW FOUNDATION USING THE SALVAGED AND STORED SIGN, POSTS AND MOUNTING PLATE. THE POST, MOUNTING PLATE, ANCHOR BOLTS AND NUTS SHALL BE PAINTED WITH A BLUE PAINT MATCHING THE EXISTING COLOR.
3. THE FOUNDATION SHALL CONFORM TO THE DETAIL AND SHALL BE:
  - A. 42 INCHES DEEP;
  - B. 18 INCHES IN DIAMETER;
  - C. THE TOP 6 INCHES SHALL BE SHAPED AS A SQUARE 24 INCHES BY 24 INCHES AND HAVING A 1 INCH CHAMFER;
  - D. FOUR ANCHOR BOLTS TO MATCH THE EXISTING (5/8" DIAMETER +/-) BOLTS TO BE ARRANGED IN AN 8 INCH CENTER TO CENTER SQUARE TO MATCH THE EXISTING MOUNTING PLATE TO BE REUSED;
  - E. ANCHOR BOLTS SHALL BE L-SHAPED HOT DIPPED GALVANIZED, CARBON STEEL, 60,000 PSI TENSILE STRENGTH, ASTM A307, GRADE A.
4. THIS WORK WILL BE NEEDED AT STA. 588+85 AND STA. 597+22.
5. ALL COSTS TO COMPLETE THE ABOVE DESCRIBED WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR:
 

|                                                         |        |
|---------------------------------------------------------|--------|
| ITEM 630 REMOVAL OF GROUND MOUNTED SIGN AND STORAGE     | 2 EACH |
| ITEM 630 SIGNING, MISC.: FOUNDATION GROUND MOUNTED SIGN | 2 EACH |

THESE QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

|            |
|------------|
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**TRAFFIC CONTROL - HISTORIC SIGN FOUNDATION DETAIL**  
**STA. 588+85 LT & 597+22 LT US 36 WESTBOUND**

**DEL - 36 - 11.03**

**GENERAL**

THE CONTRACTOR SHALL FURNISH AND INSTALL SIGNAL EQUIPMENT IN ACCORDANCE WITH THE 2019 OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS TOGETHER WITH THE REQUIREMENT OF THE CITY OF DELAWARE, INCLUDING ALL SUPPLEMENTS THERETO, IN FORCE WITH THE DATE OF THE CONTRACT, SHALL GOVERN ALL MATERIAL AND WORKMANSHIP INVOLVED IN THE IMPROVEMENTS SHOWN ON THESE PLANS, EXCEPT AS SUCH SPECIFICATIONS ARE MODIFIED BY THE FOLLOWING SPECIFICATIONS OR BY THE CONSTRUCTION DETAILS SET FORTH HEREIN.

**UTILITY NOTIFICATION**

AT LEAST TWO (2) DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN AN AREA THAT MAY INVOLVE UTILITIES, THE CONTRACTOR SHALL NOTIFY THE PUBLIC WORKS DEPARTMENT, THE OHIO UTILITIES PROTECTIONS SERVICE AND THE OWNERS OF EACH UTILITY AFFECTED.  
 A LIST OF UTILITIES AND OWNERS IS PROVIDED ON SHEET XX. THIS IS NOT TO BE CONSTRUED AS A COMPLETE LIST BY RATHER A DIRECTORY OF THE MORE FREQUENTLY ENCOUNTERED COMPANIES.

**FOUNDATION LOCATIONS**

UNLESS OTHERWISE LOCATED OR DIMENSIONED IN THE PLANS, PROPOSED SIGNAL STRAIN POLE, SUPPORT, AND PEDESTAL FOUNDATIONS THAT ARE LOCATED ADJACENT TO PAVED SIDEWALK IN A TRANSITIONAL AREA (GRASS, PAVERS/ASPHALT), SHALL BE PLACED WITH EDGE OF THE FOUNDATION IMMEDIATELY ADJACENT TO THE SIDEWALK (WITH JOINT FILLER) PER SCD TC-21.21 AND TC-83.20.

**REUSE OF STREETScape PULL BOXES**

EXISTING TRAFFIC SIGNAL PULL BOXES IN STREETSCAPED AREAS OF DOWNTOWN ARE COVERED WITH PAVER BRICKS. CONTRACTOR SHALL COORDINATE WITH CITY OF DELAWARE PUBLIC WORKS TO HAVE PAVERS REMOVED PRIOR TO REQUIRED ACCESS TO PULL BOXES, TO INSTALL CONDUIT OR PEDESTAL FOUNDATION, AND FOR PAVER REINSTALLATION. THE CONTRACTOR SHALL COMPACT AND RESTORE PAVER BASE TO PREVIOUS CONDITION PRIOR TO REINSTALLATION OF PAVERS. CONTRACTOR SHALL CONTACT THE CITY PUBLIC WORKS DEPARTMENT WHEN PAVERS CAN BE REINSTALLED.

**WORK INSPECTION**

THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH 72 HOUR NOTICE OF ANY WORK TO BE PERFORMED AT THE SITE SO THAT INSPECTION SERVICES CAN BE SUPPLIED.

**VACUUM EXCAVATION OF FOUNDATIONS**

VACUUM EXCAVATION OF PEDESTAL AND SIGNAL SUPPORT FOUNDATIONS BY A QUALIFIED CONTRACTOR WILL BE REQUIRED WHERE PROPOSED FOUNDATIONS ARE WITHIN PROXIMITY TO UNDERGROUND UTILITIES. THE COST OF THE VACUUM EXCAVATION WILL BE INCIDENTAL TO THE ASSOCIATED FOUNDATION PAY ITEM.

**TEN DAY TEST REQUIREMENTS**

THE CITY OF DELAWARE REQUIRES A TEN (10) DAY TEST TO START AFTER SIGNAL INSTALLATION IS 100% COMPLETE WHICH INCLUDES ESTABLISHING DATA COMMUNICATION IF PRESENT. NO PARTIAL TESTS WILL BE CONDUCTED. THE CITY SHALL MONITOR THE TEST AND SHALL BE THE SOLE AGENCY TO ACCEPT THE SIGNAL INSTALLATION. IF LESS THAN 100% COMPLETION IS DETECTED UPON INSPECTION BY THE CITY OR ANY MALFUNCTION IS DETECTED, THE TEN (10) DAY TEST SHALL BE COMPLETELY RESTARTED.

**COORDINATION OF ACTIVITIES**

ALL WORK SHALL BE COORDINATED WITH THE CITY OF DELAWARE, AEP, CONSOLIDATED COOPERATIVE, ANY OTHER UTILITIES IMPACTED ON THE PROJECT, AND OTHER CONTRACTORS COMPLETING WORK WITHIN THE PROJECT LIMITS THE CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO THE CITY OF DELAWARE PUBLIC WORKS DEPARTMENT AT LEAST 7 DAYS PRIOR TO THE INITIAL START OF CONSTRUCTION AND AFTER A PRECONSTRUCTION MEETING HAS BEEN HELD. SEVENTY TWO (72) HOUR ADVANCE NOTIFICATION IS REQUIRED FOR ALL WORK REQUIRING INSPECTION, TESTING, OR APPROVAL BY THE PUBLIC WORKS DEPARTMENT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE UNDERGROUND CONSTRUCTION ACTIVITIES ON A CONTINUING BASIS WITH EACH OF THE UTILITY AGENCIES THAT HAVE FACILITIES IN THE IMMEDIATE VICINITY OF THE PROJECT AREA.

CONSOLIDATED COOPERATIVE WILL BE INSTALLING FIBER OPTIC COMMUNICATIONS BETWEEN EACH SIGNALIZED INTERSECTION AND FIBER OPTIC TERMINATION PANELS IN EACH TRAFFIC SIGNAL CONTROL CABINET. THE CONTRACTOR SHALL COORDINATE WORK AT EACH TRAFFIC SIGNAL WITH CONSOLIDATED COOPERATIVE, ENSURING THAT NEW CABINETRY IS IN PLACE PRIOR TO CONSOLIDATED COOPERATIVES INSTALLATION OF FIBER TO THE CABINET. ADDITIONALLY, THE CONTRACTOR SHALL ENSURE THAT THE FIBER OPTIC NETWORK IS OPERATIONAL AND TESTED PRIOR TO SWITCHOVER (FROM COPPER AND WIRELESS SYSTEMS).

**GUARANTEE**

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL EQUIPMENT INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 180 DAYS FOLLOWING THE SUCCESSFUL COMPLETION OF THE 10 DAY PERFORMANCE TEST.

THE GUARANTEE SHALL COVER ALL TRAFFIC SIGNAL EQUIPMENT, LED LAMPS AND WIRING INSTALLED BY THE CONTRACTOR AT THE INTERSECTION AS PART OF THIS CONTRACT.

CUSTOMARY AND APPLICABLE ODOT SPECIFIED MANUFACTURER'S GUARANTEES FOR THE INSTALLED ITEMS SHALL BE TURNED OVER TO THE CITY FOLLOWING ACCEPTANCE OF THE EQUIPMENT. THE COST OF GUARANTEEING THE TRAFFIC CONTROL SYSTEM WILL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS MAKING UP THE SYSTEM.

**MATERIALS**

ALL MATERIALS FURNISHED FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS (CM&S) DATED AS SHOWN ON SHEET XX

CONTRACTOR SHALL SUPPLY A PAPER COPY AND AN ELECTRONIC COPY IN PDF FORMAT TO THE PUBLIC WORKS DEPARTMENT.

**SIGNAL ACTIVATION**

PRIOR TO ACTIVATING THE NEW TRAFFIC SIGNAL TO STOP AND GO MODE AND/OR REMOVING THE EXISTING TRAFFIC SIGNAL FROM SERVICE, ALL ITEMS IN THE PROPOSED SIGNAL PLAN SHALL BE FULL COMPLETED, (I.E., ROADWAY WIDENING, ETC.) THAT PREVENT THE SIGNAL FROM BEING COMPLETED PRIOR TO ACTIVATION, IT SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ENGINEER. THE PROJECT ENGINEER WILL THEN REVIEW, APPROVE OR REJECT PROPOSALS TO ACTIVATE THE TRAFFIC SIGNAL PRIOR TO COMPLETION.

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AT LEAST 10 WORKING DAYS PRIOR TO SCHEDULING THE FINAL INSPECTION OF THE SIGNAL INSTALLATION. FINAL INSPECTION IS NOT CONSIDERED COMPLETE UNTIL CITY OF DELAWARE DESIGNATED PERSONNEL INSPECT THE TRAFFIC SIGNAL AND ISSUE WRITTEN APPROVAL. IF ISSUES ARE FOUND DURING THE FINAL INSPECTION THAT EFFECT THE SAFETY OF THE TRAVELING PUBLIC AND/OR THE EFFICIENCY OF THE INTERSECTION, THE SIGNAL SHALL NOT BE ACTIVATED ON THE PROPOSED DATE. ANY PUNCH LIST ITEMS THAT ARE FOUND SHALL BE CORRECTED AND REINSPECTED BY THE CITY OF DELAWARE PERSONNEL PRIOR TO FINAL ACCEPTANCE. CITY OF DELAWARE FORCES SHALL ONLY ASSUME DAY TO DAY MAINTENANCE OF THE TRAFFIC SIGNAL AFTER FINAL WRITTEN ACCEPTANCE HAS BEEN ISSUED.

**POWER SUPPLY FOR TRAFFIC SIGNALS**

ELECTRIC POWER SHALL BE OBTAINED FROM AEP AT THE LOCATIONS INDICATED ON THE PLANS. POWER SUPPLIED SHALL BE 120 VOLTS.

**WIRING DIAGRAMS**

TWO (2) WIRING DIAGRAMS AND TWO (2) EACH SERVICE OPERATION MANUALS FOR EACH DIFFERENT PIECE OF EQUIPMENT SHALL BE PROVIDED. A HEAVY CLEAR PLASTIC ENVELOPE ATTACHED TO THE INSIDE OF THE CABINET DOOR SHALL BE PROVIDED FOR STORING WIRING DIAGRAMS, (MINIMUM OF 9-INCHES BY 12-INCHES IN SIZE).

**LEGEND**

|                |                                                        |                                                                  |                                       |
|----------------|--------------------------------------------------------|------------------------------------------------------------------|---------------------------------------|
| EXIST. / PROP. |                                                        | WIRING DIAGRAM<br>(EXISTING EQUIPMENT SHOWN IN DASHED LIFESTYLE) |                                       |
|                | GROUND MOUNTED CONTROLLER/UPS                          |                                                                  | SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG |
|                | POLE MOUNTED CONTROLLER                                |                                                                  | SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG |
|                | SIGNAL STRAIN POLE/SUPPORT (SP#)                       |                                                                  | RADAR DETECTION CABLE                 |
|                | PEDESTRIAN PEDESTAL (PS#)                              |                                                                  | VIDEO CAMERA CABLE                    |
|                | PULL BOX (B#)                                          |                                                                  | UNINTERRUPTIBLE POWER SUPPLY CABLE    |
|                | 3- SECT. TRAFFIC SIGNAL HEAD (#)                       |                                                                  | FIBER OPTIC DROP CABLE (BY CCI)       |
|                | 3 OR 4- SECT. TRAFFIC SIGNAL HEAD W/ ARROWS (#)        |                                                                  | POWER CABLE, 3 CONDUCTOR, NO. 6 AWG   |
|                | 5- SECT. TRAFFIC SIGNAL HEAD (#)                       |                                                                  | SERVICE CABLE, 3 CONDUCTOR, NO. 6 AWG |
|                | PEDESTRIAN SIGNAL HEAD (P#)                            |                                                                  | NO. 4 AWG DISTRIBUTION CABLE          |
|                | PEDESTRIAN PUSH BUTTON W/ SIGN (PB#)                   |                                                                  | NO. 10 AWG POLE & BRACKET CABLE       |
|                | VIDEO DETECTION UNIT (STANDARD SINGLE APPROACH CAMERA) |                                                                  | EX. INTERCONNECT CABLE                |
|                | VIDEO DETECTION UNIT (360 DEGREE)                      |                                                                  | EX. SIGNAL CABLE                      |
|                | DILEMMA ZONE RADAR DETECTION UNIT                      |                                                                  | EX. PEDESTRIAN SIGNAL CABLE           |
|                | STOP BAR RADAR DETECTOR                                |                                                                  |                                       |
|                | ADVANCE RADAR DETECTOR                                 |                                                                  |                                       |
|                | EMERGENCY VEHICLE PREEMPTION UNIT                      |                                                                  |                                       |
|                | ETHERNET RADIO/ANTENNA                                 |                                                                  |                                       |
|                | SIGN (S#)                                              |                                                                  |                                       |
|                | DETECTION ZONE (D#)                                    |                                                                  |                                       |
|                | CONDUIT, MISC. DUCT BANK                               |                                                                  |                                       |
|                | WOOD UTILITY POLE                                      |                                                                  |                                       |
|                | TO BE REMOVED                                          |                                                                  |                                       |
|                | PHOTOELECTRIC CELL                                     |                                                                  |                                       |
|                | METER BASE                                             |                                                                  |                                       |
|                | POWER SOURCE                                           |                                                                  |                                       |
|                | DISCONNECT SWITCH                                      |                                                                  |                                       |
|                | SIGNAL POLE #                                          |                                                                  |                                       |

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**GROUNDING AND BONDING**

THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS) AND THE TC SERIES OF STANDARD CONSTRUCT/ON DRAWINGS ARE MODIFIED AS FOLLOWS:

1. ALL METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR IN THE POWER SERVICE DISCONNECT SWITCH.
  - A. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04) IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.
  - B. WHEN AN EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IN PLASTIC CONDUIT (725.05), THE INSTALLATION SHALL INCLUDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO THE CONDUCTORS SPECIFIED.
  - C. METALLIC CONDUIT CARRYING THE LOOP WIRES FROM IN THE PAVEMENT TO THE PULL BOX SPLICE LOCATION WILL ONLY BE BONDED AT THE PULL BOX END, AND WILL NOT CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR.
  - D. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.
  - E. IF AN EQUIPMENT GROUNDING CONDUCTOR IS NEEDED IN CONDUIT BETWEEN SIGNALIZED INTERSECTIONS FOR UNDERGROUND INTERCONNECT CABLE, THE GROUNDING SYSTEM FOR EACH SIGNALIZED INTERSECTION WILL BE SEPARATED ABOUT MIDWAY BETWEEN THE INTERSECTIONS.
  - F. THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS WILL BE USED AS THE CONDUCTIVE PATH FROM CORNER TO CORNER IF CONDUIT IS NOT PROVIDED UNDER THE ROADWAY. WHEN CONDUIT CONNECTS THE CORNERS OF AN INTERSECTION, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE USED IN THE CONDUIT.
    2. CONDUITS.
      - A. THE 725.04 CONDUIT SHALL HAVE GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.
      - B. THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DEBURRED AT ALL TERMINATION POINTS.
      - C. BOTH ENDS OF METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.
      - D. METALLIC CONDUIT MAY BE BONDED TO METALLIC BOXES THROUGH THE USE OF CONDUIT FITTINGS UL APPROVED FOR THIS TYPE OF CONNECTION, WITH THE BOX BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.
3. WIRE FOR GROUNDING AND BONDING.
  - A. USE INSULATED, COPPER WIRE FOR THE EQUIPMENT GROUNDING CONDUCTOR. BONDING JUMPERS IN BOXES AND ENCLOSURES MAY BE BARE OR INSULATED COPPER WIRE. WIRE SIZE SHALL BE AS FOLLOWS:
    - I. USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLER OR FLASHER CABINETS.
    - II. USE A MINIMUM 8 AWG BETWEEN LOOP DETECTOR PULL BOXES AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.
    - III. USE A MINIMUM 8 AWG BETWEEN THE "PREPARE TO STOP WHEN FLASHING" INSTALLATION (INCLUDING SUPPORT) AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.
    - IV. THE INSULATION SHALL BE GREEN WITH YELLOW STRIPE(S). FOR 4 AWG OR LARGER, INSULATION MAY ALSO BE BLACK WITH GREEN TAPE/LABELS INSTALLED AT ALL ACCESS POINTS.

**GROUNDING AND BONDING (CONTINUED)**

- B. IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLE CIRCUIT CONDUCTORS, WITH THE MINIMUM CONDUCTOR SIZE OF 4 AWG. BONDING JUMPERS WILL BE MINIMUM SIZE 4 AWG.
4. GROUND ROD.
  - A. A 3/4 INCH SCHEDULE 40 PVC CONDUIT WILL BE USED IN FOUNDATIONS AND CONCRETE WALLS FOR THE GROUNDING CONDUCTOR (GROUND WIRE) RACEWAY TO THE GROUND ROD. SHOULD METALLIC CONDUIT BE USED, BOTH ENDS OF THE CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR.
  - B. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED, COPPER.
5. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:

| SIGNAL HEAD & CABINET FIELD WIRING |                         |
|------------------------------------|-------------------------|
| SIGNAL DISPLAY                     | WIRE COLOR PER APPROACH |
| THRU R                             | RED                     |
| THRU Y                             | ORANGE                  |
| THRU G                             | GREEN                   |
| L/T R                              | BLACK (FUTURE USE ONLY) |
| L/T Y                              | WHITE W/ BLACK TRACER   |
| L/T G                              | BLUE                    |
| R/T R                              | NOT USED BY CITY        |
| R/T Y                              | RED W/ BLACK TRACER     |
| R/T G                              | GREEN W/ BLACK TRACER   |

6. POWER SERVICE AND DISCONNECT SWITCH.
  - A. AT THE POWER SERVICE LOCATION, THE GROUNDING CONDUCTOR (GROUND WIRE) FROM THE DISCONNECT SWITCH NEUTRAL (AC-) BAR TO THE GROUND ROD SHALL BE A CONTINUOUS, UNSPLICED CONDUCTOR. IF SPLICED, IT SHALL BE AN EXOTHERMIC WELD BUTT SPLICE.
  - B. THE SERVICE NEUTRAL (AC-) SHALL ONLY BE CONNECTED TO GROUND AT THE PRIMARY POWER SERVICE DISCONNECT SWITCH.
    - I. NEMA CONTROLLER CABINETS: IF A POWER SERVICE DISCONNECT SWITCH IS LOCATED BEFORE THE CONTROLLER CABINET, THE NEUTRAL (AC-) AND THE GROUNDING BARS IN THE CONTROLLER CABINET SHALL NOT BE CONNECTED TOGETHER AS SHOWN IN NEMA TS-2, FIGURE 5-4.
    - II. IF SECONDARY DISCONNECT SWITCHES ARE CONNECTED AFTER THE PRIMARY DISCONNECT SWITCH, THE NEUTRAL (AC-) SHALL ONLY BE GROUNDED AT THE PRIMARY SWITCH. EQUIPMENT GROUNDING CONDUCTORS SHALL BE BROUGHT TO THE PRIMARY SWITCH, BUT SHALL BE GROUNDED AT BOTH SECONDARY AND PRIMARY SWITCHES.
7. PAYMENT - ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT CURRENT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED BY CONTRACT.

| COLOR CHART - PED UNIT |                   |                       |
|------------------------|-------------------|-----------------------|
| PED UNIT LOCATION      | CROSSWALK DISPLAY | WIRE COLOR            |
| SOUTH CROSSWALK        | WALK              | BLACK                 |
|                        | DON'T WALK        | ORANGE                |
| WEST CROSSWALK         | WALK              | GREEN                 |
|                        | DON'T WALK        | RED                   |
| NORTH CROSSWALK        | WALK              | BLUE                  |
|                        | DON'T WALK        | WHITE W/ BLACK TRACER |
| EAST CROSSWALK         | WALK              | GREEN W/ BLACK TRACER |
|                        | DON'T WALK        | RED W/ BLACK TRACER   |

**ELECTRICAL SAFETY**

ANY WORK WITHIN 10 FEET OF ELECTRIC LINES UP TO 50 KV SHALL MEET THE GUIDELINES FOR A "QUALIFIED PERSON" AS OUTLINED IN OSHA 1910.333. THIS SHALL INCLUDE, BUT IS NOT LIMITED TO, A PERSON CERTIFIED TO WORK UP TO 13 KV AND HAVE AN INSULATED BOOM TRUCK WITH PROPER GROUNDING.

CONTRACTOR MUST COMPLY WITH ALL OSHA REQUIREMENTS WHEN WORKING AROUND OVERHEAD ELECTRIC LINES AND EQUIPMENT.

AT NO TIME SHALL WORKERS VIOLATE THE CLEARANCE DISTANCE ESTABLISHED BY OSHA OR THEIR OWN COMPANY'S SAFETY STANDARDS IN REGARDS TO OVERHEAD ELECTRIC UTILITIES.

**RESTORATION OF DISTURBED AREAS**

THE CONTRACTOR SHALL RESTORE ALL DISTURBED LANDSCAPED AREAS, PAVEMENT SURFACES, SIDEWALKS (INCLUDING CURB RAMPS), AND DRIVEWAYS TO A CONDITION EQUAL TO OR BETTER THAN THAT EXISTING BEFORE THE WORK WAS STARTED. ALL RESTORATION SHALL BE IN ACCORDANCE WITH CITY OF COLUMBUS SCD 1441 AND PERFORMED WITH MATERIALS IDENTICAL TO THE EXISTING SURFACE, INCLUDING, BUT NOT LIMITED TO, BITUMINOUS AND CONCRETE PAVEMENT, CONCRETE, SANDSTONE AND BRICK SIDEWALK, INTEGRAL CURB AND SPECIAL SURFACES (COLORED OR TEXTURED), AS ENCOUNTERED. CONCRETE SIDEWALK AND DRIVEWAYS SHALL NOT BE PATCHED, BUT SHALL BE REPLACED IN ENTIRE ORIGINAL SLAB SECTIONS. PAYMENT FOR ALL RESTORATION WORK, INCLUDING MATERIALS, EQUIPMENT, LABOR, INCIDENTALS, AND DISPOSAL OF ALL SURPLUS MATERIALS SHALL BE INCLUDED IN THE VARIOUS ITEMS OF UNDERGROUND WORK AND, THEREFORE, NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK.

**SIGNAL SUPPORT FOUNDATION ELEVATIONS**

PRIOR TO ORDERING THE MAST ARM, THE FOUNDATION SHOULD BE INSTALLED AND LOCATED SO THERE IS NO CONFLICT WITH UTILITIES BOTH UNDERGROUND AND OVERHEAD.

ELEVATIONS SHOWN IN THE PLANS FOR SIGNAL SUPPORT FOUNDATIONS ARE FOR COMPUTATIONAL PURPOSES ONLY. THE ACTUAL ELEVATION OF THE FOUNDATION SHALL BE IN ACCORDANCE WITH SCD TC-21.21 PROVIDED THE EXISTING SLOPE IS LESS THAN 6:1.

AT LOCATIONS WHERE THE EXISTING SLOPE IS 6:1 OR GREATER, THE BURIED DEPTH OF FOUNDATION, AS SHOWN IN SCD TC-21.21 SHALL APPLY TO THE LOW SIDE OF THE SLOPE. THE TOP OF THE FOUNDATION SHALL BE SET 2 INCHES ABOVE THE EXISTING SURFACE ON THE HIGH SIDE OF THE SLOPE. THE ADDITIONAL DEPTH OF FOUNDATION NECESSARY TO MEET THESE REQUIREMENTS SHALL BE ADDED TO THE FORMED TOP.

**ITEM 625 TRENCH, AS PER PLAN  
ITEM 625 TRENCH IN PAVED AREAS, AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF ODOT C&MS AND THE STANDARD CONSTRUCTION DRAWINGS, WITHIN EACH TRENCH, THE LOCATION OF UNDERGROUND CABLE OR CONDUIT SHALL BE MARKED BY THE USE OF A CONTINUOUS IDENTIFYING TAPE BURIED IN THE TRENCH ABOVE THE LINE. ONE STRIP OF MARKING TAPE SHALL BE PLACED BETWEEN 6-INCHES AND 12-INCHES BELOW FINISHED GRADE WITH A TAPE LENGTH EQUAL TO THE LENGTH OF CONDUIT OR CABLE. THE TAPE SHALL BE PLACED PARALLEL WITH THE FINISHED SURFACE. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO INSURE THAT THE TAPE IS NOT PULLED, DISTORTED, OR OTHERWISE MISPLACED IN THE COMPLETION OF THE TRENCH BACKFILL. THE TAPE SHALL BE AN INERT MATERIAL HIGHLY RESISTANT TO ALKALIS, ACIDS AND OTHER CHEMICAL COMPONENTS LIKELY TO BE ENCOUNTERED IN SOILS. THE TAPE SHALL BE 3-INCHES TO 6-INCHES WIDE AND A HIGH VISIBILITY COLOR SUCH AS ORANGE OR RED, THE TAPE SHALL BE PRINTED WITH THE WORD "ELECTRIC" APPROXIMATELY EVERY SIX (6) FEET IN BLACK LETTERS WITH INK THAT WILL NOT CHANGE WHEN EXPOSED TO ACIDS AND OTHER DESTRUCTIVE SUBSTANCES COMMONLY FOUND IN SOIL. THE TAPE SHALL BE SUPPLIED IN CONTINUOUS ROLLS WITH THE IDENTIFYING LETTERING REPEATED CONTINUOUSLY THE FULL LENGTH OF THE TAPE.

**ITEM 625 TRENCH, AS PER PLAN  
ITEM 625 TRENCH IN PAVED AREAS, AS PER PLAN (CONTINUED)**

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER FOOT OF ITEM 625 TRENCH, AS PER PLAN, COMPLETE AND IN PLACE.

FOR TRENCHING IN AREAS WITH BRICK PAVERS, PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER FOOT OF ITEM 625 TRENCH IN PAVED AREAS, AS PER PLAN AND, IN ADDITION TO THE WORK LISTED ABOVE, SHALL INCLUDE REMOVAL AND REPLACEMENT OF THE BRICK PAVERS. THIS ITEM INCLUDES ALL BASE PREPARATION, FINISHING, AND ANY OTHER LABOR OR MATERIALS NECESSARY FOR A COMPLETE RESTORATION OF THE BRICK PAVER SURFACE.

**ITEM 632 SIGNAL SUPPORT MISC.: SIGNAL SUPPORT, MECHANICAL DAMPER FOR TC-81.22 MAST ARM (GREATER THAN 39' IN LENGTH)**

THIS ITEM SHALL CONSIST OF THE CONTRACTOR INSTALLING A TUNED MECHANICAL STOCKBRIDGE OR MASS-SPRING TYPE DAMPER ON A TC-81.21 MAST ARM SIGNAL SUPPORT TO REDUCE THE POSSIBILITY OF HARMONIC VIBRATIONS CAUSED BY WIND LOADS. A MECHANICAL DAMPER SHALL BE APPLIED TO ALL MAST ARMS OVER 59 FEET IN LENGTH. THE INSTALLED DAMPER SHALL BE CAPABLE OF REDUCING THE LOADED MAXIMUM VERTICAL MOVEMENT AT THE TIP OF THE ARM TO 8 INCHES MEASURED FROM THE HIGHEST TO THE LOWEST POINT OF DEFLECTION AT WIND SPEEDS OF 5-20 MPH.

ALL ATTACHMENT HARDWARE CONNECTIONS SHALL BE STAINLESS STEEL. STOCKBRIDGE-TYPE DAMPERS SHALL HAVE A STAINLESS STEEL SAFETY CHAIN ANCHORED TO THE MAST ARM TO PREVENT WEIGHTS FROM FALLING SHOULD THEY BECOME SEPARATED FROM THE REST OF THE ASSEMBLY. THE DAMPER SHALL BE ATTACHED TO THE ARM WITHIN 8 FEET OF MAST ARM TIP. INSTALLATION SHALL BE PER THE MANUFACTURER'S GUIDELINES. STATIC DAMPERS SUCH AS HORIZONTAL FLAT SIGN MOUNTINGS SHALL NOT BE USED. ACCEPT ABLE DEVICES INCLUDE THE FOLLOWING OR APPROVED EQUAL:

1. UNION METAL ALCOA DAMPER DEVICE - DWG. NO. 2G-1817-C1
2. VALMONT STRUCTURES ALCOA DEVICE - DWG. NO. OH104242P1
3. FLORIDA DOT SPRING-MASS DAMPER - DRAWING INDEX NO. 17749

PAYMENT FOR ITEM 632 "SIGNAL SUPPORT, MECHANICAL DAMPER FOR TC-81.21 MAST ARM (GREATER THAN 59' IN LENGTH), AS PER PLAN" SHALL BE MADE AT THE CONTRACT UNIT PRICE PER EACH COMPLETE AND IN PLACE, AND SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO COMPLETE THE WORK.

**ITEM 632 REUSE OF TRAFFIC CONTROL ITEM, PREEMPT CONFIRMATION LIGHT**

THIS ITEM OF WORK INCLUDES THE REMOVAL & REINSTALLATION OF EXISTING CONFIRMATION LIGHTS WHERE IMPACTED BY CONSTRUCTION AND/OR SHOWN IN THE PLANS. COMPONENTS TO INCLUDE, BUT NOT LIMITED TO, POLE-MOUNTED CONFIRMATION LIGHTS & MOUNTING HARDWARE. THE CABLING FOR THE RELOCATED CONFIRMATION LIGHTS HAS BEEN ITEMIZED SEPARATELY UNDER ITEM 632 SIGNAL CABLE, 2 CONDUCTOR, NO. 14 AWG.

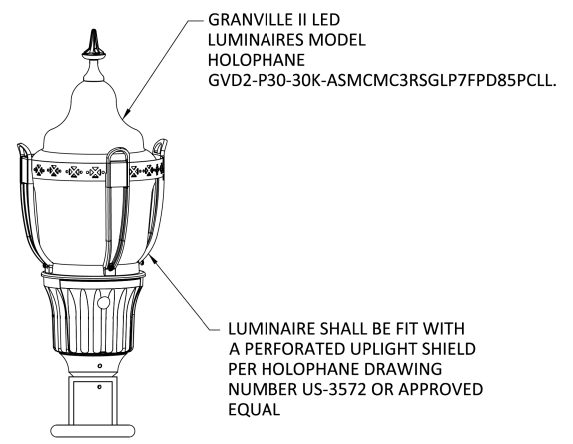
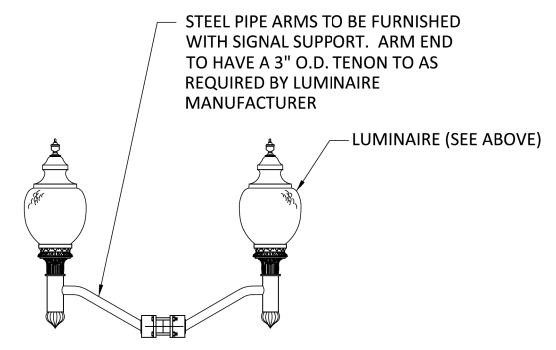
PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR EACH ITEM 632 REUSE OF TRAFFIC CONTROL ITEM, PREEMPT CONFIRMATION LIGHT FOR EACH CONFIRMATION LIGHT REUSED/RELOCATED WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

**ITEM 625 LUMINAIRE, DECORATIVE, AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF ODOT CMS 625.08, THE LUMINAIRES SHALL BE GRANVILLE II LED LUMINAIRES WITH LEAF-STYLE HOUSING, MODEL HOLOPHANE GVD5-P30-30K-AS-M-CMC-R-S-GL-P7-FPD85-PC11. HOUSING, RIBS, AND BANDS SHALL BE PAINTED WITH A FINISH COAT TO MATCH THE PROPOSED SIGNAL SUPPORT POLE COLOR, WHICH IS SIMILAR TO FEDERAL SPECIFICATION 595-B COLOR #27038 BLACK.

SHOP DRAWINGS FOR ALL COMPONENTS MUST BE SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL AT LEAST 7 DAYS PRIOR TO ORDERING MATERIALS.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH OF ITEM 625 LUMINAIRE, DECORATIVE, AS PER PLAN



**ITEM 625 - CONDUIT MISC.: INTERCONNECT DUCT BANK**

IN ADDITION TO THE REQUIREMENT OS 625 AND 725, THE THREE (3) 1-1/4" CONDUITS, FOR FUTURE FIBER OPTIC INTERCONNECT USE, SHALL BE SDR11 HDPE MATERIAL AND INSTALLED EMPTY. THE THREE (2) CONDUITS SHALL BE INSTALLED AT ALL LOCATIONS SHOWN ON HE PLANS AND ONE EACH SHALL BE BLUE, ORANGE AND GREEN IN COLOR.

PLASTIC CAUTION TAPE SHALL BE INSTALLED ABOVE THE INTERCONNECT CONDUITS AND SHALL BE PLACED 18" BELOW THE FINISHED GRADE.

TRACER WIRE SHALL BE INSTALLED DIRECTLY ABOVE THE INTERCONNECT CONDUITS AND SHALL BE 12 AWG, 250# PULL RATED ADD SHALL BE COPPERHEAD REINFORCED TRACER WIRE BY COPPERHEAD INDUSTRIES.

THE CONDUITS SHALL BE INSTALLED SO THEY ENTER THE BOTTOM OF EACH PULL BOX.

THE CONDUITS SHALL MAINTAIN A MINIMUM OF 1.5' SEPARATION FROM ALL UTILITIES EXCEPT THE SIGNAL CONDUITS SINCE THE WILL BE SHARING A TRENCH AND PULL BOXES.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER FOOT OF ITEM 625-CONDUIT, MISC.: INTERCONNECT DUCT BANK INSTALLED AND ACCEPTED.

**ITEM 630 - SIGN, STREET NAME, AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF ODOT CMS 630 AND 730, THE SIGNS SHALL CONFORM TO THE CITY OF DELAWARE STANDARDS AND HAVE THE FOLLOWING SPECIFICATIONS:

HIGH INTENSITY REFLECTIVITY WHITE LETTERS  
 HIGH INTENSITY REFLECTIVITY BLUE SHEETING

STREE NAME SIGN SIZE AND LETTERING HEIGHTS SHALL FOLLOW OMUTCD, THE CITY OF DELAWARE ENGINEERING STANDARD DRAWING RDWD 36.0, AS APPROVED BY THE ENGINEER.

SHOP DRAWINGS FOR ALL COMPONENTS MUST BE SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL AT LEAST 7 DAYS PRIOR TO ORDERING MATERIALS.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH OF ITEM 630 - SIGN, STREET NAME, AS PER PLAN.

**632 REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN**

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, MESSENGER WIRE, STRAIN POLES, CABINET, CONTROLLER, ETC., SHALL BE REMOVED IN ACCORDANCE WITH C&MS 632.26 AND AS INDICATED ON THE PLANS. EXISTING COMMUNICATIONS AND DETECTION SYSTEMS SHALL NOT BE REMOVED UNTIL NEW SYSTEMS ARE IN PLACE AND OPERATIONAL, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. REMOVED ITEMS SHALL BE REUSED AS PART OF A NEW INSTALLATION ON THE PROJECT OR DELIVERED TO CITY OF DELAWARE PUBLIC WORKS, 440 E WILLIAM ST. DELAWARE, OHIO IN ACCORDANCE WITH THE LISTING GIVEN HEREIN.

AT LOCATIONS WHERE EXISTING DETECTION AND/OR INTERCONNECT IS BEING REPLACED, EXISTING WIRING SHALL BE REMOVED FROM THE CABINET, PULL BOXES, AND CONDUITS.

- ITEMS TO BE SALVAGED:
- WIRELESS COMMUNICATIONS (UBIQUITI RADIOS)
  - NETWORK SWITCHES AND PORT SERVERS
  - VIDEO DETECTION SYSTEMS
  - RADAR DETECTION SYSTEMS

THE CONTRACTOR SHALL, WHEN DIRECTED BY THE ENGINEER IN WRITING, REMOVE AND DISPOSE OF THE ITEMS AT NO ADDITIONAL COST TO THE PROJECT.

**ITEM 632 PEDESTAL, BY SIZE, TRANSFORMER BASE, AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF CMS 632, THE PEDESTAL FINISH SHALL CONSIST OF SEMI-GLOSS BLACK POLYESTER POWDER COAT FINISH. PAINT CHIP SAMPLES AND SHOP DRAWINGS FOR ALL COMPONENTS MUST BE SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL AT LEAST 7 DAYS PRIOR TO ORDERING MATERIALS. PROVIDE ADEQUATE PROTECTION FOR THE FINISH OF THE PEDESTAL. IF FINISH IS DAMAGED DURING HANDLING AND/OR INSTALLATION, THE CONTRACTOR SHALL REPAIR THE FINISH PER THE POLE MANUFACTURER'S RECOMMENDATIONS. ALL PROPOSED PEDESTAL LOCATIONS SHALL MATCH EXISTING SUPPORT COLORS UNLESS OTHERWISE NOTED. PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH OF ITEM 632 PEDESTAL, BY SIZE, AS PER PLAN.

**ITEM 632 COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, BY DESIGN, AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF ITEM 632, SIGNAL SUPPORT POLE AND MAST ARM SHALL BE A BLACK POWDER COAT (FEDSTD-595b 17038) MEETING THE REQUIREMENTS OF SS916.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH OF ITEM 632 COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, BY TYPE, AS PER PLAN.

**ITEM 632 POWER SERVICE, AS PER PLAN**

POWER SERVICE SHALL BE AS PER SPECIFICATION 632 AND STANDARD CONSTRUCTION DRAWING TC-83.10 WITH THE FOLLOWING EXCEPTIONS:

1. THE METER BASE MOUNTING HEIGHT SHALL BE NO MORE THAN FIVE (5) FEET HIGH TO THE CENTER OF THE METER BASE FROM THE GROUND.
2. THE CONTRACTOR SHALL SUPPLY THE NECESSARY METER BASES.
3. ALL POWER SERVICES SHALL BE METERED. THE METER SHALL HAVE A LEVER OPERATED BYPASS.
4. THE POWER SERVICE BLIND HALF COUPLING SHALL BE TWENTY-SEVEN (27) INCHES ABOVE THE BOTTOM OF THE STRAIN POLE BASE PLATE AND SHALL BE WELDED TO THE STRAIN POLE.
5. CONDUIT FROM THE BOTTOM OF THE DISCONNECT SWITCH ENCLOSURE INTO THE BOTTOM OF THE CONTROLLER CABINET WILL NOT BE PERMITTED. POWER SERVICE WIRES FROM THE DISCONNECT SWITCH ENCLOSURE TO THE CONTROLLER CABINET SHALL BE ROUTED THROUGH THE STRAIN POLE.
6. IF INTERSECTION LIGHTING IS SPECIFIED THEN SEPARATE DISCONNECT SWITCHES SHALL BE INSTALLED AND LABELED "LIGHTING" AND "TRAFFIC SIGNAL" WITH A WEATHER PROOF STICKER. MARKER ON THE OUTSIDE OF THE ENCLOSURE IS NOT ACCEPTABLE.

DISCONNECT SWITCH ENCLOSURES FURNISHED SHALL INCLUDE A PADLOCK EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNON 660, WITH LOCK BODY OF BRONZE OR BRASS AND KEYING SHALL BE TO THE STATE MASTER.

THE CONTRACTOR SHALL CONTACT THE METER SECTION OF THE POWER COMPANY FOR INFORMATION REGARDING THE METER BASE INSTALLATION PRIOR TO ORDERING POLES. THE CONTRACTOR WILL BE RESPONSIBLE FOR REQUESTING AND SCHEDULING ANY INSPECTIONS THE POWER COMPANY MAY REQUIRE FOR THE POWER SERVICE HOOK UP. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT THE POWER COMPANY FOR THE ELECTRICAL SERVICE CONNECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SPLICE POWER CABLE INTO THE POWER COMPANY'S CIRCUITS. THE VOLTAGE SUPPLIED SHALL BE NOMINALLY 120 VOLTS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS AND THE PAYING OF ALL FEES. THE CONTRACTOR SHALL PAY ALL POWER CHARGES UNTIL THE SIGNAL IS ACCEPTED BY THE MAINTAINING AGENCY.

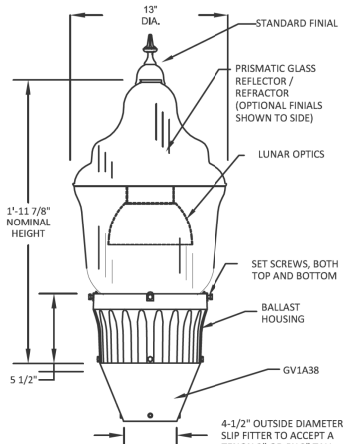
CONTRACTOR SHALL COORDINATE WITH THE CITY AND UTILITY TO REQUEST/ASSIGN AN ADDRESS FOR ANY NEW SERVICE OR EXISTING SERVICE THAT DOESN'T ALREADY HAVE AN ADDRESS ASSIGNED.

WHERE POWER SERVICE IS SPECIFIED IN THE PLANS TO REPLACE EXISTING POWER SERVICE (OR AS REFURBISHED), THIS ITEM SHALL INCLUDE THE REMOVAL AND REPLACEMENT OF THE SERVICE RISER, METER (IF APPLICABLE), DISCONNECT, AND ASSOCIATED CONDUIT AND FITTINGS TO REACH THE TRAFFIC SIGNAL CABINET.

PAYMENT SHALL BE AT THE CONTRACT UNIT BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT FOR A COMPLETE POWER SERVICE TESTED AND ACCEPTED.

**GRANVILLE® SERIES LUMINAIRE  
 LEAF STYLE CASTING with LUNAR OPTICS™**

MAXIMUM WEIGHT - 47 lbs.  
 MAXIMUM EFFECTIVE PROJECTED AREA - 1.26 sq. ft.



**Specifications**

**GENERAL DESCRIPTION**  
 The luminaire consists of three main components, a ballast housing, a reflector with socket, and a prismatic glass optical assembly.

**OPTICAL ASSEMBLY**  
 The optical assembly is a precisely molded thermal resistant borosilicate glass reflector and refractor with or without a decorative finial. The upper portion of this system incorporates a series of reflecting prisms that redirect over 50% of the upward light in to the controlling refractor while allowing a soft uplight component to define the traditional acorn shape of the luminaire. Two decorative aluminum top covers are available. The lower portion uses precisely molded refracting prisms to control the distribution of light to maximize utilization, uniformity, and luminaire spacing. Three unique optical assemblies are available, designed for IES type III, IV, and V lighting distributions.

**BALLAST HOUSING**  
 The ballast housing contains the ballast and other electrical components. The housing is cast of aluminum alloy with a fluted concave contour designed to flow gracefully from a 7" diameter decorative post capital and replicate the fluted pattern of a decorative post shaft. The ballast housing is secured by four hex head 1/4-20 set screws. Four uniquely designed stainless steel spring clips enclosed in a clear polyvinyl chloride sleeve and adjusted by hex head 1/4-20 bolts securely cradle the optical assembly.

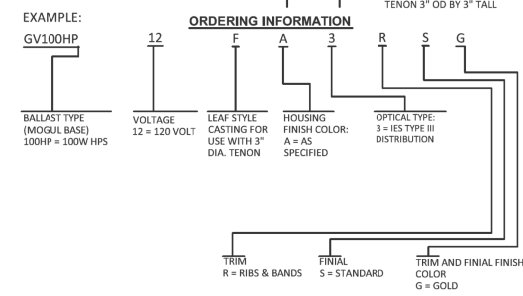
**BALLAST**  
 (Refer to Ballast Data Sheet for specific operating characteristics)  
 35 - 100 watt 120 volt High Pressure Sodium (HPS) ballasts are High Power Factor Reactor type. All other HPS ballasts are High Power Factor Autotransformer type.  
 175 watt Metal Halide (MH) ballasts are Peak Lead Autotransformer type. 70 and 100 watt MH units are available only with (120V, 208V, 240V, 277V) multitap High Power Factor High Reactance type ballast.  
 All Mercury Vapor (MV) ballasts are High Power Factor Constant Wattage Autotransformer (CWA) type.

**REFLECTOR / SOCKET ASSEMBLY**  
 The reflector/socket assembly is designed to position the specified light source at the light center of the refractor.

**INSTALLATION**  
 Refer to the instruction manual provided with each luminaire as to the specific method of wiring and mounting the luminaire.

**FINISH**  
 The housing is finished with polyester powder paint applied after a seven stage pretreatment process to insure maximum durability.

**UL LISTING**  
 The luminaire is UL listed as suitable for wet locations at a maximum 40 degree C ambient temperature.



- OPTIONS**  
 P - PROTECTIVE STARTER
- ACCESSORIES**  
 DTP932A - PHOTOCONTROL FOR 120 VOLT, LOCATED IN ACCESS COVER. FIELD INSTALLED. NOT UL LISTED  
 GV1A38 - COUPLING TO ADAPT THE LUMINAIRE TO FIT A 3-INCH LIGHT POLE TENON
- COLOR**  
 Y539A - DELAWARE GREEN

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**ITEM 632 COVERING OF VEHICULAR SIGNAL HEAD, AS PER PLAN**

COVER VEHICULAR SIGNAL HEADS IF ERECTED AT INTERSECTIONS WHERE TRAFFIC IS MAINTAINED BEFORE ENERGIZING THE SIGNALS. USE A STURDY OPAQUE COVERING MATERIAL SPECIFICALLY MADE FOR USE WITH TRAFFIC SIGNALS, AND ENSURE THAT THE COLOR OF THE COVER IS DIFFERENT THAN THE SIGNAL HEAD, TAN OR BEIGE, SO THAT IT IS CLEAR TO DRIVERS THE HEADS ARE COVERED, NOT DARK. USE A METHOD OF COVERING TO COVER ATTACHMENT AND MATERIALS, INCLUDING BACKPLATES, AS APPROVED BY THE ENGINEER. COVERS ARE TO BE FREE OF TEXT, PICTURES, OR ANY TYPE OF ADVERTISING. MAINTAIN COVERS, AND REMOVE THEM WHEN DIRECTED BY THE ENGINEER.

**ITEM 632 ACCESSIBLE PEDESTRIAN PUSHBUTTON, AS PER PLAN**

**DESCRIPTION**  
THIS WORK CONSISTS OF FURNISHING AND INSTALLING ACCESSIBLE PEDESTRIAN PUSHBUTTON EQUIPMENT COMPLETE AND READY FOR SERVICE.

**MATERIALS**  
THE ACCESSIBLE PEDESTRIAN PUSHBUTTON SHALL CONSIST OF POWER SUPPLY, ONE PUSH BUTTON STATION, ALL NECESSARY CABLING WITH END CONNECTORS, MOUNTING BRACKETS, AND AN ACCESSIBLE PEDESTRIAN PUSHBUTTON CONTROL UNIT AS SHOWN ON THE PROJECT PLANS.

THE ACCESSIBLE PEDESTRIAN PUSHBUTTON SHALL BE COMPLIANT WITH THE LATEST EDITION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.  
THE ACCESSIBLE PEDESTRIAN PUSHBUTTON SHALL MEET

THE UNITED STATES ACCESS BOARD'S "REVISED DRAFT GUIDELINES FOR ACCESSIBLE PUBLIC RIGHTS-OF-WAY" CHAPTER R3: TECHNICAL PROVISIONS, SUBSECTION: R306, DATED: NOVEMBER 23, 2005.

**CONTROL UNIT**  
PROVIDE A CONTROL UNIT FOR EACH ACCESSIBLE PEDESTRIAN PUSHBUTTON. THE CONTROL UNIT SHALL BE CONTAINED COMPLETELY WITHIN THE PUSHBUTTON UNIT OR INSTALLED IN THE TRAFFIC CONTROLLER CABINET.

**FUNCTIONAL CAPABILITIES**  
THE ACCESSIBLE PEDESTRIAN PUSHBUTTON SHALL INCLUDE THE FOLLOWING FEATURES, WHICH CAN BE SELECTIVELY ENABLED:

1. AUDIBLE TONES
  - A. WALK - A MINIMUM OF ONE (1) RAPID TICK TONE SHALL BE AVAILABLE, NO MORE THAN 2-5 DBA ABOVE AMBIENT SOUND LEVEL.
  - B. LOCATOR - A MINIMUM OF ONE (1) TONE SHALL BE AVAILABLE.
  - C. PEDESTRIAN CLEARANCE - A MINIMUM OF ONE (1) TONE SHALL BE AVAILABLE.
  - D. ACKNOWLEDGEMENT TONE - A MINIMUM OF ONE (1) TONE SHALL BE AVAILABLE CONFIRMING THAT A PEDESTRIAN CALL HAS BEEN PLACED.
  - E. COUNTDOWN - A MINIMUM OF ONE TONE SHALL BE AVAILABLE THAT CORRESPONDS TO THE VISIBLE PEDESTRIAN SIGNAL COUNTDOWN DISPLAY SPEECH MESSAGES.
2. SPEECH MESSAGES
  - A. WALK - A SPEECH MESSAGE INDICATING THE NAME AND/OR DIRECTION OF THE ACTIVE WALK INDICATION.
  - B. PUSHBUTTON INFORMATION MESSAGE - A SPEECH MESSAGE IDENTIFYING THE INTERSECTION AND CROSSWALKS THAT PLAYS WHEN PUSHBUTTON IS PRESSED FOR ONE (1) SECOND OR LONGER.
3. VIBROTACTILE INDICATIONS
  - A. WALK - PROVIDED BY A TACTILE ARROW THAT VIBRATES DURING THE WALK IN THE TACTILE ARROW SHALL BE ALIGNED IN THE DIRECTION OF TRAVEL ON THE RELEVANT CROSSWALK.

**ITEM 632 ACCESSIBLE PEDESTRIAN PUSHBUTTON, AS PER PLAN (CONTINUED)**

4. VISUAL INDICATIONS  
A. ACKNOWLEDGEMENT LED - A LED IN THE ACCESSIBLE PEDESTRIAN PUSHBUTTON SHALL CONFIRM THAT A PEDESTRIAN CALL HAS BEEN PLACED.

B. RAISED DIRECTIONAL ARROW - THE ARROW SHALL HAVE A MINIMUM SIZE OF 2 INCHES, SHALL BE ROUTABLE IN 4 DIRECTIONS, AND SHALL HAVE HIGH VISUAL CONTRAST.

5. AUDIBLE OUTPUT FEATURES  
A. INDEPENDENT MINIMUM AND MAXIMUM VOLUME SETTINGS.

B. AUTOMATIC AMBIENT NOISE ADJUSTMENT SHALL BE PROVIDED OVER A MINIMUM OF 60 DBA.

C. ALL SOUNDS SHALL EMANATE FROM THE AUDIBLE PEDESTRIAN PUSHBUTTON.

D. ALL SOUNDS SHALL BE SYNCHRONIZED BETWEEN ALL AUDIBLE PEDESTRIAN PUSHBUTTONS AT THE SAME INTERSECTION.

E. INCREASED SINGLE-CYCLE VOLUME SHALL BE PROVIDED ON ACTIVE CROSSINGS IN RESPONSE TO AN EXTENDED PUSHBUTTON PRESS.

MECHANICAL, ELECTRICAL, AND ENVIRONMENTAL CHARACTERISTICS

THE ACCESSIBLE PEDESTRIAN PUSHBUTTON SHALL HAVE THE FOLLOWING CHARACTERISTICS:

- A. OPERATE ON VOLTAGE LEVELS OF 78-22 VDC OR 78-22 VAC
  - B. GROUNDED AND BONDED BACK TO THE POWER SUPPLY SOURCE, LOCATED IN THE TRAFFIC SIGNAL CONTROLLER CABINET
  - C. TRANSIENT VOLTAGE SUPPRESSION PER IEC 61000-4-4 AND IEC 61000-4-5
  - D. TRANSIENT VOLTAGE PROTECTION PER NEMA TS-2
  - E. ENCLOSURE SHALL BE NEMA 250 4X RATED MEETING NEMA TS-2 SHOCK AND VIBRATION STANDARDS
  - F. ENCLOSURE FINISH SHALL BE EITHER BLACK OR YELLOW
  - G. SOLID STATE SWITCH RATED AT A MINIMUM OF 20 MILLION ACTUATIONS
  - H. OPERATE SATISFACTORILY IN A TEMPERATURE RANGE FROM -30 °F TO +165°F (-34 °C TO +74 °C) AND A HUMIDITY RANGE FROM 0% RH TO 100% RH
  - I. WEATHERPROOF SPEAKER
  - J. PUSHBUTTON OPERATING FORCE SHALL BE THREE (3) LBS. MAXIMUM
  - K. ETHERNET INTERFACE THAT SUPPORTS NETWORK COMMUNICATIONS
  - L. REQUIRE ONLY 2 WIRES TO CONNECT TO THE TRAFFIC SIGNAL CABINET COMPATIBILITY
- THE ACCESSIBLE PEDESTRIAN PUSHBUTTON SHALL BE COMPATIBLE WITH NEMA AND CAL TRANS TYPE TRAFFIC CONTROLLERS AND CABINETS. THE ACCESSIBLE PEDESTRIAN PUSHBUTTON SHALL WORK WITH EXISTING TRAFFIC SIGNAL CONTROLLER LOGIC. THE ACCESSIBLE PEDESTRIAN PUSHBUTTON SHALL WORK WITH EITHER THE GREEN, RED, WALK, OR DON'T WALK INDICATION, AND SHALL COORDINATE CALLS WITH THE PEDESTRIAN PUSHBUTTON.
- THE ACCESSIBLE PEDESTRIAN PUSHBUTTON SHALL BE COMPATIBLE WITH THE TRAFFIC CONTROLLER MMU/CONFLICT MONITOR.

**ITEM 632 ACCESSIBLE PEDESTRIAN PUSHBUTTON, AS PER PLAN (CONTINUED)**

WHEN THE TRAFFIC SIGNAL GOES INTO FLASH MODE, THE ACCESSIBLE PEDESTRIAN PUSHBUTTON DEVICE SHALL NOT REMAIN IN WALK MODE.

**INSTALLATION REQUIREMENTS**  
RUN CABLE SERVING THE ACCESSIBLE PEDESTRIAN PUSHBUTTON BETWEEN THE ACCESSIBLE PEDESTRIAN PUSHBUTTON AND CONTROLLER CABINET, WITH TEN FEET (3 M) OF SLACK PROVIDED IN THE CONTROLLER CABINET.

**TRAINING**  
FURNISH ONE DAY OF TRAINING IN THE OPERATION, SETUP AND MAINTENANCE OF THE ACCESSIBLE PEDESTRIAN PUSHBUTTON INSTALLED AS PART OF THE CONTRACT. FURNISH ALL HANDOUTS, MANUALS AND PRODUCT INFORMATION. FOR THE TRAINING, USE THE SAME MODELS OF EQUIPMENT FURNISHED FOR THE PROJECT. THE MAINTAINING AGENCY SHALL FURNISH THE FACILITIES IN WHICH THE TRAINING WILL TAKE PLACE. FURNISH ALL MEDIA AND TEST EQUIPMENT NEEDED TO PRESENT THE TRAINING.

**TRAINING**  
INSTRUCTOR(S) SHALL BE MANUFACTURER-CERTIFIED, EXPERIENCED IN THE SKILL OF TRAINING OTHERS AND HAVE CONDUCTED A MINIMUM OF THREE TWO DAY TRAININGS ON ACCESSIBLE PEDESTRIAN PUSHBUTTON.  
COORDINATE ACCESSIBLE PEDESTRIAN PUSHBUTTON TRAINING WITH THE ENGINEER A MINIMUM OF 30 DAYS IN ADVANCE OF PROPOSED DATE OF TRAINING.

**SOFTWARE**  
PROGRAMMING SOFTWARE SHALL BE PROVIDED WITH EACH SYSTEM; PASSWORD PROTECTION REQUIRED. CABLES AT LEAST FIVE FEET IN LENGTH SHALL BE PROVIDED FOR THE INTERFACE TO A LAPTOP COMPUTER.

**SIGNS**  
EACH ACCESSIBLE PEDESTRIAN PUSHBUTTON SHALL HAVE AN INTEGRAL SIGN, MINIMUM SIZE OF 9 INCHES BY 12 INCHES, DISPLAYING INSTRUCTIONS FOR WALK, DON'T WALK (BOTH FLASHING AND STEADY), AND COUNTDOWN.

**DOCUMENTATION AND TESTING**  
ALL PRODUCT DOCUMENTATION SHALL BE WRITTEN IN THE ENGLISH LANGUAGE.

PROVIDE THREE BOUND COPIES AND ONE PDF VERSION OF THE USER'S MANUAL. PERFORM FUNCTIONAL TESTS AND 10 -DAY PERFORMANCE TEST ACCORDING TO ODOT CMS 632.

**WARRANTY**  
PROVIDE A 60-MONTH WARRANTY OR THE MANUFACTURER'S STANDARD WARRANTY, WHICHEVER IS GREATER FOR THE ACCESSIBLE PEDESTRIAN PUSHBUTTON.

ENSURE THAT THE WARRANTY PERIOD BEGINS ON THE DATE OF SHIPMENT TO THE PROJECT.

ENSURE THAT EACH SYSTEM HAS A PERMANENT LABEL OR STAMP INDICATING THE DATE OF SHIPMENT AND VENDOR NAME.

THE WARRANTY SHALL INCLUDE, TECHNICAL SUPPORT SHALL BE AVAILABLE FROM THE SUPPLIER, AT NO COST, VIA TELEPHONE WITHIN 4 HOURS OF THE TIME A CALL IS MADE, FROM FACTORY-CERTIFIED PERSONNEL OR FACTORY-CERTIFIED INSTALLERS.

THE WARRANTY SHALL INCLUDE UPDATES OF THE AUDIO FILES AND SOFTWARE, AVAILABLE FROM THE MANUFACTURER WITHOUT CHARGE.

**ITEM 632 ACCESSIBLE PEDESTRIAN PUSHBUTTON, AS PER PLAN (CONTINUED)**

**METHOD OF MEASUREMENT**  
THE DEPARTMENT WILL MEASURE ACCESSIBLE PEDESTRIAN PUSHBUTTON BY THE NUMBER OF EACH UNIT INSTALLED, IN PLACE, COMPLETE AND READY FOR SERVICE AND WILL INCLUDE ALL MATERIALS, TESTING, LABOR AND SOFTWARE.

TRAINING SHALL BE INCLUDED IN THE UNIT PRICE FOR THE PUSHBUTTONS.

**BASIS OF PAYMENT**  
THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICES AS FOLLOWS:

**ITEM UNIT DESCRIPTION**  
632 EACH ACCESSIBLE PEDESTRIAN PUSHBUTTON, AS PER PLAN

**ITEM 632 PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN, AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF CMS 632 AND 732, THE FOLLOWING REQUIREMENTS SHALL ALSO APPLY:

1. LED, LIGHT EMITTING DIODE, SIGNAL LAMP UNITS SHALL MEET THE REQUIREMENTS OF CMS 732.04(C). ALL LAMP UNITS SHALL BE THE 16 INCH SIZE.
2. THE LED LAMP UNIT SHALL DISPLAY SOLID FILLED SYMBOLS FOR THE UPRaised HAND OR THE WALKING PERSON. THE INDICATIONS SHALL BE OVERLAID AND HAVE A "COUNTDOWN" INDICATION.
3. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF BLACK POLYCARBONATE PLASTIC AND MEET ITC SPECIFICATIONS.
4. PIPE, SPACERS, AND FITTINGS CONSTRUCTED OF BLACK POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.
5. BLACK EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
6. PEDESTRIAN HEADS SHALL BE RIGID MOUNTED BY USE OF QUICK DISCONNECTS AND SHALL BE FIELD MOUNTED AND POSITIONED. PEDESTRIAN SIGNAL HEADS MOUNTED ON PEDESTALS SHALL USE A ONE-PIECE SLIP-FITTER MOUNTING BRACKET.
7. PEDESTRIAN SIGNAL HEADS SHALL BE COUNTDOWN TYPE MEETING 732.05(D) SPECIFICATIONS.
8. ALL MOUNTING HARDWARE SHALL BE BLACK.

THE CONTRACTOR SHALL PROVIDE, IN WRITING, THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS TO BE USED IN THE TRAFFIC SIGNAL HEADS PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.

"PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN, AS PER PLAN" WILL BE MEASURED BY THE NUMBER OF COMPLETE UNITS FURNISHED AND INSTALLED, AND WILL INCLUDE ALL SUPPORT AND MOUNTING HARDWARE, CLOSURE CAPS, AND LAMPS AS SPECIFIED.

**632 PEDESTRIAN PUSHBUTTON, AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF C&MS 632.09 AND 732.06, FURNISH PEDESTRIAN PUSHBUTTON ASSEMBLIES THAT CONFORM WITH THE FOLLOWING:

PUSHBUTTONS PROVIDED SHALL BE LISTED ON THE TAP/APPROVED PRODUCTS LIST. IN ADDITION, PUSHBUTTON COLORS SHALL BE BLACK IN THE CENTRAL BUSINESS DISTRICT (CBD) AND YELLOW IN ALL OTHER LOCATIONS.

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**632 PEDESTRIAN PUSHBUTTON, AS PER PLAN (CONTINUED)**

PROVIDE A PUSHBUTTON ASSEMBLY WITH AN INTEGRAL NON-LATCHING INDICATOR LIGHT THAT WILL STAY ILLUMINATED AFTER THE BUTTON HAS BEEN PUSHED. THE PUSHBUTTON ASSEMBLY SHALL GIVE A TWO TONED BEEP INDICATION OF BUTTON BEING PUSHED (ONE TONE FOR PUSH, ONE TONE FOR RELEASE). THE PUSHBUTTON SHALL BE DESIGNED TO PREVENT SNOW AND ICE FROM FORMING SUCH THAT IT WOULD IMPEDE FUNCTION OF THE BUTTON OR BUTTON CAP.

PAYMENT FOR THIS ITEM SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT FOR A COMPLETE AND OPERATIONAL PUSHBUTTON ASSEMBLY, TESTED AND ACCEPTED.

**ITEM 632 - SIGNALIZATION, MISC.: SYSTEM INTEGRATION**

**DESCRIPTION**

THIS PAY ITEM INCLUDES ALL WORK REQUIRED TO SEAMLESSLY INTEGRATE NEW SIGNALS AND COMPONENTS INTO THE CITY TRAFFIC NETWORK AND CENTRAL CONTROL SYSTEM.

NETWORK TESTING SHALL BE PERFORMED AS PART OF THIS PAY ITEM AND IS REQUIRED BEFORE ANY OF THE INTEGRATED SIGNALS CAN BE ACCEPTED BY THE ENGINEER.

**SIGNAL MIGRATION TO NEW SYSTEM**

WHERE APPLICABLE, MIGRATION OF INTERSECTION COMMUNICATION FROM THE EXISTING COPPER OR WIRELESS SYSTEM TO THE NEW FIBER OPTIC NETWORK MUST BE COORDINATED SO THAT THE TRANSITION OF SIGNALS TO THE NEW SYSTEM DOES NOT NEGATIVELY IMPACT THE OPERATION OF SIGNALS NOT YET ON THE NEW SYSTEM OR THE OPERATION OF THE SIGNALS TO BE MAINTAINED ON THE EXISTING SYSTEM.

**TESTING**

TEN DAY COMMUNICATIONS VERIFICATION PERIOD PRELIMINARY TEN (10) DAY TESTING SHALL BE PERFORMED BY THE CONTRACTOR PRIOR TO CUTTING COMMUNICATIONS TO ANY EXISTING FIELD DEVICES OR MIGRATION OF ANY FIELD DEVICE COMMUNICATIONS TO THE NEW SYSTEM. THIS TESTING SHALL VERIFY THAT ETHERNET NETWORK CONNECTIVITY BETWEEN COMMUNICATIONS NODES AND FIELD DEVICES HAS BEEN ESTABLISHED, AND INCLUDES ALL INTERCONNECT, WIRELESS, AND NETWORK EQUIPMENT AND INFRASTRUCTURE.

**ITEM 632 - SIGNALIZATION, MISC.: SYSTEM INTEGRATION (CONTINUED)**

THE CONTRACTOR SHALL SUBMIT A LIST OF INTERSECTIONS/SITES AND ANY OTHER FIELD DEVICES TO BE TESTED (TEST GROUP), TO THE ENGINEER FOR APPROVAL PRIOR TO THE START OF TESTING. ALL DEVICES THAT WILL BE CONNECTED TO THE PROPOSED COMMUNICATION NETWORK SHALL BE TESTED (AS ONE TEST GROUP OR AS SEPARATE TEST GROUPS). THE CONTRACTOR MAY SUBMIT TO THE ENGINEER AN ALTERNATIVE TESTING PLAN IN ORDER TO BETTER COORDINATE WITH OTHER PROJECTS OR CONSTRUCTABILITY ISSUES. ADDITIONALLY, THE ENGINEER MAY MODIFY THE TESTING PLAN AS NECESSARY.

THE TEN-DAY COMMUNICATIONS VERIFICATION PERIOD SHALL VERIFY THAT ETHERNET NETWORK CONNECTIVITY BETWEEN COMMUNICATIONS NODES AND FIELD DEVICES, WITHIN THE RESPECTIVE TEST GROUP, HAVE BEEN ESTABLISHED, AND INCLUDES ALL INTERCONNECT, WIRELESS, AND NETWORK EQUIPMENT AND INFRASTRUCTURE. ONCE THE TESTING PERIOD HAS STARTED, NETWORK LOG FILES FOR ALL COMMUNICATIONS LINKS (BETWEEN THE COMMUNICATIONS NODE AND THE FIELD DEVICE LAYER 2 NETWORK SWITCH) WITHIN THE TEST GROUP SHALL BE KEPT BY THE CONTRACTOR FOR THE DURATION OF THE TESTING PERIOD. ANY NETWORK EVENT OR FAILURE SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER. DEPENDING ON THE CAUSE AND/OR SEVERITY OF A FAILURE EVENT THE ENGINEER MAY DETERMINE THAT THE PROBLEM(S) BE RESOLVED AND THE TESTING PERIOD BE RESTARTED AT ZERO DAYS.

THE CITY MAY REMOTELY MONITOR COMMUNICATIONS TO ANY OF THE SITES UNDERGOING TESTING AT ANY TIME. THE CONTRACTOR SHALL SUBMIT A REPORT OF THE COMMUNICATIONS PERFORMANCE OF THE TEST GROUP DURING THE TESTING PERIOD, INCLUDING ALL SYSTEM EVENTS OR FAILURES, TO THE ENGINEER FOR APPROVAL PRIOR TO START OF THIRTY-DAY OPERATION PERIOD.

**THIRTY-DAY OPERATIONAL PERIOD**

TESTING SHALL CONSIST OF A THIRTY-DAY OPERATIONAL PERIOD. PRIOR TO BEGINNING ANY TESTING, THE CONTRACTOR SHALL COMPLETE THE TEN-DAY COMMUNICATIONS VERIFICATION PERIOD FOR THE TEST GROUP TO BE TESTED AND PROVIDE ALL SUBMITTALS, CERTIFICATIONS, AND REPORTS NECESSARY TO DETERMINE THAT THE TESTING EQUIPMENT WILL MEET SPECIFICATIONS. ALL TESTING SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER.

THE CONTRACTOR SHALL CREATE A DETAILED TEST PLAN THAT CLEARLY INDICATES THE REQUIREMENT(S) COVERED BY EACH TEST CASE.

THE CONTRACTOR SHALL IDENTIFY WHICH CORRIDORS OR REGION OF INTERSECTIONS ARE READY TO BE TESTED. ALL INTERSECTIONS WILL NOT BE TESTED AT ONE TIME, RATHER IN LOGICAL REGIONAL GROUPS OF INTERSECTIONS PROPOSED BY THE CONTRACTOR AND APPROVED BY THE CITY PRIOR TO ANY TESTING COMMENCING.

THE CONTRACTOR SHALL PROVIDE A TEST PROCEDURE AND TEST DATA FORMS TO THE CITY FOR APPROVAL AT LEAST THIRTY (30) CALENDAR DAYS BEFORE TESTING IS TO BEGIN. THE CONTRACTOR SHALL PROVIDE A REQUIREMENT MATRIX THAT CLEARLY MAPS EACH REQUIREMENT TO A SPECIFIC TEST CASE(S). THE CITY WILL REVIEW THE TEST PROCEDURES AND MATRIX AND RETURN THEM WITH COMMENTS OR APPROVAL TO THE CONTRACTOR WITHIN TWENTY-ONE (21) CALENDAR DAYS AFTER RECEIPT. THE TEST PROCEDURES PROPOSED BY THE CONTRACTOR SHALL BE COMPREHENSIVE, AND IN SUFFICIENT DETAIL TO ALLOW THE CITY TO DETERMINE WHETHER OR NOT THE SYSTEM PROVIDED FULLY COMPLIES WITH THE SYSTEM REQUIREMENTS INCLUDED IN THESE SPECIAL PROVISIONS AND PLANS. IF THE CITY DEEMS THE TEST PROCEDURE TO BE UNACCEPTABLE, THE CONTRACTOR SHALL REVISE THE PROCEDURES ACCORDING TO THE CITY'S COMMENTS WITHOUT ADDITIONAL COST TO THE CITY.

**ITEM 632 - SIGNALIZATION, MISC.: SYSTEM INTEGRATION (CONTINUED)**

AT A MINIMUM THE TEST PROCEDURES SHALL INCLUDE THE FOLLOWING:  
-A STEP-BY-STEP OUTLINE OF THE TEST SEQUENCE TO BE FOLLOWED, SHOWING A TEST OF EVERY SYSTEM REQUIREMENT  
-A DESCRIPTION OF THE EXPECTED OPERATION, OUTPUT AND TEST RESULTS  
-AN ESTIMATION OF THE TEST DURATION PROPOSED TEST SCHEDULE  
-A DATA FORM TO BE USED TO RECORD ALL DATA AND QUANTITATIVE RESULTS OBTAINED DURING THE TESTS  
-A DESCRIPTION OF ANY SPECIAL EQUIPMENT, SETUP, MANPOWER, OR CONDITIONS REQUIRED FOR THE TEST  
-MEET ALL REQUIREMENTS OF THE TESTING MATRIX  
-MONITORING OF INTERSECTION PHASE STATUS  
-MONITORING OF INTERSECTION ALARM STATUS  
-MONITORING OF INTERSECTION PREEMPTION STATUS  
-MONITORING OF INTERSECTION COMMUNICATION STATUS  
-MONITORING OF INTERSECTION COORDINATION STATUS (IN STEP, IN TRANSITION, ETC.)  
-TESTING OF ANY MODIFICATIONS OR EXTENSIONS TO LOCAL AND/OR CENTRAL SOFTWARE  
-MONITORING OF UPS UNITS  
-MONITORING OF VIDEO/RADAR DETECTION SYSTEMS

THE THIRTY-DAY OPERATIONAL PERIOD WILL VERIFY THAT THE ENTIRE CORRIDOR / GROUP OF INTERSECTIONS, INCLUDING PRIMARY AND SECONDARY COMMUNICATIONS ROUTES WHERE APPLICABLE, FUNCTIONS PROPERLY AND IN ACCORDANCE WITH THESE SPECIAL PROVISIONS AND PLANS. THE THIRTY-DAY OPERATIONAL PERIOD SHALL NOT BE COMPLETED UNTIL ALL ITEMS CONFORM TO THE SPECIAL PROVISIONS AND PLANS. THE CONTRACTOR SHALL PERFORM AND DOCUMENT ALL NECESSARY TESTING.

THE FORMAL START OF THE THIRTY-DAY OPERATIONAL PERIOD OR "BURN-IN" PERIOD SHALL BE DOCUMENTED BY THE CONTRACTOR AND APPROVED BY THE CITY. THE THIRTY-DAY OPERATIONAL PERIOD WILL INCLUDE THE COMPLETION OF A 30-DAY PERIOD, BY THE END OF WHICH THE ENTIRE INTEGRATED SYSTEM OPERATES ALONG A CORRIDOR / GROUP OF INTERSECTIONS WITHOUT FAILURE AND WITHOUT DETRIMENTAL EFFECT OF OTHER INTERSECTIONS ONLINE WITH THE SYSTEM.

IN THE EVENT OF A FAILURE DURING THE THIRTY-DAY OPERATIONAL PERIOD, THE CONTRACTOR SHALL REPAIR THE EQUIPMENT AS NECESSARY WITHIN TWO (2) WORKING DAYS OF THE TIME OF NOTIFICATION BY THE CITY AND THE THIRTY-DAY OPERATIONAL PERIOD AT THE SOLE DISCRETION OF THE ENGINEER MAY BE SUSPENDED AND RESTARTED OR RESTARTED AT ZERO HOURS. IF THE FAILURE IS A SIGNAL SYSTEM EMERGENCY, A QUALIFIED REPRESENTATIVE FROM THE SOFTWARE AND HARDWARE MANUFACTURER SHALL RESPOND WITHIN TWO HOURS OF NOTIFICATION AS REQUIRED IN THE MAINTENANCE AGREEMENT DESCRIBED HEREIN. SIGNAL SYSTEM EMERGENCIES ARE DEFINED AS A CONDITION RELATED TO THE MALFUNCTIONING OF THE SIGNAL HARDWARE OR SOFTWARE THAT IMPEDES NORMAL OPERATION OF THE SIGNAL TIMING PLANS, SUCH AS GOING INTO FLASH MODE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OF THE COST INVOLVED IN THE REPAIR OF THE EQUIPMENT, INCLUDING RE-TESTING IF NECESSARY.

**ITEM 632 - SIGNALIZATION, MISC.: SYSTEM INTEGRATION (CONTINUED)**

THE MANUFACTURER SHALL PROVIDE CERTIFICATION THAT THE REPLACEMENT UNITS SUPPLIED UNDER THESE SPECIFICATIONS ARE NOT UNITS PREVIOUSLY REJECTED BY SOME OTHER MUNICIPALITY OR STATE.

THE CONTRACTOR OR CITY, AS MUTUALLY AGREED TO, SHALL LOG ALL FAILURES DURING THE PERIOD, USING A MUTUALLY AGREED UPON FORM. IN THE EVENT THAT 5% OR MORE OF CLASS OF EQUIPMENT FAILS DURING THE THIRTY-DAY OPERATIONAL PERIOD, THE CONTRACTOR SHALL DETERMINE THE CAUSE OF FAILURE AND MAKE ANY NECESSARY MODIFICATIONS AND/OR REPLACEMENTS TO PREVENT REOCCURRENCE. ALL MODIFICATIONS OR REPLACEMENTS SHALL BE APPROVED BY THE ENGINEER. IN THE EVENT OF A CLASS MODIFICATION OR REPLACEMENT OF COMPONENTS, ALL SUCH COMPONENTS SHALL BE SUBJECTED TO THE THIRTY-DAY OPERATIONAL PERIOD.

**SYSTEM TESTING**

THE FOLLOWING REQUIREMENTS SHALL BE VERIFIED THROUGH INSPECTION AND SYSTEM ACCEPTANCE TESTING.

**TRAFFIC CONTROLLERS:**

THE CONTRACTOR SHALL BE FURNISHING AND INSTALLING NEW CONTROLLERS WITH ALL REQUIRED EQUIPMENT AS SPECIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INTEGRATING THE NEW CONTROLLERS WITH THE EXISTING CENTRACS CENTRAL SYSTEM SOFTWARE ON THE NEW FIBER NETWORK AND MAINTAINING INTEGRATION WITH EXISTING CONTROLLERS THAT WILL REMAIN ON THE EXISTING INTERCONNECT SYSTEM.

**COMMUNICATIONS NETWORK:**

AS PART OF THIS PROJECT, A FIBER OPTIC COMMUNICATION NETWORK WILL BE INSTALLED ALONG WITH ETHERNET COMMUNICATIONS EQUIPMENT TO CONNECT ALL SIGNALIZED INTERSECTIONS AND OTHER SYSTEMS. THE FIBER OPTICS COMMUNICATIONS BACKBONE WILL SUPPORT GIGABIT SPEEDS.  
\* THE COMMUNICATION SYSTEM MUST BE ABLE TO SUPPORT ETHERNET COMMUNICATION TO THE TRAFFIC SIGNAL CONTROLLERS.  
\* THE NEW ETHERNET COMMUNICATION SYSTEM SHALL BE BASED ON IP NETWORK ADDRESSING OVER FAST ETHERNET.  
\* THE SYSTEM INTEGRATOR SHALL COORDINATE WITH THE CITY ON DEVELOPING AND CONFIGURING THE IP ADDRESSING.  
\* AT THE INTERSECTION CONTROL CABINET, THE MINIMUM COMMITTED INFORMATION DATA RATE PROVIDED WILL BE 4 MB WITH NO MORE THAN 1 SECOND LATENCY.  
\* THE NETWORK WILL BE 100 MB IN FULL DUPLEX.

**METHOD OF MEASUREMENT**

ALL MATERIALS AND LABOR AS DESCRIBED IN THIS ITEM 632: "SIGNALIZATION, MISC.: SYSTEM INTEGRATION" WILL BE MEASURED AS ONE LUMP SUM.

**BASIS OF PAYMENT**

SIGNALIZATION INTEGRATION PANEL WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR:  
ITEM UNIT DESCRIPTION  
632 LUMP SIGNALIZATION, MISC.: SYSTEM INTEGRATION

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**ITEM 632 VEHICULAR SIGNAL HEAD (LED), BLACK, (BY TYPE), 12" LENS, 1-WAY, POLYCARBONATE, WITH BACKPLATE, AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF C&MS 632 AND 732, THE FOLLOWING REQUIREMENTS SHALL APPLY:

1. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF BLACK POLYCARBONATE PLASTIC WITH VISORS AS SPECIFIED AND MEET ITE SPECIFICATIONS.
2. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
3. ALL UPPER SIGNAL SUPPORT HARDWARE AND PIPING UP TO AND INCLUDING THE WIRE INLET FITTING SHALL BE METAL.
4. THE ENTRANCE FITTING SHALL BE OF THE TRI-STUD DESIGN WITH SERRATED RINGS IN ORDER TO ACHIEVE POSITIVE LOCKING.
5. ALL SIGNAL HEADS SHALL BE RIGIDLY MOUNTED TO THE MAST ARM WITH THE YELLOW MODULE LOCATED IN FRONT OF THE MAST ARM.
6. THE LIGHT EMITTING DIODE (LED) MODULES SHALL MEET THE REQUIREMENTS OF C&MS 732.04. THE CONTRACTOR SHALL PROVIDE CITY, IN WRITING, WITH THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS THAT ARE TO BE USED IN THE SIGNAL HEAD PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.
7. SIGNAL HEADS SHALL HAVE A MINIMUM WALL THICKNESS OF 0.11 INCHES.
8. SIGNAL HEADS SHALL INCLUDE CUTAWAY TYPE VISORS UNLESS OTHERWISE SPECIFIED IN THE PLANS.
9. APPLY A BEAD OF SILICONE TO THE SIGNAL HEAD, WASHER, AND ENTRANCE ADAPTER SERRATIONS TO PREVENT WATER INTRUSION. ALSO, FILL THE SPACE BETWEEN CONCENTRIC SERRATION RINGS ON THE TOP OF THE SIGNAL HEAD TO COMPLETELY EXCLUDE WATER FROM THE SPACE BETWEEN THE CONCENTRIC RINGS.
10. BALANCE ADJUSTERS SHALL NOT BE USED ON ONE-WAY HEADS OR TETHERED HEADS.
11. SHALL INCLUDE REFLECTIVE BACKPLATES IN ACCORDANCE WITH CMS 732.22.

PAYMENT FOR ITEM 632 VEHICULAR SIGNAL HEAD, LED, (BY TYPE), AS PER PLAN SHALL BE MADE FOR COMPLETE SIGNAL HEAD FURNISHED AND INSTALLED, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS, AND NEW ATTACHMENT HARDWARE.

**ITEM 633 - ADVANCE RADAR DETECTION, AS PER PLAN**

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING AN ADVANCE/DILEMMA ZONE DETECTION UNIT CAPABLE OF INTERSECTION ADVANCE DETECTION CONTROL UTILIZING ABOVE GROUND DIGITAL WAVE RADAR TECHNIQUES. THE UNIT SHALL BE NON-INTRUSIVE AND SHALL DETECT VEHICLES FROM 50 FT. (15.2 M) UP TO 600 FT. (182.8 M) FROM THE UNIT AND THE ABILITY TO DETECT HIGH REFLECTIVE VEHICLES UP TO 900' FROM THE UNIT. THE SYSTEM SHALL DYNAMICALLY TRACK THE SPEED, ARRIVAL TIME AND RANGE OF VEHICLES AS THEY APPROACH THE STOP LINE. THE SYSTEM SHALL CALCULATE ON A CONTINUOUS BASIS WHICH VEHICLES ARE WITHIN THE PREDETERMINED DILEMMA ZONE AND PLACE A CALL TO THE CONTROLLER. GAPS WITHIN THE DILEMMA ZONE SHALL THEN BE IDENTIFIED SUCH THAT THE CORRESPONDING PHASE CALL WILL BE DROPPED AND THE PHASE SAFELY TERMINATED. THE UNIT SHALL PROVIDE UP TO 8 DETECTION ZONES SIMULTANEOUSLY FOR INTERSECTION CONTROL. ONE UNIT SHALL BE PROVIDED PER APPROACH, WHERE SPECIFIED IN THE PLANS, COVERING MULTIPLE LANES WHERE ADVANCE DETECTION IS REQUIRED. THE DETECTION UNIT SHALL INCLUDE THE FOLLOWING LIST OF FEATURES AND CAPABILITIES.

**ITEM 633 - ADVANCE RADAR DETECTION, AS PER PLAN (CONTINUED)**

- THE UNIT SHALL PROVIDE ACCURATE PRESENCE-DETECTION OF BOTH STOPPED AND MOVING VEHICLES. THE UNIT SHALL BE MOUNTED IN A FORWARD-FIRE, LOOKING AT EITHER APPROACHING OR DEPARTING TRAFFIC AND SHALL ONLY DETECT VEHICLES IN ONE DIRECTION OF TRAVEL.
- THE UNIT SHALL BE TESTED TO MEET NEMA TS2 ENVIRONMENTAL STANDARDS AND MAINTAIN ACCURATE PERFORMANCE IN THE FOLLOWING OPERATING CONDITIONS:
  - RAIN UP TO 4 IN. (2.5 CM) PER HOUR
  - FREEZING RAIN
  - SNOW
  - WIND
  - DUST
  - FOG
  - CHANGING TEMPERATURE
  - CHANGING LIGHTING
- THE RADAR DESIGN FOR EACH UNIT SHALL CONFORM TO THE FOLLOWING:
  - OPERATING FREQUENCY: 10.510.55 GHZ (X-BAND)
  - NO MANUAL TUNING TO CIRCUITRY
  - TRANSMITS MODULATED SIGNALS GENERATED DIGITALLY
  - NO TEMPERATURE-BASED COMPENSATION NECESSARY
  - BANDWIDTH STABLE WITHIN 1%
  - PRINTED CIRCUIT BOARD ANTENNAS
  - ANTENNA VERTICAL 6 DB BEAM WIDTH (TWO-WAY PATTERN): 80 DEGREES
  - ANTENNA HORIZONTAL 6 DB BEAM WIDTH (TWO-WAY PATTERN): 10.5 DEGREES
  - ANTENNA TWO-WAY SIDELOBES: -40 DB
  - TRANSMIT BANDWIDTH: 45 MHZ
  - UN-WINDOWED RESOLUTION: 11 FT. (3.4 M)
  - RF CHANNELS: 4

-THE UNIT SHALL INCLUDE A SIMPLE SETUP ROUTINE THAT SHALL AUTOMATICALLY CONFIGURE AND CALIBRATE THE UNIT FOR PROPER OPERATION DURING INSTALLATION. THE UNIT SHALL ALSO BE CAPABLE OF BEING PROGRAMMED AND UPDATED FROM A LAPTOP COMPUTER OR OTHER PORTABLE PROGRAMMING DEVICE, SUCH AS A POCKET PC, VIA A LOCAL OR REMOTE ETHERNET CONNECTION USING VENDOR SUPPLIED SOFTWARE. THE SOFTWARE SHALL SUPPORT TCP/IP CONNECTIVITY, UNIT CONFIGURATION BACK-UP AND RESTORE, AND REAL-TIME TRAFFIC VISUALIZATION FOR PERFORMANCE VERIFICATION AND TRAFFIC DISPLAY. THE GRAPHICAL USER INTERFACE SHALL OPERATE ON A WINDOWS PLATFORM.

-THE UNIT SHALL HAVE ONE FULL-DUPLEX RS2-232 AND ONE HALF-DUPLEX RS-485 COMMUNICATION PORTS AND SHALL THE ABILITY TO UPGRADE FIRMWARE OVER ANY COMMUNICATION PORT.

-THE UNIT SHALL BE CAPABLE OF ETHERNET COMMUNICATION.

-THE UNIT SHALL BE MOUNTED DIRECTLY TO A POLE OR MAST ARM, AS RECOMMENDED BY THE MANUFACTURER. CABLE(S) SHALL BE PROVIDED AS REQUIRED AND RECOMMENDED BY THE MANUFACTURER.

-SURGE PROTECTION DEVICES, AS RECOMMENDED BY THE MANUFACTURER, SHALL BE INCLUDED BOTH AT THE POLE WHERE THE UNIT IS LOCATED TO PROTECT THE UNIT AND IN THE TRAFFIC CABINET TO PROTECT THE CABINET ELECTRONICS.

-POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET. THE UNIT SHALL CONSUME LESS THAN 10 WATTS AND OPERATE FROM A DC INPUT BETWEEN 9 VDC AND 28 VDC. COMPLETE AND AUTOMATIC RECOVERY FROM A POWER FAILURE SHALL BE WITHIN 15 SECONDS AFTER RESUMPTION OF NORMAL POWER.

**ITEM 633 - ADVANCE RADAR DETECTION, AS PER PLAN (CONTINUED)**

-ALL REQUIRED INPUTS CARDS SHALL BE INCLUDED IN THE TRAFFIC CABINET AND SHALL BE COMPATIBLE WITH CALTRANS, NEMA TS1 AND NEMA TS2 DETECTOR RACKS. THE CARDS SHALL PROVIDE TRUE PRESENCE DETECTOR CALLS OR CONTACT CLOSURE TO THE TRAFFIC CONTROLLER.

-THE MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING INSTALLATION AND TESTING AND SHALL PROVIDE ONSITE TRAINING ON THE SETUP, OPERATION, AND MAINTENANCE OF THE UNIT.

-THE UNIT SHALL COME WITH A 2-YEAR MANUFACTURER SUPPLIED WARRANTY.

-PRIOR TO PROGRAMMING, THE CONTRACTOR SHALL CONTACT THE CITY OF DELAWARE PROJECT ENGINEER AT 740-203-1810. A PUBLIC WORKS DEPARTMENT REPRESENTATIVE SHALL BE PRESENT DURING THE PROGRAMMING OF THE SYSTEM.

PAYMENT FOR ITEM 633 ADVANCE RADAR DETECTION, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT, CONNECTIONS TESTED AND ACCEPTED AND ANY OTHER NECESSARY HARDWARE TO ESTABLISH A FULLY FUNCTIONAL DETECTION SYSTEM.

**ATC CONTROLLER, AS PER PLAN, V6.24**

THE CONTROLLER PROVIDED SHALL BE AN ECONOLITE COBALT WITH EOS SOFTWARE AND ENABLED PRIORITY MODULE. IN ADDITION, THE CONTROLLER SHALL BE FURNISHED WITH ANY ASSOCIATED CENTRACS SITE/INTERSECTION PRIORITY LICENSING (TO BE ADDED TO THE CITY'S EXISTING CENTRACS PRIORITY LICENSING POOL) AND ASSOCIATED CENTRACS CONFIGURATIONS THAT WOULD BE REQUIRED TO ADD THE CONTROLLER TO CENTRACS PRIORITY OPERATIONS.

PAYMENT FOR ITEM 633 "CABINET, TYPE TS2, AS PER PLAN" SHALL BE AT THE CONTRACT BID PRICE, EACH, COMPLETE AND IN PLACE INCLUDING INSTALLATION, PROGRAMMING AND ALL NECESSARY ITEMS TO PLACE THE CONTROLLER INTO OPERATION IN THE SPECIFIED CABINET.

**ITEM 633 CABINET, TYPE TS2, AS PER PLAN (POLE OR GROUND MOUNTED)**

THIS ITEM CONSISTS OF THE REPLACEMENT OF THE EXISTING POLE MOUNTED CABINET WITH NEW POLE MOUNTED CABINET, TYPE TS2 IN THE SAME LOCATION. THE CABINET SHALL BE COMPLETE INCLUDING ALL NECESSARY COMPONENTS AND CABLES NOT SPECIFICALLY MENTIONED BELOW. THE CABINET TYPE TS2 SHALL BE IN CONFORMANCE WITH ODOT CMS 633 AND 733 SPECIFICATIONS, AND THE FOLLOWING ITEMS BELOW.

1. POLE MOUNTED SIZE "M" (49"H X 30"W X 17"D) OR GROUND MOUNTED NEMA SIZE 7 (P44, 54"H X 44"W X 26"D) WITH 12" RISER, TS2, TYPE 1 CABINET WITH BIU'S
2. SIXTEEN (16) LOAD BAYS
3. ONE (1) DETECTOR RACK
4. POWER HARNESS FOR BOTH TS2 TYPE 1 AND TYPE 2 CONTROLLERS
5. COMMUNICATION PORTS, FOR RS-232 COMMUNICATION

THE CABINET SHALL BE FURNISHED WITH AN EDI (MMU2-16LEip) ETHERNET CAPABLE MMU AS ALLOWED ON THE TAP/APPROVED PRODUCTS LIST.

THE CABINET DOOR SHALL HAVE A FOLD OUT SHELF FOR A LAPTOP COMMUNICATIONS CABLES FOR DIRECT CONNECT VIA LAPTOP SURGE SUPPRESSOR IN A MODULAR PACKAGE UTILIZING A 12-PIN BEAU CONNECTOR WITH LED FAILURE INDICATION.

THE CABINET SHALL INCLUDE A GENERATOR POWER PANEL. THE GENERATOR POWER PANEL SHALL BE WIRED SUCH THAT IT WILL CHARGE THE UNINTERRUPTABLE POWER SUPPLY (UPS) BATTERIES. SEE SHEET \$PIS01\$

THE CABINET SHALL BE WIRED SUCH THAT THE UPS (EXISTING OR PROPOSED) PROVIDES AN ALARM TO THE SIGNAL CONTROLLER FOR THE FOLLOWING; ON BATTERY, LOW BATTERY AND TIMER (2 HOURS).

REUSE EXISTING CABLING, VIDEO/RADAR DETECTION, ADDITIONAL AUXILIARY COMPONENTS, AND POWER SERVICE UNLESS OTHERWISE INDICATED IN THE PLANS. REPLACE CONDUIT LB FITTINGS.

COORDINATE CABINET REPLACEMENTS WITH CITY OF DELAWARE. SIGNAL DOWNTIME SHALL BE LIMITED TO 4 HOURS OR LESS DURING OFF PEAK PERIODS WITH LEO.

WHERE SPECIFIED IN THE PLANS, THE CABINET SHALL BE PAINTED BLACK, FS 27038. PAINT CHIP SAMPLES AND SHOP DRAWINGS FOR ALL COMPONENTS MUST BE SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL AT LEAST 7 DAYS PRIOR TO ORDERING MATERIALS.

PAYMENT FOR ITEM 633 "CABINET, TYPE TS2, AS PER PLAN" SHALL BE AT THE CONTRACT BID PRICE, EACH, COMPLETE AND IN PLACE INCLUDING INSTALLATION, PROGRAMMING AND ALL NECESSARY ITEMS TO PLACE THE CONTROLLER INTO OPERATION IN THE SPECIFIED CABINET.

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**ITEM 633 UNINTERRUPTIBLE POWER SUPPLY (UPS), AS PER PLAN**

IT IS THE INTENT OF THESE PLANS THAT A BATTERY BACKUP SYSTEM BE PROVIDED THAT SHALL MEET THE FOLLOWING:

THE UNIT SHALL BE AN ALPHA TECHNOLOGIES BRAND ALPHA FXM UNINTERRUPTIBLE POWER SUPPLE MODULE FXM1100, AN ALPHA OUTDOOR ENCLOSURE SIDE MOUNT 6 WITH LOCKING GENERATOR ACCESS DOOR AND L5-30 F1 PLUG OR APPROVED EQUAL. IN ALL CASES THIS ITEM SHALL MEET ODOT SPECIFICATIONS.

THE UNIT SHALL INCLUDE THE ALPHAGUARD BATTERY CHARGE MANAGEMENT SYSTEM AND ALL ASSOCIATED WIRING.

A MANUAL BY-PASS/DISCONNECT SWITCH INTERNAL TO THE CABINET SHALL BE INCLUDED. A UNIVERSAL GENERATOR TRANSFER SWITCH SHALL ALSO BE INCLUDED.

THE BATTERY BACK UP CABINET SHALL BE ATTACHED TO THE LEFT SIDE OF THE CONTROLLER CABINET (TO THE LEFT OF THE CABINET DOOR), AND THE EXTERIOR OF THE CABINET SHALL MATCH THE COLOR OF THE CONTROLLER CABINET. ALL HOOKUPS, CABLE ATTACHMENT HARDWARE, AND MISCELLANEOUS MATERIALS FOR BOTH ATTACHING THE CABINETS AND FOR FULL OPERATION OF THE BATTERY BACKUP SYSTEM SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THIS ITEM.

THE BACKUP CABINET SHALL BE MOUNTED ON A FOUNDATION PAD TO MATCH THE HEIGHT ABOVE GRADE OF THE ADJACENT CONTROLLER CABINET. THE WORK PAD IN FRONT OF THE FOUNDATION SHALL MATCH THE 35-INCH DIMENSION FOR THE CONTROLLER WORK PAD. THE FOUNDATION AND WORK PADS SHALL BE PAID SEPARATELY.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID FOR EACH, COMPLETE AND IN PLACE, ALL CONNECTIONS TESTED AND ACCEPTED.

**ITEM 633 UNINTERRUPTIBLE POWER SUPPLY (UPS), AS PER PLAN, ALPHA TECHNOLOGIES - ALTERNATE BID**

THIS ITEM REPLACES THE ITEM 633 UNINTERRUPTIBLE POWER SUPPLY, AS PER THE ALPHA TECHNOLOGIES SPECIFICATION LISTED BELOW.

THE UNINTERRUPTIBLE POWER SUPPLY SHALL MEET ALL THE REQUIREMENTS IN THE ALPHA TECHNOLOGIES SPECIFICATION FOR ALPHA FXM UNINTERRUPTIBLE POWER SUPPLY MODULE FXM 1100, DOCUMENT #048-157-10 REV 08/09.

PAYMENT FOR ITEM 633 UNINTERRUPTIBLE POWER SUPPLY (UPS), AS PER PLAN, ALPHA TECHNOLOGIES ALTERNATE BID SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING HARDWARE, PROCESSOR CARD(S), CABLES, CONDUIT, AND CONNECTIONS TESTED AND ACCEPTED, SETUP SUPPORT AND SYSTEM TRAINING.

**ITEM 633 CONTROLLER ITEM, MISC.: PREEMPTIONS**

THIS ITEM CONSISTS OF PROVIDING AND INSTALLING PREEMPTIONS EQUIPMENT IN THE LOCATIONS AND LOCAL CONTROLLERS AS SHOWN ON THE PLANS. THE PREEMPTION SHALL CONFORM TO ODOT SPECIFICATIONS 633 AND SHALL UTILIZE COMMUNICATIONS TO IDENTIFY THE PRESENCE OF AN EMERGENCY VEHICLE. THE SYSTEM SHALL CAUSE THE SIGNAL CONTROLLER TO SELECT A PRE-PROGRAMMED PREEMPTION PLAN THAT WILL DISPLAY AND HOLD THE DESIRED SIGNAL PHASE FOR THE DIRECTION OF THE EMERGENCY VEHICLE.

THE COMMUNICATIONS MEDIUM SHALL EMPLOY RADIO/GPS DETECTION TECHNIQUES TO DETERMINE AND LOT THE PRESENCE OF THE VEHICLE BY DETECTING THE RF/GPS LOCATION OF THE APPROACHING VEHICLE. THE SYSTEM SHALL BE COMPLETELY COMPATIBLE WITH NEMA CONTROLLERS AND BE COMPLETELY WIRED AND TESTED. THE SYSTEM SHALL BE ABLE TO DETECT THE DIRECTION AND ETA OF APPROACHING VEHICLES FROM A DISTANCE OF 2,500 FEET OR MORE.

**ITEM 633 CONTROLLER ITEM, MISC.: PREEMPTIONS (CONTINUED)**

THE INTERSECTION SHALL BE EQUIPPED WITH THE FOLLOWING COMPONENTS:

1. PREEMPTION ANTENNA.
2. PREEMPTION ANTENNA WIRING.
3. PREEMPTION PHASE SELECTOR UNIT AND WIRING INTERFACE PANEL (IF REQUIRED)
4. CONFIRMATION LIGHT AND WIRING.

THE DETECTION ANTENNA AND CONFIRMATION LIGHTS SHALL BE RIGID MOUNTED TO THE MAST ARMS WITH MOUNTING HARDWARE AS RECOMMENDED BY THE EQUIPMENT SUPPLIER. THE SYSTEM SHALL BE CAPABLE OF DETECTING ALL EQUIPPED VEHICLES BY DIRECTION, ETA, SPEED, AND TURN SIGNAL STATUS, THE CONFIRMATION LIGHTS SHALL HAVE LED BULBS.

THE CONFIRMATION LIGHTS SHALL BE RIGID MOUNTED TO THE MAST ARMS AND ARE FOR THE PURPOSE OF PROVIDING MOTORISTS A VISUAL INDICATION THAT AN EMERGENCY VEHICLE IS APPROACHING THE INTERSECTION. THE CONFIRMATION LIGHT FACING THE APPROACH FROM WHICH THE VEHICLE HAS BEEN DETECTED SHALL BE A FLASHING WHITE LIGHT DURING THE PREEMPTION.

THE LIGHT FIXTURES SHALL BE A DUAL INDICATIONS, WEATHERPROOF FIXTURE UTILIZING A STANDARD OUTDOOR SPOTLIGHT.

THE CONTRACTOR SHALL THOROUGHLY INSPECT THE INSTALLED SYSTEM. AT A MINIMUM THE CONTRACTOR SHALL VERIFY THAT ALL CONNECTIONS ARE PROPERLY MADE TO THE CONTROLLER CABINET. THE CONTRACTOR SHALL CHECK THAT THE PHASE SELECTOR STATUS LIGHTS FOR RADIO AND GPS ARE CORRECT AND THE CONTRACTOR SHALL ENSURE THAT THE PHASE SELECTOR IS SELECTING THE PROPER PHASE AND TIMING.

THE PREEMPTION SYSTEM SHALL BE RADIO/GPS. THE SYSTEM SHALL INCLUDE; RADIO/GPS POWER SUPPLY (IF NEEDED), PHASE SELECTOR AND RADIO/GPS ANTENNA.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH ITEM 633 PREEMPTION SYSTEM, AS PER PLAN, IN PLACE AND FULLY OPERATIONAL AS SHOWN ON THE PLANS.

PAYMENT FOR 633 CONTROLLER SYSTEM ITEM, MISC.: PREEMPTION, AS PER PLAN SHALL INCLUDE CABLES, ALL MOUNTING HARDWARE, ALL LABOR MATERIALS, TOOLS, EQUIPMENT AND INCIDENTALS TO FURNISH AND INSTALL THE UNIT, TESTED AND ACCEPTED.

**ITEM 633 CONTROLLER ITEM, MISC.: PREEMPTIONS, OPTICOM - ALTERNATE BID**

THIS ITEM REPLACES THE ITEM 633 CONTROLLER ITEM, MISC.: PREEMPTION PER THE OPTICOM EQUIPMENT SPECIFIED BELOW.

THE SIGNAL PREEMPTION SHALL BEET ALL REQUIREMENTS IN THE OPTICOM SPECIFICATION FOR THE FOLLOWING OPTICOM EQUIPMENT:

- OPTICOM MODEL 1010 GPS RADIO UNIT CONTAINING A GPS RECEIVER WITH ANTENNA AND A 2.4 GHZ SPREAD SPECTRUM TRANSCEIVER WITH ANTENNA
- OPTICOM MODEL 764 MULTIMODE PHASE SELECTOR
- OPTICOM MODEL 1070 GPS INSTALLATION CABLE
- OPTICOM MODEL 575 CONFIRMATION LIGHTS

PAYMENT FOR ITEM 633 CONTROLLER ITEM, MISC.: PREEMPTIONM OPTICOM SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING HARDWARE, PROCESSOR CARD(S), CABLES, CONDUIT, AND CONNECTIONS TESTED AND ACCEPTED, SETUP SUPPORT AND SYSTEM TRAINING.

**ITEM 633 ADVANCE/DILEMMA ZONE DETECTION SYSTEM**

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING AND ADVANCE/DILEMMA ZONE DETECTION UNIT CAPABLE OF INTERSECTION ADVANCE DETECTION CONTROL UTILIZING ABOVE GROUND DIGITAL WAVE RADAR TECHNIQUES. THE UNIT SHALL BE NON-INTRUSIVE AND SHALL DETECT VEHICLES FROM 50 FT. (15.2 M) UP TO 600 FT. (182.8 M) FROM THE UNIT AND THE ABILITY TO DETECT HIGH REFLECTIVE VEHICLES UP TO 900' FROM THE UNIT. THE SYSTEM SHALL DYNAMICALLY TRACK THE SPEED, ARRIVAL TIME AND RANGE OF THE VEHICLES AS THEY APPROACH THE STOP LINE. THE SYSTEM SHALL CALCULATE ON A CONTINUOUS BASIS WHICH VEHICLES ARE WITHIN THE PREDETERMINED DILEMMA ZONE AND PLACE A CALL TO THE CONTROLLER. GAPS WITHIN THE DILEMMA ZONE SHALL THEN BE IDENTIFIED SUCH THAT THE CORRESPONDING PHASE CALL WILL BE DROPPED AND THE PHASE SAFELY TERMINATED. THE UNIT SHALL PROVIDE UP TO 8 DETECTION ZONES SIMULTANEOUSLY FOR THE INTERSECTIONS CONTROL. ONE UNIT SHALL BE PROVIDED PER APPROACH, WHERE SPECIFIED IN THE PLANS, COVERING MULTIPLE LANES WHERE ADVANCE DETECTION IS REQUIRED. THE DETECTION UNIT SHALL INCLUDE THE FOLLOWING LIST OF FEATURES AND CAPABILITIES.

- THE UNIT SHALL PROVIDE ACCURATE PRESENCE-DETECTION OF BOTH STOPPED AND MOVING VEHICLES. THE UNIT SHALL BE MOUNTED IN A FORWARD-FIRE, LOOKING AT EITHER APPROACHING OR DEPARTING TRAFFIC AND SHALL ONLY DETECT VEHICLES IN ONE DIRECTION OF TRAVEL.
- THE UNIT SHALL BE TESTED TO MEET NEMA TS2 ENVIRONMENTAL STANDARDS AND MAINTAIN ACCURATE PERFORMANCE IN THE FOLLOWING OPERATING CONDITIONS:
  - \* RAIN UP TO 4 IN. (10.2 CM) PER HOUR
  - \* FREEZING RAIN
  - \* SNOW
  - \* WIND
  - \* DUST
  - \* FOG
  - \* CHANGING TEMPERATURE
  - \* CHANGING LIGHTING

**ITEM 633 ADVANCE/DILEMMA ZONE DETECTION SYSTEM (CONTINUED)**

- THE RADAR DESIGN FOR EACH UNIT SHALL CONFORM TO THE FOLLOWING:

- \* OPERATING FREQUENCY: 10.510.55 GHZ (X-BAND)
- \* NO MANUAL TUNING TO CIRCUITRY
- \* TRANSMITS MODULATED SIGNAL GENERATED DIGITALLY
- \* NO TEMPERATURE-BASED COMPENSATION NECESSARY
- \* BANDWIDTH STABLE WITHIN 1%
- \* PRINTED CIRCUIT BOARD ANTENNAS
- \* ANTENNA VERTICAL 6 DB BEAM WIDTH (TWO-WAY PATTERN): 80 DEGREES
- \* ANTENNA HORIZONTAL 6 DB BEAM WIDTH (TWO-WAY PATTERN): 10.5 DEGREES
- \* ANTENNA TWO-WAY SIDELOBES: -40 DB
- \* TRANSMIT BANDWIDTH: 45 MHZ
- \* UN-WINDOWED RESOLUTION: 11 FT. (3.4 M)
- \* RF CHANNELS: 4

- THE UNIT SHALL INCLUDE A SIMPLE SETUP ROUTINE THAT SHALL AUTOMATICALLY CONFIGURE AND CALIBRATE THE UNIT FOR PROPER OPERATION CURING INSTALLATION. THE UNIT SHALL ALSO BE CAPABLE OF BEING PROGRAMMED AND UPDATED FROM A LAPTOP COMPUTER OR OTHER PORTABLE PROGRAMMING DEVICE, SUCH AS A POCKET PC, IA A LOCAL OR REMOTE ETHERNET CONNECT USING VENDOR SUPPLIED SOFTWARE. THE SOFTWARE SHALL SUPPORT TCP/IP CONNECTIVITY, UNIT CONFIGURATION BACK-UP AND RESTORE AND VIRTUAL SENSOR CONNECTIONS. THE GRAPHICAL USER INTERFACE SHALL OPERATE ON A WINDOWS PLATFORM.

- THE UNIT SHALL HAVE ONE FILL-DUPLEX RS2-232 AND ONE HALF-DUPLEX RS-485 COMMUNICATION PORTS AND SHALL HAVE THE ABILITY TO UPGRADE FIRMWARE OVER ANY COMMUNICATION PORT.
- THE UNIT SHALL BE CAPABLE OF ETHERNET COMMUNICATION.
- THE UNIT SHALL BE MOUNTED DIRECTLY TO A POLE OR MAST ARM, AS RECOMMENDED BY THE MANUFACTURER. CABLE(S) SHALL BE PROVIDED AS REQUIRED AND RECOMMENDED BY THE MANUFACTURER.
- SURGE PROTECTION DEVICES, AS RECOMMENDED BY THE MANUFACTURER SHALL BE INCLUDED BOTH AT THE POLE WHERE THE UNIT IS LOCATED TO PROTECT THE UNIT AND IN THE TRAFFIC CABINET TO PROTECT THE CABINET ELECTRONICS.
- POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET. THE UNIT SHALL CONSUME LESS THAN 10 WATTS AND OPERATE FROM A DC INPUT BETWEEN 9 VDC AND 28 VDC. COMPLETE AND AUTOMATIC RECOVERY FROM A POWER FAILURE SHALL BE WITHIN 15 SECONDS AFTER RESUMPTION OF NORMAL POWER.
- ALL REQUIRED INPUT CARDS SHALL BE INCLUDED IN THE TRAFFIC CABINET AND SHALL BE COMPATIBLE WITH CALTRANS, NEMA TS1 AND NEMA TS2 DETECTOR RACKS. THE CARDS SHALL PROVIDE TRUE PRESENCE DETECTOR CALLS OR CONTACT CLOSURE TO THE TRAFFIC CONTROLLER.
- THE MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING THE INSTALLATION AND TESTING AND SHALL PROVIDE ONSITE TRAINING ON THE SETUP, OPERATION AND MAINTENANCE OF THE UNIT.
- THE UNIT SHALL COME WITH A 2-YEAR MANUFACTURER SUPPLIED WARRANTY.
- PRIOR TO PROGRAMMING, THE CONTRACTOR SHALL CONTACT THE CITY OF DELAWARE PROJECT ENGINEER (740-203-1810). A PUBLIC WORKS DEPARTMENT REPRESENTATIVE SHALL BE PRESENT DURING THE PROGRAMMING OF THE SYSTEM.

PAYMENT FOR ITEM 633 ADVANCE/DILEMMA ZONE DETECTION SYSTEM SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT, CONNECTIONS TESTED AND ACCEPTED AND ANY OTHER NECESSARY HARDWARE TO ESTABLISH A FULLY FUNCTIONAL DETECTION SYSTEM.

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**ITEM 809 - EMERGENCY VEHICLE PREEMPTION**

THIS ITEM OF WORK SHALL CONSIST OF THE CONTRACTOR INSTALLING AN EMERGENCY VEHICLE PREEMPTION CONTROL RECEIVER. THE COMPONENTS TO INCLUDE, BUT NOT LIMITED TO, MAST ARM MOUNT PREEMPTION RECEIVERS AND MOUNTING HARDWARE. THE CABLING FOR THESE RECEIVERS HAS BEEN ITEMIZED SEPARATELY UNDER ITEM 632 SIGNAL CABLE, 2 CONDUCTOR, NO. 14 AWG.

**BASIS OF PAYMENT**

PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND MOUNTING HARDWARE, AND OTHER INCIDENTALS NECESSARY FOR EACH EMERGENCY VEHICLE PREEMPTION RECEIVER, COMPLETE IN PLACE, ALL CONNECTIONS MADE AND WIRING COMPLETED, TESTED AND ACCEPTED. THIS ITEM WILL BE PAID AT THE CONTRACT UNIT PRICE PER EACH EMERGENCY VEHICLE PREEMPTION.

**ITEM 816 - VIDEO DETECTION SYSTEM, AS PER PLAN (360 DEGREE)**

INCLUDED ARE THE MINIMUM REQUIREMENTS FOR A SYSTEM THAT VIEWS, CAPTURES, AND DERIVES DATA BASED ON THE VEHICLES THAT PASS WITHIN THE SENSOR FIELD OF VIEW ALONG OR AT INTERSECTIONS OF HIGHWAY, ROAD, RAMP, OR OTHER COMMONLY USED TRANSIT PATHWAY VIA PROCESSING VIDEO IMAGES. THE DETECTION OF VEHICLES BY A VIDEO IMAGE VEHICLE TRACKING AND DETECTION SYSTEM (VIVTDS) SHALL BE CAPABLE OF SERVING THE FOLLOWING APPLICATIONS:

- VEHICLE DETECTION AND ACTUATION AT INTERSECTIONS
- HIGHWAY FLOW MONITORING
- RAMP METERING
- ADVANCED DETECTION
- PED CROSSING EXTENSIONS
- TEMPORARY CONSTRUCTION ZONE DETECTION
- SITUATIONAL AWARENESS OF LOCATION AREA, INCLUDING AN INTERSECTION CENTER
- AUTOMATED ALERTS AND REPORTS OF POTENTIALLY UNSAFE CONDITIONS, INCIDENTS, MALFUNCTIONS, OR SIGNAL TIMING INEFFICIENCIES
- COLLECTING AND ARCHIVING TRAFFIC DATA FOR FUTURE ANALYSIS TO IMPROVE PERFORMANCE BY OPTIMIZING TIMING PLANS AT INTERSECTIONS

THE SYSTEM SHALL HAVE A MODULAR ELECTRICAL DESIGN AND USE ETHERNET TO CONNECT AND NETWORK WITH THE DIFFERENT SYSTEM COMPONENTS. STREAMING VIDEO IMAGES, ALERTS, AND DATA SHALL BE TRANSMITTED FROM THE FIELD BACK TO A TRAFFIC OPERATIONS CENTER (TOC) VIA THE SYSTEMS CLIENT SOFTWARE AND TO THE VIVTDS'S CLOUD BY USING TCP/IP OVER THE CITY FIBER OPTIC NETWORK.

THE VIVTDS CLIENT SOFTWARE SHALL PROVIDE GRAPHICAL USER INTERFACES BETWEEN THE ADMINISTRATOR(S) AND PERMISSIONED USERS OF THE SYSTEM AND THE VIVTDS SENSOR(S) ITSELF. THE SOFTWARE SHALL ALLOW THE USER TO CONFIGURE SITES, CONDUCT MAINTENANCE, MONITOR INFORMATION RELAYED FROM THE SENSOR(S), AND PROVIDE ACCESS TO REAL-TIME DATA, SYSTEM AND USER DEFINED ALERTS, AND ACCESS TO HISTORICAL DATA COLLECTED BY THE SENSOR(S). THE CLIENT SOFTWARE SHOULD BE INSTALLED ON A SINGLE PERSONAL COMPUTER OR ACROSS A NETWORK OF COMPUTERS. ONE OR MORE USERS WILL BE ABLE TO ACCESS VIVTDS SIMULTANEOUSLY.

**ITEM 816 - VIDEO DETECTION SYSTEM, AS PER PLAN (360 DEGREE) (CONTINUED)**

**SYSTEM HARDWARE**

THE REQUIRED HARDWARE SHALL INCLUDE THE FOLLOWING:

- ONE VIVTDS PROCESSOR CAPABLE OF CONNECTING WITH 1 TO 8 SENSORS
- ONE OR MORE VIVTDS SENSORS, WITH AT LEAST ONE SENSOR HAVING A FISHEYE LENS FOR OMNIDIRECTIONAL (360 DEGREES HORIZONTAL, 180 DEGREE VERTICAL) VIEWING OF THE ROADWAY OR INTERSECTION.
- ONE 1.5" STRAIGHT-THREAD, SWIVEL BRACKET, AND SURGE PROTECTOR JUNCTION UNIT, PER EACH FISHEYE SENSOR
- ONE SURGE PROTECTOR JUNCTION UNIT, PER EACH ADVANCED/STOPLINE SENSOR
- ONE MOUNTING POLE AND BRACKET (90-DEGREE POLE PER EACH FISHEYE SENSOR; OR STRAIGHT, VERTICAL POLE PER EACH ADVANCED/STOPLINE SENSOR)
- ONE ETHERNET PROTECTION MODULE (SURGE PROTECTOR LOCATED IN THE TRAFFIC CABINET), PER EACH VIVTDS SENSOR
- VIVTDS INTERFACE CABLES TO THE TRAFFIC SIGNAL CONTROLLER BASED ON MODEL/TYPE
- ETHERNET REPEATER TO EXTEND VIVTDS SENSORS BEYOND 100 METERS, WHERE REQUIRED
- POE POWERED SWITCH FOR USE WITH MORE THAN TWO SENSORS, WHERE REQUIRED

**SENSOR HARDWARE**

THE VIVTDS SHALL HAVE AT LEAST ONE DOWNWARD-FACING FISHEYE SENSOR CAPABLE OF SEEING THE CENTER OF THE INTERSECTION AND HAVE AN OMNIDIRECTIONAL LINE OF SITE TO TRACK VEHICLES ENTERING AND EXITING THE INTERSECTION. OTHER REQUIRED FEATURES SHALL INCLUDE THE FOLLOWING:

- COLOR IMAGES OUTPUTTED INTO DIGITAL FORMAT AS MJPEG IMAGES
- HORIZONTAL RESOLUTION OF AT LEAST 2580 LINES AND VERTICAL RESOLUTION OF AT LEAST 1920 LINES.
- A FIVE (5) MEGAPIXEL CMOS CAMERA WITH AN ACTIVE-PIXEL SENSOR (APS)
- CAMERA LENS SHALL NOT REQUIRE ADJUSTMENT AND IS ALWAYS IN FOCUS
- A THERMOSTATICALLY CONTROLLED HEATER RESIDING INSIDE THE ENCLOSURE TO REDUCE THE EFFECTS OF ICE AND CONDENSATION
- ANY PLASTICS USED IN THE ENCLOSURE SHALL HAVE ULTRAVIOLET INHIBITORS
- A WATERPROOF AND DUST TIGHT ALUMINUM ENCLOSURE

THE SENSOR DIMENSIONS EXCLUDING CONNECTORS SHALL NOT EXCEED 9.9" X 7.9" (HEIGHT X DIAMETER). THE WEIGHT OF THE SENSOR INCLUDING THE ENCLOSURE SHALL NOT EXCEED EIGHT (8) LBS. THE VIVTDS SENSOR MANUFACTURER SHALL PROVIDE A LIFETIME "ALWAYS IN FOCUS" GUARANTEE ON THE ICONIC BELL SHAPED FISHEYE CAMERA.

**PROCESSOR HARDWARE**

THE VIVTDS PROCESSOR SHALL SUPPORT 1 OR 2 FISHEYE SENSORS, OR IF EQUIPPED WITH 1 FISHEYE SENSOR THE VIVTDS PROCESSOR SHOULD, AT A MINIMUM, BE CAPABLE OF SIMULTANEOUSLY SUPPORTING UP TO FOUR (4) ADDITIONAL VIVTDS SENSORS FOR SPECIAL REQUIREMENTS SUCH AS ADVANCE DETECTION OR UNDERPASS DETECTION. THE VIVTDS SHALL ALSO SUPPORT THERMAL IMAGING SENSORS FOR USE IN SPECIFIC SITUATIONS.

THE VIVTDS PROCESSOR SHALL COMPLY WITH NEMA STANDARDS, TS-1 TYPE 1, AND 2; TS-2; 170/2070; AND ITS. THE VIVTDS PROCESSOR SHALL PROVIDE THE FOLLOWING INPUTS AND OUTPUTS:

- TYPEINPUTSOUTPUTS
- TSJ2424
- TS21664
- 170/2070824
- ITS1664

**ITEM 816 - VIDEO DETECTION SYSTEM, AS PER PLAN (360 DEGREE) (CONTINUED)**

THE VIVTDS PROCESSOR WILL HAVE AT A MINIMUM FOUR (4) USB 3.0 PORTS FOR EXPANSION FLEXIBILITY AND HAVE A BUILT-IN MODEM.

THE VIVTDS PROCESSOR SHALL BE NO MORE THAN 10 HIGH WITH DIMENSIONS, EXCLUDING CONNECTORS, NOT TO EXCEED 8.5" X 11.5" X 1.75" AND WEIGH NO MORE THAN 5.2 LBS. THE UNIT SHALL HAVE FLEXIBLE MOUNTING OPTIONS INCLUDING THE ABILITY TO LIE FLAT ON A CABINET SHELF, BE MOUNTED IN A STANDARD TRAFFIC CABINET RACK WITH OPTIONAL MOUNTING EARS, OR BE INSTALLED VERTICALLY WITH OPTIONAL BASE. THE OUTER ENCLOSURE SHALL BE A POWDERED COATED ALUMINUM.

**AUXILIARY ENCLOSURE**

DUE TO PHYSICAL LIMITATIONS WITHIN EXISTING TRAFFIC SIGNAL CABINETS, AUXILIARY CABINETRY WILL BE REQUIRED TO HOUSE THE VIVTDS PROCESSOR. THE ENCLOSURE SHALL HAVE A NEMA 3R RATING (MINIMUM) AND MEET THE FOLLOWING REQUIREMENTS.

MATERIAL SHALL BE SHEET OR CAST ALUMINUM. WALL THICKNESS SHALL BE 1/8- INCH MINIMUM, REINFORCED WHERE REQUIRED. FINISH SHALL BE NATURAL WITH EXTERNAL WELDS FREE OF IRREGULARITIES AND A MAXIMUM BEAD HEIGHT OF 1/8-INCH.

ENCLOSURE SHALL BE OF SUFFICIENT SIZE TO POSITION THE VIVTDS EQUIPMENT IN THE CABINET TO PROVIDE ACCESS TO ALL TERMINAL STRIPS AND EQUIPMENT FROM THE FRONT WITHOUT REMOVING OTHER EQUIPMENT.

PROVIDE AN UNOBSTRUCTED VIEW OF ALL EQUIPMENT HAVING VISUAL INDICATORS. PLACE ALL EQUIPMENT IN AN UPRIGHT POSITION AND NOT ON TOP OF OTHER EQUIPMENT. THE ENCLOSURE SHALL BE VANDAL AND CORROSION RESISTANT. EXPOSED SURFACES SHALL BE FINISHED WITH AN APPROVED, CLEAR, ANTI-GRAFFITI COATING SYSTEM.

THE ENCLOSURE SHALL INCLUDE A 3 POINT LATCH LOCKING SYSTEM WITH LEVER AND TOW CORBIN #2 KEYS, OR OTHER LOCK SYSTEM APPROVED BY THE ENGINEER. PROVIDE NEOPRENE GASKET, ATTACHED WITH AN OIL RESISTANT ADHESIVE.

WEATHERPROOF VENTS OF SUFFICIENT AREA SHALL BE PROVIDED IN THE LOWER PART OF THE DOOR AND CABINET. PROVIDE COVER VENTS WITH A DISPOSABLE FILTER SECURELY HELD IN PLACE.

MOUNT AUXILIARY CABINET TO EXISTING TRAFFIC SIGNAL POLE BY APPROVED METHODS AT A MAXIMUM HEIGHT OF 5' 0" ABOVE GRADE. WHERE AUXILIARY CABINET IS MOUNTED TO THE SAME POLE AS THE TRAFFIC SIGNAL CABINET, IT SHOULD BE MOUNTED AT 90 OR 180 DEGREES FROM THE SIGNAL CABINET AND ORIENTED AWAY FROM THE STREET. INSTALL 1" (MINIMUM) CONDUIT BETWEEN AUXILIARY AND EXISTING CONTROLLER CABINET WITH COUPLERS TO ENSURE CABLES WILL NOT FRAY. CABINET/ENCLOSURE ENTRIES SHALL BE MADE ON THE UNDERSIDE. SEAL CONDUIT AND AUXILIARY CABINET AND EXISTING CONTROLLER CABINET WITH WATER PROOF SEALER. THE CONTRACTOR SHALL SUBMIT ENCLOSURE SIZING, MOUNTING, AND CONDUIT CONNECTION DETAILS TO THE ENGINEER FOR APPROVAL BEFORE ORDERING OR INSTALLING EQUIPMENT.

**ITEM 816 - VIDEO DETECTION SYSTEM, AS PER PLAN (360 DEGREE) (CONTINUED)**

**ELECTRICAL**

THE VIVTDS SENSOR(S) SHALL USE FIVE (5) WATTS NOMINALLY AND A MAXIMUM OF FIFTY (50) WATTS WITH ACTIVE HEATERS. THE SENSOR(S) SHALL BE POWER OVER ETHERNET (POE) AND WILL ONLY REQUIRE A SINGLE BURIAL GRADE, GEL-FILLED RJ-45 CAT5E CABLE FOR BOTH POWER AND DATA.

EACH VIVTDS SENSOR SHALL HAVE ITS OWN SURGE PROTECTOR JUNCTION UNIT AND EPM SURGE PROTECTION UNIT IN THE TRAFFIC CABINET.

THE VIVTDS PROCESSOR SHALL OPERATE WITHIN A RANGE OF 89 TO 240 VAC, 60HZ SINGLE PHASE. POWER TO THE VIVTDS PROCESSOR IS FROM THE TRANSIENT PROTECTED SIDE OF THE AC POWER DISTRIBUTION SYSTEM IN THE TRAFFIC CONTROL CABINET WHERE THE VIVTDS PROCESSOR IS INSTALLED.

**CABLING AND SURGE PROTECTION UNITS**

RJ-45 CAT5E CABLING SHALL BE A HIGH PERFORMANCE DIRECT BURIAL DATA CABLE CAPABLE OF 350MHZ BANDWIDTH FOR DATA APPLICATIONS. THE CABLING SHALL CONSIST OF A 24 AWG SOLID BARE COPPER WIRE WITH 8 CONDUCTORS IN A GEL FILLED CORE. THE JACKET SHALL CONSIST OF LINEAR LOW- DENSITY POLYETHYLENE (LLDPE) THAT IS UV RESISTANT AND HAVE A CABLE DIAMETER OF NO MORE THAN 6.5 MM. THE CABLE SHALL HAVE EASILY IDENTIFIABLE STRIPED PAIRS AS FOLLOWS:

- BLUE, WHITE-BLUE,
- ORANGE, WHITE-ORANGE
- GREEN, WHITE-GREEN
- BROWN, WHITE-BROWN

THE CABLE SHALL BE RATED AT A MINIMUM FOR 50 V. THE SURGE PROTECTOR JUNCTION UNIT FOR THE VIVTDS SENSOR SHALL BE NO MORE THAN THREE (3) FT. FROM THE VIVTDS SENSOR AND SHALL PROVIDE PROTECTION AGAINST A TRANSIENT PULSE WITH A PULSE SHAPE OF 8/2021\*64S AND A MAX CURRENT OF 75A. THE UNIT SHALL WEIGH NO MORE THAN TWO (2) LBS.

THE EPM, SURGE PROTECTION UNIT FOR THE VIVTDS SENSOR, SHALL HAVE AT MOST A MAX IMPULSE DISCHARGE CURRENT OF 40 KA AND AN IMPEDANCE OF AT LEAST 100 OHMS. THE UNIT SHOULD HAVE AT LEAST LINE-LINE AND LINE-GROUND PROTECTION OPTIONS, AND THE POE CURRENT SHOULD NOT EXCEED 1.8A.

**ENVIRONMENTAL**

THE VIVTDS SENSORS AND PROCESSOR SHALL MEET OR EXCEED THE NEMA STANDARD OF -29\* F UP TO 149\* F AND MEET OR EXCEED A 5-30HZ VIBRATION TEST AS WELL AS A 10G SHOCK TEST.

THE VIVTDS PROCESSOR SHALL HAVE AT LEAST 0% TO 95%, NON-CONDENSING. THE VIVTDS SENSOR(S) SHALL HAVE AT LEAST 0% TO 100% RELATIVE HUMIDITY.

**SYSTEM SOFTWARE**

EACH VIVTDS SYSTEM SHALL INCLUDE CLIENT SOFTWARE FOR UP TO 8 SENSORS FOR DETECTING AND COUNTING THE VEHICLE'S ENTRANCE AND EXIT OF THE INTERSECTION. THE VIVTDS SYSTEM WILL ALSO INCLUDE SOFTWARE FOR COMMUNICATING WITH THE TRAFFIC CONTROLLERS AND OTHER ELECTRONIC DEVICES.

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TRAFFIC SIGNAL NOTES

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**ITEM 816 - VIDEO DETECTION SYSTEM, AS PER PLAN (360 DEGREE) (CONTINUED)**

THE CLIENT SOFTWARE SHALL BE INCLUDED WITH EACH VIVTDS SYSTEM AND SHOULD BE DOWNLOADED AND RUN ON ANY PERSONAL COMPUTER WITH A WINDOWS 7 OR NEWER OPERATING SYSTEM. THE CLIENT SOFTWARE AT MINIMUM SHOULD INCLUDE MANAGEMENT TOOLS TO PERFORM THE FOLLOWING:

- VIEW, DIAGNOSE, CONFIGURE, AND RESET INDIVIDUAL SENSOR OUTPUTS
- VIEW THE STATUS OF INPUTS TO ENABLE SETUP AND TROUBLESHOOTING IN THE FIELD
- CONFIGURE AND VIEW CALLS AND PHASES
- THE ABILITY TO CREATE AND DEFINE, AS WELL AS EDIT, VEHICLE ZONES, ROAD MASKS, OBJECT MASKS, AND PEDESTRIAN ZONES BY DRAWING ARBITRARY SHAPED POLYGONS USING A COMPUTER
- VIEW THE SITE'S CONFIGURATION HISTORY
- PUBLISH AND REVERT BACK TO PREVIOUS CONFIGURATION
- VIEW VIDEO AND IMAGES FROM THE SENSOR WITHIN THE SOFTWARE'S INTERFACE
- OPTIONALLY ACCESS AND USE AN API THAT IS DOCUMENTED ONLINE AND THAT USES HTTP
- PROVIDE SYSTEM ALERTS FOR DIAGNOSTIC AND ADMINISTRATIVE EVENTS

THE VIVTDS SYSTEM INCLUDE DATA PACKAGES THAT PROVIDE COUNT DATA, ACCESS TO REAL TIME DATA, AND SYSTEM AND USER DEFINED ALERTS. THE COUNT DATA SHALL BE ACCESSIBLE DIRECTLY FROM THE PROCESSOR OR FROM A REMOTE COMPUTER WITH A NETWORK CONNECTION. THE COUNT DATA SHALL INCLUDE AT LEAST THE FOLLOWING TYPE OF REPORTS:

- TURNING MOVEMENT COUNTS, INCLUDING U-TURNS
- LENGTH BASED VEHICLE CLASSIFICATIONS
- INCIDENTS REPORTING
- VOLUME
- 7 DAY VOLUME
- OCCUPANCY ON GREEN
- OCCUPANCY ON RED
- PERCENTAGE OF ARRIVALS ON GREEN
- PERCENTAGE OF ARRIVALS ON RED

ALL REPORTS SHOULD BE EXPORTABLE AND DOWNLOADABLE IN ANY OF THE FOLLOWING FORMATS:

- PDF
- EXCEL
- RICH TEXT FORMAT
- TIFF IMAGE
- WEB ARCHIVE

THE ALERTS/NOTIFICATIONS PACKAGE SHALL INCLUDE AT A MINIMUM THE FOLLOWING TYPES OF ALERTS:

- WRONG WAY VEHICLE DETECTION
- LOSS OF VISIBILITY EVENT
- VOLUME EXCEEDED

**VEHICLE DETECTION**

VIVTDS SYSTEM SHALL PROVIDE REAL TIME VEHICLE DETECTION (WITHIN 500 MILLISECONDS (MS) OF VEHICLE ARRIVAL). THE SYSTEM SHOULD DETECT THE PRESENCE OF VEHICLES FOR UP TO 64 DETECTION ZONES PER VIVTDS SENOR. THE DETECTION ZONES SHALL BE SENSITIVE TO THE DIRECTION A VEHICLE TRAVELS AND THE DIRECTION TO BE DETECTED BY EACH DETECTION ZONE SHALL BE PROGRAMMABLE BY A CLIENT SOFTWARE USER.

**ITEM 816 - VIDEO DETECTION SYSTEM, AS PER PLAN (360 DEGREE) (CONTINUED)**

**DETECTION ZONE PLACEMENT**

THE VIVTDS SYSTEM SHOULD PROVIDE A FLEXIBLE DETECTION ZONE PLACEMENT ANYWHERE WITHIN ONE HUNDRED (100) METERS OF THE VIVTDS SENSORS. PREFERRED PRESENCE DETECTOR CONFIGURATIONS SHALL BE ARBITRARILY SHAPED POLYGONS, INCLUDING SIMPLE BOXES, DRAWN ACROSS LANES OF TRAFFIC OR PLACED IN LINE WITH LANES OF TRAFFIC. A SINGLE VIVTDS SENSOR SHOULD REPLACE ONE OR MORE CONVENTIONAL DETECTOR LOOPS.

**DETECTION ZONE PROGRAMMING**

PLACEMENT OF DETECTION ZONES WILL BE DONE BY MEANS OF A GRAPHICAL INTERFACE USING THE MUEG IMAGE OF THE ROADWAY. THE CLIENT SOFTWARE DISPLAYS IMAGES OF THE DETECTION ZONES OVERLAID ON THE VIDEO IMAGE OF TRAFFIC WHILE THE VIVTDS PROCESSOR IS RUNNING. THE DETECTION ZONES, WHEN OPERATING, SHALL DISPLAY OUTLINED OR FILLED, WITH A VISIBLE CHANGE INDICATING ACTIVATION.

A LAPTOP SHOULD BE USED TO DRAW DETECTION ZONES. ALTERNATIVELY, A MOUSE, KEYBOARD, AND MONITOR MAY BE CONNECTED DIRECTLY TO THE PROCESSOR TO CONFIGURE A SITE.

THE DETECTION ZONES SHOULD BE CAPABLE OF BEING SIZED AND SHAPED TO PROVIDE OPTIMAL ROAD COVERAGE AND DETECTION. IT SHOULD BE POSSIBLE TO UPLOAD DETECTOR CONFIGURATIONS TO THE VIVTDS PROCESSOR AND TO RETRIEVE THE SENSOR CONFIGURATION THAT IS CURRENTLY RUNNING IN THE VIVTDS PROCESSOR THROUGH THE CLIENT SOFTWARE. THE CONFIGURATION SHOULD ALSO BE RETRIEVABLE FROM THE VIVTDS SYSTEM'S CLOUD IF PROPERLY BACKED UP.

THE USER WILL BE ABLE TO EDIT PREVIOUSLY DEFINED DETECTOR CONFIGURATIONS IN ORDER TO FINE TUNE THE DETECTION ZONE PLACEMENT SIZE AND SHAPE. ONCE A DETECTION CONFIGURATION HAS BEEN CREATED, THE SYSTEM WILL PROVIDE A GRAPHIC DISPLAY OF THE NEW CONFIGURATION ON ITS MONITOR. WHILE THIS FINE-TUNING IS BEING DONE, THE SENSOR WILL BE REQUIRED TO CONTINUE TO OPERATE FROM THE SENSOR CONFIGURATION, CURRENTLY IN PLACE. A USER SHOULD BE ABLE TO USE A SYSTEM COMMAND TO REVERT TO PREVIOUS CONFIGURATIONS STORED IN THE CLIENT SOFTWARE OR ON THE VIVTDS SYSTEM'S CLOUD IF PROPERLY BACKED UP.

WHEN A VEHICLE OCCUPIES A DETECTION ZONE, THE DETECTION ZONE ON THE LIVE VIDEO WILL INDICATE THE PRESENCE OF A VEHICLE, THEREBY VERIFYING PROPER OPERATION OF THE SYSTEM. THE PRESENCE OF THE VEHICLE AS WELL AS THE SIGNAL STATES WILL BE INDICATED VIA COLORED LED LIGHTS ON THE FRONT PANEL OF VIVTDS PROCESSOR. WITH THE ABSENCE OF IMAGES, THE VIVTDS PROCESSOR5#32S DISPLAY SHALL INDICATE PROPER OPERATION OF THE DETECTION ZONES.

DETECTION ZONES SHALL BE SENSITIVE TO THE DIRECTION OF VEHICLE TRAVEL. THE DIRECTION WILL BE CAPABLE OF BEING DETECTED BY EACH DETECTION ZONE AND WILL BE PROGRAMMABLE BY THE USER. THE VEHICLE DETECTION ZONES WILL NOT ACTIVATE IF A VEHICLE IS TRAVELING IN ANY DIRECTION OTHER THAN THE ONE SPECIFIED FOR DETECTION IN THE ZONE. CROSS-STREET AND WRONG WAY TRAFFIC SHALL NOT CAUSE A FALSE DETECTION.

DETECTION ZONES WILL BE CAPABLE OF AN OPTIONAL USER DEFINED CALL TO DETECT A SIDE ENTRANCE (90° OR LESS ANGLED ENTRANCE).

**ITEM 816 - VIDEO DETECTION SYSTEM, AS PER PLAN (360 DEGREE) (CONTINUED)**

**DESIGN FIELD OF VIEW**

THE VIVTDS SYSTEM WILL BE ABLE TO RELIABLY DETECT VEHICLE PRESENCE IN THE DESIGN FIELD OF VIEW. THE DESIGN FIELD OF VIEW SHALL BE DEFINED AS THE SENSOR VIEW WHEN THE IMAGE SENSOR IS MOUNTED THIRTY (30) FEET (9 METERS) OR HIGHER ABOVE THE ROADWAY, WHEN THE SENSOR IS IN FRONT OF ALL STOP LINES, NO MORE THAN SEVENTY-FIVE (75) FEET FROM THE INTERSECTION CENTER, AND THE BEGINNING OF THE DETECTION AREA IS NOT GREATER THAN ONE HUNDRED AND FIFTY (150) FEET FROM THE IMAGE SENSOR. WITHIN THIS DESIGN FIELD OF VIEW, THE VIVTDS PROCESSOR SHOULD BE CAPABLE OF SETTING UP A SINGLE DETECTION ZONE FOR POINT DETECTION (EQUIVALENT TO THE OPERATION OF A 65#32 X 65#32 INDUCTIVE LOOP). A VIVTDS SENSOR, PLACED AT THE PROPER MOUNTING HEIGHT, IS ABLE TO MONITOR UP TO AND INCLUDING FIVE (5) TRAFFIC LANES PER APPROACH SIMULTANEOUSLY. A SINGLE FISHEYE LENS VIVTDS SENSOR, PLACED AT THE PROPER MOUNTING HEIGHT, SHOULD BE ABLE TO MONITOR DETECTION ZONES IN AN INTERSECTION OF AT A MINIMUM OF FIVE (5) APPROACHES.

**DETECTION PERFORMANCE**

DETECTION ACCURACY OF THE VIVTDS SYSTEM SHALL BE COMPARABLE TO PROPERLY OPERATING INDUCTIVE LOOPS. DETECTION ACCURACY SHOULD INCLUDE THE PRESENCE OF ANY VEHICLE IN THE DEFINED DETECTION ZONE REGARDLESS OF THE LANE THE VEHICLE IS OCCUPYING. OCCLUSION PRODUCED BY VEHICLES IN THE SAME OR ADJACENT LANES SHALL NOT BE CONSIDERED A FAILURE OF THE VIVTDS PROCESSOR, BUT A LIMITATION OF THE VIVTDS SENSOR PLACEMENT.

DETECTION SHALL BE 98% ACCURATE IN GOOD WEATHER CONDITIONS WITH SLIGHT DEGRADATION POSSIBLE UNDER ADVERSE WEATHER OR ROAD CONDITIONS (I.E. RAIN, SNOW, FOG). DETECTION WILL BE EXPECTED FOR THE ENTIRE DESIGN FIELD OF VIEW ON A LANE BY LANE OR BY APPROACH BASIS.

EQUIPMENT FAILURE, EITHER SENSOR OR VIVTDS PROCESSOR, SHALL RESULT IN CONSTANT VEHICLE DETECTION ON AFFECTED DETECTION ZONES. THE VIVTDS SYSTEM WILL BE REQUIRED TO HAVE THE ABILITY TO PLACE A CONSTANT CALL TO A SPECIFIC ZONE, IF SAID ZONE LOSES VISIBILITY, WHILE SIMULTANEOUSLY MAKING CALLS IN THE TRADITIONAL MANNER IN THE REMAINING ZONES.

**SYSTEM SOFTWARE OPERATION**

THE VIVTDS MUST TRANSMIT AND RECEIVE ALL INFORMATION NEEDED FOR SENSOR SETUP, TO MONITOR VEHICLE DETECTION, TO VIEW VEHICLE TRAFFIC FLOW, AND TO INTERPRET STORED DATA. THE REMOTE COMMUNICATIONS LINK BETWEEN THE VIVTDS PROCESSOR SHALL NOT INTERFERE WITH THE ON-STREET DETECTION OF THE VIVTDS PROCESSOR.

THE USER SHOULD BE ABLE TO VIEW THE DETECTION AREA IN A HORIZON TO HORIZON FISHEYE VIEW OR IN A CONFIGURABLE FOUR (4) PANE FLATTENED VIEW ON THE SAME SCREEN. EACH VIEW SHOULD BE ABLE TO BE CUSTOMIZED BY THE USER, WITH THE ABILITY TO DIGITALLY PAN-TILT-ZOOM.

**INSTALLATION AND INSTALLER TRAINING**

THE CAMERA PLACEMENT ON EXISTING SIGNAL SUPPORTS SHALL BE SELECTED BY THE CONTRACTOR TO PROVIDE RELIABLE DETECTION AND COUNT CAPABILITIES OF THE LANES INDICATED IN THE PLANS. THE CONTRACTOR SHALL PROVIDE (TO THE ENGINEER) VIDEO DETECTION LAYOUT PLANS FOR EACH INTERSECTION WHERE VIDEO DETECTION IS TO BE INSTALLED, SHOWING THE PROPOSED CAMERA LOCATION(S) AND CABLE ROUTING TO THE CONTROLLER CABINET. THE SUBMITTED DRAWING SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION OF VIDEO DETECTION EQUIPMENT.

**ITEM 816 - VIDEO DETECTION SYSTEM, AS PER PLAN (360 DEGREE) (CONTINUED)**

PIPE, SPACERS, FITTINGS, MOUNTING BRACKET/ARM, STRAPS, AND CAMERA HOUSING/VISOR SHALL BE PAINTED BLACK TO MATCH THE COLOR OF THE SIGNAL SUPPORT.

TEN BUSINESS DAYS PRIOR TO INSTALLATION OF THE VIDEO DETECTION SYSTEM, THE CONTRACTOR SHALL CONTACT JESSICA ORMEROID, (740-203-1724), PUBLIC WORKS DEPARTMENT, DIVISION OF TRAFFIC & ENGINEERING SERVICES, 440 EAST WILLIAM STREET SO A CITY REPRESENTATIVE CAN BE PRESENT FOR THE CONFIGURATION OF THE VIDEO DETECTION CAMERA SYSTEM.

THE SUPPLIER OF THE VIVTDS SYSTEM SHALL SUPERVISE THE INSTALLATION AND TESTING OF THE SENSORS, PROCESSOR, AND OTHER SENSOR COMPONENTS.

SYSTEM INSTALLERS WILL BE REQUIRED TO BE CERTIFIED BY THE SYSTEM MANUFACTURER. A MANUFACTURER5#32S INSTRUCTIONAL GUIDE WILL NOT BE CONSIDERED AN ADEQUATE SUBSTITUTE FOR PRACTICAL, CLASSROOM TRAINING AND FORMAL CERTIFICATION BY AN APPROVED AGENCY.

HOWEVER, THE MANUFACTURER SHALL PROVIDE AN ONLINE USER GUIDE AND AN ELECTRONIC COPY OF THE USER GUIDE WITHIN THE CLIENT SOFTWARE AND ON BOARD THE VIVTDS PROCESSOR FOR REFERENCE.

FORMAL LEVELS OF FACTORY AUTHORIZED TRAINING ARE REQUIRED FOR INSTALLERS, CONTRACTORS AND SYSTEM OPERATORS. ALL TRAINING MUST BE CERTIFIED BY THE VIVTDS SYSTEM MANUFACTURER.

**WARRANTY, MAINTENANCE AND SUPPORT**

THE VIDEO DETECTION SYSTEM MUST BE WARRANTED TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF 3 YEARS FROM DATE OF SHIPMENT FROM THE MANUFACTURER'S FACILITY. DURING THE WARRANTY PERIOD, THE SYSTEM MANUFACTURER WILL BE REQUIRED TO REPAIR WITH NEW OR REFURBISHED MATERIALS, OR REPLACE AT NO CHARGE, ANY PRODUCT CONTAINING A WARRANTY DEFECT PROVIDED THE PRODUCT IS RETURNED FOB TO THE SUPPLIER'S FACTORY OR AUTHORIZED REPAIR SITE. RETURN PRODUCT, PRODUCT FOR REPAIR, OR PRODUCT TO BE REPLACED UNDER WARRANTY BY THE SUPPLIER SHALL HAVE PREPAID TRANSPORTATION. THIS WARRANTY DOES NOT APPLY TO ANY PRODUCTS DAMAGED BY ACCIDENT, IMPROPERLY OPERATED, ABUSED, SERVICED BY UNAUTHORIZED PERSONNEL OR UNAUTHORIZED MODIFICATION.

ONGOING SOFTWARE SUPPORT BY THE MANUFACTURER INCLUDES UPDATES OF THE VIVTDS PROCESSOR5#32S ENGINE AND UPDATES TO THE CLIENT SOFTWARE SHALL BE PROVIDED FREE OF CHARGE FOR THE LIFE OF THE SYSTEM. THIS ITEM OF WORK SHALL MEET STATE OF OHIO DEPARTMENT OF TRANSPORTATION (ODOT) SUPPLEMENTAL SPECIFICATION 816, VIDEO DETECTION SYSTEM, UNLESS OTHERWISE SPECIFIED HEREIN.

**BASIS OF PAYMENT**

PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, CABINET AND MOUNTING HARDWARE, AND OTHER INCIDENTALS NECESSARY FOR EACH VIDEO DETECTION SYSTEM (ONE PER INTERSECTION), COMPLETE IN PLACE, ALL CONNECTIONS MADE AND WIRING COMPLETED, TESTED AND ACCEPTED. THIS ITEM WILL BE PAID AT THE CONTRACT UNIT PRICE PER EACH VIDEO DETECTION SYSTEM, AS PER PLAN.

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| SHEET NUM. |  |  |  |  |  |     |     |     | PART.     |           | ITEM | ITEM<br>EXT | GRAND<br>TOTAL | UNIT | DESCRIPTION                                                                                                 | SEE<br>SHEET<br>NO. |
|------------|--|--|--|--|--|-----|-----|-----|-----------|-----------|------|-------------|----------------|------|-------------------------------------------------------------------------------------------------------------|---------------------|
|            |  |  |  |  |  | 346 | 349 | 350 | 01/NHS/PV | 02/S>2/PV |      |             |                |      |                                                                                                             |                     |
|            |  |  |  |  |  |     |     |     |           |           | 625  | 23200       | 815            | FT   | NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE                                                                      |                     |
|            |  |  |  |  |  |     |     |     |           |           | 625  | 23400       | 350            | FT   | NO. 10 AWG POLE AND BRACKET CABLE                                                                           |                     |
|            |  |  |  |  |  |     |     |     |           |           | 625  | 25400       | 444            | FT   | CONDUIT, 2", 725.04                                                                                         |                     |
|            |  |  |  |  |  |     |     |     |           |           | 625  | 25408       | 223            | FT   | CONDUIT, 2", 725.051                                                                                        |                     |
|            |  |  |  |  |  |     |     |     |           |           | 625  | 25604       | 135            | FT   | CONDUIT, 4", 725.051                                                                                        |                     |
|            |  |  |  |  |  |     |     |     |           |           | 625  | 26252       | 4              | EACH | LUMINAIRE, CONVENTIONAL, SOLID STATE (LED)                                                                  |                     |
|            |  |  |  |  |  |     |     |     |           |           | 625  | 27551       | 6              | EACH | LUMINAIRE, DECORATIVE, AS PER PLAN                                                                          | 341                 |
|            |  |  |  |  |  |     |     |     |           |           | 625  | 29001       | 472            | FT   | TRENCH, AS PER PLAN                                                                                         | 340                 |
|            |  |  |  |  |  |     |     |     |           |           | 625  | 29401       | 160            | FT   | TRENCH IN PAVED AREAS, AS PER PLAN                                                                          | 340                 |
|            |  |  |  |  |  |     |     |     |           |           | 625  | 30700       | 3              | EACH | PULL BOX, 725.08, 18"                                                                                       |                     |
|            |  |  |  |  |  |     |     |     |           |           | 625  | 30706       | 1              | EACH | PULL BOX, 725.08, 24"                                                                                       |                     |
|            |  |  |  |  |  |     |     |     |           |           | 625  | 30730       | 5              | EACH | PULL BOX, 725.08, 48", TYPE 1                                                                               |                     |
|            |  |  |  |  |  |     |     |     |           |           | 625  | 32000       | 20             | EACH | GROUND ROD                                                                                                  |                     |
|            |  |  |  |  |  |     |     |     |           |           | 630  | 79100       | 4              | EACH | SIGN HANGER ASSEMBLY, MAST ARM                                                                              |                     |
|            |  |  |  |  |  |     |     |     |           |           | 630  | 79500       | 15             | EACH | SIGN SUPPORT ASSEMBLY, POLE MOUNTED                                                                         |                     |
|            |  |  |  |  |  |     |     |     |           |           | 630  | 80100       | 34.5           | SF   | SIGN, FLAT SHEET                                                                                            |                     |
|            |  |  |  |  |  |     |     |     |           |           | 630  | 80511       | 8              | EACH | SIGN, STREET NAME, AS PER PLAN. HIGH INTENSITY REFLECTIVE<br>WHITE LEGEND AND BLUE SHEETING                 | 341                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 05007       | 19             | EACH | VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN, WITH BACKPLATES       | 344                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 05087       | 9              | EACH | VEHICULAR SIGNAL HEAD, (LED), 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN, WITH BACKPLATES       | 344                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 20731       | 13             | EACH | PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN, AS PER PLAN                                               | 343                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 20751       | 10             | EACH | ACCESSIBLE PEDESTRIAN PUSHBUTTON, AS PER PLAN                                                               | 342                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 25001       | 25             | EACH | COVERING OF VEHICULAR SIGNAL HEAD, AS PER PLAN                                                              | 342                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 25010       | 9              | EACH | COVERING OF PEDESTRIAN SIGNAL HEAD                                                                          |                     |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 40200       | 1,517          | FT   | SIGNAL CABLE, 2 CONDUCTOR, NO. 14 AWG                                                                       |                     |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 40700       | 2,589          | FT   | SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG                                                                       |                     |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 64010       | 7              | EACH | SIGNAL SUPPORT FOUNDATION                                                                                   |                     |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 64020       | 9              | EACH | PEDESTAL FOUNDATION                                                                                         |                     |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 68200       | 377            | FT   | POWER CABLE, 2 CONDUCTOR, NO. 6 AWG                                                                         |                     |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 70001       | 2              | EACH | POWER SERVICE, AS PER PLAN                                                                                  | 341                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 70400       | 2              | EACH | CONDUIT RISER, 2" DIAMETER                                                                                  |                     |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 79101       | 1              | EACH | COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 2, AS PER PLAN                                            | 341                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 79111       | 1              | EACH | COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 4, AS PER PLAN                                            | 341                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 79131       | 1              | EACH | COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 12, AS PER PLAN                                           | 341                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 79131       | 1              | EACH | COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 12, AS PER PLAN, WITH TWO (2) MAST ARMS                   | 341                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 79141       | 1              | EACH | COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 13, AS PER PLAN                                           | 341                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 79151       | 2              | EACH | COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 14, AS PER PLAN                                           | 341                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 80700       | 3              | EACH | SIGNAL SUPPORT, MISC.: SIGNAL SUPPORT, MECHANICAL DAMPER FOR TC-81.22 MAST ARM (GREATER THAN 39' IN LENGTH) | 340                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 90001       | 9              | EACH | PEDESTAL, 11", TRANSFORMER BASE, AS PER PLAN                                                                | 341                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 90008       | 1              | EACH | PEDESTAL, 15", TRANSFORMER BASE                                                                             | 341                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 90101       | 2              | EACH | REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN                                                         | 341                 |
|            |  |  |  |  |  |     |     |     |           |           | 632  | 90104       | 7              | EACH | REUSE OF TRAFFIC CONTROL ITEM, PREEMPT CONFIRMATION LIGHT                                                   |                     |
|            |  |  |  |  |  |     |     |     |           |           | 633  | 65511       | 2              | EACH | CABINET, TYPE TS-2, AS PER PLAN                                                                             | 345                 |
|            |  |  |  |  |  |     |     |     |           |           | 633  | 67100       | 2              | EACH | CABINET FOUNDATION                                                                                          |                     |
|            |  |  |  |  |  |     |     |     |           |           | 633  | 75001       | 2              | EACH | UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN                                                  | 345                 |
|            |  |  |  |  |  |     |     |     |           |           | 809  | 69001       | 1              | EACH | ADVANCE RADAR DETECTION, AS PER PLAN                                                                        | 344                 |
|            |  |  |  |  |  |     |     |     |           |           | 809  | 69123       | 2              | EACH | ATC CONTROLLER, AS PER PLAN, V6.24                                                                          | 344                 |
|            |  |  |  |  |  |     |     |     |           |           | 809  | 69200       | 4              | EACH | EMERGENCY VEHICLE PREEMPTION                                                                                |                     |
|            |  |  |  |  |  |     |     |     |           |           | 816  | 30001       | 2              | EACH | VIDEO DETECTION SYSTEM, AS PER PLAN (360 DEGREE)                                                            | 345                 |
|            |  |  |  |  |  | LS  |     |     | LS        |           | 632  | 90300       | LS             |      | SIGNALIZATION, MISC.: SYSTEM INTEGRATION                                                                    | 343                 |

|                                     |                   |                  |            |
|-------------------------------------|-------------------|------------------|------------|
| CALCULATED<br>TJS<br>CHECKED<br>MAS | SIGNAL SUBSUMMARY | DEL - 36 - 11.03 | 348<br>644 |
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| REFERENCE NO.                             | SHEET NUMBER | LOCATION                         | 625                                          |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               |                               | 630                                   |                    |                                        |                                             | 632                    |                                                                                                  |                                                                                                               |                                                                                                               |
|-------------------------------------------|--------------|----------------------------------|----------------------------------------------|-----------------------------------------|---------------------------|----------------------------|----------------------------|--------------------------------------------|----------------------------------------------------|---------------------------|------------------------------------------|-------------------------------|-------------------------------|---------------------------------------|--------------------|----------------------------------------|---------------------------------------------|------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
|                                           |              |                                  | NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE<br>FT | NO. 10 AWG POLE AND BRACKET CABLE<br>FT | CONDUIT, 2", 725.04<br>FT | CONDUIT, 2", 725.051<br>FT | CONDUIT, 4", 725.051<br>FT | LUMINAIRE, DECORATIVE, AS PER PLAN<br>EACH | LUMINAIRE, CONVENTIONAL, SOLID STATE (LED)<br>EACH | TRENCH, AS PER PLAN<br>FT | TRENCH IN PAVED AREAS, AS PER PLAN<br>FT | PULL BOX, 725.08, 18"<br>EACH | PULL BOX, 725.08, 24"<br>EACH | PULL BOX, 725.08, 48", TYPE 1<br>EACH | GROUND ROD<br>EACH | SIGN HANGER ASSEMBLY, MAST ARM<br>EACH | SIGN SUPPORT ASSEMBLY, POLE MOUNTED<br>EACH | SIGN, FLAT SHEET<br>SF | SIGN, STREET NAME, HIGH INTENSITY REFLECTIVE WHITE LEGEND AND BLUE SHEETING, AS PER PLAN<br>EACH | VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN, WITH BACKPLATES<br>EACH | VEHICULAR SIGNAL HEAD, (LED), 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN, WITH BACKPLATES<br>EACH |
| 354                                       |              | SP-1 - 589+91.8, 33.5' LT.       |                                              | 50                                      |                           |                            | 2                          |                                            |                                                    |                           |                                          |                               | 1                             |                                       | 1                  | 2.3                                    |                                             | 2                      |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | SP-2 - 590+69.9, 35.9' LT.       |                                              | 50                                      |                           |                            | 2                          |                                            |                                                    |                           |                                          |                               | 1                             |                                       | 4                  | 4.6                                    | 2                                           | 6                      |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | SP-3 - 591+11.3, 51.8' RT.       |                                              | 50                                      |                           |                            | 2                          |                                            |                                                    |                           |                                          |                               | 1                             |                                       | 5                  | 14                                     | 2                                           | 3                      |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | PS-1 - 590+00.5, 36.5 LT.        |                                              |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               | 1                             |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | PS-2 - 589+94.3, 22.6' LT.       |                                              |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               | 1                             |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | PS-3 - 589+92.5, 37.1' RT.       |                                              |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               | 1                             |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | PS-4 - 590+06.6, 44.9' RT.       |                                              |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               | 1                             |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | PS-5 - 590+45.7, 57.1' LT.       |                                              |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               | 1                             |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | PS-6 - 590+58.2, 55.0' RT.       |                                              |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               | 1                             |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | CONTROLLER TO B1                 |                                              |                                         |                           |                            | 15                         |                                            | 15                                                 |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | B1 TO SP-3                       |                                              |                                         | 4                         |                            |                            |                                            | 4                                                  |                           |                                          | 1                             |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | B1 TO B5                         |                                              |                                         |                           | 30                         |                            |                                            |                                                    | 30                        |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | B5 TO PS-6                       |                                              |                                         |                           | 4                          |                            |                                            |                                                    | 4                         | 1                                        |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | B1 TO B2                         |                                              |                                         |                           |                            | 20                         |                                            | 20                                                 |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | B2 TO PS-3                       |                                              |                                         |                           | 6                          |                            |                                            | 6                                                  |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | B2 TO PS-4                       |                                              |                                         |                           | 10                         |                            |                                            | 10                                                 |                           |                                          | 1                             |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | B2 TO B3                         |                                              |                                         |                           |                            | 8                          |                                            | 8                                                  |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | B3 TO PS-2                       |                                              |                                         |                           | 6                          |                            |                                            | 6                                                  |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | B3 TO SP-1                       |                                              |                                         |                           | 15                         |                            |                                            | 15                                                 |                           |                                          | 1                             |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | B3 TO PS-1                       |                                              |                                         |                           | 12                         |                            |                                            | 12                                                 |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | B1 TO B4                         |                                              |                                         |                           |                            | 20                         |                                            | 20                                                 |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | B4 TO SP-2                       |                                              |                                         |                           | 5                          |                            |                                            | 5                                                  |                           | 1                                        |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | B4 TO PS-5                       |                                              |                                         |                           | 35                         |                            |                                            | 35                                                 |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | CONTROLLER - 591+34.9, 49.2' RT. |                                              |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               | 2                             |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | CONTROLLER TO SP-3 (POWER)       |                                              |                                         | 45                        |                            |                            |                                            | 20                                                 |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | UTILITY POLE TO SP-3 (POWER)     |                                              |                                         | 150                       |                            |                            |                                            | 100                                                |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | SP-3 TO CONTROLLER (LIGHTING)    |                                              |                                         | 45                        |                            |                            |                                            | 20                                                 |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | SP-3 TO SP-2 (LIGHTING)          | 150                                          |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 354                                       |              | SP-3 TO SP-1 (LIGHTING)          | 220                                          |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | SP-1 - 618+97.6, 59.3' LT.       |                                              | 50                                      |                           |                            | 1                          |                                            |                                                    | 1                         | 1                                        | 3                             | 4.6                           | 1                                     | 2                  | 2                                      |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | SP-2 - 619+15.0, 69.3' LT.       |                                              | 50                                      |                           |                            | 1                          |                                            |                                                    | 1                         | 1                                        | 1                             | 2.3                           | 1                                     | 2                  | 2                                      |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | SP-3 - 620+35.4, 70.0' LT.       |                                              | 50                                      |                           |                            | 1                          |                                            |                                                    | 1                         | 1                                        | 1                             | 2.3                           | 1                                     | 3                  | 2                                      |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | SP-4 - 620+51.4, 68.0' RT.       |                                              | 50                                      |                           |                            | 1                          |                                            |                                                    | 1                         | 1                                        |                               |                               | 1                                     | 1                  | 3                                      |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | PS-1 - 619+33.5, 94.6' RT.       |                                              |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               | 1                             |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | PS-2 - 620+17.0, 96.3' RT.       |                                              |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               | 1                             |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | PS-3 - 620+48.5, 68.2' LT.       |                                              |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               | 1                             |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | CONTROLLER TO B1                 |                                              |                                         |                           |                            | 8                          |                                            | 8                                                  |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | B1 TO SP-3                       |                                              |                                         |                           | 20                         |                            |                                            | 20                                                 |                           |                                          | 1                             |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | B1 TO PS-3                       |                                              |                                         |                           | 5                          |                            |                                            | 5                                                  |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | B1 TO B2                         |                                              |                                         |                           |                            | 10                         |                                            | 10                                                 |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | B1 TO B4                         |                                              |                                         |                           |                            | 20                         |                                            | 20                                                 |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | B2 TO SP-4                       |                                              |                                         |                           |                            | 8                          |                                            | 8                                                  |                           |                                          | 1                             |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | B2 TO PS-2                       |                                              |                                         |                           | 35                         |                            |                                            | 35                                                 |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | B2 TO B3                         |                                              |                                         |                           |                            | 17                         |                                            | 17                                                 |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | B3 TO SP-2                       |                                              |                                         |                           |                            | 5                          |                                            | 5                                                  |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | B3 TO PS-1                       |                                              |                                         |                           | 40                         |                            |                                            | 40                                                 |                           |                                          | 1                             |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | B4 TO SP-1                       |                                              |                                         |                           |                            | 4                          |                                            | 4                                                  |                           | 1                                        |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | CONTROLLER - 620+62.7, 75.7' LT. |                                              |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               | 2                             |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | CONTROLLER TO SP-3 (POWER)       |                                              |                                         | 55                        |                            |                            |                                            | 30                                                 |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | UTILITY POLE TO SP-3 (POWER)     |                                              |                                         | 90                        |                            |                            |                                            | 40                                                 |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | SP-3 TO CONTROLLER (LIGHTING)    |                                              |                                         | 55                        |                            |                            |                                            | 30                                                 |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | SP-3 TO SP-1 (LIGHTING)          | 160                                          |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | SP-3 TO SP-4 (LIGHTING)          | 140                                          |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| 360                                       |              | SP-4 TO SP-2 (LIGHTING)          | 145                                          |                                         |                           |                            |                            |                                            |                                                    |                           |                                          |                               |                               |                                       |                    |                                        |                                             |                        |                                                                                                  |                                                                                                               |                                                                                                               |
| TOTALS CARRIED TO SUBSUMMARY ON SHEET 348 |              |                                  | 815                                          | 350                                     | 444                       | 223                        | 135                        | 6                                          | 4                                                  | 442                       | 160                                      | 3                             | 1                             | 5                                     | 20                 | 4                                      | 15                                          | 30                     | 8                                                                                                | 19                                                                                                            | 9                                                                                                             |





## MATERIAL SPECIFICATIONS FOR BBS GENERATOR POWER PANEL EQUIPMENT

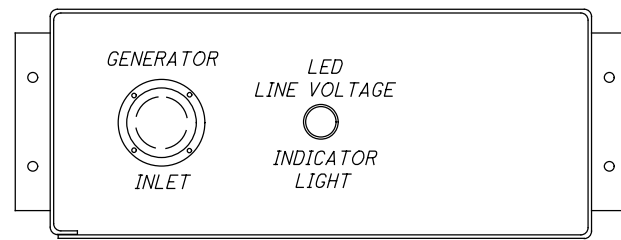
**GENERATOR INLET** - The inlet shall be 30 amp, 125/250V, locking, four (4) wire grounding and meet the NEMA configuration number L14-30-P 30A 125/250V specification. The inlet shall be a Hubbell catalog #2715.

**LINE VOLTAGE GENERATOR SWITCH** - The switch shall be 30 amp, 125/250V AC, two (2) pole, three (3) position (On, Off, On). The switch shall be a Hubbell catalog #1388.

**LINE VOLTAGE INDICATOR LIGHT** - The indicator light shall be 125V AC light emitting diode with a red lens.

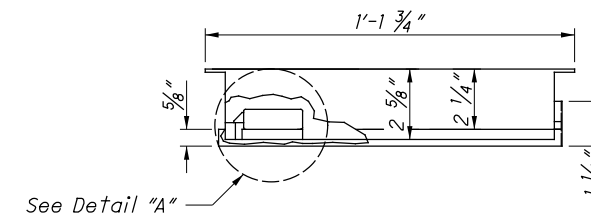
**LINE VOLTAGE CIRCUIT BREAKER** - The circuit breaker shall be single pole single throw and a minimum of 30 amps. The amperage shall be increased to accommodate greater loads, if necessary. The gauge of the power cable shall be of proper size per N.E.C.

**EXTERNAL LINE VOLTAGE INDICATOR LIGHT** - The indicator light shall be a 1" waterproof NEMA 4X or IP66 LED lamp with a green lens.

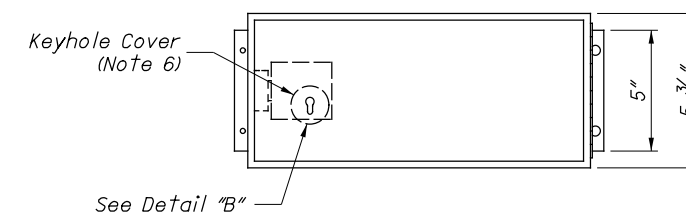


FRONT VIEW OF GENERATOR POWER PANEL

## GENERATOR POWER PANEL ENCLOSURE



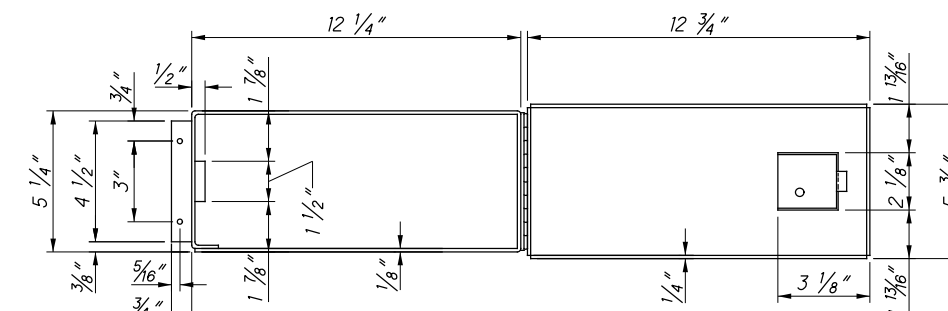
TOP VIEW



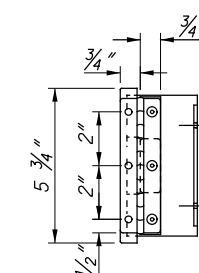
FRONT VIEW CLOSED DOOR

### NOTES:

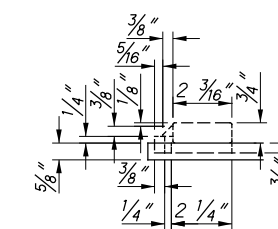
1. The enclosure shall be constructed of 1/8" thick aluminum.
2. The lock shall be the standard police door type, keyed with the standard flasher door skeleton key.
3. The door shall be sealed with a foam rubber gasket to prevent moisture from entering the enclosure.
4. The enclosure shall be mounted onto the outside of the controller cabinet with non-accessible bolts and sealed with a high quality silicon caulk at all surfaces touching the cabinet.
5. The hinge shall be of stainless steel or equivalent corrosive-resistant material.
6. Keyhole shall be covered with a movable circular aluminum or brass cover with top pivot pin.



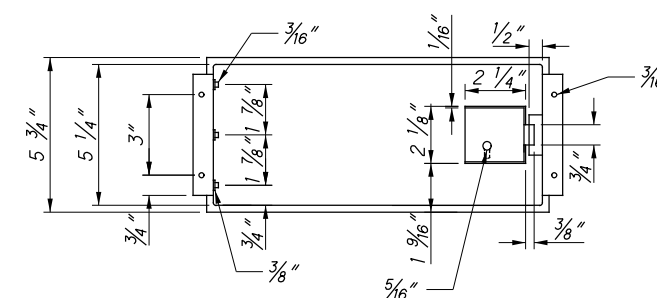
FRONT VIEW OPEN DOOR



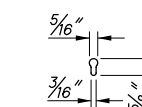
RIGHT SIDE VIEW CLOSED DOOR



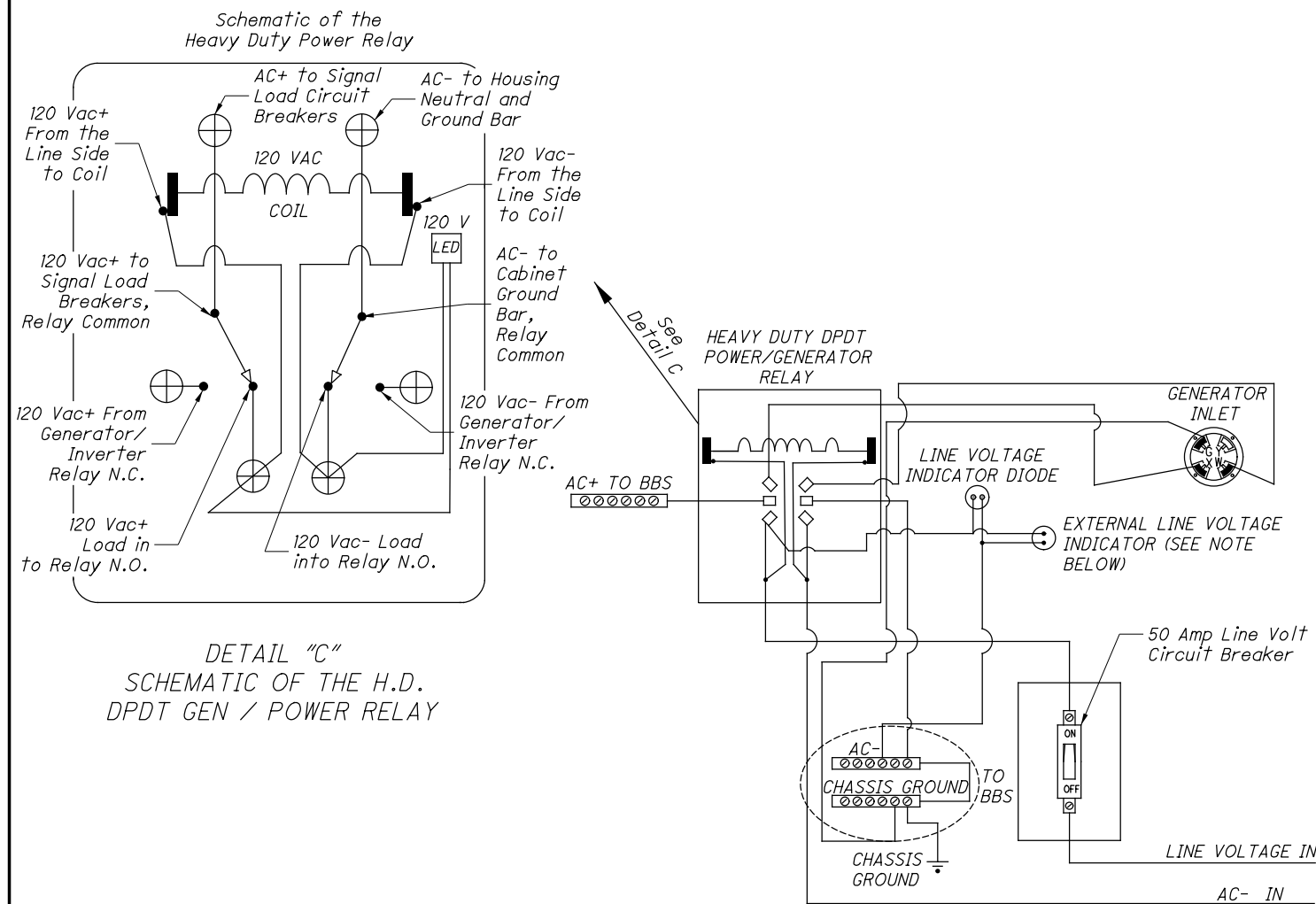
DETAIL "A"



BACK VIEW CLOSED DOOR



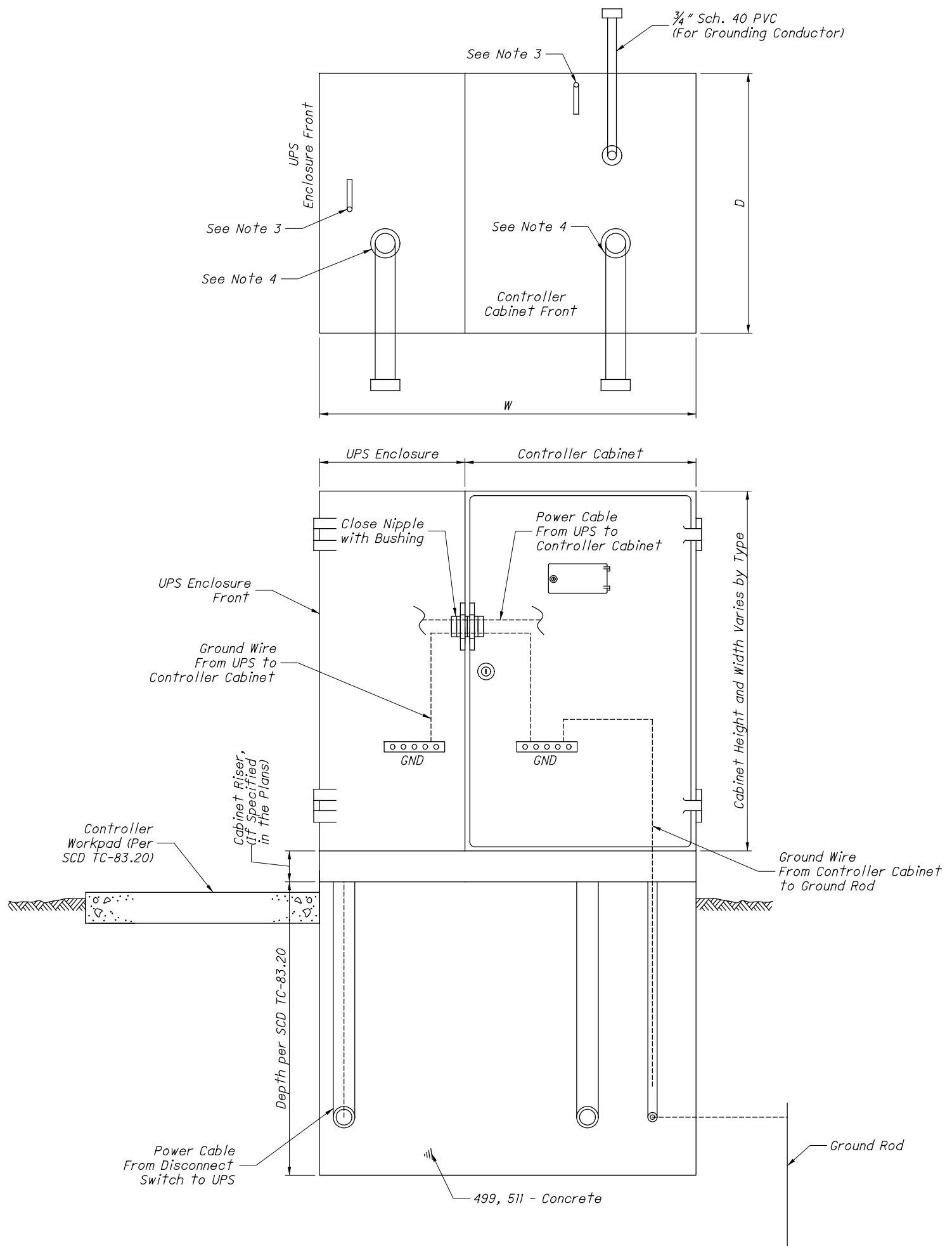
DETAIL "B"



DETAIL "C"  
SCHEMATIC OF THE H.D.  
DPDT GEN / POWER RELAY

## ELECTRICAL HOOKUP DETAIL FOR THE BBS GENERATOR POWER PANEL

NOTE: EXTERNAL LINE VOLTAGE INDICATOR LIGHT required when called for in the plans.  
EXTERNAL LINE VOLTAGE INDICATOR LIGHT shall be located on the enclosure exterior for visibility from the adjacent roadway when all cabinet, and generator panel doors are closed.



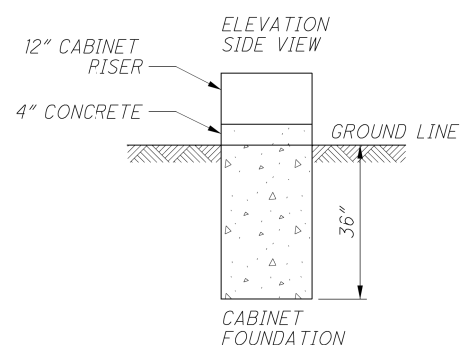
NOTES:

1. The Uninterruptible Power Supply (UPS) enclosure shall be mounted flush up against the traffic signal cabinet and sealed with silicone. The Contractor shall be responsible for providing the necessary power cable between the UPS unit and signal cabinet.
2. The UPS should be placed on the opposite side of the pull box on a 332/336 cabinet (per Standard Construction Drawing (SCD) TC-83.20). The UPS placement for a NEMA cabinet varies, placement should provide adequate access with respect to slope, guardrail spacing, etc.
3. The size, number, and location of anchor bolts shall be in accordance with the manufacturer's recommendations.
4. The size, number, and orientation of conduit ells shall be as shown in the plan, except that a 3/4" schedule 40 PVC shall be installed in each foundation.
5. 1/2" preformed joint filler as per CMS 705.03 shall be used between foundations and adjacent paved areas.
6. See SCD TC-83.20 for further details.

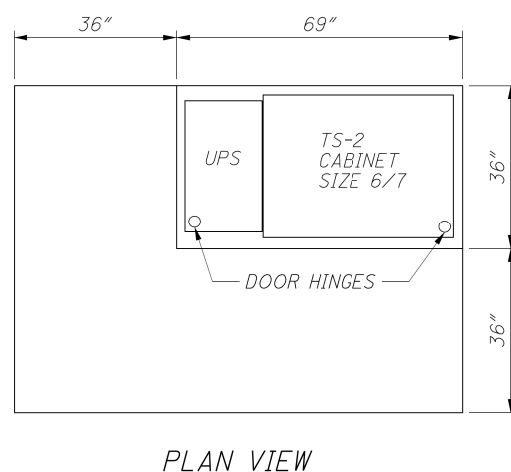
| TYPE     | W (IN.) | D (IN.) | FOUNDATION CONCRETE (CU. YD.) |
|----------|---------|---------|-------------------------------|
| TS-1     | 60      | 24      | 1.23                          |
| TS-2     | 70      | 36      | 2.16                          |
| 2070/170 | 50      | 36      | 1.54                          |

TS-2 SIZE 6/7 CABINET DETAIL (TYP.)

CABINET FOUNDATION DETAIL

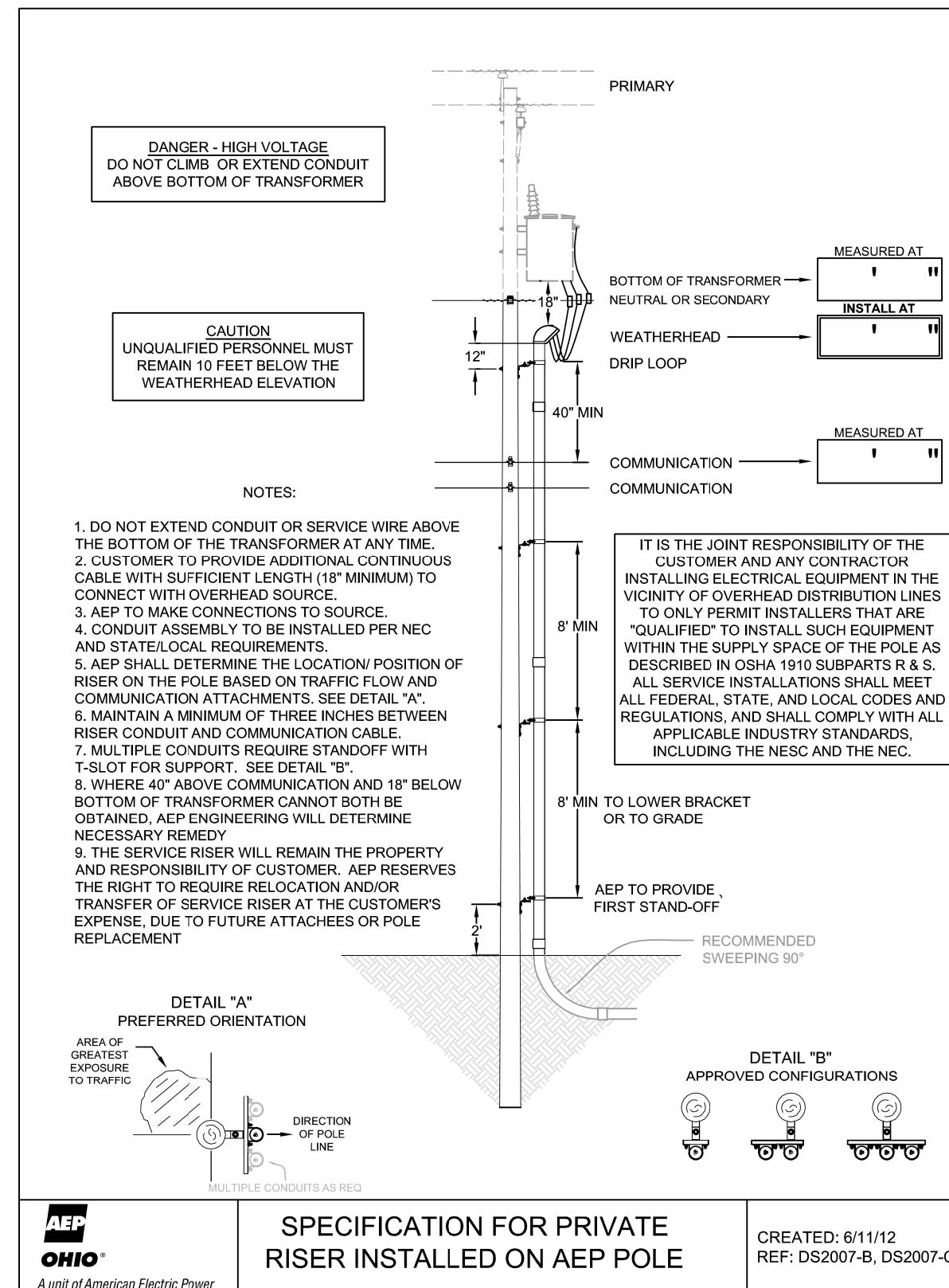


CABINET & WORK PAD DETAIL



NOTES:

- 1) THE SIZE OF THE UPS FOUNDATION MAY VARY BASED ON THE CABINET SIZE PROVIDED.
- 2) UPS FOUNDATION ELEVATION SHOULD MATCH CABINET FOUNDATION ELEVATION.
- 3) THE UPS CABINET SHALL BE MOUNTED FLUSH UP AGAINST THE SIGNAL CABINET AND SEALED.
- 4) CONDUIT AND WIRING FROM THE SIGNAL CABINET TO THE UPS SHALL BE INSTALLED THROUGH THE CABINET RISER.



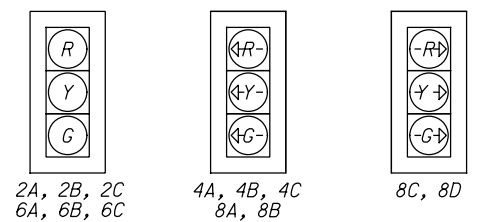
p:\gfn\pw-bentley.com\gfn\pw-01\Documents\Projects\63519\103626\Design\Signals\sheet\103626\_CD003.dgn Sheet 4/28/2022 11:11:27 AM DPHALEN



**SPECIFICATION FOR PRIVATE RISER INSTALLED ON AEP POLE**

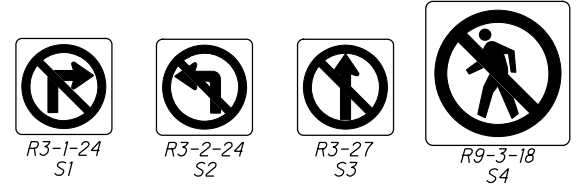
CREATED: 6/11/12  
REF: DS2007-B, DS2007-C

**SIGNAL HEADS**



PEDESTRIAN HEADS  
(LED, COUNTDOWN,  
TYPE D2)  
P2A, P2B, P2C, P2D, P4A, P4B, P4C  
P6A, P6B

**SIGNS**



R10-3a-9  
4-RIGHT ARROW  
1-LEFT ARROW  
"EAST POINT"



R10-3a-9  
1-RIGHT ARROW  
2-LEFT ARROW  
"WILLIAM"

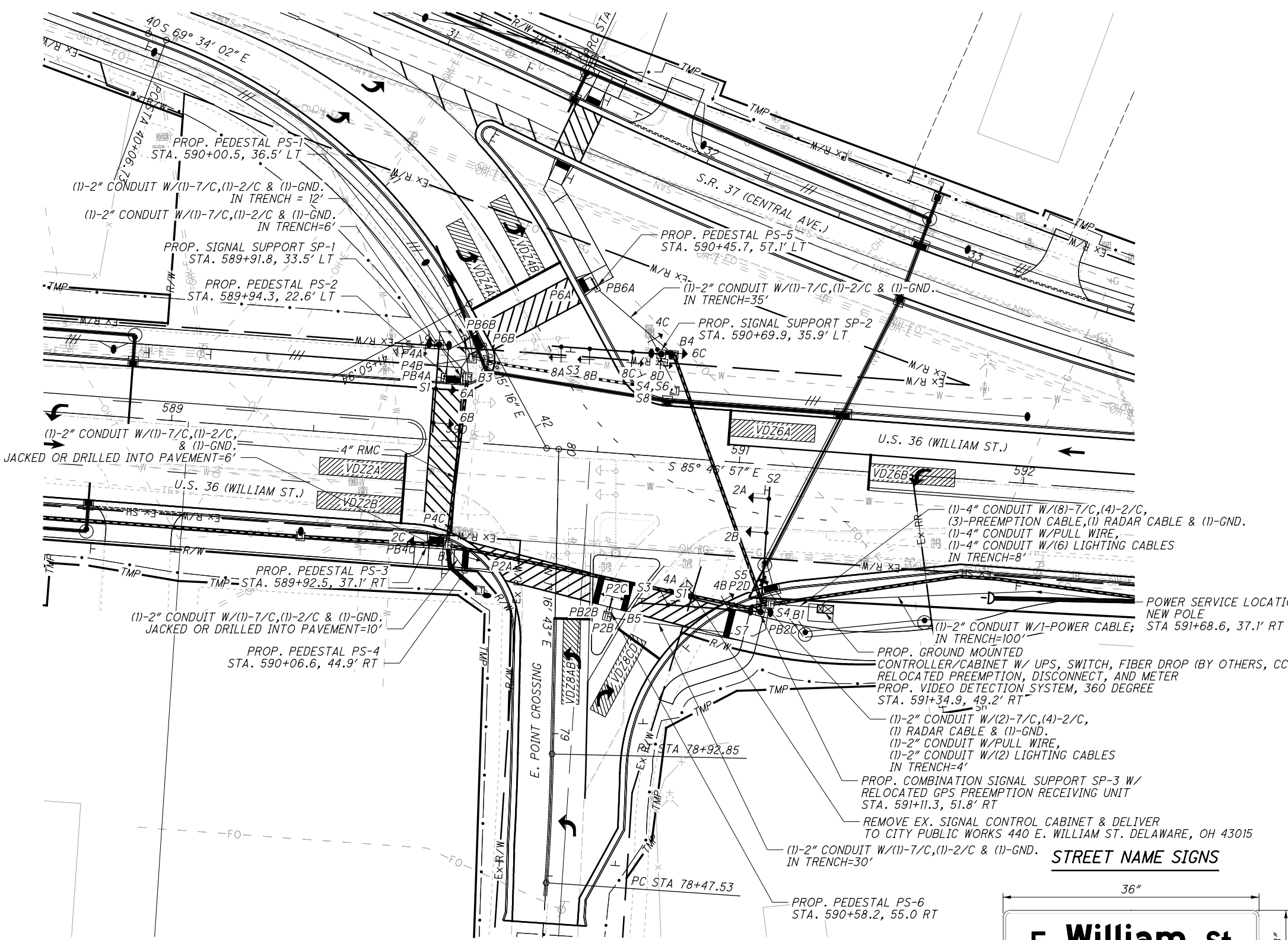
PROPOSED PUSHBUTTONS (5)  
PB2A, PB2B, PB2C,  
PB6A, PB6B

PROPOSED PUSHBUTTONS (2)  
PB4A, PB4B

\* ALL PED PUSHBUTTONS SHALL BE AUDIBLE

**LEGEND**

|                                                 | PROP | EXIST |
|-------------------------------------------------|------|-------|
| TRAFFIC SIGNAL, 3 UNIT HEAD, 12"                |      |       |
| TRAFFIC SIGNAL, 3 UNIT HEAD, 12" WITH ARROWS    |      |       |
| TRAFFIC SIGNAL, 5 UNIT HEAD, 12"                |      |       |
| SIGNAL SUPPORT POLE                             |      |       |
| PEDESTRIAN HEAD                                 |      |       |
| PEDESTRIAN PUSH BUTTON                          |      |       |
| PEDESTAL                                        |      |       |
| CONTROLLER CABINET AND WORK PAD (TS-2)          |      |       |
| TRAFFIC PULL BOX                                |      |       |
| VIDEO DETECTION UNIT (360 DEGREE)               |      |       |
| DETECTION ZONE                                  |      |       |
| EMERGENCY VEHICLE PREEMPTION CONFIRMATION LIGHT |      |       |
| ETHERNET RADIO                                  |      |       |
| CONDUIT, MISC.: DUCT BANK                       |      |       |

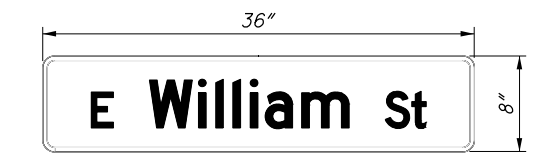


**NOTES:**

- ALL CONDUIT IS 2" PVC UNLESS OTHERWISE NOTED.
- ALL EXISTING SIGNAL SUPPORTS, PEDESTALS, AND PULL BOXES SHALL BE REMOVED AND DELIVERED TO CITY PUBLIC WORKS 440 E WILLIAM ST., DELAWARE, OH 46015 UNLESS NOTED FOR REUSE.
- TEMPORARY DETECTION SHALL BE IN PLACE PRIOR TO ANY HARDWARE IN PAVEMENT LOOPS BEING REMOVED. DETECTION SHALL BE MAINTAINED AT ALL TIMES.
- POWER SERVICE TO BE VERIFIED IN THE FIELD BY CONTRACTOR WITH CITY OF DELAWARE APPROVAL.

**PULLBOX TABLE**

| PULL BOX # | STATION | SIDE | OFFSET | SIZE (IN.) |
|------------|---------|------|--------|------------|
| B1         | 591+15  | RT   | 48.6'  | 48         |
| B2         | 590+00  | RT   | 36.5'  | 48         |
| B3         | 590+02  | LT   | 23.0'  | 24         |
| B4         | 590+74  | LT   | 35.9'  | 18         |
| B5         | 590+58  | RT   | 57.3'  | 18         |



D3-1-36  
(WHITE ON BLUE)  
S5, S6



D3-1-42  
(WHITE ON BLUE)  
S7, S8

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### SIGNAL TIMING CHART

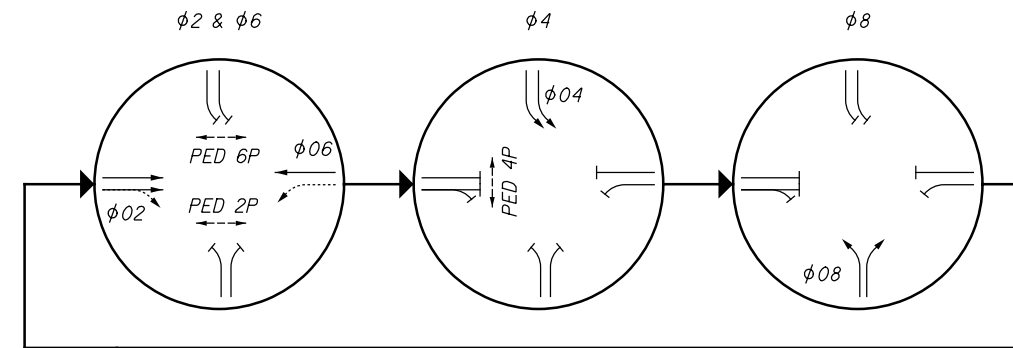
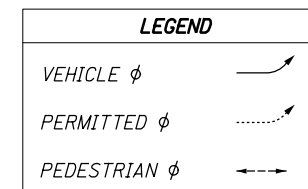
| INTERSECTION: US 36 (WILIAM ST) AT SR 37 (CENTRAL AVE) / E POINT CROSSING |  |                     |     |        |         |        |       |     |     |
|---------------------------------------------------------------------------|--|---------------------|-----|--------|---------|--------|-------|-----|-----|
| MAINTAINING AGENCY:                                                       |  |                     |     |        |         |        |       |     |     |
| START UP                                                                  |  | DUAL ENTRY:         | YES |        | PHASES: |        | 2 & 6 |     |     |
| START IN:                                                                 |  | REST IN RED:        |     | RING 1 |         | RING 2 |       | -   |     |
| TIME FOR FLASH / ALL RED (SEC.):                                          |  | OVERLAP             |     | A      | B       | C      | D     |     |     |
| FIRST PHASE(S):                                                           |  | PHASES              |     | -      | -       | -      | -     |     |     |
| COLOR DISPLAYED:                                                          |  |                     |     |        |         |        |       |     |     |
| ALL-RED FLASH                                                             |  |                     |     |        |         |        |       |     |     |
| 6                                                                         |  |                     |     |        |         |        |       |     |     |
| 2 & 6                                                                     |  |                     |     |        |         |        |       |     |     |
| GREEN                                                                     |  |                     |     |        |         |        |       |     |     |
| INTERVAL OR FEATURE                                                       |  |                     |     |        |         |        |       |     |     |
| CONTROLLER MOVEMENT NO.                                                   |  |                     |     |        |         |        |       |     |     |
| INTERSECTION MOVEMENT (PHASE)                                             |  |                     |     |        |         |        |       |     |     |
| DIRECTION                                                                 |  |                     |     |        |         |        |       |     |     |
| MINIMUM GREEN (INITIAL) (SEC.)                                            |  |                     |     |        |         |        |       |     |     |
| ADDED INITIAL *(SEC./ACTUATION)                                           |  |                     |     |        |         |        |       |     |     |
| MAXIMUM INITIAL (SEC.)                                                    |  |                     |     |        |         |        |       |     |     |
| PASSAGE TIME (PRESET GAP) (SEC.)                                          |  |                     |     |        |         |        |       |     |     |
| TIME BEFORE REDUCTION *(SEC.)                                             |  |                     |     |        |         |        |       |     |     |
| MINIMUM GAP *(SEC.)                                                       |  |                     |     |        |         |        |       |     |     |
| TIME TO REDUCE *(SEC.)                                                    |  |                     |     |        |         |        |       |     |     |
| MAXIMUM GREEN I (SEC.)                                                    |  |                     |     |        |         |        |       |     |     |
| MAXIMUM GREEN II (SEC.)                                                   |  |                     |     |        |         |        |       |     |     |
| YELLOW CHANGE (SEC.)                                                      |  |                     |     |        |         |        |       |     |     |
| ALL RED CLEARANCE (SEC.)                                                  |  |                     |     |        |         |        |       |     |     |
| DELAYED GREEN (LPI) * (SEC.)                                              |  |                     |     |        |         |        |       |     |     |
| FLASHING YELLOW ARROW DELAY* (SEC.)                                       |  |                     |     |        |         |        |       |     |     |
| WALK (SEC.)                                                               |  |                     |     |        |         |        |       |     |     |
| PEDESTRIAN CLEARANCE (SEC.)                                               |  |                     |     |        |         |        |       |     |     |
| RECALL                                                                    |  | MAXIMUM (ON/OFF)    |     | OFF    | ON      | OFF    | OFF   | OFF | OFF |
|                                                                           |  | MINIMUM (ON/OFF)    |     | OFF    | OFF     | OFF    | OFF   | OFF | OFF |
|                                                                           |  | PEDESTRIAN (ON/OFF) |     | OFF    | OFF     | OFF    | OFF   | OFF | OFF |
| MEMORY                                                                    |  | (ON/OFF)            |     | OFF    | OFF     | OFF    | OFF   | OFF | OFF |

\*VOLUME DENSITY CONTROLS

| COORDINATION PLAN | PLAN (CYCLE-SEC.) | OFFSET FROM PHASE# | SPLITS (G+Y+AR) IN SECONDS |      |   |    |   |      |   |      |
|-------------------|-------------------|--------------------|----------------------------|------|---|----|---|------|---|------|
|                   |                   |                    | PHASE                      |      |   |    |   |      |   |      |
|                   |                   |                    | -                          | 2    | - | 4  | - | 6    | - | 8    |
| PLAN 1            | 115               | 86.0               | -                          | 62.6 | - | 41 | - | 62.6 | - | 11.4 |
| PLAN 2            | 110               | 76.0               | -                          | 59.6 | - | 39 | - | 59.6 | - | 11.4 |

\*OFFSETS ARE MEASURED FROM REFERENCE PHASE 2, BEGINNING OF GREEN

### PHASING DIAGRAM



### VIDEO DETECTION CHART

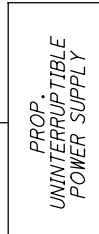
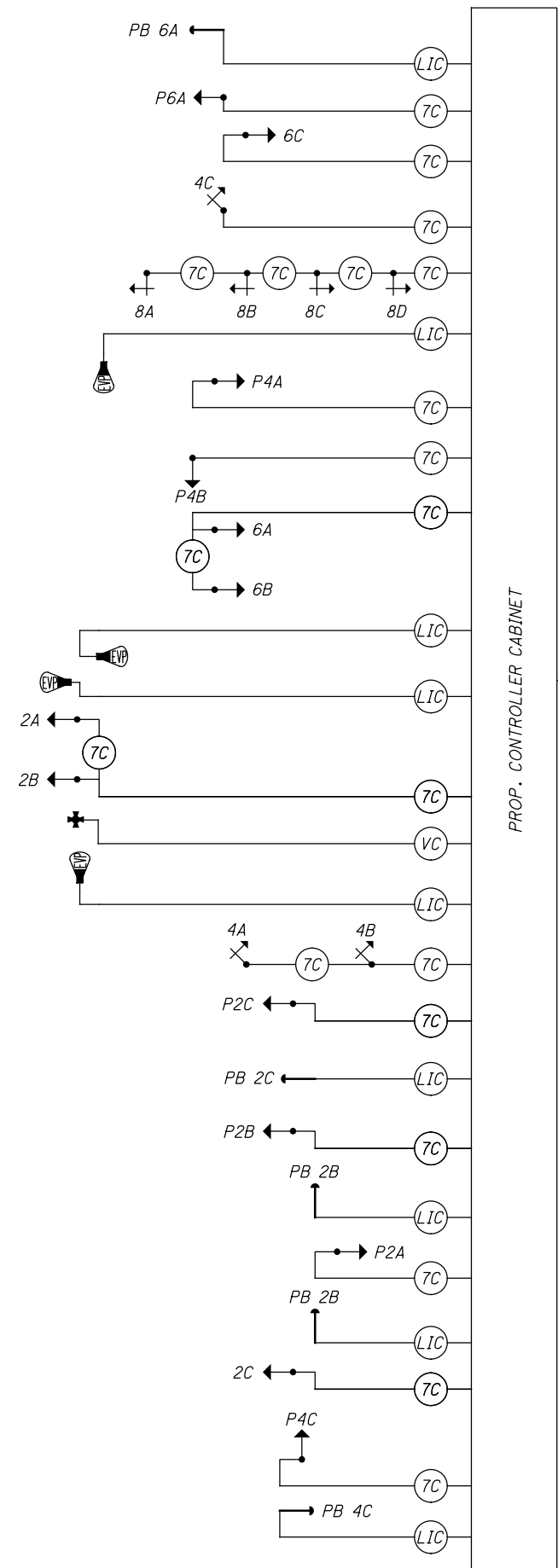
| DETECTION ZONE | MOVEMENT | PULSE OR PRESENCE | ASSOCIATED PHASE | DELAY PROGRAMMED IN CONTROLLER (SEC.) | DELAY INHIBITED PHASE | PURPOSE   | DETECTION ZONE LENGTH (FT) |
|----------------|----------|-------------------|------------------|---------------------------------------|-----------------------|-----------|----------------------------|
| VDZ2A          | EB       | PRESENCE          | 2                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ2B          | EB       | PRESENCE          | 2                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ6A          | WB       | PRESENCE          | 6                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ6B          | WB LT    | PRESENCE          | 6                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ4A          | SB LT    | PRESENCE          | 4                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ4B          | SB LT    | PRESENCE          | 4                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ8AB         | NB LT    | PRESENCE          | 8                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ8CD         | NB RT    | PRESENCE          | 8                | 14.6                                  | -                     | STOP-LINE | 30                         |

CALCULATED  
ABS  
CHECKED  
PHF

TRAFFIC SIGNAL PLAN DETAILS  
 US-36 & SR-37 / EAST POINT CROSSING

DEL-36-11.03

355  
644



**FIELD WIRING HOOK-UP CHART**

| SIGNAL HEAD   | INDICATION | FIELD TERMINAL | FLASH | SIGNAL HEAD          | INDICATION | FIELD TERMINAL | FLASH |
|---------------|------------|----------------|-------|----------------------|------------|----------------|-------|
| 2A<br>(EB)    | R          | Ø2 R           | R     | 4B<br>(SB LT)        | →R         | Ø4 R           | R     |
|               | Y          | Ø2 Y           |       |                      | →Y         | Ø4 Y           |       |
|               | G          | Ø2 G           |       |                      | →G         | Ø4 G           |       |
| 2B<br>(EB)    | R          | Ø2 R           | R     | 4C<br>(SB LT)        | →R         | Ø4 R           | R     |
|               | Y          | Ø2 Y           |       |                      | →Y         | Ø4 Y           |       |
|               | G          | Ø2 G           |       |                      | →G         | Ø4 G           |       |
| 2C<br>(EB)    | R          | Ø2 R           | R     | 8A<br>(NB LT)        | →R         | Ø8 R           | R     |
|               | Y          | Ø2 Y           |       |                      | →Y         | Ø8 Y           |       |
|               | G          | Ø2 G           |       |                      | →G         | Ø8 G           |       |
| 6A<br>(WB)    | R          | Ø6 R           | R     | 8B<br>(NB LT)        | →R         | Ø8 R           | R     |
|               | Y          | Ø6 Y           |       |                      | →Y         | Ø8 Y           |       |
|               | G          | Ø6 G           |       |                      | →G         | Ø8 G           |       |
| 6B<br>(WB)    | R          | Ø6 R           | R     | 8C<br>(NB RT)        | →R         | Ø8 R           | R     |
|               | Y          | Ø6 Y           |       |                      | →Y         | Ø8 Y           |       |
|               | G          | Ø6 G           |       |                      | →G         | Ø8 G           |       |
| 6C<br>(WB)    | R          | Ø6 R           | R     | 8D<br>(NB RT)        | →R         | Ø8 R           | R     |
|               | Y          | Ø6 Y           |       |                      | →Y         | Ø8 Y           |       |
|               | G          | Ø6 G           |       |                      | →G         | Ø8 G           |       |
| 4A<br>(SB RT) | →R         | Ø4 R           | R     | PEDESTRIAN MOVEMENTS |            |                |       |
|               | →Y         | Ø4 Y           |       | N<br>(NORTH)         | WALK       | G(Ø4)-W        | OFF   |
|               | →G         | Ø4 G           |       |                      | DON'T WALK | G(Ø4)-DW       |       |
|               |            |                |       | E<br>(EAST)          | WALK       | G(Ø6)-W        | OFF   |
|               |            |                |       |                      | DON'T WALK | G(Ø6)-DW       |       |
|               |            |                |       | W<br>(WEST)          | WALK       | G(Ø2)-W        | OFF   |
|               |            |                |       |                      | DON'T WALK | G(Ø2)-DW       |       |

- TRAFFIC SIGNAL, 2 UNIT, 3 UNIT OR PHB HEAD 12"
- TRAFFIC SIGNAL, 3 UNIT HEAD, 12" WITH ARROWS
- TRAFFIC SIGNAL, 4 OR 5 UNIT HEAD, 12"
- PEDESTRIAN SIGNAL
- PEDESTRIAN PUSH BUTTON
- VIDEO DETECTION CAMERA
- VIDEO DETECTION UNIT
- EMERGENCY VEHICLE PREEMPTION UNIT
- ADVANCE RADAR DETECTION UNIT

**LEGEND**

- (LIC)— 2/C NO. XX AWG (LEAD-IN-CABLE)
- (5C)— SIGNAL CABLE, 5 CONDUCTOR, NO. XX AWG
- (7C)— SIGNAL CABLE, 7 CONDUCTOR, NO. XX AWG
- (RC)— RADAR DETECTION CABLE
- (VC)— VIDEO CAMERA CABLE
- (X)— POWER SOURCE
- (SC)— SERVICE CABLE, 3 CONDUCTOR, NO. 6 AWG
- (PC)— POWER CABLE, 3 CONDUCTOR, NO. 6 AWG
- (SP 1)— SIGNAL SUPPORT POLE NO. ...
- (MB)— METER BASE
- (DS)— DUEL LIGHTING/SIGNAL DISCONNECT SWITCH
- (UPS)— UNINTERRUPTIBLE POWER SUPPLY CABLE

CALCULATED  
MAS  
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I / S #1 - US-36 & SR-37 / EAST POINT CROSSING

DEL-36-11.03

356  
644

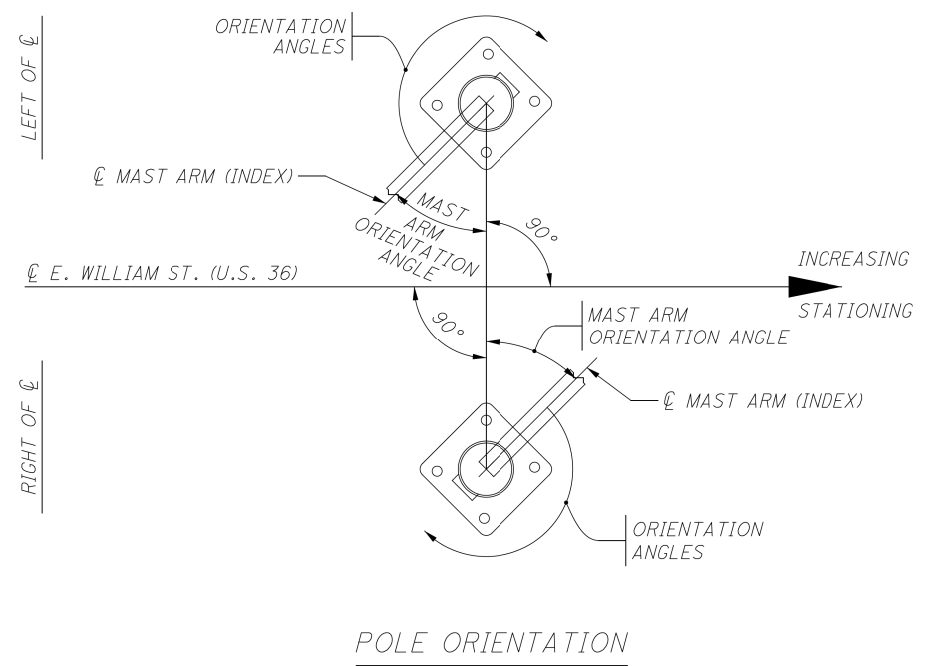
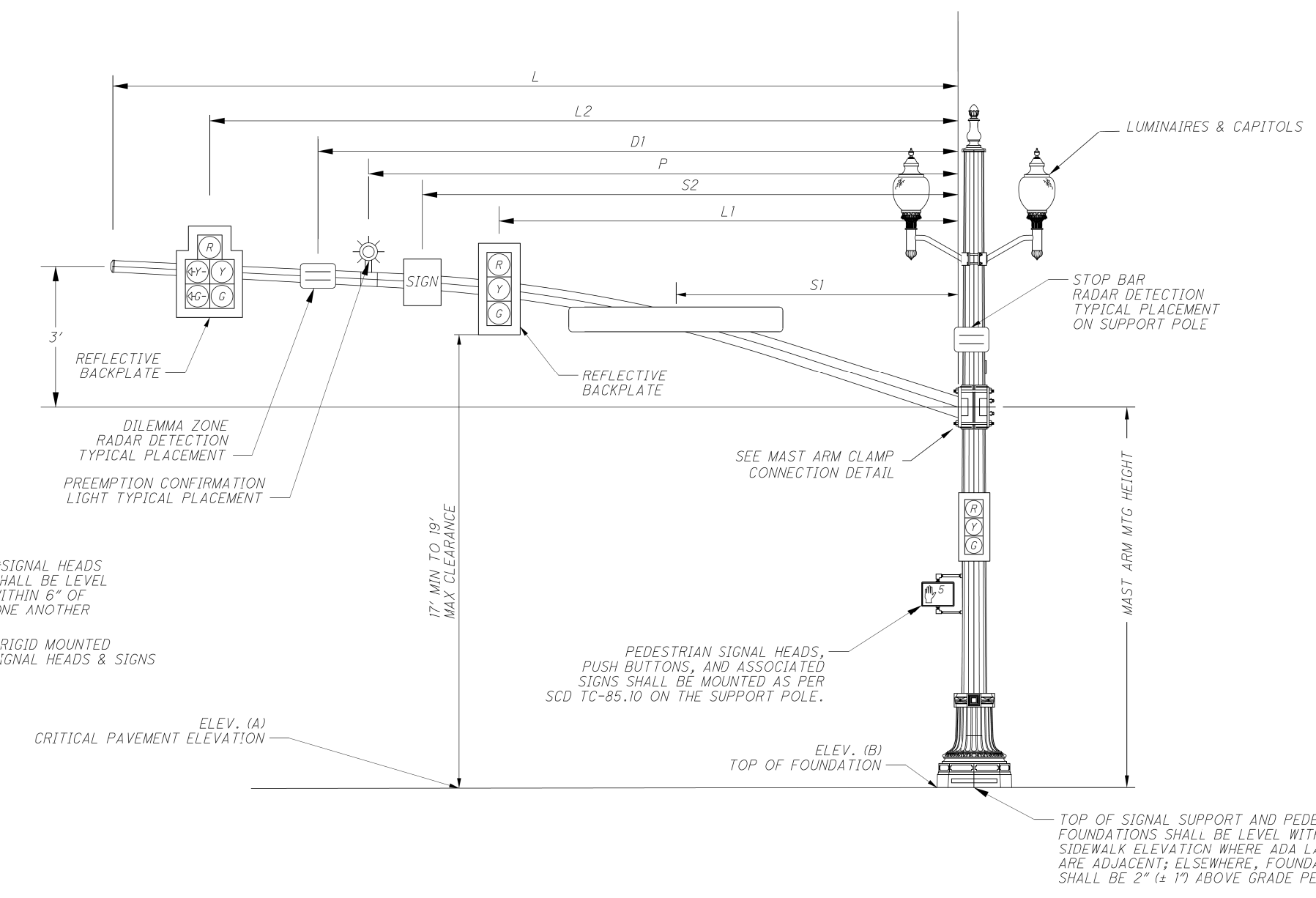
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CALCULATED  
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**TRAFFIC SIGNAL PLAN DETAILS  
 US 36 AT SR 37/E. POINT CROSSING**

**DEL-36-11.03**

357  
 644



**MAST ARM TABLE**

| SUPPORT NO. | STATION  | OFFSET    | ELEVATION             |                       | SIGNAL SUPPORT DETAILS |            |             |            |    |      |      |    |    |    |      |    |    | ORIENTATION ANGLES FROM MAST ARM |                  |          |                   |                   |                          |             |                             |                     |
|-------------|----------|-----------|-----------------------|-----------------------|------------------------|------------|-------------|------------|----|------|------|----|----|----|------|----|----|----------------------------------|------------------|----------|-------------------|-------------------|--------------------------|-------------|-----------------------------|---------------------|
|             |          |           | A (CRITICAL PAVEMENT) | B (TOP OF FOUNDATION) | DESIGN TYPE            | DESIGN NO. | POLE HEIGHT | ARM HEIGHT | L  | L1   | L2   | L3 | L4 | D1 | S1   | S2 | P  | MAST ARM A ANGLE                 | MAST ARM B ANGLE | HANDHOLE | PEDESTRIAN SIGNAL | PEDESTRIAN BUTTON | SUPPLEMENTAL SIGNAL HEAD | BRACKET ARM | CABLE ENTRANCE 12" FROM TOP | SIGN - POLE MOUNTED |
|             |          |           | FT                    | FT                    | FT                     | FT         | FT          | FT         | FT | FT   | FT   | FT | FT | FT | FT   | FT | FT | DEG                              | DEG              | DEG      | DEG               | DEG               | DEG                      | DEG         | DEG                         |                     |
| SP-1        | 589+91.8 | 33.5' LT. | 932.71                | 932.88                | TC-81.22               | 2          | 35          | 20         | 30 | 27.5 | 15.5 | -  | -  | -  | 10   | -  | 20 | 0                                | -                | 180      | 90/180            | 90/225            | 180                      | 180         | 180                         | -                   |
| SP-2        | 590+69.9 | 35.9' LT. | 933.09                | 933.26                | TC-81.22               | 4          | 35          | 20         | 38 | 35   | 25   | 6  | -  | -  | -    | -  | 28 | 90                               | -                | 270      | -                 | -                 | 180                      | 270         | 270                         | 0                   |
| SP-3-A      | 591+11.3 | 51.8' RT. | 932.27                | 932.44                | TC-81.22               | 14         | 35          | 20         | 43 | 39.8 | 27.8 | -  | -  | -  | 41.5 | -  | 32 | 0                                | -                | 180      | 90                | 135               | -                        | 180         | 180                         | 0                   |
| SP-3-B      | 591+11.3 | 51.8' RT. |                       |                       |                        | 4          | 35          | 20         | 35 | 32.5 | 11.2 | -  | -  | -  | -    | 29 | 41 | 21                               | -                | 270      | -                 | -                 | -                        | 315         | 90                          | 90                  |
| PS-1        | 590+00.5 | 36.5' LT. | -                     | -                     | -                      | PED        | 11'         | -          | -  | -    | -    | -  | -  | -  | -    | -  | -  | -                                | 90               | -        | 45                | -                 | -                        | -           | -                           |                     |
| PS-2        | 589+94.3 | 22.6' LT. | -                     | -                     | -                      | PED        | 11'         | -          | -  | -    | -    | -  | -  | -  | -    | -  | -  | -                                | -                | -        | 180               | -                 | -                        | -           | -                           |                     |
| PS-3        | 589+92.5 | 37.1' RT. | -                     | -                     | -                      | PED        | 15'         | -          | -  | -    | -    | -  | -  | -  | -    | -  | -  | -                                | -                | 90       | 180               | 270               | -                        | -           | -                           |                     |
| PS-4        | 590+06.6 | 44.9' RT. | -                     | -                     | -                      | PED        | 11'         | -          | -  | -    | -    | -  | -  | -  | -    | -  | -  | -                                | -                | 270      | 270               | -                 | -                        | -           | -                           |                     |
| PS-5        | 590+45.7 | 57.1' LT. | -                     | -                     | -                      | PED        | 11'         | -          | -  | -    | -    | -  | -  | -  | -    | -  | -  | -                                | -                | 135      | 130               | -                 | -                        | -           | -                           |                     |
| PS-6        | 590+58.2 | 55.0' RT. | -                     | -                     | -                      | PED        | 11'         | -          | -  | -    | -    | -  | -  | -  | -    | -  | -  | -                                | -                | 20       | 20                | -                 | -                        | -           | -                           |                     |

\* FOUNDATION FOR SP-3 SHALL BE 23' DEEP.

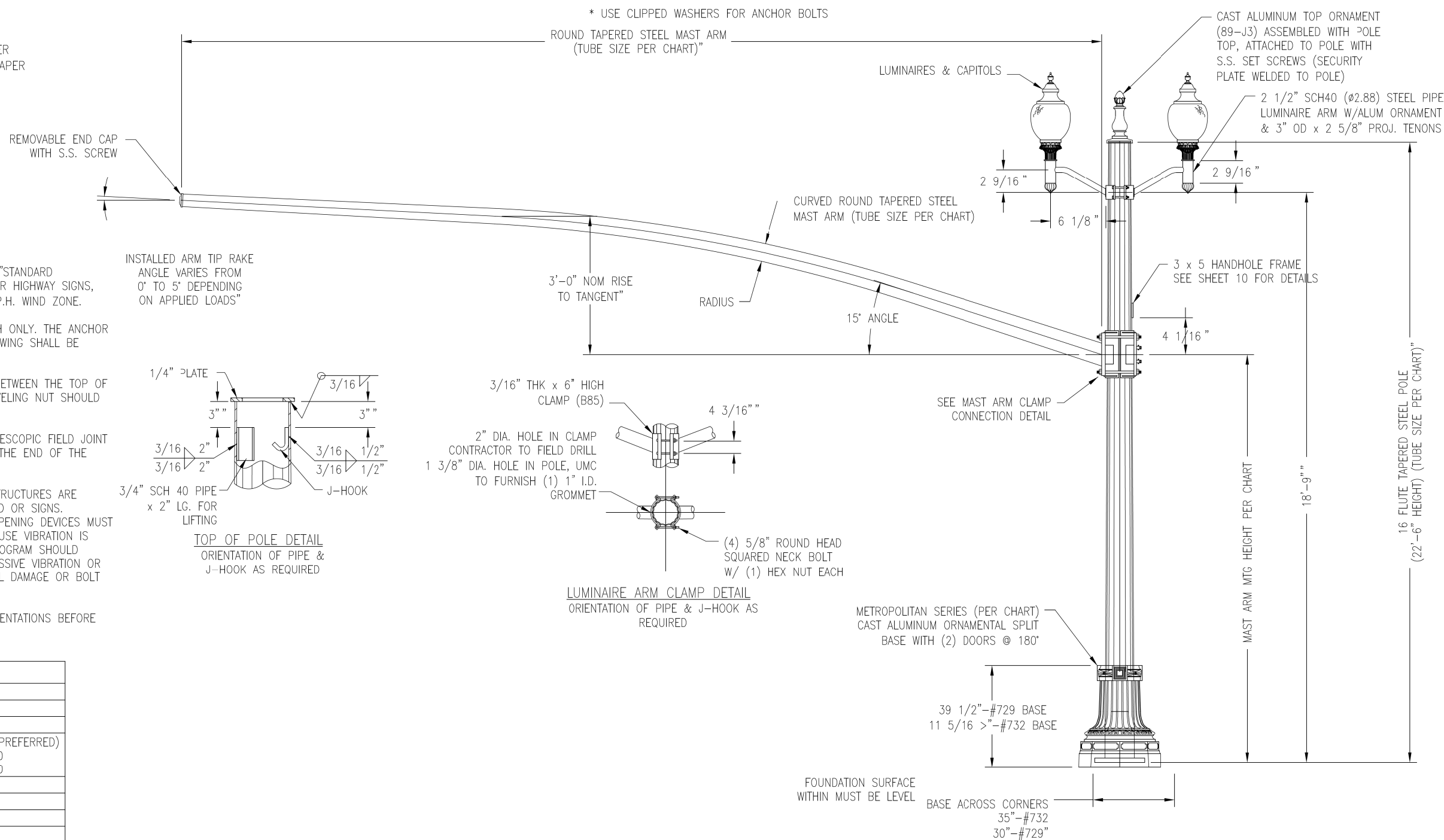
NOTE:  
 EXISTING EQUIPMENT NOT LISTED IN MAST ARM TABLE SHALL REMAIN AT  
 INSTALLED LOCATION ON MAST ARM OR SIGNAL POLE.

TC-81.21 COMBINATION SIGNAL SUPPORT DETAIL

7 GA = 0.179" WALL THICKNESS  
3 GA = 0.250" WALL THICKNESS  
E = ROUND STEEL TUBE @ 0.14 in/ft TAPER  
F = 16-FLUTE STEEL TUBE @ 0.14 in/ft TAPER

DESIGN CRITERIA:

- DESIGNED IN ACCORDANCE WITH 2009 AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" FOR 90 M.P.H. WIND ZONE.
- ANCHOR BOLTS ANALYZED FOR STEEL STRENGTH ONLY. THE ANCHOR BOLT EMBEDMENT LENGTH SHOWN ON THIS DRAWING SHALL BE VERIFIED BY THE FOUNDATION ENGINEER.
- THE EXPOSED LENGTH OF THE ANCHOR BOLT BETWEEN THE TOP OF THE FOUNDATION AND THE BOTTOM OF THE LEVELING NUT SHOULD NOT EXCEED ONE BOLT DIAMETER.
- PER AASHTO THE MINIMUM LENGTH OF ANY TELESCOPIC FIELD JOINT SHALL BE 1.5 TIMES THE INSIDE DIAMETER OF THE END OF THE FEMALE SECTION.
- VIBRATION IS MORE LIKELY TO OCCUR WHEN STRUCTURES ARE INSTALLED WITHOUT ATTACHING THE SIGNALS AND OR SIGNS. THEREFORE, THE INTENDED EQUIPMENT OR DAMPENING DEVICES MUST BE INSTALLED AT THE TIME OF ERECTION. BECAUSE VIBRATION IS GENERALLY UNPREDICTABLE, A MAINTENANCE PROGRAM SHOULD INCLUDE INSPECTION FOR INDICATIONS OF EXCESSIVE VIBRATION OR FATIGUE AND EXAMINATION FOR ANY STRUCTURAL DAMAGE OR BOLT LOOSENING.
- CUSTOMER TO CONFIRM ALL DIMENSIONS & ORIENTATIONS BEFORE RELEASING ORDER FOR MANUFACTURING.



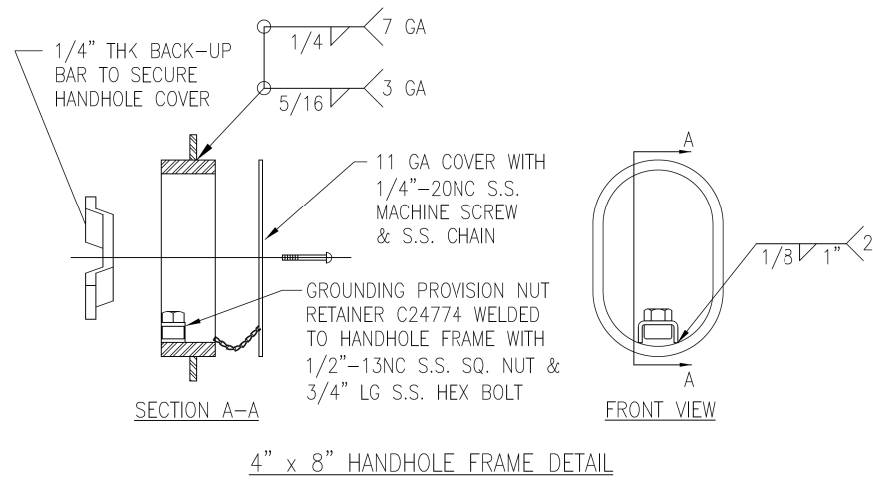
MATERIAL SPECIFICATIONS

|                            |                                                                            |
|----------------------------|----------------------------------------------------------------------------|
| TAPERED TUBE               | ASTM A595 GR. A                                                            |
| PLATE                      | ASTM A36                                                                   |
| ORNAMENTAL DECORATIVE BASE | ASTM B26 (356.0F)                                                          |
| HANDHOLE FRAME             | ASTM A529 GR. 50 (PREFERRED)<br>or ASTM A572 GR. 50<br>or ASTM A709 GR. 50 |
| HANDHOLE COVER             | ASTM A36 or A1011                                                          |
| ARM CONNECTION STUDS       | ASTM A449                                                                  |
| ARM CONNECTION NUTS        | ASTM A563 GR. DH                                                           |
| FLAT WASHERS               | ASTM F436                                                                  |
| ARM JOINT STUD             | ASTM A36                                                                   |
| "ANCO" LOCK NUTS           | ASTM A563 GR. DH                                                           |
| ARM END CAP                | ASTM A1011                                                                 |
| DECORATIVE POLE TOP        | ASTM B26 (356.0F)                                                          |
| ANCHOR BOLTS               | ASTM F1554 GR 105                                                          |
| ANCHOR BOLT NUTS           | ASTM A563 GR DH                                                            |
| PIPE                       | ASTM A501 or A53 GR B                                                      |
| S.S. HARDWARE              | AISI-300 SERIES (18-8)                                                     |
| HARDWARE FINISH            | PER SALES ORDER                                                            |
| HARDWARE FINISH            | HD GALV TO ASTM A153                                                       |

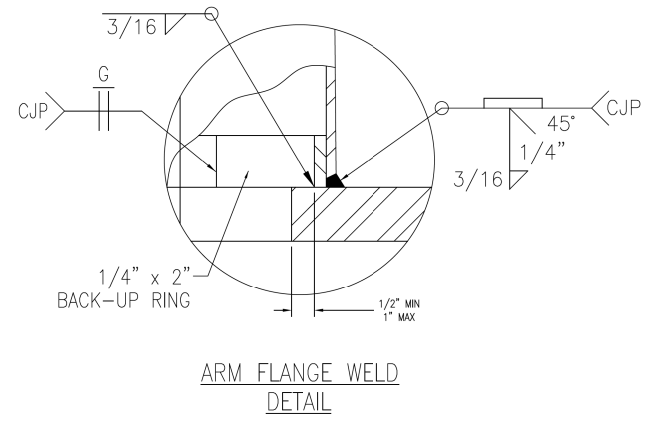
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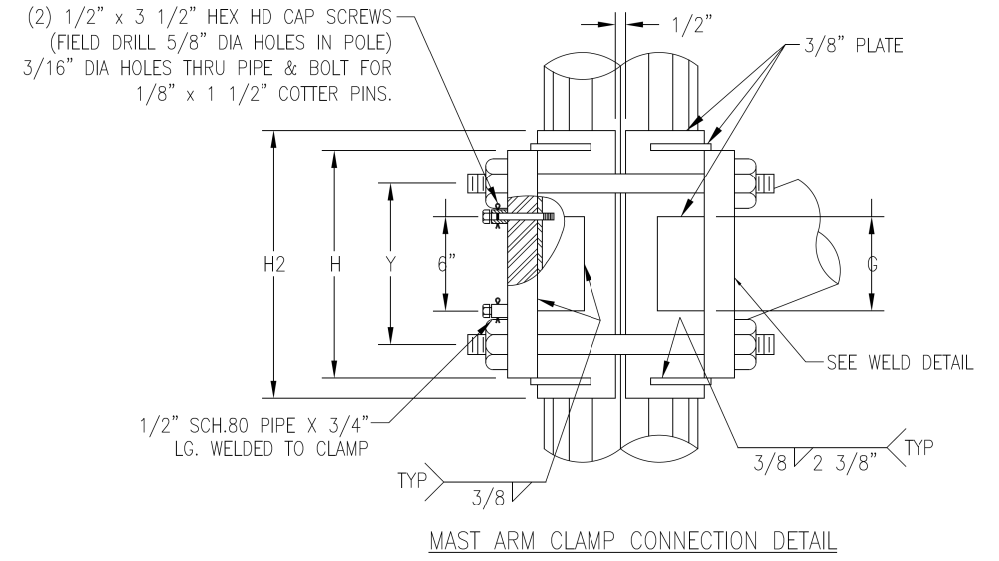
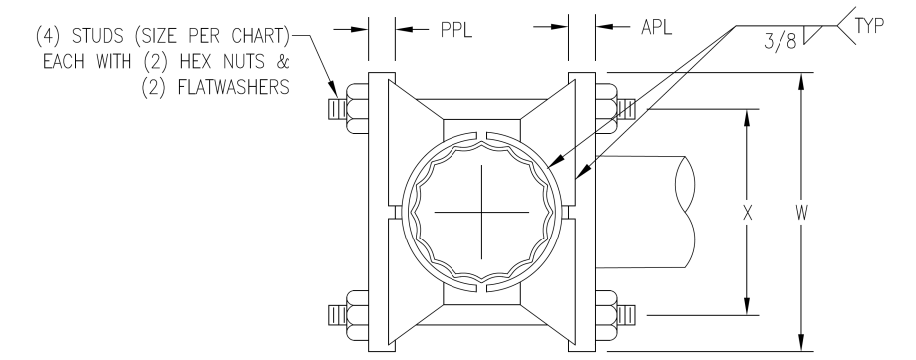
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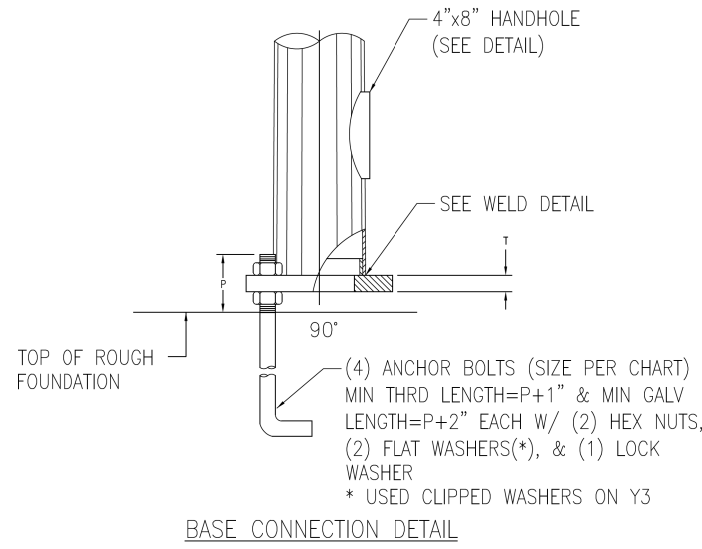
4" x 8" HANDHOLE FRAME DETAIL



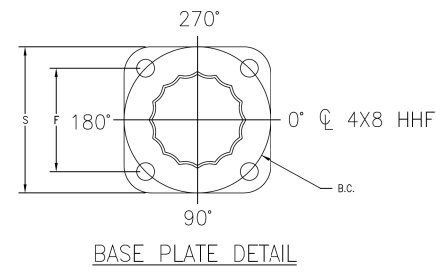
ARM FLANGE WELD DETAIL



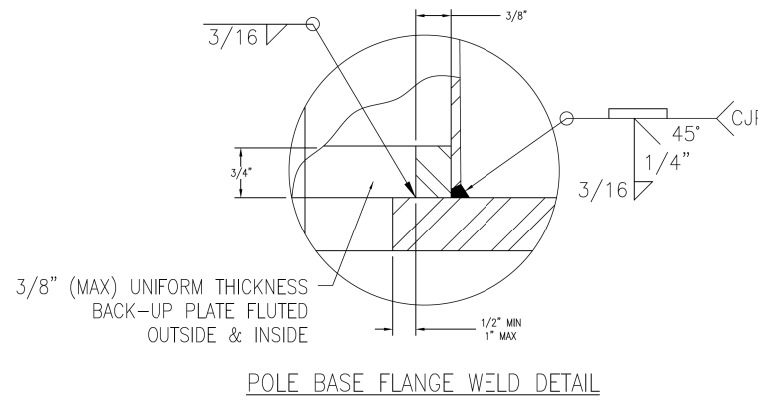
MAST ARM CLAMP CONNECTION DETAIL



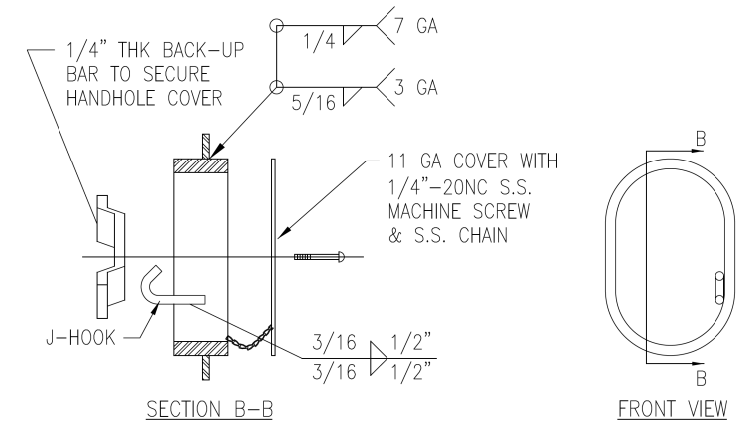
BASE CONNECTION DETAIL



BASE PLATE DETAIL



POLE BASE FLANGE WELD DETAIL



3" x 5" HANDHOLE FRAME DETAIL

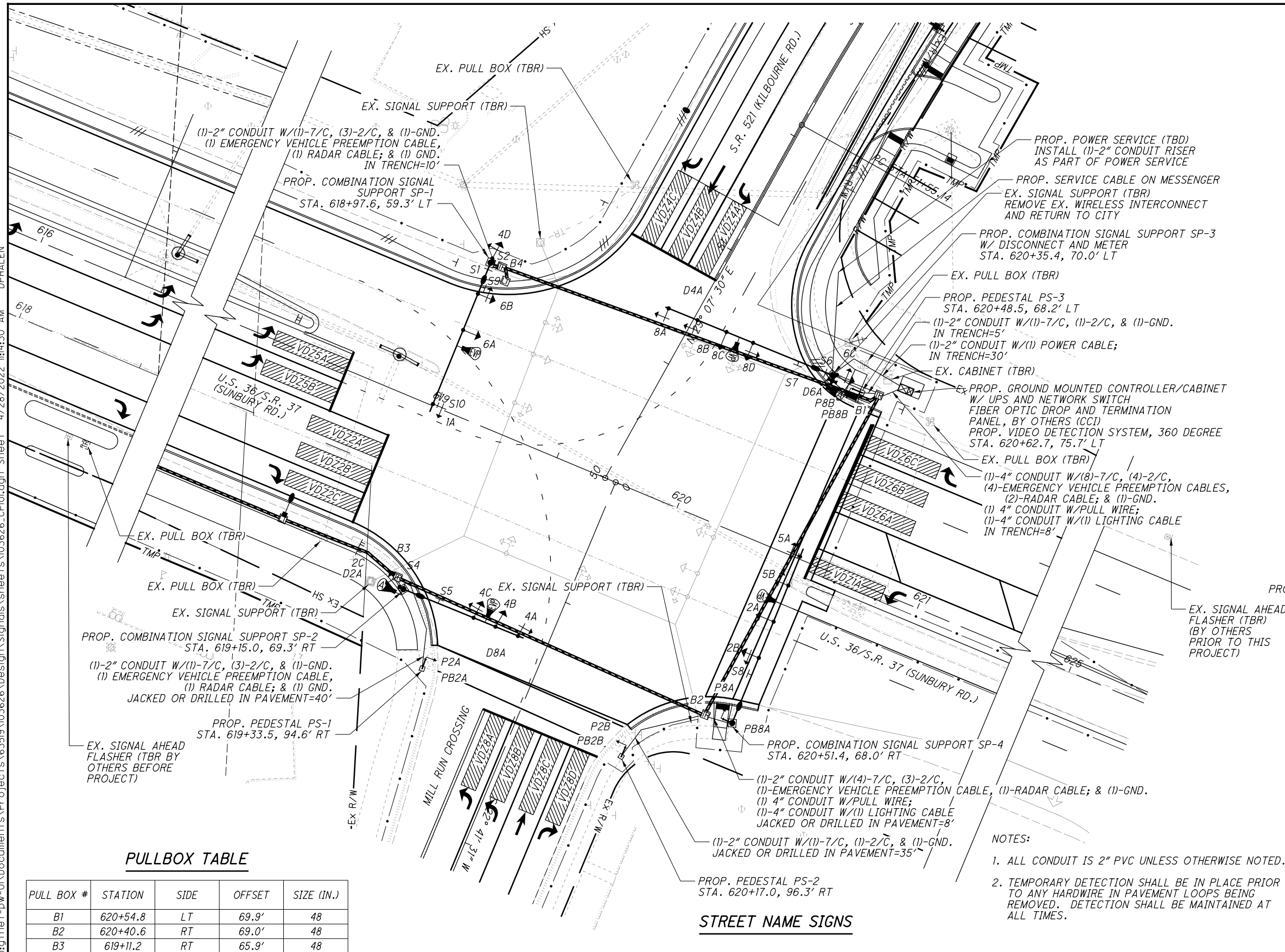
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TRAFFIC SIGNAL DETAILS

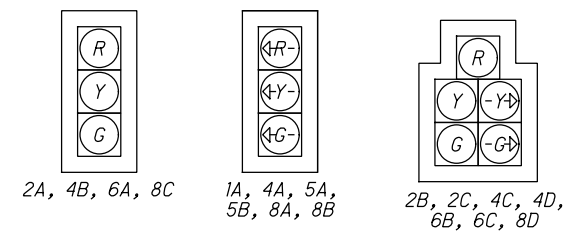
DEL-36-11.03

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**SIGNAL HEADS**

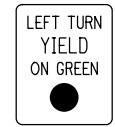


PEDESTRIAN HEADS (LED, COUNTDOWN, TYPE D2)  
P2A, P2B, P8A, P8B

**SIGNS**



R9-3-18  
S1, S2, S4, S6



R10-12  
S10



R10-3a-9  
1-RIGHT ARROW  
1-LEFT ARROW  
"MILL RUN"



R10-3a-9  
1-RIGHT ARROW  
1-LEFT ARROW  
"SUNBURY"

PROPOSED PUSHBUTTONS (2) PB2A, PB2B  
PROPOSED PUSHBUTTONS (2) PB8A, PB8B

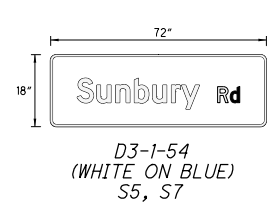
**LEGEND**

|                                                 | PROP | EXIST |
|-------------------------------------------------|------|-------|
| TRAFFIC SIGNAL, 3 UNIT HEAD, 12"                |      |       |
| TRAFFIC SIGNAL, 3 UNIT HEAD, 12" WITH ARROWS    |      |       |
| TRAFFIC SIGNAL, 5 UNIT HEAD, 12"                |      |       |
| SIGNAL SUPPORT POLE                             |      |       |
| PEDESTRIAN HEAD                                 |      |       |
| PEDESTRIAN PUSH BUTTON                          |      |       |
| PEDESTAL                                        |      |       |
| CONTROLLER CABINET AND WORK PAD (TS-2)          |      |       |
| TRAFFIC PULL BOX                                |      |       |
| VIDEO DETECTION UNIT (360 DEGREE)               |      |       |
| EMERGENCY VEHICLE PREEMPTION CONFIRMATION LIGHT |      |       |
| ADVANCE RADAR DETECTION UNIT                    |      |       |
| DETECTION ZONE                                  |      |       |
| ETHERNET RADIO                                  |      |       |
| CONDUIT, MISC.: DUCT BANK                       |      |       |

**PULLBOX TABLE**

| PULL BOX # | STATION  | SIDE | OFFSET | SIZE (IN.) |
|------------|----------|------|--------|------------|
| B1         | 620+54.8 | LT   | 69.9'  | 48         |
| B2         | 620+40.6 | RT   | 69.0'  | 48         |
| B3         | 619+11.2 | RT   | 65.9'  | 48         |
| B4         | 619+02.3 | LT   | 59.5'  | 18         |

**STREET NAME SIGNS**



- NOTES:**
- ALL CONDUIT IS 2" PVC UNLESS OTHERWISE NOTED.
  - TEMPORARY DETECTION SHALL BE IN PLACE PRIOR TO ANY HARDWARE IN PAVEMENT LOOPS BEING REMOVED. DETECTION SHALL BE MAINTAINED AT ALL TIMES.

**SIGNAL TIMING CHART**

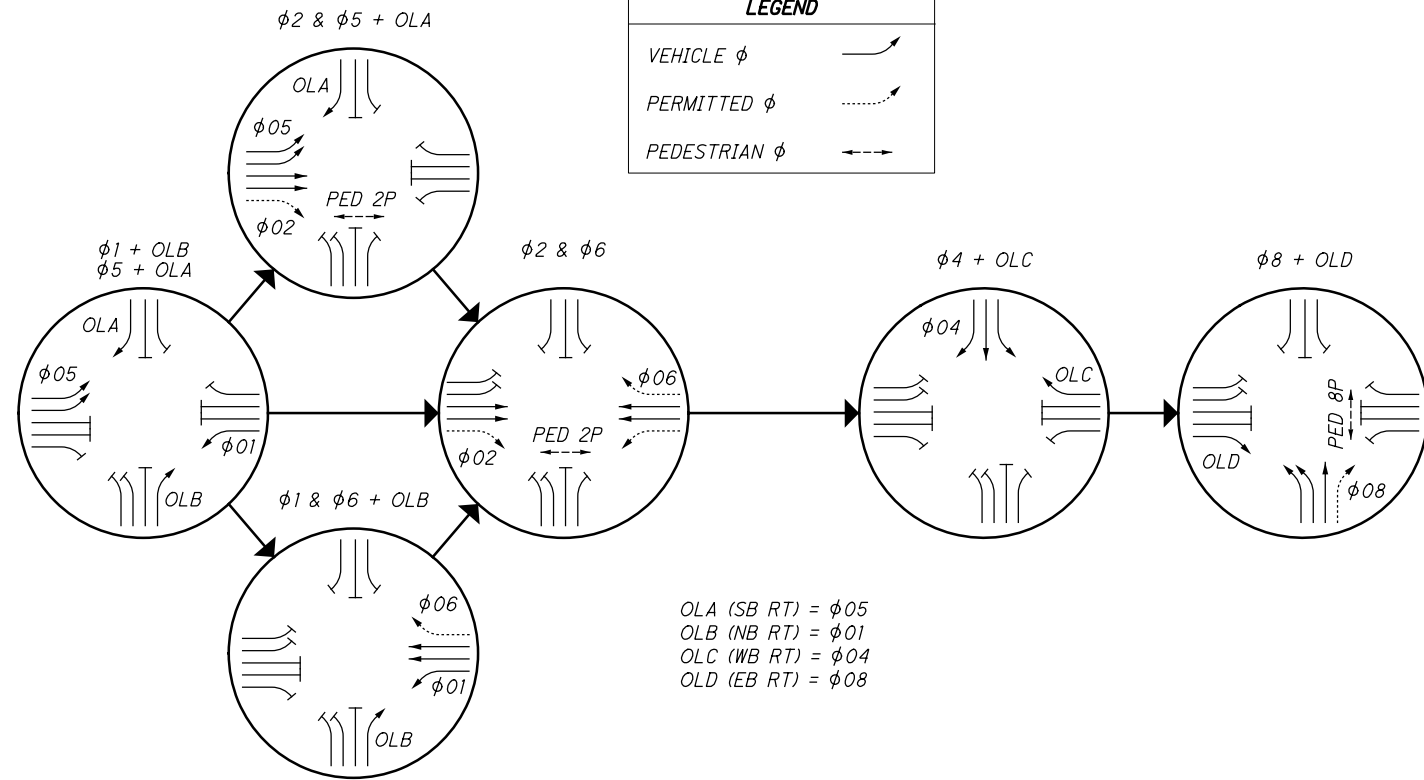
| INTERSECTION: U.S. 36 / S.R. 37 & S.R. 521 / MILL RUN CROSSING |                     |                                |                      |         |     |       |     |   |     |
|----------------------------------------------------------------|---------------------|--------------------------------|----------------------|---------|-----|-------|-----|---|-----|
| MAINTAINING AGENCY: CITY OF DELAWARE, OH                       |                     |                                |                      |         |     |       |     |   |     |
| START UP                                                       |                     | DUAL ENTRY: YES                | PHASES: 2 & 6, 4 & 8 |         |     |       |     |   |     |
| START IN: ALL-RED FLASH                                        |                     | REST IN RED: RING 1 - RING 2 - |                      | OVERLAP |     | A     | B   | C | D   |
| TIME FOR: FLASH, ALL RED (SEC.): 6                             |                     |                                |                      |         |     | 5     | 1   | 4 | 8   |
| FIRST PHASE(S): 2 & 6                                          |                     |                                |                      |         |     |       |     |   |     |
| COLOR DISPLAYED: GREEN                                         |                     |                                |                      |         |     |       |     |   |     |
| INTERVAL OR FEATURE                                            |                     | CONTROLLER MOVEMENT NO.        |                      |         |     |       |     |   |     |
| INTERSECTION MOVEMENT (PHASE)                                  |                     | 1                              | 2                    | -       | 4   | 5     | 6   | - | 8   |
| DIRECTION                                                      |                     | WB LT                          | EB                   | -       | SB  | EB LT | WB  | - | NB  |
| MINIMUM GREEN (INITIAL) (SEC.)                                 |                     | 7                              | 20                   | -       | 10  | 7     | 20  | - | 10  |
| ADDED INITIAL *(SEC./ACTUATION)                                |                     | -                              | -                    | -       | -   | -     | -   | - | -   |
| MAXIMUM INITIAL (SEC.)                                         |                     | -                              | -                    | -       | -   | -     | -   | - | -   |
| PASSAGE TIME (PRESET GAP) (SEC.)                               |                     | 3                              | 3                    | -       | 3   | 3     | 3   | - | 3   |
| TIME BEFORE REDUCTION *(SEC.)                                  |                     | -                              | -                    | -       | -   | -     | -   | - | -   |
| MINIMUM GAP *(SEC.)                                            |                     | -                              | -                    | -       | -   | -     | -   | - | -   |
| TIME TO REDUCE *(SEC.)                                         |                     | -                              | -                    | -       | -   | -     | -   | - | -   |
| MAXIMUM GREEN I (SEC.)                                         |                     | 15                             | 50                   | -       | 25  | 15    | 50  | - | 20  |
| MAXIMUM GREEN II (SEC.)                                        |                     | 15                             | 50                   | -       | 30  | 15    | 50  | - | 20  |
| YELLOW CHANGE (SEC.)                                           |                     | 3.1                            | 5.1                  | -       | 3.3 | 3.1   | 5.1 | - | 3.1 |
| ALL RED CLEARANCE (SEC.)                                       |                     | 3.9                            | 2.0                  | -       | 3.5 | 4.4   | 2.0 | - | 3.9 |
| DELAYED GREEN (LPI) # (SEC.)                                   |                     | -                              | -                    | -       | -   | -     | -   | - | -   |
| FLASHING YELLOW ARROW DELAY° (SEC.)                            |                     | -                              | -                    | -       | -   | -     | -   | - | -   |
| WALK (SEC.)                                                    |                     | -                              | 9                    | -       | -   | -     | -   | - | 12  |
| PEDESTRIAN CLEARANCE (SEC.)                                    |                     | -                              | 19                   | -       | -   | -     | -   | - | 33  |
| RECALL                                                         | MAXIMUM (ON/OFF)    | OFF                            | OFF                  | -       | OFF | OFF   | OFF | - | OFF |
|                                                                | MINIMUM (ON/OFF)    | OFF                            | ON                   | -       | OFF | OFF   | ON  | - | OFF |
|                                                                | PEDESTRIAN (ON/OFF) | OFF                            | OFF                  | -       | OFF | OFF   | OFF | - | OFF |
| MEMORY (ON/OFF)                                                |                     | OFF                            | OFF                  | -       | OFF | OFF   | OFF | - | OFF |

\*VOLUME DENSITY CONTROLS

| COORDINATION PLAN | PLAN (CYCLE-SEC.) | OFFSET FROM PHASE# | SPLITS (G+Y+AR) IN SECONDS |      |   |      |      |      |   |      |
|-------------------|-------------------|--------------------|----------------------------|------|---|------|------|------|---|------|
|                   |                   |                    | PHASE                      |      |   |      |      |      |   |      |
|                   |                   |                    | 1                          | 2    | - | 4    | 5    | 6    | - | 8    |
| PLAN 1            | 115               | 0                  | 14.0                       | 54.0 | - | 27.0 | 17.0 | 51.0 | - | 20.0 |
| PLAN 2            | 110               | 0                  | 14.0                       | 57.0 | - | 21.0 | 20.3 | 50.7 | - | 18.0 |

\*OFFSETS ARE MEASURED FROM REFERENCE PHASE 2, BEGINNING OF GREEN

**PHASING DIAGRAM**



**VIDEO DETECTION CHART**

| DETECTION ZONE | MOVEMENT | PULSE OR PRESENCE | ASSOCIATED PHASE | DELAY PROGRAMMED IN CONTROLLER (SEC.) | DELAY INHIBITED PHASE | PURPOSE   | DETECTION ZONE LENGTH (FT) |
|----------------|----------|-------------------|------------------|---------------------------------------|-----------------------|-----------|----------------------------|
| VDZ1A          | WB LT    | PRESENCE          | 1                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ6A          | WB       | PRESENCE          | 6                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ6B          | WB       | PRESENCE          | 6                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ6C          | WB RT    | PRESENCE          | 6                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ5A          | EB LT    | PRESENCE          | 5                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ5B          | EB LT    | PRESENCE          | 5                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ2A          | EB       | PRESENCE          | 2                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ2B          | EB       | PRESENCE          | 2                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ2C          | EB RT    | PRESENCE          | 2                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ4A          | SB LT    | PRESENCE          | 4                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ4B          | SB       | PRESENCE          | 4                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ4C          | SB RT    | PRESENCE          | 4                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ8A          | NB LT    | PRESENCE          | 8                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ8B          | NB LT    | PRESENCE          | 8                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ8C          | NB       | PRESENCE          | 8                | -                                     | -                     | STOP-LINE | 30                         |
| VDZ8D          | NB RT    | PRESENCE          | 8                | -                                     | -                     | STOP-LINE | 30                         |

\*ADVANCE DETECTION ZONE LENGTH SHALL BE AS LONG AS DETECTOR CAN RELIABLY DETECT WITHIN LANE.

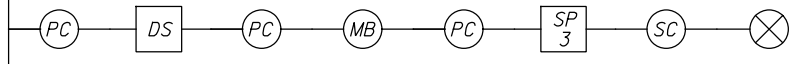
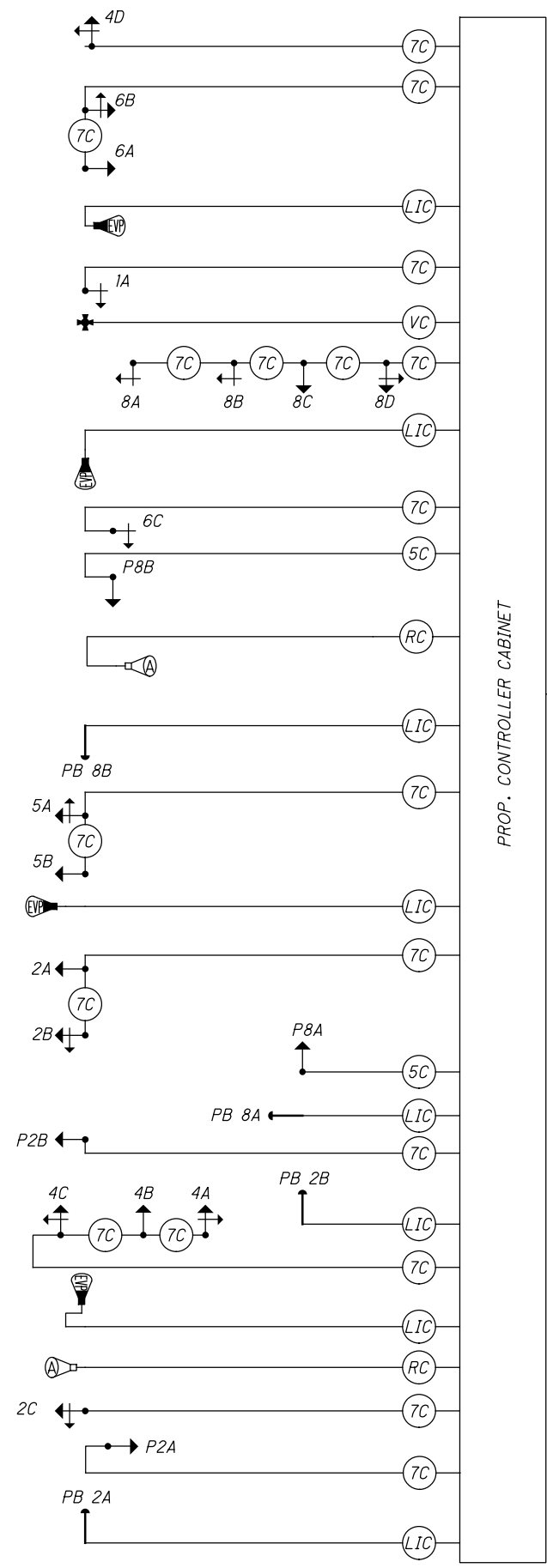
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TRAFFIC SIGNAL PLAN DETAILS  
US-36 / SR-37 & SR-521 / MILL RUN CROSSING

DEL-36-11.03

361  
644



**FIELD WIRING HOOK-UP CHART**

| SIGNAL HEAD   | INDICATION | FIELD TERMINAL | FLASH |
|---------------|------------|----------------|-------|
| 1A<br>(WB RT) | →R         | Ø1 R           | R     |
|               | →Y         | Ø1 Y           |       |
|               | →G         | Ø1 G           |       |
| 6A<br>(WB)    | R          | Ø6 R           | R     |
|               | Y          | Ø6 Y           |       |
|               | G          | Ø6 G           |       |
| 6B<br>(WB)    | R          | Ø6 R           | R     |
|               | Y          | Ø6 Y           |       |
|               | G          | Ø6 G           |       |
|               | →Y         | Ø6 Y           |       |
| 6C<br>(WB RT) | R          | Ø6 R           | R     |
|               | Y          | Ø6 Y           |       |
|               | G          | Ø6 G           |       |
|               | →Y         | Ø6 Y           |       |
| 5A<br>(EB RT) | →R         | Ø5 R           | R     |
|               | →Y         | Ø5 Y           |       |
|               | →G         | Ø5 G           |       |
| 5B<br>(EB LT) | →R         | Ø5 R           | R     |
|               | →Y         | Ø5 Y           |       |
|               | →G         | Ø5 G           |       |

| SIGNAL HEAD   | INDICATION | FIELD TERMINAL | FLASH |
|---------------|------------|----------------|-------|
| 2A<br>(EB)    | R          | Ø2 R           | R     |
|               | Y          | Ø2 Y           |       |
|               | G          | Ø2 G           |       |
| 2B<br>(EB)    | R          | Ø2 R           | R     |
|               | Y          | Ø2 Y           |       |
|               | G          | Ø2 G           |       |
|               | →Y         | Ø2 Y           |       |
| 2C<br>(EB RT) | R          | Ø2 R           | R     |
|               | Y          | Ø2 Y           |       |
|               | G          | Ø2 G           |       |
|               | →Y         | OLD            |       |
| 4A<br>(SB LT) | →R         | Ø4 R           | R     |
|               | →Y         | Ø4 Y           |       |
|               | →G         | Ø4 G           |       |
| 4B<br>(SB)    | R          | Ø4 R           | R     |
|               | Y          | Ø4 Y           |       |
|               | G          | Ø4 G           |       |
| 4C<br>(SB RT) | R          | Ø4 R           | R     |
|               | Y          | Ø4 Y           |       |
|               | G          | Ø4 G           |       |
|               | →Y         | Ø4 Y           |       |

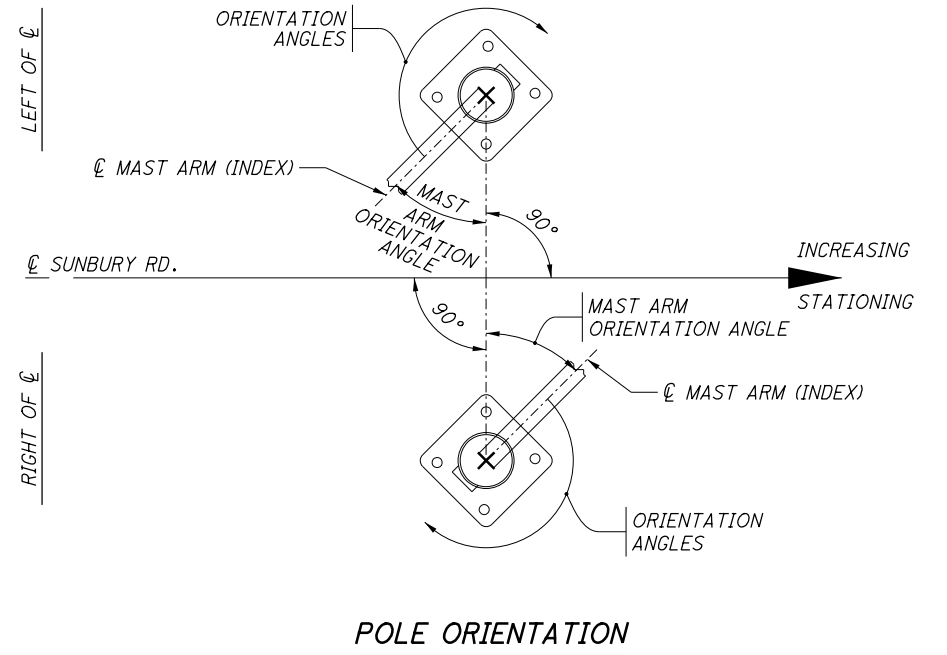
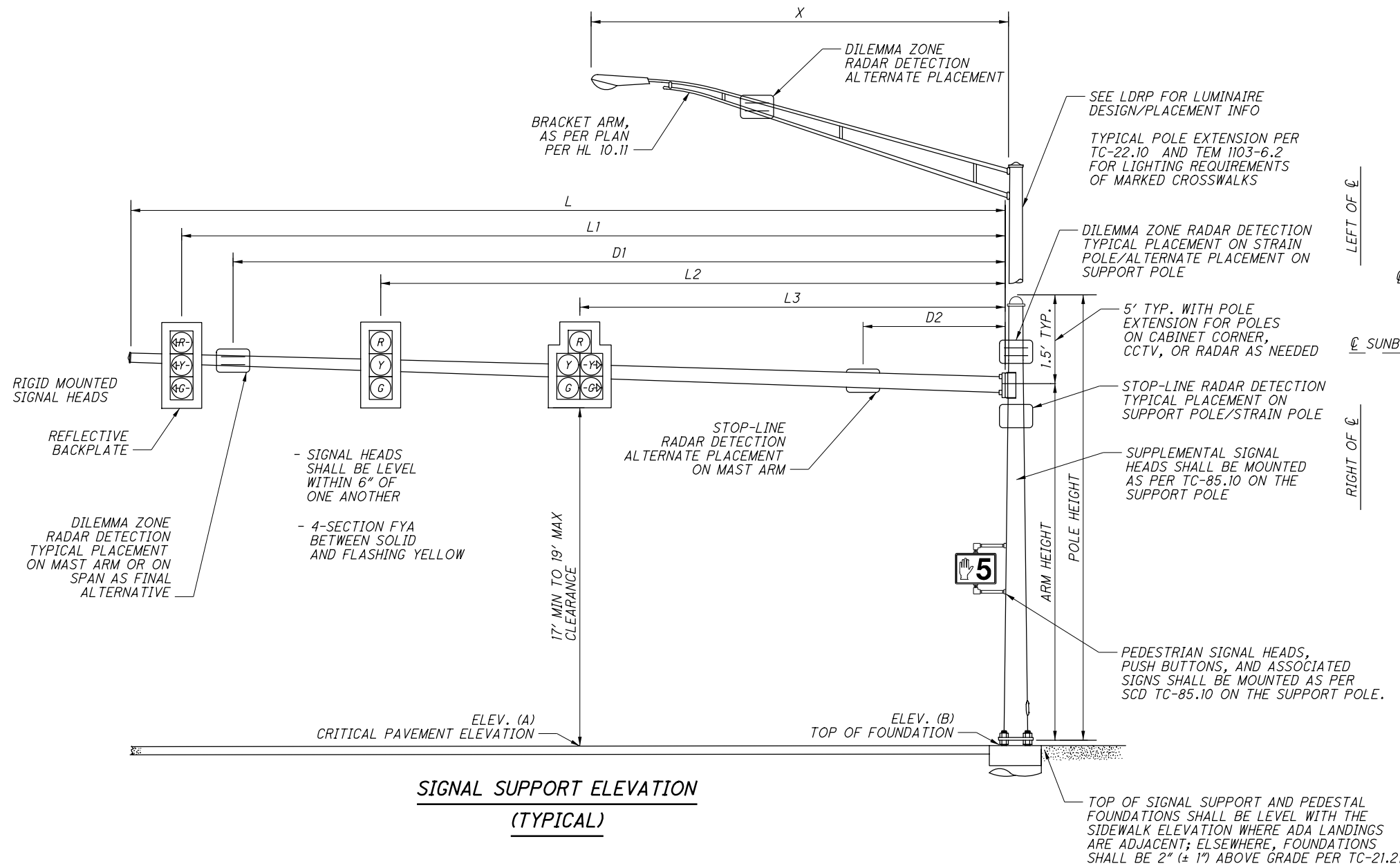
| SIGNAL HEAD          | INDICATION | FIELD TERMINAL | FLASH |
|----------------------|------------|----------------|-------|
| 4D<br>(SB RT)        | R          | Ø4 R           | R     |
|                      | Y          | Ø4 Y           |       |
|                      | G          | Ø4 G           |       |
|                      | →Y         | OLA            |       |
| 8A<br>(NB LT)        | →R         | Ø8 R           | R     |
|                      | →Y         | Ø8 Y           |       |
|                      | →G         | Ø8 G           |       |
| 8B<br>(NB LT)        | →R         | Ø8 R           | R     |
|                      | →Y         | Ø8 Y           |       |
|                      | →G         | Ø8 G           |       |
| 8C<br>(NB)           | R          | Ø8 R           | R     |
|                      | Y          | Ø8 Y           |       |
|                      | G          | Ø8 G           |       |
| 8D<br>(NB RT)        | R          | Ø8 R           | R     |
|                      | Y          | Ø8 Y           |       |
|                      | G          | Ø8 G           |       |
|                      | →Y         | OLB            |       |
| PEDESTRIAN MOVEMENTS |            |                |       |
| N<br>(NORTH)         | WALK       | G(Ø2)-W        | OFF   |
|                      | DON'T WALK | R(Ø2)-DW       |       |
| W<br>(WEST)          | WALK       | G(Ø8)-W        | OFF   |
|                      | DON'T WALK | G(Ø8)-DW       |       |

OLA = Ø5  
 OLB = Ø1  
 OLC = Ø4  
 OLD = Ø8

**LEGEND**

- TRAFFIC SIGNAL, 2 UNIT, 3 UNIT OR PHB HEAD 12"
- TRAFFIC SIGNAL, 3 UNIT HEAD, 12" WITH ARROWS
- TRAFFIC SIGNAL, 4 OR 5 UNIT HEAD, 12"
- └ PEDESTRIAN SIGNAL
- PEDESTRIAN PUSH BUTTON
- VIDEO DETECTION CAMERA
- ⊕ VIDEO DETECTION UNIT
- EVV EMERGENCY VEHICLE PREEMPTION UNIT
- AR ADVANCE RADAR DETECTION UNIT
- (LIC) 2/C NO. XX AWG (LEAD-IN-CABLE)
- (5C) SIGNAL CABLE, 5 CONDUCTOR, NO. XX AWG
- (7C) SIGNAL CABLE, 7 CONDUCTOR, NO. XX AWG
- (RC) RADAR DETECTION CABLE
- (VC) VIDEO CAMERA CABLE
- (X) POWER SOURCE
- (SC) SERVICE CABLE, 3 CONDUCTOR, NO. 6 AWG
- (PC) POWER CABLE, 3 CONDUCTOR, NO. 6 AWG
- (SP 1) SIGNAL SUPPORT POLE NO. ...
- (MB) METER BASE
- (DS) DUEL LIGHTING/SIGNAL DISCONNECT SWITCH
- (UPS) UNINTERRUPTIBLE POWER SUPPLY CABLE

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| SUPPORT NO. | STATION  | OFFSET    | ELEVATION                |                          | SIGNAL SUPPORT DETAILS |            |             |            |    |      |      |      |    |    |    |    | ORIENTATION ANGLES FROM MAST ARM |                  |          |                   |                   |                          |             |                             |                     |    |
|-------------|----------|-----------|--------------------------|--------------------------|------------------------|------------|-------------|------------|----|------|------|------|----|----|----|----|----------------------------------|------------------|----------|-------------------|-------------------|--------------------------|-------------|-----------------------------|---------------------|----|
|             |          |           | A<br>(CRITICAL PAVEMENT) | B<br>(TOP OF FOUNDATION) | DESIGN TYPE            | DESIGN NO. | POLE HEIGHT | ARM HEIGHT | L  | L1   | L2   | L3   | L4 | D1 | S1 | PC | MAST ARM A ANGLE                 | MAST ARM B ANGLE | HANDHOLE | PEDESTRIAN SIGNAL | PEDESTRIAN BUTTON | SUPPLEMENTAL SIGNAL HEAD | BRACKET ARM | CABLE ENTRANCE 12" FROM TOP | SIGN - POLE MOUNTED |    |
|             |          |           |                          |                          |                        |            |             |            |    |      |      |      |    |    |    |    |                                  |                  |          |                   |                   |                          |             |                             |                     | FT |
| SP-1        | 618+97.6 | 59.3' LT. | 941.51                   | 941.68                   | TC-81.22               | 14         | 36          | 21         | 61 | 12.9 | 27.9 | 58.5 | -  | -  | 54 | 33 | 0                                | -                | 180      | -                 | -                 | 180                      | 180         | 180                         | 0/270               |    |
| SP-2        | 619+15.0 | 69.3' RT. | 941.91                   | 942.08                   | TC-81.22               | 12         | 35          | 20         | 48 | 46   | 37   | 28   | -  | -  | -  | 26 | 90                               | -                | 270      | -                 | -                 | 270                      | 270         | 270                         | -                   |    |
| SP-3        | 620+35.4 | 70.0' LT. | 941.86                   | 942.03                   | TC-81.22               | 14         | 36.0        | 21         | 68 | 66   | 55   | 42   | 31 | -  | -  | 37 | 90                               | -                | 270      | 90                | 90                | 0                        | 270         | 270                         | 0/90                |    |
| SP-4        | 620+51.4 | 68.0' RT. | 941.99                   | 942.16                   | TC-81.22               | 14         | 35.0        | 20         | 70 | 67   | 56   | 40   | 26 | -  | -  | 48 | 0                                | -                | 180      | 270               | 270               | -                        | 180         | 180                         | -                   |    |
| PS-1        | 619+33.5 | 94.6' RT. | -                        | -                        | -                      | -          | 11'         | -          | -  | -    | -    | -    | -  | -  | -  | -  | -                                | -                | -        | 0                 | 0                 | -                        | -           | -                           | -                   |    |
| PS-2        | 620+17.0 | 96.3' RT. | -                        | -                        | -                      | -          | 11'         | -          | -  | -    | -    | -    | -  | -  | -  | -  | -                                | -                | -        | 0                 | 0                 | -                        | -           | -                           | -                   |    |
| PS-3        | 620+48.5 | 68.2' LT. | -                        | -                        | -                      | -          | 11'         | -          | -  | -    | -    | -    | -  | -  | -  | -  | -                                | 270              | 90       | 90                | -                 | -                        | -           | -                           |                     |    |

NOTE:  
EXISTING EQUIPMENT NOT LISTED IN MAST ARM TABLE SHALL REMAIN AT INSTALLED LOCATION ON MAST ARM OR SIGNAL POLE.

CALCULATED  
MAS  
CHECKED  
PHF

US 36 / SR 37 AT SR 521 / MILL RUN CROSSING

DEL-36-11.03

363  
644

**LIGHTING NOTES:**

THE STREET LIGHTING SHALL BE IN ACCORDANCE WITH THE 2019 OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS TOGETHER WITH THE REQUIREMENT OF THE CITY OF DELAWARE, INCLUDING ALL SUPPLEMENTS THERETO, IN FORCE WITH THE DATE OF THE CONTRACT, SHALL GOVERN ALL MATERIAL AND WORKMANSHIP INVOLVED IN THE IMPROVEMENTS SHOWN ON THESE PLANS, EXCEPT AS SUCH SPECIFICATIONS ARE MODIFIED BY THE FOLLOWING SPECIFICATIONS OR BY THE CONSTRUCTION DETAILS SET FORTH HEREIN.

THE CONTRACTOR SHALL INSTALL STREET LIGHTS AT THE LOCATIONS SHOWN ON THESE PLANS, INCLUDING ALL CABLE AND DISCONNECTS AND PROVIDE A COMPLETE, OPERATING LIGHTING SYSTEM, THAT COMPLIES WITH THE CITY OF DELAWARE SPECIFICATIONS.

THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO AN EQUAL OR BETTER CONDITION THAT EXISTED PRIOR TO CONSTRUCTION.

WHERE EXCAVATIONS OCCUR ALONGSIDE OF CURBS OR SIDEWALKS, THE CONTRACTOR SHALL SHORE, BRACE, OR SUPPORT PIECES IN PLACE SO THAT THEY WILL NOT BECOME DISLODGED OR DAMAGED. ANY DAMAGED CURB OR SIDEWALK SHALL BE REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE. THE COST OF THE WORK SHALL BE INCLUDED IN THE VARIOUS ITEM BID.

MAINTAIN A MINIMUM OF 3-FT HORIZONTAL AND 1-FT VERTICAL CLEARANCE FROM ALL WATER AND SEWER LINES.

CIRCUIT VOLTAGE SHALL BE 120/240 VOLT, 3 WIRE, WITH GROUNDED NEUTRAL.

NO SPLICES SHALL BE MADE IN CIRCUIT CABLES, EXCEPT AT NOTED LOCATIONS. SPLICES CAN BE MADE IN PULL BOXES ONLY WHERE CIRCUIT BRANCHES OR WHERE CIRCUIT CROSSES THE STREET TO A LIGHT POLE.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE POWER UTILITY FOR THE PRECISE LOCATION OF THE CONTROL CENTER AND POWER FEED TO THE CONTROL CENTER. ALL COST ASSOCIATED WITH MAKING THE CONNECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE COST OF THE WORK SHALL BE INCLUDED IN THE VARIOUS ITEMS BID.

THE CONTRACTOR SHALL PERFORM THE NECESSARY CONSTRUCTION STAKING AND MAINTENANCE OF STAKING FOR LOCATION OF CABLE ROUTING AND STREET LIGHTING EQUIPMENT (LIGHT STANDARDS, PULL BOXES, CONTROL SITE, ETC.). THE COST OF THE WORK SHALL BE INCLUDED IN THE VARIOUS BID ITEM.

CONDUIT LOCATION MAY BE DEFLECTED AND LIGHT POLE FOUNDATIONS MAY BE RELOCATED AROUND OBSTACLES OR UTILITIES AS APPROVED BY DES.

PULL BOXES SHALL BE LOCATED APPROXIMATELY WHERE SHOWN ON PLANS WITH THE EXACT LOCATION TO BE DETERMINED IN THE FIELD AFTER CONSTRUCTION IS GIVEN THE LOCATION OF UTILITIES, PAVEMENTS, AND GRADES.

LIGHT STANDARDS- ALL LIGHT STANDARDS SHALL BE ALIGNED ALONG THE ROADWAY, UNLESS OTHERWISE NOTED, WITH FOUNDATION CENTERLINES LOCATED EQUAL DISTANCE FROM EDGE OF CURB. PRIOR TO PLACEMENT OF ANY FOUNDATION, THE CONTRACTOR SHALL CHECK AND VERIFY THE LOCATION OF EXISTING UTILITIES AND ACTUAL MARKINGS AND NOTIFY THE ENGINEER OF ANY CONFLICT ON THE PLANS. ALL PROPOSED LIGHT STANDARDS AND EQUIPMENT LOCATIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR IN REGARDS TO PROPER CLEARANCES FOR EXISTING OVERHEAD AND UNDERGROUND UTILITIES PRIOR TO PERFORMING ANY CONSTRUCTION WORK.

UPON APPROVAL OF THE ENGINEER, FOUNDATIONS MAY BE MOVED SLIGHTLY IN A DIRECTION PARALLEL WITH THE CENTERLINE OF OFFSET TO AVOID POTENTIAL CONFLICT WITH OTHER FACILITIES.

**ITEM 625 - LUMINAIRE, POST TOP, SOLID STATE (LED), AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION AND MATERIAL SPECIFICATIONS, LUMINAIRES FOR POST TOP LED LIGHTING UNITS SHALL BE AS FOLLOWS:

LUMINAIRES SHALL MATCH THE CITY OF DELAWARE STANDARD POST TOP FIXTURES FOR COLLECTOR STREETS EXCEPT THAT THEY SHALL BE AS FOLLOWS:

LIGHT FIXTURE:  
GRANVILLE III PREMIER LED WITH MODERN STYLE HOUSING. GLASS TYPE III OPTICS, RIBS AND BAND, STANDARD FINAL, GOLD TRIM COLOR, 120-277V AUTO SENSING, 8800 NOMINAL LUMENS, NO COVER, OPTIONAL 120 DEG HOUSE SIDE SHIELD (WHEN REQUIRED ON PLANS

MODEL:  
HOLOPHANE GPD3-P30-30K-MVOLT-MS-GL3-BK-R8-ST-TGL

PAINT:  
POWDER COATED BLACK, 37031

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER CMS ITEM 625, "LUMINAIRE, POST TOP, SOLID STATE (LED), AS PER PLAN" FOR EACH LUMINAIRE AND DOUBLE LUMINAIRE WHICH SHALL BE FULL COMPENSATION OR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

**ITEM 625 - LIGHT POLE, DECORATIVE, AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION AND MATERIAL SPECIFICATIONS, LIGHT POLE UNITS SHALL BE AS FOLLOWS:

LIGHT POLES SHALL MATCH THE CITY OF DELAWARE STANDARD FOR COLLECTOR STREETS FIXTURE POST TYPE B - SINGLE LUMINAIRE AND SHALL BE AS FOLLOWS:

SINGLE LUMINAIRE. THE POST SHALL BE POWDER COATED BLACK, 37031 (UNLESS OTHERWISE SPECIFIED BY THE CITY) AND MATCH THE HOLOPHANE FIXTURE. THE TOTAL LENGTH OF THE LIGHT POLE SHALL BE 15-FEET, NOT INCLUDING THE LUMINAIRE. THE LIGHT POLE SHALL BE MODEL #AATF1515 MANUFACTURED BY MAIN STREET LIGHTING COMPANY.

AN ACCESS DOOR OVER THE HAND HOLE WITH THE INTERIOR HAVING A PERMANENT LABEL MARKER NOTING THE VOLTAGE.

A 1.25" O.D. TUBE SLEEVE WELDED TO THE BACK SIDE (DIRECTLY OPPOSITE CURB AND FLAG BRACKET) TO HOLD BANNER ARMS PER CITY OF DELAWARE STANDARDS.

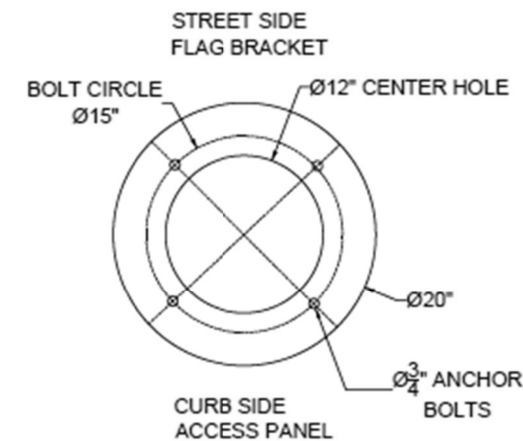
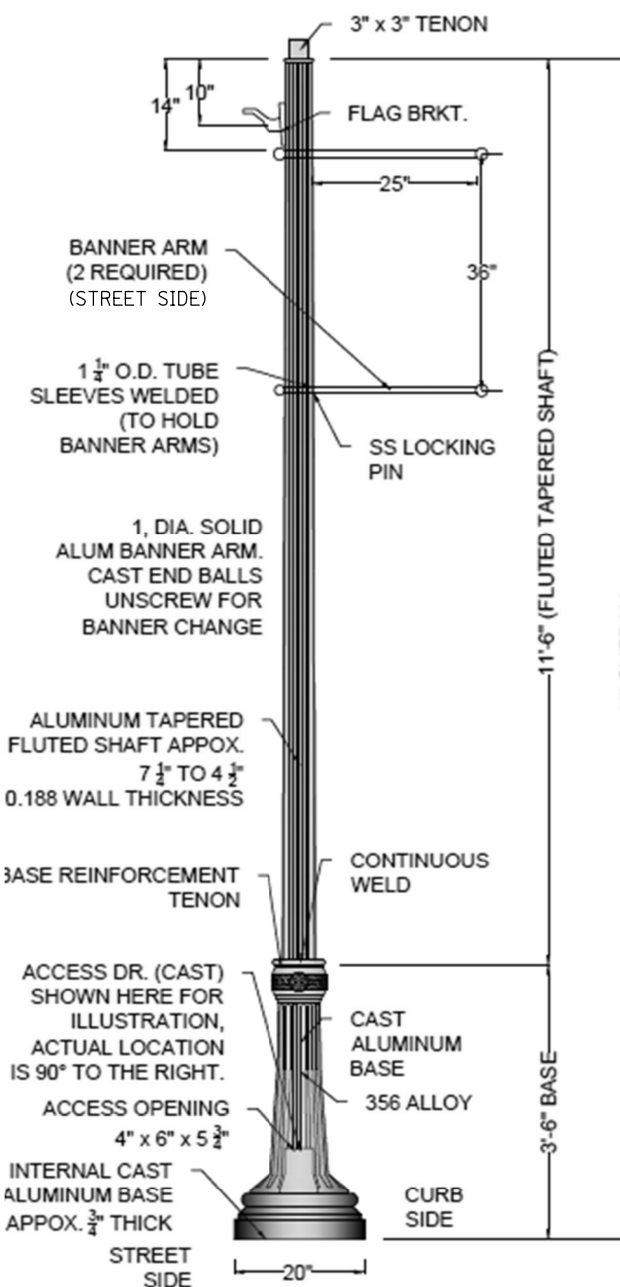
THE BASE SHALL BE CONSTRUCTED OF CAST ALUMINUM.

THE POLE SHALL HAVE AN APPROVED CABLE GRIP ON THE TOP INTERIOR OF THE POLE TO SUPPORT THE WEIGHT OF THE WIRING CABLES.

THE SHAFT SHALL BE A FORMED TAPERED FLUTED SHAFT, TAPERING FROM APPROXIMATELY 7-1/4" TO 4-1/2".

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER CMS ITEM 625 - LIGHT POLE, DECORATIVE, AS PER PLAN FOR EACH LIGHT POLE WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

CITY OF DELAWARE LIGHT POLE DETAIL (TYPICAL)



**ITEM 625 - POWER SERVICE, AS PER PLAN**

IN ADDITION TO THE REQUIREMENT OF THE SPECIFICATIONS, THE FOLLOWING IS ADDED.

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

AEP DISTRIBUTION  
ATTN: PAUL PAXTON  
850 TECH CENTER DR.  
GAHANNA, OH 43230  
614-883-6381

THE ENGINEER SHALL ENSURE THAT EACH POWER SERVICE ELECTRICAL ENERGY ACCOUNT IS IN THE NAME OF AND THAT BILLING ADDRESS IS TO THE MAINTAINING AGENCY NOTED IN THE PLANS. THIS SHALL BE DONE NOT ONLY FOR EACH NEW POWER SERVICE ESTABLISHED BY THIS PROJECT BUT ALSO FOR EACH EXISTING POWER SERVICE, SINCE THERE MAY BE A REASSIGNMENT OF THE RESPONSIBILITY FOR AN EXISTING SERVICE AS A RESULT OF THE WORK PERFORMED BY THIS PROJECT.

PAYMENT WILL BE MADE THAT THE UNIT BID PRICE FOR EACH CMS ITEM 625, "POWER SERVICE, AS PER PLAN" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRE TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

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LIGHTING GENERAL NOTES

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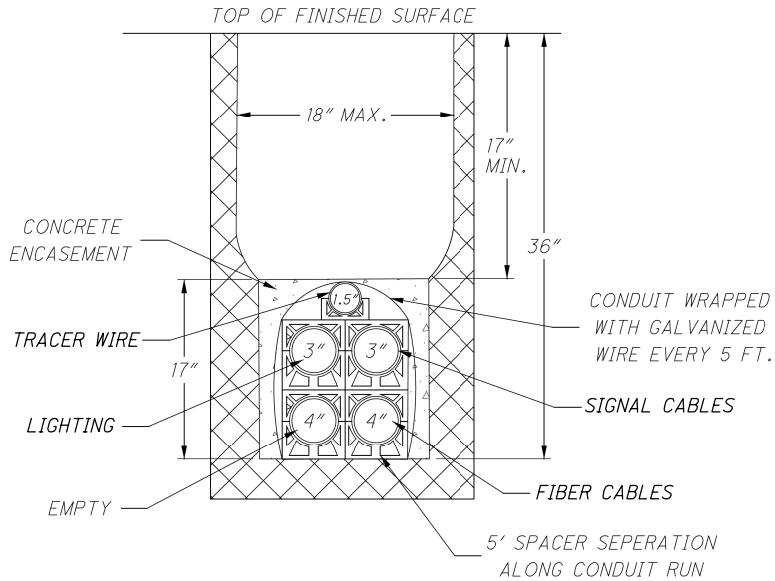
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**ITEM 625 - CONDUIT, MISC., DUCTBANK**

IN ACCORDANCE WITH CMS 625 AND 725, THE CONDUIT DUCT BANK SHALL BE INSTALLED AS SHOWN IN THE PLANS AND DETAILED BELOW, INCLUDING TRENCH EXCAVATION, TWO (2) 4-INCH CONDUITS, TWO (2) 3-INCH CONDUITS, AND ONE (1) 1.5 -INCH CONDUIT, SPACERS, GALVANIZED WRAP, TRACER WIRE, CONCRETE ENCASUREMENT AND COMPACTED BACKFILL. COORDINATE WITH THE CITY OF DELAWARE TRAFFIC DEPARTMENT FOR INSTALLATION OF DUCT BANK, SIGNAL CABLES, FIBER CABLES, AND LIGHTING CABLES.

**SECTION A-A**

TWO - 4" CONDUITS, TWO - 3" CONDUITS, & ONE - 1.5" CONDUIT BANK DETAIL (5 1/2" CENTER-CENTER CONDUIT SEPERATION)



ALL COSTS INCLUDING BUT NOT LIMITED TO, MATERIALS, DELIVERY, INSTALLATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR  
ITEM 625 CONDUIT MISC.: DUCT BANK, FT.

THE QUANTITY HAS BEEN TABULATED IN THE PLAN

**ITEM 625 - CONDUIT, MISC.: UNDERDRAIN OUTLET**

THIS ITEM IS FOR THE PLACEMENT OF 4" CONDUIT TO DRAIN THE PULL BOXES AS SHOWN IN SCD HL-30.11. THE DESCRIPTION OF WORK INCLUDING BUT NOT LIMITED TO CONSTRUCTION, MATERIALS, METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE PER ITEM 611 3" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET. THE LOCATION AND PLACEMENT SHALL BE AT THE DIRECTION OF THE ENGINEER. ALL COSTS ASSOCIATED WITH THIS WORK SHALL BE INCLUDED IN THE UNIT BID PRICE ITEM 625 CONDUIT, MISC.: UNDERDRAIN OUTLET

ITEM 625 - CONDUIT, MISC.: UNDERDRAIN OUTLET: 200 FT

**ITEM 625 - TRENCH, AS PER PLAN**

IN ADDITION TO CMS 625, THE TRENCH DIMENSIONS SHALL BE AS NOMINALLY SHOWN IN THE CONDUIT DUCT BANK DETAIL ON THIS PAGE.

**ITEM 625, LUMINAIRE, CONVENTIONAL, LED, AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION AND MATERIAL SPECIFICATION, LUMINAIRES FOR CONVENTIONAL LIGHTING UNITS SHALL BE AS FOLLOWS:

LUMINAIRES FOR CONVENTIONAL LIGHTING UNITS (3000K CCT) SHALL HAVE OUTPUT CHARACTERISTICS EQUIVALENT TO:

AMERICAN ELECTRIC "AUTOBAHN ATBM" WITH PHOTOMETRIC DISTRIBUTION "ATBM P30 XXXXX RC 3K, 14632 LUMENS OUTPUT. COOPER/EATON "VERDEON" WITH PHOTOMETRIC DISTRIBUTION "VERD-G-A02E-U-T3-7030-AP", 14500 LUMENS OUTPUT. GENERAL ELECTRIC "EVOLVE FRLH" WITH PHOTOMETRIC DISTRIBUTION "ERLH.15C330----- WITH ELSHS-ERL1-BLCK", 14400 LUMENS OUTPUT OR EQUAL AS APPROVED BY THE ENGINEER.

PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR EACH CMS ITEM 625, "LUMINAIRE, CONVENTIONAL, LED, AS PER PLAN" FOR EACH LUMINAIRE WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

**ITEM 625 - DISTRIBUTION CABLE, MISC.: NO. 8 AWG 2400 VOLT DISTRIBUTION CABLE**

PROVIDE AND INSTALL NO. 8 2400 VOLT DISTRIBUTION CABLE IN ACCORDANCE WITH CMS 625 AND 725.

PAYMENT WILL BE MADE AT THE UNIT PRICE FOR EACH LINEAR FOOT INSTALLED AND SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

**ITEM 625 - DUCT CABLE, MISC.: 2" DUCT CABLE WITH THREE NO. 8 2400 VOLT CABLES**

PROVIDE AND INSTALL 2" DUCT CABLE WITH THREE NO. 8 2400 VOLT CABLE IN ACCORDANCE WITH CMS 625 AND 725.

PAYMENT WILL BE MADE AT THE UNIT PRICE FOR EACH LINEAR FOOT INSTALLED AND SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

**ITEM 625 - DUCT CABLE, MISC.: 2" DUCT CABLE WITH THREE NO. 4 2400 VOLT CABLES**

PROVIDE AND INSTALL 2" DUCT CABLE WITH THREE NO. 4 2400 VOLT CABLE IN ACCORDANCE WITH CMS 625 AND 725.

PAYMENT WILL BE MADE AT THE UNIT PRICE FOR EACH LINEAR FOOT INSTALLED AND SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

**ITEM 625 - PULL BOX, MISC. 30"x48" POLYMER PULL BOX**

PROVIDE AND INSTALL A 30" X 48" POLYMER PULL BOX IN ACCORDANCE WITH CMS 625 AND 725.

PAYMENT WILL BE MADE AT THE UNIT PRICE FOR EACH PULLBOX INSTALLED AND SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

**ITEM 625 - LIGHTING, MISC.: LANDSCAPE-MONUMENT SIGN LIGHT**

ALL MATERIALS AND WORK SHALL COMPLY WITH ITEM 625 LIGHTING AND APPROPRIATE STANDARD CONSTRUCTION DRAWINGS UNLESS OTHERWISE NOTED HEREIN. THIS ITEM IS INTENDED FOR THE PROPOSED FIXTURES SHOWN ON THE LANDSCAPE PLAN SHEETS 381, 382 AT TWO SEPARATE LOCATIONS:

- STATION 591+86.5, 41.25' RT
- STATION 595+24.4, 54' LT

THE FIXTURE AT THESE LOCATIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS OR RECOMMENDATIONS. THE FOLLOWING FIXTURE SHALL BE USED: KIM LIGHTING, KFL1±-8L-20-4K7-VF-UNV-BLT OR APPROVED EQUAL. THE WORK SHALL INCLUDE ALL WORK, MATERIALS, LABOR AND EQUIPMENT NECESSARY TO INSTALL AND CONNECT PROPERLY FUNCTIONING FIXTURES FOR BOTH THE GROUND MOUNTED FLOODLIGHT AND THE INTERNALLY ILLUMINATED SIGN ON THE OPPOSITE SIDE OF THE MONUMENT SIGN. THE DETAILS PERTAINING TO THE SPECIFIC LOCATIONS ARE PROVIDED ON THE LANDSCAPE PLAN AND THE QUANTITY IS PROVIDED ON THE LIGHTING PLAN VIA THE ESTIMATED QUANTITY SUB-SUMMARY TABLES. PAYMENT FOR THIS WORK SHALL BE THE UNIT PRICE BID FOR LIGHTING, MISC.: LANDSCAPE-MONUMENT SIGN LIGHT, EACH.

**ITEM 625 - LIGHTING, MISC.: LANDSCAPE-ABUTMENT LIGHT**

ALL MATERIALS AND WORK SHALL COMPLY WITH ITEM 625 LIGHTING AND APPROPRIATE STANDARD CONSTRUCTION DRAWINGS UNLESS OTHERWISE NOTED HEREIN. THIS ITEM IS INTENDED FOR THE PROPOSED FIXTURES SHOWN ON THE LANDSCAPE PLAN SHEET 382 AT FOUR SEPARATE LOCATIONS:

- STATION 593+97.89, 44.34' LT
- STATION 594+25.09, 50.00' RT
- STATION 594+25.15, 45.08' LT
- STATION 594+55.71, 49.69' RT

THE FIXTURE AT THESE LOCATIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS OR RECOMMENDATIONS. THE FOLLOWING FIXTURE SHALL BE USED: KIM LIGHTING LTV82-SS-NF-12L-RGBW-UV-SR-RCA82 OR APPROVED EQUAL. THIS WORK SHALL INCLUDE ALL WORK, MATERIAL, LABOR AND EQUIPMENT NECESSARY TO INSTALL AND CONNECT PROPERLY FUNCTIONING FIXTURES FOR THESE FIXTURES TO SHINE ON THE ABUTMENT WALL AS DESCRIBED IN THE LANDSCAPE PLAN. THE DETAILS PERTAINING TO THE SPECIFIC LOCATIONS ARE PROVIDED ON THE LANDSCAPE PLAN AND THE QUANTITY IS PROVIDED ON THE LIGHTING PLAN VIA THE ESTIMATED QUANTITY SUB-SUMMARY TABLES. PAYMENT FOR THIS WORK SHALL BE THE UNIT PRICE BID FOR LIGHTING, MISC.: LANDSCAPE-ABUTMENT LIGHT, EACH.

**PROPOSED CONDUIT AND PROPOSED TREES**

ROUTE UNDERGROUND CONDUITS AROUND LOCATIONS OF PROPOSED TREES

**PROPOSED CONDUIT IN RAILROAD PROPERTY**

ALL UNDERGROUND CONDUITS WITHIN RAILROAD RIGHT-OF-WAY SHALL BE A MINIMUM OF 48" BELOW FINISHED GRADE OR AS APPROVED THROUGH THE PERMIT PROCESS.

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LIGHTING GENERAL NOTES

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| SHEET NUM. |  |  |  |  |     |       |        |       |       |       | PART.     |           | ITEM | ITEM<br>EXT | GRAND<br>TOTAL | UNIT | DESCRIPTION                                                       | SEE<br>SHEET<br>NO. |
|------------|--|--|--|--|-----|-------|--------|-------|-------|-------|-----------|-----------|------|-------------|----------------|------|-------------------------------------------------------------------|---------------------|
|            |  |  |  |  | 365 | 367   | 368    | 369   | 370   | 371   | 01/NHS/PV | 02/S>2/PV |      |             |                |      |                                                                   |                     |
|            |  |  |  |  |     | 30    | 28     | 32    | 30    | 40    | 120       | 40        | 625  | 00450       | 160            | EACH | CONNECTION, FUSED PULL APART                                      |                     |
|            |  |  |  |  |     | 30    |        | 18    | 18    | 18    | 66        | 18        | 625  | 00480       | 84             | EACH | CONNECTION, UNFUSED PERMANENT                                     |                     |
|            |  |  |  |  |     | 13    | 5      | 12    |       | 18    | 30        | 18        | 625  | 10481       | 48             | EACH | LIGHT POLE, DECORATIVE, AS PER PLAN                               | 364                 |
|            |  |  |  |  |     |       | 8      | 3     | 9     |       | 20        |           | 625  | 10490       | 20             | EACH | LIGHT POLE, CONVENTIONAL, AT8B37                                  |                     |
|            |  |  |  |  |     | 13    | 13     | 15    | 9     | 18    | 50        | 18        | 625  | 14100       | 68             | EACH | LIGHT POLE FOUNDATION, 24" X 8' DEEP                              |                     |
|            |  |  |  |  |     | 2,475 | 12,388 | 2,151 | 108   | 639   | 17,122    | 639       | 625  | 23200       | 17,761         | FT   | NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE                            |                     |
|            |  |  |  |  |     |       |        |       | 1,731 |       | 1,731     |           | 625  | 23308       | 1,731          | FT   | DISTRIBUTION CABLE, MISC.: NO. 8 AWG 2400 VOLT DISTRIBUTION CABLE | 365                 |
|            |  |  |  |  |     | 664   | 1,616  | 894   | 1,026 | 720   | 4,200     | 720       | 625  | 23400       | 4,920          | FT   | NO. 10 AWG POLE AND BRACKET CABLE                                 |                     |
|            |  |  |  |  |     | 1,209 |        | 1,250 | 1,995 | 2,050 | 4,454     | 2,050     | 625  | 24400       | 6,504          | FT   | DUCT CABLE, MISC.:2" DUCT CABLE WITH THREE NO. 4 2400 VOLT CABLES | 365                 |
|            |  |  |  |  |     |       |        |       | 856   |       | 856       |           | 625  | 24400       | 856            | FT   | DUCT CABLE, MISC.:2" DUCT CABLE WITH THREE NO. 8 2400 VOLT CABLES | 365                 |
|            |  |  |  |  |     | 69    | 84     | 29    | 355   | 17    | 537       | 17        | 625  | 25402       | 554            | FT   | CONDUIT, 2", 725.05                                               |                     |
|            |  |  |  |  |     | 250   | 168    | 472   | 267   | 202   | 1,157     | 202       | 625  | 25902       | 1,359          | FT   | CONDUIT, JACKED OR DRILLED, 725.04, 3"                            |                     |
|            |  |  |  |  |     | 693   | 2,545  | 464   |       | 112   | 3,702     | 112       | 625  | 25920       | 3,814          | FT   | CONDUIT, MISC.: DUCT BANK                                         | 365                 |
|            |  |  |  |  | 200 |       |        |       |       |       | 200       |           | 625  | 25920       | 200            | FT   | CONDUIT, MISC.: UNDERDRAIN OUTLET                                 | 365                 |
|            |  |  |  |  |     |       | 8      | 3     | 9     | 95    | 20        | 95        | 625  | 26253       | 115            | EACH | LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN           | 365                 |
|            |  |  |  |  |     | 13    | 5      | 12    |       | 18    | 30        | 18        | 625  | 27403       | 48             | EACH | LUMINAIRE, POST TOP, SOLID STATE (LED), AS PER PLAN               | 364                 |
|            |  |  |  |  |     | 1,278 | 84     | 1,279 | 3,007 | 2,067 | 5,648     | 2,067     | 625  | 29000       | 7,715          | FT   | TRENCH                                                            |                     |
|            |  |  |  |  |     | 693   | 2,545  | 464   |       |       | 3,702     |           | 625  | 29001       | 3,702          | FT   | TRENCH, AS PER PLAN                                               | 365                 |
|            |  |  |  |  |     | 8     | 13     | 8     | 1     | 4     | 30        | 4         | 625  | 30700       | 34             | EACH | PULL BOX, 725.08, 18"                                             |                     |
|            |  |  |  |  |     | 2     | 1      | 2     | 1     | 2     | 6         | 2         | 625  | 31600       | 8              | EACH | PULL BOX, MISC.: 30" x 48" POLYMER PULL BOX                       | 365                 |
|            |  |  |  |  |     |       |        |       |       |       |           |           |      |             |                |      |                                                                   |                     |
|            |  |  |  |  |     | 13    | 13     | 15    | 9     | 18    | 50        | 18        | 625  | 32000       | 68             | EACH | GROUND ROD                                                        |                     |
|            |  |  |  |  |     |       |        |       | 2     |       | 2         |           | 625  | 34001       | 2              | EACH | POWER SERVICE, AS PER PLAN                                        | 364                 |
|            |  |  |  |  |     | 1,971 | 2,629  | 1,743 | 3,007 | 2,067 | 9,350     | 2,067     | 625  | 36010       | 11,417         | FT   | UNDERGROUND WARNING/MARKING TAPE                                  |                     |
|            |  |  |  |  |     |       | 1      | 1     |       |       |           |           | 625  | 98000       | 2              | EACH | LIGHTING, MISC.: LANDSCAPE - MONUMENT LIGHT                       | 365                 |
|            |  |  |  |  |     | 4     |        |       |       |       |           |           | 625  | 98000       | 4              | EACH | LIGHTING, MISC.: LANDSCAPE - ABUTMENT LIGHT                       | 365                 |

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| REF.                         | SHEET | ROADWAY | STATION TO STATION  | 625                           |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
|------------------------------|-------|---------|---------------------|-------------------------------|--------------------------------|----------------------------------|-------------------------------------|--------------------------------------|------------------------------------------------------------------|----------------------------------------|-----------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|---------------------|----------------------------------------|---------------------------|---------------------------------------------------------|-----------------------------------------------------|--------|---------------------|-----------------------|------------|----------------------------|----------------------------------|-------------------------------------------|
|                              |       |         |                     | CONNECTION, FUSED, PULL APART | CONNECTION, UNFUSED, PERMANENT | LIGHT POLE, CONVENTIONAL, AT8837 | LIGHT POLE, DECORATIVE, AS PER PLAN | LIGHT POLE FOUNDATION, 24" X 8' DEEP | DISTRIBUTION CABLE, MISC: NO. 8 AWG 2400 VOLT DISTRIBUTION CABLE | NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE | NO. 10 AWG POLE AND BRACKET CABLE | DUCT CABLE, MISC: 2" DUCT CABLE WITH THREE NO. 8 2400 VOLT CABLES | DUCT CABLE, MISC: 2" DUCT CABLE WITH THREE NO. 4 2400 VOLT CABLES | CONDUIT, 2", 725.05 | CONDUIT, JACKED OR DRILLED, 725.04, 3" | CONDUIT, MISC.: DUCT BANK | LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN | LUMINAIRE, POST TOP, SOLID STATE (LED), AS PER PLAN | TRENCH | TRENCH, AS PER PLAN | PULL BOX, 725.08, 18" | GROUND ROD | POWER SERVICE, AS PER PLAN | UNDERGROUND WARNING/MARKING TAPE | PULLBOX, MISC: 30" x 48" POLYMER PULL BOX |
| EA                           | EA    | EA      | EA                  | EA                            | EA                             | EA                               | EA                                  | EA                                   | EA                                                               | EA                                     | EA                                | EA                                                                | EA                                                                | EA                  | EA                                     | EA                        | EA                                                      | EA                                                  | EA     | EA                  | EA                    | EA         | EA                         | EA                               |                                           |
| S1-A2                        | 375   | US-36   | 599+17 LT           | 2                             |                                | 1                                |                                     | 1                                    |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-A1                        | 375   | US-36   | 599+17 LT 601+31 LT | 2                             |                                | 1                                |                                     | 1                                    |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-A1                        | 375   | US-36   | 601+31 LT 602+39 LT |                               |                                | 6                                |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| CC S1                        | 375   | US-36   | 602+39 LT 602+46 LT |                               |                                |                                  |                                     |                                      |                                                                  | 108                                    |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C1                        | 376   | US-36   | 602+39 LT 603+50 LT | 2                             |                                | 1                                |                                     | 1                                    |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C2                        | 376   | US-36   | 603+50 LT 605+71 LT | 2                             |                                | 1                                |                                     | 1                                    |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C3                        | 376   | US-36   | 605+71 LT 607+92 LT | 2                             |                                | 1                                |                                     | 1                                    |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C4                        | 377   | US-36   | 607+92 LT 610+11 LT | 2                             |                                | 1                                |                                     | 1                                    |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C5                        | 377   | US-36   | 610+11 LT 612+32 LT | 2                             |                                | 1                                |                                     | 1                                    |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C6                        | 378   | US-36   | 612+32 LT 614+53 LT | 2                             |                                | 1                                |                                     | 1                                    |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C7                        | 378   | US-36   | 614+53 LT 616+74 LT | 2                             |                                | 1                                |                                     | 1                                    |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-C1                        | 379   | US-36   | 616+74 LT 619+08 LT | 2                             |                                | 1                                |                                     | 1                                    |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S2-F6                        | 373   | US-36   | 591+80 RT           |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-B8                        | 373   | US-36   | 591+80 RT 592+48 RT | 2                             |                                |                                  |                                     |                                      |                                                                  |                                        |                                   | 210                                                               |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-B7                        | 374   | US-36   | 592+48 RT 593+93 RT | 4                             |                                |                                  |                                     |                                      |                                                                  |                                        |                                   | 435                                                               |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S2-F5                        | 374   | US-36   | 593+93 RT 593+23 RT |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   | 90                                                                |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S2-F4                        | 374   | US-36   | 593+93 RT 594+55 RT |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   | 195                                                               |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-B6                        | 374   | US-36   | 593+93 RT 595+02 RT |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   | 318                                                               |                                                                   |                     | 106                                    |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-F1                        | 374   | US-36   | 595+02 RT 595+22 LT | 2                             | 3                              |                                  |                                     |                                      |                                                                  |                                        |                                   | 231                                                               |                                                                   |                     | 77                                     |                           |                                                         |                                                     |        | 1                   |                       |            |                            |                                  |                                           |
| PB-A4                        | 374   | US-36   | 595+22 LT 594+68 LT | 4                             |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S2-F3                        | 374   | US-36   | 595+22 LT 595+16 LT |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S2-F2                        | 374   | US-36   | 595+22 LT 597+82 LT |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S2-F1                        | 374   | US-36   | 594+68 LT 594+03 LT |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-A3                        | 374   | US-36   | 594+68 LT 594+33 LT |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-A2                        | 375   | US-36   | 594+33 LT 594+03 LT |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-A1                        | 375   | US-36   | 594+03 LT 595+16 LT |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| CC S2                        | 375   | US-36   | 595+16 LT 597+82 LT |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-A1                        | 375   | US-36   | 597+82 LT 598+65 LT |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-A2                        | 375   | US-36   | 598+65 LT 602+39 LT |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-A1                        | 375   | US-36   | 602+39 LT 602+40 LT |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| CC S2                        | 375   | US-36   | 602+40 LT           |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| TOTALS CARRIED TO SUBSUMMARY |       |         |                     | 30                            | 18                             | 9                                | 0                                   | 9                                    | 1731                                                             | 108                                    | 1026                              | 856                                                               | 1995                                                              | 355                 | 267                                    | 0                         | 9                                                       | 0                                                   | 3007   | 0                   | 1                     | 9          | 2                          | 3007                             | 1                                         |

LIGHTING QUANTITIES

DEL-36-11.03

370  
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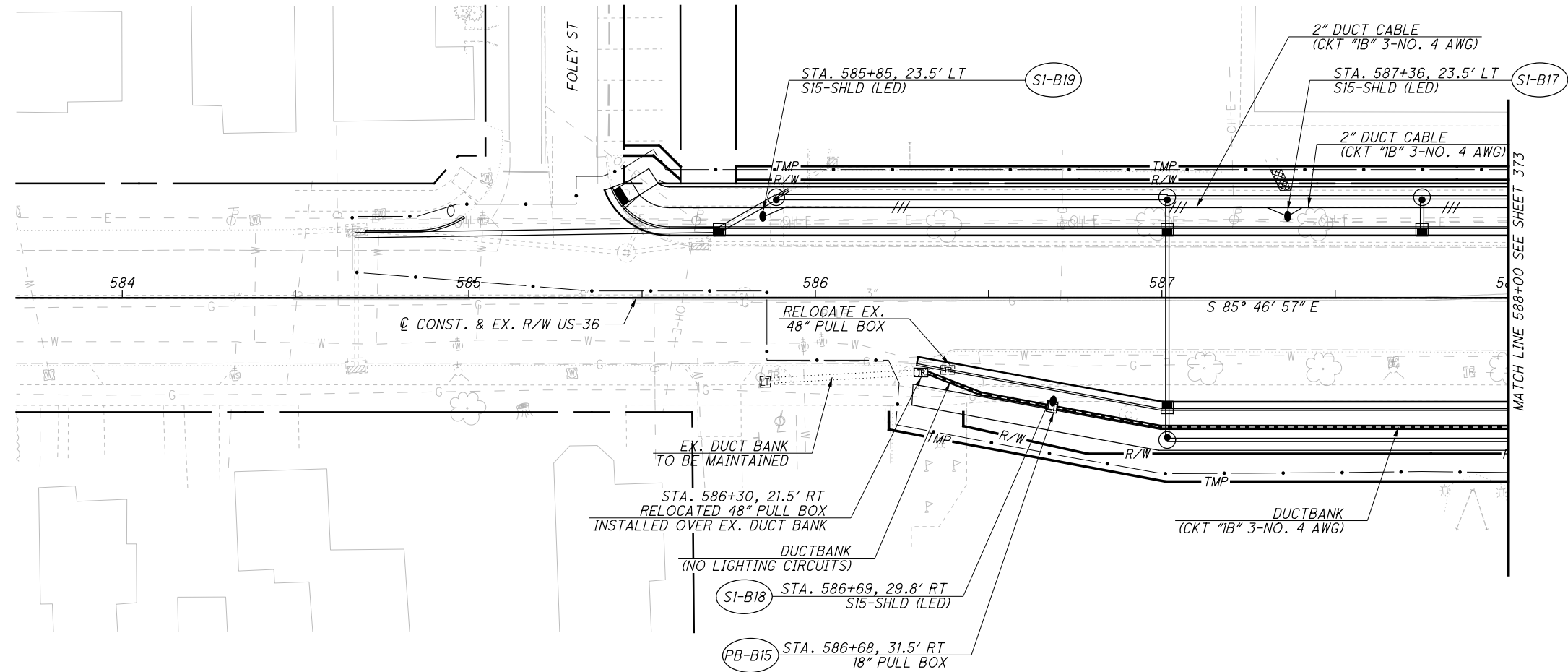
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| REF.                         | SHEET | ROADWAY | STATION TO STATION     | 625                           |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
|------------------------------|-------|---------|------------------------|-------------------------------|--------------------------------|----------------------------------|-------------------------------------|--------------------------------------|------------------------------------------------------------------|----------------------------------------|-----------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|---------------------|----------------------------------------|---------------------------|---------------------------------------------------------|-----------------------------------------------------|--------|---------------------|-----------------------|------------|----------------------------|----------------------------------|-------------------------------------------|
|                              |       |         |                        | CONNECTION, FUSED, PULL APART | CONNECTION, UNFUSED, PERMANENT | LIGHT POLE, CONVENTIONAL, AT8837 | LIGHT POLE, DECORATIVE, AS PER PLAN | LIGHT POLE FOUNDATION, 24" X 8' DEEP | DISTRIBUTION CABLE, MISC: NO. 8 AWG 2400 VOLT DISTRIBUTION CABLE | NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE | NO. 10 AWG POLE AND BRACKET CABLE | DUCT CABLE, MISC: 2" DUCT CABLE WITH THREE NO. 8 2400 VOLT CABLES | DUCT CABLE, MISC: 2" DUCT CABLE WITH THREE NO. 4 2400 VOLT CABLES | CONDUIT, 2", 725.05 | CONDUIT, JACKED OR DRILLED, 725.04, 3" | CONDUIT, MISC.: DUCT BANK | LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN | LUMINAIRE, POST TOP, SOLID STATE (LED), AS PER PLAN | TRENCH | TRENCH, AS PER PLAN | PULL BOX, 725.08, 18" | GROUND ROD | POWER SERVICE, AS PER PLAN | UNDERGROUND WARNING/MARKING TAPE | PULLBOX, MISC: 30" x 48" POLYMER PULL BOX |
|                              |       |         |                        | EACH                          | EACH                           | EACH                             | EACH                                | EACH                                 | FT                                                               | FT                                     | FT                                | FT                                                                | FT                                                                | FT                  | FT                                     | EACH                      | EACH                                                    | FT                                                  | FT     | EACH                | EACH                  | EACH       | FT                         | EACH                             |                                           |
| PB-D4                        | 379   | US-36   | 620+54 LT<br>52+02 RT  | 2                             | 3                              |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
|                              |       |         | 620+54 LT<br>620+48 LT |                               |                                |                                  |                                     |                                      |                                                                  | 27                                     |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         | 164                                                 |        |                     |                       |            |                            | 164                              |                                           |
| S1-D4                        | 379   | US-36   | 620+48 LT              |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-D5                        | 383   | SR-521  | 52+02 RT<br>52+02 RT   | 2                             |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-D6                        | 383   | SR-521  | 53+12 RT<br>53+12 RT   | 2                             |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-D5                        | 383   | SR-521  | 53+40 RT<br>53+40 RT   |                               | 3                              |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-D6                        | 383   | SR-521  | 54+43 RT<br>54+43 RT   |                               | 3                              |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-D7                        | 383   | SR-521  | 54+47 RT<br>54+47 RT   | 2                             |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-D8                        | 383   | SR-521  | 55+41 RT<br>55+41 RT   | 2                             |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-D9                        | 383   | SR-521  | 26+05 RT<br>26+05 RT   | 2                             |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-D10                       | 384   | SR-521  | 57+99 RT<br>57+99 RT   | 2                             |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-D11                       | 384   | SR-521  | 60+07 RT<br>60+07 RT   | 2                             |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-D12                       | 384   | SR-521  | 61+23 RT               | 2                             |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-C1                        | 379   | US-36   | 619+08 LT<br>619+08 LT | 2                             | 3                              |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
|                              |       |         | 619+03 LT<br>618+99 LT |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| SIG PB                       | 379   | US-36   | 619+03 LT<br>618+99 LT |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C8                        | 379   | US-36   | 618+99 LT              |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C9                        | 379   | SR-521  | 51+39 LT<br>51+39 LT   | 2                             |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C10                       | 383   | SR-521  | 52+42 LT<br>52+42 LT   | 2                             |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C11                       | 383   | SR-521  | 53+51 LT<br>53+51 LT   | 2                             |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C12                       | 383   | SR-521  | 54+65 LT<br>54+65 LT   | 2                             |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C13                       | 383   | SR-521  | 55+86 LT<br>55+86 LT   | 2                             |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C14                       | 384   | SR-521  | 57+17 LT<br>57+17 LT   | 2                             |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C15                       | 384   | SR-521  | 58+92 LT<br>58+92 LT   | 2                             |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-C2                        | 384   | SR-521  | 59+29 LT<br>59+29 LT   | 2                             | 3                              |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C16                       | 384   | SR-521  | 59+30 LT<br>59+30 LT   |                               |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| PB-C3                        | 384   | SR-521  | 60+21 LT<br>60+21 LT   | 2                             | 3                              |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C17                       | 384   | SR-521  | 60+23 LT               |                               |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| S1-C18                       | 384   | SR-521  | 61+46 LT               | 2                             |                                |                                  | 1                                   | 1                                    |                                                                  |                                        |                                   |                                                                   | 40                                                                |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| SIG                          | 379   | US-36   | 619+20 LT<br>620+31 LT |                               |                                |                                  |                                     |                                      |                                                                  |                                        |                                   |                                                                   |                                                                   |                     |                                        |                           |                                                         |                                                     |        |                     |                       |            |                            |                                  |                                           |
| TOTALS CARRIED TO SUBSUMMARY |       |         |                        | 40                            | 18                             | 0                                | 18                                  | 18                                   | 0                                                                | 639                                    | 720                               | 0                                                                 | 2050                                                              | 17                  | 202                                    | 112                       | 95                                                      | 18                                                  | 2067   | 112                 | 4                     | 18         | 0                          | 2067                             | 2                                         |

**LIGHTING QUANTITIES**

**DEL -36 -11.03**

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HORIZONTAL  
SCALE IN FEET

**LIGHTING PLAN - US-36**  
**STA 585+35.60 TO STA 588+00**

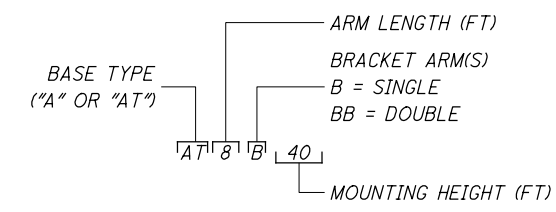
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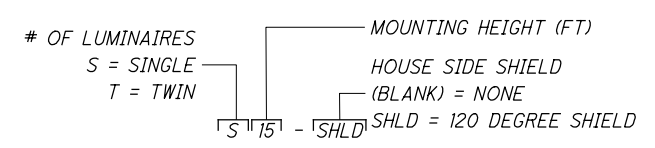
**LEGEND (ALL LIGHTING PLAN SHEETS)**

- EXIST. / PROP.
- LUMINAIRE, POST TOP, SOLID STATE (LED), AS PER PLAN  
-15" MOUNTING HEIGHT  
-SHLD = HOUSE SIDE SHIELD
  - LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN
  - COMBINATION SIGNAL/LIGHTING POLE  
LUMINAIRE, DOUBLE, DECORATIVE LED, AS PER PLAN
  - COMBINATION SIGNAL/LIGHTING POLE (8' BRACKET, 37' MOUNTING HT.)  
LUMINAIRE, CONVENTIONAL LED, AS PER PLAN
  - ▲ POWER SERVICE, AS PER PLAN
  - PULL BOX, 725.08, 18"
  - PULL BOX, MISC: 48" POLYMER PULL BOX
  - /// DUCT CABLE, MISC.: 2" DUCT CABLE  
WITH THREE (NO.8 OR NO. 4, SEE PLAN) 2400 VOLT CABLES
  - CONDUIT, JACKED OR DRILLED, 725.04, 3"
  - CONDUIT, MISC.: DUCT BANK
  - CONDUIT, 2", 725.05
  - ☼ DECORATIVE FLOODLIGHT (SEE LANDSCAPING PLANS)

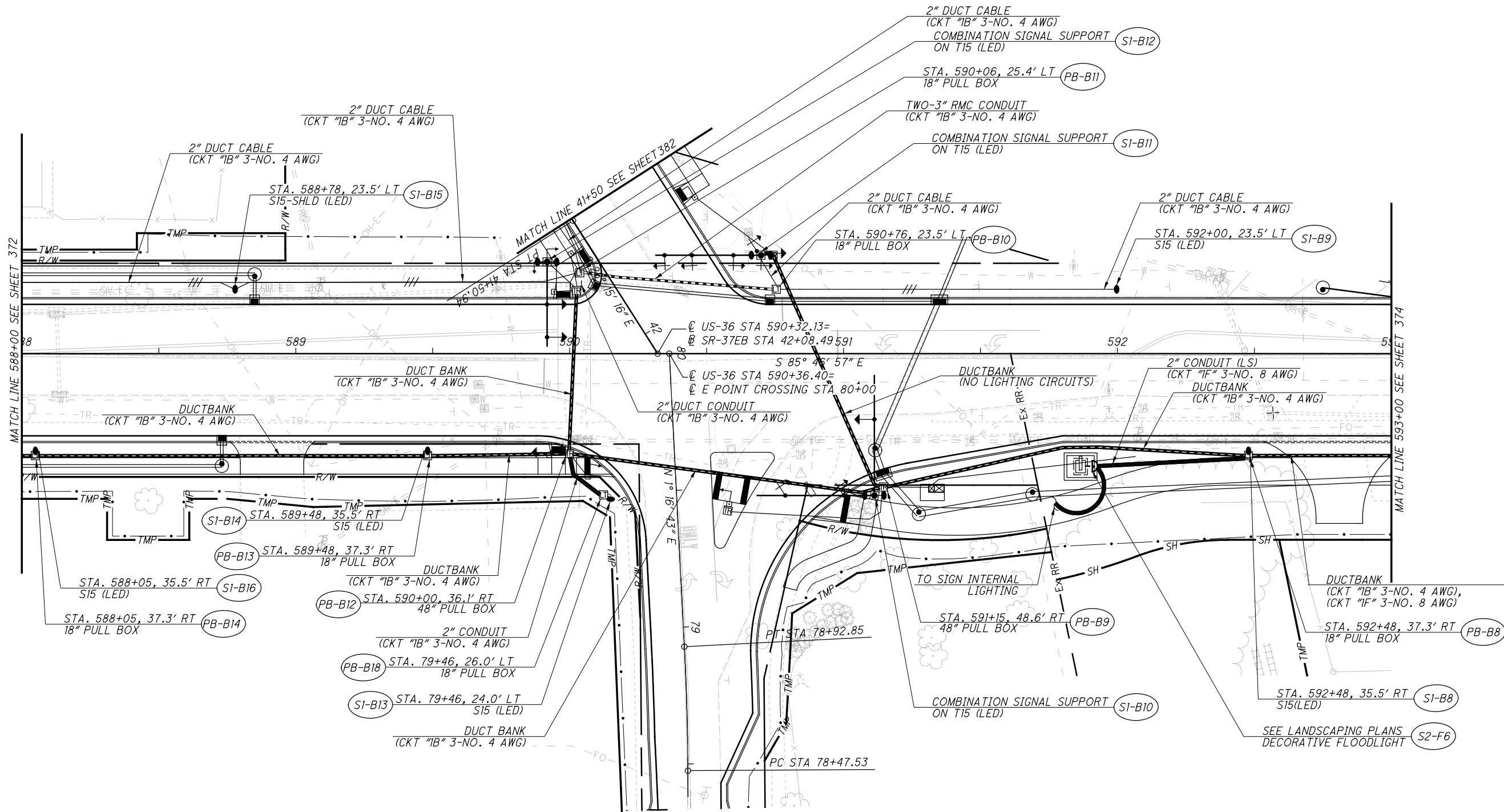
**LIGHT POLE INFORMATION**



**POST TOP LIGHT POLE INFORMATION**



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NOTES:

1. SEE SIGNAL PLANS FOR ADDITIONAL CABLES INSTALLED IN DUCT BANK AND QUANTITY OF LUMINAIRES INSTALLED ON COMBINATION SIGNAL SUPPORTS.
2. ALL UNDERGROUND CONDUITS ROUTED WITHIN RAILROAD RIGHT-OF-WAY SHALL BE AT 48" BELOW GRADE.

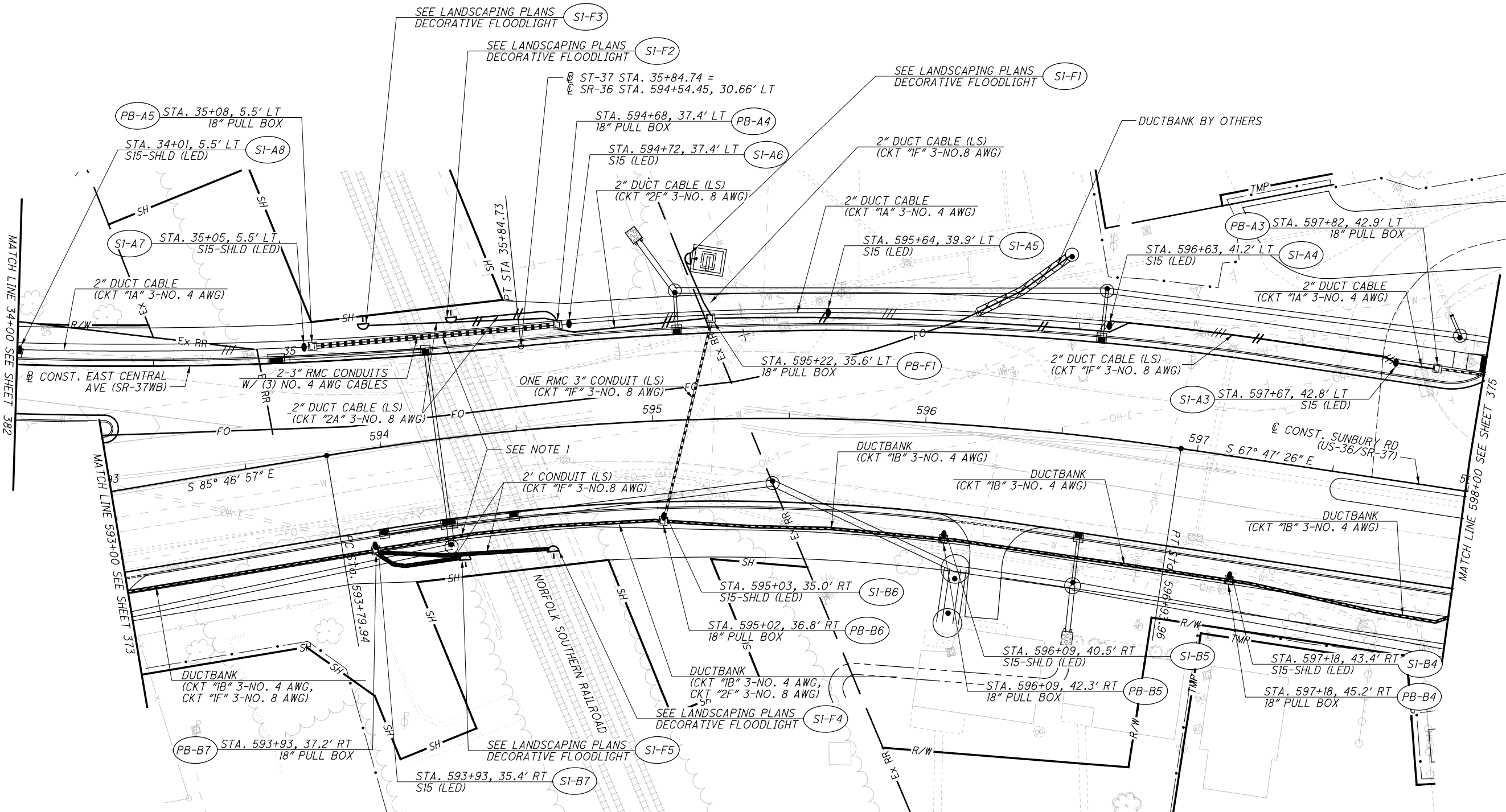
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 CHECKED PHF

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 HORIZONTAL SCALE IN FEET

LIGHTING PLAN - US-36  
 STA 588+00 TO STA 593+00

DEL-36-11.03

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NOTE:  
 1. ALL UNDERGROUND CONDUITS ROUTED WITHIN RAILROAD RIGHT-OF-WAY SHALL BE AT 48" BELOW GRADE

CALCULATED JA PHF  
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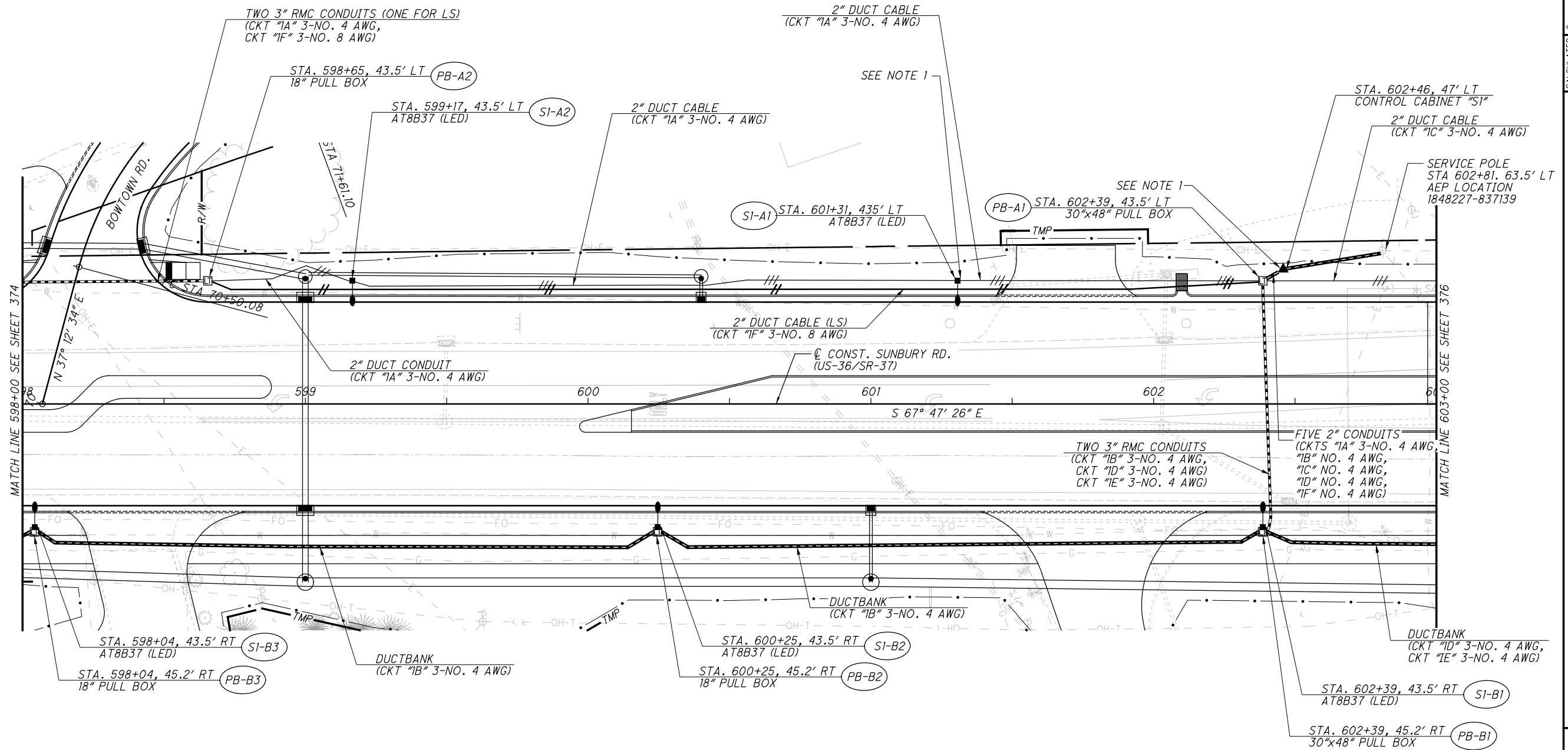
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 HORIZONTAL SCALE IN FEET

LIGHTING PLAN - US-36  
 STA 593+00 TO STA 598+00

DEL-36-11.03



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NOTE:

1. MOUNT PHOTOCELL EITHER ON CONTROL CABINET OR NEAREST LIGHT POLE FOR CONTROL CABINET "S1" (STREET LIGHTING).

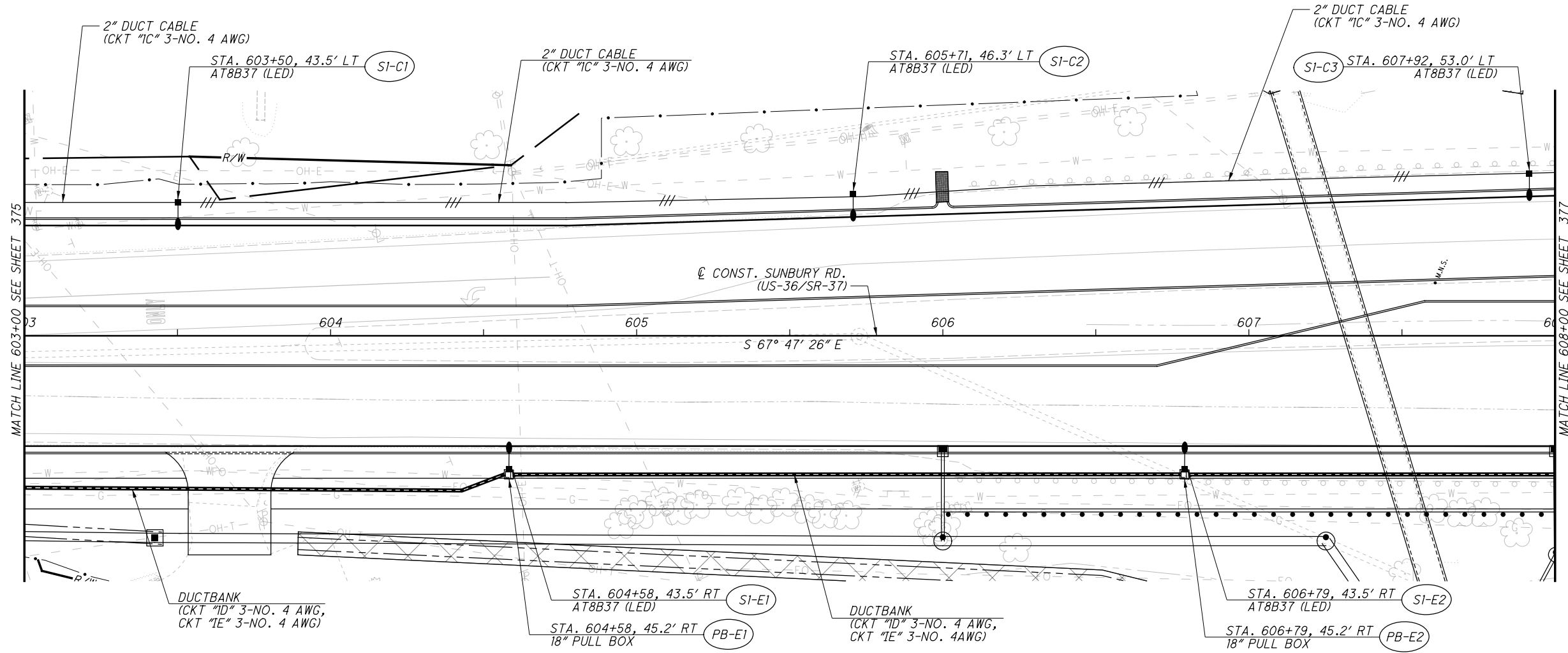
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HORIZONTAL SCALE IN FEET

LIGHTING PLAN - US-36  
STA 598+00 TO STA 603+00

DEL-36-11.03

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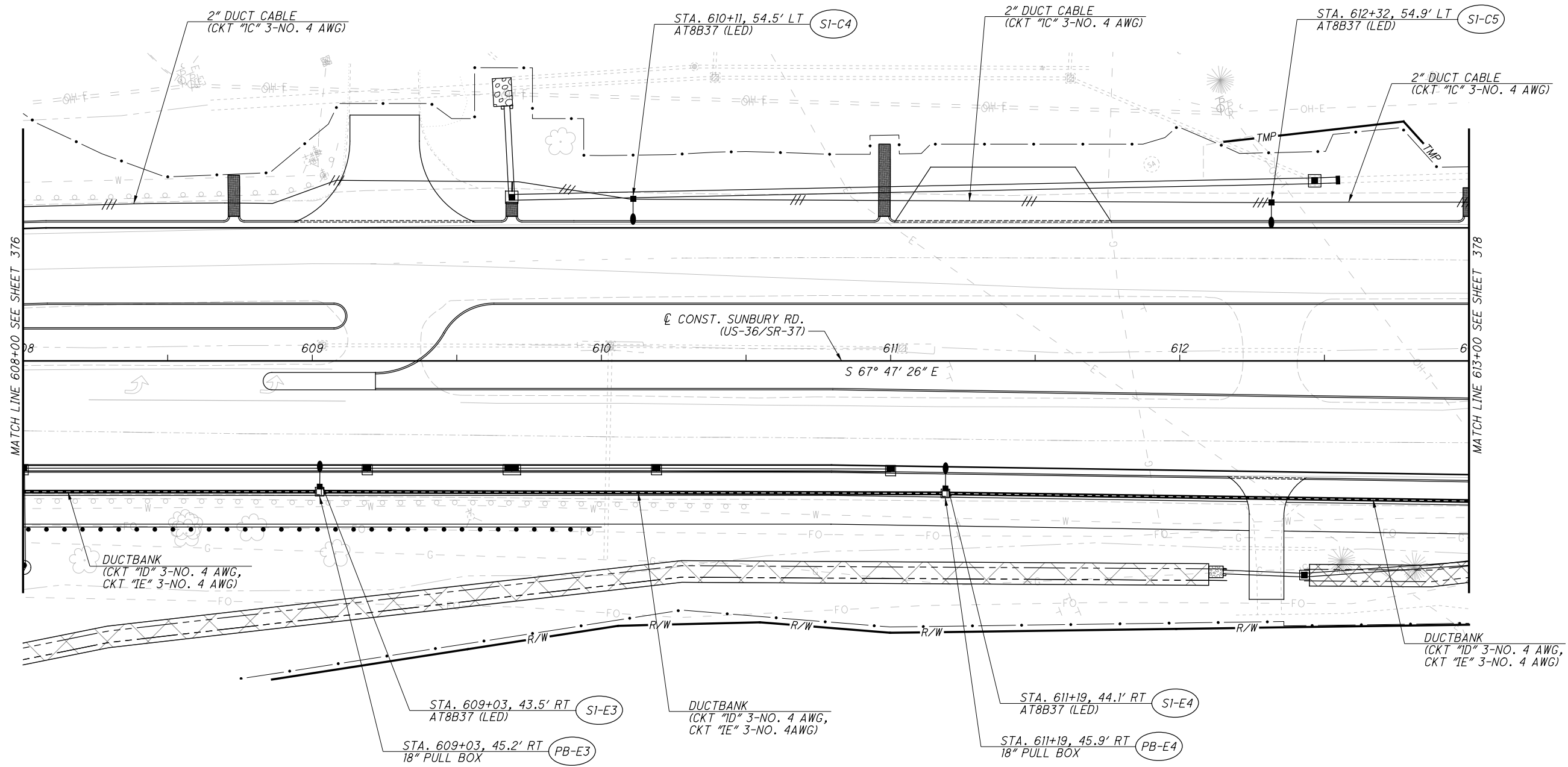
CALCULATED  
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HORIZONTAL  
SCALE IN FEET

**LIGHTING PLAN - US-36**  
**STA 603+00 TO STA 608+00**

**DEL-36-11.03**

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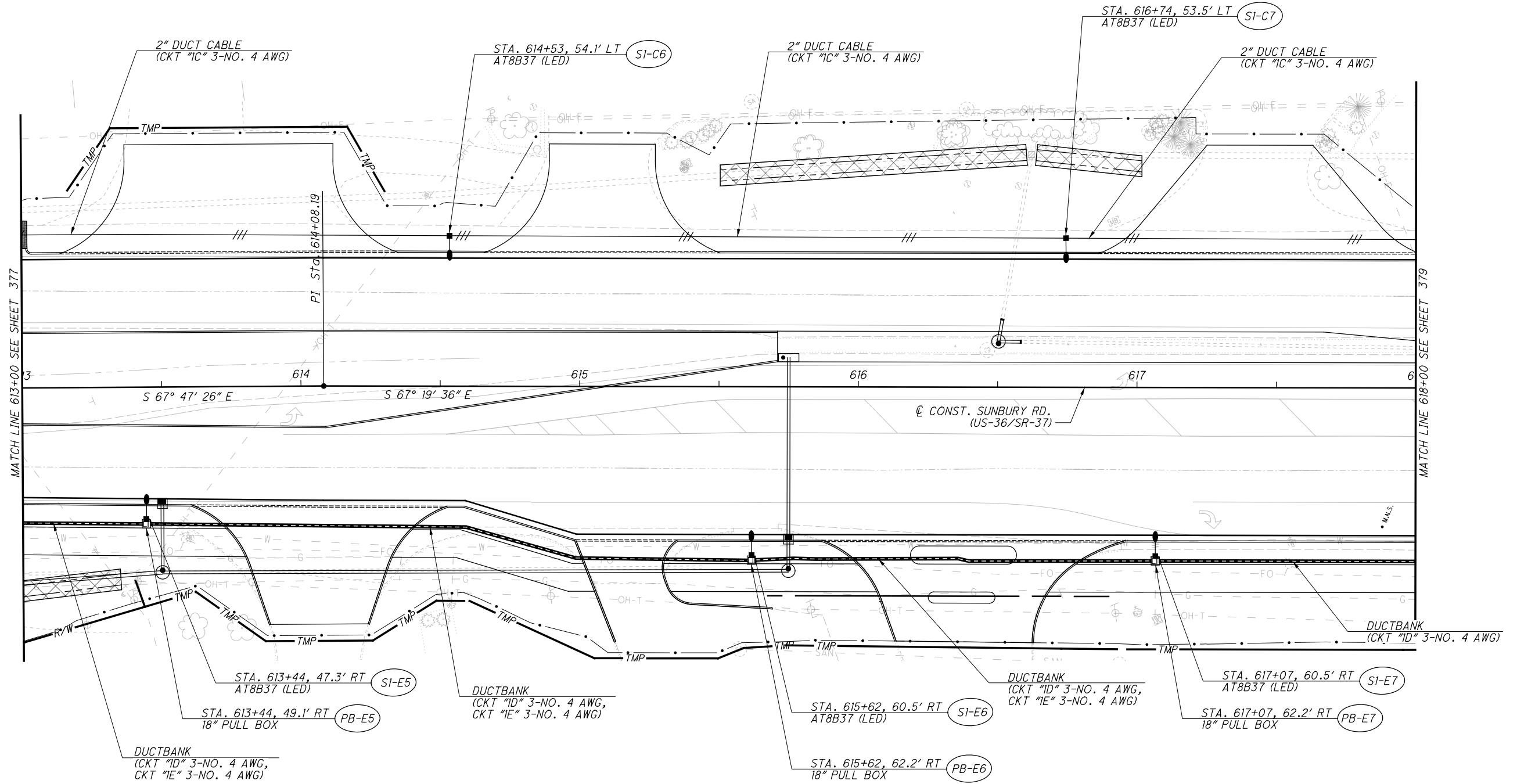
MATCH LINE 608+00 SEE SHEET 376

MATCH LINE 613+00 SEE SHEET 378

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HORIZONTAL SCALE IN FEET

**LIGHTING PLAN - US-36**  
**STA 608+00 TO STA 613+00**

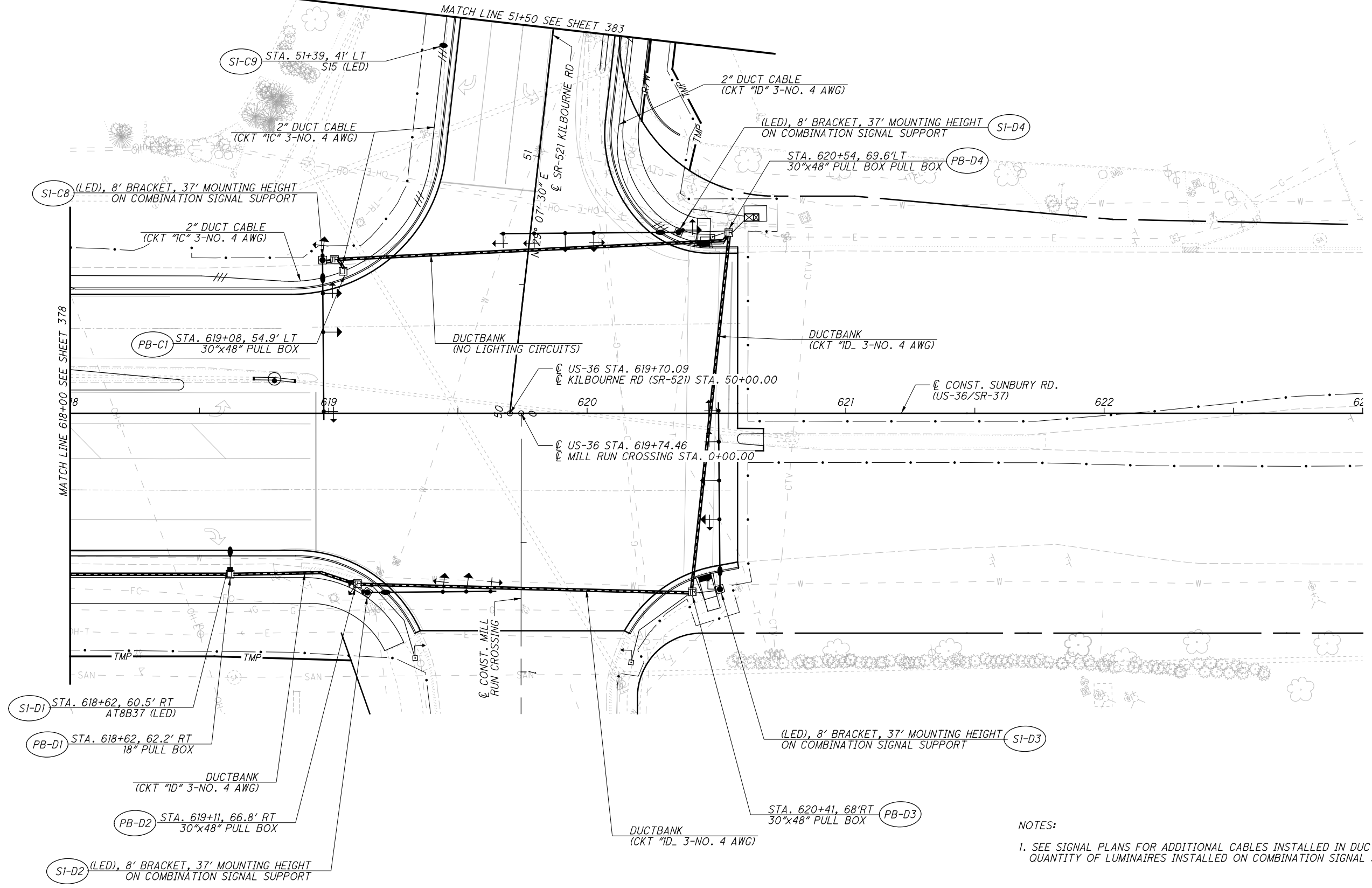


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HORIZONTAL SCALE IN FEET

LIGHTING PLAN - US-36  
STA 613+00 TO STA 618+00

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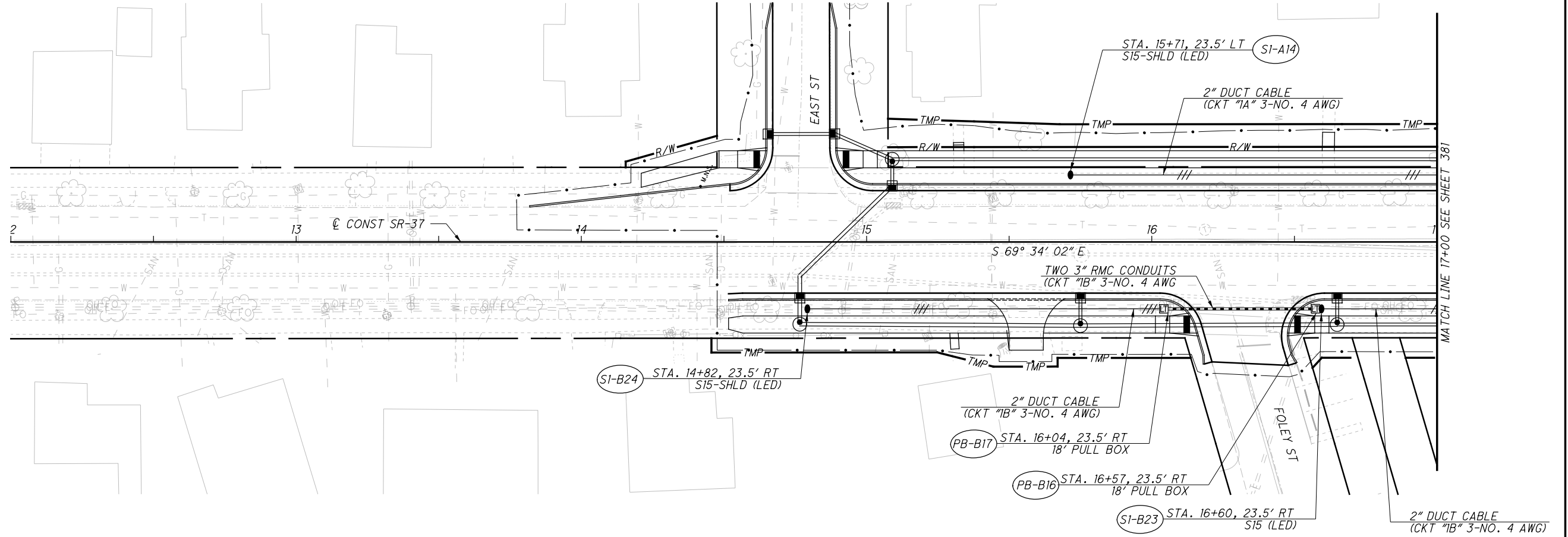
NOTES:

- 1. SEE SIGNAL PLANS FOR ADDITIONAL CABLES INSTALLED IN DUCT BANK AND QUANTITY OF LUMINAIRES INSTALLED ON COMBINATION SIGNAL SUPPORTS.

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**LIGHTING PLAN - US-36**  
**STA 618+00 TO STA 623+00**

**DEL-36-11.03**

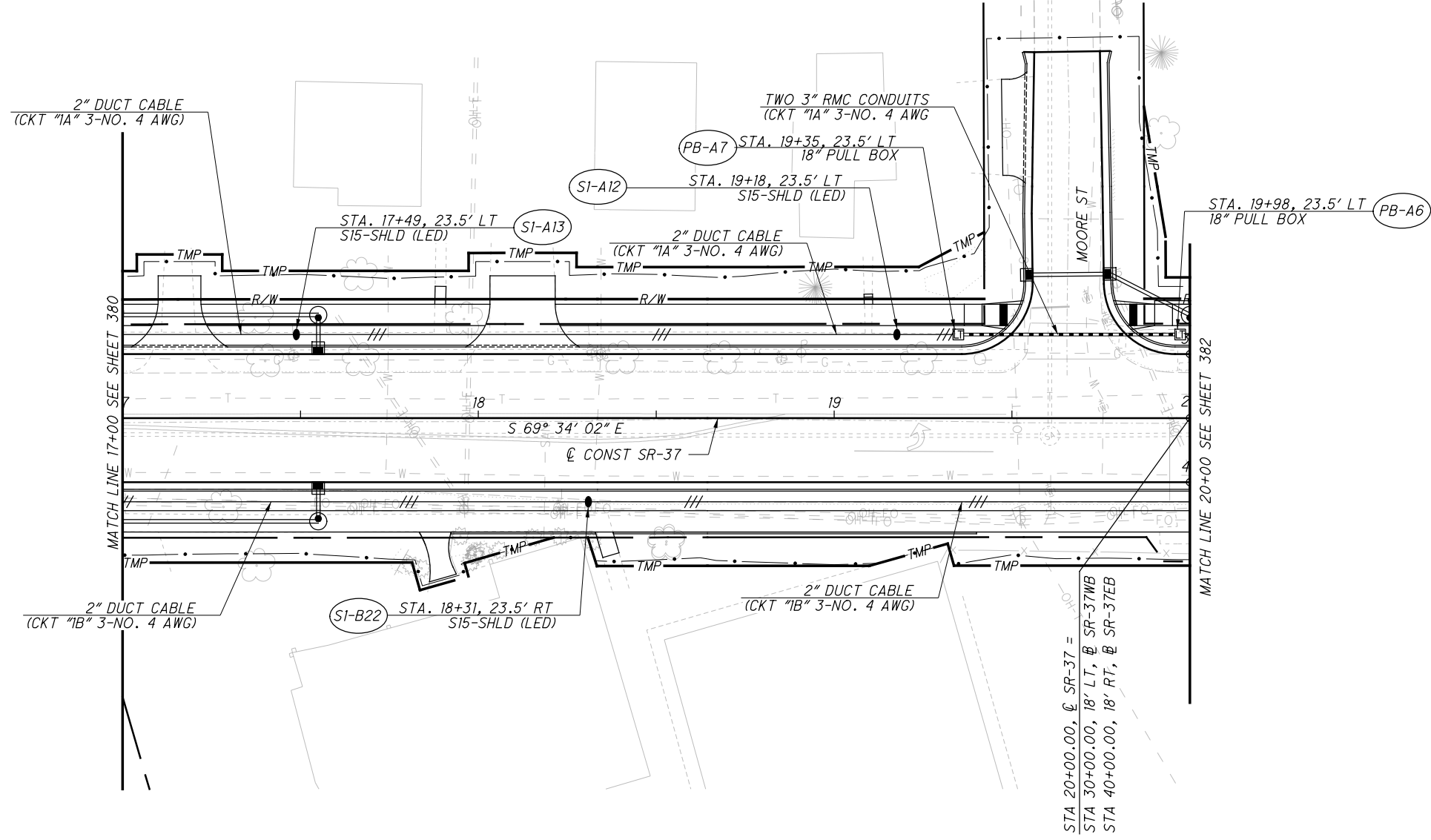


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HORIZONTAL  
SCALE IN FEET

**LIGHTING PLAN - SR-37**  
**STA 12+00 TO STA 17+00**

**DEL-36-11.03**

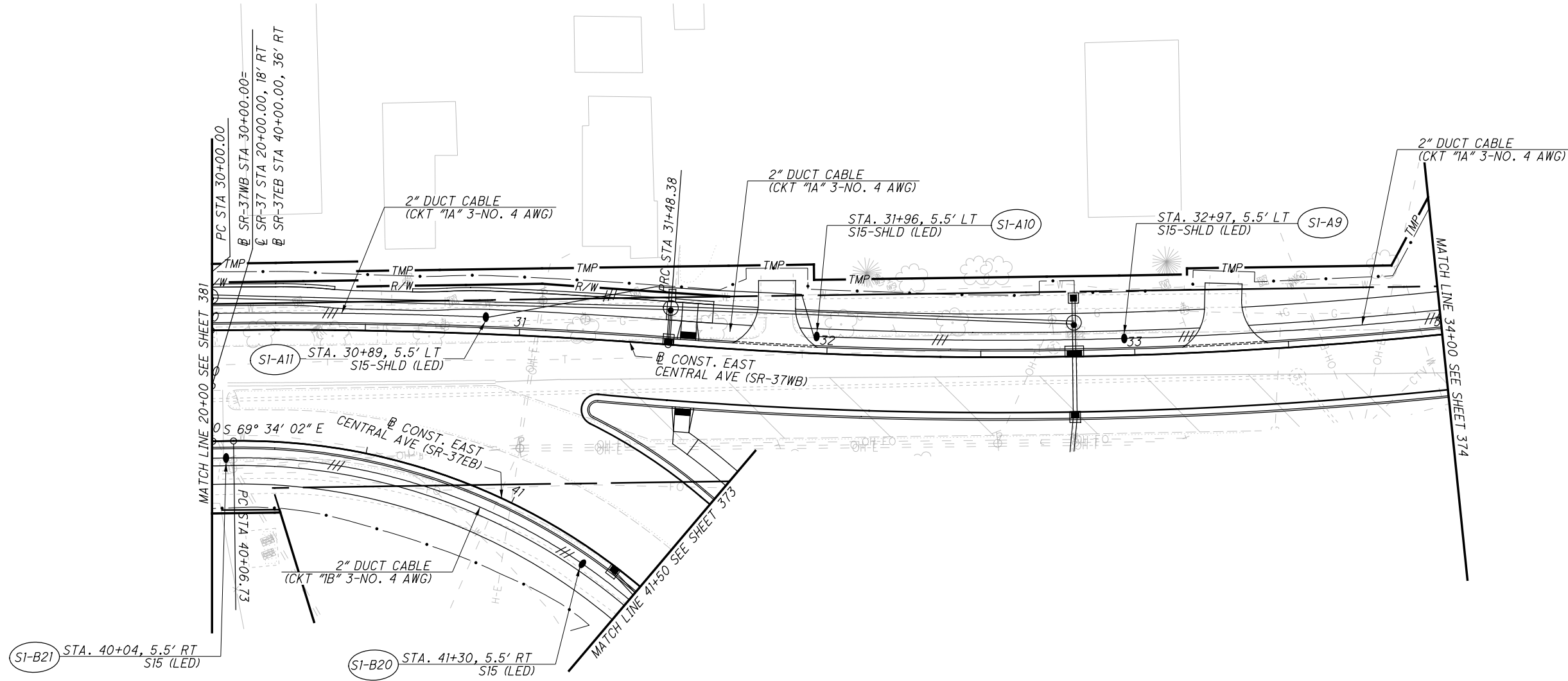


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**LIGHTING PLAN - SR-37**  
**STA 17+00 TO STA 20+00**

**DEL-36-11.03**



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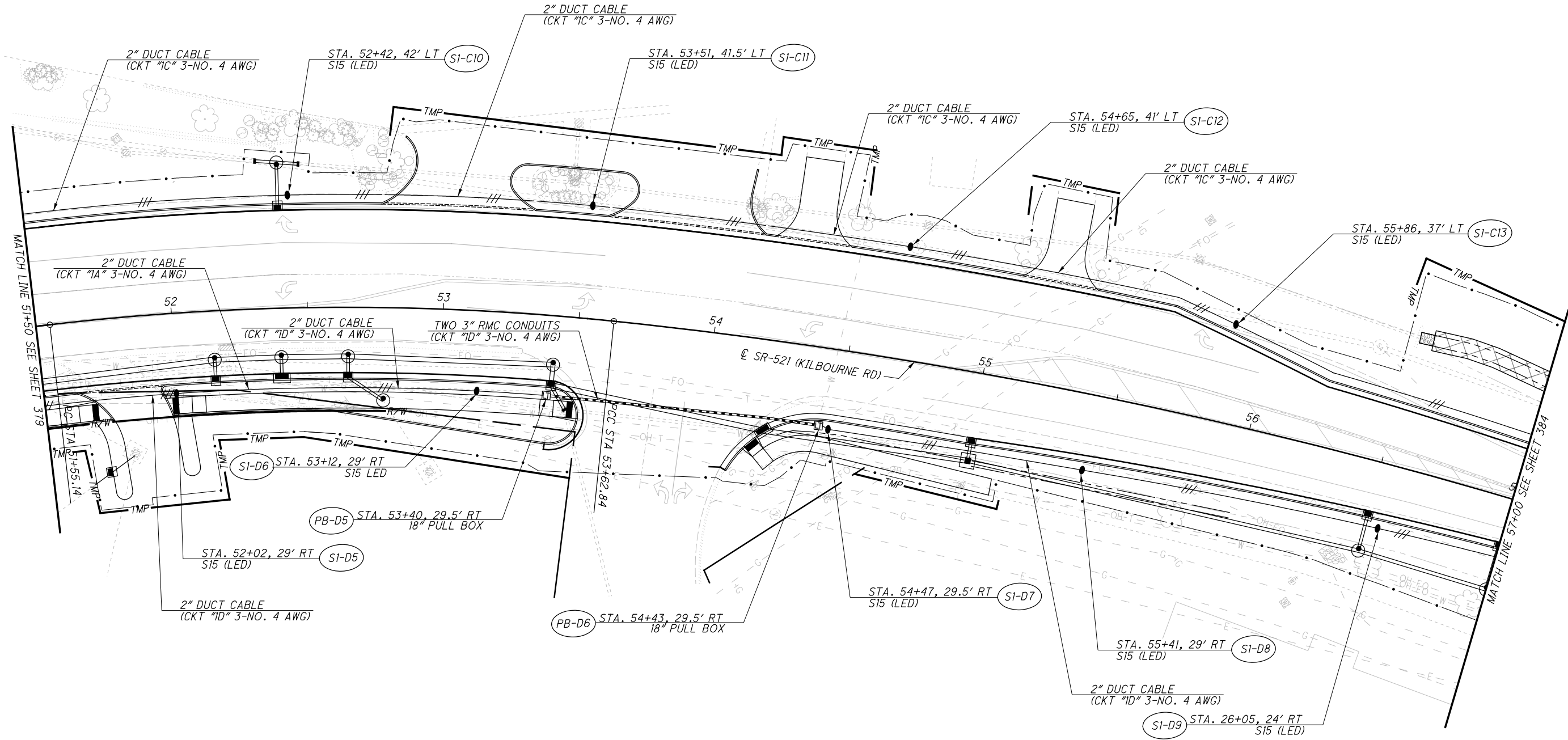
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**LIGHTING PLAN - SR-37**  
**STA 30+00 TO STA 34+00**

**DEL-36-11.03**



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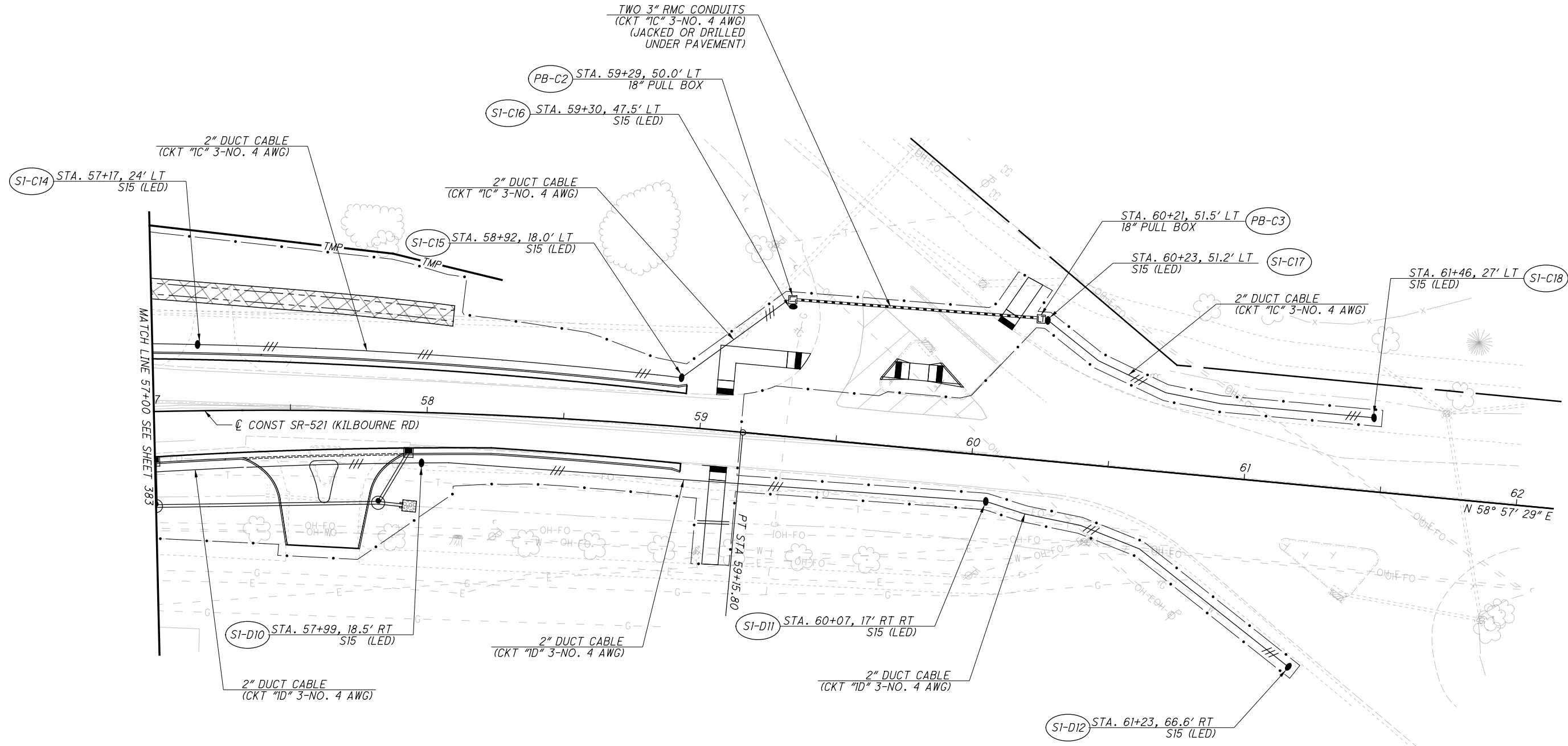


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**LIGHTING PLAN - SR-521**  
**STA 51+50 TO STA 55+00**

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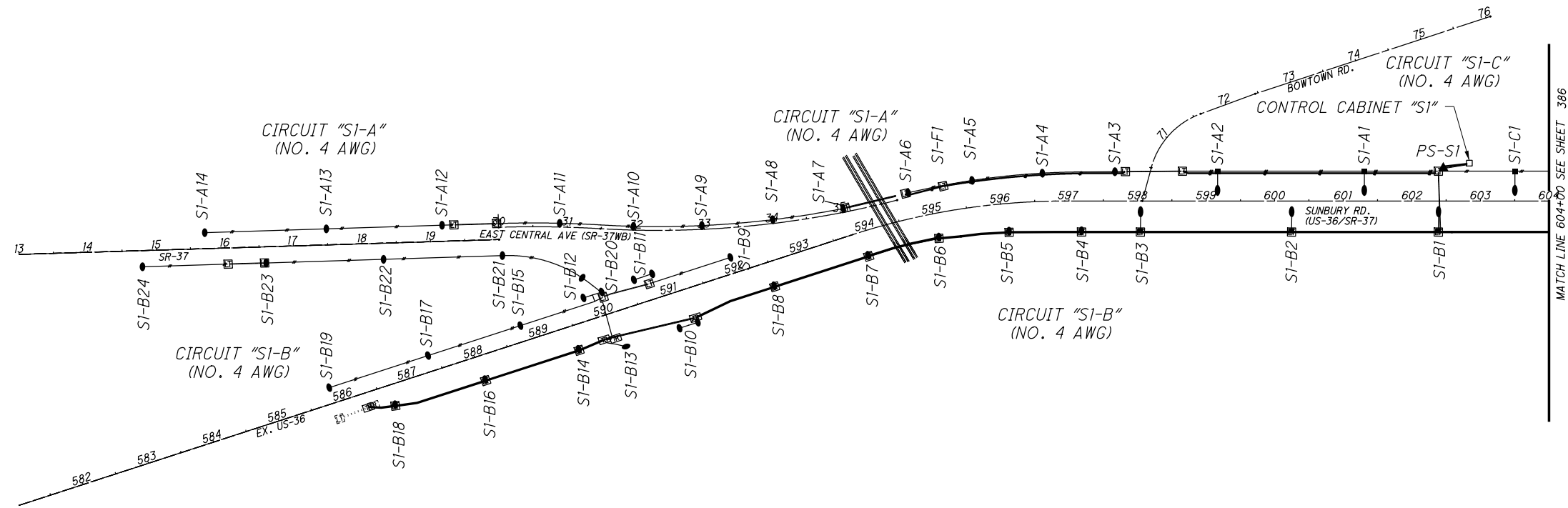


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HORIZONTAL  
SCALE IN FEET

**LIGHTING PLAN - SR-521**  
**STA 57+00 TO STA 62+00**

**DEL-36-11.03**



- LEGEND**
- 40' LIGHT POLE WITH LED
  - PULL BOX
  - ▲ POWER SERVICE
  - LED POST TOP LIGHT POLE
  - LED LUMINAIRE ON COMBINATION SIGNAL POLE
  - ⤵ DECORATIVE LED FLOOD LIGHT (SEE LANDSCAPING PLANS)

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DSP  
CHECKED  
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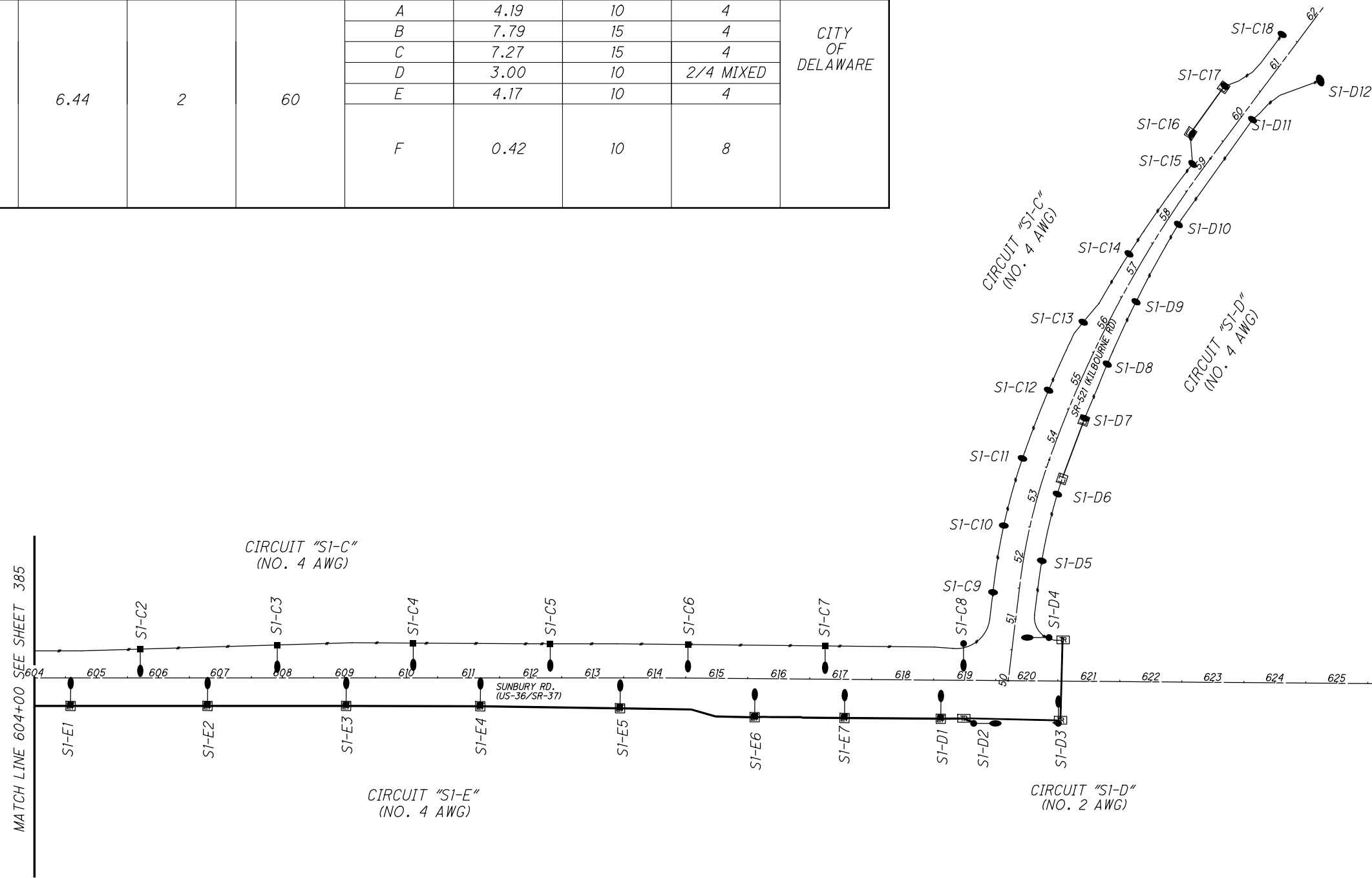
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**CIRCUIT SCHEMATIC PLAN**

**DEL-36-11.03**

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| POWER SERVICE DATA |                      |                      |                              |                         |             |                     |                          |                          |                    |
|--------------------|----------------------|----------------------|------------------------------|-------------------------|-------------|---------------------|--------------------------|--------------------------|--------------------|
| POWER SERVICE      | LINE VOLTAGE (VOLTS) | CONNECTED LOAD (KVA) | SERVICE ENTRANCE CABLE (AWG) | ENCLOSURE RATING (AMPS) | CIRCUIT NO. | CIRCUIT LOAD (AMPS) | CIRCUIT FUSE SIZE (AMPS) | CIRCUIT CABLE SIZE (AWG) | MAINTAINING AGENCY |
| PS-S1<br>(3W)      | 240                  | 6.44                 | 2                            | 60                      | A           | 4.19                | 10                       | 4                        | CITY OF DELAWARE   |
|                    |                      |                      |                              |                         | B           | 7.79                | 15                       | 4                        |                    |
|                    |                      |                      |                              |                         | C           | 7.27                | 15                       | 4                        |                    |
|                    |                      |                      |                              |                         | D           | 3.00                | 10                       | 2/4 MIXED                |                    |
|                    |                      |                      |                              |                         | E           | 4.17                | 10                       | 4                        |                    |
|                    |                      |                      |                              |                         | F           | 0.42                | 10                       | 8                        |                    |



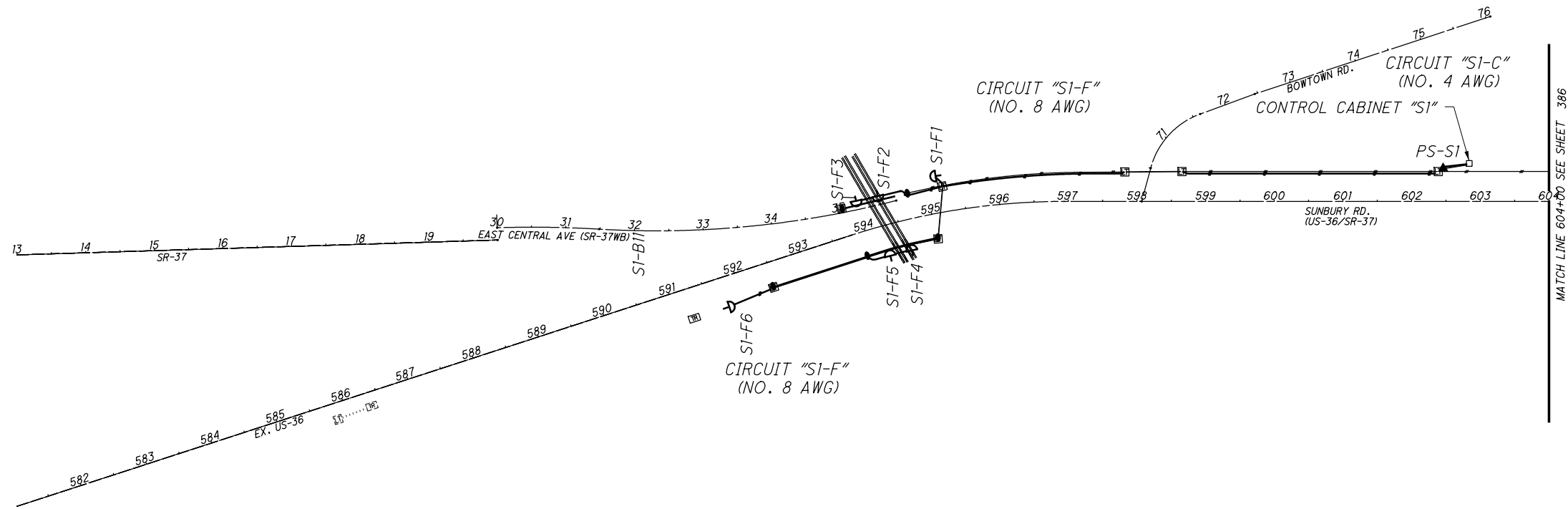
- LEGEND**
- 40' LIGHT POLE WITH LED
  - PULL BOX
  - ▲ POWER SERVICE
  - LED POST TOP LIGHT POLE
  - LED LUMINAIRE ON COMBINATION SIGNAL POLE

CALCULATED DSP CHECKED JA

HORIZONTAL SCALE IN FEET

**CIRCUIT SCHEMATIC PLAN**

**DEL-36-11.03**



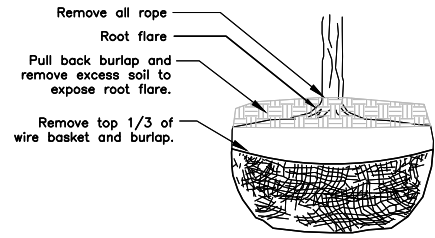
- LEGEND**
- 40' LIGHT POLE WITH LED
  - PULL BOX
  - ▲ POWER SERVICE
  - LED POST TOP LIGHT POLE
  - LED LUMINAIRE ON COMBINATION SIGNAL POLE
  - D— DECORATIVE LED FLOOD LIGHT (SEE LANDSCAPING PLANS)

CALCULATED  
DSP  
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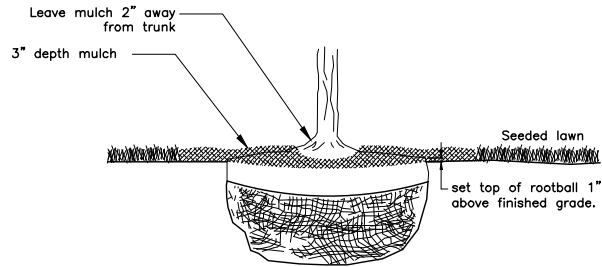
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**CIRCUIT SCHEMATIC PLAN**

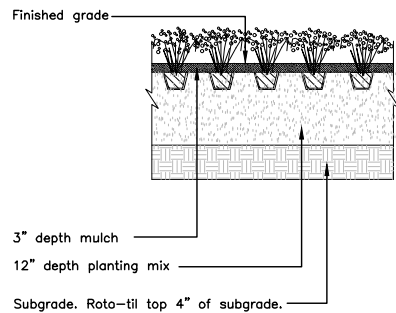
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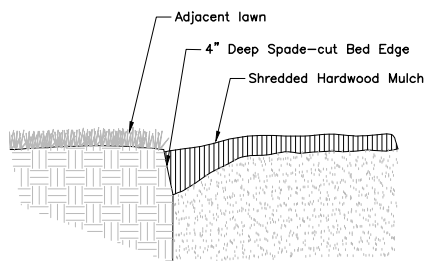
**Rootball Preparation**  
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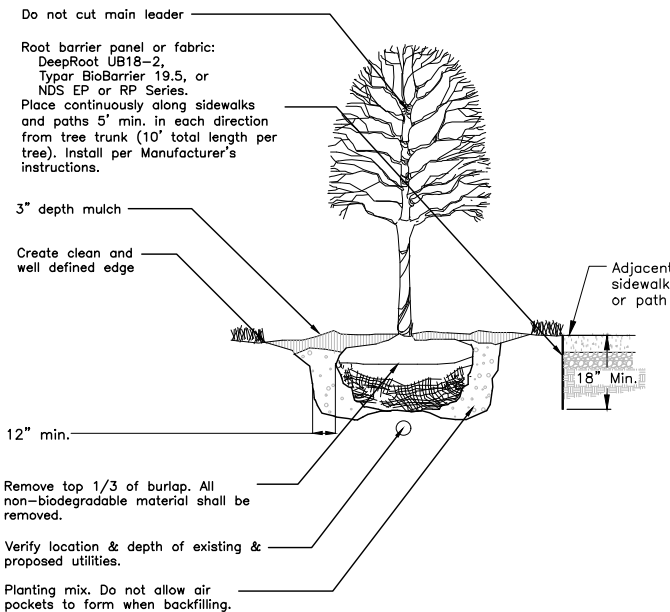
**Rootball Setting**  
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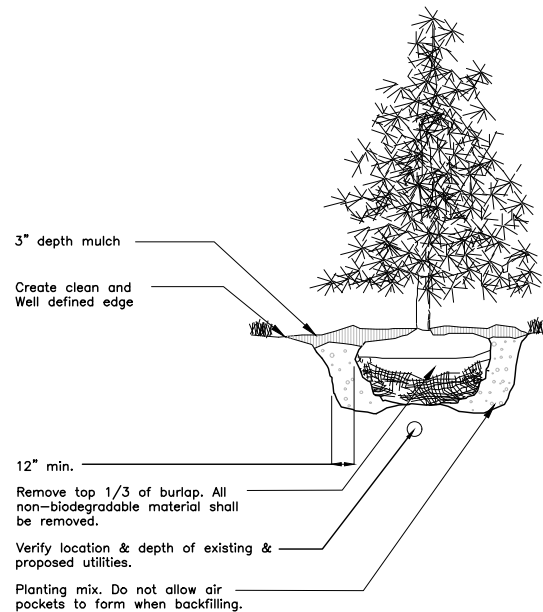
**Perennial & Groundcover Planting**  
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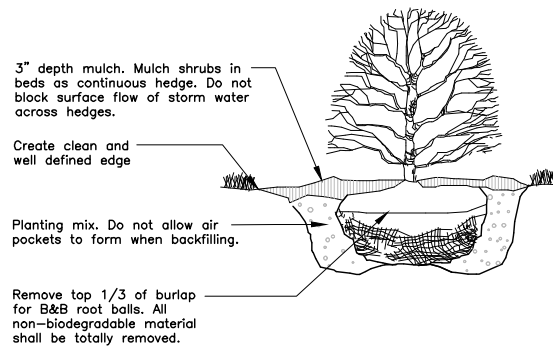
**Planting Bed Edge**  
No Scale



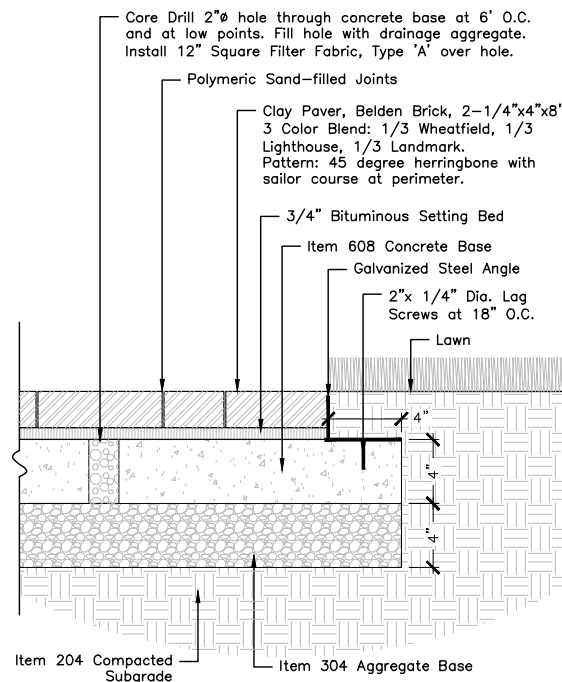
**Deciduous Tree Planting**  
No Scale



**Evergreen Tree Planting**  
No Scale



**Shrub Planting**  
No Scale



**NOTES:**

- Materials and installation shall be per the City of Columbus Supplemental Specification SS-1524 Roadway Pavers. Follow all application standards, submittal requirements, materials and construction requirements.
- Payment for the Unit Pavers will be based on the contract price per square foot (SF) of installed Unit Paver. The cost of all labor, materials, and equipment used to install the Unit Paver including, excavation, compaction, unit pavers, polymeric sand, steel angle, concrete base, cutting, setting bed, and any miscellaneous items or work required to provide a complete Unit Paver installation shall be included in payment Item Special - Unit Pavers. No separate itemized payment shall be made.

**Unit Paver Detail**  
No Scale

**LANDSCAPE GENERAL NOTES**

- All planting operations and materials shall be per Item 661 of the Ohio Department of Transportation Construction and Material Specifications (ODOT CMS), current edition, unless otherwise modified. In case of any conflict between the ODOT CMS and these plans, the greater requirement shall take precedence.
- Prior to installation, the landscape contractor shall inspect the general site conditions and verify the subgrade, elevations, utility locations and topsoil provided by general contractor. The landscape contractor shall notify the general contractor of any unsatisfactory conditions and work shall not proceed until such conditions have been corrected and are acceptable to the landscape contractor.
- Confirm location of all utilities and subsurface drain lines prior to plant installation.
- Mulch planting beds and tree rings with triple shredded hardwood mulch of uniform black color unless otherwise indicated. Mulch shall be free of twigs, leaves, disease, pest or other material unsightly or injurious to plants. Average applied thickness shall be 3" depth.
- Contractor shall field stake each tree for approval by the City prior to planting. Clearly label each stake with a unique letter code indicating the scientific or common name of the tree.
- Install all plants in accordance with referenced specifications, Item 661 and the planting details.
- Tree shall be placed a minimum of 4' from face of curbs and 2' from walks and paths.
- Planting beds and tree mulch rings shall be covered with pre-emergent herbicide applied at product specified rate unless otherwise noted.
- Street trees shall have a clear canopy height of 6' min.
- All planting beds to be filled and backfilled with prepared planting mix to a minimum depth of 12 inches, unless indicated otherwise on the plan.
- Unless otherwise indicated, Planting Mix shall be blended, manufactured soil consisting of three (3) parts topsoil, one (1) part compost, and one (1) part sand. Topsoil shall be per Item 653. Compost shall be yard waste compost from an EPA rated Class IV compost facility or Com-til compost from City of Columbus Department of Public Utilities. Sand shall be per Item 703.02. Proprietary manufactured Planting Mix such as Kurtz Bros. Professional Blend or Jones SuperSoil may be used. Submit product data for review by Engineer. Place Planting Mix in settled 6 inch lifts.
- Mix Mycorrhizal Fungi into Planting Mix during placement of Planting Mix. Application rate shall be according to manufacturer's written recommendations. Mycorrhizal Fungi shall be a dry, granular inoculant containing at least 5300 spores per lb (0.45 kg) of vesicular-arbuscular mycorrhizal fungi and 95 million spores per lb (0.45 kg) of ectomycorrhizal fungi, 33 percent hydrogel, and a maximum of 5.5 percent inert material.
- In planting beds, roto-til subgrade below Planting Mix to a depth of 4 inches prior to placement of Planting Mix.
- Planting beds, including mulch, shall be flush with adjacent grade. Finished planting beds shall be graded to provide positive drainage.
- Contractor shall determine plant list quantities from the plan. Graphic representation on plan supersedes in case of discrepancy with quantities on general summary, sub-summaries or schedules.
- Water all plants per Item 662. Include 3 applications per week during the period of establishment as defined in Item 661.14. The use of watering bags (i.e. Gator Bags, Tree Diaper) is acceptable. If using watering bags, the bags shall be removed at the end of the establishment period. All labor and materials required for watering shall be included in the unit price bid for each plant. No separate payments will be made.
- All layout, excavation, bed preparation, root ball preparation, planting mix, mycorrhizal fungi, hydrogel, hardwood mulch, stone mulch, tree stabilization, root barrier, water, maintenance, warranty replacement and any other appurtenances or miscellaneous work required for a complete planting installation shall be included in the unit price bid for each plant. No separate payments will be made.

**SUB-SUMMARY**

| ITEM | UNIT | DESCRIPTION                                                         | QTY.  | KEY | COMMON NAME                     | CONDITION |
|------|------|---------------------------------------------------------------------|-------|-----|---------------------------------|-----------|
| 661  | Each | DECIDUOUS TREE, (3" Cal.), Acer rubrum 'October Glory'              | 5     | AR  | October Glory Red Maple         | B&B       |
| 661  | Each | DECIDUOUS TREE, (2" Cal.), Eucommia ulmoides                        | 4     | EU  | Hardy Rubber Tree               | B&B       |
| 661  | Each | DECIDUOUS TREE, (2" Cal.), Fagus grandifolia                        | 3     | FG  | American Beech                  | B&B       |
| 661  | Each | DECIDUOUS TREE, (2" Cal.), Ginkgo biloba 'Autumn Gold'              | 43    | GB  | Autumn Gold Ginkgo              | B&B       |
| 661  | Each | DECIDUOUS TREE, (2" Cal.), Platanus occidentalis                    | 2     | PO  | American Sycamore               | B&B       |
| 661  | Each | DECIDUOUS TREE, (2" Cal.), Quercus rubra                            | 13    | QR  | Red Oak                         | B&B       |
| 661  | Each | DECIDUOUS TREE, (2" Cal.), Ulmus americana 'Princeton'              | 35    | UA  | Princeton American Elm          | B&B       |
| 661  | Each | DECIDUOUS TREE, (1.5" Cal.), Amelanchier laevis 'Lustre'            | 15    | AL  | Lustre Allegheny Serviceberry   | B&B       |
| 661  | Each | DECIDUOUS TREE, (1.5" Cal.), Cercis canadensis 'Appalachian Red'    | 21    | CC  | Appalachian Red Redbud          | B&B       |
| 661  | Each | DECIDUOUS TREE, (1.5" Cal.), Cornus florida 'Cherokee Brave'        | 20    | CF  | Cherokee Brave Dogwood          | B&B       |
| 661  | Each | EVERGREEN TREE, (8' Ht.), Picea abies                               | 6     | PA  | Norway Spruce                   | B&B       |
| 661  | Each | DECIDUOUS SHRUB, (2' Ht.), Cornus sericea 'Kelsey'                  | 39    | CK  | Kelsey's Dwarf Red Twig Dogwood | Cont.     |
| 661  | Each | DECIDUOUS SHRUB, (12" Ht.), Hydrangea macrophylla 'Endless Summer'  | 33    | HB  | Endless Summer Hydrangea        | Cont.     |
| 661  | Each | EVERGREEN SHRUB, (12" Ht.), Juniperus chinensis sargentii 'Viridis' | 85    | JV  | Green Sargent Juniper           | Cont.     |
| 661  | Each | EVERGREEN SHRUB, (12" Ht.), Juniperus conferta 'Blue Pacific'       | 250   | JB  | Blue Pacific Shore Juniper      | Cont.     |
| 661  | Each | EVERGREEN SHRUB, (12" Ht.), Juniperus sabina 'Buffalo'              | 48    | JS  | Buffalo Juniper                 | Cont.     |
| 661  | Each | PERENNIALS, (#2), Calamagrostis x acutiflora 'Cheju-Do'             | 106   | CA  | Dwarf Feather Reed Grass        | Cont.     |
| 661  | Each | PERENNIALS, (#1), Nepeta x faassenii 'Walkers Low'                  | 29    | NF  | Walkers Low Catmint             | Cont.     |
| 661  | Each | PERENNIALS, (#1), Sedum spurium 'Red Carpet'                        | 600   | SR  | Red Carpet Sedum                | Cont.     |
| SPEC | FT   | Gravel Mow Strip                                                    | 770   |     |                                 |           |
| SPEC | SF   | Segmental Retaining Wall                                            | 352   |     |                                 |           |
| SPEC | SF   | Segmental Landscape Wall                                            | 2,421 |     |                                 |           |
| SPEC | SF   | Stone Mulch at Railroad Abutment                                    | 2,730 |     |                                 |           |
| SPEC | SF   | Railroad Abutment Stone Wall                                        | 1,350 |     |                                 |           |
| SPEC | Each | Gateway                                                             | 2     |     |                                 |           |
| SPEC | SF   | Unit Pavers                                                         | 782   |     |                                 |           |

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LANDSCAPE NOTES, DETAILS & SUBSUMMARY

DEL-36-11.03



PLANT SCHEDULE STA 585+00 TO STA 589+00

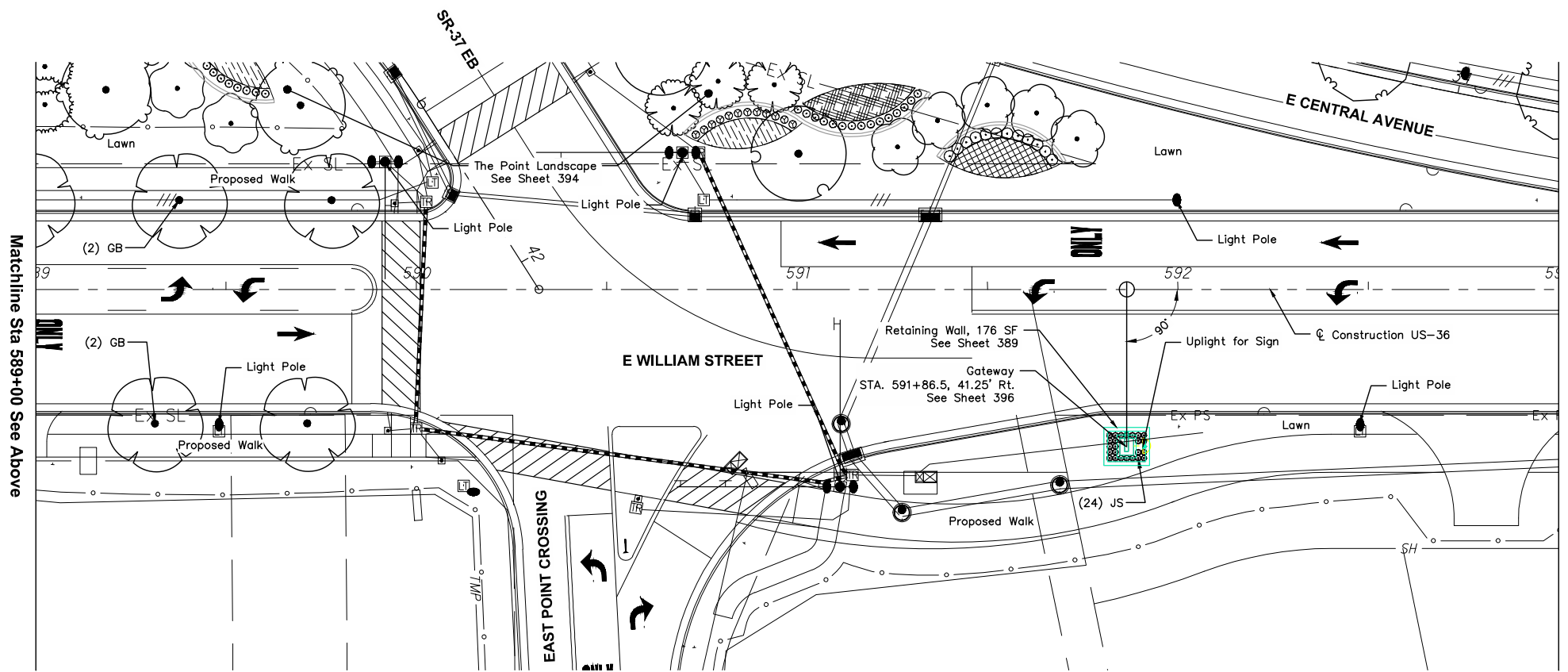
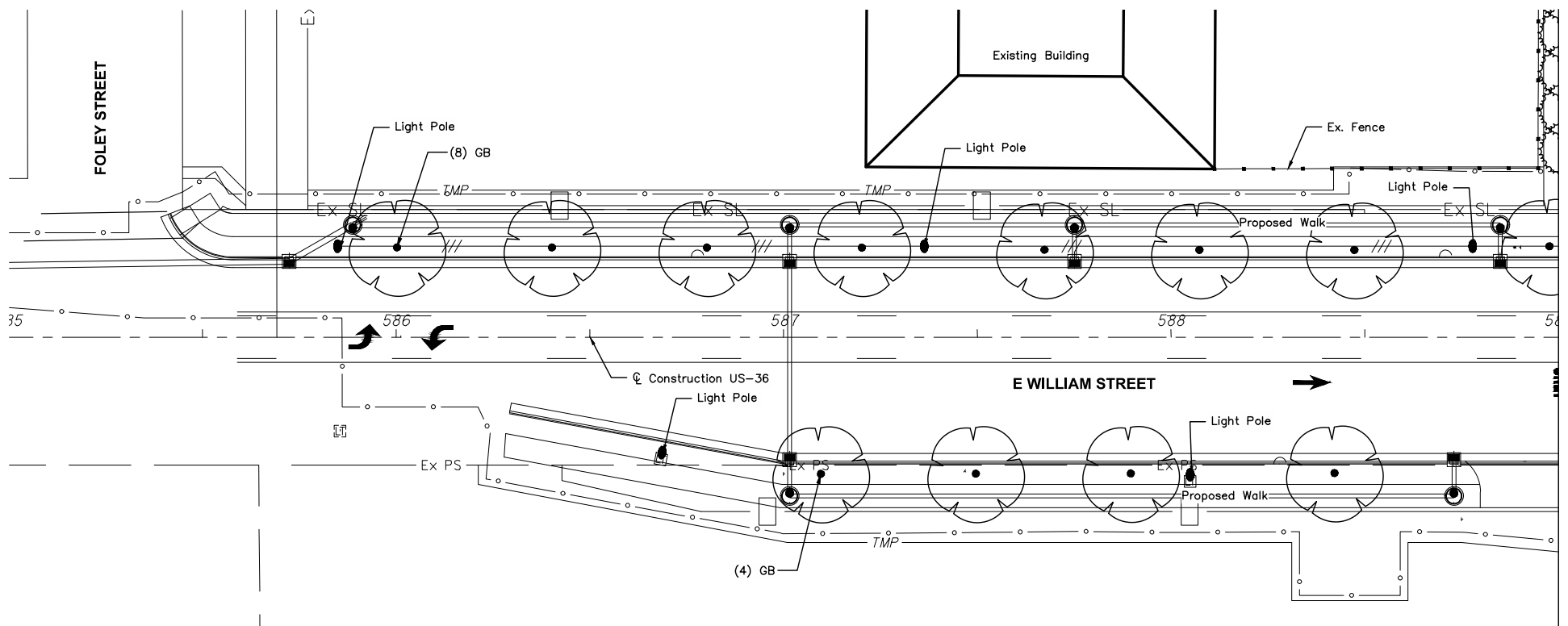
| STREET TREES | QTY | BOTANICAL / COMMON NAME                           | SIZE    | CONDITION |
|--------------|-----|---------------------------------------------------|---------|-----------|
| GB           | 12  | Ginkgo biloba 'Autumn Gold'<br>Autumn Gold Ginkgo | 2" Cal. | B&B       |

PLANT SCHEDULE STA 589+00 TO STA 593+00

| STREET TREES | QTY | BOTANICAL / COMMON NAME                           | SIZE    | CONDITION |
|--------------|-----|---------------------------------------------------|---------|-----------|
| GB           | 4   | Ginkgo biloba 'Autumn Gold'<br>Autumn Gold Ginkgo | 2" Cal. | B&B       |

| GROUND COVERS | QTY | BOTANICAL / COMMON NAME                       | SIZE    | CONDITION |
|---------------|-----|-----------------------------------------------|---------|-----------|
| JS            | 24  | Juniperus sabina 'Buffalo'<br>Buffalo Juniper | 12" Ht. | Cont.     |



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Matchline Sta 589+00 See Below

Matchline Sta 593+00 See Sheet 391/644

LANDSCAPE PLAN  
STA 585+00 TO STA 593+00

DEL-36-11.03

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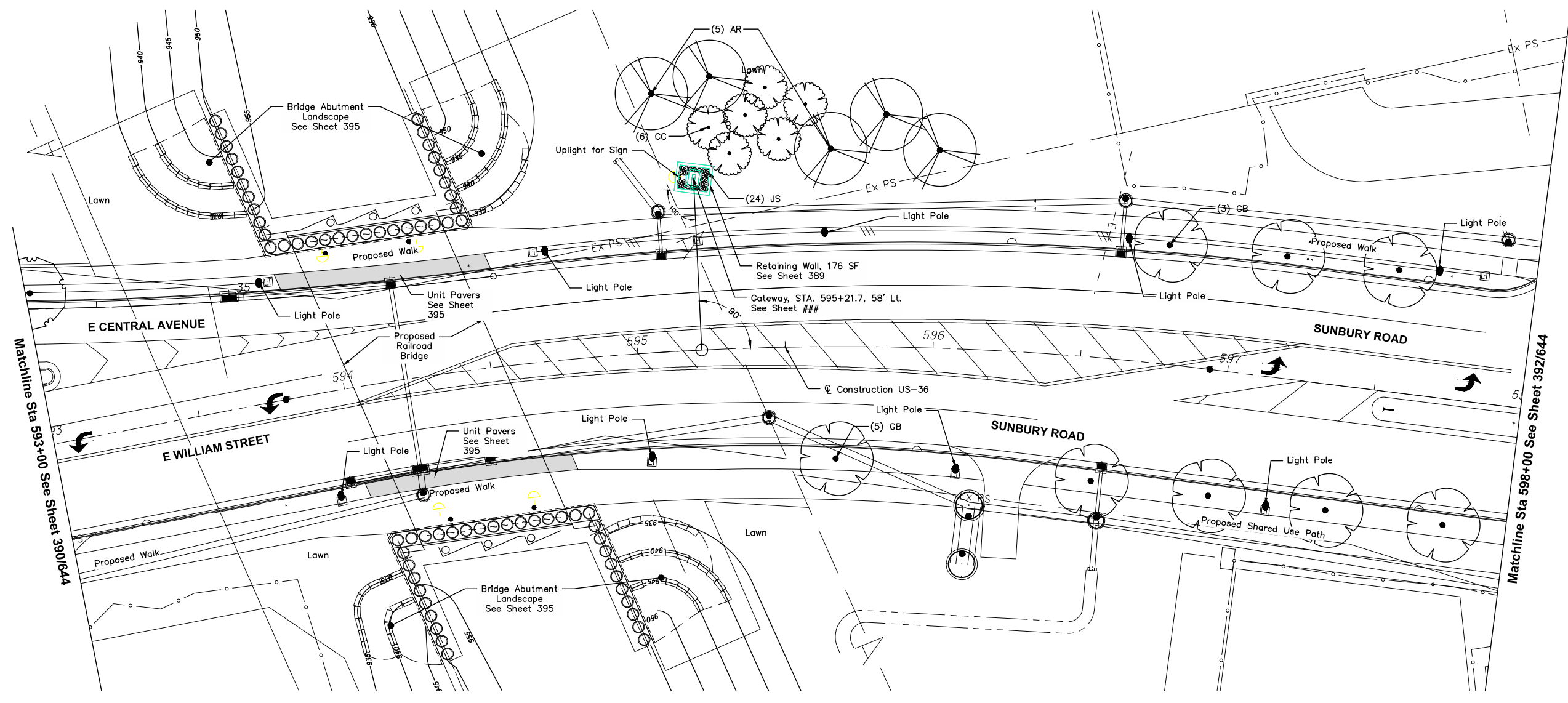


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LANDSCAPE PLAN  
STA 593+00 TO STA 598+00

DEL-36-11.03

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644



PLANT SCHEDULE STA 593+00 TO STA 598+00

| TREES            | QTY | BOTANICAL / COMMON NAME                                       | SIZE      | CONDITION |
|------------------|-----|---------------------------------------------------------------|-----------|-----------|
| AR               | 5   | Acer rubrum 'October Glory'<br>October Glory Red Maple        | 3" Cal.   | B&B       |
| ORNAMENTAL TREES | QTY | BOTANICAL / COMMON NAME                                       | SIZE      | CONDITION |
| CC               | 6   | Cercis canadensis 'Appalachian Red'<br>Appalachian Red Redbud | 1.5" Cal. | B&B       |
| STREET TREES     | QTY | BOTANICAL / COMMON NAME                                       | SIZE      | CONDITION |
| GB               | 8   | Ginkgo biloba 'Autumn Gold'<br>Autumn Gold Ginkgo             | 2" Cal.   | B&B       |
| GROUND COVERS    | QTY | BOTANICAL / COMMON NAME                                       | SIZE      | CONDITION |
| JS               | 24  | Juniperus sabina 'Buffalo'<br>Buffalo Juniper                 | 12" Ht.   | Cont.     |

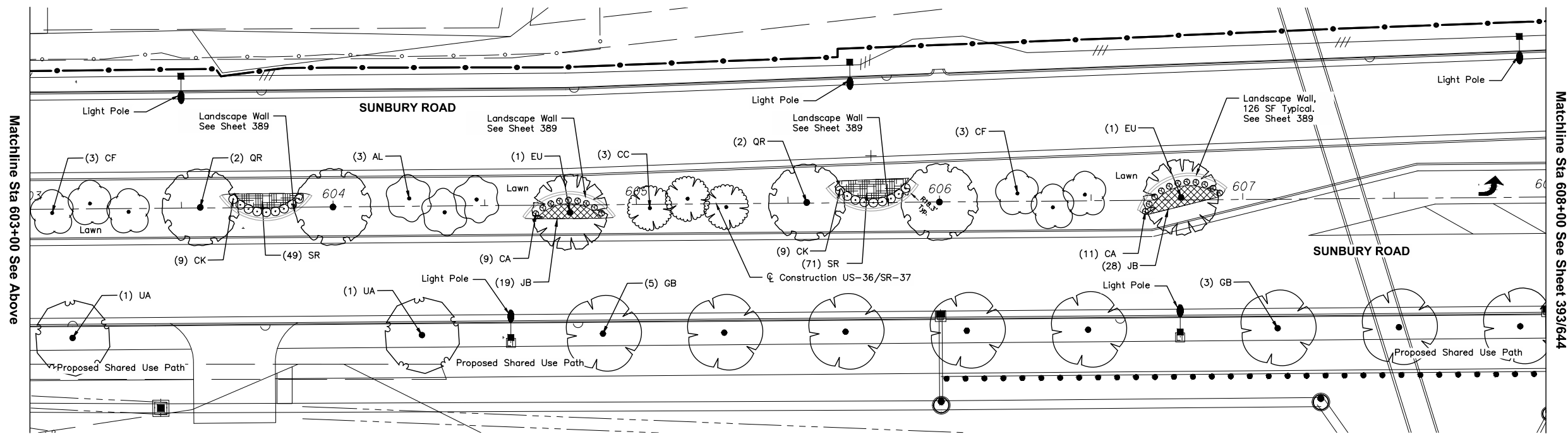
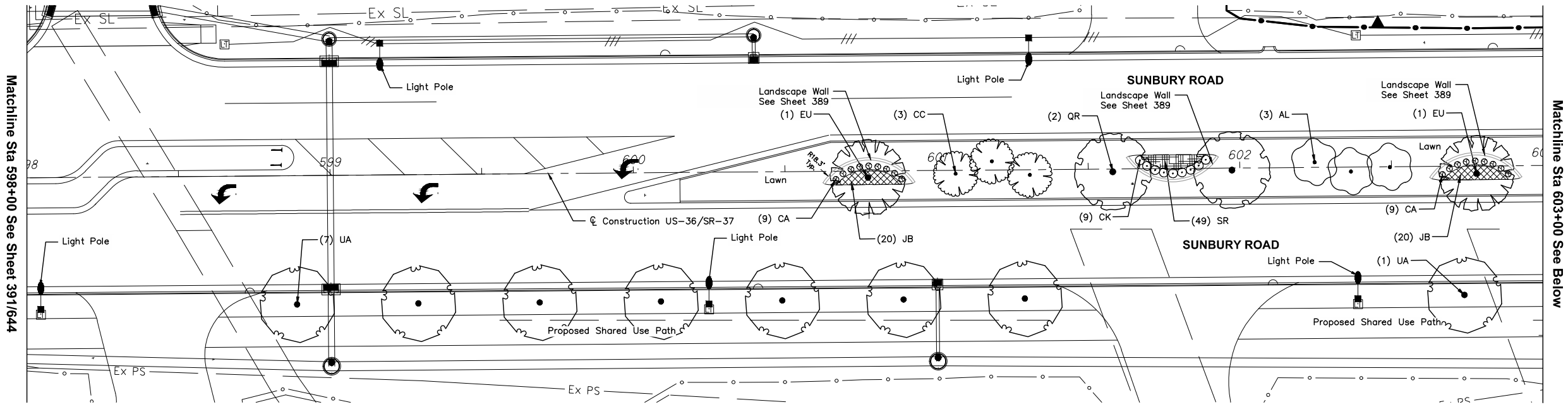
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LANDSCAPE PLAN  
STA 598+00 TO STA 608+00

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PLANT SCHEDULE STA 598+00 TO STA 603+00

| ORNAMENTAL TREES | QTY | BOTANICAL NAME                        | COMMON NAME                     | SIZE      | CONDITION |          |
|------------------|-----|---------------------------------------|---------------------------------|-----------|-----------|----------|
| AL               | 3   | Amelanchier laevis 'Lustre'           | Lustre Allegheny Serviceberry   | 1.5" Cal. | B&B       |          |
| CC               | 3   | Cercis canadensis 'Appalachian Red'   | Appalachian Red Redbud          | 1.5" Cal. | B&B       |          |
| STREET TREES     | QTY | BOTANICAL NAME                        | COMMON NAME                     | SIZE      | CONDITION |          |
| EU               | 2   | Eucommia ulmoides                     | Hardy Rubber Tree               | 2" Cal.   | B&B       |          |
| QR               | 2   | Quercus rubra                         | Red Oak                         | 2" Cal.   | B&B       |          |
| UA               | 8   | Ulmus americana 'Princeton'           | Princeton American Elm          | 2" Cal.   | B&B       |          |
| SHRUBS           | QTY | BOTANICAL NAME                        | COMMON NAME                     | SIZE      | CONDITION |          |
| CK               | 9   | Cornus sericea 'Kelsey'               | Kelsey's Dwarf Red Twig Dogwood | 2' Ht.    | Cont.     |          |
| GRASSES          | QTY | BOTANICAL NAME                        | COMMON NAME                     | SIZE      | CONDITION |          |
| CA               | 18  | Calamagrostis x acutiflora 'Cheju-Do' | Dwarf Feather Reed Grass        | #2        | Cont.     |          |
| GROUND COVERS    | QTY | BOTANICAL NAME                        | COMMON NAME                     | SIZE      | CONDITION | SPACING  |
| JB               | 40  | Juniperus conferta 'Blue Pacific'     | Blue Pacific Shore Juniper      | 12" Ht.   | Cont.     | 24" o.c. |
| SR               | 49  | Sedum spuriun 'Red Carpet'            | Red Carpet Sedum                | #1        | Cont.     | 15" o.c. |

PLANT SCHEDULE STA 603+00 TO STA 608+00

| ORNAMENTAL TREES | QTY | BOTANICAL NAME                        | COMMON NAME                     | SIZE      | CONDITION |          |
|------------------|-----|---------------------------------------|---------------------------------|-----------|-----------|----------|
| AL               | 3   | Amelanchier laevis 'Lustre'           | Lustre Allegheny Serviceberry   | 1.5" Cal. | B&B       |          |
| CC               | 3   | Cercis canadensis 'Appalachian Red'   | Appalachian Red Redbud          | 1.5" Cal. | B&B       |          |
| CF               | 6   | Cornus florida 'Cherokee Brave'       | Cherokee Brave Dogwood          | 1.5" Cal. | B&B       |          |
| STREET TREES     | QTY | BOTANICAL NAME                        | COMMON NAME                     | SIZE      | CONDITION |          |
| EU               | 2   | Eucommia ulmoides                     | Hardy Rubber Tree               | 2" Cal.   | B&B       |          |
| GB               | 8   | Ginkgo biloba 'Autumn Gold'           | Autumn Gold Ginkgo              | 2" Cal.   | B&B       |          |
| QR               | 4   | Quercus rubra                         | Red Oak                         | 2" Cal.   | B&B       |          |
| UA               | 2   | Ulmus americana 'Princeton'           | Princeton American Elm          | 2" Cal.   | B&B       |          |
| SHRUBS           | QTY | BOTANICAL NAME                        | COMMON NAME                     | SIZE      | CONDITION |          |
| CK               | 18  | Cornus sericea 'Kelsey'               | Kelsey's Dwarf Red Twig Dogwood | 2' Ht.    | Cont.     |          |
| GRASSES          | QTY | BOTANICAL NAME                        | COMMON NAME                     | SIZE      | CONDITION |          |
| CA               | 20  | Calamagrostis x acutiflora 'Cheju-Do' | Dwarf Feather Reed Grass        | #2        | Cont.     |          |
| GROUND COVERS    | QTY | BOTANICAL NAME                        | COMMON NAME                     | SIZE      | CONDITION | SPACING  |
| JB               | 47  | Juniperus conferta 'Blue Pacific'     | Blue Pacific Shore Juniper      | 12" Ht.   | Cont.     | 24" o.c. |
| SR               | 120 | Sedum spuriun 'Red Carpet'            | Red Carpet Sedum                | #1        | Cont.     | 15" o.c. |

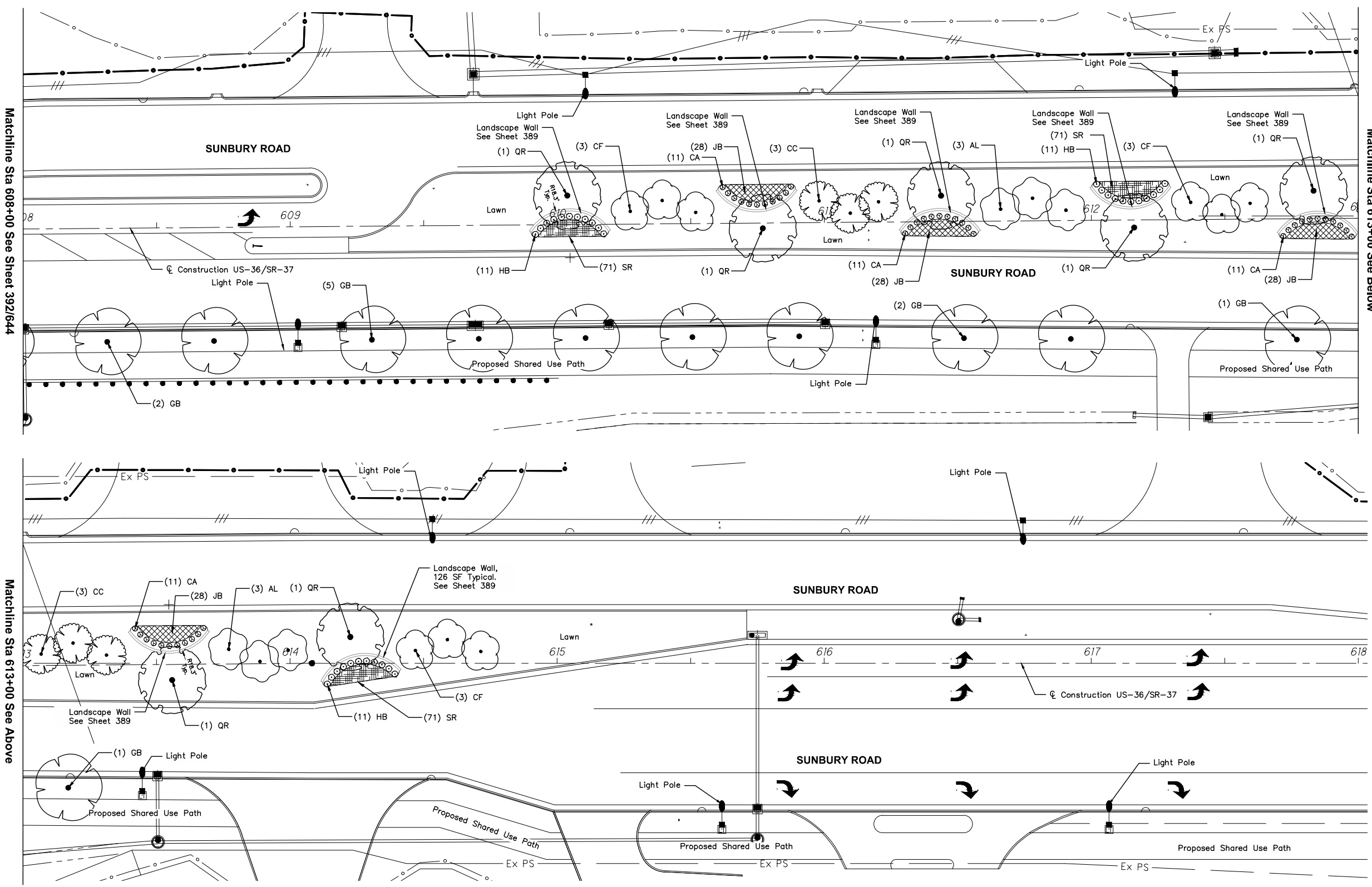
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LANDSCAPE PLAN  
STA 608+00 TO STA 618+00

DEL-36-11.03



Matchline Sta 608+00 See Sheet 392/644

Matchline Sta 613+00 See Below

Matchline Sta 613+00 See Above

PLANT SCHEDULE STA 608+00 TO STA 613+00

| ORNAMENTAL TREES | QTY | BOTANICAL NAME                         | COMMON NAME                   | SIZE      | CONDITION |          |
|------------------|-----|----------------------------------------|-------------------------------|-----------|-----------|----------|
| AL               | 3   | Amelanchier laevis 'Lustre'            | Lustre Allegheny Serviceberry | 1.5" Cal. | B&B       |          |
| CC               | 3   | Cercis canadensis 'Appalachian Red'    | Appalachian Red Redbud        | 1.5" Cal. | B&B       |          |
| CF               | 6   | Cornus florida 'Cherokee Brave'        | Cherokee Brave Dogwood        | 1.5" Cal. | B&B       |          |
| STREET TREES     | QTY | BOTANICAL NAME                         | COMMON NAME                   | SIZE      | CONDITION |          |
| GB               | 10  | Ginkgo biloba 'Autumn Gold'            | Autumn Gold Ginkgo            | 2" Cal.   | B&B       |          |
| QR               | 5   | Quercus rubra                          | Red Oak                       | 2" Cal.   | B&B       |          |
| SHRUBS           | QTY | BOTANICAL NAME                         | COMMON NAME                   | SIZE      | CONDITION |          |
| HB               | 22  | Hydrangea macrophylla 'Endless Summer' | Endless Summer Hydrangea      | 2' Ht.    | Cont.     |          |
| GRASSES          | QTY | BOTANICAL NAME                         | COMMON NAME                   | SIZE      | CONDITION |          |
| CA               | 33  | Calamagrostis x acutiflora 'Cheju-Do'  | Dwarf Feather Reed Grass      | #2        | Cont.     |          |
| GROUND COVERS    | QTY | BOTANICAL NAME                         | COMMON NAME                   | SIZE      | CONDITION | SPACING  |
| JB               | 84  | Juniperus conferta 'Blue Pacific'      | Blue Pacific Shore Juniper    | 12" Ht.   | Cont.     | 24" o.c. |
| SR               | 142 | Sedum spurius 'Red Carpet'             | Red Carpet Sedum              | #1        | Cont.     | 15" o.c. |

PLANT SCHEDULE STA 613+00 TO STA 618+00

| ORNAMENTAL TREES | QTY | BOTANICAL NAME                         | COMMON NAME                   | SIZE      | CONDITION |          |
|------------------|-----|----------------------------------------|-------------------------------|-----------|-----------|----------|
| AL               | 3   | Amelanchier laevis 'Lustre'            | Lustre Allegheny Serviceberry | 1.5" Cal. | B&B       |          |
| CC               | 3   | Cercis canadensis 'Appalachian Red'    | Appalachian Red Redbud        | 1.5" Cal. | B&B       |          |
| CF               | 3   | Cornus florida 'Cherokee Brave'        | Cherokee Brave Dogwood        | 1.5" Cal. | B&B       |          |
| STREET TREES     | QTY | BOTANICAL NAME                         | COMMON NAME                   | SIZE      | CONDITION |          |
| GB               | 1   | Ginkgo biloba 'Autumn Gold'            | Autumn Gold Ginkgo            | 2" Cal.   | B&B       |          |
| QR               | 2   | Quercus rubra                          | Red Oak                       | 2" Cal.   | B&B       |          |
| SHRUBS           | QTY | BOTANICAL NAME                         | COMMON NAME                   | SIZE      | CONDITION |          |
| HB               | 11  | Hydrangea macrophylla 'Endless Summer' | Endless Summer Hydrangea      | 2' Ht.    | Cont.     |          |
| GRASSES          | QTY | BOTANICAL NAME                         | COMMON NAME                   | SIZE      | CONDITION |          |
| CA               | 11  | Calamagrostis x acutiflora 'Cheju-Do'  | Dwarf Feather Reed Grass      | #2        | Cont.     |          |
| GROUND COVERS    | QTY | BOTANICAL NAME                         | COMMON NAME                   | SIZE      | CONDITION | SPACING  |
| JB               | 28  | Juniperus conferta 'Blue Pacific'      | Blue Pacific Shore Juniper    | 12" Ht.   | Cont.     | 24" o.c. |
| SR               | 71  | Sedum spurius 'Red Carpet'             | Red Carpet Sedum              | #1        | Cont.     | 15" o.c. |

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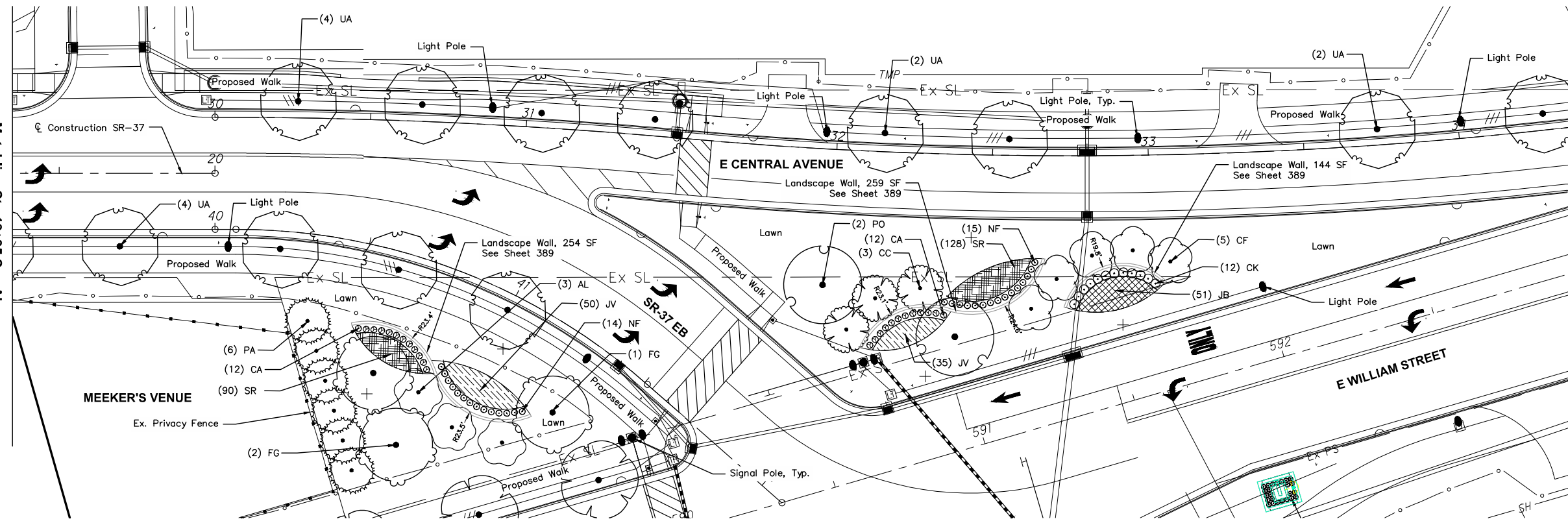
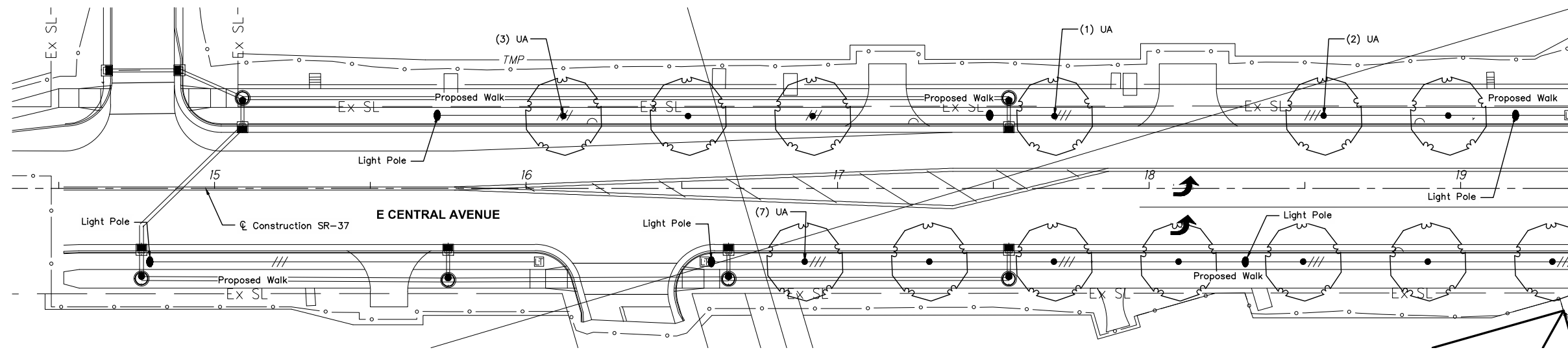
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LANDSCAPE PLAN  
SR-37 STA 15+00 TO US-36 STA 593+00

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394  
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Matchline Sta 19+35 See Below



PLANT SCHEDULE SR-37 STA 15+00 TO STA 19+35

| STREET TREES | QTY | BOTANICAL NAME              | COMMON NAME            | SIZE    | CONDITION |
|--------------|-----|-----------------------------|------------------------|---------|-----------|
| UA           | 13  | Ulmus americana 'Princeton' | Princeton American Elm | 2" Cal. | B&B       |

PLANT SCHEDULE SR-37 STA 19+35 TO US-36 STA 593+00

| TREES                   | QTY | BOTANICAL NAME                          | COMMON NAME                     | SIZE      | CONDITION      |
|-------------------------|-----|-----------------------------------------|---------------------------------|-----------|----------------|
| FG                      | 3   | Fagus grandifolia                       | American Beech                  | 2" Cal.   | B&B            |
| PO                      | 2   | Platanus occidentalis                   | American Sycamore               | 2" Cal.   | B&B            |
| <b>EVERGREEN TREES</b>  |     |                                         |                                 |           |                |
| PA                      | 6   | Picea abies                             | Norway Spruce                   | 8' Ht.    | B&B            |
| <b>ORNAMENTAL TREES</b> |     |                                         |                                 |           |                |
| AL                      | 3   | Amelanchier laevis 'Lustre'             | Lustre Allegheny Serviceberry   | 1.5" Cal. | B&B            |
| CC                      | 3   | Cercis canadensis 'Appalachian Red'     | Appalachian Red Redbud          | 1.5" Cal. | B&B            |
| CF                      | 5   | Cornus florida 'Cherokee Brave'         | Cherokee Brave Dogwood          | 1.5" Cal. | B&B            |
| <b>STREET TREES</b>     |     |                                         |                                 |           |                |
| UA                      | 12  | Ulmus americana 'Princeton'             | Princeton American Elm          | 2" Cal.   | B&B            |
| <b>SHRUBS</b>           |     |                                         |                                 |           |                |
| CK                      | 12  | Cornus sericea 'Kelseyi'                | Kelsey's Dwarf Red Twig Dogwood | 2' Ht.    | Cont.          |
| <b>GRASSES</b>          |     |                                         |                                 |           |                |
| CA                      | 24  | Calamagrostis x acutiflora 'Cheju-Do'   | Dwarf Feather Reed Grass        | #2        | Cont.          |
| <b>PERENNIALS</b>       |     |                                         |                                 |           |                |
| NF                      | 29  | Nepeta x faassenii 'Walkers Low'        | Walkers Low Catmint             | #1        | Cont.          |
| <b>GROUND COVERS</b>    |     |                                         |                                 |           |                |
| JV                      | 85  | Juniperus chinensis sargentii 'Viridis' | Green Sargent Juniper           | 12" Ht.   | Cont. 24" o.c. |
| JB                      | 51  | Juniperus conferta 'Blue Pacific'       | Blue Pacific Shore Juniper      | 12" Ht.   | Cont. 24" o.c. |
| SR                      | 218 | Sedum spurium 'Red Carpet'              | Red Carpet Sedum                | #1        | Cont. 15" o.c. |

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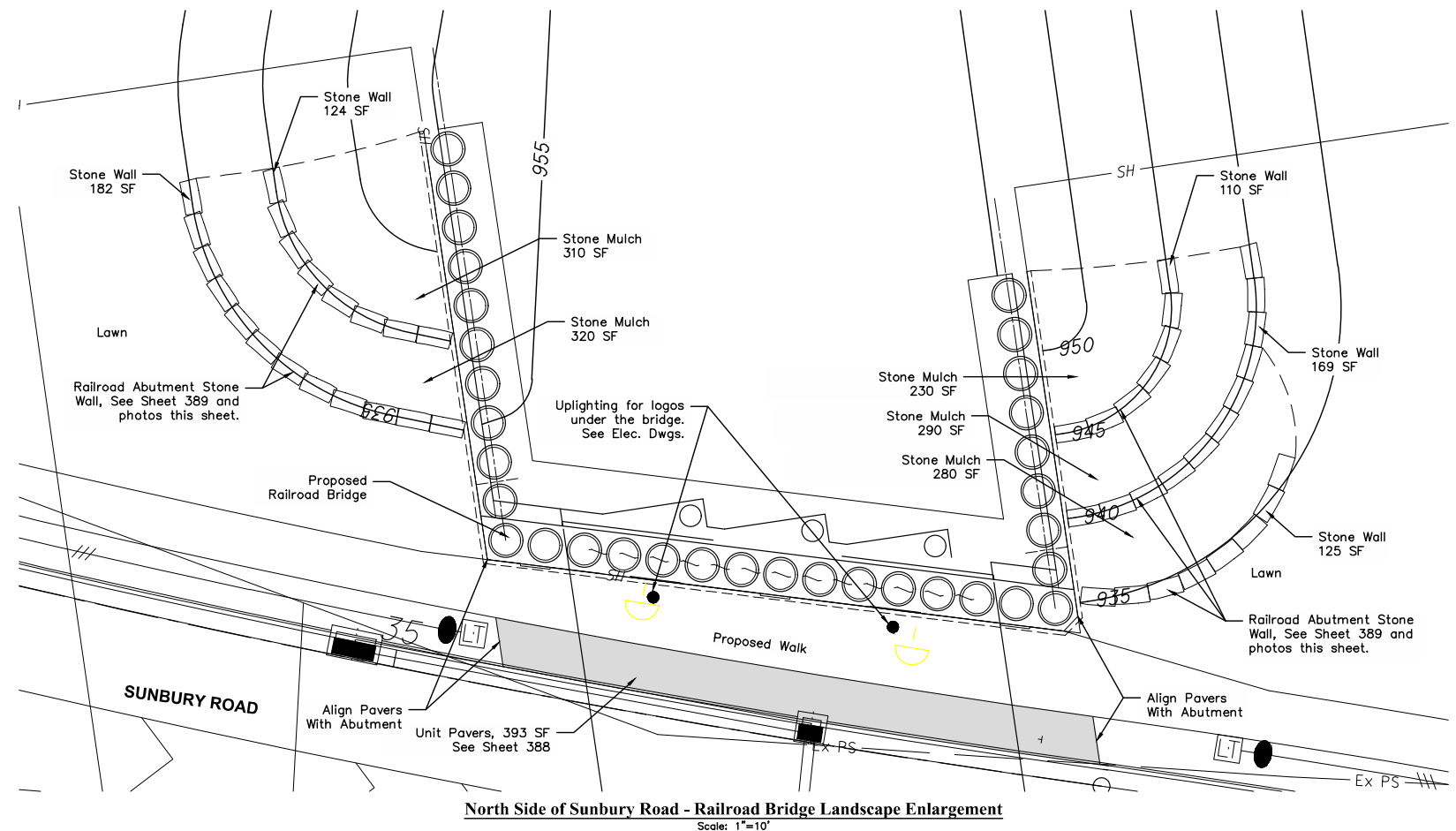


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RR BRIDGE ENLARGEMENTS

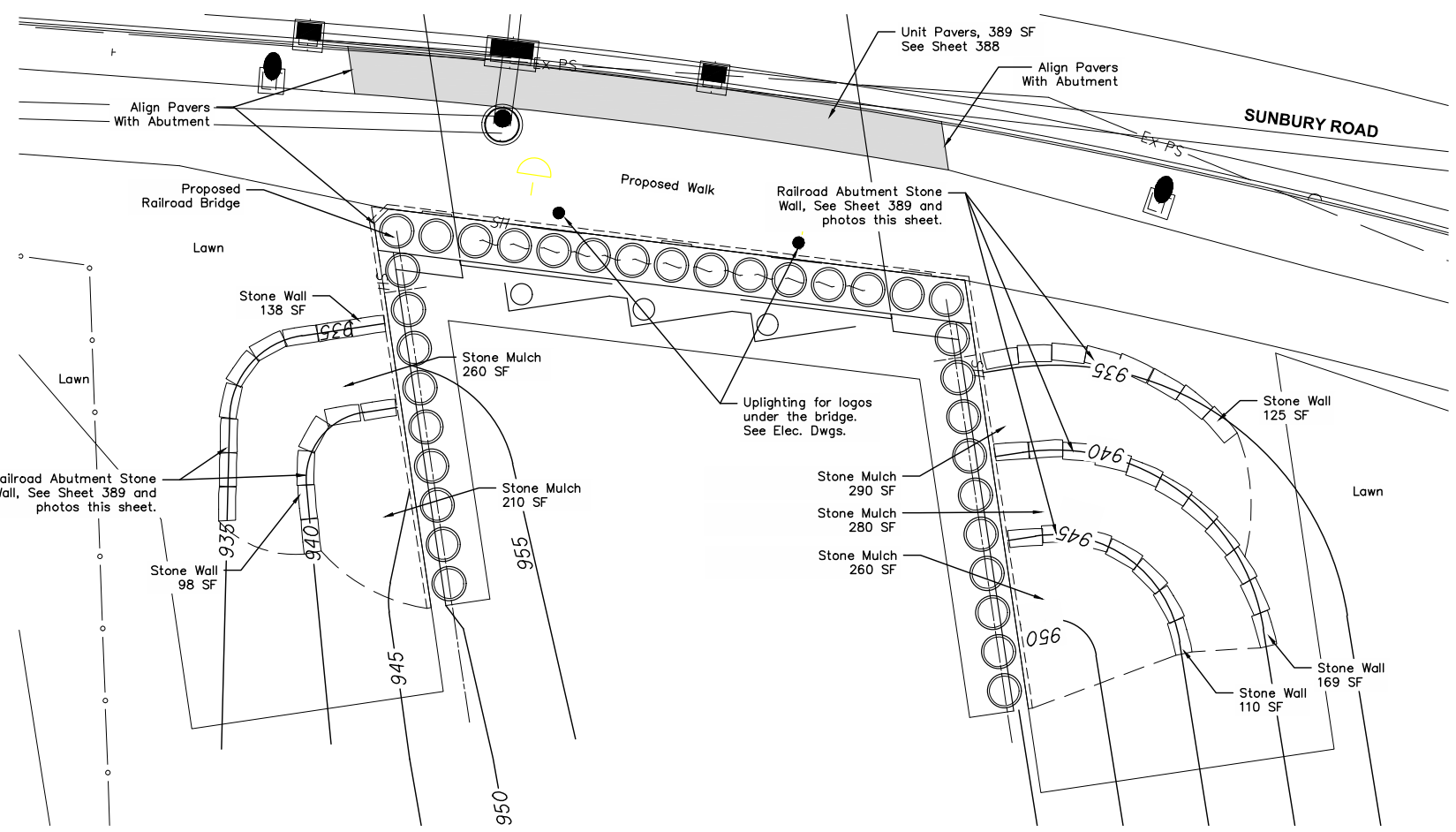
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North Side of Sunbury Road - Railroad Bridge Landscape Enlargement

Scale: 1"=10'

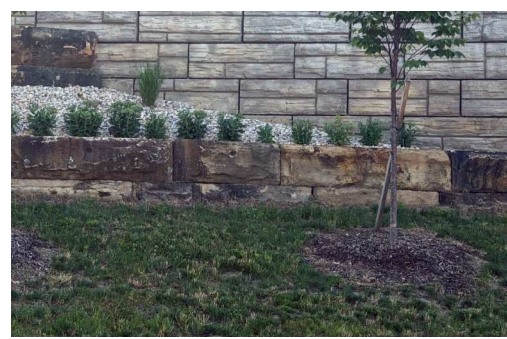


South Side of Sunbury Road - Railroad Bridge Landscape Enlargement

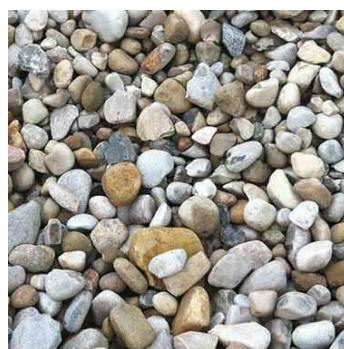
Scale: 1"=10'



Re-used Stone Blocks Stockpile at Public Works HQ  
No Scale



Existing Example of Re-used Stone Blocks  
(Located at E William St and Lake St)  
No Scale



Manufacturer: Lang Stone or approved equal  
Product: Darby, clean washed, round river stones  
or approved equal  
Sizes: ±75% 1-1/2" to 2-1/2"  
±25% +2-1/2" to 6"

Stone Mulch  
No Scale

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**GENERAL SIGN NOTES:**

1. FULL SIZE HALO LIGHT MOCKUP OF ONE LETTER TO INSURE LIGHT EFFECT IS ACCEPTABLE.

2. PAINT SAMPLES TO BE PROVIDED ON SAME MATERIAL AS CONSTRUCTION FOR FINAL REVIEW AND ACCEPTANCE.

3. FABRICATOR TO PROVIDE FLUSH MOUNTED ACCESS PANEL.

4. CONTRACTOR SHALL REFER QUESTIONS ON MATERIALS, FINISHES, LABOR, AND/OR PERFORMANCE STANDARDS NOT SPECIFIED HEREIN TO THE SIGN DESIGNER.

5. ALL CHANGES TO DESIGN ARE TO BE AUTHORIZED BY THE SIGN DESIGNER.

6. SHOP DRAWINGS ARE TO BE BASED ON THE DESIGN INTENT HEREIN.

7. QUALITY ASSURANCE: THE SIGN CONTRACTOR IS RESPONSIBLE FOR THE QUALITY AND DELIVERY OF ALL MATERIALS, WORKMANSHIP AND INSTALLATION WORK REQUIRED FOR THE SUCCESSFUL COMPLETION OF THE CONTRACT. THE SIGN CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING THEIR SUBCONTRACTORS WITH COMPLETE UP-TO-DATE DRAWINGS AND ALL PROJECT SUPPORT INFORMATION.

8. THE SIGN CONTRACTOR SHALL NOTIFY THE OWNER OR THEIR GC/CM/OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES IN THESE DESIGN INTENT DRAWINGS, AS WELL AS IN FIELD DIMENSIONS OR CONDITIONS. ISSUES REGARDING MESSAGE FIT (LINE LENGTH) OR ACCURATE REPRODUCTION OF THE OWNER'S LOGO/BRAND MUST BE BROUGHT TO THE ATTENTION OF THE OWNER OR THEIR PROJECT MANAGER PRIOR TO EXECUTION.

9. UL REQUIRED IDENTIFICATION LABELS MUST BE PLACED ON A NON-CONSPICUOUS SIGN SURFACE FOR INTERNALLY ILLUMINATED SIGNS. THE SIGN CONTRACTOR SHALL PROVIDE THE OWNER WITH COMPLETE LAMP AND POWER SUPPLY REPLACEMENT INFORMATION, BRAND, TYPE, WATTAGE, COLOR, ETC. FOR LEDS FOR IN-FIELD SERVICING.

10. SAMPLES/SUBMISSIONS: THE SIGN CONTRACTOR WILL BE REQUIRED TO PRODUCE ACTUAL SIGN SAMPLES TO ENSURE CONFORMITY TO THE OVERALL DESIGN INTENT AS PRESENTED. THESE SAMPLES MUST BE APPROVED BY THE OWNER OR THEIR PROJECT MANAGER PRIOR TO PROCEEDING WITH FABRICATION.

11. MATERIALS: ALL MATERIALS UTILIZED IN THE CONSTRUCTION OF SIGNAGE MUST CONFORM WITH THE SPECIFICATIONS NOTED IN THIS DESIGN INTENT DOCUMENT. SIGN MATERIALS SELECTED BEYOND WHAT IS SPECIFIED IN THIS DOCUMENT MUST INCLUDE MANUFACTURER'S PERFORMANCE CRITERIA FOR APPROVAL, ALONG WITH FINISHED SAMPLES, PRIOR TO FABRICATION.

12. CAST ARCHITECTURAL PLAQUES 1. METAL ALLOY: ALUMINUM 514 ALLOY. 2. CAST DEPTH VARIES BY PLAQUE SIZE. 1" DEEP 3. BORDERS: CUSTOM PER ART. 4. BACKGROUND COLORS: CUSTOM COLOR MATCH. 5. RAISED COPY: HORIZONTAL BRUSHED GRAIN DIRECTION, PAINTED. 6. BACKGROUND TEXTURES: CLASSIC LEATHER. 7. CLEAR COAT OPTIONS: SATIN SHEEN. 8. FINISHES - N/A 9. MOUNTING OPTIONS (STANDARD): BLIND MOUNT. 10. ROSETTES. N/A. 11. SHAPE: CIRCLE. 12. INSERTS: N/A 13. PORTRAITS AND IMAGES: N/A 14. SPECIALTY: CAST CUSTOM SEAL.

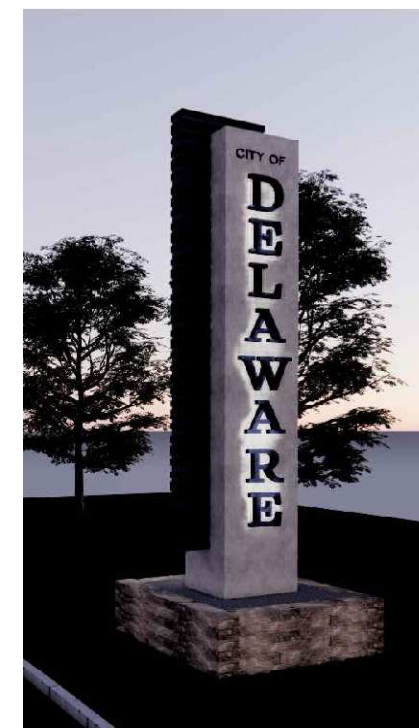
13. PAINT, PRIMER AND PRETREATMENT 1. TWO-COMPONENT, SELF-ETCHING METAL PRETREATMENT DESIGNED FOR RAW ALUMINUM. MUST FILL A 220 - 320G DA SAND SCRATCH WITH A TWO COAT APPLICATION. 2. TWO-COMPONENT, HIGH BUILD SELF-ETCHING METAL PRIMER, DESIGNED FOR USE ON RAW ALUMINUM AND STEEL. MUST FILL A 120G DA SAND SCRATCH WITH A TWO-COAT APPLICATION. 3. SATIN ACRYLIC POLYURETHANE. LIGHT GRAY PANTONE 7534C (75%) TO HAVE SAND ADDITIVE FOR TEXTURED FINISH.



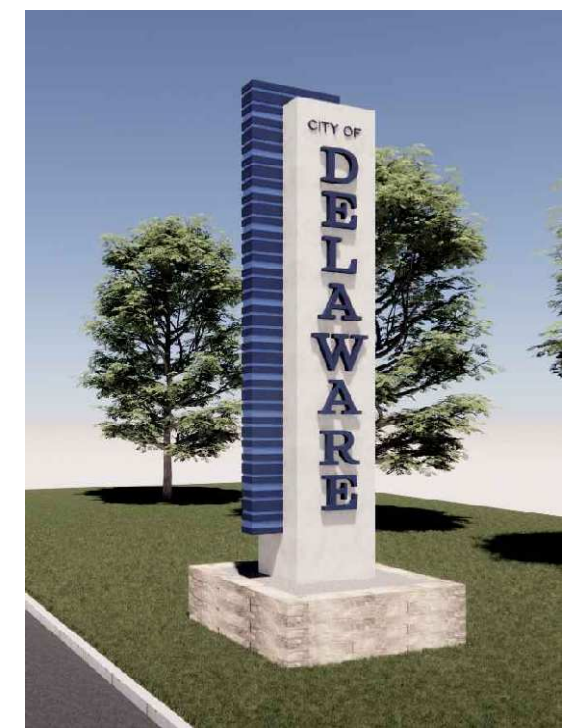
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N.T.S.



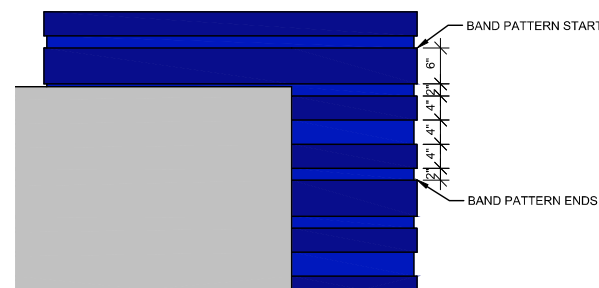
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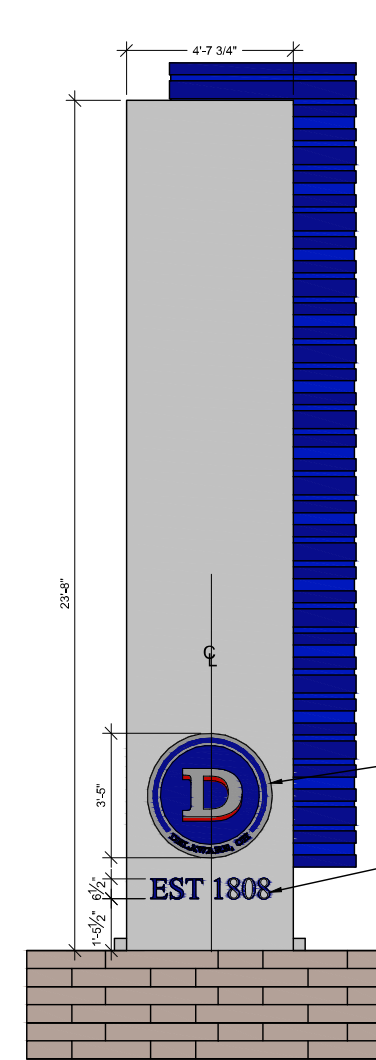
6 NIGHT RENDERING FRONT  
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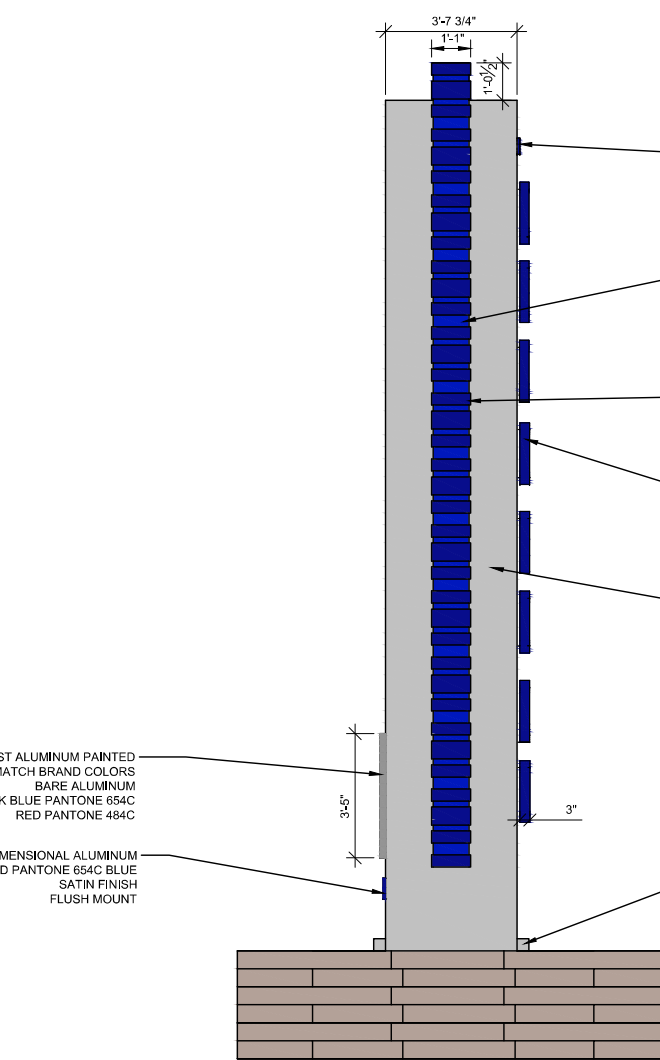
5 DAYTIME RENDERING FRONT  
N.T.S.



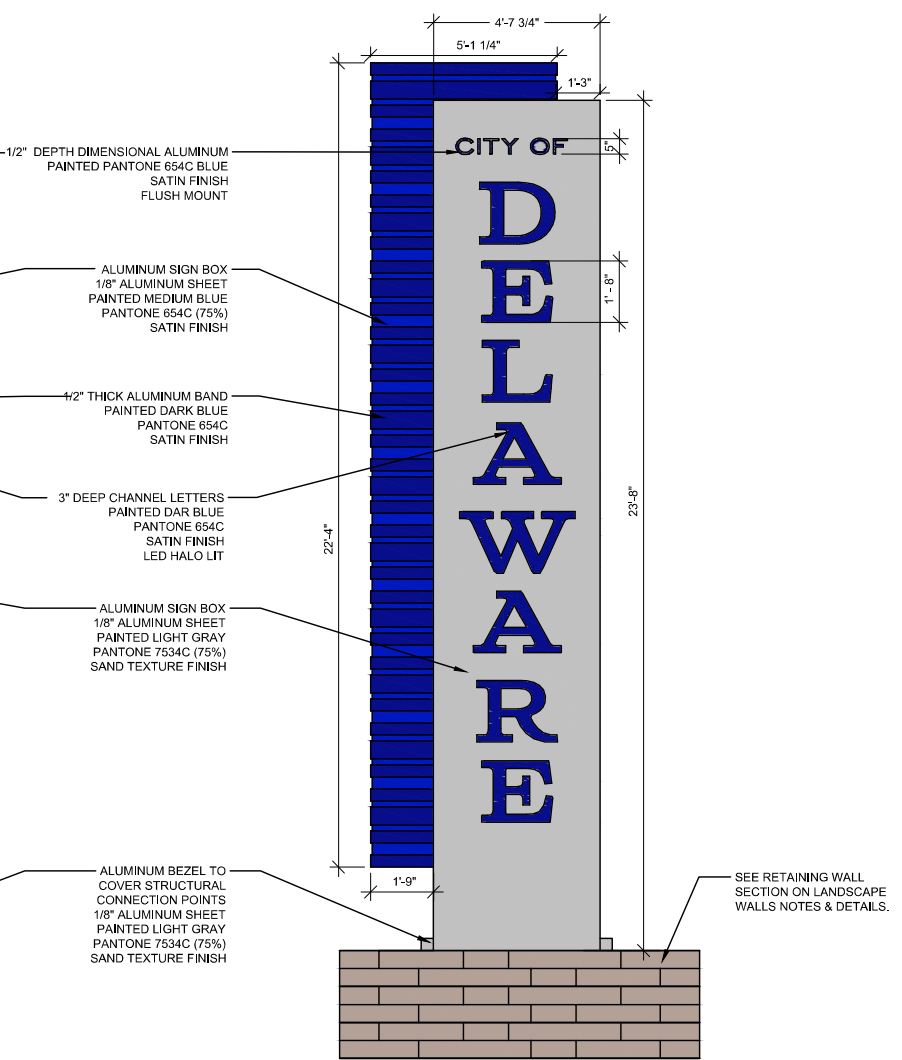
4 BANDING PATTERN  
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3 MONUMENT ELEVATION BACK  
3/8"=1"



2 MONUMENT ELEVATION STREET SIDE  
3/8"=1"



1 MONUMENT ELEVATION FRONT  
3/8"=1"

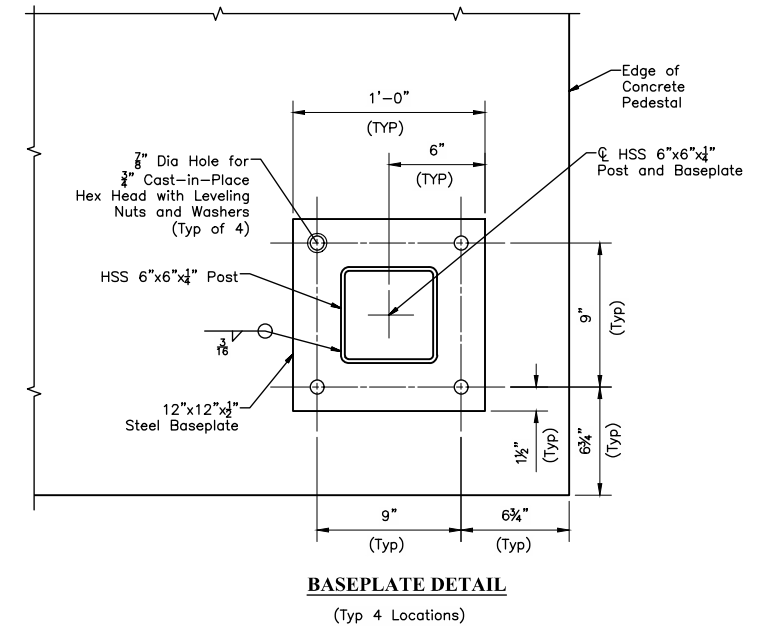
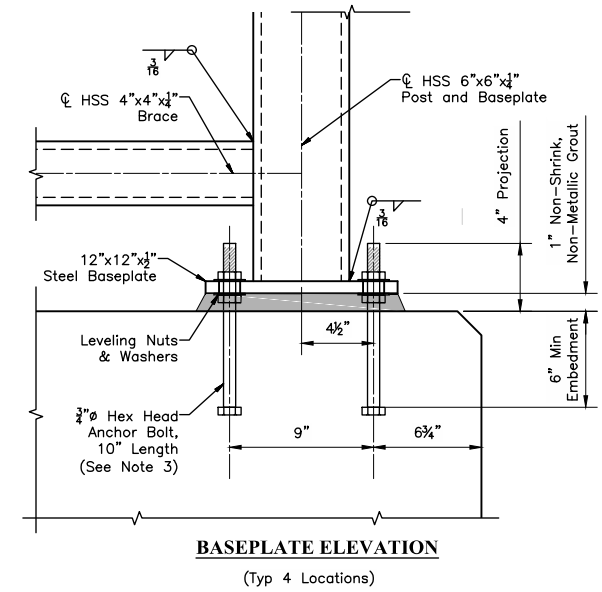
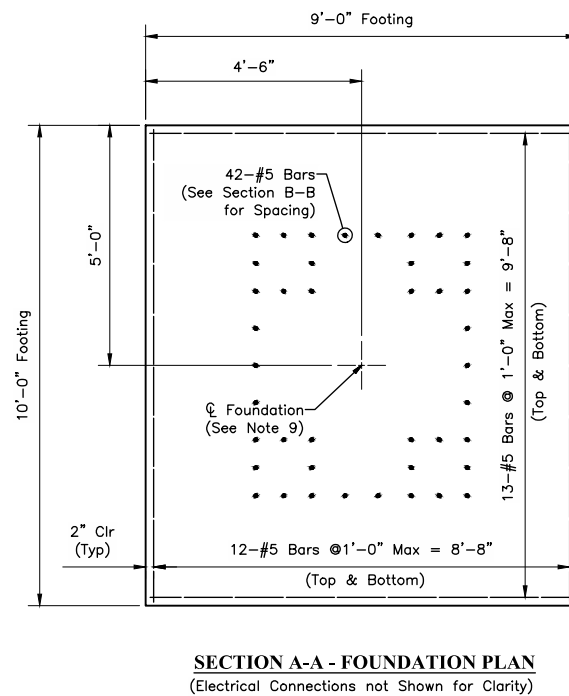
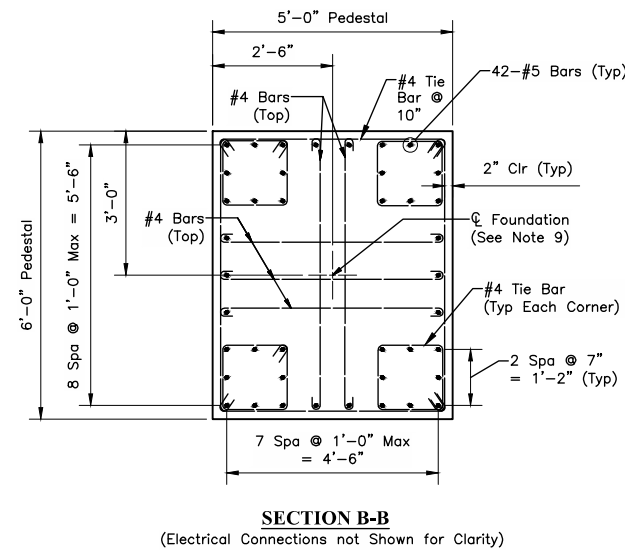
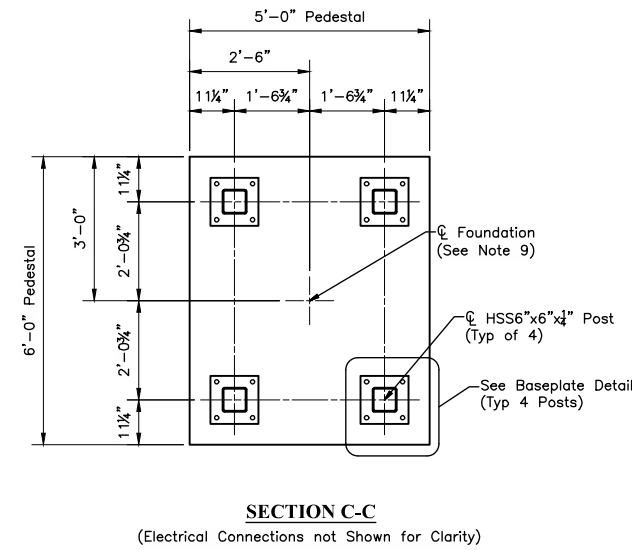
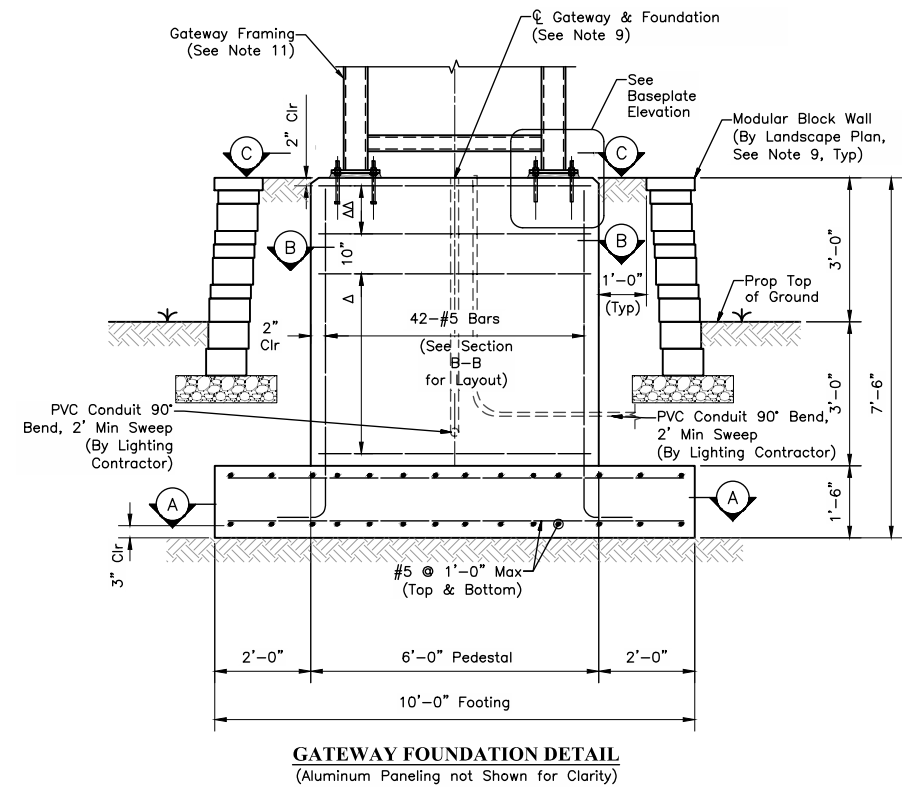
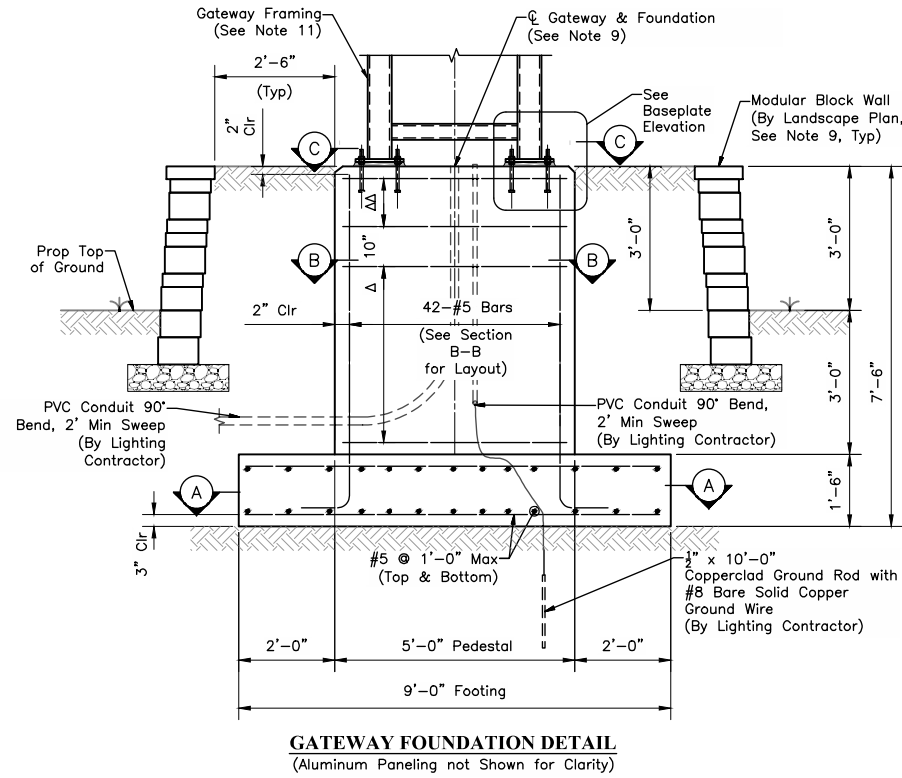
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GATEWAY  
STA. 591+86.5 AND STA. 595+21.7

DEL-36-11.03

396  
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**LEGEND**

- Δ - 7 Sets of #4 Tie Bars @ 10" Max = 4'-9"
- ΔΔ - 3 Sets of #4 Tie Bars @ 6" = 1'-0"

**FOUNDATION NOTES**

1. Concrete shall conform to Item 499 and 511 of the ODOT Construction and Materials Specification (CMS) Class QC1 Concrete, minimum compressive strength,  $f'_c = 4,000$  psi.
2. All epoxy coated reinforcing steel shall conform to Item 509 of the ODOT Construction and Materials Specification (CMS) and shall be ASTM A615, Grade 60,  $f_y = 60,000$  psi.
3. 3/4" diameter galvanized hex head anchor bolts shall be ASTM F1554, Grade 36.
4. Proposed conduits and lighting to be provided by the lighting contractor. All conduits should maintain a minimum 2" clear cover from all proposed reinforcing and anchorage.
5. The foundation shall be orientated such that lines of anchor bolts are orthogonal to the roadway centerline or as depicted in the landscape plans. The final orientation of the gateway features shall match the architectural intent as depicted in the landscape plan.
6. A 3/4" Chamfer shall be applied to all exposed edges of concrete.
7. The steel base plate shall be produced from ASTM A709, grade 50 steel and galvanized per CMS 711.02.
8. The foundation as shown produces a bearing pressure of less than 2 ksf under the spread footing. If unsuitable bearing material occurs at the bottom of foundation, lower the footing by over-excavating, then replacing with suitable bearing material. The suitability of the bearing material shall be verified by a registered soils engineer in the State of Ohio. Any changes in footing geometry must be approved by the Engineer.
9. See landscape plans for gateway feature locations, orientation, modular block wall details, and plantings. The sign box shall be oriented toward the street.
10. Payment for the Gateway features shall be per each completed Gateway. The cost of all labor, materials, and equipment used to install the Gateway including excavation, compaction, foundations, electrical connections, framing, sign paneling, mockups, shop drawings, samples, fabrication, and any other miscellaneous items or work required to provide a complete Gateway installation shall be included with Item Special - Gateway, for payment. No separate itemized payment shall be made.
11. For additional framing details see sheet 398/644.
12. The Contractor shall submit reinforcing shop drawings to the Owner and Engineer for review and approval prior to construction.

SCALE: NONE

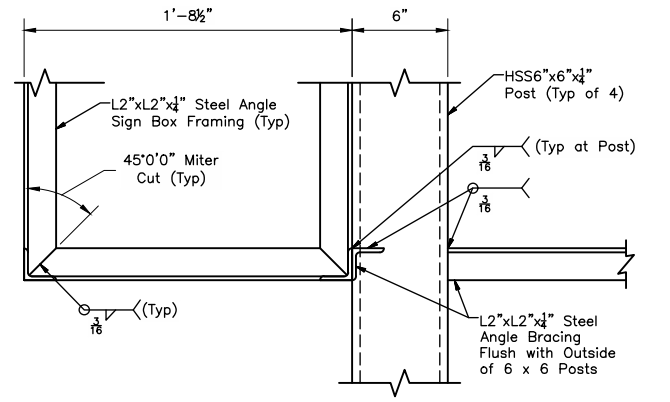
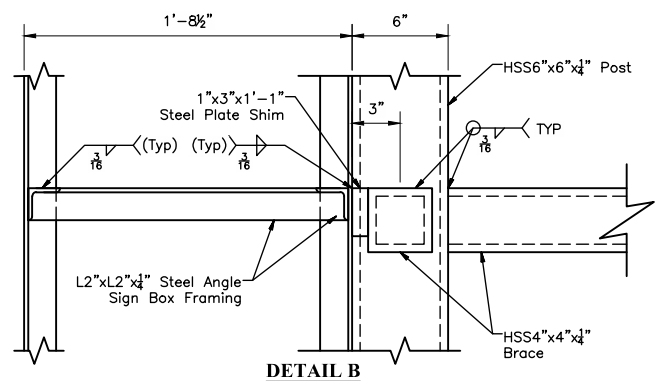
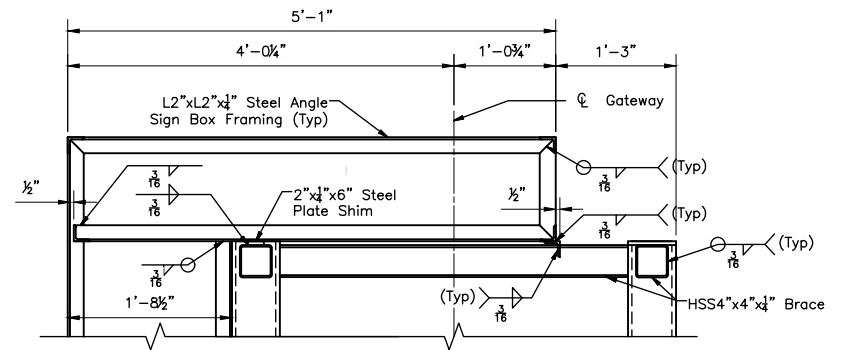
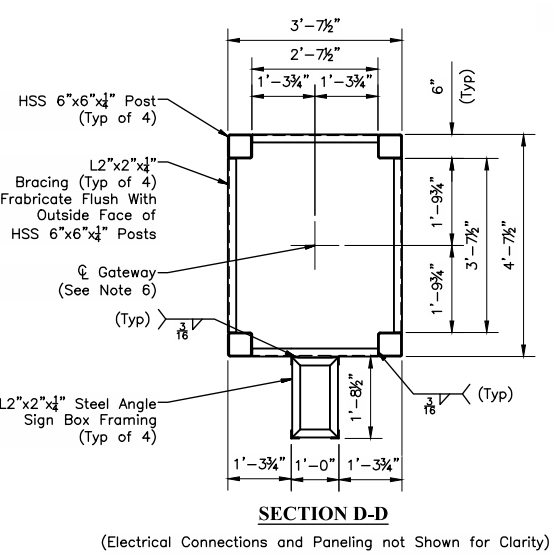
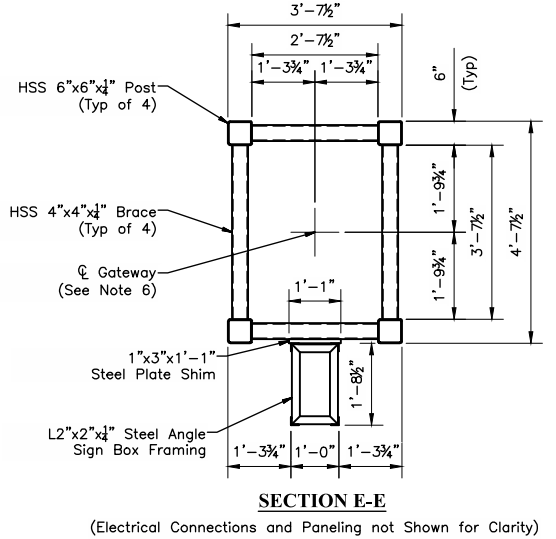
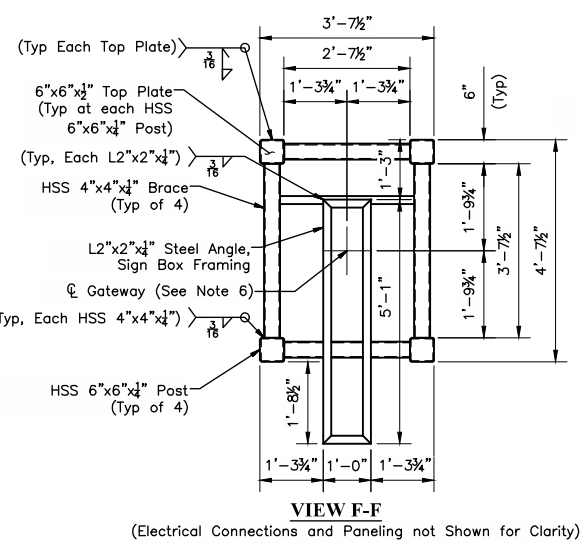
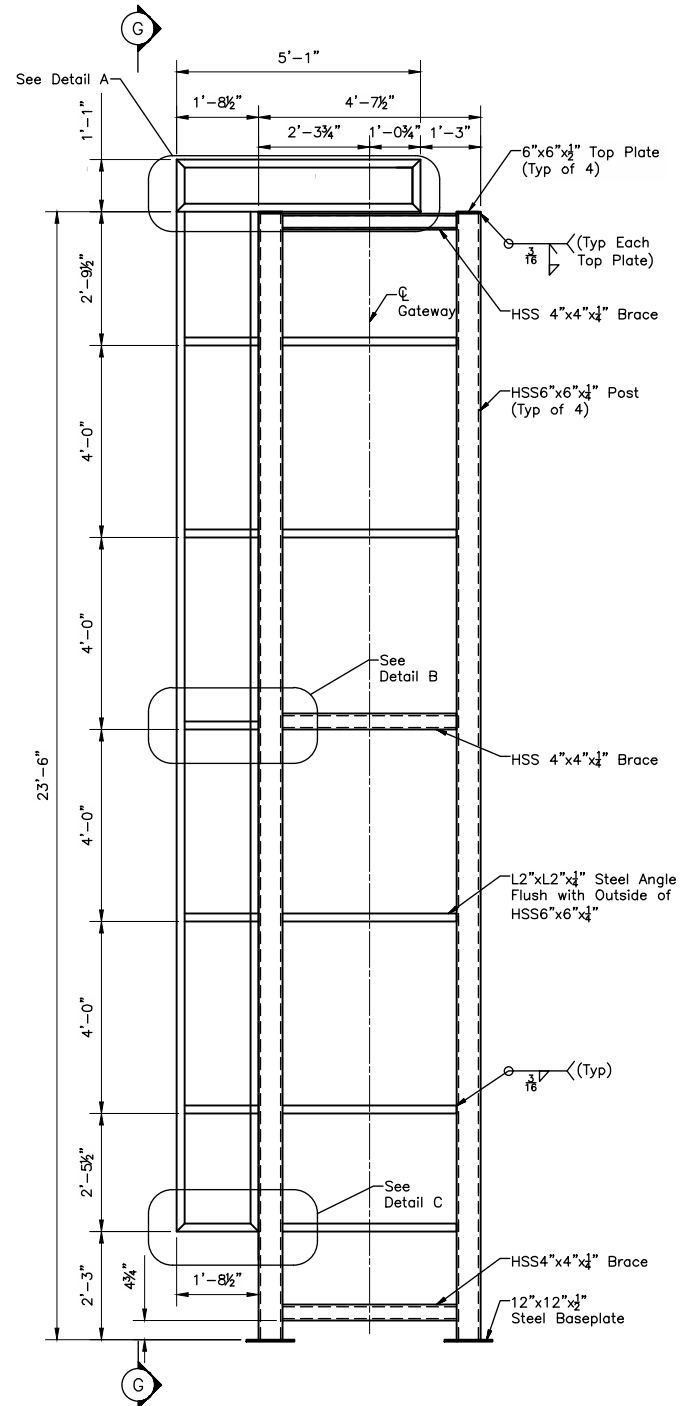
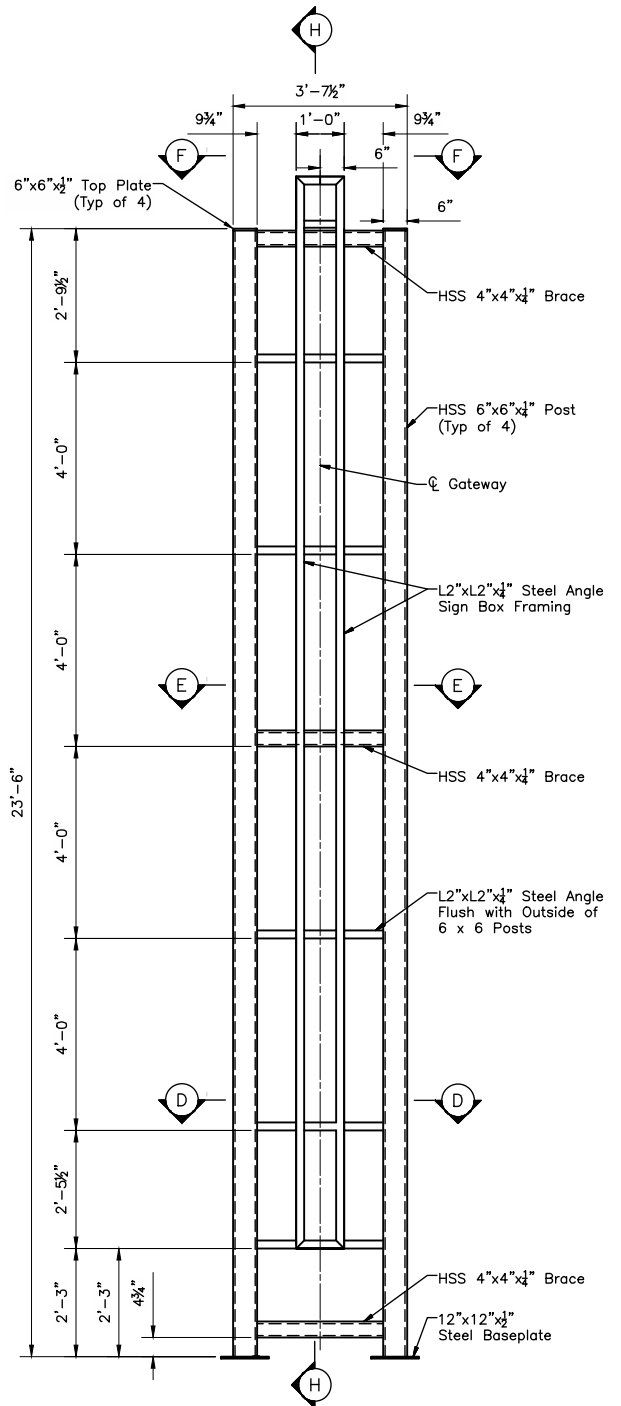
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GATEWAY - FOUNDATION DETAILS

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**STEEL FRAMING NOTES**

- All steel HSS6"x6"x4" posts and HSS4"x4"x4" braces shall be produced from ASTM A500 GR B steel, minimum yield strength = 46 ksi. All angles shall be fabricated from ASTM A36 steel with minimum yield strength = 36 ksi. All steel shall be hot dipped galvanized per CMS 711.02, with 1" diameter drain holes being installed 2" clear from member ends, if deemed necessary by the Fabricator. All steel shall conform to ODOT CMS 513.
- All welds shall be produced from a 70xx electrode with matching base material.
- Each Gateway shall have a single access panel located at the base of the structure and as determined necessary by the Sign Manufacturer.
- Reference exterior paneling plans on sheet 396/644 for additional details. All connections to the steel framing, prefabrication mockups, access panels, lighting connections and conduits shall be by the sign Manufacturer.
- The gateway and foundation as shown has been designed for the following resultant factored loads per ASCE 7-10 wind loading criteria and the sign dimensions provided:  
 Pu (Axial) = 5.51 kips  
 Vu (Shear) = 4.41 kips  
 Mu (Moment) = 55.1 kip-ft  
 The aluminum paneling and aesthetic features are assumed to weigh 2,650 lbs. If anticipated loading differs by more than 20% of the value shown, the Engineer shall be contacted immediately.
- See landscape plan for gateway feature locations and orientation. The sign box shall be oriented toward the street.
- Payment for the Gateway features shall be per each completed Gateway. The cost of all labor, materials, and equipment used to install the Gateway including excavation, compaction, foundation, electrical connections, framing, sign paneling, mockups, shop drawings, samples, fabrication, and any other miscellaneous items or work required to provide a complete Gateway installation shall be included with Item Special - Gateway, for payment. No separate itemized payment shall be made.
- For additional foundation details see sheet 397/644.

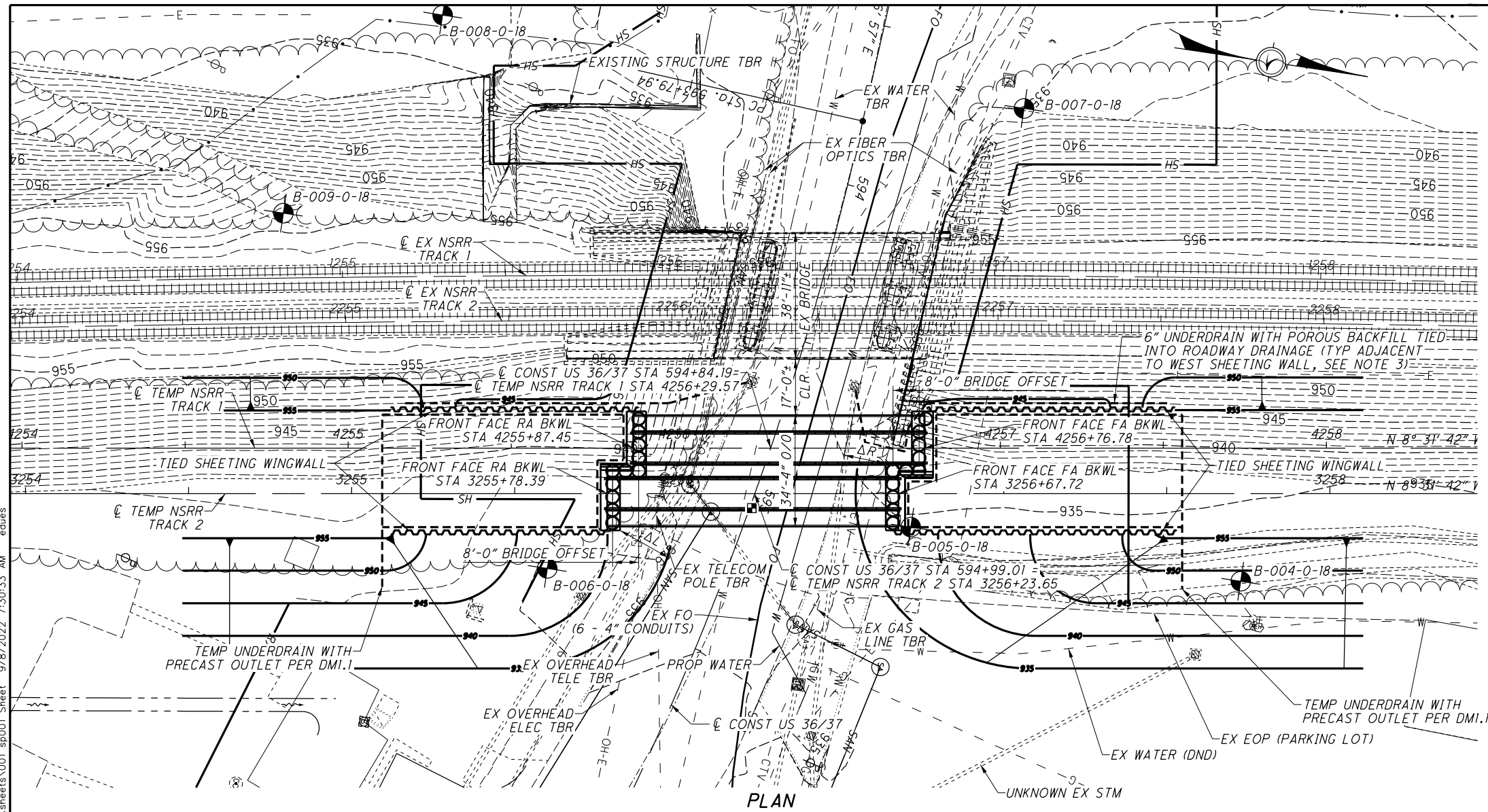
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**GATEWAY - FRAMING DETAILS**

DEL-36-11.03



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 PID: 103626  
 PENTABLE: 103626\_000Tcodd\_Pen.tbl  
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| BENCHMARK DATA                                                                     |                                                                              |                                                                                 |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| BM #1<br>308 NGS DISK "KZI567"<br>STA 597+07.46,<br>OFFSET LT 38.21'<br>EL. 934.69 | BM #2<br>RAILROAD SPIKE<br>STA 598+06.72,<br>OFFSET LT 55.151'<br>EL. 937.24 | BM #8<br>TRAFFIC CONTROL BOX<br>STA.590+84.71,<br>OFFSET RT 41.35'<br>EL.934.69 |

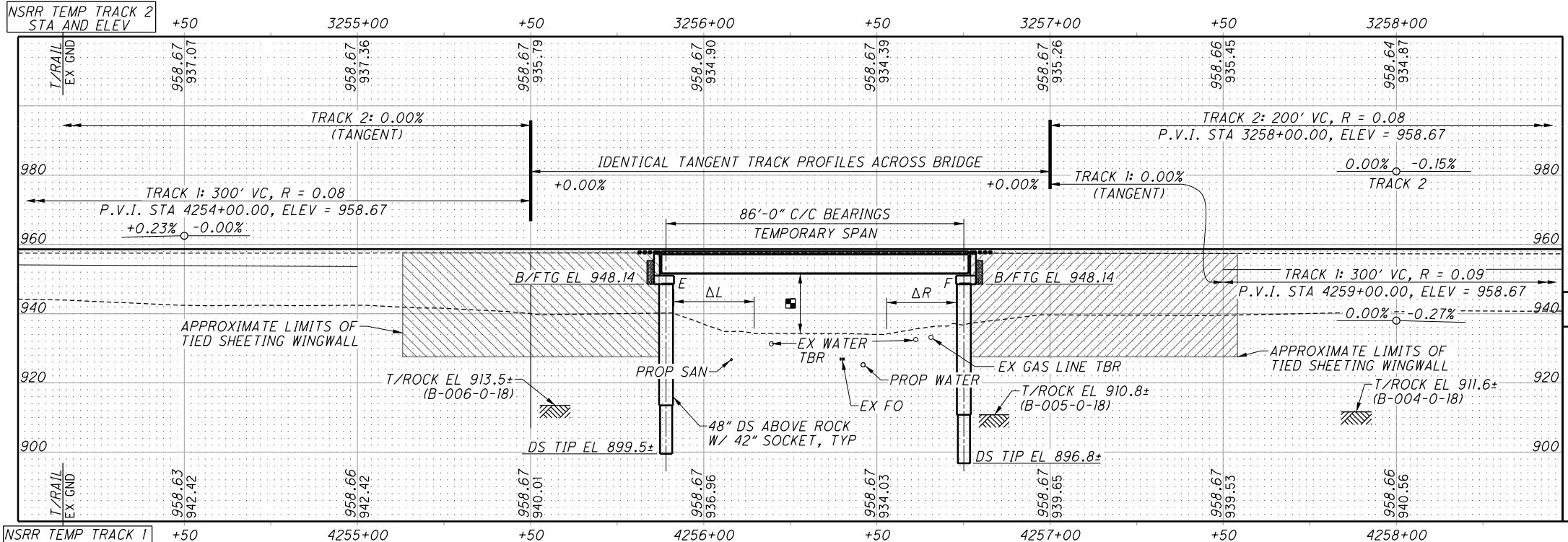
FOR ADDITIONAL BENCHMARK INFORMATION, SEE ROADWAY PLAN SHEET 2/644

- NOTES**
- DATUM ADJUSTMENT: EXISTING STRUCTURE ELEVATIONS ARE 0.73± FEET LOWER THAN THOSE SHOWN ON THE ORIGINAL CONSTRUCTION PLANS DATED 1917.
  - SEE THE "SPECIAL CLAUSES" SECTION OF THE CONSTRUCTION AGREEMENT FOR CURRENT NSRR TRAFFIC DATA. STRUCTURE DESIGN SPEED IS 60 MPH, APPROXIMATE VOLUME IS 45± TRAINS PER DAY.
  - CONTRACTOR TO BE RESPONSIBLE FOR FINAL UNDERDRAIN LAYOUT, SUGGESTED LAYOUT SHOWN.

**TRAFFIC DATA (US 36/37 UNDER)**

2020 ADT = 25,500      2020 ADTT = 2,500  
 DIRECTIONAL DISTRIBUTION = 51%  
 LEGAL SPEED = 35 MPH

- LEGEND**
- - APPROX. LIMITS OF TEMPORARY SHORING
- MINIMUM CLEARANCES**
- (MINIMUM VERTICAL CLEARANCE) = 16'-7"
  - ΔL (LEFT MIN HORIZONTAL CLEARANCE) = 17'-0"
  - ΔR (RIGHT MIN HORIZONTAL CLEARANCE) = 13'-0"



**ENGINEERS SEAL**

34 SHEETS COMPRISING THE TEMP BRIDGE PLANS

STATE OF OHIO  
 ERIC F DUES  
 E-75309  
 REGISTERED PROFESSIONAL ENGINEER

SIGNED: *[Signature]*  
 DATE: 9/8/2022

**TEMPORARY STRUCTURE (NS MP: S-23.80)**

TYPE: OFFSET DUAL SINGLE SIMPLE-SPAN WELDED STEEL PLATE GIRDER (ASTM A709, GR. 50, 62½" WEB DEPTH) WITH CLOSED TIMBER DECKING ON CANTILEVERED TANGENT SHAFT ABUTMENTS

SPANS: 86'-0" C/C BRGS  
 WIDTH: 34'-4" O/O OUTRIGGERS (2 TANGENT TRACKS SPACED AT 14'-0")  
 LOADING: COOPER E-80 WITH DIESEL IMPACT & ALTERNATE LOAD  
 ALIGNMENT: TANGENT  
 SKEW: NONE  
 COORDINATES: LATITUDE N 40° 17' 51.9", LONGITUDE W 83° 02' 49.0"  
 STRUCTURE FILE NUMBER: NONE (TEMP ODOT), TEMP BR0019283 (NSRR)

**Gannett Fleming**  
 ENGINEERS & ARCHITECTS, P.C.  
 2800 CORPORATE EXCHANGE DRIVE SUITE 230  
 COLUMBIAS, OHIO 43231

DESIGN AGENCY

DATE: 05/2021

REVIEWED: EFD  
 000T SPN: NONE (TEMP)  
 NSRR FILE: BR0019283

DRAWN: RSN  
 REVISION:

DESIGNED: RSN  
 CHECKED: CTM

DELAWARE COUNTY  
 STA. 594+69  
 TO STA. 595+15

**SITE PLAN**

BRIDGE NO. DEL-36-TEMP (TEMPORARY NS MP S-23.80)  
 NSRR OVER US 36 / 37 (CITY OF DELAWARE)

**POINT PROJECT**

PID No. 103626

1 / 34

399  
644

PENTABLE SUBSET: 1000  
SUBMITTAL: NSRR 1000

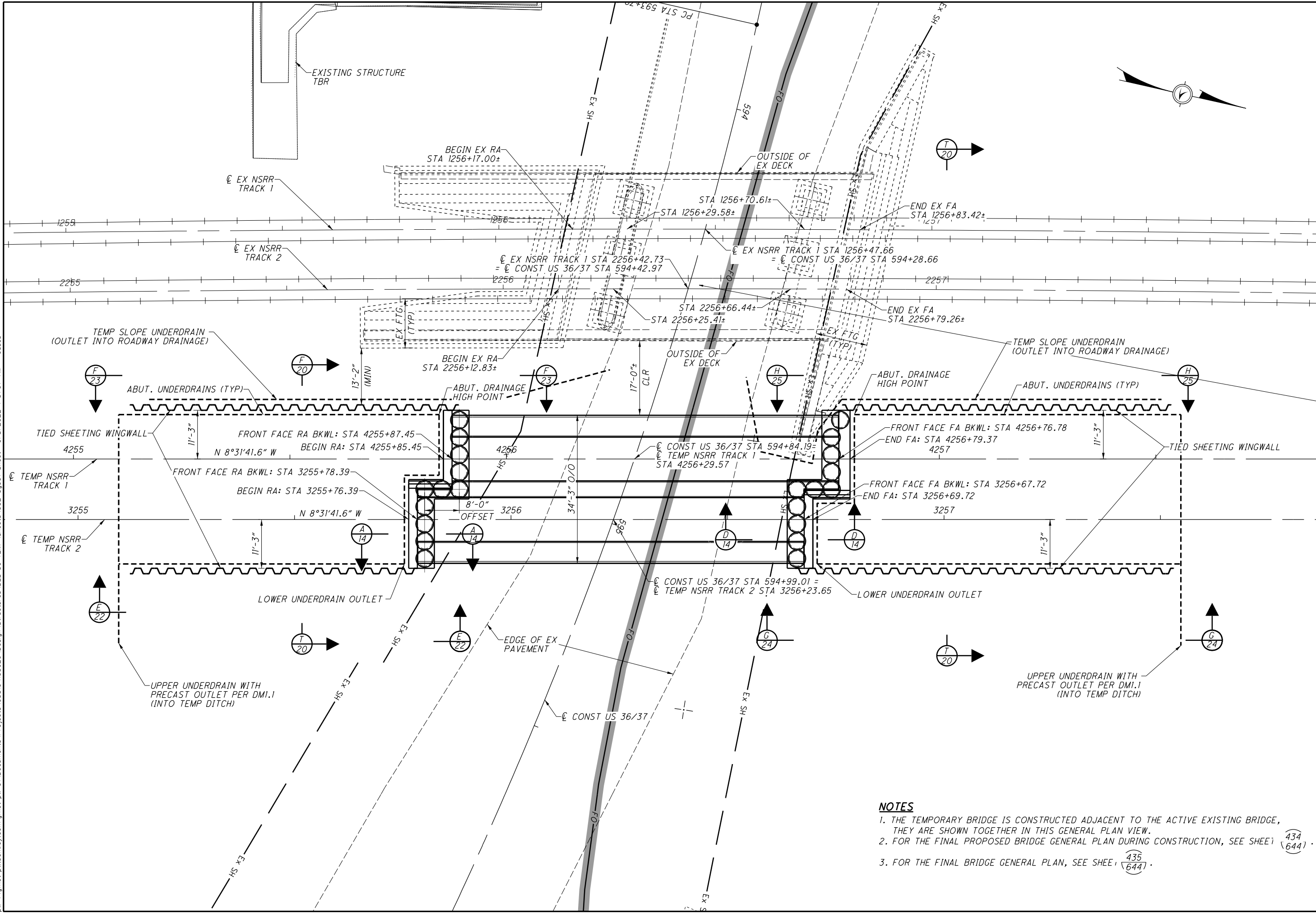
PLOT DRIVER: 000Tcodd\_PDF\_Levels.pltcfgr

PID: 103626

PENTABLE: 103626\_000Tcodd\_Pen.tbl

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**NOTES**

1. THE TEMPORARY BRIDGE IS CONSTRUCTED ADJACENT TO THE ACTIVE EXISTING BRIDGE, THEY ARE SHOWN TOGETHER IN THIS GENERAL PLAN VIEW.
2. FOR THE FINAL PROPOSED BRIDGE GENERAL PLAN DURING CONSTRUCTION, SEE SHEET 434/644.
3. FOR THE FINAL BRIDGE GENERAL PLAN, SEE SHEET 435/644.

|                                                                                                                                                         |                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| <b>DESIGN AGENCY</b><br><b>Gannett Fleming</b><br>ENGINEERS & ARCHITECTS, P.C.<br>2500 CORPORATE EXCHANGE DRIVE SUITE 230<br>COLUMBIUS, OHIO 43231      | DATE<br>05/2021                                            |
|                                                                                                                                                         | REVIEWED<br>EFD                                            |
| DRAWN<br>RSN                                                                                                                                            | REVISIONS<br>0001 SPN: NONE (TEMP)<br>NSRR FILE: BR0019283 |
| DESIGNED<br>JGC                                                                                                                                         | CHECKED<br>CTM                                             |
| <b>GENERAL PLAN VIEW (TEMPORARY AND EXISTING BRIDGE)</b><br>BRIDGE NO. DEL-36-TEMP (TEMPORARY NS MP S-23-80)<br>NSRR OVER US 36 / 37 (CITY OF DELAWARE) |                                                            |
| <b>POINT PROJECT</b><br>PID No. 103626                                                                                                                  |                                                            |
| 2 / 34                                                                                                                                                  |                                                            |
| 400<br>644                                                                                                                                              |                                                            |





**ITEM 511 - CONCRETE FOR RAILROAD BRIDGES**

ALL CONCRETE PAID FOR UNDER ITEM 511 SHALL MEET THE REQUIREMENTS OF ODOT CMS 511, MODIFIED AS NECESSARY TO MEET THE REQUIREMENTS OF NSRR-PPM, APPENDIX H.4.2 - "SPECIFICATIONS FOR CAST-IN-PLACE CONCRETE", AND AREMA CHAPTER 8. IN THE CASE OF A DISCREPANCY, THE MOST STRINGENT SHALL GOVERN.

ALL CONCRETE SHALL HAVE A MINIMUM REQUIRED CEMENT RATIO OF 610 LBS/CY. SLAG AND FLY ASH SHALL NOT BE USED IN CONCRETE FOR RAILROAD BRIDGES.

ALL MIX DESIGNS, AND ANY ADMIXTURES USED, SHALL BE SUBMITTED TO NSRR FOR REVIEW AND APPROVAL. ANY ADMIXTURES USED SHALL BE IN ADDITION TO, NOT IN LIEU OF, THE MINIMUM REQUIRED CEMENT RATIO.

ALL WATERSTOPS REQUIRED BY THESE PLANS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE CONCRETE.

**ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 6, AS PER PLAN**

PRIMARY STRUCTURAL STEEL SHALL BE CONSIDERED LEVEL 6 AND SHALL CONFORM TO ODOT CMS 513 EXCEPT AS MODIFIED HEREIN AND BY NSRR-PPM APPENDIX H.4.1 - "SPECIFICATIONS FOR STRUCTURAL STEEL". ALL BOLTS SHALL BE INSTALLED USING THE TURN-OF-THE-NUT METHOD AND PER AREMA 15-3.2.2.

PRIMARY STRUCTURAL STEEL IS DEFINED AS WELDED PLATE GIRDER FLANGES, WEBS AND STIFFENERS. IT SHALL ALSO INCLUDE ANY ITEMS WELDED TO GIRDER FLANGES OR WEBS, AND ANY OTHER STEEL NOT SPECIFICALLY IDENTIFIED AS SECONDARY.

PRIMARY STRUCTURAL STEEL SHALL BE PROVIDED AS PER ASTM SPECIFICATIONS A709, GRADE 50, AND SHALL ALSO COMPLY WITH THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:  
A. S5-F2 (FRACTURE CRITICAL - CHARPY TEST ZONE 2)  
B. S29 (FINE AUSTENITIC GRAIN SIZE)  
C. S93 (LIMITATION ON WELD REPAIRS)

SECONDARY STRUCTURAL STEEL IS DEFINED AS INTERMEDIATE AND END DIAPHRAGMS, AND STIFFENER BOTTOM FLANGE CONNECTION PLATES.

STRUCTURAL STEEL SUPPLIED AS PART OF ITEM 502 - STRUCTURE FOR MAINTAINING TRAFFIC (RAILROAD), AS PER PLAN SHALL ALSO BE CONSIDERED SECONDARY.

SECONDARY STRUCTURAL STEEL SHALL BE PROVIDED AS PER ASTM SPECIFICATIONS A709, GRADE 50, AND SHALL ALSO COMPLY WITH THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:  
A. S5-T2 (NON-FRACTURE CRITICAL - CHARPY TEST ZONE 2)  
B. S29 (FINE AUSTENITIC GRAIN SIZE)

DECK SLAB OVERHANG FORMS SHALL BE SUPPORTED FROM THE BOTTOM FLANGE OF THE FASCIA GIRDERS UNLESS THE GIRDER WEB IS ADEQUATELY SUPPORTED TO PREVENT BUCKLING DUE TO LOADS FROM WEB-BEARING FORM SUPPORTS. THE DETAILS OF ALL OVERHANG FORMWORK SUPPORTS AND OPTIONAL USE OF WEB CONNECTIONS SHALL BE APPROVED BY NSRR PRIOR TO USE.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES (POUND) AT THE CONTRACT BID PRICE FOR EACH STRUCTURE.

**ITEM 518 - 8" PERFORATED CORRUGATED STEEL PIPE, 707.01, AS PER PLAN**

**ITEM 518 - 8" NON-PERFORATED CORRUGATED STEEL PIPE, INCLUDING SPECIALS, 707.01, AS PER PLAN**

UNLESS SUPERCEDED BY NSRR-PPM APPENDIX H.4.9 - "SPECIFICATION FOR CORRUGATED STEEL PIPE (BITUMINOUS COATED GALVANIZED STEEL)", UNDERDRAIN PIPES SHALL BE PROVIDED AS FOLLOWS:

MATERIALS SHALL BE AS PER ODOT CMS 707.01, AND GALVANIZED AS PER ODOT CMS 711.02, AND BITUMINOUS COATED AS PER ODOT CMS 707.05

NOTE: PRECAST REINFORCED CONCRETE OUTLET PROTECTION PER DM-1.1 SHALL BE MODIFIED TO ACCEPT AN 8" PIPE, INCLUDE THE TIED CONCRETE BLOCK MAT, AND BE INCLUDED FOR PAYMENT WITH THIS PAY ITEM.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES (FT) AT THE CONTRACT BID PRICE WHICH SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM.

**ITEM 524 - DRILLED SHAFTS, 48" DIAMETER, ABOVE BEDROCK, AS PER PLAN**

**ITEM 524 - DRILLED SHAFTS, 42" DIAMETER, INTO BEDROCK, AS PER PLAN**

**ITEM 524 - DRILLED SHAFTS, 30" DIAMETER, ABOVE BEDROCK, AS PER PLAN**

DRILLED SHAFTS SHALL BE PAID FOR AND CONSTRUCTED PER ODOT CMS 524 AND AREMA 8-24.5. SEE INDIVIDUAL BRIDGE PLAN NOTES FOR FURTHER DETAIL.

SHAFT SPIRAL REINFORCING SHALL EXTEND FROM 3" ABOVE THE SHAFT TIP TO THE LOWEST LEVEL OF HORIZONTAL REINFORCING IN THE SUPPORTED MEMBER ABOVE. VERTICAL REINFORCING BARS SHALL EXTEND A MINIMUM OF 18" ABOVE THE SHAFT TOP AND A MAXIMUM OF 24" INTO THE SHAFT CAP.

CYLINDRICAL CONSTRUCTION FROM SHAFT TIP TO SHAFT TOP IS ASSUMED FOR PAYMENT. THE CONTRACTOR MAY ELECT TO PLACE A CONSTRUCTION JOINT AT THE EXISTING GROUND LINE OF EACH SHAFT. THE CONTRACTOR MAY ELECT TO CONSTRUCT A RECTANGULAR WALL ABOVE THE OPTIONAL SHAFT CONSTRUCTION JOINT TO THE TOP OF SHAFT ELEVATION. ANY ADDITIONAL TIME OR MATERIALS DUE TO RECTANGULAR CONSTRUCTION ABOVE THE OPTIONAL CONSTRUCTION JOINT ARE AT THE EXPENSE OF THE CONTRACTOR. THE CIRCULAR REINFORCING PATTERN SHALL BE PROVIDED AS SHOWN IN THESE PLANS. IF RECTANGULAR CONSTRUCTION IS USED ABOVE THE OPTIONAL CONSTRUCTION JOINT, REVISED FORMING AND SHORING DETAILS SHALL BE SUBMITTED TO NSRR FOR REVIEW AND APPROVAL.

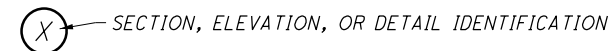
THE CONCRETE MIX FOR DRILLED SHAFTS SHALL BE PROVIDED TO ALLOW FOR A SLUMP BETWEEN 5 AND 7 INCHES. SEE CONCRETE FOR RAILROAD BRIDGES GENERAL NOTE ON THIS SHEET FOR FURTHER CONCRETE REQUIREMENTS.

PAYMENT IS FULL COMPENSATION FOR DRILLING THE HOLES, PROVIDING AND PLACING REINFORCING, AND CONSTRUCTING THE DRILLED SHAFTS TO THE PLAN ELEVATIONS. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES (FT) AT THE CONTRACT BID PRICE.

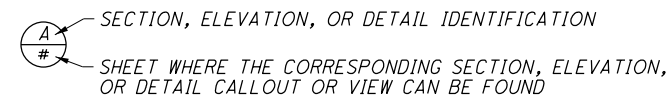
**STANDARD PLAN DETAILING NOMENCLATURE**

THROUGHOUT THE PLANS, SECTIONS AND DETAILS ARE REFERENCED TO THEIR CORRESPONDING VIEWS THROUGH THE USE OF STANDARD CALLOUTS. SECTION AND ELEVATION CALLOUTS WILL UTILIZE LETTERS, WHILE DETAIL CALLOUTS WILL UTILIZE NUMBERS. THE VIEWS OF SECTIONS, ELEVATIONS, AND DETAILS WILL HAVE UNIQUE NUMBERS ON THE PAGES ON WHICH THEY ARE SHOWN.

IF A SECTION, ELEVATION, OR DETAIL VIEW IS ON THE SAME SHEET FROM WHICH IT IS CUT, THE CALLOUT WILL APPEAR AS FOLLOWS:



IF A SECTION, ELEVATION, OR DETAIL VIEW IS ON A DIFFERENT SHEET FROM WHICH IT IS CUT, THE CALLOUT WILL APPEAR AS FOLLOWS:



STRUCTURAL ELEMENTS WILL BE IDENTIFIED AS FOLLOWS:

- STRUCTURE DESIGNATION
- "G" FOR PROPOSED GIRDER
- "X" FOR EXISTING GIRDER
- "T" FOR TEMPORARY GIRDER
- "S" FOR TIED SHEETING TIEBACK



**STANDARD PLAN ABBREVIATIONS**

- ABUT = ABUTMENT
- BCMP/P = BITUMINOUS COATED CORRUGATED METAL (OR STEEL) PIPE (PERFORATED)
- BKWL = BACKWALL
- BM = BENCHMARK
- BOT or BOT/= BOTTOM or BOTTOM OF
- BRG = BEARING
- BTWN = BETWEEN
- C/C = CENTER TO CENTER
- CB = CATCH BASIN
- CIP = CAST IN PLACE
- CJ = CONSTRUCTION JOINT
- CJ-0 = OPTIONAL CONSTRUCTION JOINT
- CLR = CLEAR
- CMP = CORRUGATED METAL (OR STEEL) PIPE (NON-PERFORATED)
- CMS = CONSTRUCTION MATERIAL SPECIFICATIONS
- CNT-JT = CONTRACTION JOINT
- CONC = CONCRETE
- CONST = CONSTRUCTION
- CPP = CORRUGATED PLASTIC PIPE
- CVN = CHARPY V-NOTCH
- DIA = DIAMETER
- DIM = DIMENSION
- DND = DO NOT DISTURB
- DPRM = DIAPHRAGM
- DS = DRILLED SHAFT
- EF = EACH FACE
- EL = ELEVATION
- ELEC = ELECTRIC
- EX = EXISTING
- EXCAV = EXCAVATION
- EXP = EXPANSION
- F/F = FACE TO FACE
- FA = FORWARD ABUTMENT
- FCM = FRACTURE CRITICAL MEMBER
- FF = FRONT FACE
- FND = FOUNDATION
- FO = FIBER OPTIC
- FTG = FOOTING
- FWD = FORWARD
- GA = GAUGE
- GALV = GALVANIZED
- ID = INNER DIAMETER
- I/I = INSIDE TO INSIDE
- JT = JOINT
- LT = LEFT
- MAX = MAXIMUM
- MH = MANHOLE
- MHC = MINIMUM HORIZONTAL CLEARANCE
- MIN = MINIMUM
- MISC = MISCELLANEOUS
- MVC = MINIMUM VERTICAL CLEARANCE
- No. = NUMBER
- NSRR or NS = NORFOLK SOUTHERN RAILROAD
- O/O = OUT TO OUT
- OD = OUTSIDE DIAMETER
- ODOT = OHIO DEPARTMENT OF TRANSPORTATION
- P.V.I. = POINT OF VERTICAL INTERSECTION
- PC = POINT OF CURVE
- PEJF = PREFORMED EXPANSION JOINT FILLER
- PG = PROFILE GRADE
- PMVC = POINT OF MINIMUM VERTICAL CLEARANCE
- PROP = PROPOSED
- PT = POINT
- PVMT = PAVEMENT
- R = RADIUS
- RA = REAR ABUTMENT
- RCP = REINFORCED CONCRETE PIPE
- RD = ROAD
- REQ'D = REQUIRED
- RF = REAR FACE
- ROW = RIGHT OF WAY
- RR = RAILROAD
- RT = RIGHT
- S/O = SERIES OF
- SCD = STANDARD CONSTRUCTION DRAWING
- SPA = SPACES
- STA = STATION
- STD = STANDARD
- STM = STORM
- T/B = TOP AND BOTTOM
- T/T = TOE TO TOE
- TBR = TO BE REMOVED
- TEL = TELECOM
- TEMP = TEMPORARY
- TMBR = TIMBER
- TOP/ = TOP OF
- T.R. = TOP OF RAIL
- TYP = TYPICAL
- U.N.O. = UNLESS NOTED OTHERWISE
- VC = VERTICAL CURVE
- VERT = VERTICAL
- VPF = VANDAL PROTECTION FENCE
- WBG = WELDED BAR GRATE
- WW = WINGWALL

**STANDARD RAILROAD BRIDGE NOTES AND DETAILS**

THE NOTES ON THIS SHEET ARE SPECIFIC TO THE SUBJECT BRIDGE STRUCTURE. FOR STANDARD NOTES AND DETAILS APPLICABLE TO ALL RAILROAD BRIDGE STRUCTURES ON THIS PROJECT, INCLUDING THIS STRUCTURE, SEE THE

FOLLOWING SHEETS: (401/644) THROUGH (403/644)

| TEMPORARY BRIDGE SUBSET         |                                             |    |
|---------------------------------|---------------------------------------------|----|
| DESCRIPTION                     | SHEET SUBSET                                |    |
| SITE PLAN                       | 1                                           |    |
| GENERAL PLAN (TEMP & EX BRIDGE) | 2                                           |    |
| NOTES                           | SHARED RAIL BRIDGE GENERAL (1 OF 3)         | 3  |
|                                 | SHARED RAIL BRIDGE GENERAL (2 OF 3)         | 4  |
|                                 | SHARED RAIL BRIDGE GENERAL (3 OF 3)         | 5  |
|                                 | TEMPORARY BRIDGE (1 OF 2)                   | 6  |
|                                 | TEMPORARY BRIDGE (2 OF 2)                   | 7  |
| ESTIMATED BRIDGE QUANTITIES     | 8                                           |    |
| TEMP WORKS                      | PHASED BRIDGE SECTIONS                      | 9  |
|                                 | SOUTH SHEETING PLAN                         | 10 |
|                                 | SOUTH SHEETING DETAILS                      | 11 |
| SHAFTS                          | REAR ABUTMENT FOUNDATION PLAN               | 12 |
|                                 | FORWARD ABUTMENT FOUNDATION PLAN            | 13 |
|                                 | DRILLED SHAFT DETAILS                       | 14 |
| ABUTMENTS                       | REAR ABUTMENT PLAN AND ELEVATION            | 15 |
|                                 | REAR ABUTMENT PLAN AND ELEVATION DETAILS    | 16 |
|                                 | FORWARD ABUTMENT PLAN AND ELEVATION         | 17 |
|                                 | FORWARD ABUTMENT PLAN AND ELEVATION DETAILS | 18 |
| TIED WINGWALLS                  | TYPICAL ABUTMENT SECTIONS AND DETAILS       | 19 |
|                                 | TIED SHEETING SECTION AT ABUTMENTS          | 20 |
|                                 | TIED SHEETING DETAILS                       | 21 |
|                                 | EAST SHEETING WALL AT REAR ABUTMENT         | 22 |
|                                 | WEST SHEETING WALL AT REAR ABUTMENT         | 23 |
| SUPERSTRUCTURE & BEARINGS       | EAST SHEETING WALL AT FORWARD ABUTMENT      | 24 |
|                                 | WEST SHEETING WALL AT FORWARD ABUTMENT      | 25 |
|                                 | TEMPORARY SPAN TRANSVERSE SECTION           | 26 |
|                                 | FRAMING PLAN                                | 27 |
|                                 | GIRDER ELEVATION AND DETAILS                | 28 |
|                                 | INTERMEDIATE DIAPHRAGM DETAILS              | 29 |
|                                 | END DIAPHRAGM DETAILS                       | 30 |
|                                 | EXPANSION BEARING                           | 31 |
| FIXED BEARING                   | 32                                          |    |
| TIE PLAN AND DETAILS            | 33                                          |    |
| REBAR                           | REINFORCING LIST                            | 34 |

**DRILLED SHAFT DESIGN LOADS**

MAX SERVICE LOAD TO BE SUPPORTED BY EACH ABUTMENT SHAFT = 582 KIPS  
ALLOWABLE TIP RESISTANCE = 105 KIPS  
ALLOWABLE SKIN RESISTANCE = 622 KIPS (ASSUMED TO OCCUR ALONG THE BOTTOM 12' OF SHAFT)  
FACTOR OF SAFETY: 2.5 (AREMA CH. 8 SECTION 24.3.2.5)  
TOTAL ALLOWABLE RESISTANCE = 727 KIPS

SEE SHEET (403/644) FOR FULL DRILLED SHAFT PAY ITEM NOTES.

**ITEM 202 - STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN**

THIS ITEM SHALL INCLUDE THE REMOVAL OF THE PROPOSED TEMPORARY BRIDGE CARRYING RAILROAD TRAFFIC OVER US 36/37.

REMOVAL INCLUDES THE REMOVAL OF THE TEMPORARY BRIDGE DECK, GIRDERS, BEARINGS, TIED SHEETING WALLS, SOUTHERN SHEETING WALL, DRILLED SHAFTS TO 3'-0" BELOW FINAL GRADE, AND ALL OTHER ANCILLARY ITEMS.

REMOVAL OF TEMPORARY EARTHWORK, INCLUDING FILL BETWEEN THE TIED SHEETING WALLS, IS INCLUDED WITH THE TRACK EXCAVATION QUANTITIES.

**ITEM 502 - STRUCTURE FOR MAINTAINING TRAFFIC (RAILROAD), AS PER PLAN - TEMPORARY BRIDGE DECK**

THIS ITEM CONSISTS OF FURNISHING, INSTALLING, AND REMOVING BRIDGE DECK AND WALKWAY COMPONENTS. ALL COMPONENTS REQUIRED TO CONSTRUCT THE BRIDGE DECK SHALL BE INCLUDED FOR PAYMENT INCLUDING TIMBER TIES, TIMBER FILLS, STEEL OUTRIGGERS, STEEL ANGLES, STEEL CABLES, NEOPRENE PADS UNDER BACKWALL TIES, AND STEEL WALKWAY GRATING AND ASSOCIATED CLIPS. THIS ITEM SHALL ALSO INCLUDE ALL FASTENERS REQUIRED INCLUDING ANY BOLTS, SPIKES, AND WELDS. THE END TIE ANCHORED TO THE TOP OF THE BACKWALL, INCLUDING ANCHORAGES, AND REQUIRED SUBMITTAL AND APPROVALS BY NSRR, SHALL BE INCLUDED WITH THIS PAY ITEM.

ALL ROLLED STEEL SHAPES SHALL COMPLY WITH ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 6, AS PER PLAN. (SECONDARY STEEL MATERIAL PROPERTIES)

TRACK COMPONENTS (TIE PLATES, SPIKES, AND RAILS) SHALL BE CONSIDERED PART OF THE FORCE ACCOUNT WORK TO BE PERFORMED BY THE RAILROAD OR THEIR DESIGNATED CONTRACTOR.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED DECK, WALKWAY, AND HANDRAIL AFTER COMPLETION AND APPROVAL BY NSRR.

ALL TIMBER TIES SHALL COMPLY WITH THE NSRR QUALITY ASSURANCE SPECIFICATIONS FOR TIES AND TIMBERS.

**ITEM 502 - STRUCTURE FOR MAINTAINING TRAFFIC (RAILROAD), AS PER PLAN - TIED SHEETING WALLS**

THIS ITEM CONSISTS OF FURNISHING, INSTALLING, AND LATER REMOVING THE SHEET PILING, WALERS, AND TIE RODS DETAILED IN THE PLANS.

SHEET PILING SHALL HAVE A MINIMUM SECTION MODULUS OF 30.2 CUBIC INCHES PER FOOT.

WALER SHALL HAVE A MINIMUM TOTAL SECTION MODULUS OF 41.4 CUBIC INCHES FOR BENDING IN THE HORIZONTAL PLANE. A DOUBLE CHANNEL WALER IS DETAILED IN THE PLANS.

TIE RODS SHALL BE ASTM A722 GRADE 150. TIE RODS ACT TO TIE BACK THE FACE OF SHEETING AND ARE INSTALLED WITH NO INITIAL PRETENSION. THE TERM TIE ROD AND TIEBACK ARE USED INTERCHANGEABLY IN THESE PLANS.

THE STRUCTURAL STEEL SHALL BE ASTM A709, GRADE 50 (CONSIDERED SECONDARY STEEL).

FILL BETWEEN THE WALLS SHALL BE PAID FOR WITH ITEM 840 - SELECT GRANULAR BACKFILL, AS PER PLAN.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED TIED SHEETING WALLS AFTER COMPLETION AND APPROVAL BY NSRR.

**ITEM 530 - SPECIAL - SURVEY AND MONITORING OF TRACK AND TEMPORARY SHORING**

PART 1: QUALIFICATIONS OF PERSONNEL

PROVIDE QUALIFIED PERSONNEL UNDER THE DIRECT SUPERVISION OF A PROFESSIONAL LAND SURVEY OR LICENSED IN THE STATE OF OHIO WITH A MINIMUM OF TWO YEARS EXPERIENCE IN DEFORMATION MONITORING FOR STRUCTURES. PROVIDE THE NECESSARY EQUIPMENT AND MATERIALS TO OBTAIN, RECORD, COMPILER AND ANALYZE THE INSTRUMENTATION DATA AS SPECIFIED AND AS DIRECTED BY THE ENGINEER. SUBMIT THE NAMES, DUTIES, AND QUALIFICATIONS OF THE PERSONNEL AT LEAST FOUR WEEKS PRIOR TO COMMENCEMENT OF MONITORING. INCLUDE THE EQUIPMENT TO BE USED, INCLUDING INSTRUMENT CALIBRATION, AND THE FORM IN WHICH INFORMATION WILL BE PRESENTED TO THE ENGINEER. INCLUDE THE LOCATIONS AND METHODS THAT WILL BE USED TO MAINTAIN PERMANENT REFERENCE POINTS. THE ENGINEER MAY REQUEST A MEETING WITH THE MONITORING PERSONNEL WHEN EVALUATING THEIR QUALIFICATIONS. OBTAIN WRITTEN APPROVAL FROM THE ENGINEER PRIOR TO COMMENCEMENT OF MONITORING.

PART 2: MONITORING MOVEMENT OF TRACK

1) DESCRIPTION

THIS WORK IS THE MONITORING OF VERTICAL AND HORIZONTAL MOVEMENT OF EXISTING, TEMPORARY AND PERMANENT TRACKS DURING THE TIME PERIOD OVER WHICH THE TRACKS ARE SUPPORTED BY TEMPORARY SHORING. COORDINATE INSTRUMENTATION MONITORING WITH THE PROVISIONS FOR MONITORING MOVEMENT OF TEMPORARY SHORING.

2) CONSTRUCTION

A) MONITORING

SURVEY THE TOP OF RAILS OF ANY TRACKS ALONG THE LENGTH OF TRACK THAT WILL BE SUPPORTED BY THE TEMPORARY SHORING PLUS AN ADDITIONAL 100 FEET IN BOTH DIRECTIONS BEYOND THE ENDS OF THE TEMPORARY SHORING. WHERE MORE THAN ONE TRACK MAY BE AFFECTED, ESTABLISH MONITORING POINTS ON EACH TRACK. COMPLETE THIS SURVEY BEFORE ANY WORK FOR THE TEMPORARY SHORING (EXCAVATION OR PLACEMENT OF SHORING) HAS BEGUN. PROVIDE THE SURVEY INFORMATION TO THE DEPARTMENT TO USE AS A REFERENCE FOR FUTURE SURVEYS TO ESTABLISH WHETHER MOVEMENT HAS OCCURRED. SURVEY EACH TOP OF RAIL AT A MAXIMUM SPACING OF TWENTY (20) FEET BETWEEN MONITORING POINTS. PROVIDE A SECOND SET OF BASELINE READINGS TO CONFIRM REPEATABILITY OF THE BASELINE READINGS WITHIN TWENTY FOUR (24) HOURS AFTER THE INITIAL BASELINE SURVEY AT THE SAME MONITORING POINTS. PROVIDE ADDITIONAL MONITORING SURVEY(S) IMMEDIATELY PRIOR TO AND AFTER SHORING INSTALLATION. FIELD-MARK AND LOCATE VERTICAL MONITORING POINTS WITH PAINT OR CRAYON ON THE FIELD SIDE OF THE RAIL AND A POINT ON THE TIE FOR HORIZONTAL MEASUREMENT TO ASSURE THAT SUCCESSIVE READINGS ARE MEASURED AT THE SAME LOCATION(S).

**SURVEY AND MONITORING (CONTINUED)**

PART 2: CONTINUED

B) MONITORING FREQUENCY

AS SOON AS ANY TRACK IS PARTIALLY SUPPORTED BY TEMPORARY SHORING, BEGIN THE MONITORING SURVEYS.

DURING THE FIRST THREE (3) DAYS THAT THE TRACK IS SUPPORTED BY THE TEMPORARY SHORING, SURVEY THE TOP OF RAIL LOCATIONS A MINIMUM OF THREE (3) TIMES PER DAY WITH EACH SURVEY BEING APPROXIMATELY EIGHT (8) HOURS APART. SURVEY THE TRACKS AT THE SAME LOCATIONS AS THE INITIAL SURVEY.

THE AMOUNT, FREQUENCY, AND DURATION OF MONITORING MAY BE CHANGED AT THE DISCRETION OF NSRR.

IF IT IS ESTABLISHED BY THE ENGINEER THAT NO MOVEMENT OF THE TRACKS IS OCCURRING, REDUCE THE FREQUENCY OF THE SURVEYS TO ONCE A DAY FOR THE NEXT FOUR (4) CALENDAR DAYS. IF, AFTER THIS PERIOD OF TIME, NO MOVEMENT OF THE TRACKS HAS OCCURRED, REDUCE THE FREQUENCY OF THE MONITORING SURVEY TO ONCE A WEEK. CONTINUE TO SURVEY THE TRACKS ONCE A WEEK UNTIL THE SHORING IS REMOVED OR AS DIRECTED BY THE ENGINEER.

IF VERTICAL OR HORIZONTAL MOVEMENT OF THE TRACK IS EQUAL TO OR GREATER THAN 0.25 INCHES, IMMEDIATELY MAKE DIRECT CONTACT AND NOTIFY THE REPRESENTATIVE OF NORFOLK SOUTHERN CORPORATION. IF DEFLECTION CONTINUES TO INCREASE, DO NOT RESUME WORK UNTIL NORFOLK SOUTHERN CORPORATION HAS INSPECTED THE SITE AND APPROVED.

PART 3: MONITORING MOVEMENT OF TEMPORARY SHORING AND TIED SHEETING WINGWALLS

1) DESCRIPTION

THIS WORK IS THE MONITORING OF BOTH VERTICAL AND HORIZONTAL MOVEMENTS OF TEMPORARY SHORING AND TIED SHEETING WINGWALLS (OF THE TEMPORARY BRIDGE) DURING CONSTRUCTION. COORDINATE INSTRUMENTATION MONITORING WITH THE PROVISIONS FOR MONITORING MOVEMENT OF TRACK AND ITEM 503, COFFERDAMS AND EXCAVATION BRACING.

2) CONSTRUCTION

A) MONITORING

FOR TEMPORARY SHORING AND WINGWALLS SUPPORTING NSRR TRACKS, SURVEY THE TOP OF SHORING AT MONITORING POINTS THAT ARE SPACED AT MAXIMUM INTERVALS OF TEN (10) FEET.

ESTABLISH REFERENCE POINTS BY CENTER PUNCHING THE TOP OF SHORING AT A MINIMUM OF THREE (3) LOCATIONS, WHICH INCLUDE BOTH ENDS AND A THIRD POINT NEAR MID-LENGTH, ALONG EACH SHORING LINE. LOCATE THESE REFERENCE POINTS RELATIVE TO THE SUPPORTED TRACK. PROVIDE A DIRECT LINE OF SIGHT ALONG THE TOP OF THE SHORING BETWEEN THESE REFERENCE POINTS AND MEASURE THE PILE DEFLECTION AT EACH MONITORING POINT RELATIVE TO THIS REFERENCE LINE. MEASURE THE PLUMBNESS OF THE WALL AT EACH OF THESE MONITORING LOCATIONS. COMPLETE THIS SURVEY BEFORE ANY EXCAVATION IN FRONT OF THE SHORING HAS BEGUN. PROVIDE THE SURVEY INFORMATION TO THE ENGINEER TO USE AS A REFERENCE FOR FUTURE SURVEYS TO ESTABLISH WHETHER MOVEMENT HAS OCCURRED.

B) MONITORING FREQUENCY

AS SOON ANY TRACKS ARE SUPPORTED BY THE TEMPORARY SHORING, BEGIN THE MONITORING SURVEYS.

DURING THE FIRST THREE (3) DAYS THAT THE TRACKS ARE SUPPORTED BY THE TEMPORARY SHORING, SURVEY THE TOP OF SHORING LOCATIONS A MINIMUM OF THREE (3) TIMES PER DAY WITH EACH SURVEY BEING APPROXIMATELY EIGHT (8) HOURS APART. SURVEY THE TOP OF SHORING AT THE SAME LOCATIONS AS THE INITIAL SURVEY.

**SURVEY AND MONITORING (CONTINUED)**

PART 3: CONTINUED

IF IT IS ESTABLISHED THAT NO EXCESSIVE MOVEMENT OF THE SHORING IS OCCURRING, REDUCE THE FREQUENCY OF THE SURVEYS TO ONCE A DAY FOR THE NEXT FOUR (4) CALENDAR DAYS. IF, AFTER THIS PERIOD OF TIME, NO MOVEMENT OF THE SHORING HAS OCCURRED, REDUCE THE FREQUENCY OF THE SURVEYING TO ONCE A WEEK. CONTINUE TO SURVEY THE SHORING ONCE A WEEK UNTIL THE COMPLETION OF THAT PHASE OF CONSTRUCTION.

IF LATERAL MOVEMENT OF THE SHORING SYSTEM EXCEEDS THE LIMITS SET FORTH BELOW, IMMEDIATELY MAKE DIRECT CONTACT AND NOTIFY THE NSRR REPRESENTATIVE. IF DEFLECTION CONTINUES TO INCREASE, DO NOT RESUME WORK UNTIL NSRR HAS INSPECTED THE SITE AND APPROVED.

LIMIT FOR SHORING MORE THAN 18'-0" FROM THE NEAREST TRACK CENTER (INCLUDING THE SOUTHERN SHORING WALL): 0.50"

LIMIT FOR SHORING 18'-0" OR CLOSER TO THE NEAREST TRACK CENTER (INCLUDING THE TIED SHORING WALLS): 0.375"

THE AMOUNT, FREQUENCY, AND DURATION OF MONITORING MAY BE CHANGED AT THE DISCRETION OF NSRR.

PART 4: REPORTING AND INTERPRETATION OF RESULTS

1) MONITORING REPORT

RECORD AND STORE RAW INSTRUMENTATION DATA IN STANDARD UNITS OF MEASURE. REDUCE AND PRESENT INSTRUMENTATION DATA IN A CONSISTENT SPREADSHEET FORMAT. FURNISH A SUMMARY REPORT TO THE ENGINEER WITHIN 24 HOURS AFTER COLLECTION, WITH TABULATED RAW DATA, REDUCED RESULTS AND SUMMARY PLOTS. PROVIDE DATA IN A CHRONOLOGICAL FORMAT REPORTING ALL PREVIOUSLY REPORTED VALUES. PROVIDE THE REPORT IN BOTH HARD COPY AND DIGITAL FORMAT. HIGHLIGHT ANY SIGNIFICANT CHANGES IN MEASURED VALUES AND NOTE WHAT CONSTRUCTION OR ENVIRONMENTAL CHANGES OCCURRED THAT COULD HAVE PRODUCED THE CHANGES IN VALUES.

2) INTERPRETATION OF RESULTS

THE ENGINEER WILL INTERPRET THE INSTRUMENTATION RESULTS AND WILL MAKE SUCH INTERPRETATIONS AVAILABLE TO THE CONTRACTOR. DO NOT DISCLOSE MONITORING DATA TO THIRD PARTIES WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER.

PART 5: MEASUREMENT AND PAYMENT

THE COST SHALL INCLUDE BASELINE READINGS AND SPECIFIED INSTRUMENT READING SETS FOR ALL SUPPORTED TRACKS AND ASSOCIATED SHORING. NO SEPARATE MEASUREMENT OR PAYMENT FOR ADDITIONAL READING SETS THAT ARE NOT AUTHORIZED BY THE ENGINEER. ADEQUATE MATERIAL AND EQUIPMENT REQUIRED SHALL BE FURNISHED AND INCLUDED IN THE COST.

FURNISHING AND INSTALLATION OF TEMPORARY EXCAVATION WILL BE MEASURED AND PAID FOR SEPARATELY.

THE DEPARTMENT WILL PAY FOR THE ACCEPTABLE MONITORING (LUMP) AT THE CONTRACT BID PRICE FOR EACH STRUCTURE.

**ITEM 840 - SELECT GRANULAR BACKFILL, AS PER PLAN**

MATERIAL SHALL BE PLACED IN 6" MAXIMUM LIFTS TO THE ELEVATIONS DETAILED IN THE PLANS.

REMOVAL OF THE FILL VOLUME IS INCLUDED WITH THE TRACK EXCAVATION QUANTITIES.

ESTIMATED TEMPORARY BRIDGE QUANTITIES

CALC: RSN CHECK: JS

| ITEM    | ITEM EXT. | TOTAL QUANTITY | UNIT | DESCRIPTION                                                                       | REAR  | FWD   | SUPER   | GENERAL | REF SHEET NO. |
|---------|-----------|----------------|------|-----------------------------------------------------------------------------------|-------|-------|---------|---------|---------------|
| 202     | 11003     | LUMP           | LS   | STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN                                 |       |       |         | LUMP    | 6 / 34        |
| 502     | 12301     | LUMP           | LS   | STRUCTURE FOR MAINTAINING TRAFFIC (RAILROAD), AS PER PLAN - TEMPORARY BRIDGE DECK |       |       | LUMP    |         | 6 / 34        |
| 502     | 12301     | LUMP           | LS   | STRUCTURE FOR MAINTAINING TRAFFIC (RAILROAD), AS PER PLAN - TIED SHORING WALLS    |       |       |         | LUMP    | 6 / 34        |
| 503     | 11101     | LUMP           | LS   | COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN                                    |       |       |         | LUMP    | 4 / 34        |
| 503     | 21101     | 20             | CY   | UNCLASSIFIED EXCAVATION, AS PER PLAN                                              |       |       |         | 20      | 4 / 34        |
| 509     | 10000     | 9,501          | LB   | EPOXY COATED REINFORCING STEEL                                                    | 4,706 | 4,795 |         |         |               |
| 511     | 44113     | 44             | CY   | CLASS OCI CONCRETE WITH QC/OA, ABUTMENT, NOT INCLUDING FOOTING, AS PER PLAN       | 21    | 23    |         |         | 5 / 34        |
| 511     | 46513     | 58             | CY   | CLASS OCI CONCRETE WITH QC/OA, FOOTING, AS PER PLAN                               | 28    | 30    |         |         | 5 / 34        |
| 513     | 10321     | 352,776        | LB   | STRUCTURAL STEEL MEMBERS, LEVEL 6, AS PER PLAN                                    |       |       | 352,776 |         | 5 / 34        |
| 516     | 46201     | 8              | EACH | BEARING DEVICE, ROCKER, AS PER PLAN                                               |       |       | 8       |         | 32 / 34       |
| 516     | 46900     | 8              | EACH | BEARING DEVICE, MISC.: SELF-LUBRICATING CYLINDRICAL BEARING (EXP)                 |       |       | 8       |         | 31 / 34       |
| 518     | 21200     | 87             | CY   | POROUS BACKFILL WITH GEOTEXTILE FABRIC                                            | 26    | 26    |         | 35      |               |
| 518     | 40000     | 310            | FT   | 6" PERFORATED CORRUGATED PLASTIC PIPE                                             |       |       |         | 310     |               |
| 518     | 40010     | 38             | FT   | 6" PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS                         |       |       |         | 38      |               |
| 518     | 42201     | 384            | FT   | 8" PERFORATED CORRUGATED STEEL PIPE, 707.01, AS PER PLAN                          | 182   | 202   |         |         | 5 / 34        |
| 518     | 42301     | 194            | FT   | 8" NON-PERFORATED CORRUGATED STEEL PIPE, INCLUDING SPECIALS, 707.01, AS PER PLAN  | 97    | 97    |         |         | 5 / 34        |
| 524     | 94805     | 264            | FT   | DRILLED SHAFTS, 42" DIAMETER, INTO BEDROCK, AS PER PLAN                           | 132   | 132   |         |         | 5 / 34        |
| 524     | 94902     | 872            | FT   | DRILLED SHAFTS, 48" DIAMETER, ABOVE BEDROCK, AS PER PLAN                          | 436   | 436   |         |         | 5 / 34        |
| 524     | 95100     | 12             | EACH | DRILLED SHAFTS, MISC.: CSL TESTING                                                | 6     | 6     |         |         | 4 / 34        |
| SPECIAL | 53000200  | LUMP           | LS   | SPECIAL - STRUCTURE, MISC.: SURVEY AND MONITORING OF TRACK AND TEMPORARY SHORING  |       |       |         | LUMP    | 7 / 34        |
| 840     | 23001     | 3,960          | CY   | SELECT GRANULAR BACKFILL, AS PER PLAN                                             | 1,831 | 2,129 |         |         | 7 / 34        |



DESIGN AGENCY  
**Gannett Fleming**  
 ENGINEERS & ARCHITECTS, P.C.  
 2500 CORPORATE EXCHANGE DRIVE SUITE 230  
 COLUMBUS, OHIO 43231

DESIGNED  
 RSN  
 CHECKED  
 JS

DRAWN  
 CTM  
 REVISIONS

REVIEWED  
 EFD  
 000T SPN: NONE (TEMP)  
 NSRR FILE: BR0019283

DATE  
 05/2021

ESTIMATED BRIDGE QUANTITIES  
 BRIDGE NO. DEL-36-TEMP (TEMPORARY NS MP S-23.80)  
 NSRR OVER US 36 / 37 (CITY OF DELAWARE)

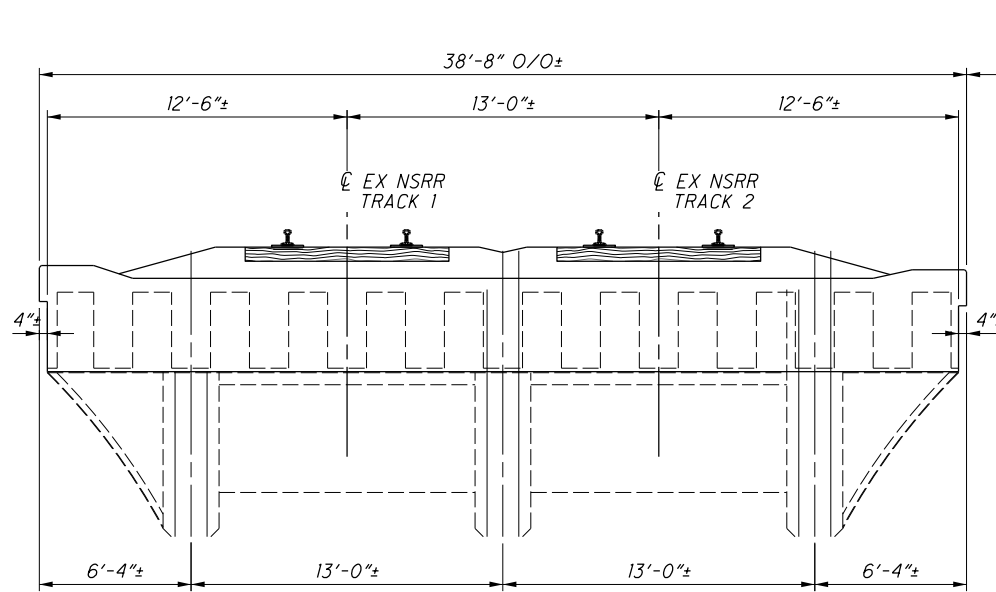
POINT PROJECT  
 PID No. 103626

8 / 34

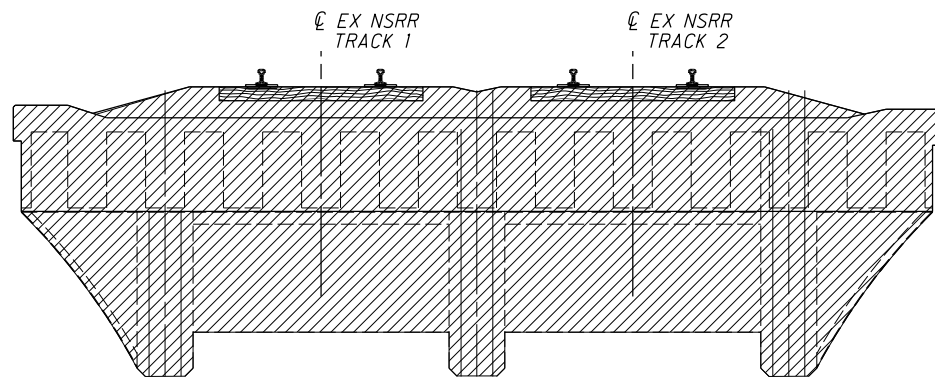
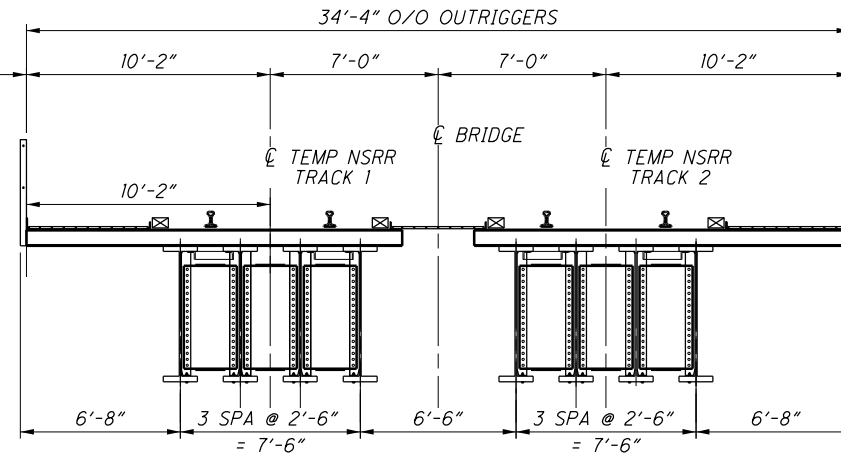
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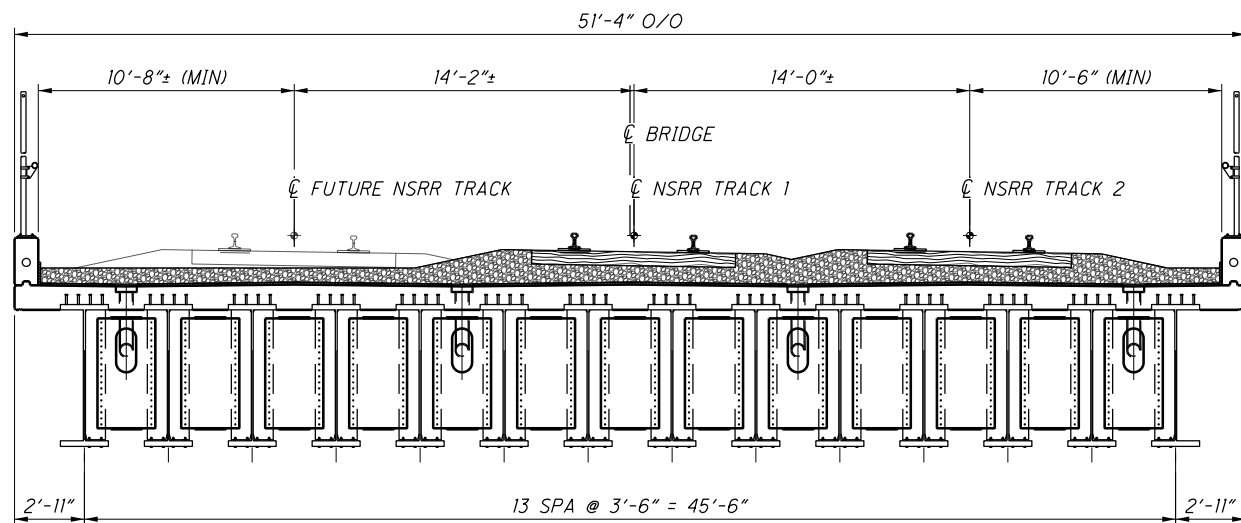
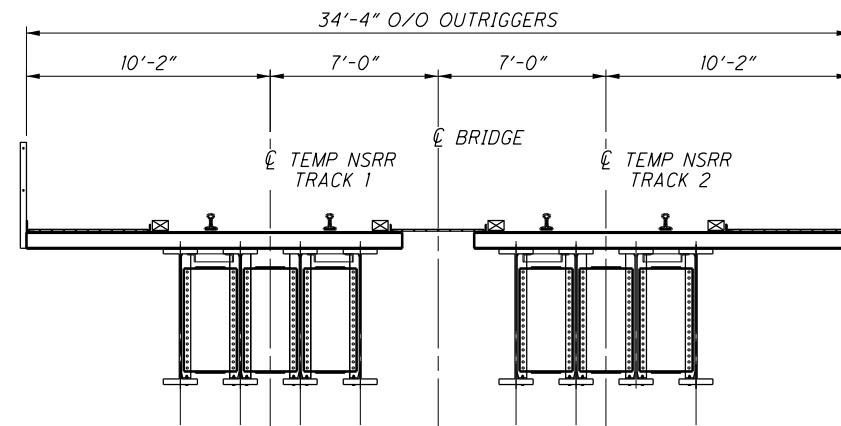
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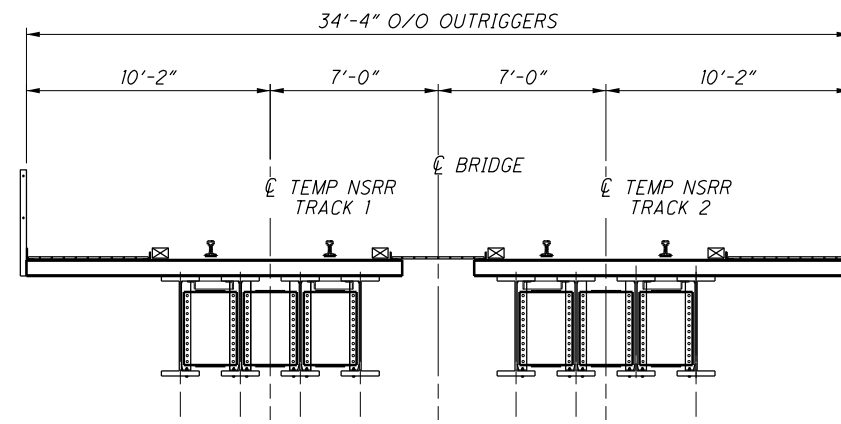
**CONSTRUCT TEMPORARY STRUCTURE (OFFLINE)**  
 NSRR AND ROADWAY TRAFFIC TO MATCH EXISTING



**REMOVE EXISTING STRUCTURE**  
 NSRR SWITCHED TO TEMPORARY STRUCTURE, ROADWAY TO MATCH EXISTING



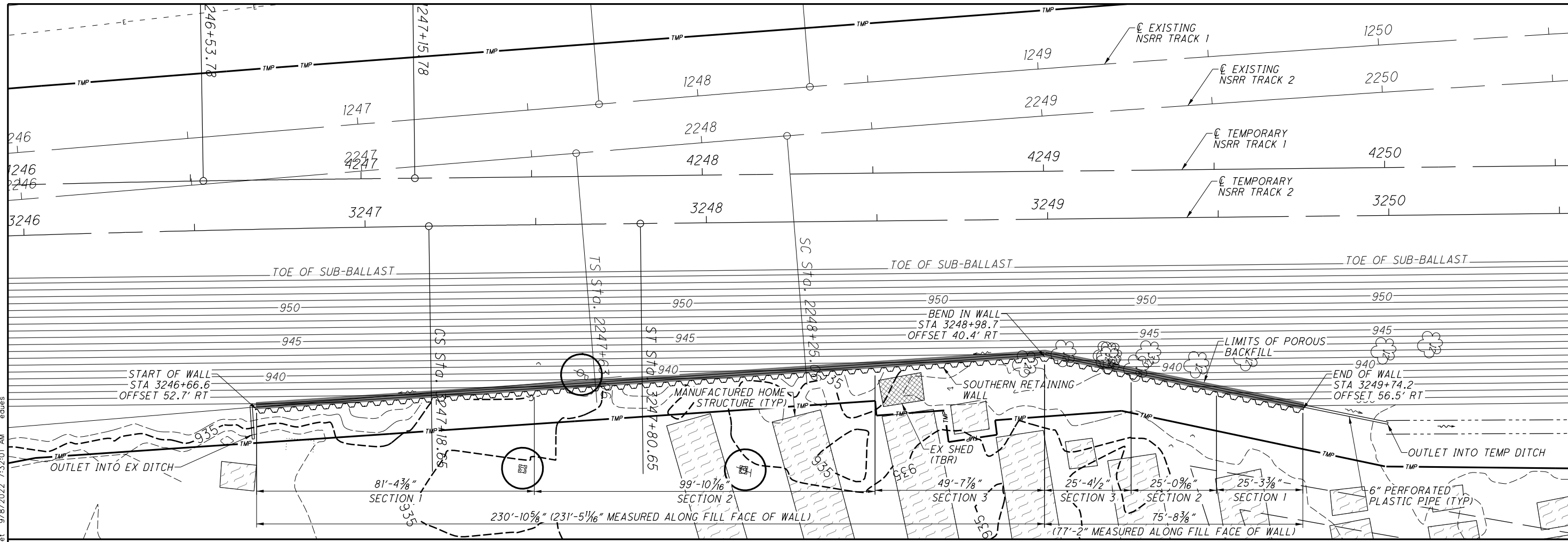
**CONSTRUCT PROPOSED BRIDGE**  
 NSRR SWITCHED TO TEMPORARY STRUCTURE, ROADWAY TO MATCH EXISTING



**NOTES**

1. FOR TEMPORARY BRIDGE DETAILED SECTION, SEE SHEET 26/34
2. FOR FINAL BRIDGE DETAILED SECTION, SEE SHEET 455/644

FILE: ... \DEL-36-TEMP\sheets\010a\_sc100  
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**NOTES:**

1. FOR TRANSVERSE SECTIONS OF THE TEMPORARY TRACK, SEE TRACK SHEETS 409/644 & 424/644.

**PLAN LEGEND:**

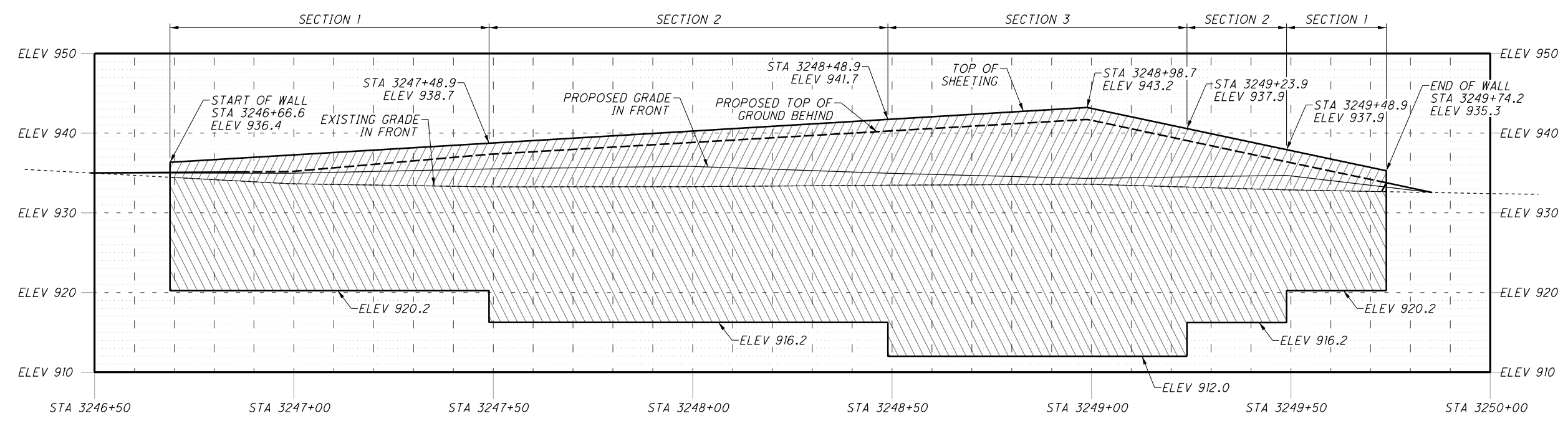
- MANUFACTURED STRUCTURE (DND)
- MANUFACTURED STRUCTURE (TBR)

**TEMPORARY SOUTHERN RETAINING WALL PLAN**

PROPOSED CONTOURS BEYOND TOE OF SUB-BALLAST NOT SHOWN FOR CLARITY  
 STATION AND OFFSET DATA IS GIVEN AT THE FILL FACE OF WALL (RELATIVE TO CL TEMP NSRR TRACK 2)

**SHORING REQUIREMENTS:**

- SECTION 1 - MIN S = 12.6 CU IN/FT, MIN I = 80 IN<sup>4</sup>/FT, MIN EMBED ELEV = 920.2
- SECTION 2 - MIN S = 24.2 CU IN/FT, MIN I = 170 IN<sup>4</sup>/FT, MIN EMBED ELEV = 916.2
- SECTION 3 - MIN S = 51.4 CU IN/FT, MIN I = 440 IN<sup>4</sup>/FT, MIN EMBED ELEV = 912.0



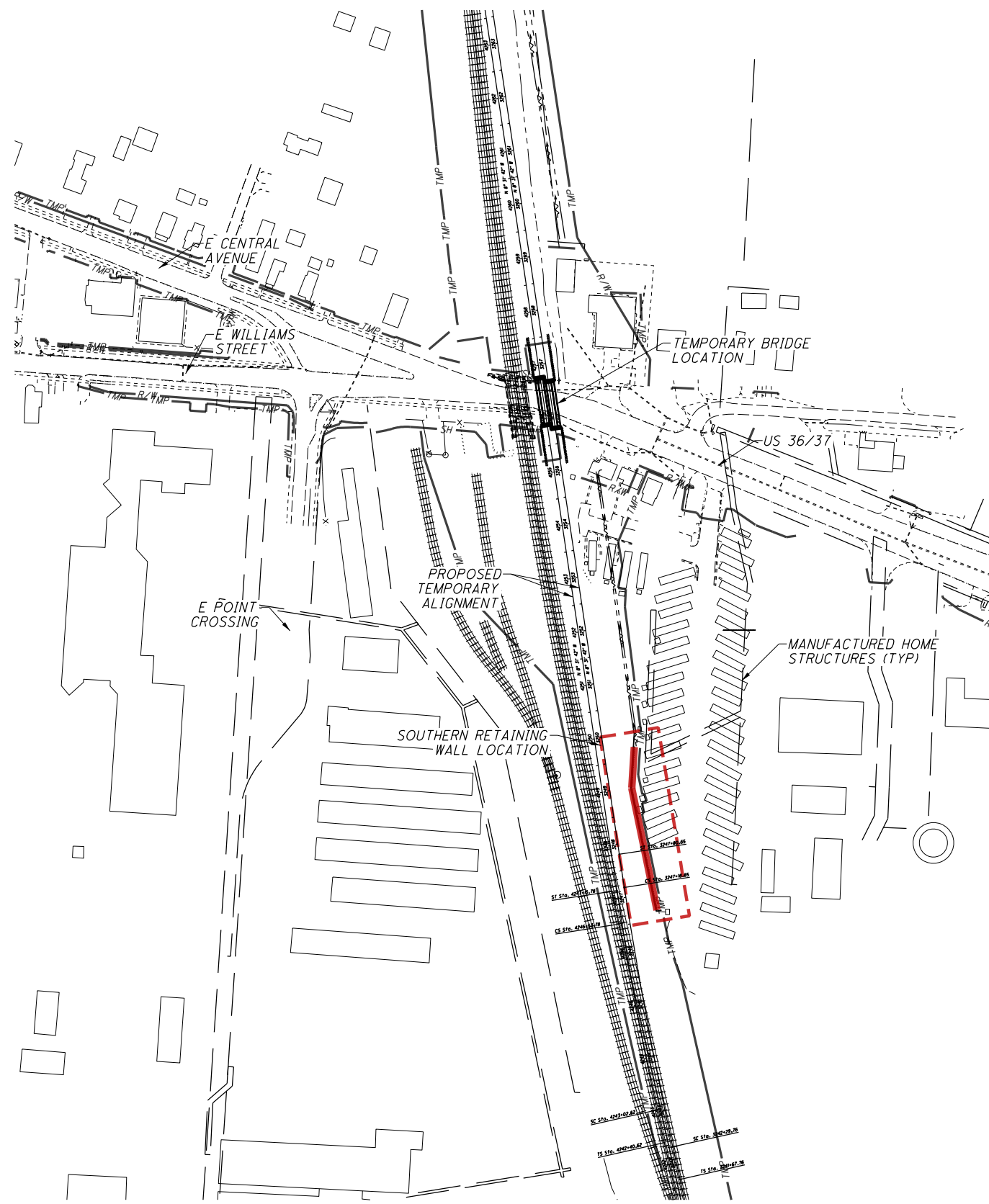
**PROFILE LEGEND:**

- SHEETING BELOW GRADE
- SHEETING ABOVE GRADE

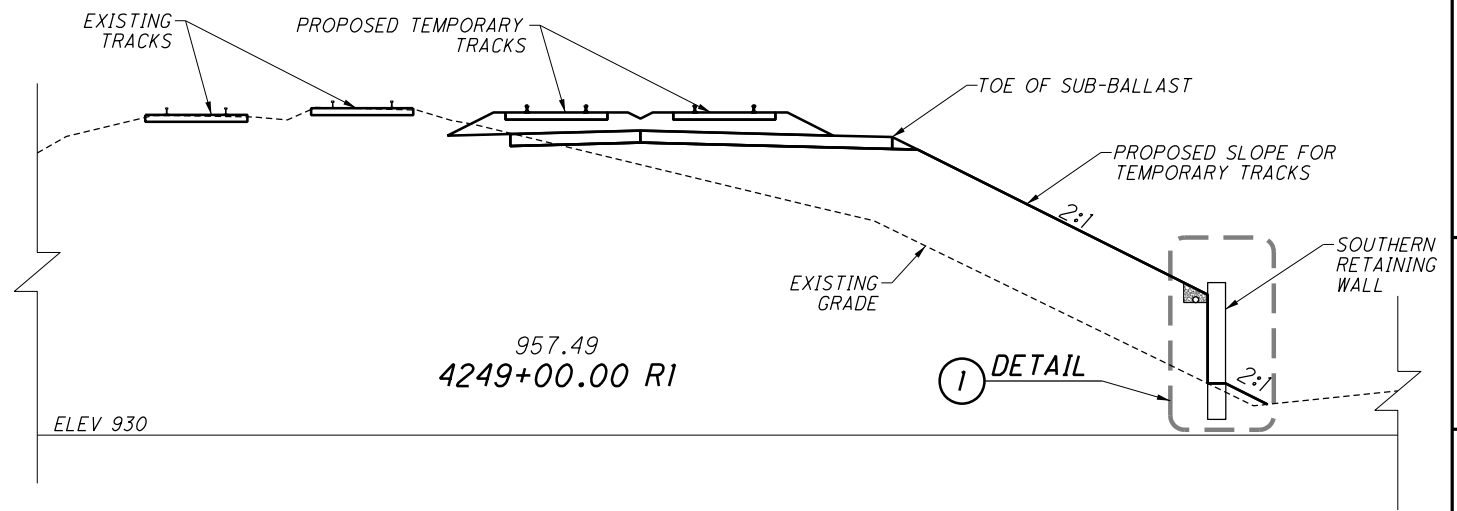
**TEMPORARY SOUTHERN RETAINING WALL ELEVATION**

ALONG FILL FACE OF WALL (RELATIVE TO CL TEMP NSRR TRACK 2)

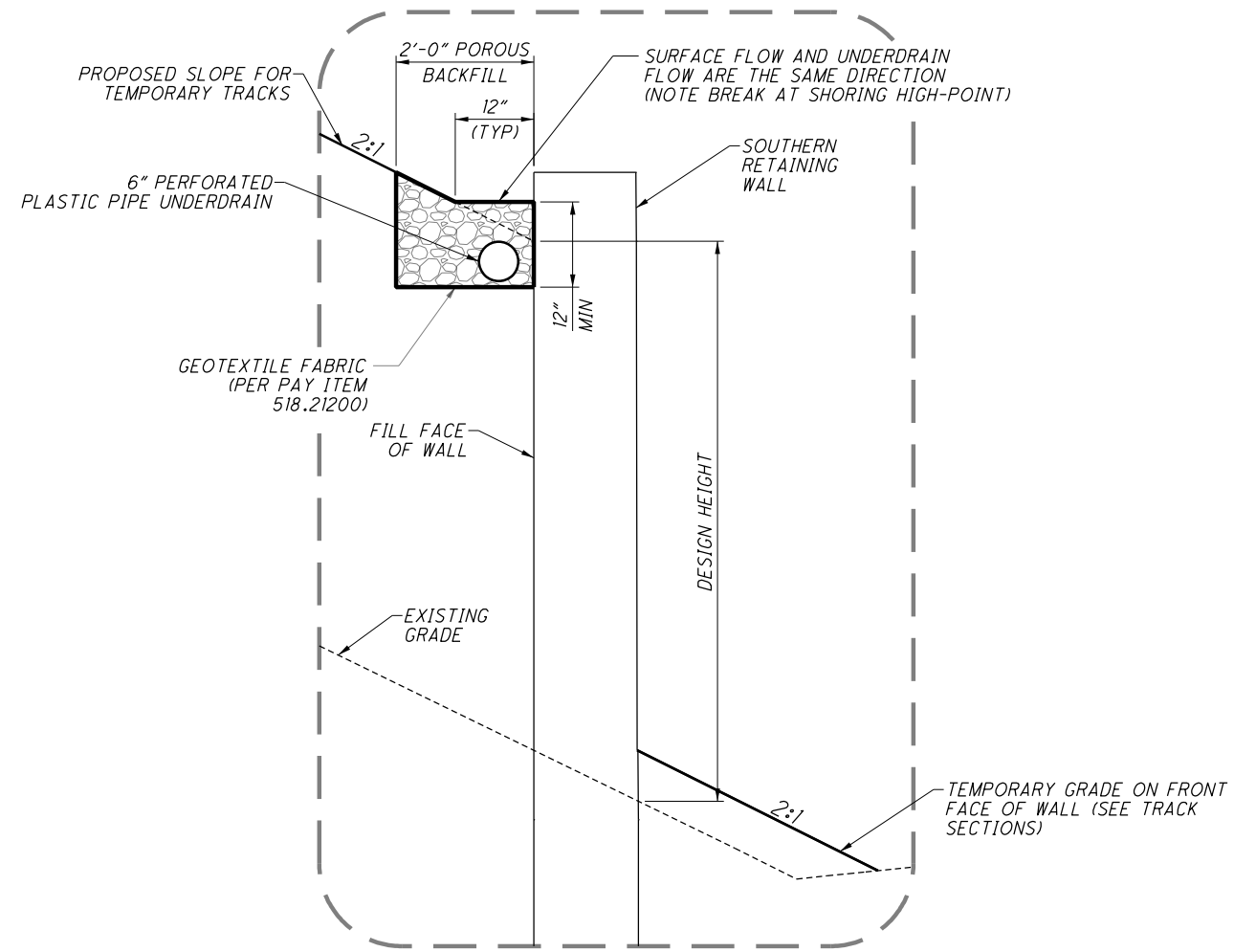
**DESIGN AGENCY:** Gannett Fleming ENGINEERS & ARCHITECTS, P.C. 2600 CORPORATE EXCHANGE DRIVE, SUITE 230 COLUMBIAS, OHIO 43231  
**DATE:** 05/2021  
**REVIEWED:** EFD  
**DRAWN:** VDT  
**DESIGNED:** VDT  
**CHECKED:** RSN  
**PROJECT:** SOUTHERN RETAINING WALL PLAN AND ELEVATION BRIDGE NO. DEL-36-TEMP (TEMPORARY NS MP S-23.80) NSRR OVER US 36 / 37 (CITY OF DELAWARE)  
**PID No.:** 103626  
 10 / 34  
 408 / 644



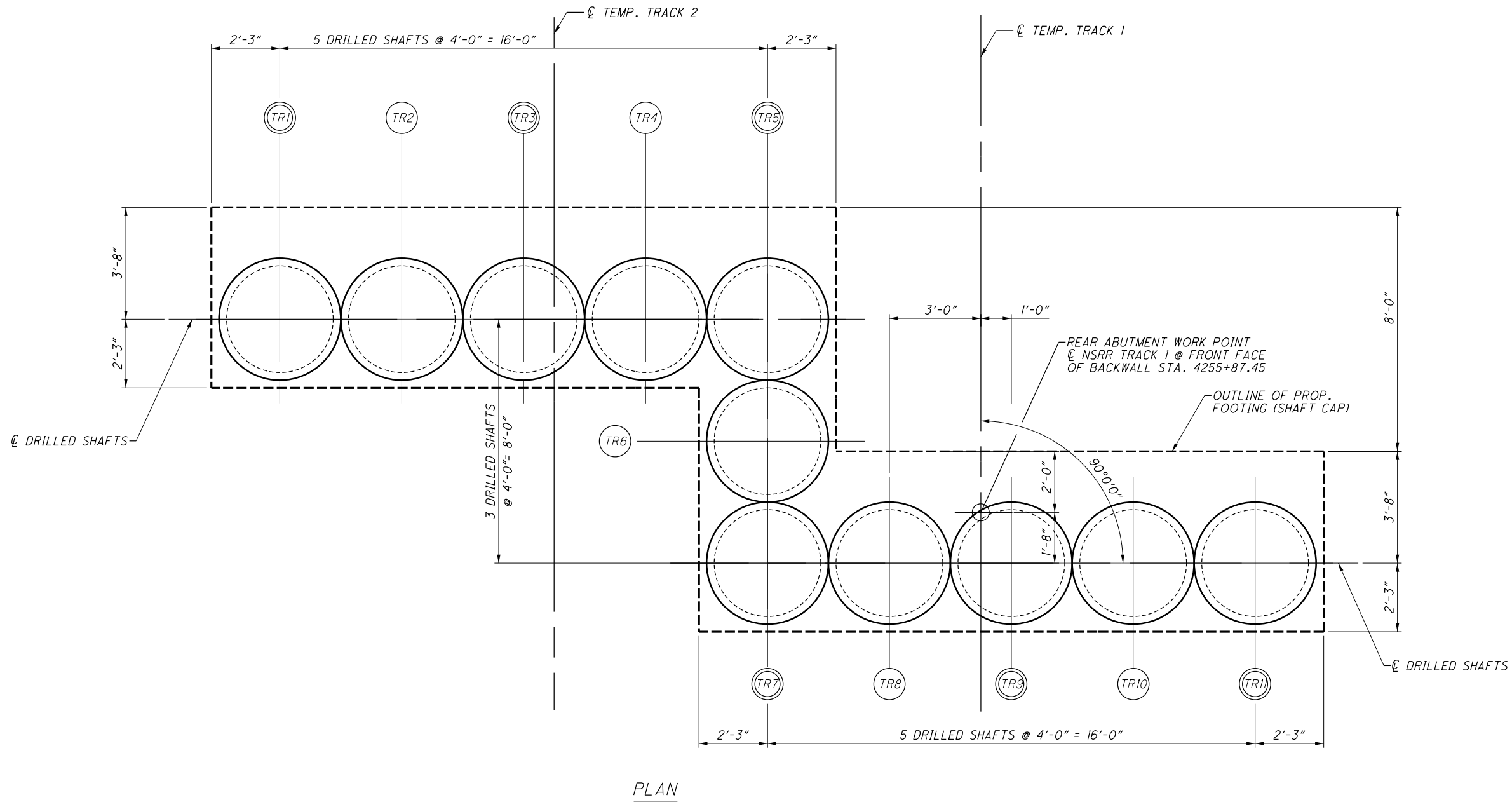
**GENERAL LOCATION OF TEMPORARY SOUTHERN RETAINING WALL**



**TEMPORARY SOUTHERN RETAINING WALL SECTION VIEW**  
 WORST CASE DESIGN LOADING SHOWN



**1 DETAIL**  
 TEMPORARY SOUTHERN  
 RETAINING WALL



PLAN

| DRILLED SHAFT DATA |                  |                       |                       |                      |                       |
|--------------------|------------------|-----------------------|-----------------------|----------------------|-----------------------|
| SHAFT NUMBER       | CUTOFF ELEVATION | MAXIMUM TIP ELEVATION | SHAFT LENGTH (EACH) * | SPIRAL LENGTH (EACH) | VERTICAL REINF LENGTH |
| TR1                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TR2                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TR3                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TR4                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TR5                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TR6                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TR7                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TR8                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TR9                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TR10               | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TR11               | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |

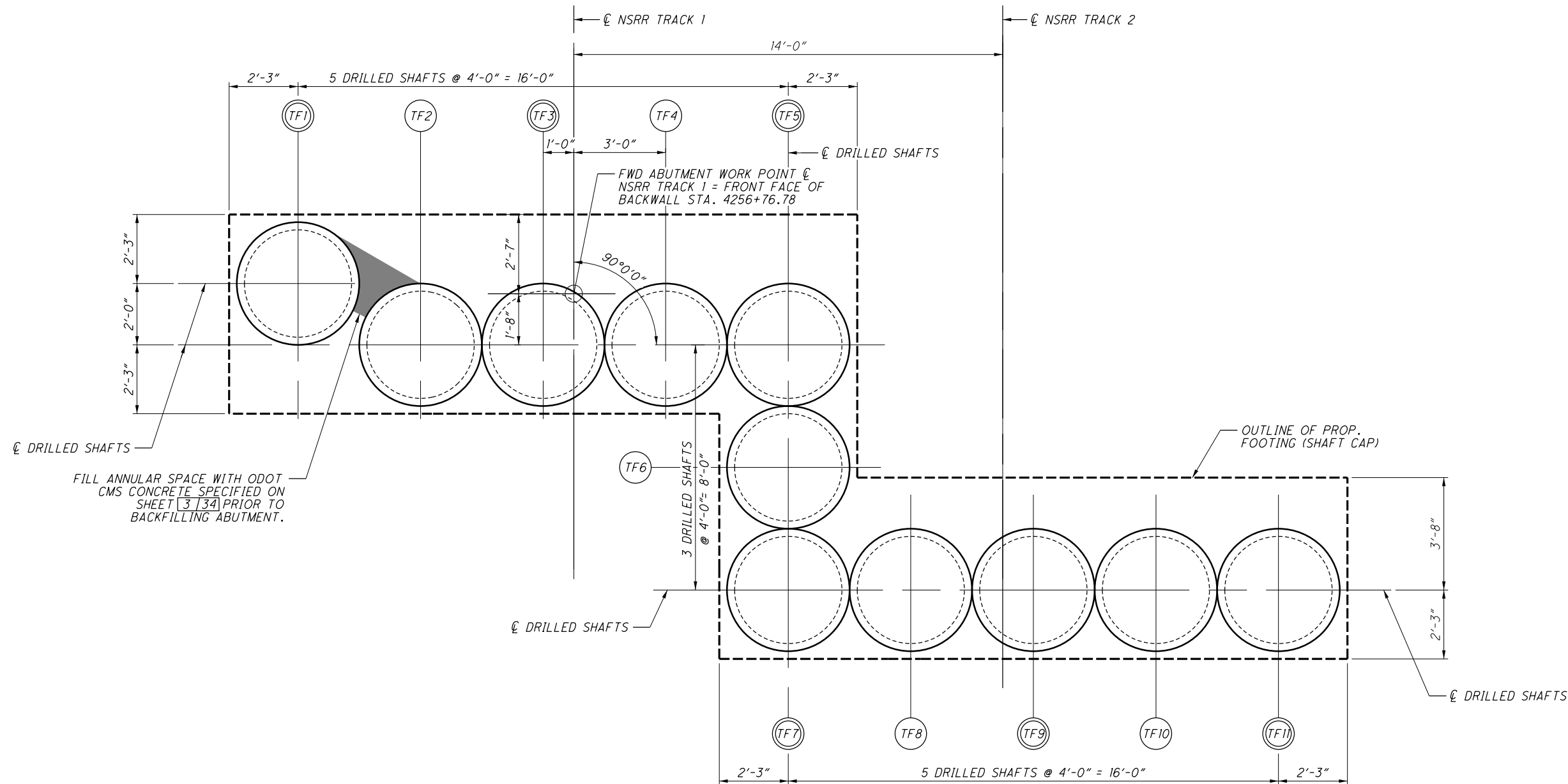
\* SHAFT LENGTH IS THE TOTAL LENGTH OF SHAFT, INCLUDING SOCKET.

LEGEND:

TR## INDICATES DRILLED SHAFT NUMBER AT REAR ABUTMENT (DOUBLE CIRCLE INDICATES CSL TESTING IS REQUIRED)

NOTES:

- FOR REAR ABUTMENT PLAN, ELEVATION AND DETAILS, SEE SHEET [27/34].
- FOR REAR ABUTMENT WORK POINT DEFINITION, SEE SHEET [2/34].
- SEDIMENT AT BASE OF DRILLED SHAFT ROCK SOCKET SHALL NOT EXCEED 1/2" DEPTH.
- SIDEWALLS OF DRILLED SHAFT ROCK SOCKET SHALL BE FREE OF ANY CUTTINGS.



PLAN

| DRILLED SHAFT DATA |                  |                       |                       |                      |                       |
|--------------------|------------------|-----------------------|-----------------------|----------------------|-----------------------|
| SHAFT NUMBER       | CUTOFF ELEVATION | MAXIMUM TIP ELEVATION | SHAFT LENGTH (EACH) * | SPIRAL LENGTH (EACH) | VERTICAL REINF LENGTH |
| TF1                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TF2                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TF3                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TF4                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TF5                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TF6                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TF7                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TF8                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TF9                | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TF10               | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |
| TF11               | 948.14           | 896.50                | 51'-8"                | 51'-8"               | 53'-2"                |

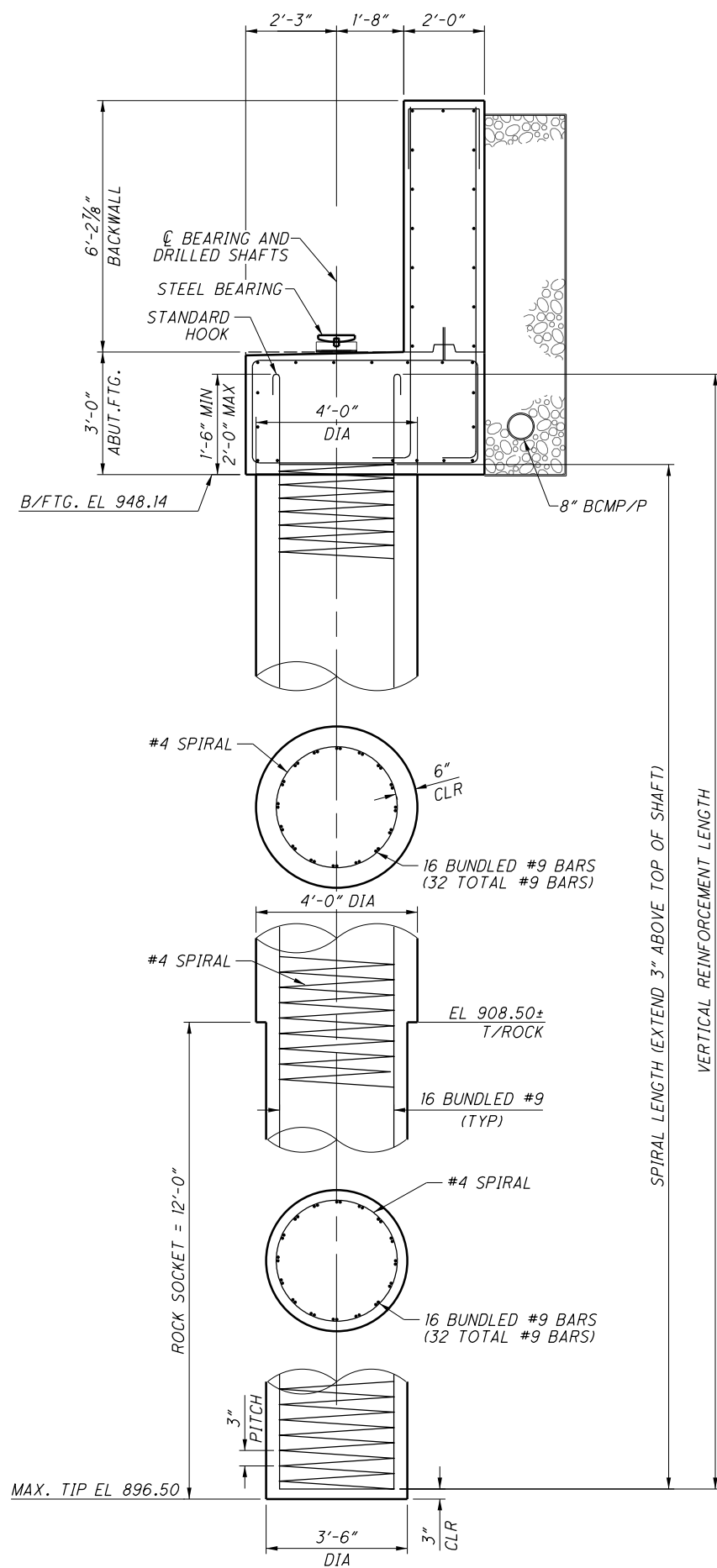
\* SHAFT LENGTH IS THE TOTAL LENGTH OF SHAFT, INCLUDING SOCKET.

LEGEND:

TF## INDICATES DRILLED SHAFT NUMBER AT FORWARD ABUTMENT (DOUBLE CIRCLE INDICATES CSL TESTING IS REQUIRED)

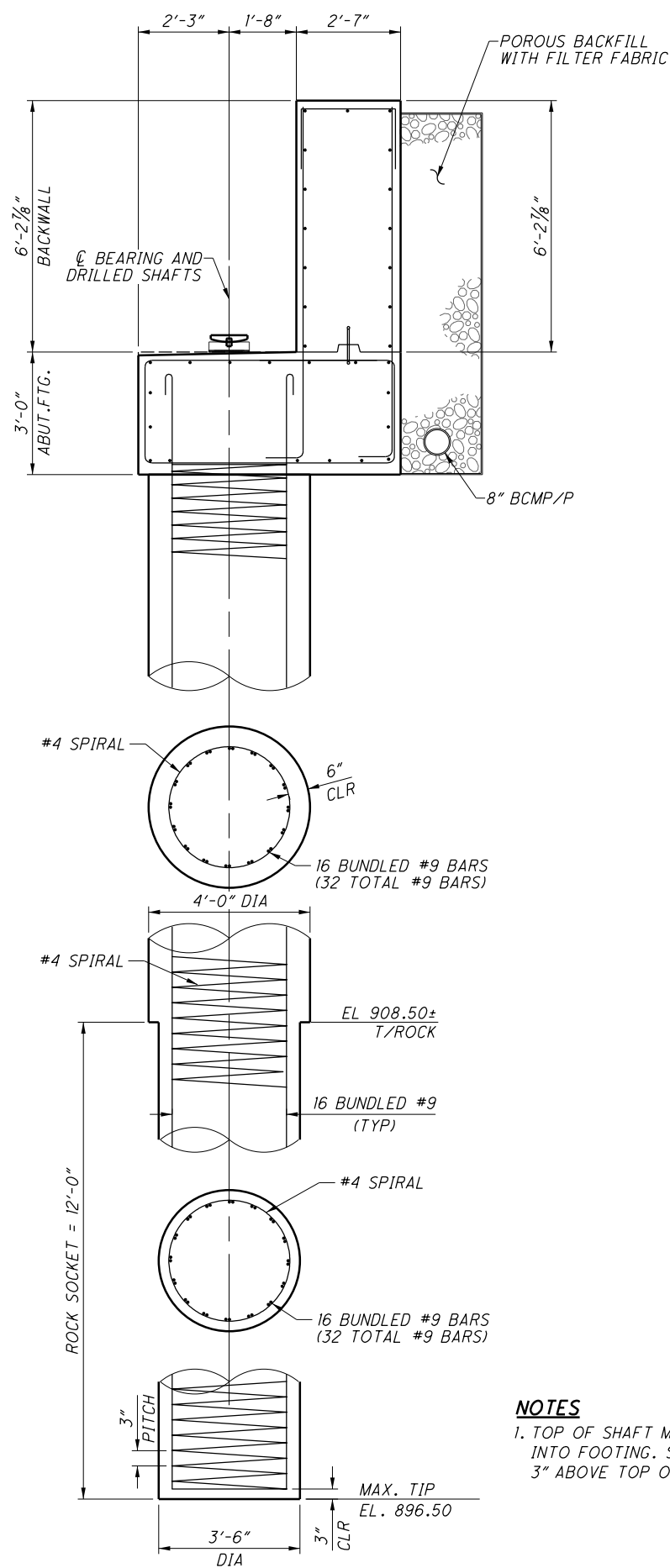
NOTES:

- FOR FORWARD ABUTMENT PLAN, ELEVATION AND DETAILS, SEE SHEET [2] [34].
- FOR REAR ABUTMENT WORK POINT DEFINITION, SEE SHEET [2] [34].
- SEDIMENT AT BASE OF DRILLED SHAFT ROCK SOCKET SHALL NOT EXCEED 1/2" DEPTH.
- SIDEWALLS OF DRILLED SHAFT ROCK SOCKET SHALL BE FREE OF ANY CUTTINGS.



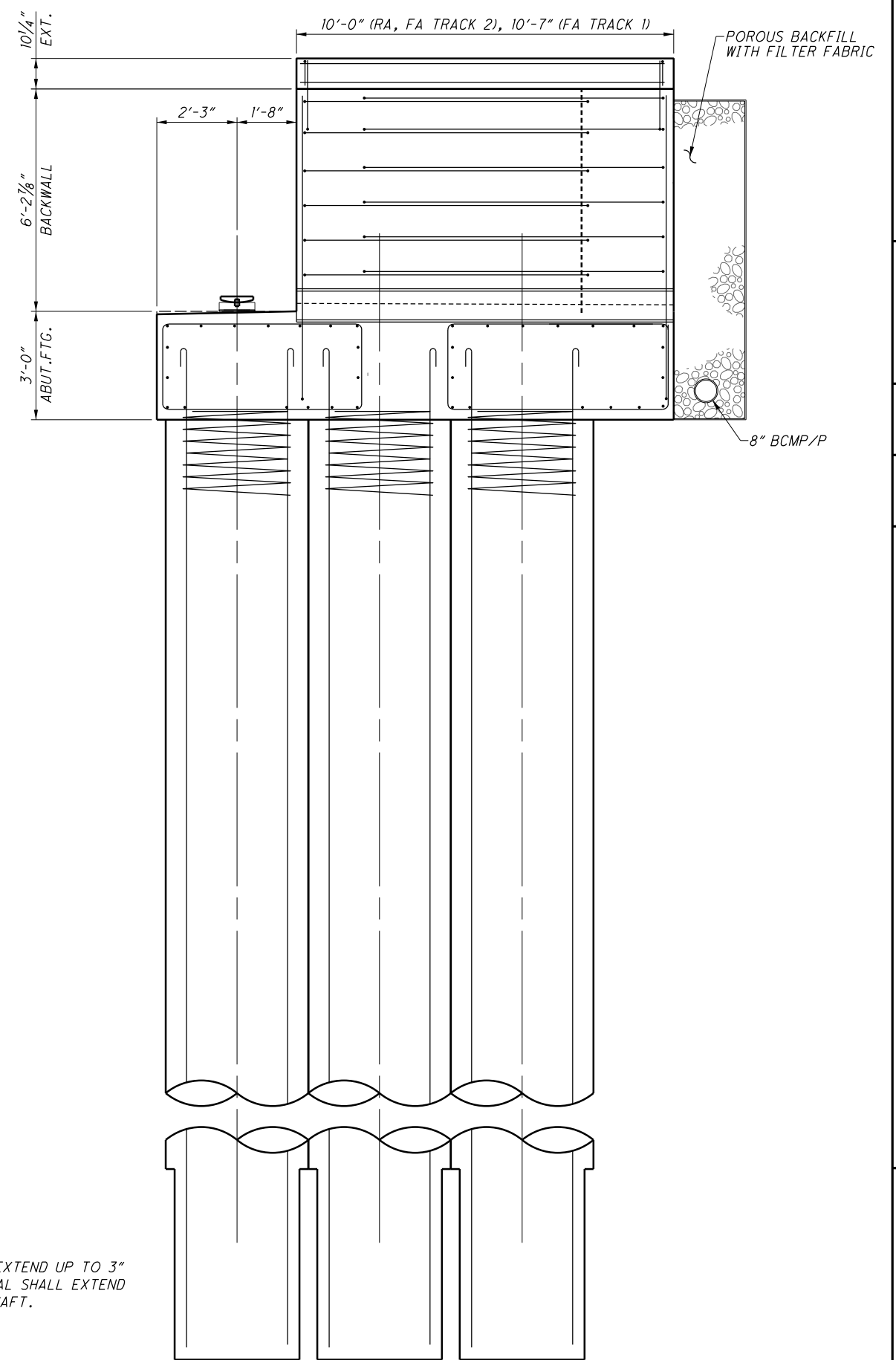
**A** SECTION  
 2 TYP SHAFT CAP SUPPORT

**ABUTMENT SECTION VIEW**  
 REAR AND FORWARD ABUTMENT SIMILAR

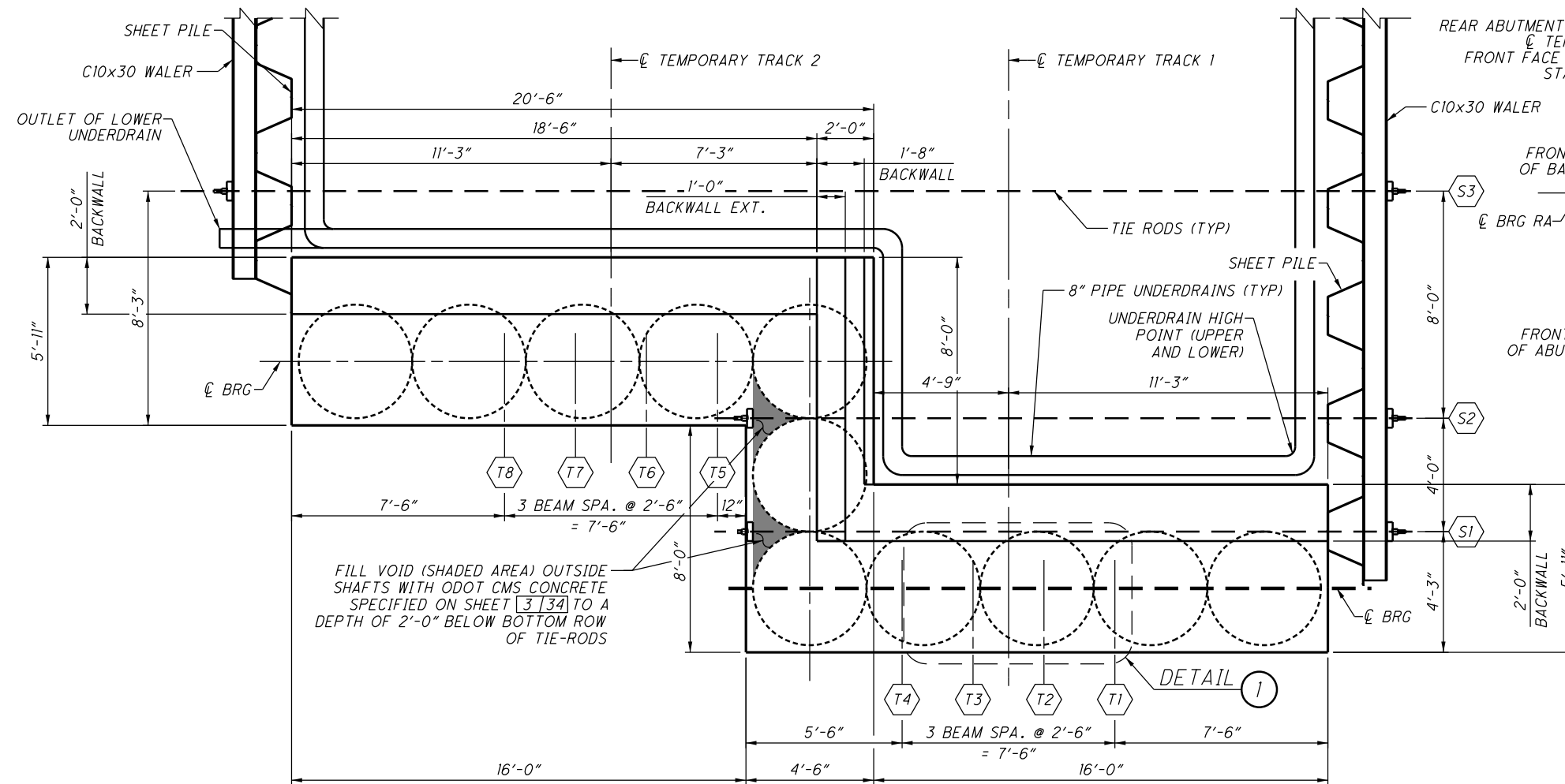


**D** SECTION  
 2 TEMP NSRR TRACK 1 FORWARD ABUTMENT

**NOTES**  
 1. TOP OF SHAFT MAY EXTEND UP TO 3" INTO FOOTING. SPIRAL SHALL EXTEND 3" ABOVE TOP OF SHAFT.



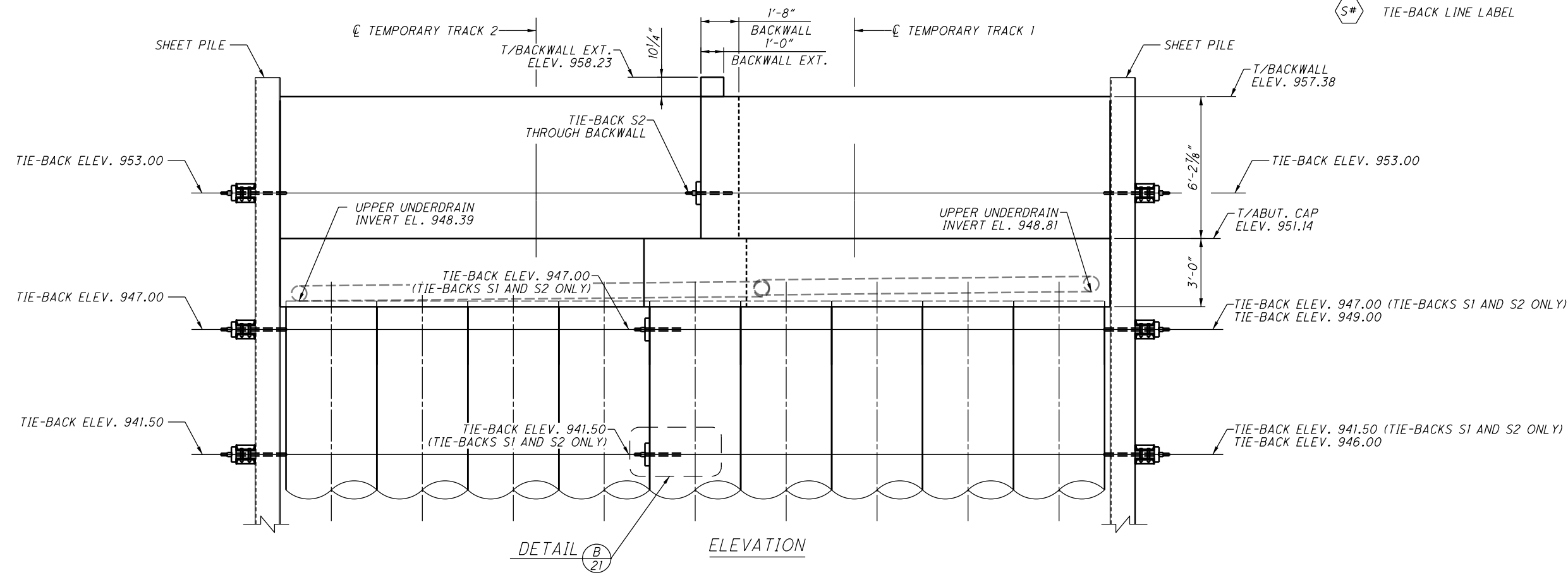
**E** SECTION  
 2 SECTION AT PARALLEL BACKWALL FORWARD ABUTMENT, REAR SIMILAR (U.N.O.)



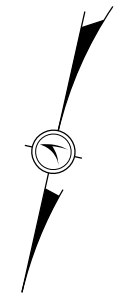
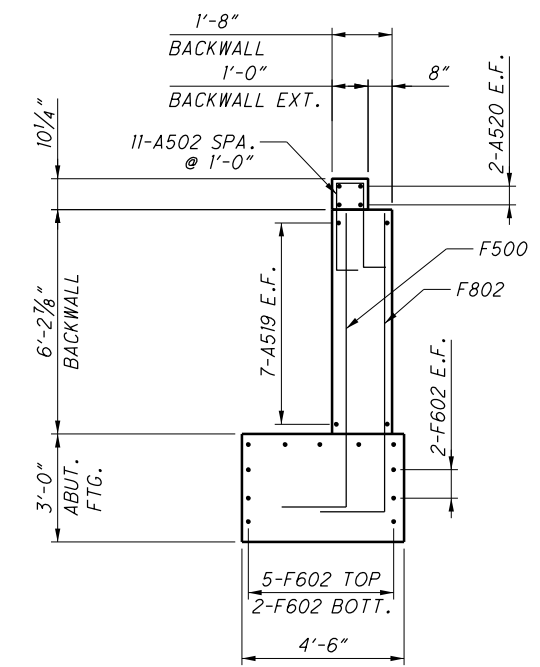
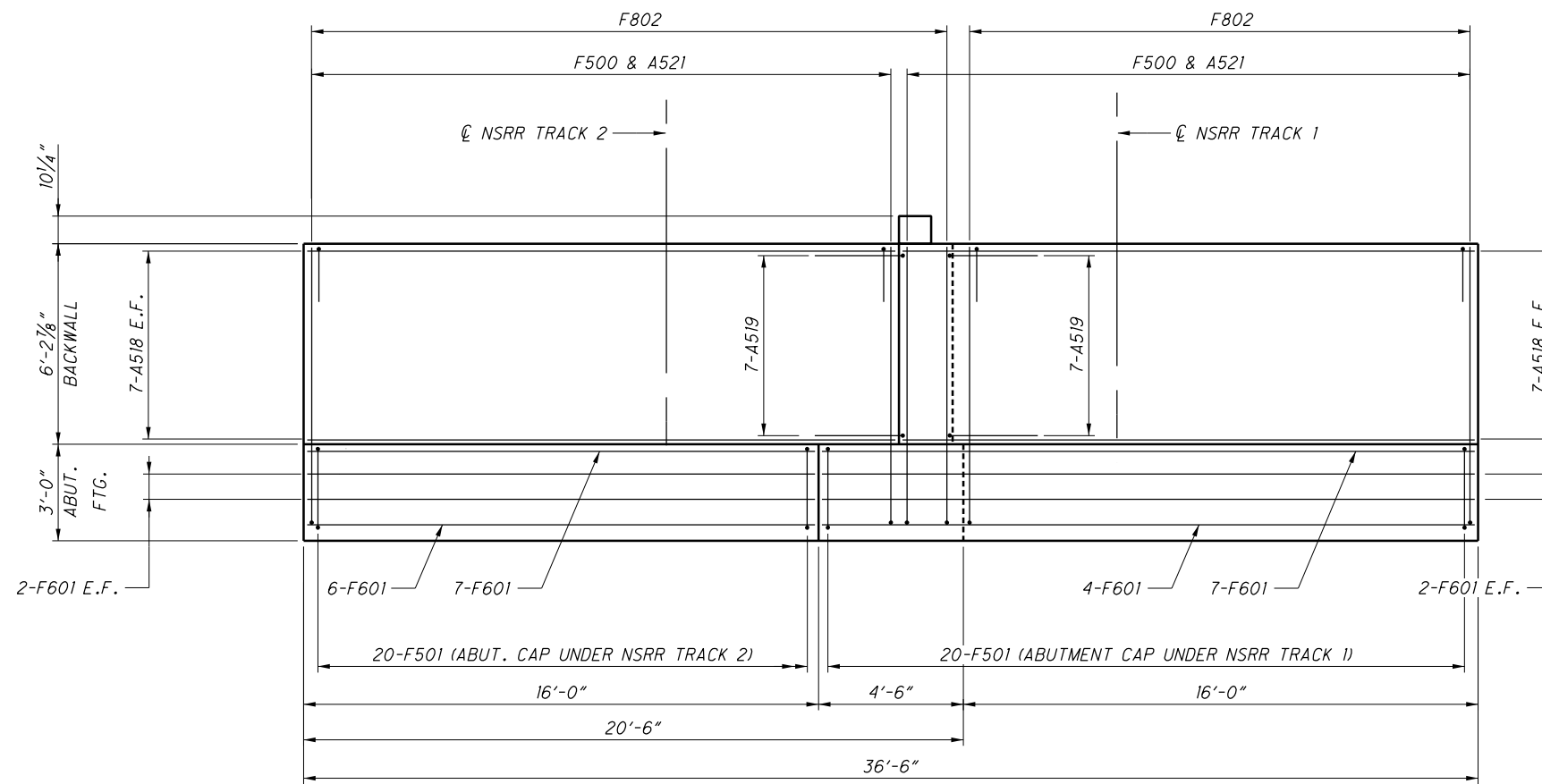
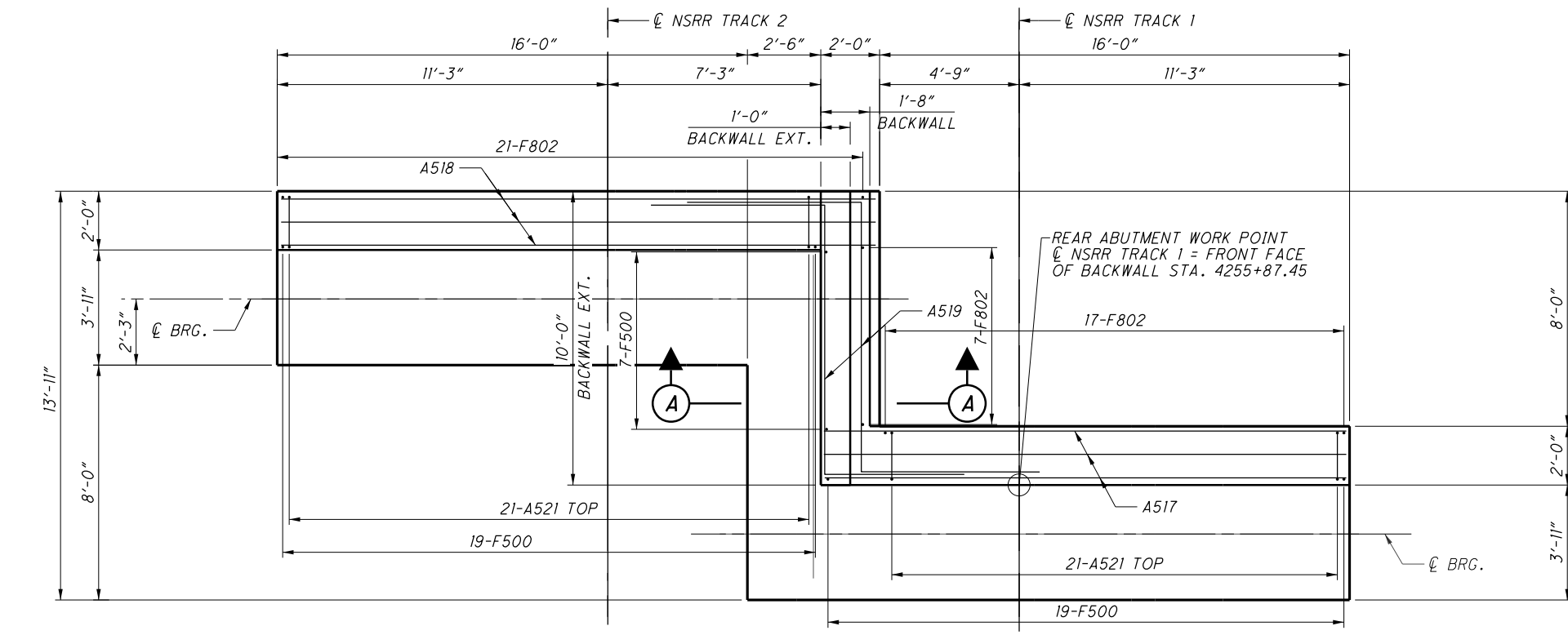
1 WORK POINT DEFINITION INCLUDING ANCHOR ROD LAYOUT (NOTE 1)

- NOTES:**
- FOR EXPANSION BEARING AND ANCHOR ROD DETAILS, SEE SHEET [31] [34]
  - FOR UPPER UNDERDRAIN PLAN, SEE SHEET [2] [34]
  - WITHIN 12" Laterally of the SHEET PILE WALL AND TIE-BACKS, PLATE COMPACTORS SHALL BE USED TO ACHIEVE REQUIRED BACKFILL COMPACTION. THE THICKNESS OF THE COMPACTION LAYERS SHALL BE BASED UPON THE EQUIPMENT USED FOR THE COMPACTION.

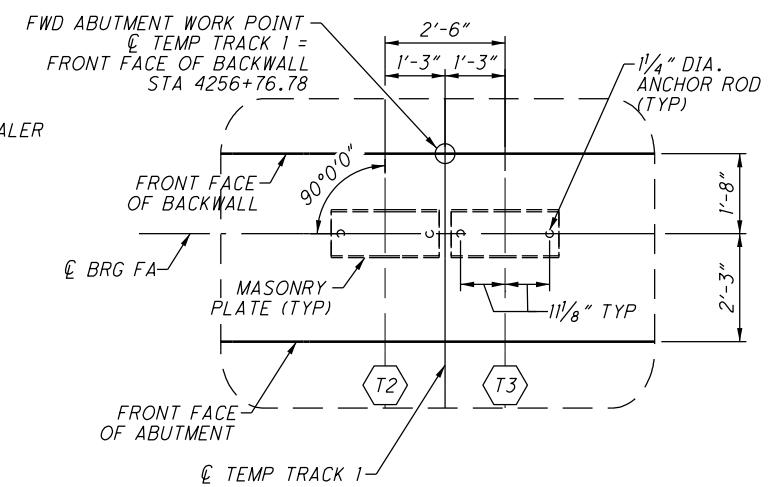
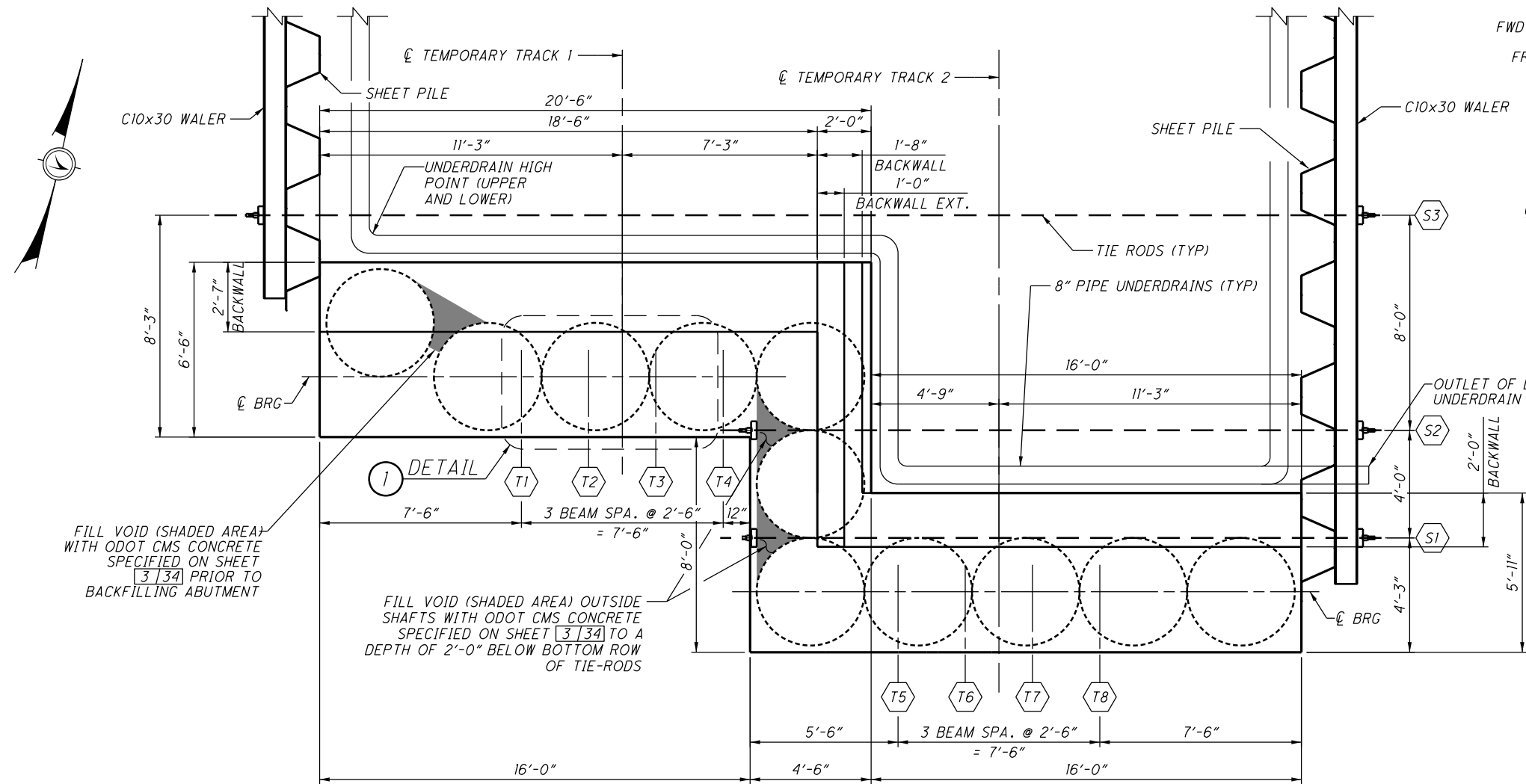
**LEGEND:**  
S# TIE-BACK LINE LABEL



|                                                                                                                                             |                 |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| DESIGN AGENCY<br><b>Gannett Fleming</b><br>ENGINEERS & ARCHITECTS, P.C.<br>2600 CORPORATE EXCHANGE DRIVE SUITE 230<br>COLUMBIAS, OHIO 43231 |                 |
| DATE<br>05/2021                                                                                                                             | DESIGNED<br>JGC |
| REVIEWED<br>EFD                                                                                                                             | CHECKED<br>JUH  |
| DRAWN<br>EBP                                                                                                                                | DESIGNED<br>JGC |
| REVISIONS<br>0001 SP# NONE (TEMP)<br>NSRR FILE: BR0019283                                                                                   | CHECKED<br>JUH  |
| <b>REAR ABUTMENT PLAN AND ELEVATION</b>                                                                                                     |                 |
| BRIDGE NO. DEL-36-TEMP (TEMPORARY NS MP S-23.80)<br>NSRR OVER US 36 / 37 (CITY OF DELAWARE)                                                 |                 |
| <b>POINT PROJECT</b><br>PID No. 103626                                                                                                      |                 |
| 15 / 34                                                                                                                                     |                 |
| 413<br>644                                                                                                                                  |                 |



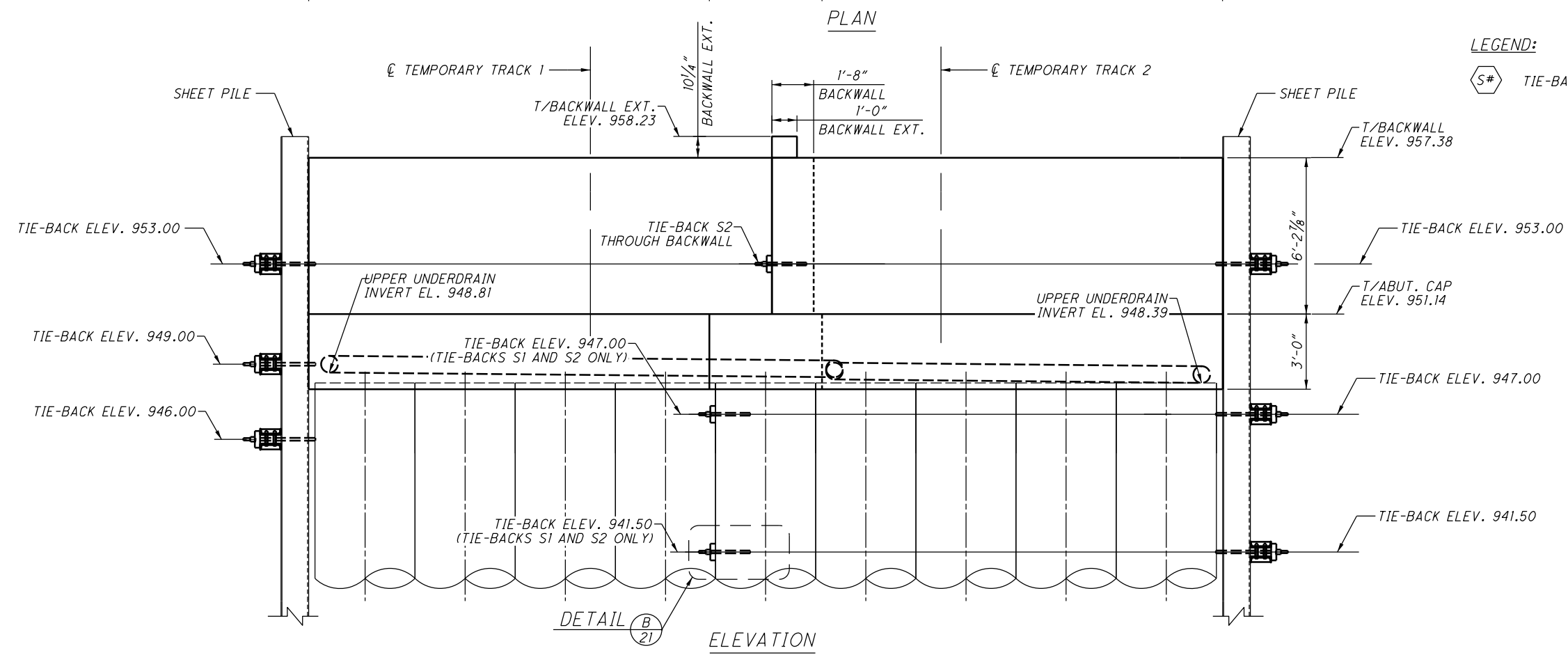


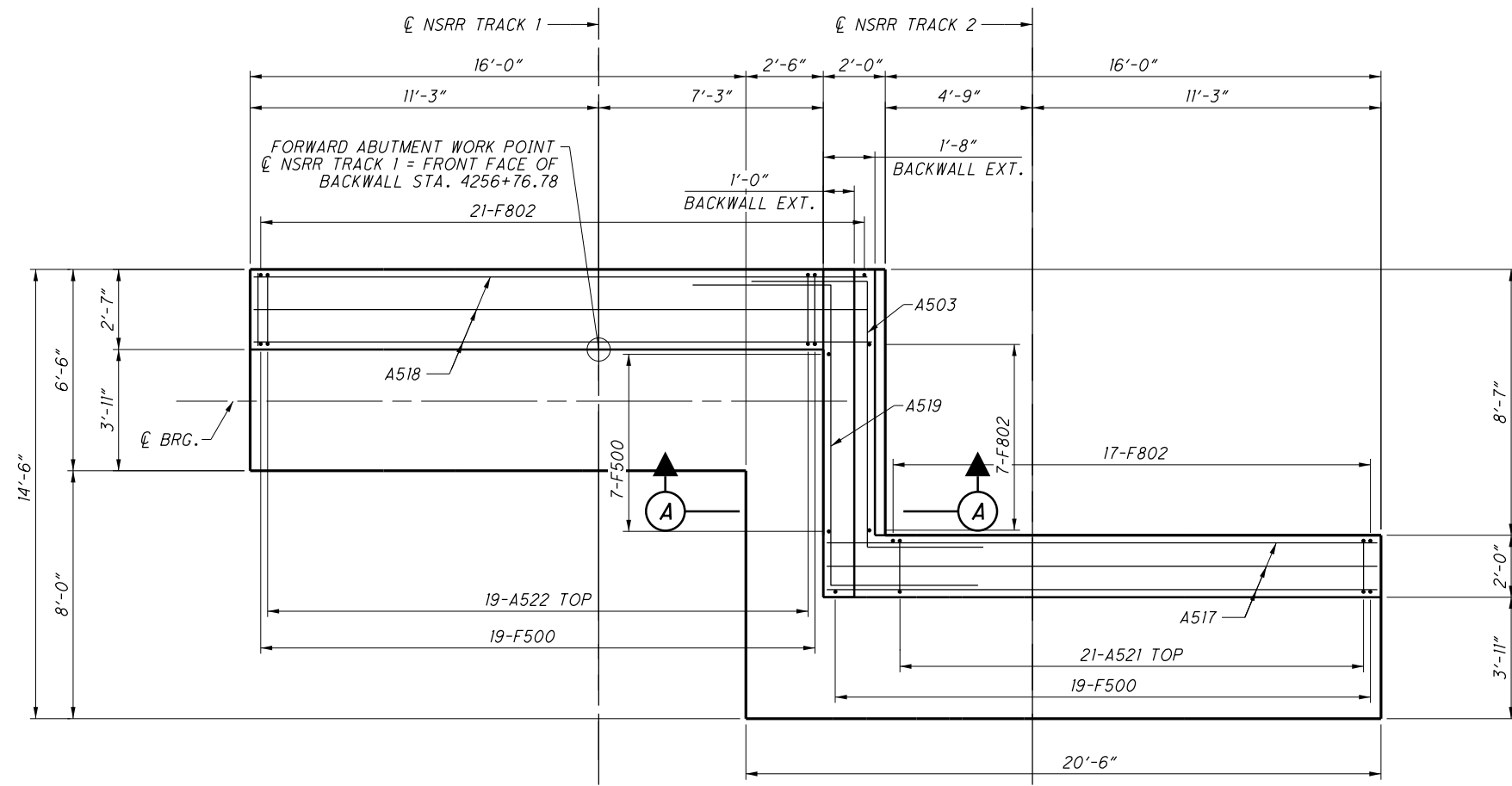


1 WORK POINT DEFINITION  
 INCLUDING ANCHOR ROD LAYOUT (NOTE 1)

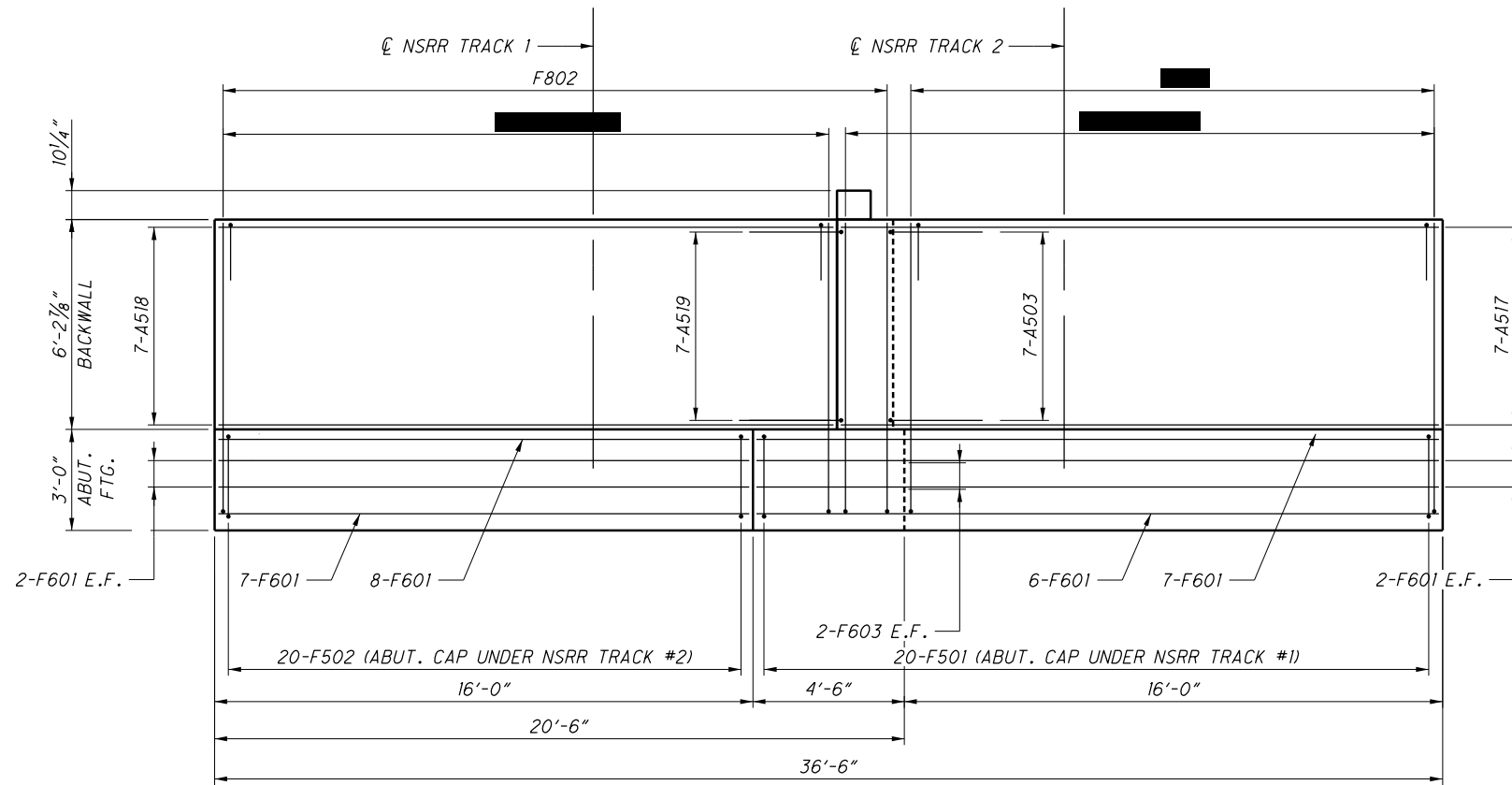
- NOTES:
1. FOR FIXED BEARING AND ANCHOR ROD DETAILS, SEE SHEET 32/34
  2. FOR UPPER UNDERDRAIN PLAN, SEE SHEET 2/34
  3. WITHIN 12" Laterally OF THE SHEET PILE WALL AND TIE-BACKS, PLATE COMPACTORS SHALL BE USED TO ACHIEVE REQUIRED BACKFILL COMPACTION.

LEGEND:  
 S# TIE-BACK LINE LABEL

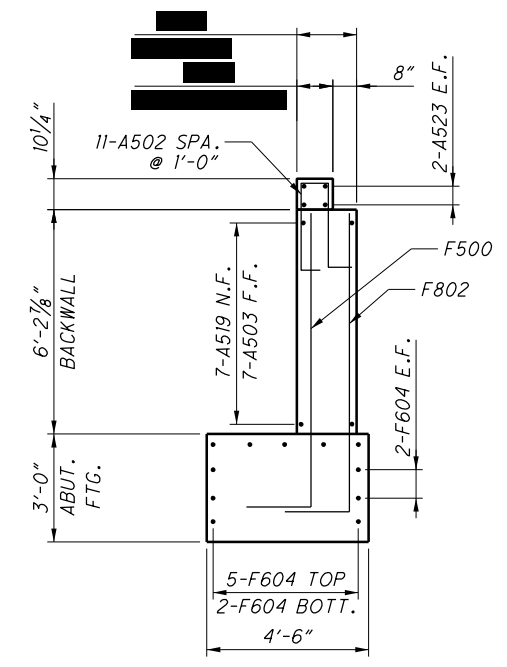




PLAN

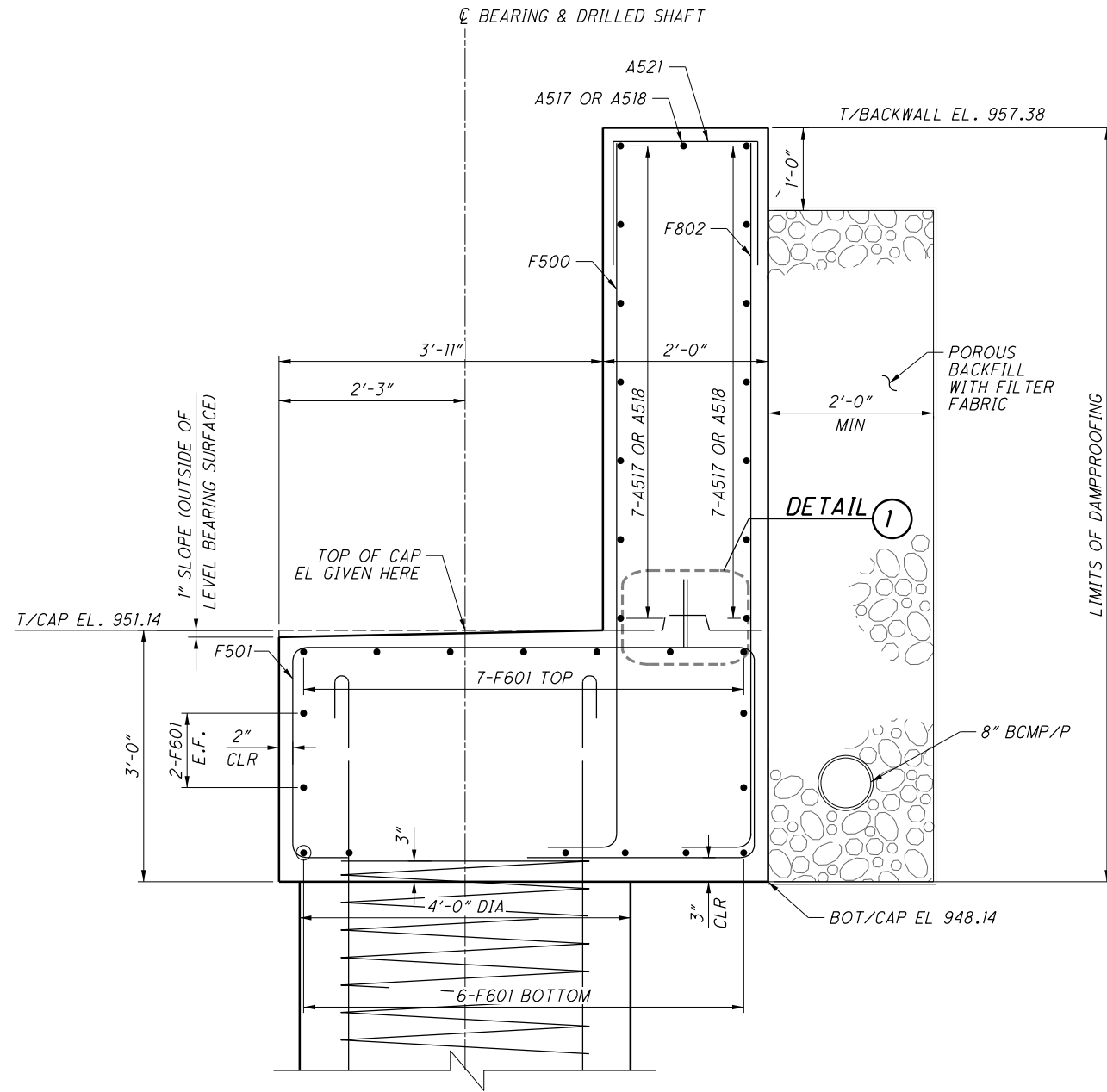


ELEVATION

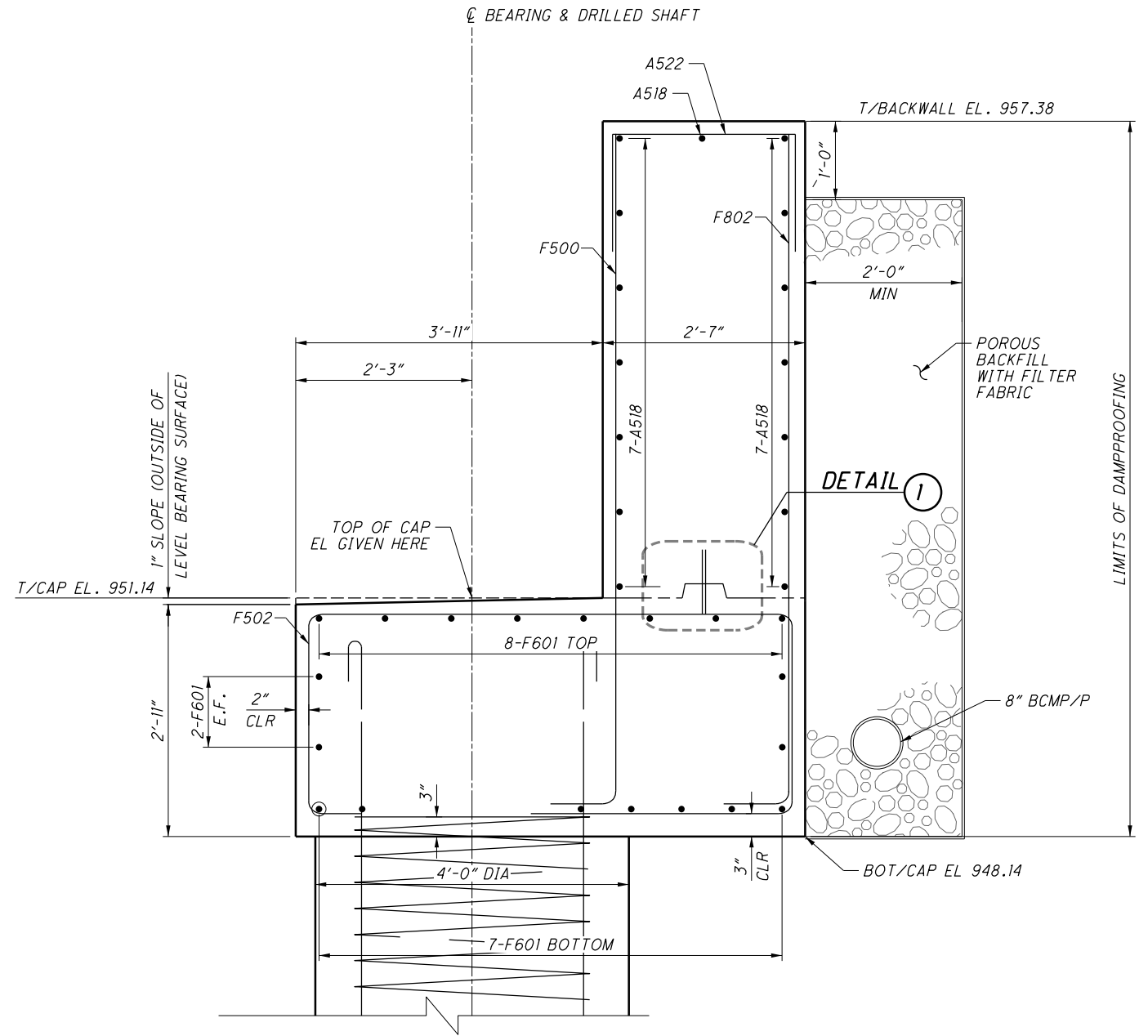


SECTION A PARALLEL SECTION

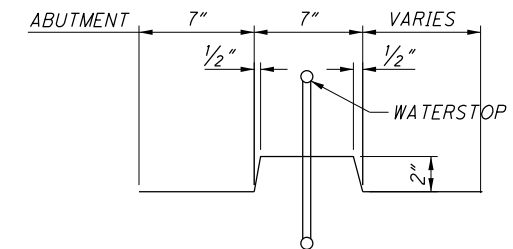




**SINGLE SHAFT CAP SUPPORT**  
TYPICAL TEMP. BRIDGE (U.N.O.)



**SINGLE SHAFT CAP SUPPORT**  
FORWARD ABUTMENT TEMP TRACK 1



**1 CONSTRUCTION JOINT WITH RAISED KEY**

**LEGEND**

|  |                 |
|--|-----------------|
|  | STEP 1 BACKFILL |
|  | STEP 2 BACKFILL |
|  | STEP 3 BACKFILL |
|  | STEP 4 BACKFILL |

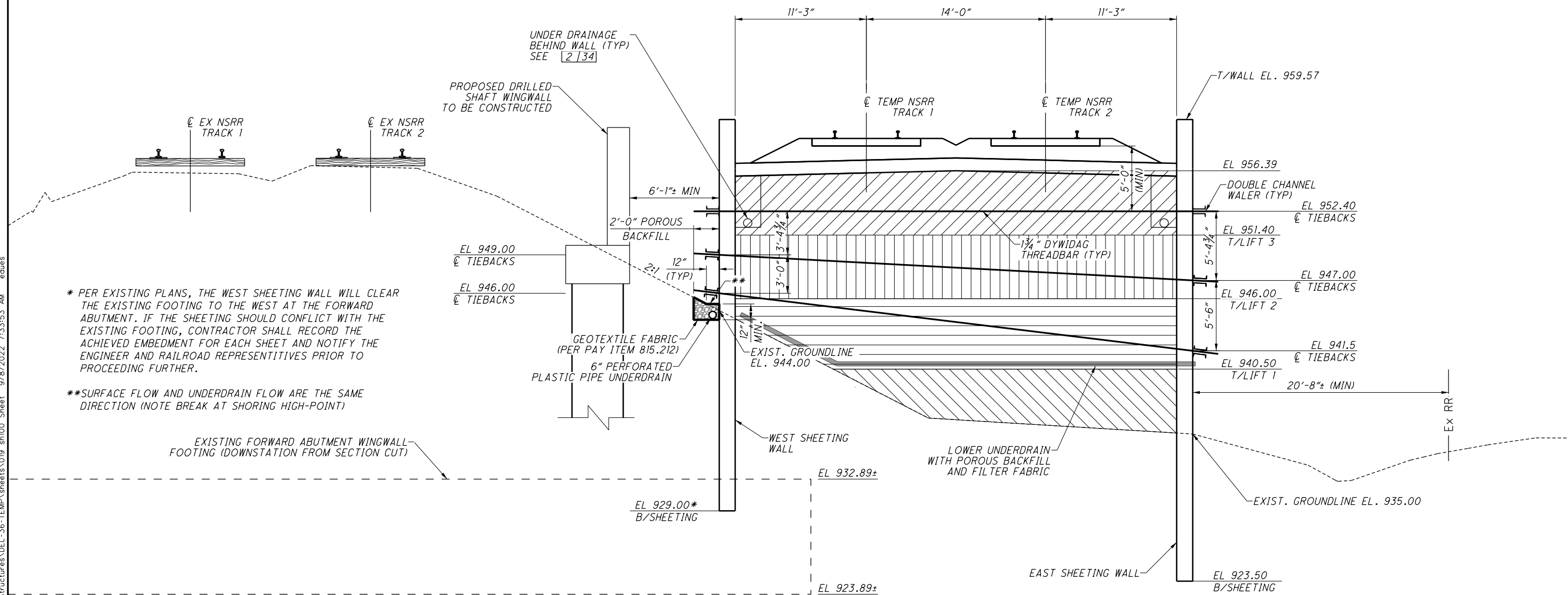
**ASSUMED CONSTRUCTION SEQUENCE**

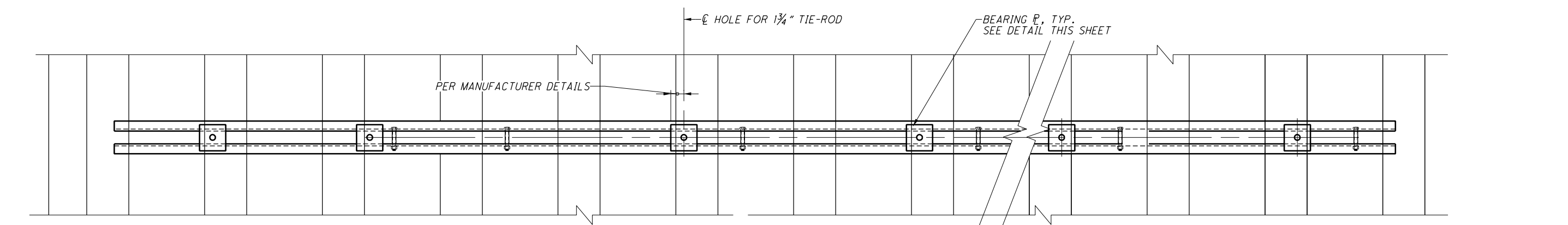
1. PLACE STEP 1 BACKFILL AS A DRILLED SHAFT CONSTRUCTION BENCH.
2. INSTALL TEMPORARY ABUTMENT SHAFTS.
3. INSTALL TEMPORARY SHEETING AND LOWER TIEBACKS.
4. PLACE STEP 2 BACKFILL.
5. INSTALL MIDDLE TIEBACKS.
6. PLACE STEP 3 BACKFILL.
7. INSTALL TOP TIEBACKS.
8. PLACE FINAL FILL AND UNDERDRAINAGE SYSTEM.

**TEMPORARY SHORING NOTES**

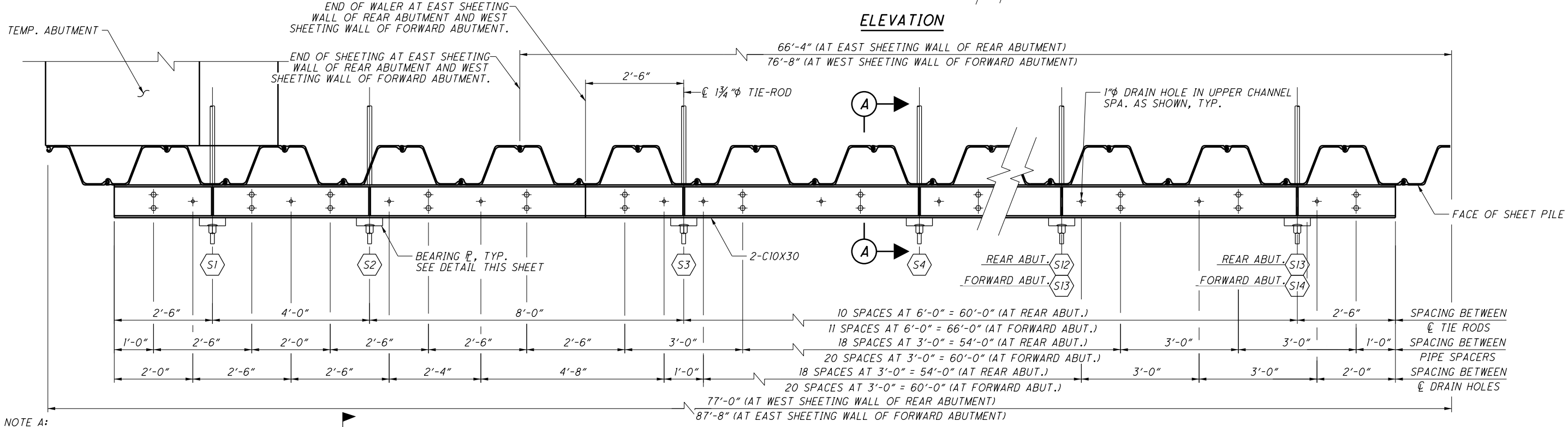
1. TEMPORARY SHEET PILING SHALL HAVE A MINIMUM SECTION MODULUS OF 30.2 INCHES<sup>3</sup>/FOOT.
2. WALER SHOULD HAVE A MINIMUM TOTAL SECTION MODULUS OF 41.4 INCHES<sup>3</sup> FOR BENDING IN THE HORIZONTAL PLANE. A DOUBLE CHANNEL WALER IS DETAILED IN THESE PLANS.
3. BACKFILL SHALL BE SELECT GRANULAR BACKFILL, ITEM 840.
4. WITHIN 12" LATERALLY OF THE TIEBACKS AND UNDERDRAINS, PLATE COMPACTORS SHALL BE USED TO ACHIEVE REQUIRED BACKFILL COMPACTION.
5. THREADBARS SHALL BE ENCLOSED IN 2-3/8" OUTSIDE DIAMETER METAL SHEATHING.

**TIED SHEETING SECTION**  
FORWARD ABUTMENT SHOWN, REAR SIMILAR

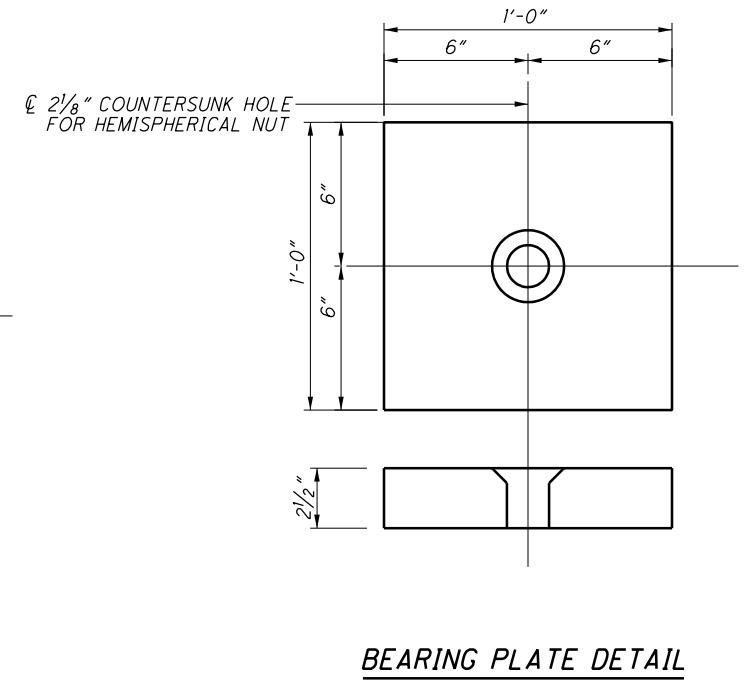
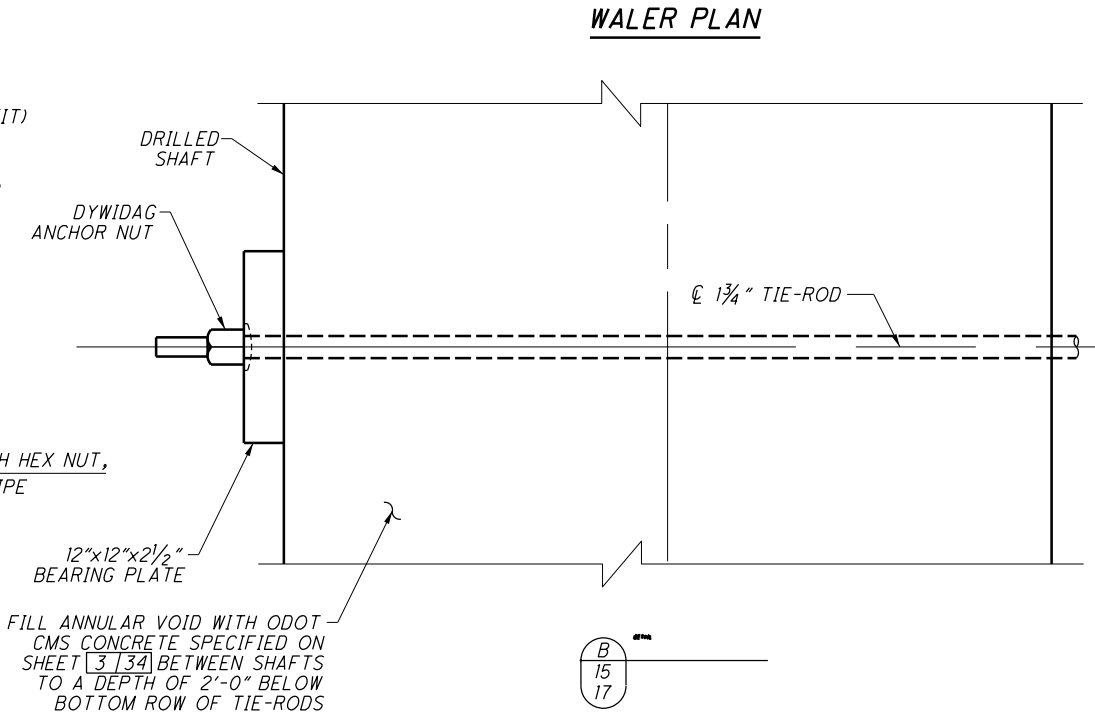
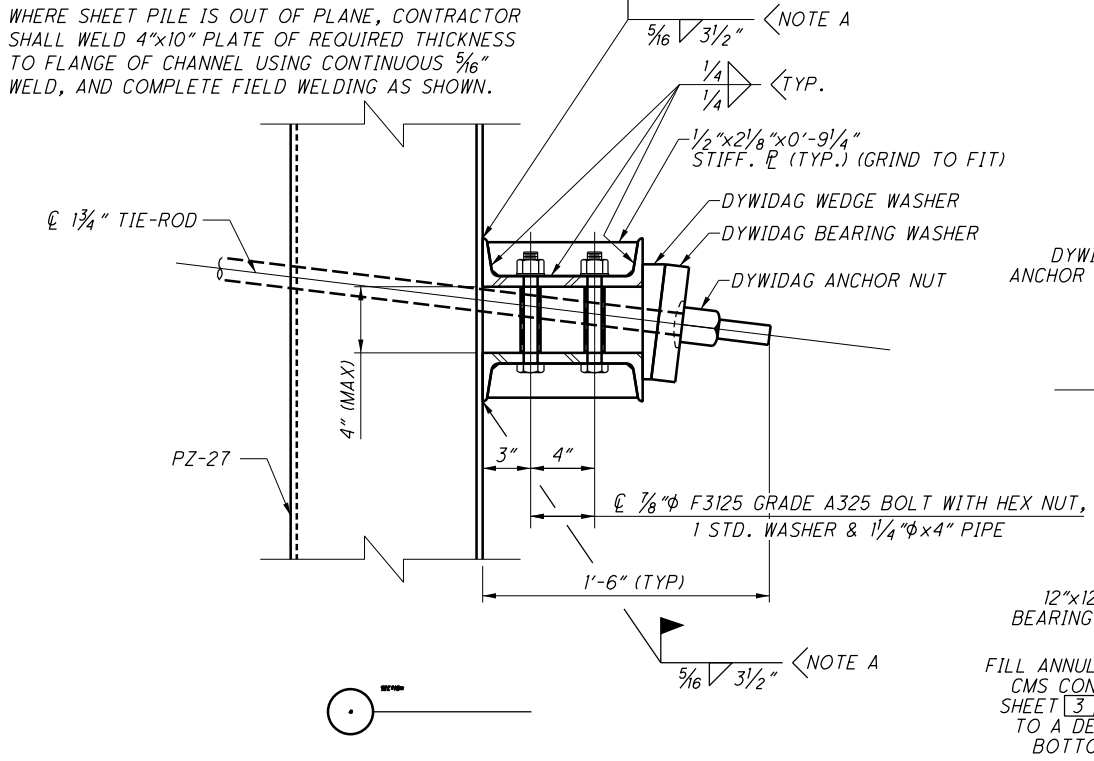


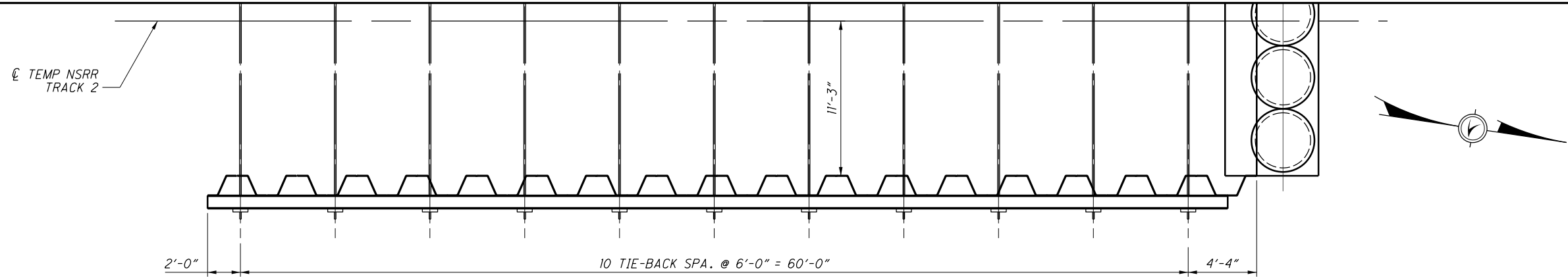


**ELEVATION**

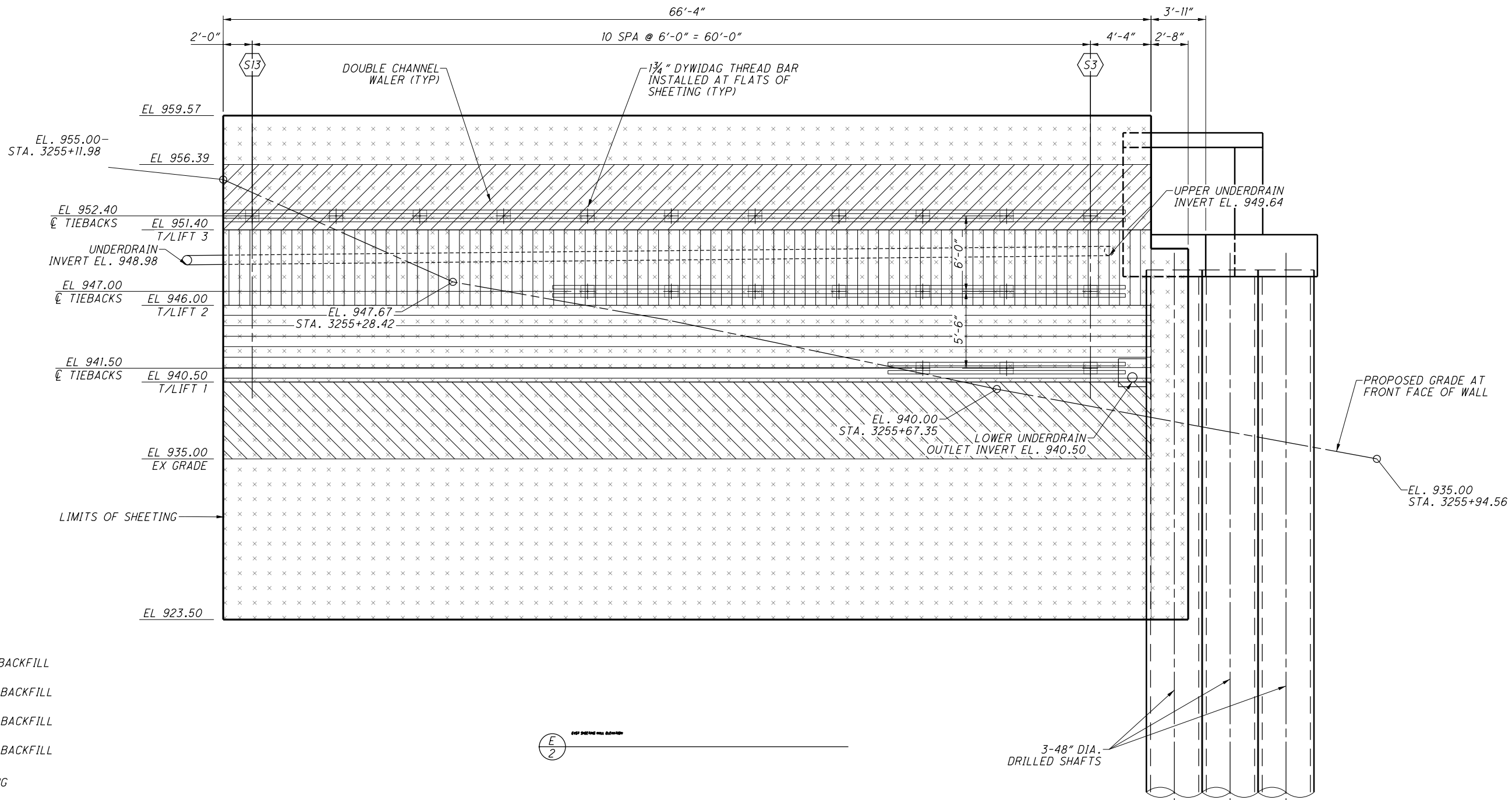


NOTE A:  
 WHERE SHEET PILE IS OUT OF PLANE, CONTRACTOR SHALL WELD 4"x10" PLATE OF REQUIRED THICKNESS TO FLANGE OF CHANNEL USING CONTINUOUS 5/16" WELD, AND COMPLETE FIELD WELDING AS SHOWN.










**EAST SHEETING WALL PLAN**



**LEGEND**

-  STEP 1 BACKFILL
-  STEP 2 BACKFILL
-  STEP 3 BACKFILL
-  STEP 4 BACKFILL
-  SHEETING

(E 2)

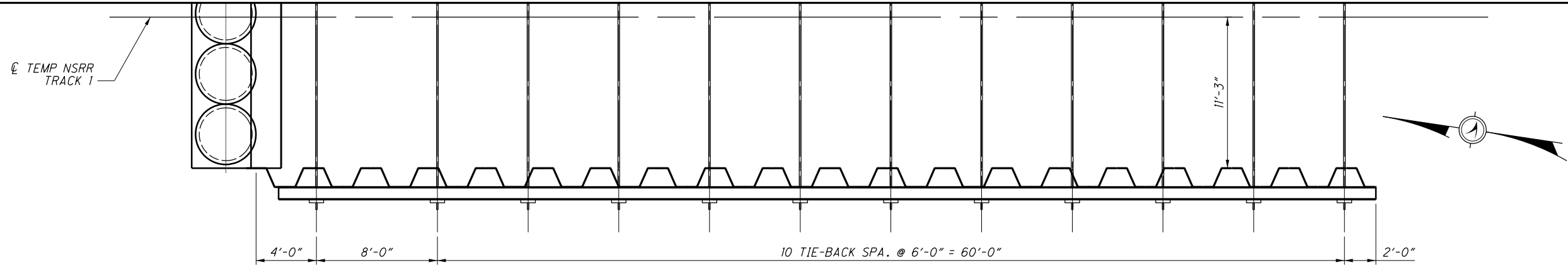
3-48" DIA. DRILLED SHAFTS

|          |         |            |           |
|----------|---------|------------|-----------|
| DESIGNED | JGC     | CHECKED    | MMZ       |
| DRAWN    | LAM     | REVIEWED   | EFD       |
| DATE     | 05/2021 | NSRR FILE: | BR0019283 |

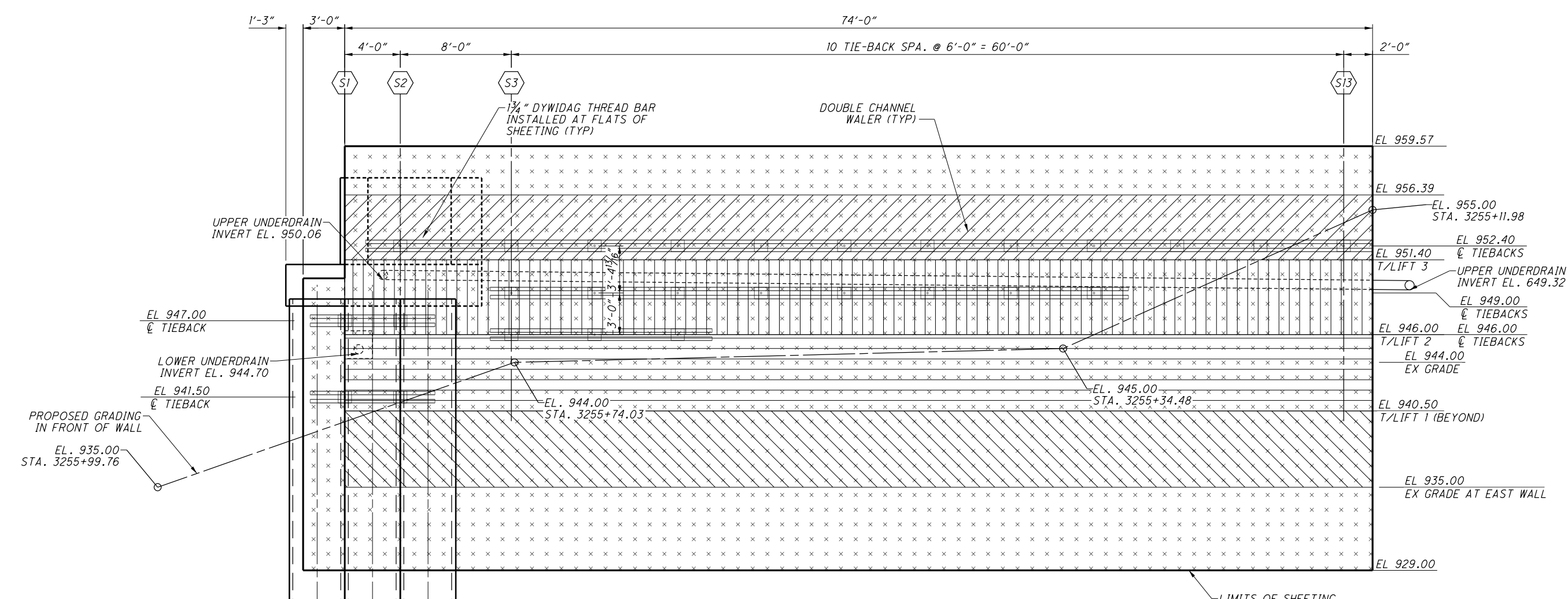
**EAST SHEETING WALL AT REAR ABUTMENT**  
 BRIDGE NO. DEL-36-TEMP (TEMPORARY NS MP S-23.80)  
 NSRR OVER US 36 / 37 (CITY OF DELAWARE)

**POINT PROJECT**  
 PID No. 103626

PENTABLE SUBSET: 103626  
 SUBMITAL: NSRR 100%  
 PLOT DRIVER: 000Tcodd\_PDF\_Levels.pltcfp  
 PENTABLE: 103626\_000Tcodd\_Pen.tbl  
 pw:\gfnnet-pw-bentley.com\gfnnet-pw-01\Documents\Projects\103626\Design\Structures\DEL-36-TEMP\sheets\022\_sh001\_Sheet\_9/8/2022 7:34:11 AM edues



**WEST SHEETING WALL PLAN**

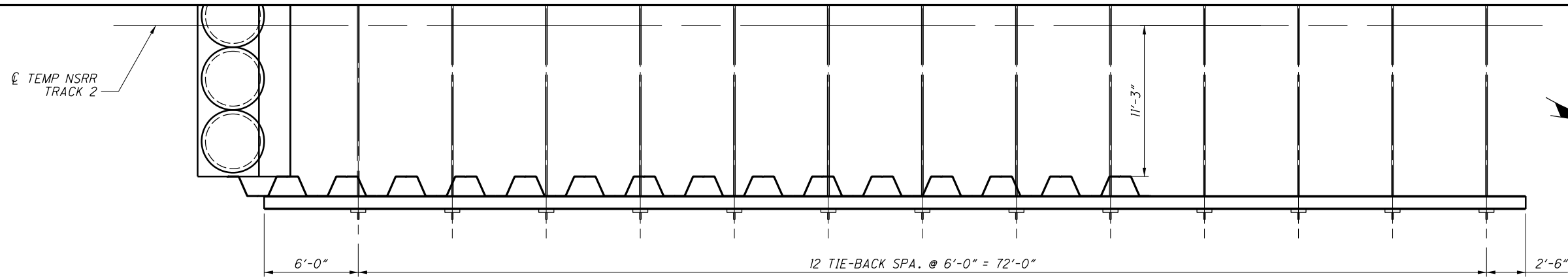


- LEGEND**
- STEP 1 BACKFILL
  - STEP 2 BACKFILL
  - STEP 3 BACKFILL
  - STEP 4 BACKFILL
  - SHEETING

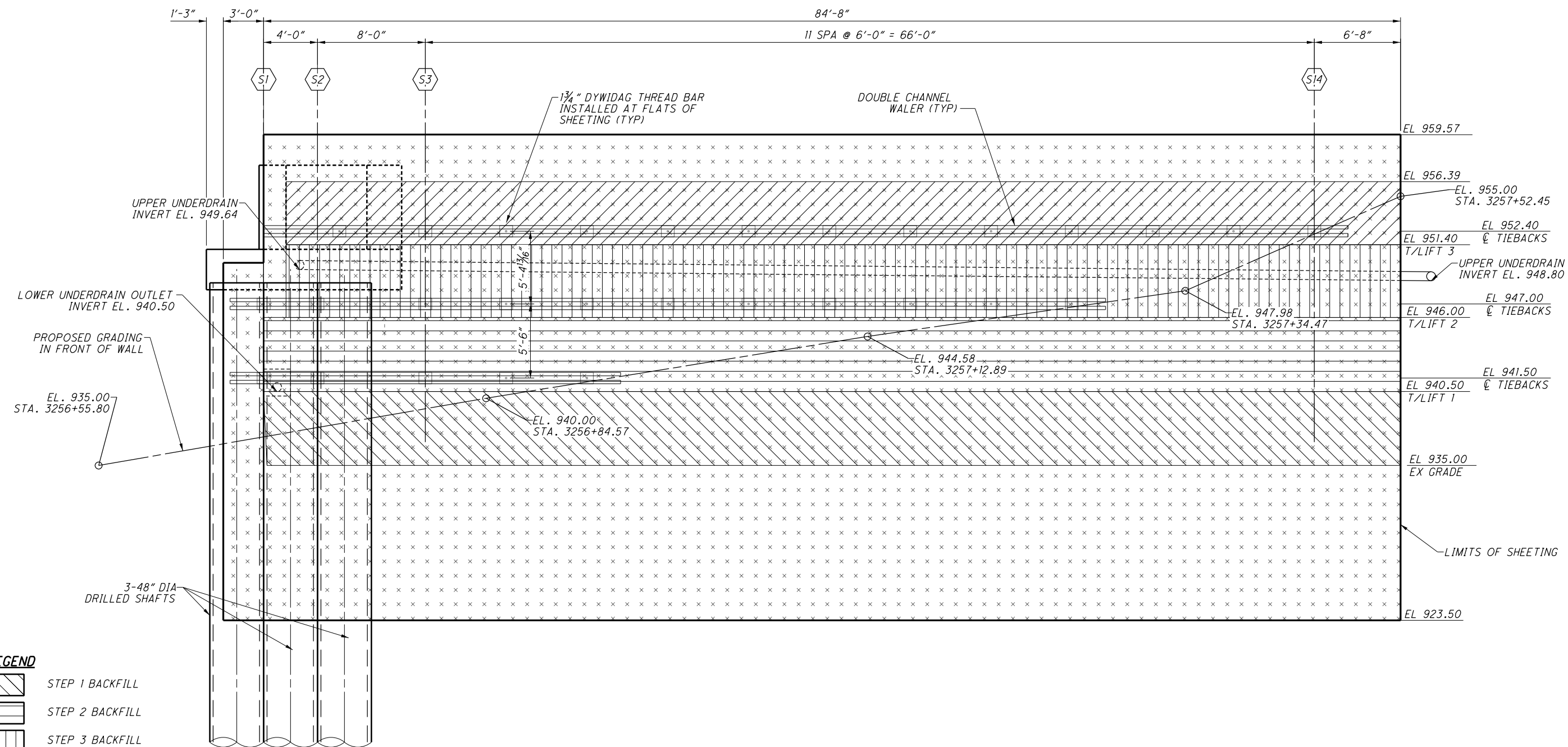
3-48" DIA DRILLED SHAFTS

**WEST SHEETING WALL ELEVATION**

|                                                                                                                                           |                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| <br>Gannett Fleming<br>ENGINEERS & ARCHITECTS, P.C.<br>2500 CORPORATE EXCHANGE DRIVE SUITE 230<br>COLUMBUS, OHIO 43231                    |                                               |
| DESIGNED                                                                                                                                  | JGC                                           |
| CHECKED                                                                                                                                   | MMZ                                           |
| DRAWN                                                                                                                                     | LAM                                           |
| REVISD                                                                                                                                    | REVISED                                       |
| REVIEWED                                                                                                                                  | EFD                                           |
| DATE                                                                                                                                      | 05/2021                                       |
| PROJECT                                                                                                                                   | 000T SPN: NONE (TEMP)<br>NSRR FILE: BRO019283 |
| <b>WEST SHEETING WALL AT REAR ABUTMENT</b><br>BRIDGE NO. DEL-36-TEMP (TEMPORARY NS MP S-23.80)<br>NSRR OVER US 36 / 37 (CITY OF DELAWARE) |                                               |
| <b>POINT PROJECT</b><br>PID No. 103626                                                                                                    |                                               |
| 23                                                                                                                                        | 34                                            |
| 421<br>644                                                                                                                                |                                               |



**EAST SHEETING WALL PLAN**



**LEGEND**

|  |                 |
|--|-----------------|
|  | STEP 1 BACKFILL |
|  | STEP 2 BACKFILL |
|  | STEP 3 BACKFILL |
|  | STEP 4 BACKFILL |
|  | SHEETING        |

**EAST SHEETING WALL ELEVATION**

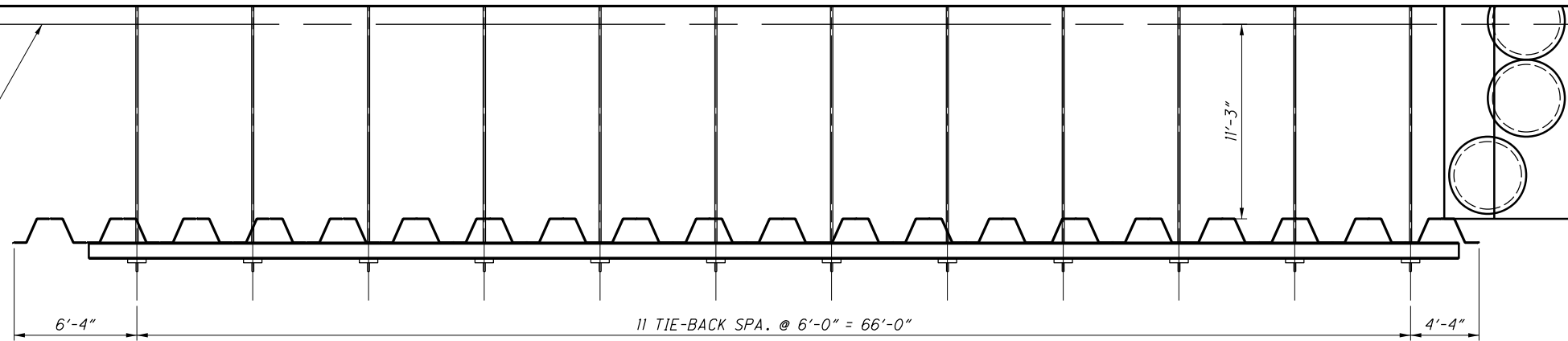
|          |                      |          |                       |
|----------|----------------------|----------|-----------------------|
| DESIGNED | JGC                  | CHECKED  | MMZ                   |
| DRAWN    | LAM                  | REVIEWED | EFD                   |
| DATE     | 05/2021              | REVISION | 000T SPN: NONE (TEMP) |
| PROJECT  | NSRR FILE: BRO019283 |          |                       |

**EAST SHEETING WALL AT FORWARD ABUTMENT**  
 BRIDGE NO. DEL-36-TEMP (TEMPORARY NS MP S-23.80)  
 NSRR OVER US 36 / 37 (CITY OF DELAWARE)

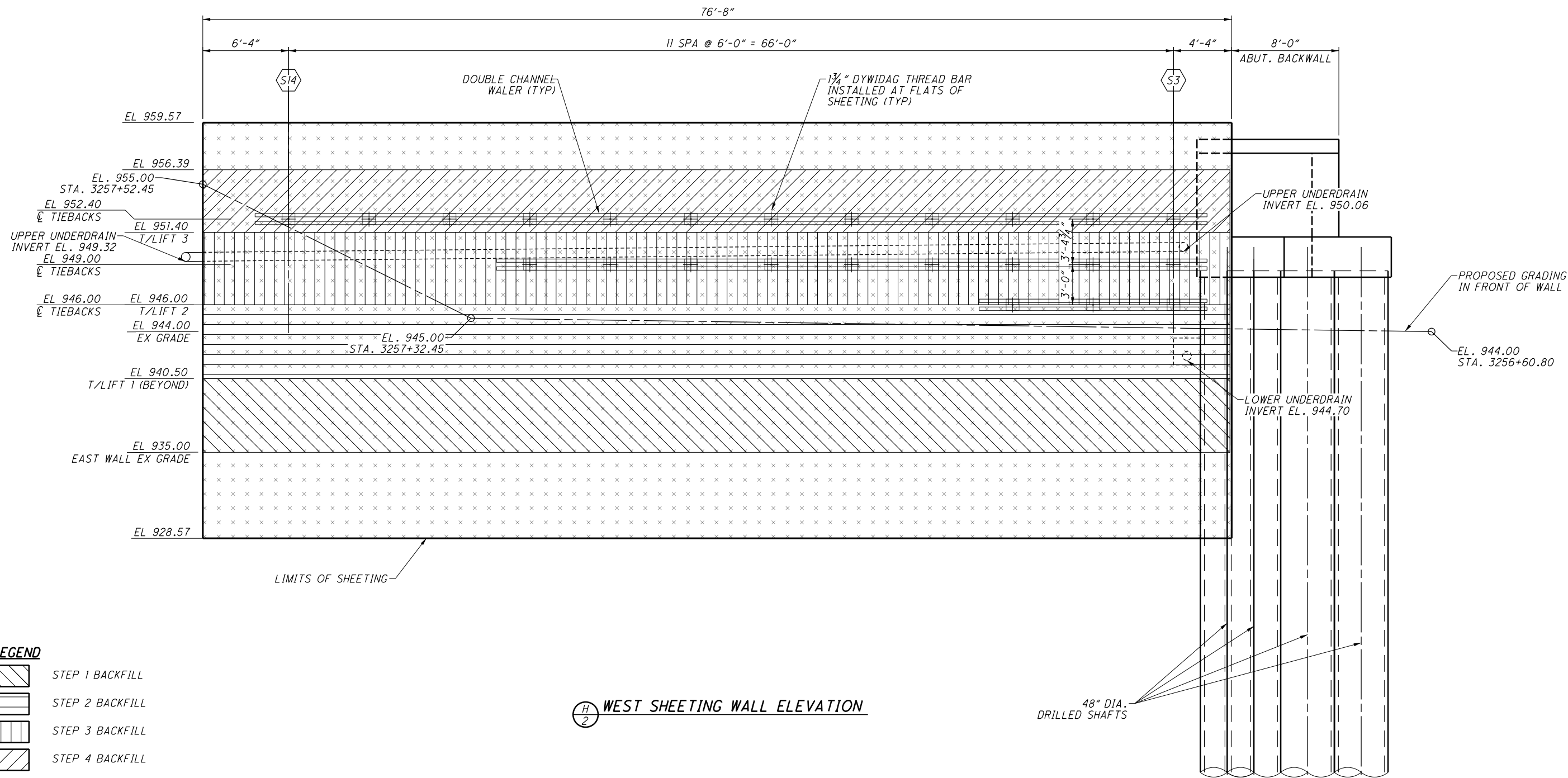
**POINT PROJECT**  
 PID No. 103626



TEMP NSRR TRACK 1



**WEST SHEETING WALL PLAN**

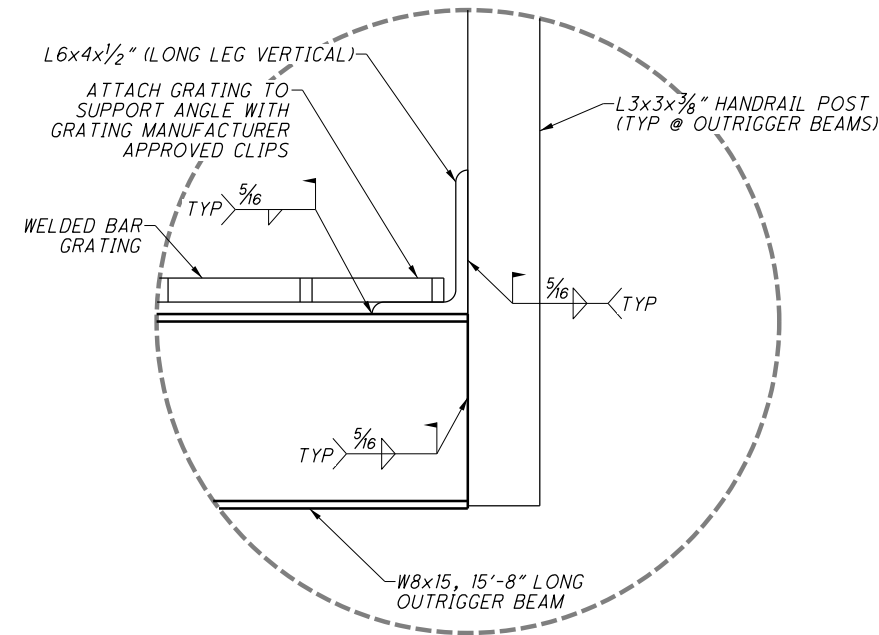


**WEST SHEETING WALL ELEVATION**

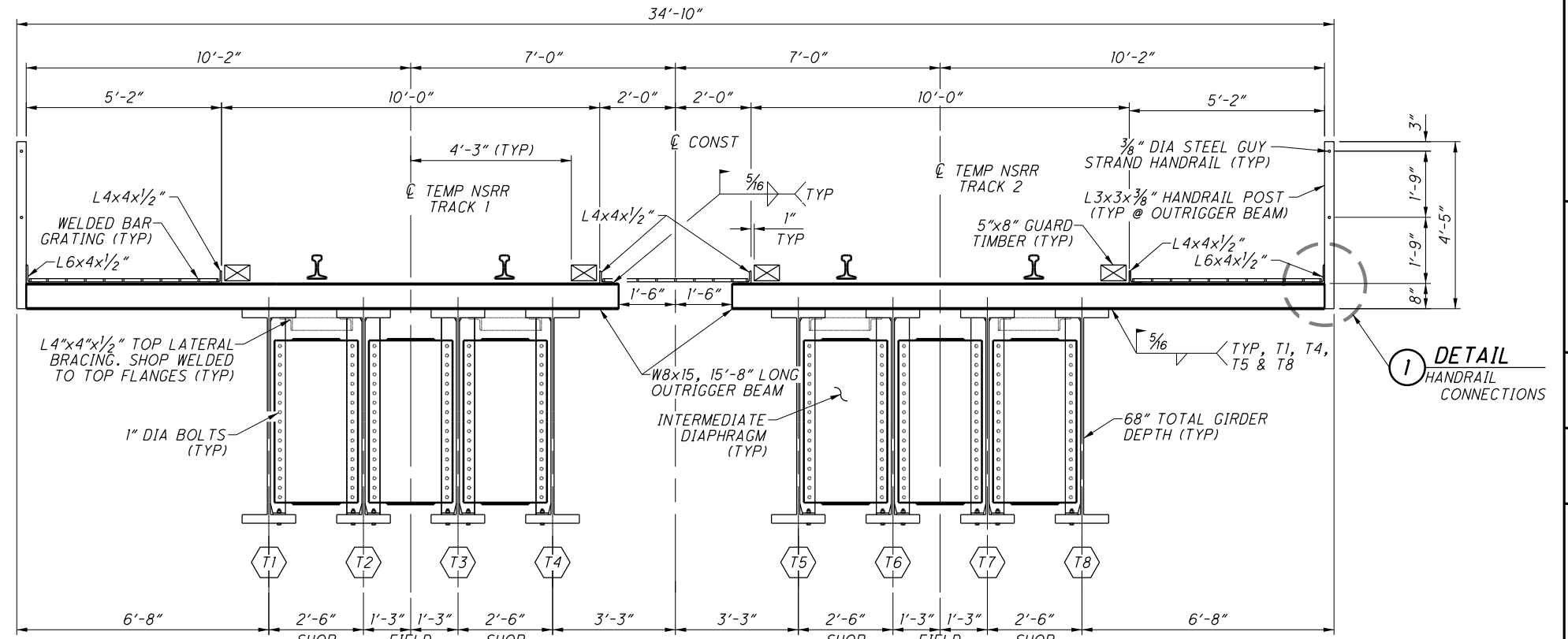
- LEGEND**
- STEP 1 BACKFILL
  - STEP 2 BACKFILL
  - STEP 3 BACKFILL
  - STEP 4 BACKFILL
  - SHEETING

|                                                                                                                                                    |                        |                              |                        |                     |                       |                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------------|------------------------|---------------------|-----------------------|-----------------------------|
| <b>DESIGN AGENCY</b><br><b>Gannett Fleming</b><br>ENGINEERS & ARCHITECTS, P.C.<br>2500 CORPORATE EXCHANGE DRIVE SUITE 230<br>COLUMBIUS, OHIO 43231 | <b>DATE</b><br>05/2021 | <b>REVIEWED</b><br>EFD       | <b>DESIGNED</b><br>JGC | <b>DRAWN</b><br>LAM | <b>CHECKED</b><br>MMZ | <b>NSRR FILE:</b> BR0019283 |
|                                                                                                                                                    |                        | <b>000T SPN:</b> NONE (TEMP) |                        |                     |                       |                             |
| <b>WEST SHEETING WALL AT FORWARD ABUTMENT</b><br>BRIDGE NO. DEL-36-TEMP (TEMPORARY NS MP S-23.80)<br>NSRR OVER US 36 / 37 (CITY OF DELAWARE)       |                        |                              |                        |                     |                       |                             |
| <b>POINT PROJECT</b><br>PID No. 103626                                                                                                             |                        | 25 / 34                      |                        | 423<br>644          |                       |                             |

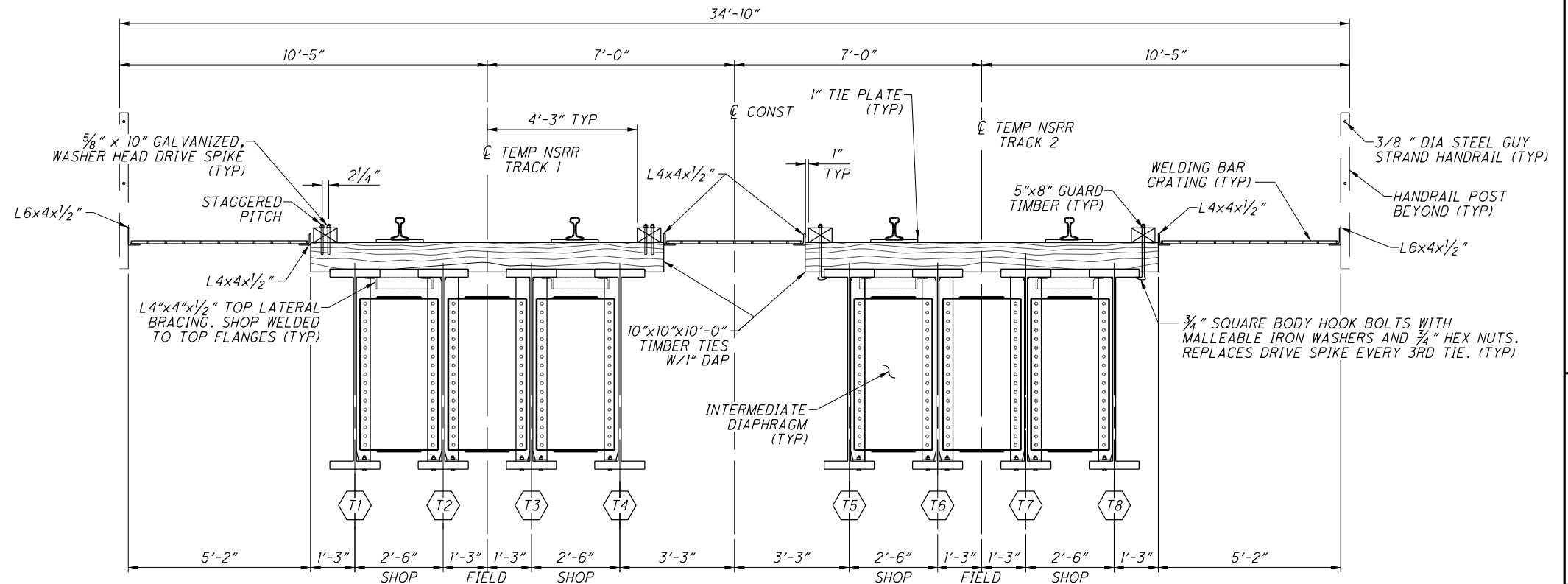
| STRUCTURE DEPTH TABLE     |                     |
|---------------------------|---------------------|
| ELEMENT                   | DEPTH               |
| 136 RE RAIL               | 7.3125"             |
| TIE PLATE                 | 1.0"                |
| TIE (THICKNESS ABOVE DAP) | 9.0"                |
| GIRDER TOP FLANGE         | 2.75"               |
| GIRDER WEB                | 62.5"               |
| GIRDER BOTTOM FLANGE      | 2.75"               |
| BOLT HEAD THICKNESS       | 0.625"              |
| TOTAL DEPTH FROM PGL      | 85.9375"<br>(7.16') |



**1** DETAIL  
HANDRAIL CONNECTIONS



**TEMPORARY BRIDGE TRANSVERSE SECTION**  
AT TYPICAL STEEL OUTRIGGER LOCATION, EVERY THIRD TIE



**TEMPORARY BRIDGE TRANSVERSE SECTION**  
AT TYPICAL TIMBER TIE LOCATION

DESIGN AGENCY: **Gannett Fleming**  
 ENGINEERS & ARCHITECTS, P.C.  
 2600 CORPORATE EXCHANGE DRIVE SUITE 230  
 COLUMBIUS, OHIO 43231

DATE: 05/2021  
 REVISIONS: EFD  
 000T SPN: NONE (TEMP)  
 NSRR FILE: BRO019283

DESIGNED: MMZ  
 CHECKED: JKL

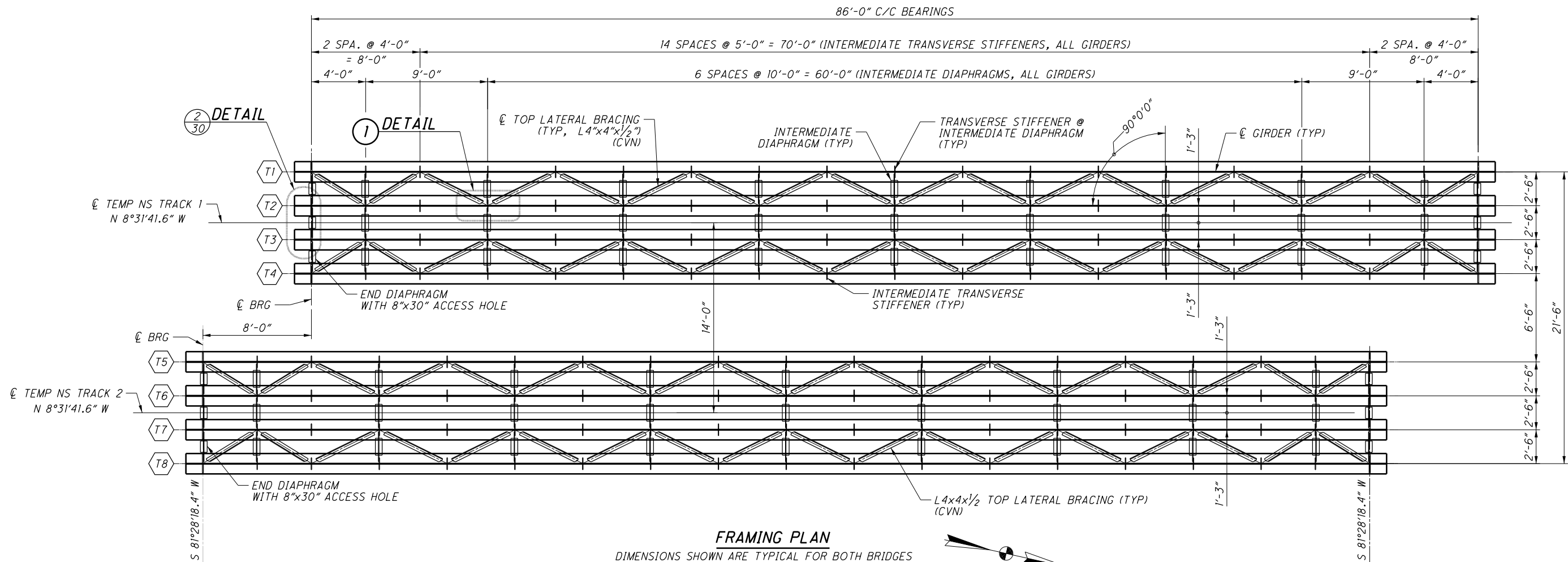
DESIGNER: JKL

BRIDGE NO. DEL-36-TEMP (TEMPORARY NS MP S-23.80)  
 NSRR OVER US 36 / 37 (CITY OF DELAWARE)

POINT PROJECT  
 PID No. 103626

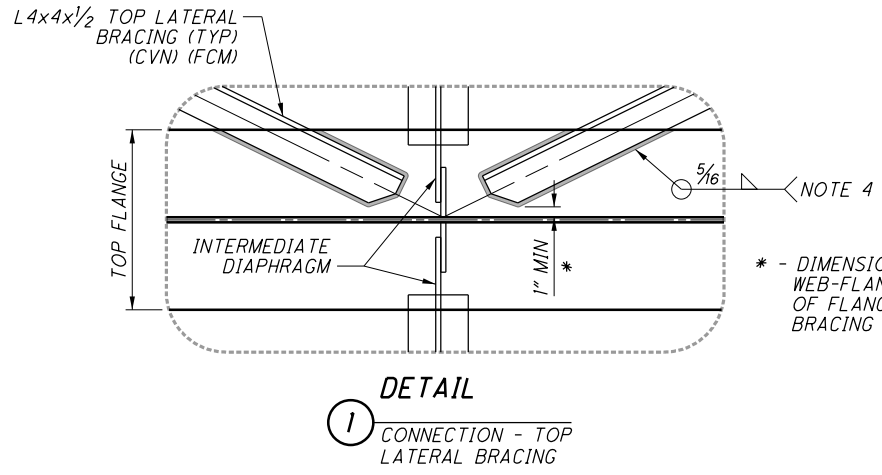
26 / 34

424  
644



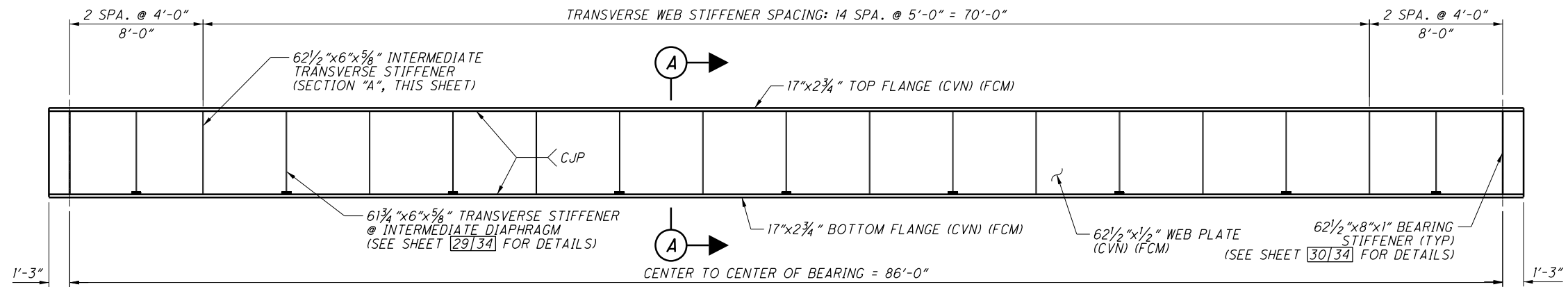
**FRAMING PLAN**

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH BRIDGES

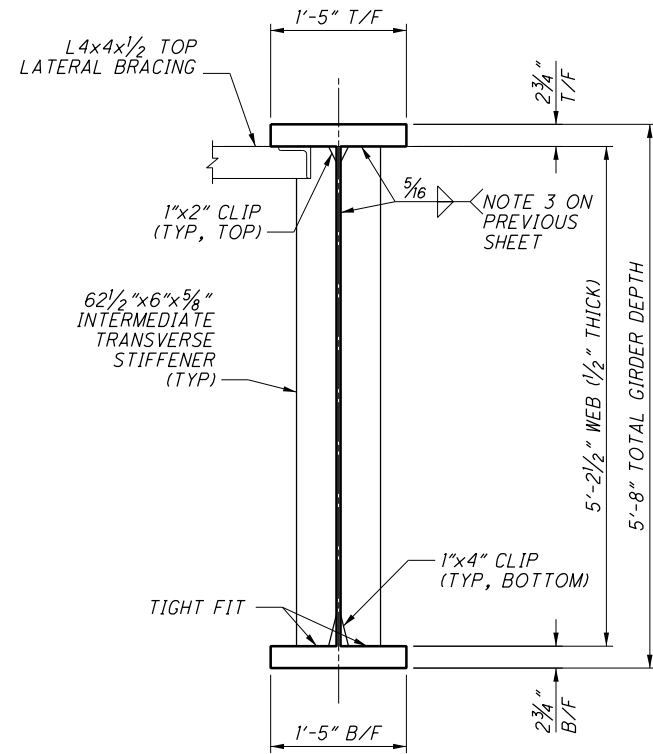


**NOTES:**

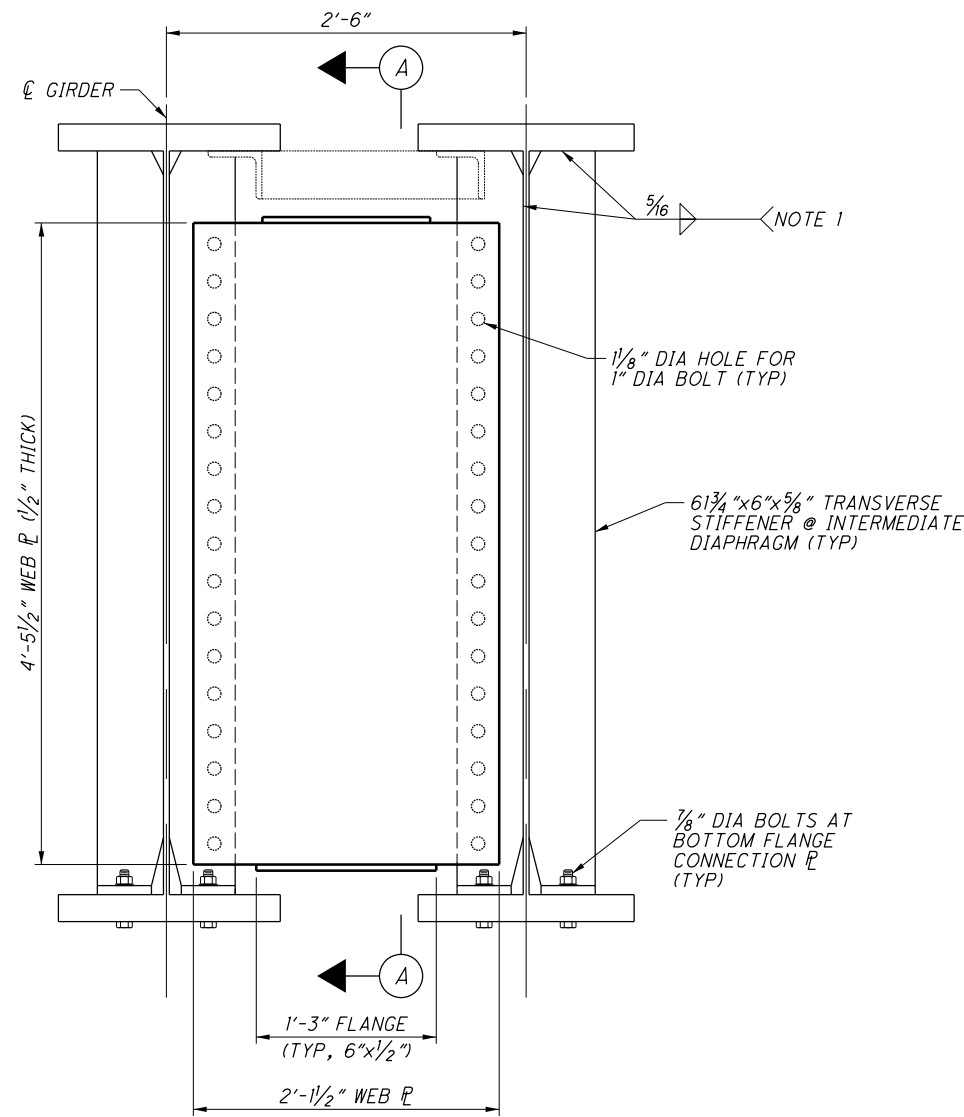
1. (CVN) DENOTES A CHARPY V-NOTCH TEST IS REQUIRED. WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
2. (FCM) DENOTES FRACTURE CRITICAL MEMBER. ALL FCM STEEL SHALL BE PROVIDED PER NORFOLK SOUTHERN SPECIFICATIONS FOR STRUCTURAL STEEL.
3. TERMINATE TRANSVERSE STIFFENER WELDS  $\frac{1}{4}'' \pm \frac{1}{8}''$  FROM THE ENDS OF THE STIFFENER PLATES. THE STIFFENER END IS DEFINED BY STIFFENER PLATE EDGES AND ENDS OF CLIPS.
4. TERMINATE TOP LATERAL BRACING WELDS  $\frac{1}{4}'' \pm \frac{1}{8}''$  FROM THE GIRDER TOP FLANGE EDGES.



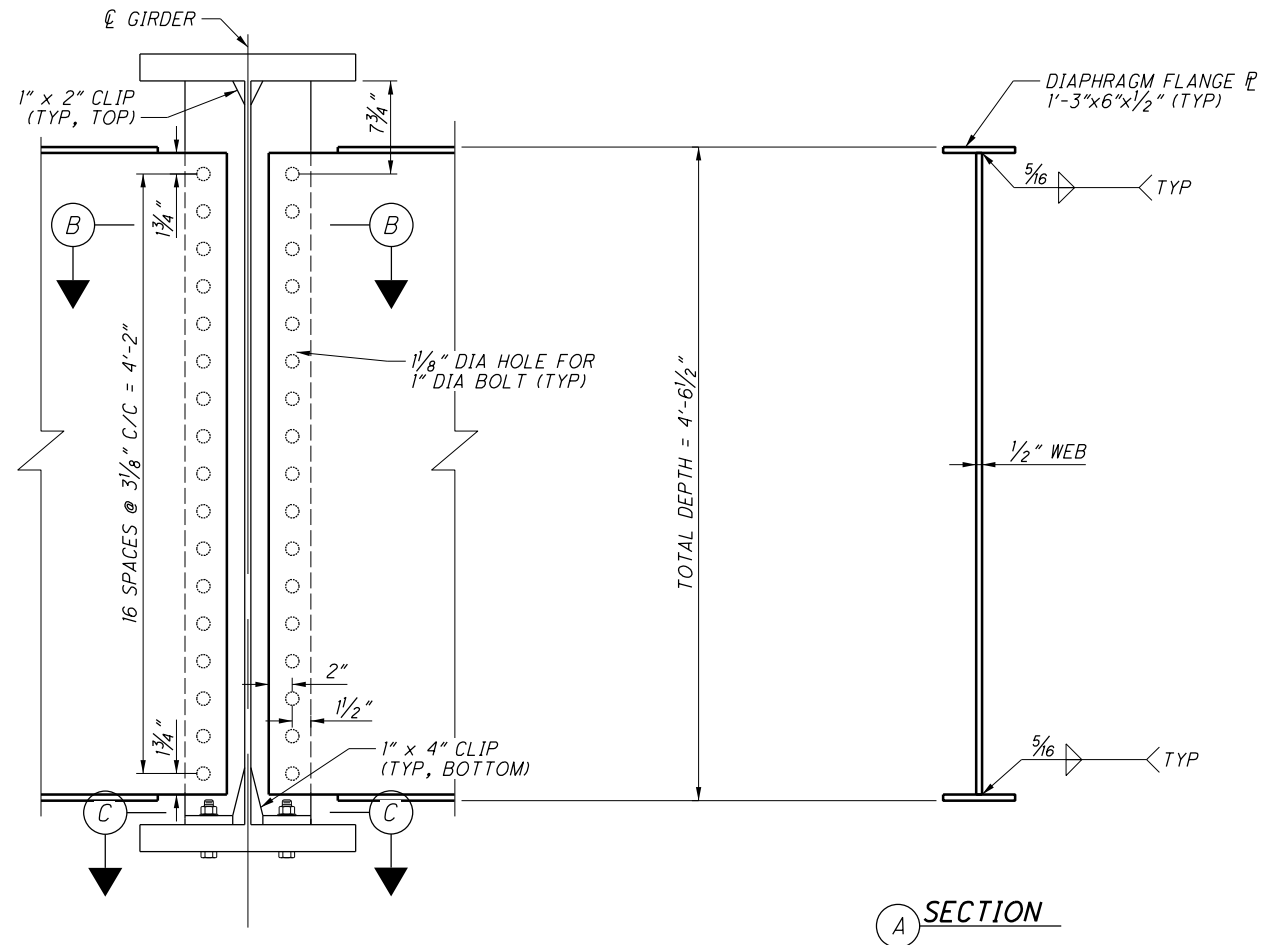
**PLATE GIRDER ELEVATION**



**A GIRDER SECTION AT INTERMEDIATE TRANSVERSE STIFFENER**



**INTERMEDIATE DIAPHRAGM DETAILS**

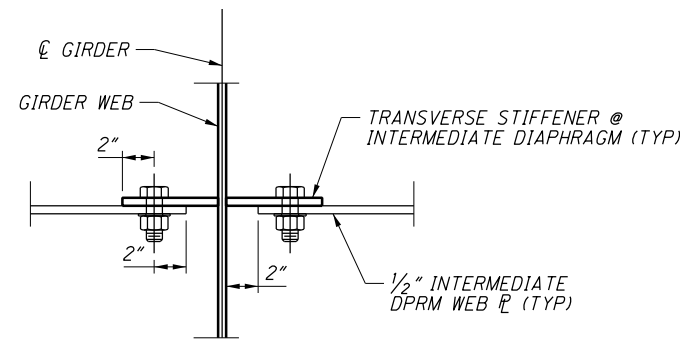


**INTERMEDIATE DIAPHRAGM CONNECTION DETAILS**

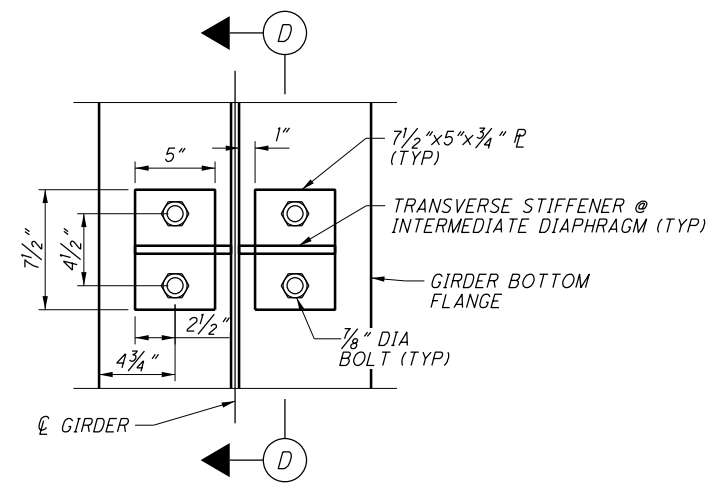
**A SECTION**

**NOTES:**

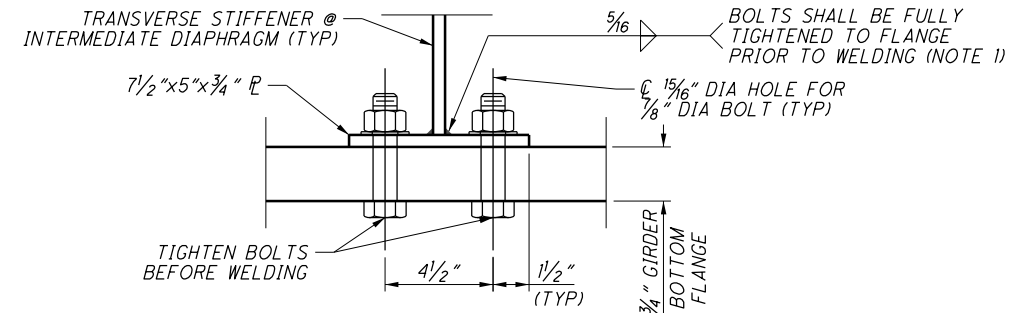
1. TERMINATE TRANSVERSE STIFFENER WELDS 1/4" ± 1/8" FROM THE ENDS OF THE STIFFENER PLATES. THE STIFFENER END IS DEFINED BY STIFFENER PLATE EDGES AND ENDS OF CLIPS.



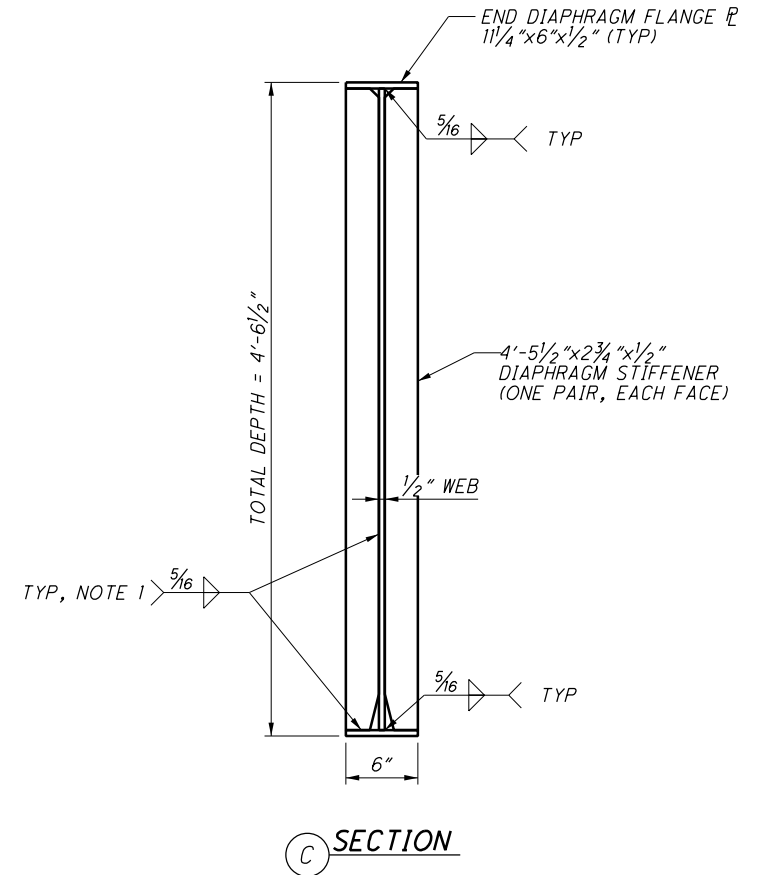
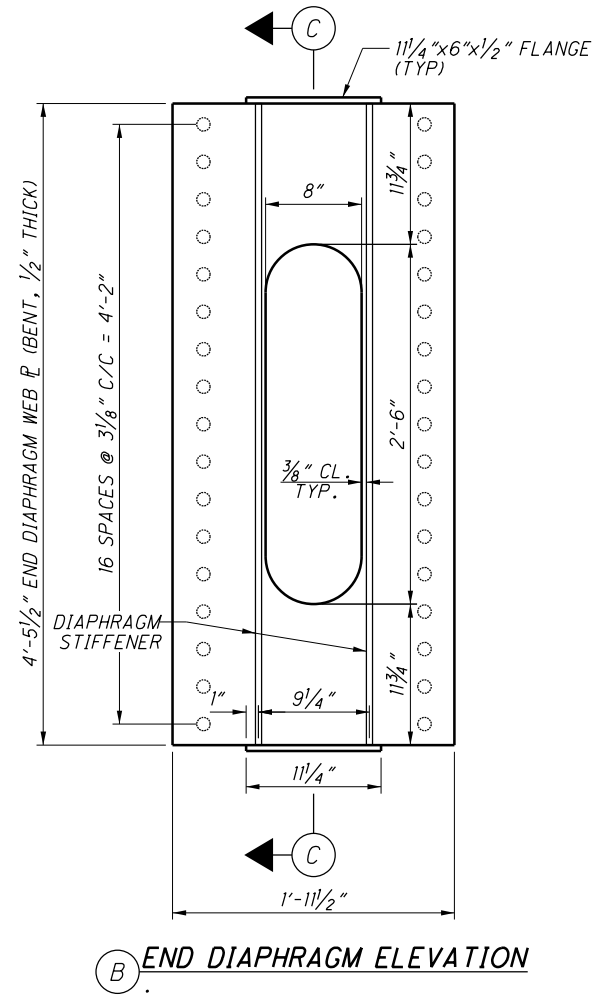
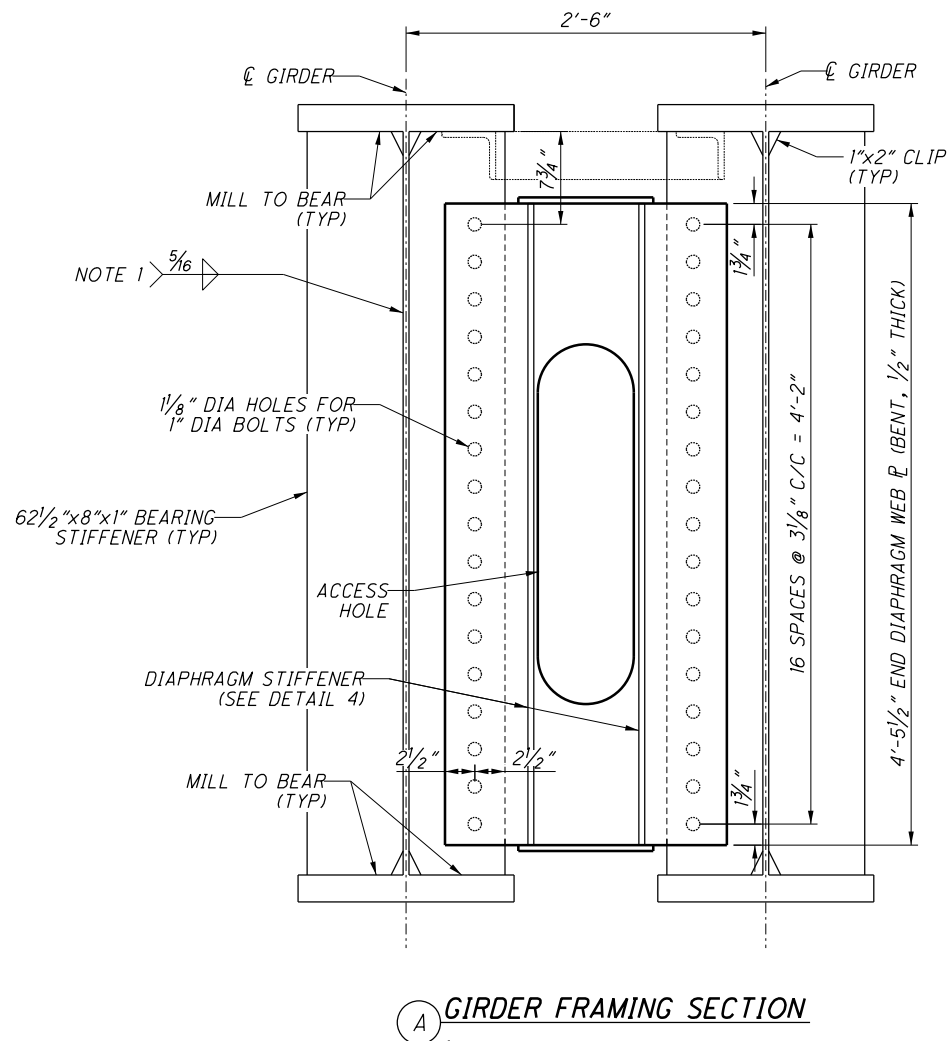
**B SECTION**



**C SECTION**

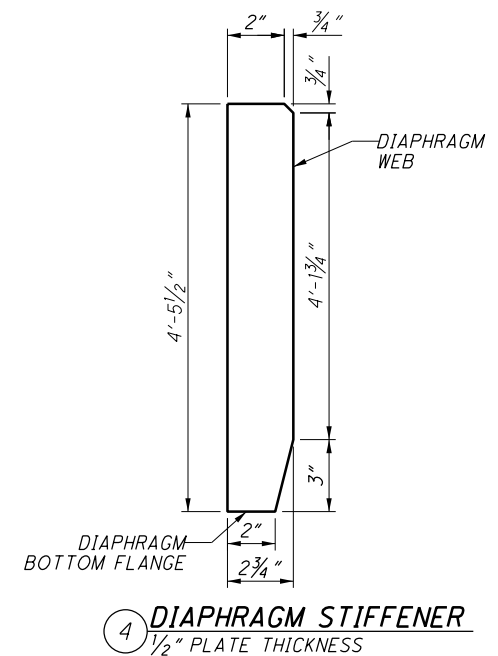
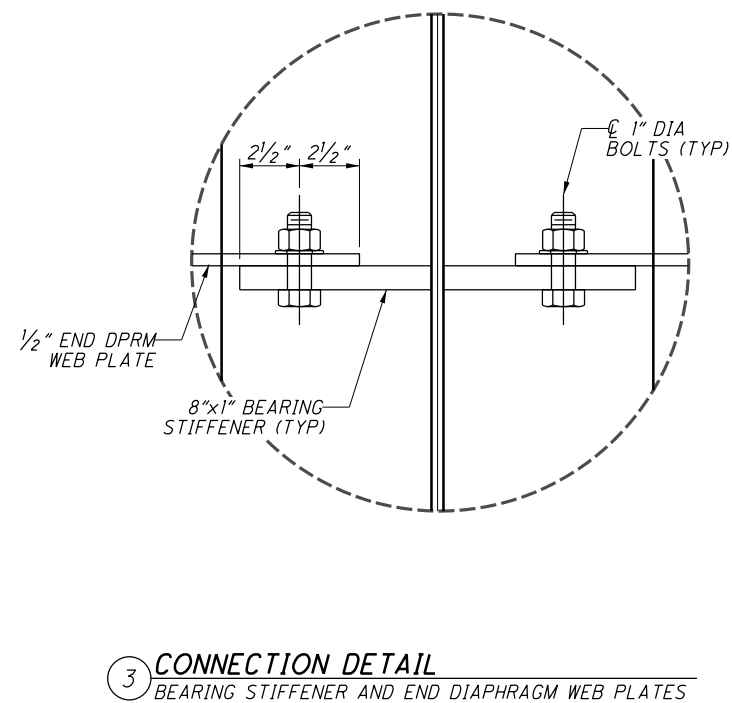
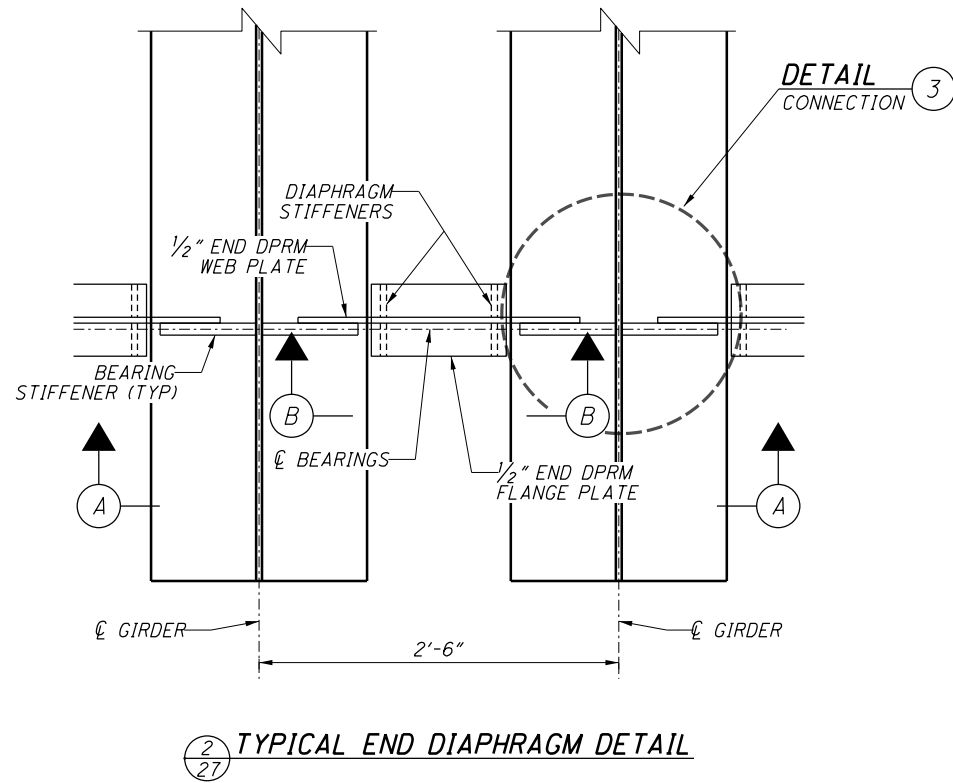


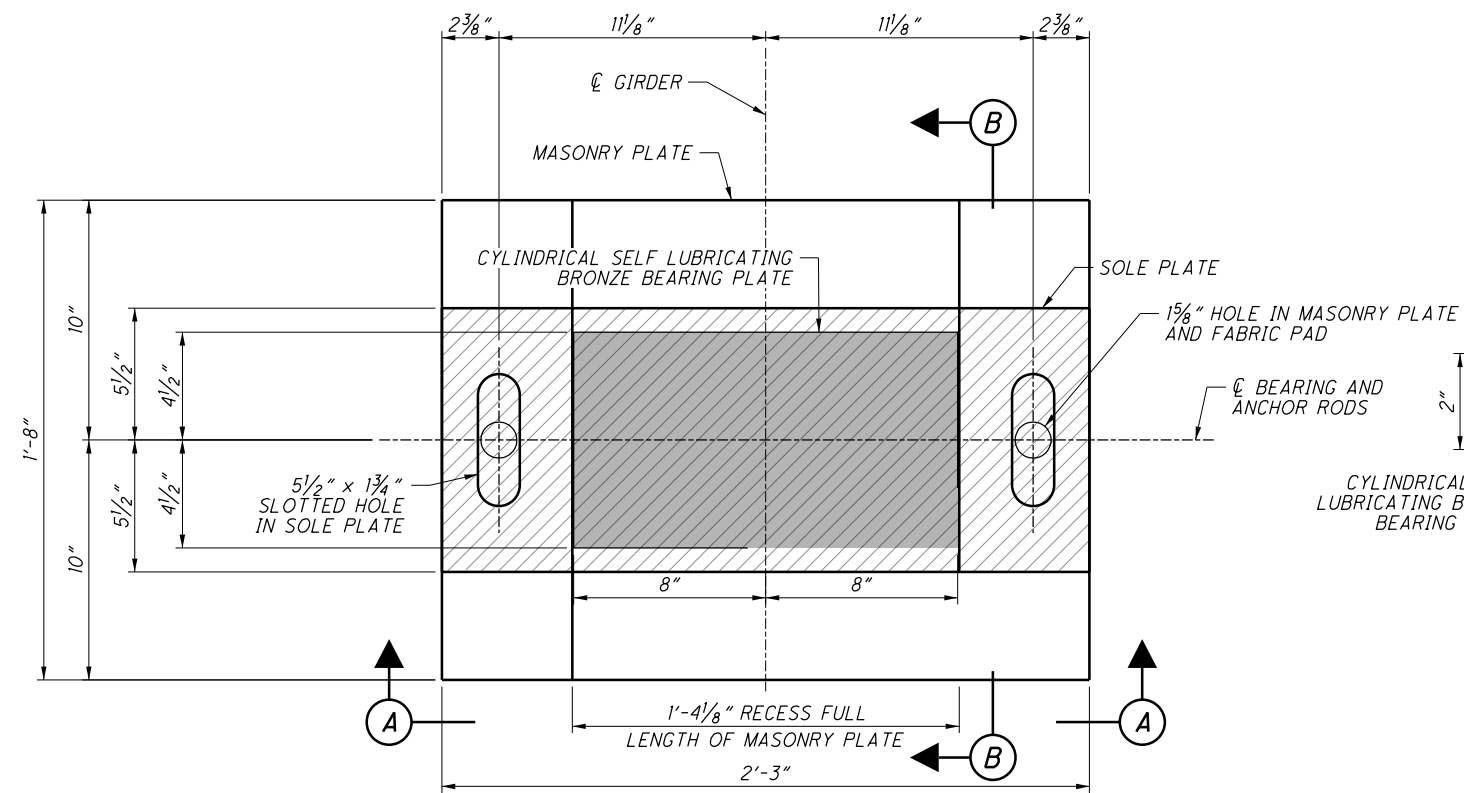
**D SECTION**



**NOTES:**

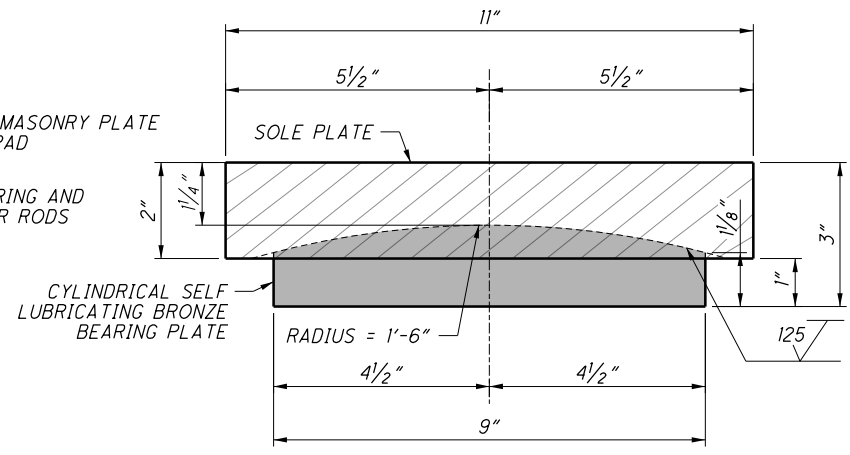
1. TERMINATE STIFFENER WELDS  $\frac{1}{4}$ "  $\pm$   $\frac{1}{8}$ " FROM THE ENDS OF THE STIFFENER PLATES. THE STIFFENER END IS DEFINED BY STIFFENER PLATE EDGES AND ENDS OF CLIPS.



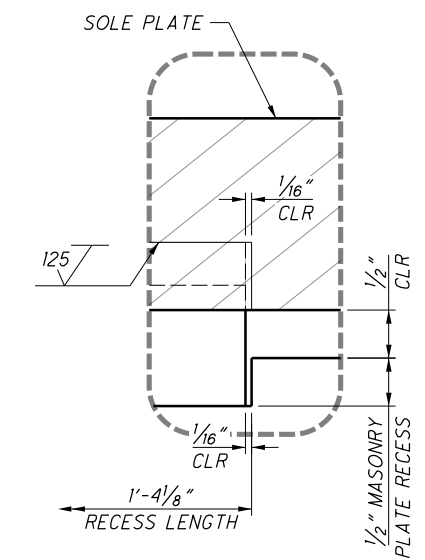


**TYPICAL EXPANSION BEARING PLAN**

8 REQUIRED (AT REAR ABUTMENT)  
(ANCHOR BOLTS NOT SHOWN)



**SECTION B**  
CYLINDRICAL BEARING ASSEMBLY

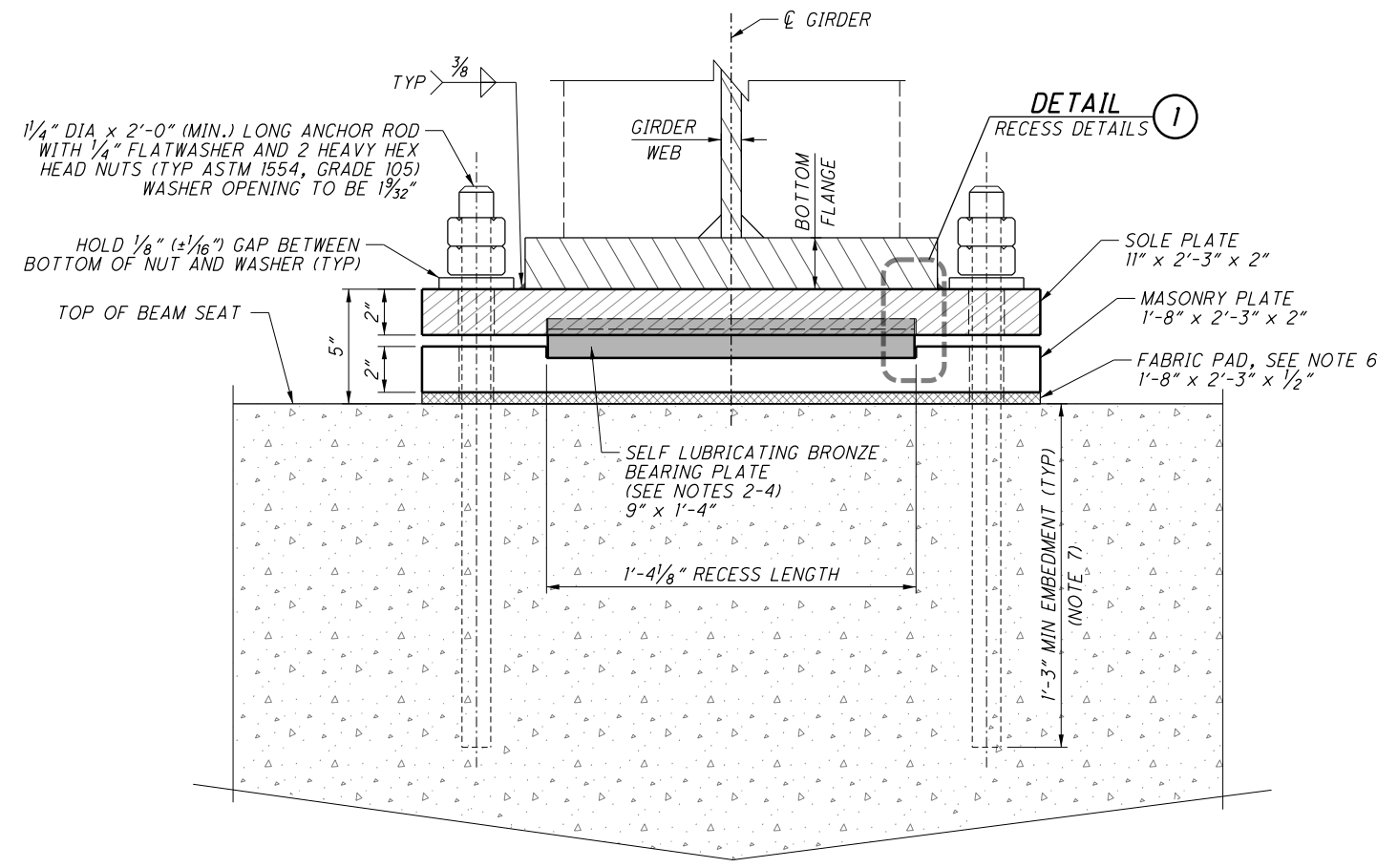


**DETAIL 1**  
RECESS DETAILS

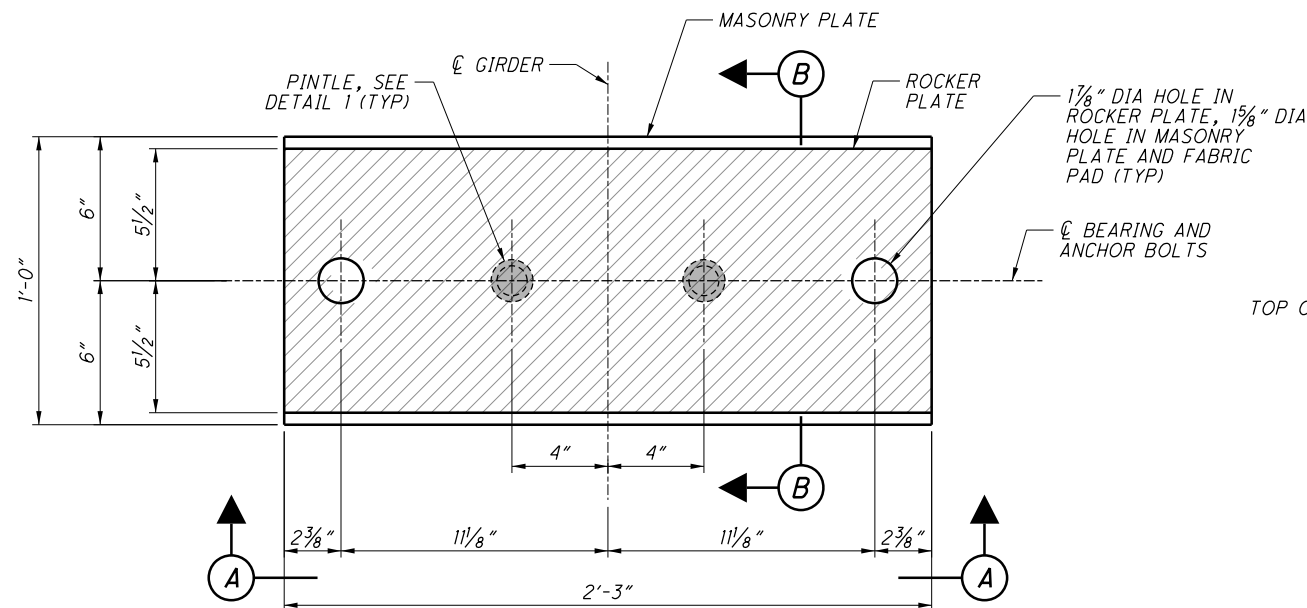
| LOAD TABLE                    |       |
|-------------------------------|-------|
| DEAD LOAD (KIPS)              | 29.5  |
| LIVE LOAD + IMPACT (KIPS)     | 201.1 |
| SERVICE VERTICAL LOADS (KIPS) | 230.6 |

**NOTES:**

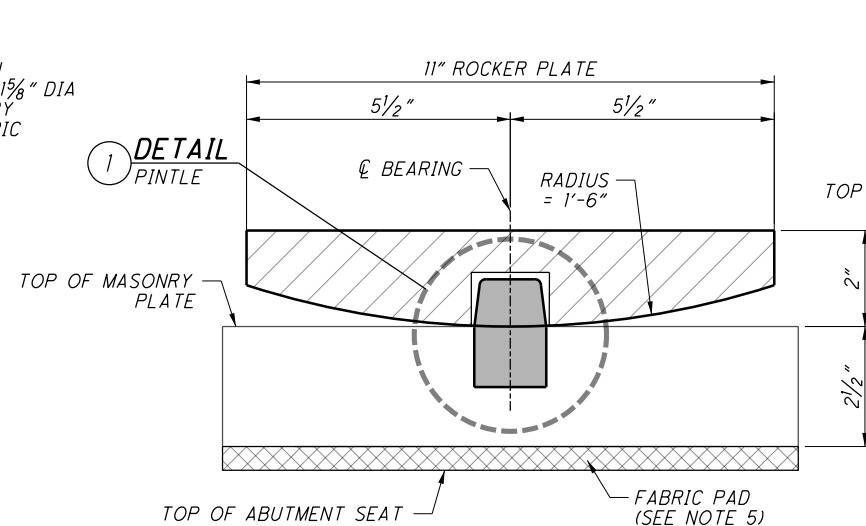
- BEARINGS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF AREMA CHAPTER 15 AND THE NORFOLK SOUTHERN PUBLIC PROJECTS MANUALS.
- BRONZE BEARING PLATES SHALL CONFORM TO THE STANDARD SPECIFICATION FOR BRONZE CASTINGS FOR BRIDGES AND TURNABLES, ASTM B-22. ALLOY C91100 SHALL BE FURNISHED.
- SOLID LUBRICANT SHALL CONSIST OF A COMBINATION OF SOLIDS HAVING NON-DETERIORATING CHARACTERISTICS, AS WELL AS LUBRICATING QUALITIES AND SHALL BE CAPABLE OF WITHSTANDING LONG TERM ATMOSPHERIC EXPOSURE, DE-ICING MATERIALS AND WATER. MOLYBDENUM DISULFIDE AND OTHER INGREDIENTS WHICH MAY PROMOTE ELECTROLYTIC OR CHEMICAL ACTION BETWEEN THE BEARING ELEMENTS SHALL NOT BE USED. SHELLAC, TARS AND ASPHALTS AND PETROLEUM PRODUCTS SHALL NOT BE USED AS BINDERS.
- EXPANSION BEARINGS SHALL HAVE MARKINGS MATCHED IN THE ENDS OF THE SOLE PLATES AND BRONZE PLATES TO FACILITATE THEIR POSITIONING FOR THE PROPER TEMPERATURE CORRECTION.
- EXPOSED SURFACES SHALL BE PAINTED IN ACCORDANCE WITH STRUCTURAL STEEL PAINT SYSTEM, SEE GENERAL NOTES. CARE SHALL BE TAKEN TO KEEP ALL SLIDING SURFACES FREE FROM PAINT.
- FABRIC PADS SHALL BE PREFORMED FABRIC BEARING PADS, 1/2" THICK, AND SHALL BE EITHER:
  - SHOCK PAD STYLE 15175, AS MANUFACTURED BY THE ALERT MANUFACTURING AND SUPPLY COMPANY, CHICAGO, IL; OR
  - FABREEKA PADS, AS MANUFACTURED BY THE FABREEKA PRODUCTS COMPANY, BOSTON, MA; OR
  - SORBTEX PADS AS MANUFACTURED BY VOSS ENGINEERING, INC., CHICAGO, IL; OR
  - AN APPROVED EQUAL.
- ANCHOR RODS SHALL BE IN COMPLIANCE WITH AREMA 15-5.3.7.d AND INSTALLED IN PREFORMED HOLES OR CAST-IN-PLACE. AT A MINIMUM, THE ANCHOR RODS SHALL BE SWEDGED OR THREADED THE ENTIRE LENGTH OF EMBEDMENT. DRILLED HOLES SHALL NOT BE USED. PREFORMED HOLES SHALL BE FILLED WITH NON-SHRINK, NON-METALLIC GROUT AND IS INCIDENTAL TO THE COST OF THE BEARINGS. ANCHOR BOLTS ARE TO BE SET IN THE PREFORMED HOLES PRIOR TO PLACING BEARINGS AND GIRDERS. CARE SHALL BE TAKEN TO NOT ALLOW GROUT TO ENCROACH INTO THE SLOTTED HOLES OF THE SOLE PLATE.



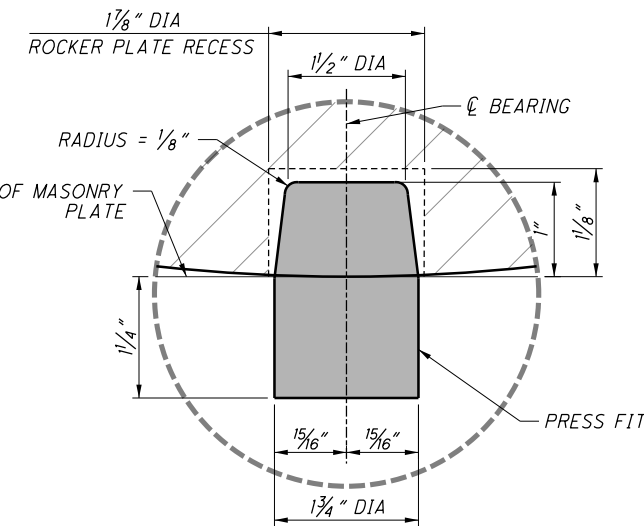
**ELEVATION A**



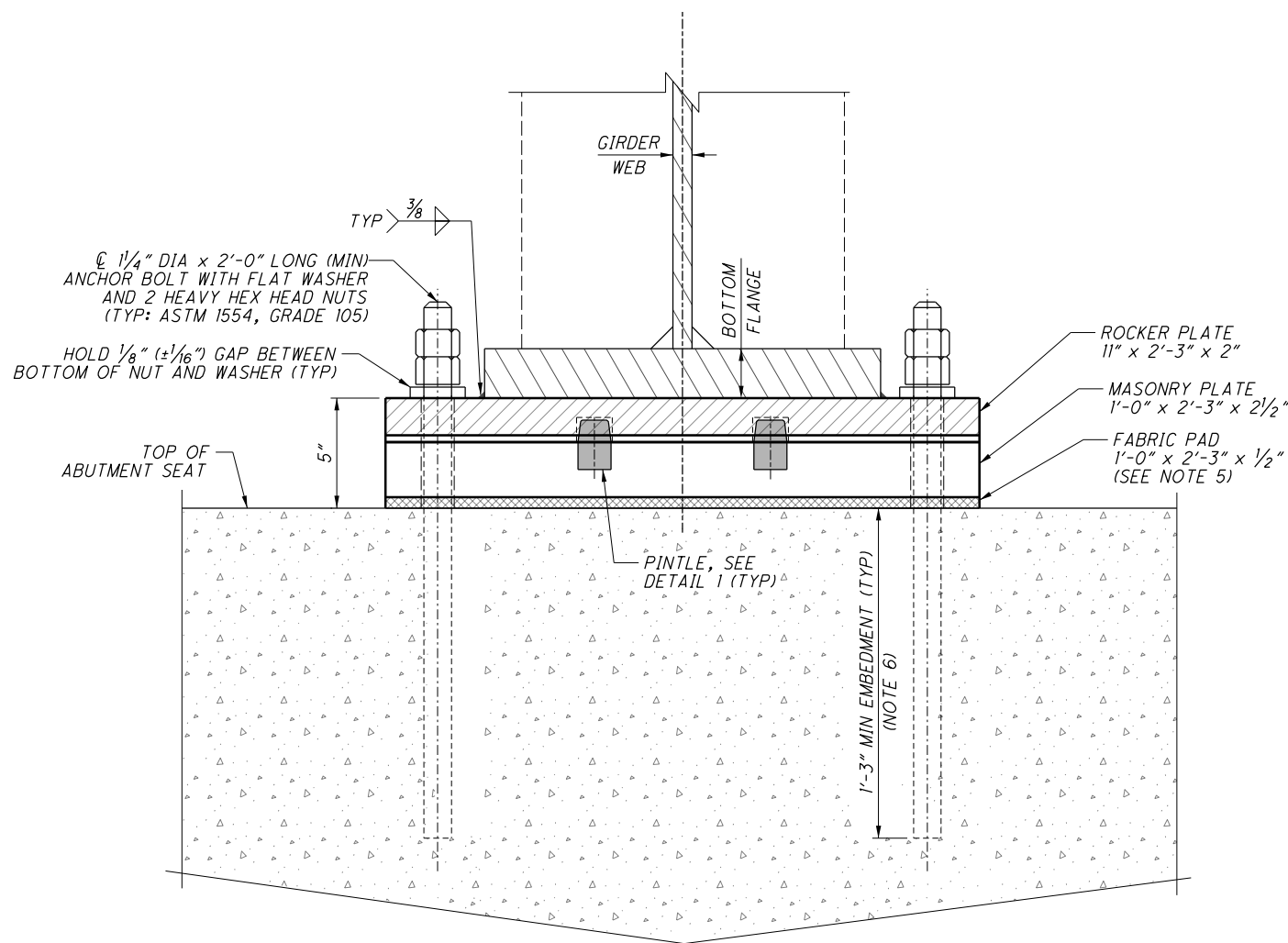
**TYPICAL FIXED BEARING PLAN**  
 8 REQUIRED (AT FORWARD ABUTMENT)  
 (ANCHOR BOLTS NOT SHOWN)



**B SECTION**  
 ROCKER PLATE DETAILS



**1 PINTLE DETAIL**  
 SEE NOTE 3



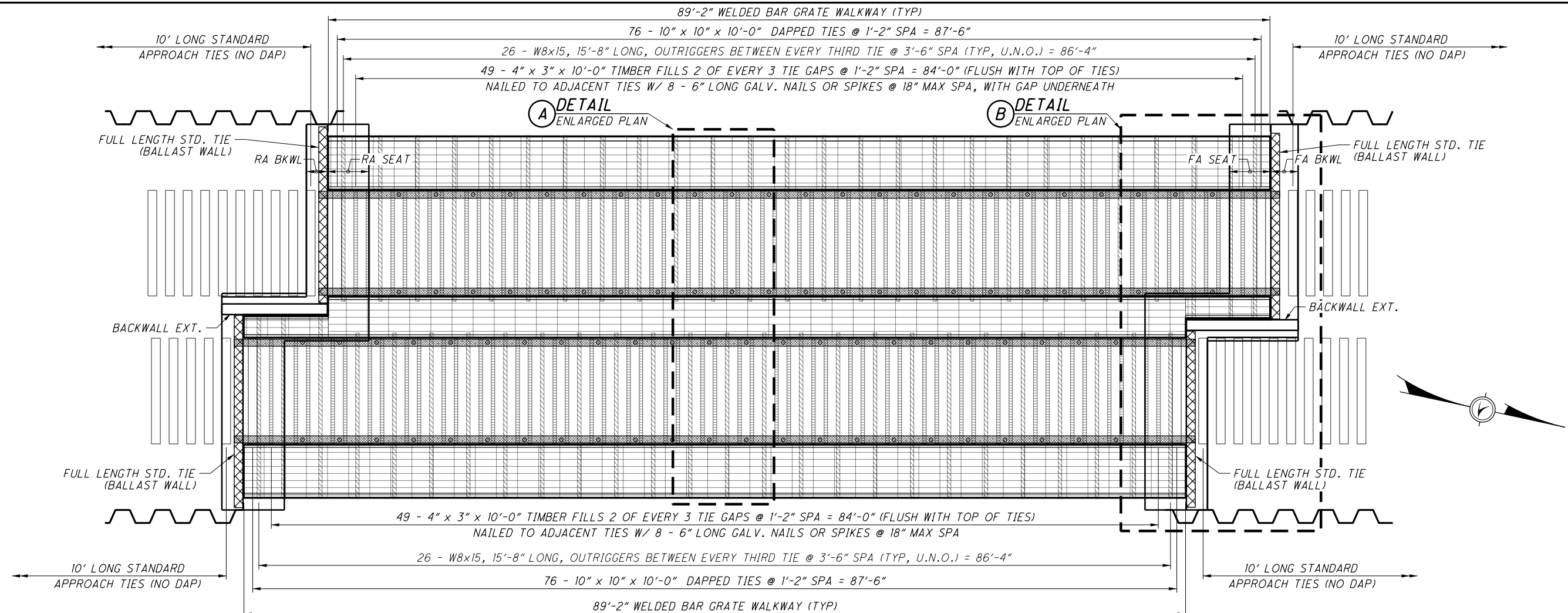
**A ELEVATION**

| LOAD TABLE                    |       |
|-------------------------------|-------|
| DEAD LOAD (KIPS)              | 29.5  |
| LIVE LOAD + IMPACT (KIPS)     | 201.1 |
| SERVICE VERTICAL LOADS (KIPS) | 230.6 |

**NOTES:**

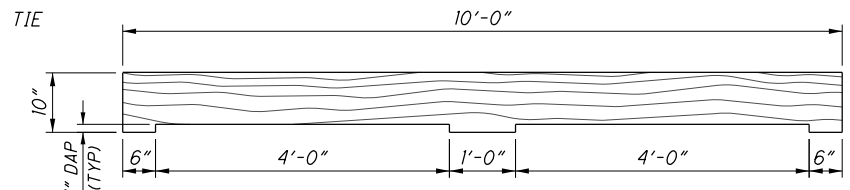
1. BEARINGS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF AREMA CHAPTER 15 AND THE NORFOLK SOUTHERN PUBLIC PROJECTS MANUALS.
2. BEARINGS SHALL BE ASSEMBLED COMPLETE IN THE SHOP, CHECKED FOR FIT AND BEARING OF ALL CONTACT SURFACES MARKED FOR ASSEMBLY IN THE FIELD.
3. PROVIDE CARBON STEEL PINTLE STEEL CONFORMING TO THE REQUIREMENTS OF ASTM SPECIFICATION A668, CLASS C.
4. EXPOSED SURFACES SHALL BE PAINTED IN ACCORDANCE WITH STRUCTURAL STEEL PAINT SYSTEM, SEE GENERAL NOTES.
5. FABRIC PADS SHALL BE PROVIDED AS PER NOTE 6 ON PREVIOUS SHEET.
6. ANCHOR RODS SHALL BE IN COMPLIANCE WITH AREMA 15-5.3.7.d AND INSTALLED IN PREFORMED HOLES OR CAST-IN-PLACE. AT A MINIMUM, THE ANCHOR RODS SHALL BE SWEDGED OR THREADED THE ENTIRE LENGTH OF EMBEDMENT. DRILLED HOLES SHALL NOT BE USED. PREFORMED HOLES SHALL BE FILLED WITH NON-SHRINK, NON-METALLIC GROUT AND IS INCIDENTAL TO THE COST OF THE BEARINGS. ANCHOR BOLTS ARE TO BE SET IN THE PREFORMED HOLES PRIOR TO PLACING BEARINGS AND GIRDERS.



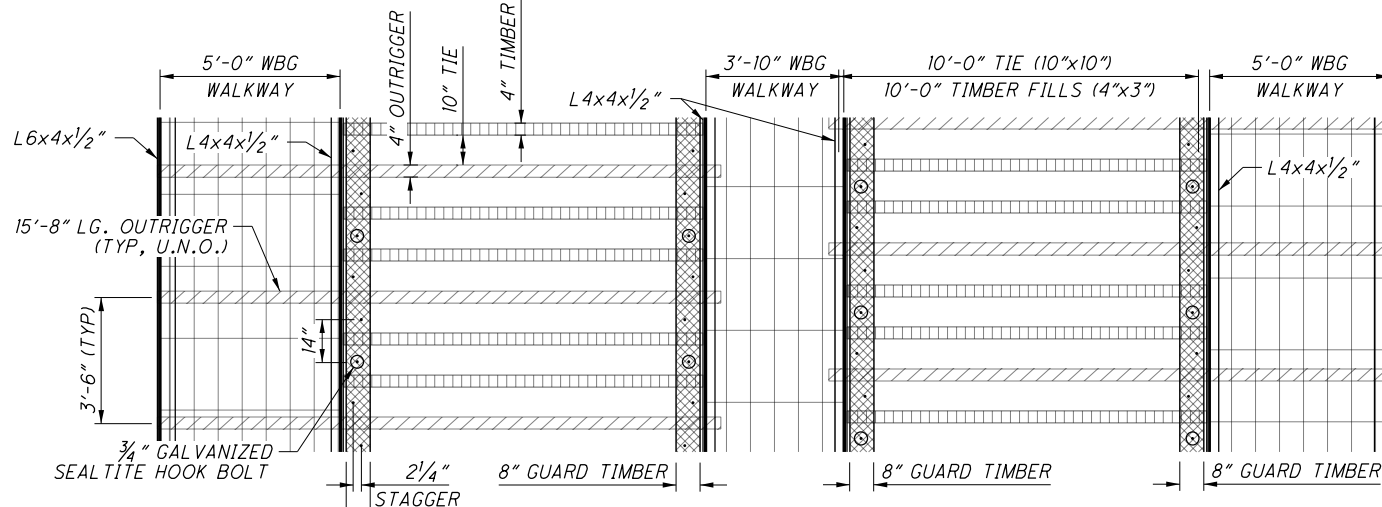


**LEGEND**

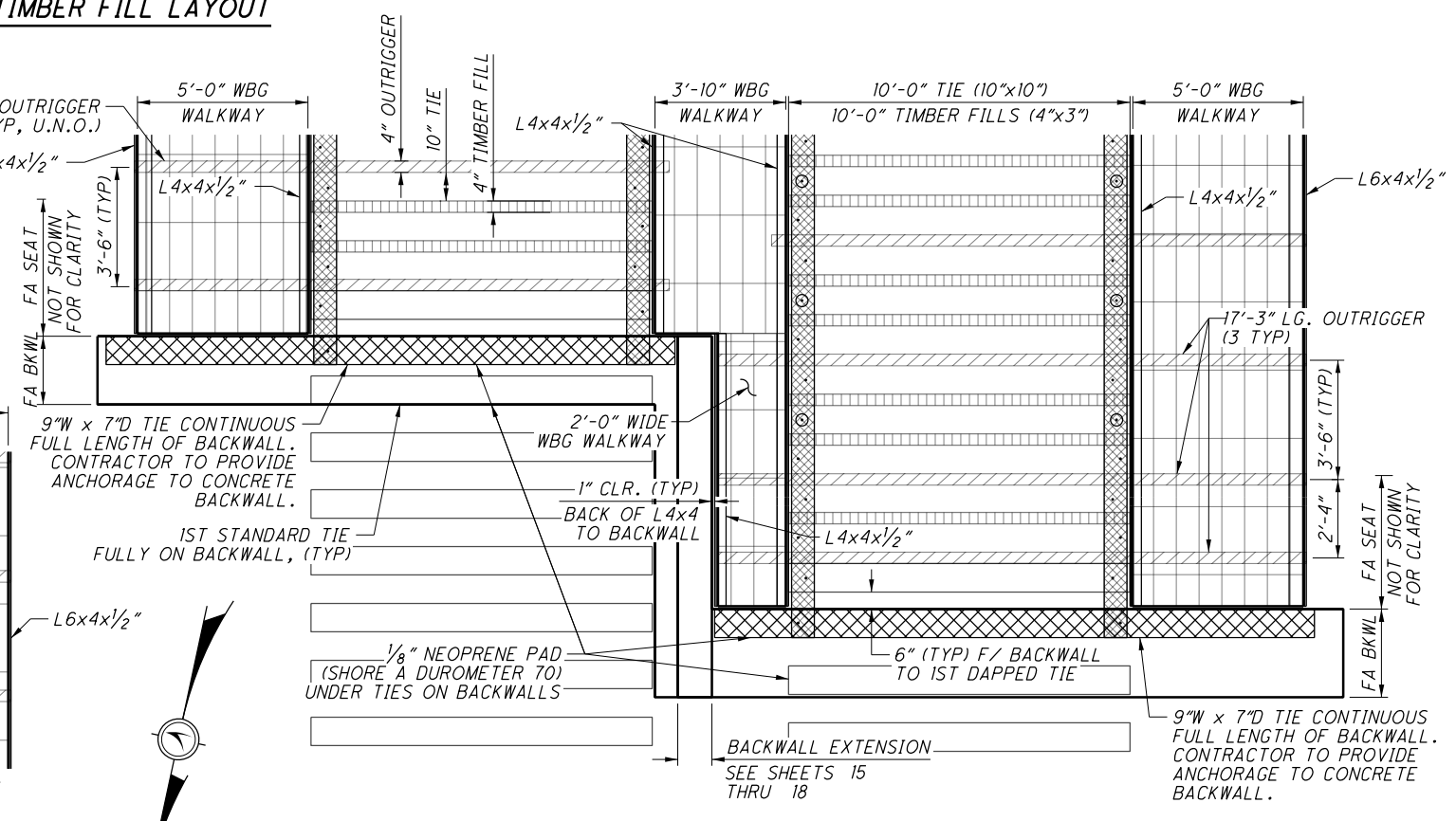
- WELDED BAR GRATE WALKWAY
- SERRATED 1 1/4" x 1/8" 19-W-4 (SUPPORTED BY L6x4x1/2" ANGLES AT OUTSIDE EDGES) (SUPPORTED BY L4x4x1/2" ANGLES AT OTHER EDGES)
- FULL LENGTH BACKWALL TIE
- 4"x3" TIMBER FILL
- W8x15 OUTRIGGER
- 8" GUARD TIMBER



TYPICAL TIE DAP LAYOUT



DETAIL A  
TYPICAL DECK FRAMING



DETAIL B  
DECK FRAMING AT ABUTMENT  
FA SHOWN, RA SIMILAR PER 180° ROTATION

**NOTE:**  
WORK THIS SHEET WITH  
[26] [34]

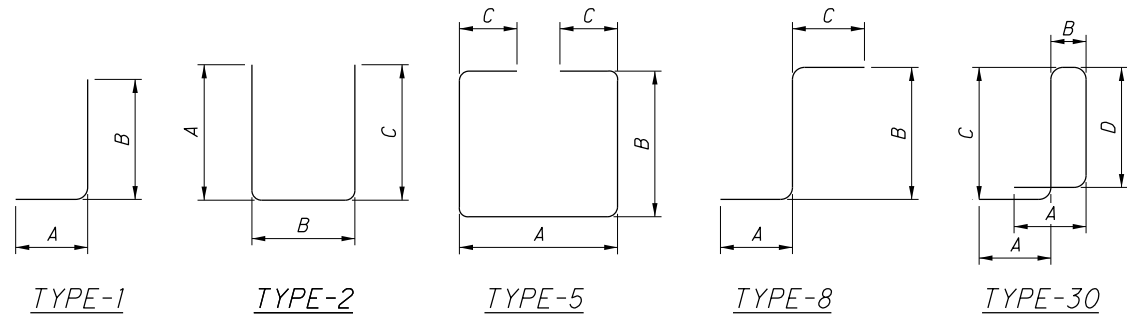
**Design Agency**  
**Gannett Fleming**  
 ENGINEERS & ARCHITECTS, P.C.  
 2500 CORPORATE EXCHANGE DRIVE SUITE 230  
 COLUMBIAS, OHIO 43231

|           |           |          |             |
|-----------|-----------|----------|-------------|
| DESIGNED  | JKL       | CHECKED  | MMZ         |
| DRAWN     | TAK       | REVISED  |             |
| REVIEWED  | EFD       | DATE     | 05/2021     |
| NSRR FILE | BR0019283 | 000T SPN | NONE (TEMP) |

**POINT PROJECT**  
 BRIDGE NO. DEL-36-TEMP (TEMPORARY NS MP 5-23.80)  
 NSRR OVER US 36 / 37 (CITY OF DELAWARE)

PID No. 103626  
 33 / 34  
 431  
 644

| MARK                         | NUMBER |         |       | LENGTH  | WEIGHT       |              |              | TYPE | DIMENSIONS |        |       |        |   |   |     |
|------------------------------|--------|---------|-------|---------|--------------|--------------|--------------|------|------------|--------|-------|--------|---|---|-----|
|                              | REAR   | FORWARD | TOTAL |         | REAR         | FWD          | TOTAL        |      | A          | B      | C     | D      | E | R | INC |
| <b>ABUTMENT</b>              |        |         |       |         |              |              |              |      |            |        |       |        |   |   |     |
| A502                         | 11     | 11      | 22    | 12'-5"  | 142          | 142          | 284          | 30   | 10"        | 8"     | 9'-9" | 9 1/4" |   |   |     |
| A503                         |        | 7       | 7     | 17'-10" |              | 131          | 131          | 8    | 4'-9"      | 8'-7"  | 4'-9" |        |   |   |     |
| A517                         | 15     | 15      | 30    | 17'-8"  | 276          | 276          | 552          | STR. |            |        |       |        |   |   |     |
| A518                         | 15     | 15      | 30    | 20'-2"  | 316          | 316          | 632          | STR. |            |        |       |        |   |   |     |
| A519                         | 14     | 7       | 21    | 17'-3"  | 252          | 126          | 378          | 8    | 4'-1"      | 9'-4"  | 4'-1" |        |   |   |     |
| A520                         | 4      |         | 4     | 9'-8"   | 41           |              | 41           | STR. |            |        |       |        |   |   |     |
| A521                         | 42     | 21      | 63    | 6'-1"   | 267          | 133          | 400          | 2    | 2'-4"      | 1'-8"  | 2'-4" |        |   |   |     |
| A522                         |        | 19      | 19    | 6'-8"   |              | 133          | 133          | 2    | 2'-4"      | 2'-3"  | 2'-4" |        |   |   |     |
| A523                         |        | 4       | 4     | 10'-3"  |              | 43           | 43           | STR. |            |        |       |        |   |   |     |
| SUB-TOTAL                    |        |         |       |         | 1,294        | 1,300        | 2,594        |      |            |        |       |        |   |   |     |
| <b>FOOTING</b>               |        |         |       |         |              |              |              |      |            |        |       |        |   |   |     |
| F500                         | 45     | 45      | 90    | 9'-7"   | 450          | 450          | 900          | 1    | 10"        | 8'-10" |       |        |   |   |     |
| F501                         | 40     | 20      | 60    | 12'-1"  | 505          | 252          | 757          | 5    | 5'-7"      | 2'-6"  | 1'-0" |        |   |   |     |
| F502                         |        | 20      | 20    | 12'-8"  |              | 265          | 265          | 5    | 6'-2"      | 2'-6"  | 1'-0" |        |   |   |     |
| F601                         | 34     | 36      | 70    | 20'-2"  | 1,030        | 1,091        | 2,121        | STR. |            |        |       |        |   |   |     |
| F602                         | 11     |         | 11    | 13'-7"  | 225          |              | 225          | STR. |            |        |       |        |   |   |     |
| F604                         |        | 11      | 11    | 14'-2"  |              | 235          | 235          | STR. |            |        |       |        |   |   |     |
| F802                         | 45     | 45      | 90    | 10'-0"  | 1,202        | 1,202        | 2,404        | 1    | 1'-4"      | 8'-10" |       |        |   |   |     |
| SUB-TOTAL                    |        |         |       |         | 3,412        | 3,495        | 6,907        |      |            |        |       |        |   |   |     |
| <b>TOTAL ALL REINFORCING</b> |        |         |       |         | <b>4,706</b> | <b>4,795</b> | <b>9,501</b> |      |            |        |       |        |   |   |     |



**REINFORCING NOTES:**

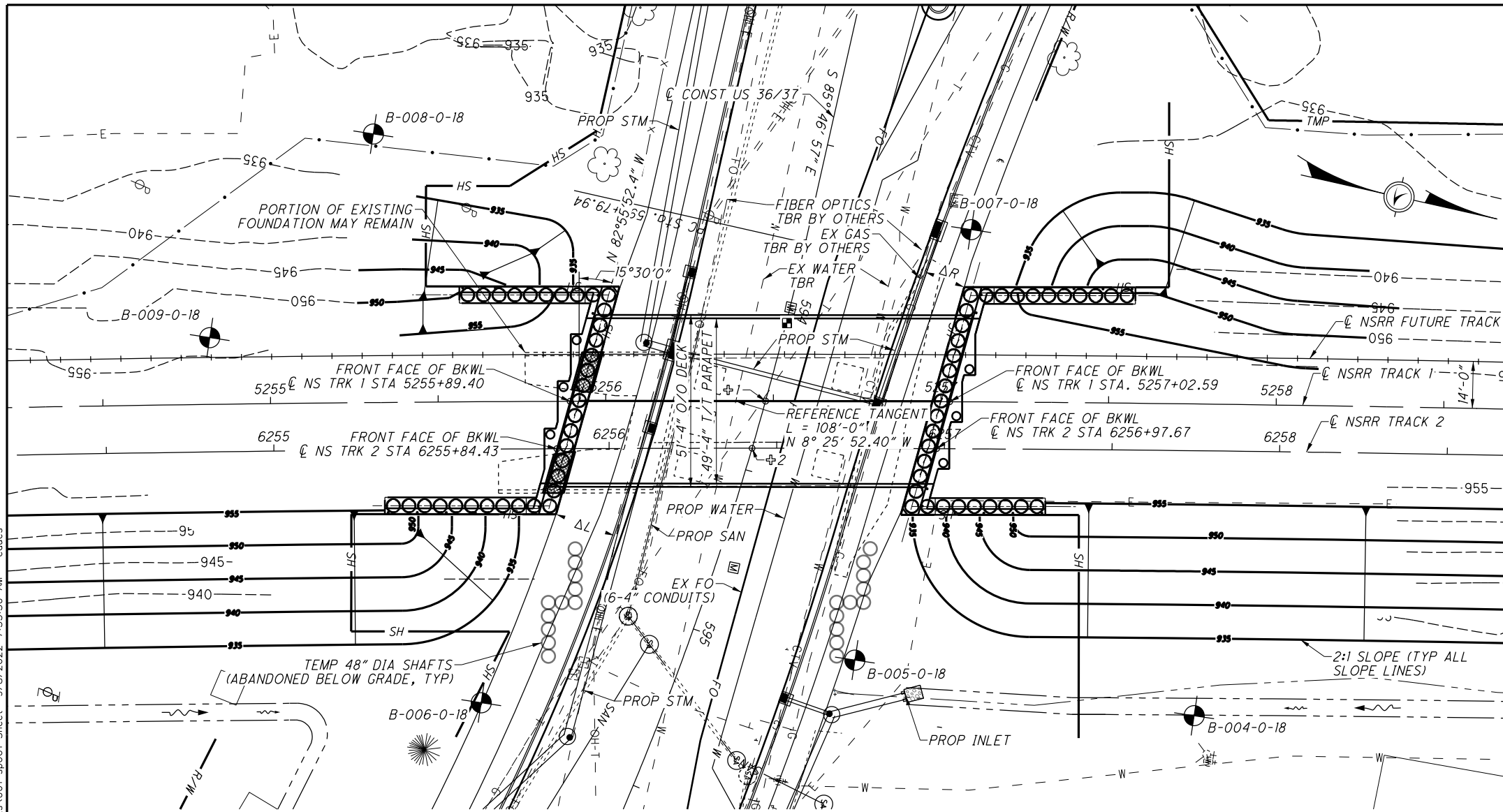
1. ALL REINFORCING BARS SHALL BE EPOXY COATED. PAYMENT FOR REINFORCING, INCLUDING MECHANICAL SPLICES, SHALL BE MADE WITH ITEM 509 - EPOXY COATED REINFORCING STEEL.
2. MAX REINFORCING SPACING IS 12" UNLESS NOTED OTHERWISE.
3. "STR" IN THE TYPE COLUMN INDICATES STRAIGHT BARS.
4. "SER OF" DENOTES SERIES OF BARS, E.G. "X" SER OF "Y" BARS PER SERIES.
5. REFER TO C.M.S. SECTION 509.05 FOR STANDARD BAR DIMENSIONS.
6. MECHANICAL CONNECTORS: AN APPROVED TYPE OF MECHANICAL CONNECTOR FOR REINFORCING BARS SHALL BE PROVIDED IN ACCORDANCE WITH C.M.S. SECTION 509.07 . INSTALLATION OF CONNECTORS SHALL CONFORM WITH MANUFACTURER RECOMMENDED PROCEDURES. ALL PROPOSED USES OF MECHANICAL CONNECTORS SHALL BE SUBMITTED TO NORFOLK SOUTHERN FOR REVIEW AND APPROVAL.

MECHANICAL CONNECTORS AND DOWEL BARS USED WITH EPOXY COATED BARS SHALL BE EPOXY COATED. COATING FOR BOTH CONNECTORS AND BARS SHALL CONFORM TO THE SAME SPECIFICATIONS. COATINGS THAT HAVE BEEN DAMAGED OR THAT OTHERWISE DO NOT MEET SPECIFICATIONS WITH RESPECT TO COLOR, CONTINUITY AND UNIFORMITY, MAY BE REPAIRED AS DIRECTED BY THE ENGINEER, OR THEY SHALL BE REPLACED WITH MATERIAL THAT MEETS THE SPECIFICATIONS. FOR BARS UTILIZING A PLANNED MECHANICAL CONNECTOR, THE BAR LENGTH FOR PAYMENT IS MEASURED TO THE CENTER OF THE PLANNED MECHANICAL CONNECTION. EXTRA BAR LENGTH AND/OR BAR END PREPARATION MAY BE NECESSARY DEPENDING UPON THE TYPE OF MECHANICAL CONNECTOR FURNISHED AND THOSE COSTS SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 509 . CONNECTORS AND DOWEL BAR EXTENSIONS SHALL CONFORM TO AND BE INCLUDED IN THE BID PRICE FOR ITEM 509.

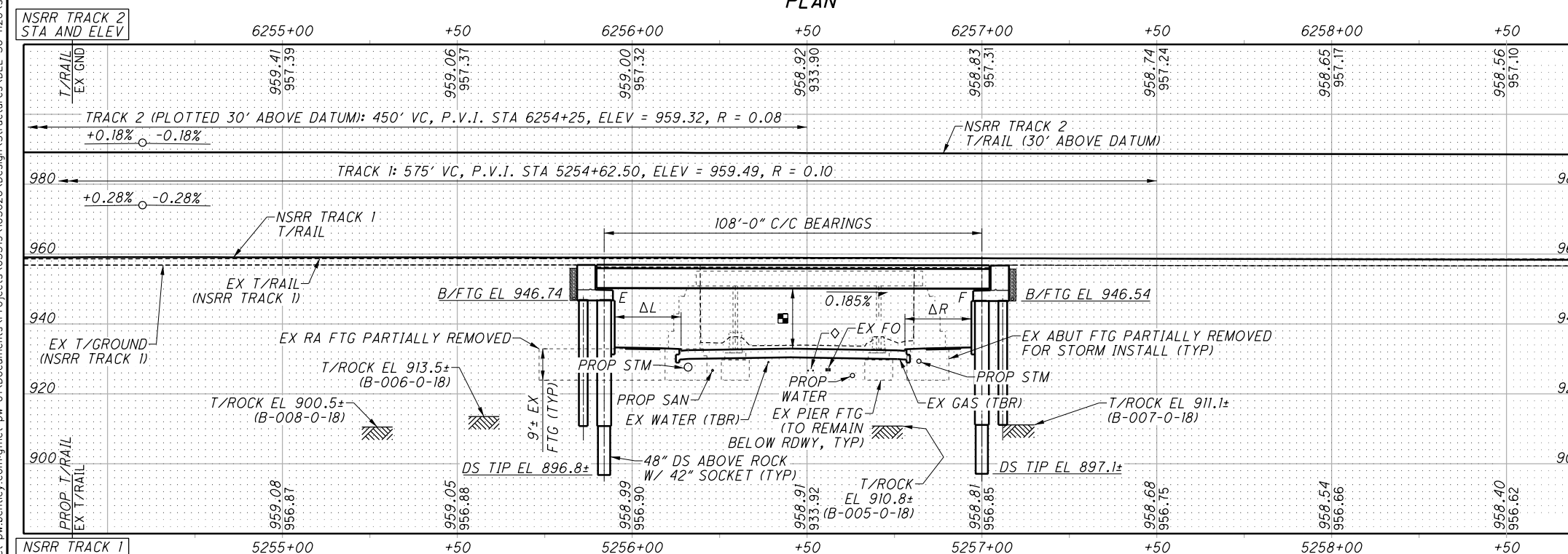
**MINIMUM LAP SPLICE LENGTH**

- #5 BAR = 3'-1"
- #6 BAR = 4'-0"
- #8 BAR = 5'-4"

PENTABLE SUBSET: [Z]  
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PLAN



PROFILE ALONG C NSRR TRACK 1

◇ = RELOCATED GAS AND ELECTIC, EXACT LOCATION UNKNOWN (BY OTHERS)

**BENCHMARK DATA**

|                                                                                   |                                                                              |                                                                                 |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| BM #1<br>308 NGS DISK "KZ1567"<br>STA 597+07.46,<br>OFFSET LT 38.21'<br>EL.934.69 | BM #2<br>RAILROAD SPIKE<br>STA 598+06.72,<br>OFFSET LT 55.151'<br>EL. 937.24 | BM #8<br>TRAFFIC CONTROL BOX<br>STA.590+84.71,<br>OFFSET RT 41.35'<br>EL.934.69 |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------|

FOR ADDITIONAL BENCHMARK INFORMATION, SEE ROADWAY PLAN SHEET 2 (644)

**NOTES**

- DATUM ADJUSTMENT: EXISTING STRUCTURE ELEVATIONS ARE 0.73± FEET LOWER THAN THOSE SHOWN ON THE ORIGINAL CONSTRUCTION PLANS DATED 1917.
- SEE THE "SPECIAL CLAUSES" SECTION OF THE CONSTRUCTION AGREEMENT FOR CURRENT NSRR TRAFFIC DATA. STRUCTURE DESIGN SPEED IS 60 MPH, APPROXIMATE VOLUME IS 45± TRAINS PER DAY.

**TRAFFIC DATA (US 36/37 UNDER)**

|                                |                   |
|--------------------------------|-------------------|
| 2020 ADT = 25,500              | 2020 ADTT = 2,550 |
| 2040 ADT = 34,600              | 2040 ADTT = 3,460 |
| DIRECTIONAL DISTRIBUTION = 51% |                   |
| LEGAL SPEED = 35 MPH           |                   |

**MINIMUM CLEARANCES**

- : MINIMUM VERTICAL CLEARANCE = 16'-9" (WEST GIRDER @ ROAD CROWN)
- △: LEFT MIN HORIZONTAL CLEARANCE = 17'-11 1/4" (SOUTHEAST CORNER)
- △R: RIGHT MIN HORIZONTAL CLEARANCE = 12'-0 5/16" (NORTHWEST CORNER)

**KEY STATION DATA**

- (SEE GENERAL PLAN FOR FURTHER DETAILS)
- ±1: C NSRR TRACK 1 STA 5256+47.66 = C CONST US 36/37 STA 594+28.66
  - ±2: C NSRR TRACK 2 STA 6256+42.62 = C CONST US 36/37 STA 594+43.30

**NSRR MILE POST**

THE NS VALUATION STATION TO C TRACK 1 AT C CONST US 36/37 IS STA 5256+47.66. THE DISTANCE TO MILE POST 27 IS 1027 FEET (0.20 MILES) TO THE NORTH.

**EXISTING STRUCTURE**

TYPE: THREE SPAN (SIMPLE SPANS) FLOOR STRUCTURE (LONGITUDINAL TROUGH) ON CIP GRAVITY ABUT. AND WINGWALLS.  
 SPANS: 12'-0"±, 41'-0"±, 12'-0"± C/C BRG (MEASURED ALONG CHORD)  
 WIDTH: 38'8"± O/O DECK  
 DESIGN LOADING: 5.5 KLF & 66 KIP AXLE  
 SKEW: 12°39'00"± LEFT FWD  
 TRACK ALIGNMENT: CURVE RIGHT (Dc=0°30'±)  
 YEAR BUILT: 1917  
 STRUCTURE FILE NUMBER: 2100967  
 DISPOSITION: TO BE REPLACED

**ENGINEERS SEAL**

42 SHEETS COMPRISING THE FINAL BRIDGE PLANS

SIGNED: *Eric F. Dues*  
 DATE: 9/8/2022

**PROPOSED STRUCTURE**

TYPE: SINGLE SIMPLE-SPAN WELDED STEEL PLATE GIRDER (ASTM A709, GR. 50, 65.5" WEB DEPTH) WITH A BALLASTED, COMPOSITE REINFORCED CONCRETE DECK (COMPOSITE FOR LL DEFLECTION ONLY) ON CANTILEVERED TANGENT SHAFT ABUTMENTS AND WINGWALLS  
 SPANS: 108'-0" C/C BRGS ALONG BRIDGE REFERENCE LINE  
 WIDTH: 49'-4" F/F CURBS (51'-4" O/O CURBS)  
 LOADING: COOPER E-80 WITH DIESEL IMPACT & ALTERNATE LOAD  
 ALIGNMENT: CURVE RIGHT (TRACK 1 Dc=0°30'00", R= 11,459.19', Ea=1') (TRACK 2 Dc=0°29'00", R= 11,854.33', Ea=1')  
 SKEW: 15°30'00" LEFT FWD (TO BRIDGE REFERENCE LINE)  
 COORDINATES: LATITUDE N 40° 17' 51.9", LONGITUDE W 83° 02' 49.0" NS MP: S-23.80  
 STRUCTURE FILE NUMBER: 2100968 (ODOT), BR0019283 (NSRR)

DESIGN AGENCY: **Gannett Fleming**  
 ENGINEERS & ARCHITECTS, P.C.  
 2800 CORPORATE EXCHANGE DRIVE, SUITE 230  
 COLUMBIUS, OHIO 43231

DATE: 05/2021

REVISIONS:

|         |                      |
|---------|----------------------|
| DATE    | DESCRIPTION          |
| 05/2021 | 0001 SPN-2100968     |
|         | NSRR FILE: BR0019283 |

DRAWN: RSN  
 CHECKED: CTM

DESIGNED: RSN  
 CHECKED: CTM

DELAWARE COUNTY  
 STA. 594+00  
 TO STA. 595+55

**SITE PLAN**  
 BRIDGE NO. DEL-36-1126 (NS MP S-23.80)  
 NSRR OVER US 36 / 37 (CITY OF DELAWARE)

**POINT PROJECT**  
 PID No. 103626

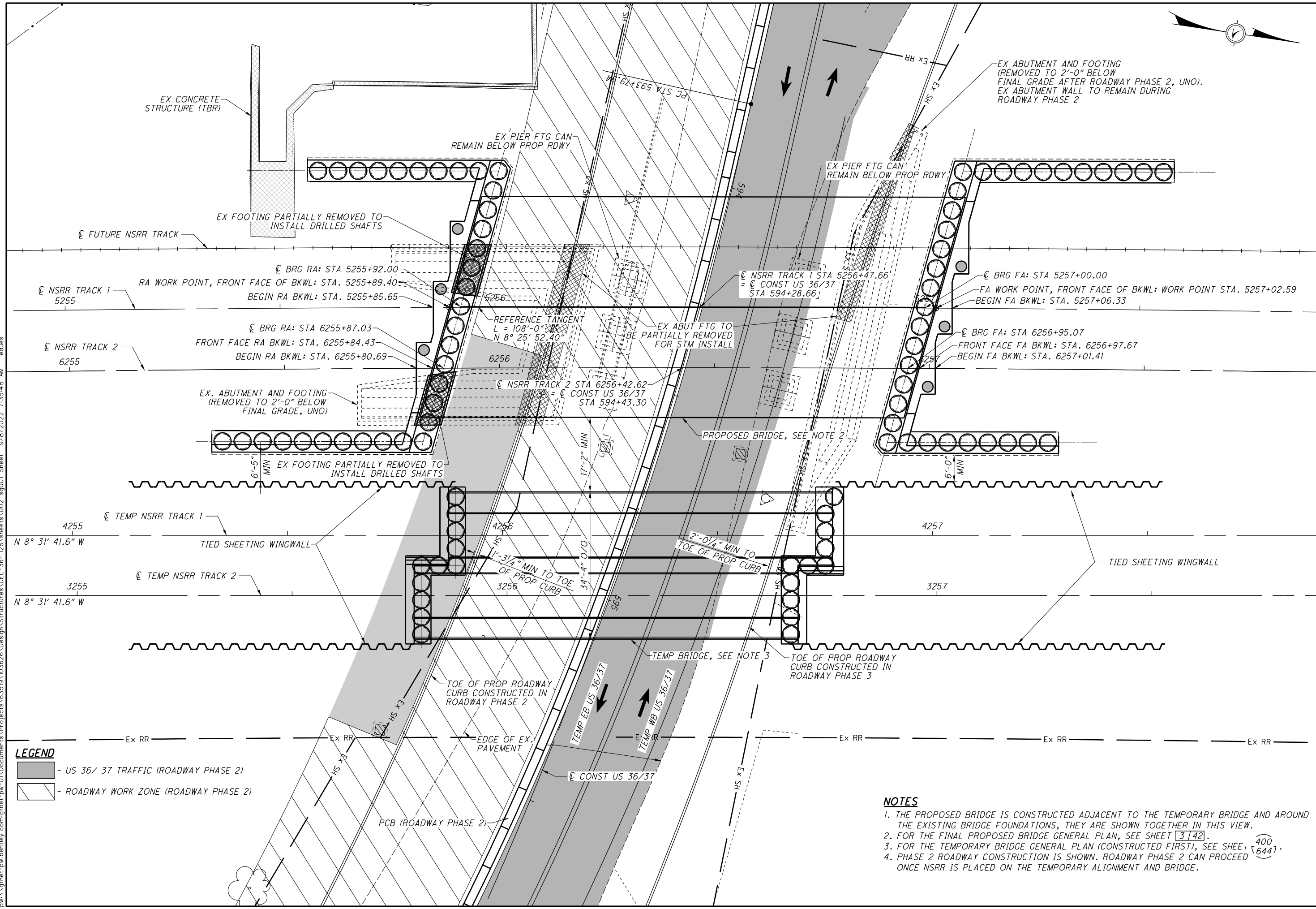
1 / 42

433  
644

FILE: ... \DEL-36-1126\sheets\002\_sg001

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SUBMITTAL: NSRR 1007

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**LEGEND**

- [Shaded Area] - US 36/ 37 TRAFFIC (ROADWAY PHASE 2)
- [Hatched Area] - ROADWAY WORK ZONE (ROADWAY PHASE 2)

- NOTES**
1. THE PROPOSED BRIDGE IS CONSTRUCTED ADJACENT TO THE TEMPORARY BRIDGE AND AROUND THE EXISTING BRIDGE FOUNDATIONS, THEY ARE SHOWN TOGETHER IN THIS VIEW.
  2. FOR THE FINAL PROPOSED BRIDGE GENERAL PLAN, SEE SHEET [3/42].
  3. FOR THE TEMPORARY BRIDGE GENERAL PLAN (CONSTRUCTED FIRST), SEE SHEET [400/644].
  4. PHASE 2 ROADWAY CONSTRUCTION IS SHOWN. ROADWAY PHASE 2 CAN PROCEED ONCE NSRR IS PLACED ON THE TEMPORARY ALIGNMENT AND BRIDGE.

DESIGN AGENCY: **Gannett Fleming**  
ENGINEERS & ARCHITECTS, P.C.  
2800 CORPORATE EXCHANGE DRIVE, SUITE 230  
COLUMBIUS, OHIO 43231

|          |         |            |           |
|----------|---------|------------|-----------|
| DESIGNED | RSN     | CHECKED    | CTM       |
| DRAWN    | RSN     | REVIEWED   | EFD       |
| DATE     | 05/2021 | NSRR FILE: | BR0019283 |

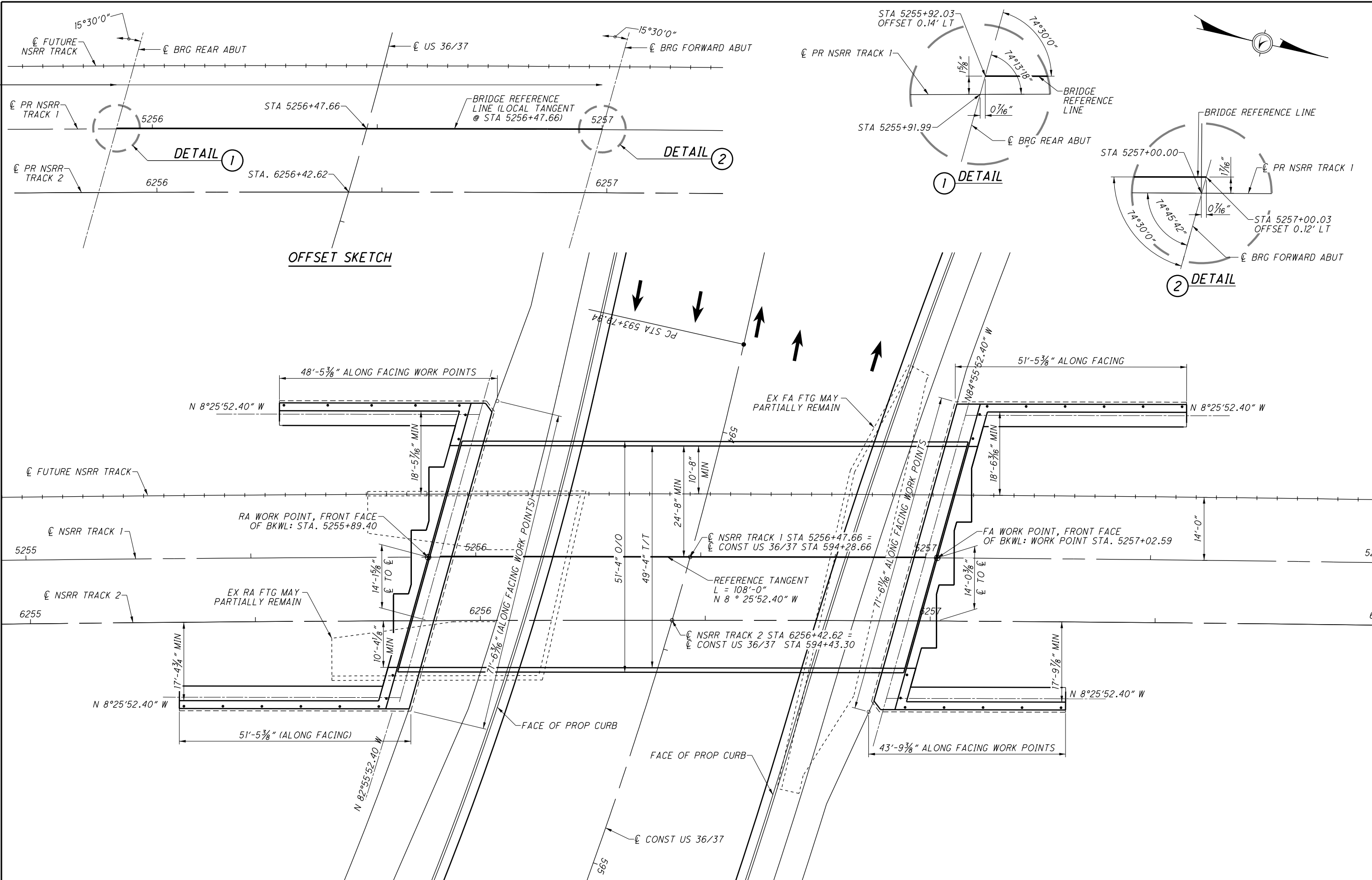
**GENERAL PLAN VIEW (ROADWAY PHASE 2 CONSTRUCTION)**  
BRIDGE NO. DEL-36-1126 (NS MP S-23.80)  
NSRR OVER US 36 / 37 (CITY OF DELAWARE)

**POINT PROJECT**  
PID No. 103626

2 / 42

434  
644

PENTABLE SUBSET: [2]  
 SUBMITTAL: NSRR 1007  
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OFFSET SKETCH

DETAIL 1

DETAIL 2

1 DETAIL

2 DETAIL

- NOTES**
1. THE FINAL PROPOSED BRIDGE, AT THE COMPLETION OF CONSTRUCTION, IS SHOWN ON THIS SHEET.
  2. FOR THE PROPOSED BRIDGE PLAN DURING CONSTRUCTION, SEE SHEET [2/42].
  3. FOR THE TEMPORARY BRIDGE GENERAL PLAN (CONSTRUCTED FIRST), SEE SHEET [400/644].

**DESIGN AGENCY:** Gannett Fleming ENGINEERS & ARCHITECTS, P.C. 2500 CORPORATE EXCHANGE DRIVE, SUITE 230 COLUMBIUS, OHIO 43231

|          |         |           |           |
|----------|---------|-----------|-----------|
| DESIGNED | RSN     | CHECKED   | CTM       |
| DRAWN    | RSN     | REVISD    |           |
| REVIEWED | EFD     | DATE      | 05/2021   |
| ODOT SPN | 2100968 | NSRR FILE | BR0019283 |

**GENERAL PLAN VIEW (FINAL PROPOSED STRUCTURE)**  
 BRIDGE NO. DEL-36-1126 (NS MP S-23.80)  
 NSRR OVER US 36 / 37 (CITY OF DELAWARE)

**POINT PROJECT**  
 PID No. 103626

3 / 42

435  
644

**STANDARD RAILROAD BRIDGE NOTES AND DETAILS**  
THE NOTES ON THIS SHEET ARE SPECIFIC TO THE SUBJECT BRIDGE STRUCTURE. FOR STANDARD NOTES AND DETAILS APPLICABLE TO ALL RAILROAD BRIDGE STRUCTURES ON THIS PROJECT, INCLUDING THIS STRUCTURE, SEE THE FOLLOWING SHEETS: (401/644) THROUGH (403/644)

| PERMANENT BRIDGE SUBSET   |                                               |              |
|---------------------------|-----------------------------------------------|--------------|
|                           | DESCRIPTION                                   | SUBSET SHEET |
| PLAN VIEWS                | SITE PLAN                                     | 1            |
|                           | GENERAL PLAN DURING CONSTRUCTION              | 2            |
|                           | FINAL GENERAL PLAN                            | 3            |
| NOTES                     | PERMANENT BRIDGE GENERAL NOTES (1 OF 2)       | 4            |
|                           | PERMANENT BRIDGE GENERAL NOTES (1 OF 2)       | 5            |
|                           | ESTIMATED BRIDGE QUANTITIES                   | 6            |
| SHAFTS                    | REAR ABUTMENT FOUNDATION PLAN                 | 7            |
|                           | FWD ABUTMENT FOUNDATION PLAN                  | 8            |
|                           | FOUNDATION DETAILS                            | 9            |
| ABUTMENTS                 | REAR ABUTMENT PLAN AND ELEVATION              | 10           |
|                           | REAR ABUTMENT PLAN AND ELEVATION DETAILS      | 11           |
|                           | FWD ABUTMENT PLAN AND ELEVATION               | 12           |
|                           | FWD ABUTMENT PLAN AND ELEVATION DETAILS       | 13           |
|                           | ABUTMENT CROSS SECTIONS                       | 14           |
|                           | MISCELLANEOUS FACING DETAILS                  | 15           |
|                           | REAR AND FWD FACING ELEVATIONS                | 16           |
| WINGWALLS                 | REAR ABD FWD FORMLINER ELEVATIONS             | 17           |
|                           | REAR ABUTMENT SOUTHEAST WINGWALL DETAILS      | 18           |
|                           | REAR ABUTMENT SOUTHWEST WINGWALL DETAILS      | 19           |
|                           | FWD ABUTMENT NORTHEAST WINGWALL DETAILS       | 20           |
|                           | FWD ABUTMENT NORTHWEST WINGWALL DETAILS       | 21           |
|                           | WINGWALL TYPICAL SECTIONS                     | 22           |
| SUPERSTRUCTURE & BEARINGS | TRANSVERSE SECTION                            | 23           |
|                           | FRAMING PLAN                                  | 24           |
|                           | GIRDER ELEVATION, SECTIONS AND CAMBER DETAILS | 25           |
|                           | INTERMEDIATE DIAPHRAGM DETAILS                | 26           |
|                           | END DIAPHRAGM DETAILS                         | 27           |
|                           | RA EXPANSION BEARING                          | 28           |
|                           | FA FIXED BEARING                              | 29           |
|                           | DECK PLAN                                     | 30           |
| DRAIN                     | JOINT DETAILS                                 | 31           |
|                           | TYPICAL STRUCTURAL DETAILS                    | 32           |
|                           | FINAL DECK/SCREED LOCATIONS                   | 33           |
|                           | FINAL DECK/SCREED ELEVATIONS                  | 34           |
| NSRR & TYPICAL DETAILS    | BRIDGE DRAINAGE DETAILS                       | 35           |
|                           | BRIDGE DRAINAGE DETAILS                       | 36           |
|                           | NSRR HANDRAIL DETAILS                         | 37           |
|                           | NSRR VANDAL PROTECTION FENCE DETAILS          | 38           |
|                           | NSRR HANDRAIL WITH VPF                        | 39           |
|                           | NSRR WATERPROOFING DETAILS                    | 40           |
|                           | NSRR MISCELLANEOUS DRAINAGE DETAILS           | 41           |
| REBAR                     | REINFORCING DETAILS                           | 42           |

**DRILLED SHAFT DESIGN LOADS**  
MAX SERVICE LOAD TO BE SUPPORTED BY EACH ABUTMENT SHAFT = 630 KIPS  
ALLOWABLE TIP RESISTANCE = 105 KIPS  
ALLOWABLE SKIN RESISTANCE = 622 KIPS (ASSUMED TO OCCUR ALONG THE BOTTOM 12' OF SHAFT)  
FACTOR OF SAFETY: 2.5 (AREMA CH. 8 SECTION 24.3.2.5)  
TOTAL ALLOWABLE RESISTANCE = 727 KIPS  
SEE SHEET (403/644) FOR FULL DRILLED SHAFT PAY ITEM NOTES.

**ITEM 202 - STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN**  
THIS ITEM SHALL INCLUDE THE REMOVAL OF THE EXISTING IN-SERVICE BRIDGE CARRYING RAILROAD TRAFFIC OVER US 36/37.

THE REMOVAL OF THE EXISTING IN-SERVICE BRIDGE INCLUDES THE REMOVAL OF ALL SUPERSTRUCTURE ELEMENTS AND ALL SUBSTRUCTURE ELEMENTS AS SHOWN IN THESE PLANS. REMOVAL OF EXISTING NSRR SUBSTRUCTURES, INCLUDING FOOTINGS REQUIRED TO CLEAR PROPOSED UTILITIES AND FOUNDATIONS, SHALL BE AT LEAST 2'-0" BELOW FINAL GRADE. ALL WORK ASSOCIATED WITH PROTECTION OF UTILITIES SHALL ALSO BE INCLUDED HEREIN.

NOTE THAT FULL REAR ABUTMENT FOOTING REMOVAL (OR DRILLING THROUGH) IS REQUIRED FOR THE INSTALLATION OF SHAFTS R2, R3, R4, R9, R10, AND R11, AND THE COST OF THIS REMOVAL (INCLUDING ANY REQUIRED TEMPORARY WORKS) SHALL BE INCLUDED IN THIS PAY ITEM.

THE CONTRACTOR MUST REVIEW THE EXISTING STRUCTURE WHEN PREPARING THEIR BID. EXISTING PLANS ARE AVAILABLE FOR THE SUBJECT BRIDGE.

**ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN**  
THIS ITEM SHALL INCLUDE THE REMOVAL OF THE EXISTING SOIL FOR INSTALLATION OF THE PROPOSED ABUTMENTS  
THE EXCAVATION QUANTITY GIVEN ASSUMES THAT REQUIRED FOR THE EXCAVATION OF THE ABUTMENT AND ASSUMES THE WINGWALL CAPS ARE CONSTRUCTED FROM ABOVE EXISTING GRADE. THE QUANTITY ASSUMES THE FULL LENGTH OF ABUTMENT AND MAXIMUM WIDTH IS EXCAVATED TO THE BOTTOM OF FOOTING DEPTH. AN EXCAVATION OF 74 FEET LONG, BY 14 FEET WIDE BY 12 FEET DEEP IS ASSUMED AT EACH ABUTMENT. THE COST OF ANY EXCAVATION REQUIRED TO REMOVE EXISTING FOOTINGS SHALL BE INCLUDED IN THE STRUCTURE DEMOLITION COST.

**ITEM 511 - CLASS OC2 CONCRETE WITH OC/OA, BRIDGE DECK (PARAPET), AS PER PLAN**  
IMMEDIATELY AFTER REMOVING FORMS, CLEAN, DAMPEN AND FILL WITH MORTAR ALL CAVITIES PRODUCED BY FORM TIES, HONEYCOMB SPOTS, BROKEN CORNERS OR EDGES, AIR ENTRAPMENT OR BUG HOLES, AND OTHER DEFECTS.

AS SOON AS A CONCRETE SAW CAN BE OPERATED WITHOUT DAMAGING THE FRESHLY PLACED CONCRETE, SAWCUT 1/4" DEEP CONTROL JOINTS INTO THE PERIMETER OF THE CONCRETE PARAPET STARTING AND ENDING AT THE ELEVATION OF THE CONCRETE DECK. PLACE THE SAWCUTS AT LOCATIONS SHOWN ON THE DECK PLAN SHEET. USE AN EDGE GUIDE, FENCE, OR JIG TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE (A NOMINAL WIDTH OF 1/4"). SEAL THE PERIMETER OF THE DEFLECTION CONTROL JOINT TO A MINIMUM DEPTH OF 1 INCH WITH A POLYURETHANE OR POLYMERIC MATERIAL CONFORMING TO ASTM C920, TYPE S. LEAVE THE BOTTOM 1/2" OF THE INSIDE AND OUTSIDE FACE UNSEALED TO ALLOW WATER TO ESCAPE.

FOR OTHER REQUIREMENTS FOR CONCRETE USED FOR RAILROAD BRIDGES, SEE GENERAL NOTE ON SHEET (403/644).

**ITEM 511 - CONCRETE, MISC.: FACING OF SUBSTRUCTURES**  
THE WORK SHALL INCLUDE ALL MATERIALS AND LABOR REQUIRED TO INSTALL A PERMANENT CAST-IN-PLACE CONCRETE FACE ON TANGENT DRILLED SHAFT WALLS.  
THE UNIT BID PRICE SHALL INCLUDE ANY SUBSURFACE PREPARATION REQUIRED, DRILLING OF DOWEL HOLES INTO DRILLED SHAFTS (WHERE REQUIRED), FURNISHING AND INSTALLING REQUIRED REINFORCING PER PLAN SPECIFIC DETAILS AND NOTES, 1" PEJF, THE INSTALLATION AND SUBSEQUENT REMOVAL OF ALL REQUIRED FORMWORK, AND CONCRETE FURNISHED AND INSTALLED PER THIS NOTE.

ABUTMENT WALL SURFACES SHOULD BE CLEANED OF ALL FOREIGN AND LOOSE MATERIAL AND/OR UNSOUND CONCRETE.

DOWEL HOLES SHALL BE CONSTRUCTED PER CMS 510. DOWELS SHALL BE MADE OF DEFORMED BARS, ASTM A615, GRADE 60, AND SHALL BE SPACED AS SHOWN ON THE PLANS. DOWELS SHALL NOT BE FIELD BENT. DOWELS SHALL BE GROUTED IN PLACE WITH AN EPOXY GROUT INTENDED FOR DOWEL BARS, AND SHALL BE APPLIED IN ACCORDANCE WITH ASTM C881 AND THE MANUFACTURERS RECOMMENDATIONS. DOWEL HOLES SHALL BE DRILL DOWNWARD AT APPROXIMATELY 1" PER FOOT. ALL FREE WATER SHALL BE REMOVED FROM THE DOWEL HOLES BY AN AIR JET OR VACUUM BEFORE PLACING THE GROUT.

THE SPACING OF BOTH MATS OF THE HORIZONTAL AND VERTICAL REINFORCING STEEL SHALL NOT EXCEED 12" AND SHALL CONTAIN A MINIMUM OF 0.25 SQUARE INCHES OF STEEL PER FOOT IN EACH DIRECTION. REINFORCING STEEL MAY CONSIST OF REINFORCING BARS OR WELDED WIRE FABRIC. PERIMETER BARS SHALL BE #5. REINFORCING STEEL SHALL BE SUPPLIED AND INSTALLED PER ODOT CMS 509.

CONCRETE SHALL BE INSTALLED PER CMS 511. THE MAXIMUM NOMINAL SIZE OF COURSE AGGREGATE SHALL BE LIMITED TO 3/4" ACCORDING TO ACI 301, SECTION 4. THE MIX DESIGN SHALL ADHERE TO CMS 499 (TYPE QC 2, TABLE 499.03-1).

FOR OTHER REQUIREMENTS FOR CONCRETE USED FOR RAILROAD BRIDGES, SEE GENERAL NOTE ON SHEET (403/644).

CONTRACTION JOINTS SHALL BE USED AT EVERY COLD JOINT AND AT A MAXIMUM SPACING OF 30'-0". HORIZONTAL REINFORCING SHALL BE BROKEN AT CONTRACTION JOINTS.

THE COST OF FORM LINER SHALL BE BID SEPARATELY WITH ITEM 530 - SPECIAL - FORM LINER.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES (SQ FT) AT THE CONTRACT BID PRICE FOR EACH STRUCTURE USING NOMINAL DIMENSIONS AS SHOWN IN THE PLANS.

**ITEM 512 - TYPE E WATERPROOFING, AS PER PLAN**  
SPRAY-APPLIED WATERPROOFING SHALL BE IN ACCORDANCE WITH NSRR-PPM, APPENDIX H.4.3 - "SPECIFICATIONS FOR MEMBRANE WATERPROOFING", AREMA CHAPTER 8, PART 29, AND THE DETAILS HEREIN.

USE THE SPRAY-APPLIED WATERPROOFING ON THE ENTIRE DECK AND APPLICABLE CURB SURFACES.

AN INITIAL LIFT OF BALLAST SHALL BE PLACED ATOP THE COMPLETED WATERPROOFING. PAYMENT FOR THE INITIAL LIFT OF BALLAST IS INCLUDED WITH THE TRACK PLANS.

NO DEDUCTIONS IN QUANTITIES ARE MADE FOR HOLES AT DECK DRAINS.

THE BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES (SQ YD) AT THE CONTRACT BID PRICE FOR EACH STRUCTURE, WHICH SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM.

**ITEM 512 - SPECIAL - WATERPROOFING, MISC.: DAMPPROOFING OF RAILROAD STRUCTURES**  
A. DAMPPROOFING OF CONCRETE SURFACES BELOW GRADE SHALL BE AS SHOWN ON THE PLANS.  
B. SURFACES TO BE TREATED SHALL BE CLEAN AND DRY.  
C. CONCRETE SURFACES SHALL HAVE BEEN CURED A MINIMUM OF 7 DAYS FOR STANDARD CONCRETE AND 3 DAYS FOR HIGH-EARLY STRENGTH CONCRETE, BEFORE BEING DAMPPROOFED.  
D. DAMPPROOFING SHALL CONFORM TO THE FOLLOWING.

1. SURFACES TO BE DAMPPROOFED SHALL BE COVERED WITH A UNIFORM COAT OF HOT PRIMER AT A RATE OF 1 GALLON PER 100 SQUARE FEET.

2. AFTER THE PRIMER HAS BEEN ALLOWED TO CURE, TWO SUCCESSIVE UNIFORM MOP COATS OF HOT ASPHALT OR TAR SHALL BE APPLIED AT A RATE OF 8 GALLONS PER 100 SQUARE FEET PER EACH COAT. ADDITIONAL MATERIAL SHALL BE PLACED AT CORNERS AND CONSTRUCTION JOINTS. THE FIRST COAT SHALL BE ALLOWED TO CURE BEFORE THE SECOND COAT IS APPLIED.

E. NO DAMPPROOFING OR WATERPROOFING SHALL BE ALLOWED WHEN THE TEMPERATURE IS BELOW 40° F.

F. ASPHALT SHALL BE APPLIED AT A TEMPERATURE BETWEEN 300° F AND 350° F.

G. TAR SHALL BE APPLIED AT A TEMPERATURE BETWEEN 200° F AND 250° F.

H. ALL BITUMEN SHALL BE MOPPED OR BRUSHED ON THE SURFACE EXCEPT THAT SPRAYING SHALL BE PERMITTED FOR PRIME COATS.

I. THE FINAL COAT SHALL BE ALLOWED TO DRY AT LEAST 2 DAYS BEFORE ANY EARTH CONTACTS THE SURFACE. BACKFILLING MUST OCCUR NO LATER THAN 72 HOURS AFTER APPLICATION.

DAMPPROOFING SHALL BE IN ACCORDANCE WITH AREMA CHAPTER 8, PART 29

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES (SQ FT) AT THE CONTRACT BID PRICE FOR EACH STRUCTURE, WHICH SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM.

DESIGN AGENCY  
**Gannett Fleming**  
ENGINEERS & ARCHITECTS, P.C.  
2800 CORPORATE EXCHANGE DRIVE SUITE 230  
COLUMBIUS, OHIO 43231

DATE 05/2021  
REVIEWED EFD 0001 SPN 2100968  
NSRR FILE: BRO019283

DRAWN CTM  
CHECKED VDT

DESIGNED CTM  
CHECKED VDT

PERMANENT BRIDGE GENERAL NOTES (1 OF 2)  
BRIDGE NO. DEL-36-1126 (NS MP S-23.80)  
NSRR OVER US 36 / 37 (CITY OF DELAWARE)

POINT PROJECT  
PID No. 103626

4 / 42

436  
644

**ITEM 512 - SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION)**

APPLY A PERMANENT GRAFFITI COATING QUALIFIED ACCORDING TO ODOT SSP - 1083 THAT IS COMPATIBLE WITH THE CONCRETE STAIN OR EPOXY-URETHANE OVER WHICH IT IS APPLIED. APPLY THE GRAFFITI COATING IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.

**ITEM 512 - SPECIAL - ASPHALTIC PANEL**

TWO LAYERS OF 1/2" THICK ASPHALTIC PANELS SHALL BE PLACED AS PROTECTIVE COVER PER NSRR-PPM, APPENDIX H.4.3 - "SPECIFICATIONS FOR MEMBRANE WATERPROOFING" AND AREMA CHAPTER 8, SECTIONS 29.14.4.1 AND 29.14.4.4. CUT HOLES IN ASPHALT PANELS AT DECK DRAIN LOCATIONS.

NO DEDUCTIONS IN QUANTITIES ARE MADE FOR HOLES AT DECK DRAINS.

THE COST TO FURNISH AND INSTALL CURB FLASHING AND ARMOR PLATES AT ABUTMENTS, INCLUDING ANCHORAGES, SHALL BE INCLUDED FOR PAYMENT WITH THIS ITEM.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES (SQ YD) AT THE CONTRACT BID PRICE FOR EACH STRUCTURE, WHICH SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM.

**ITEM 514 - SHOP PAINTING AND FIELD TOUCH-UP OF STRUCTURAL STEEL**

INTERMEDIATE AND FINISH COATS SHALL BE SHOP APPLIED. SHOP APPLIED PAINTING AND SUBSEQUENT TOUCH-UP SHALL COMPLY WITH THE NSRR-PPM APPENDIX H.4.4 "SPECIFICATIONS FOR PAINTING SHOP FABRICATED BRIDGE STEEL".

FIELD TOUCH-UP SHALL BE APPLIED IN THE APPROPRIATE ROADWAY MAINTENANCE OF TRAFFIC PHASING.

THE TOTAL SURFACE AREA OF GIRDERS, STIFFENERS, AND DIAPHRAGMS IS CALCULATED IN THE PAINTING SURFACE AREA. THE SIDES AND TOPS OF GIRDER TOP FLANGES ARE EXCLUDED FROM THE TOTAL PAINTING AREA.

THE TOTAL SURFACE AREA INCLUDES A 5% ALLOWANCE FOR INCIDENTALS (SUCH AS BOLT HEADS AND CONNECTION PLATES).

FINISH COAT SHALL BE FEDERAL COLOR NUMBER 27038 (BLACK).

**ITEM 516 - STRUCTURAL STEEL EXPANSION JOINT, AS PER PLAN**

CONSTRUCT EXPANSION JOINTS IN ACCORDANCE TO ODOT CMS ITEM 516 AND THE DETAILS HEREIN.

THE EXPANSION JOINT SYSTEM SHALL BE WATER TESTED AFTER INSTALLATION. LEAKS SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

**TEAR-WEB WATERSTOP:**

FURNISH MATERIAL CONFORMING TO ODOT CMS 705.11. THE SEAL CONFIGURATION SHOULD BE SIMILAR TO THE DETAILS SHOWN HEREIN. INSTALL THE SEAL ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS AND UNDER THE SUPERVISION OF THE MANUFACTURER'S DESIGNATED REPRESENTATIVE.

FURNISH WATERSTOPS IN ONE CONTINUOUS PIECE UNLESS OTHERWISE APPROVED BY THE ENGINEER.

**STEEL PLATES:**

FURNISH AND INSTALL STAINLESS STEEL SLIDING PLATES (15" WIDE BY 1/2" THICK) COMPLYING TO ASTM A-36.

FURNISH AND INSTALL GALVANIZED SHEET METAL COVERS (28" WIDE BY 16 GA.) AS SHOWN IN THE PLANS.

GALVANIZE ALL JOINT STEEL PER ODOT CMS 711.02. REPAIR DAMAGED OR FIELD WELDED PLATES PER CMS 711.02.

THE BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM; INCLUDING CUTTING AND GRINDING BOLTS SMOOTH WITH THE METAL PLATE; SUPPLYING, SUPPLYING AND INSTALLING THE SILICONE TREATED PAPER; INSTALLING AND ADHERING THE 1/8" ELASTOMERIC FLASHING; AND SUPPLYING, PREPARING, AND INSTALLING THE RUBBER JOINT COMPOUND.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES (FT) AT THE CONTRACT BID PRICE FOR EACH STRUCTURE.

**ITEM 518 - STRUCTURE DRAINAGE, MISC.: SUPERSTRUCTURE DRAINAGE SYSTEM**

ALL ITEMS REQUIRED TO COMPLETE THE DECK DRAINAGE SYSTEM AND CONVEY THE WATER TO ITS OUTLET INTO THE CITY DRAINAGE SYSTEM SHALL BE INCLUDED FOR PAYMENT WITH THIS ITEM. ALL PIPE SHALL BE DUCTILE IRON. INCLUDE ALL 6" INNER DIAMETER DUCTILE IRON PIPE, DOWNSPOUTS, HORIZONTAL CONDUCTOR PIPES, REDUCERS, BRACKETS, PIPE HANGER ASSEMBLIES, TEES, SCUPPERS, WYES, ELBOWS, AND U-BOLTS FOR PAYMENT WITH THIS ITEM (INCLUDING SPECIALS). DUCTILE IRON PIPE AND FITTINGS (INCLUDING CLEANOUTS AND ELBOWS) INTO THE ABUTMENT CAP, THROUGH THE FACING, AND UNDER-GRADE OUTLETTING INTO THE SYSTEM SHALL BE 8" INNER DIAMETER.

ALL DUCTILE IRON SHALL BE CLASS 54. FLANGED PIPE JOINTS SHALL BE USED.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED DRAINAGE SYSTEM (LUMP) AT THE CONTRACT BID PRICE FOR EACH STRUCTURE.

**ITEM 518 - STRUCTURE DRAINAGE, MISC.: SUBSTRUCTURE WEEP DRAIN**

THIS WORK CONSISTS OF EXCAVATING A 6" DIAMETER HOLE (IN THE SOIL AND LATENT SHAFT CONCRETE BETWEEN DRILLED SHAFTS) FOR USE IN INSERTING A 6" DIAMETER WEEP DRAIN ASSEMBLY INTO THE BACKFILL.

A 6" DIAMETER VERTICAL DROP PIPE AND ITS ASSOCIATED FITTINGS CONNECTING BOTH THE WEEP DRAIN AND COLLECTOR PIPE SHALL ALSO BE INCLUDED FOR PAYMENT WITH THIS ITEM.

THE WEEP DRAIN ASSEMBLY SHALL CONSIST OF A PIPE INTO THE EXCAVATED HOLE, AND THE BACKFILL END CLOSED WITH A DRAIN GRATE OR ATRIUM GRATE WRAPPED IN 2 LAYERS OF FILTER FABRIC.

THE 6" DIAMETER CORRUGATED PLASTIC PIPE SHALL BE SUPPLIED PER ODOT CMS 707.33.

FILTER FABRIC SHALL BE SUPPLIED PER ODOT CMS 712.09 (TYPE A).

THE WEEP DRAIN ASSEMBLY SHALL BE GROUTED IN PLACE USING CEMENT GROUT CONSISTING OF ONE PART HYDRAULIC CEMENT AND THREE PARTS SAND CONFORMING TO ODOT CMS 703.03 AND WATER.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES (EACH) AT THE CONTRACT BID PRICE WHICH SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM.

**ITEM 518 - 8" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN**

THIS ITEM SHALL INCLUDE 8" DIAMETER PIPE AND SHALL INCLUDE ALL FITTINGS REQUIRED TO CONNECT ALL WEEP DRAIN DROP PIPES AND OUTLET INTO A DRAINAGE STRUCTURE.

THIS ITEM SHALL INCLUDE UNDERDRAIN STANDPIPE CLEANOUTS AT EACH WINGWALL CORNER. STANDPIPE CAPS SHALL BE MECHANICALLY FASTENED WITH A TAMPER RESISTANT MECHANICAL CONNECTION. A 6 INCH THICK BY 24" DIAMETER CONCRETE APRON SHALL BE INCLUDED WITH THIS PAY ITEM. CONCRETE SHALL BE PER CMS TABLE 499.03-1, CLASS QC 1.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES (FT) AT THE CONTRACT BID PRICE WHICH SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM.

**ITEM 530 - SPECIAL - FORM LINER**

FORM LINERS IN ACCORDANCE WITH CMS 508.03 SHALL BE USED FOR THE ARCHITECTURALLY TREATED ABUTMENT AND WINGWALLS. FORM LINERS SHALL BE USED TO PRODUCE THE TEXTURED SURFACES ON THE LIMITS INDICATED IN THE PLANS. THIS PAY ITEM SHALL ALSO INCLUDE THE FORM LINER REQUIRED FOR THE 4 CITY OF DELAWARE "D" LOGOS ON THE ABUTMENT FACES. THE LOGOS SHALL BE REVIEWED AND APPROVED BY NORFOLK SOUTHERN. THE FORM LINERS USED TO PRODUCE THE ARCHITECTURAL SURFACE TEXTURES SHALL BE APPROVED BY THE CITY OF DELAWARE.

THE MINIMUM FORM LINER RELIEF DEPTH SHALL BE 1". THE MAXIMUM FORM LINER RELIEF DEPTH SHALL BE 2". THE STONE PATTERN SHALL BE ASHLAR STONE.

ARCHITECTURALLY TREATED ABUTMENT AND WINGWALL FACES SHALL MAINTAIN A MINIMUM 2" OF CLEAR COVER TO THE REINFORCING UNDER THE RELIEF. VERTICAL FRONT FACE REINFORCING MAY BE ADJUSTED TO A MAXIMUM OF 4" CLEAR TO THE FRONT FACE OF THE PLAN DIMENSIONS TO ENSURE MINIMAL COVER.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES (SF) AT THE CONTRACT BID PRICE FOR EACH STRUCTURE USING NOMINAL DIMENSIONS SHOWN AS SHOWN IN THE PLANS.

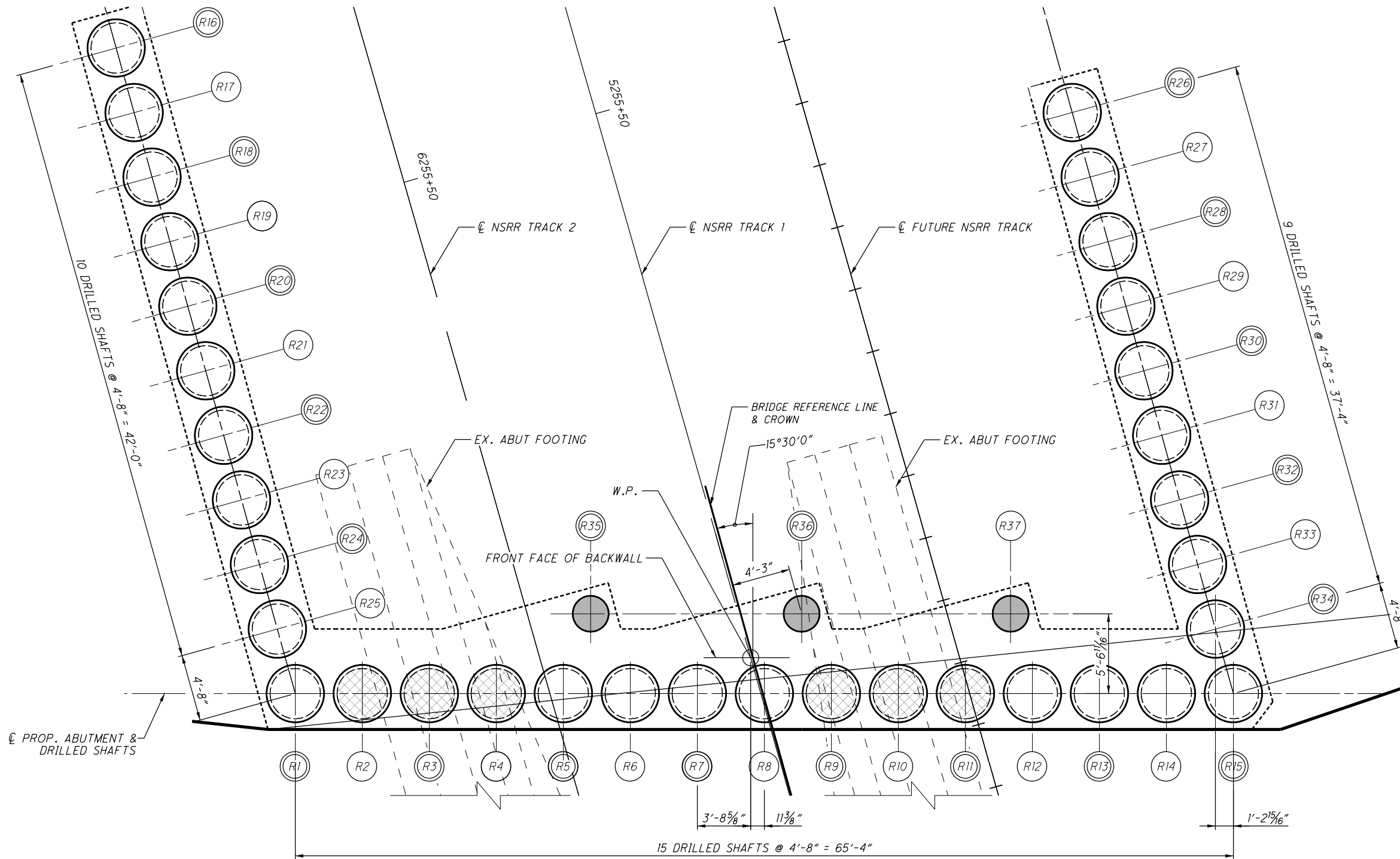
|          |         |            |           |
|----------|---------|------------|-----------|
| DESIGNED | CTM     | CHECKED    | VDT       |
| DRAWN    | CTM     | REVIEWED   |           |
| REVIEWED | EFD     | DATE       | 05/2021   |
| ODOT SPN | 2100968 | NSRR FILE# | BR0019283 |

ESTIMATED PERMANENT BRIDGE QUANTITIES

CALC: RSN CHECK: JS

| ITEM    | ITEM EXT. | TOTAL QUANTITY | UNIT | DESCRIPTION                                                                      | REAR   | FWD    | SUPER     | GENERAL | REF SHEET NO. |
|---------|-----------|----------------|------|----------------------------------------------------------------------------------|--------|--------|-----------|---------|---------------|
| 202     | 11003     | LUMP           | LS   | STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN                                |        |        |           | LUMP    | 4 / 42        |
| 503     | 11101     | LUMP           | LS   | COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN                                   |        |        |           | LUMP    | 402/644       |
| 503     | 21101     | 922            | CY   | UNCLASSIFIED EXCAVATION, AS PER PLAN                                             | 461    | 461    |           |         | 437/644       |
| 509     | 10000     | 89,352         | LB   | EPOXY COATED REINFORCING STEEL                                                   | 24,718 | 25,673 | 38,961    |         |               |
| 511     | 34447     | 188            | CY   | CLASS QC2 CONCRETE WITH QC/OA, BRIDGE DECK, AS PER PLAN                          |        |        | 188       |         | 403/644       |
| 511     | 34451     | 17             | CY   | CLASS QC2 CONCRETE WITH QC/OA, BRIDGE DECK (PARAPET), AS PER PLAN                |        |        | 17        |         | 4 / 42        |
| 511     | 44113     | 214            | CY   | CLASS QC1 CONCRETE WITH QC/OA, ABUTMENT, NOT INCLUDING FOOTING, AS PER PLAN      | 108    | 106    |           |         | 403/644       |
| 511     | 46513     | 215            | CY   | CLASS QC1 CONCRETE WITH QC/OA, FOOTING, AS PER PLAN                              | 109    | 106    |           |         | 403/644       |
| 511     | 71200     | 3,676          | SF   | CONCRETE, MISC.: FACING OF SUBSTRUCTURES                                         | 1,879  | 1,797  |           |         | 4 / 42        |
| 512     | 10001     | 703            | SY   | SEALING OF CONCRETE SURFACES, AS PER PLAN                                        | 360    | 343    |           |         | 5 / 42        |
| 512     | 10100     | 773            | SY   | SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)                                    | 333    | 300    | 140       |         |               |
| 512     | 44451     | 642            | SY   | TYPE E WATERPROOFING, AS PER PLAN                                                |        |        | 642       |         | 4 / 42        |
| SPECIAL | 51256202  | 1,284          | SY   | SPECIAL - ASPHALTIC PANEL                                                        |        |        | 1,284     |         | 5 / 42        |
| SPECIAL | 51267400  | 3,893          | SF   | SPECIAL - WATERPROOFING, MISC.: DAMPPROOFING OF RAILROAD STRUCTURES              | 2,004  | 1,889  |           |         | 4 / 42        |
| 513     | 10321     | 1,203,486      | LB   | STRUCTURAL STEEL MEMBERS, LEVEL 6, AS PER PLAN                                   |        |        | 1,203,486 |         | 403/644       |
| 513     | 20000     | 5,544          | EACH | WELDED STUD SHEAR CONNECTORS                                                     |        |        | 5,544     |         |               |
| 514     | 80020     | 38,898         | SF   | SHOP PAINTING AND FIELD TOUCH-UP OF STRUCTURAL STEEL                             |        |        | 38,898    |         | 5 / 42        |
| 516     | 12201     | 107            | FT   | STRUCTURAL STEEL EXPANSION JOINT, AS PER PLAN                                    |        |        | 107       |         | 5 / 42        |
| 516     | 13200     | 78             | SF   | 1/2" PREFORMED EXPANSION JOINT FILLER                                            | 39     | 39     |           |         |               |
| 516     | 46201     | 14             | EACH | BEARING DEVICE, ROCKER, AS PER PLAN                                              | 0      | 14     |           |         | 29 / 42       |
| 516     | 46900     | 14             | EACH | BEARING DEVICE, MISC.: SELF-LUBRICATING CYLINDRICAL BEARING (EXP)                | 14     | 0      |           |         | 28 / 42       |
| 517     | 76300     | 225            | FT   | RAILING, MISC.: NSRR ALUMINUM HANDRAIL WITH VANDAL PROTECTION FENCE              |        |        | 225       |         | 38 - 39 / 42  |
| 517     | 76300     | 199            | FT   | RAILING, MISC.: NSRR ALUMINUM HANDRAIL ON WINGWALLS                              | 102    | 97     |           |         | 38 / 42       |
| 518     | 21200     | 457            | CY   | POROUS BACKFILL WITH GEOTEXTILE FABRIC                                           | 233    | 224    |           |         |               |
| 518     | 42201     | 268            | FT   | 8" PERFORATED CORRUGATED STEEL PIPE, 707.01, AS PER PLAN                         | 137    | 131    |           |         | 403/644       |
| 518     | 42301     | 378            | FT   | 8" NON-PERFORATED CORRUGATED STEEL PIPE, INCLUDING SPECIALS, 707.01, AS PER PLAN | 208    | 170    |           |         | 403/644       |
| 518     | 63300     | LUMP           | LS   | STRUCTURE DRAINAGE, MISC.: SUPERSTRUCTURE DRAINAGE SYSTEM                        |        |        | LUMP      |         | 5 / 42        |
| 524     | 94603     | 230            | FT   | DRILLED SHAFTS, 30" DIAMETER, ABOVE BEDROCK, AS PER PLAN                         | 115    | 115    |           |         | 403/644       |
| 524     | 94805     | 804            | FT   | DRILLED SHAFTS, 42" DIAMETER, INTO BEDROCK, AS PER PLAN                          | 408    | 396    |           |         | 403/644       |
| 524     | 94902     | 2,558          | FT   | DRILLED SHAFTS, 48" DIAMETER, ABOVE BEDROCK, AS PER PLAN                         | 1301   | 1257   |           |         | 403/644       |
| 524     | 95100     | 39             | EACH | DRILLED SHAFTS, MISC.: CSL TESTING                                               | 20     | 19     |           |         | 402/644       |
| SPECIAL | 53013000  | 3,346          | SF   | SPECIAL - FORM LINER                                                             | 1,714  | 1,632  |           |         | 5 / 42        |
| 625     | 25605     | 234            | FT   | CONDUIT, 4", 725.051, AS PER PLAN                                                |        |        | 234       |         | 32 / 42       |





15 DRILLED SHAFTS @ 4'-8" = 65'-4"

**PLAN**

| DRILLED SHAFT DATA |              |                  |                       |                       |                      |                       |
|--------------------|--------------|------------------|-----------------------|-----------------------|----------------------|-----------------------|
| SHAFT SIZE         | SHAFT NUMBER | CUTOFF ELEVATION | MAXIMUM TIP ELEVATION | SHAFT LENGTH (EACH) * | SPIRAL LENGTH (EACH) | VERTICAL REINF LENGTH |
| 42"φ               | R1-R15       | 946.74           | 896.50                | 50'-3"                | 50'-3"               | 51'-9"                |
|                    | R16-R25      | 946.74           | 896.50                | 50'-3"                | 50'-3"               | 51'-9"                |
| 30"φ               | R26-R34      | 946.74           | 896.50                | 50'-3"                | 50'-3"               | 51'-9"                |
|                    | R35-R37      | 946.74           | 908.50                | 38'-3"                | 38'-3"               | 39'-9"                |

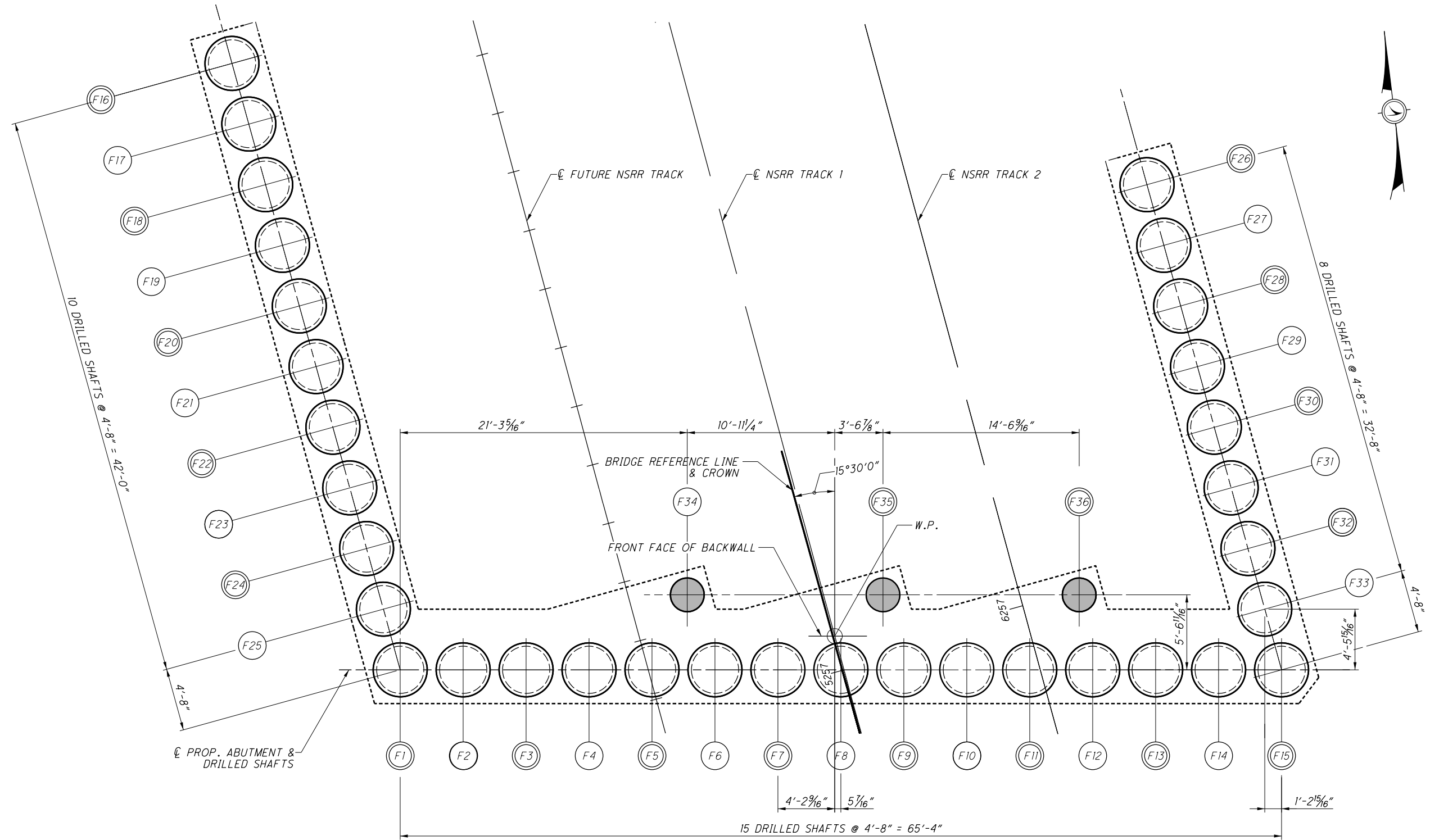
\* SHAFT LENGTH IS THE TOTAL LENGTH OF SHAFT, INCLUDING SOCKET.

**NOTES:**

- FOR REAR ABUTMENT PLAN, ELEVATION, AND DETAILS, SEE SHEETS [10/42], [11/42] & [14/42].
- FOR REAR ABUTMENT WORKING POINT DEFINITION, SEE SHEET [2/42].
- FOR DRILLED SHAFT DETAILS, SEE SHEET [9/42].
- SEDIMENT AT BASE OF DRILLED SHAFT ROCK SOCKET SHALL NOT EXCEED 1/2" DEPTH.
- SIDEWALLS OF DRILLED SHAFT ROCK SOCKET SHALL BE FREE OF ANY CUTTINGS.

**LEGEND:**

- R## INDICATES DRILLED SHAFT NUMBER AT REAR ABUTMENT (DOUBLE CIRCLE INDICATES CSL TESTING IS REQUIRED)
- 30" DIAMETER SHAFT TO TOP OF ROCK
- INTERFERENCE WITH EXISTING FOOTING



PLAN

| DRILLED SHAFT DATA |              |                  |                       |                      |                      |                       |
|--------------------|--------------|------------------|-----------------------|----------------------|----------------------|-----------------------|
| SHAFT SIZE         | SHAFT NUMBER | CUTOFF ELEVATION | MAXIMUM TIP ELEVATION | SHAFT LENGTH (EACH)* | SPIRAL LENGTH (EACH) | VERTICAL REINF LENGTH |
| 42"φ               | F1-F15       | 946.54           | 896.50                | 50'-1"               | 50'-1"               | 51'-7"                |
|                    | F16-F25      | 946.54           | 896.50                | 50'-1"               | 50'-1"               | 51'-7"                |
|                    | F26-F33      | 946.54           | 896.50                | 50'-1"               | 50'-1"               | 51'-7"                |
| 30"φ               | F34-F36      | 946.54           | 908.50                | 38'-1"               | 38'-1"               | 39'-7"                |

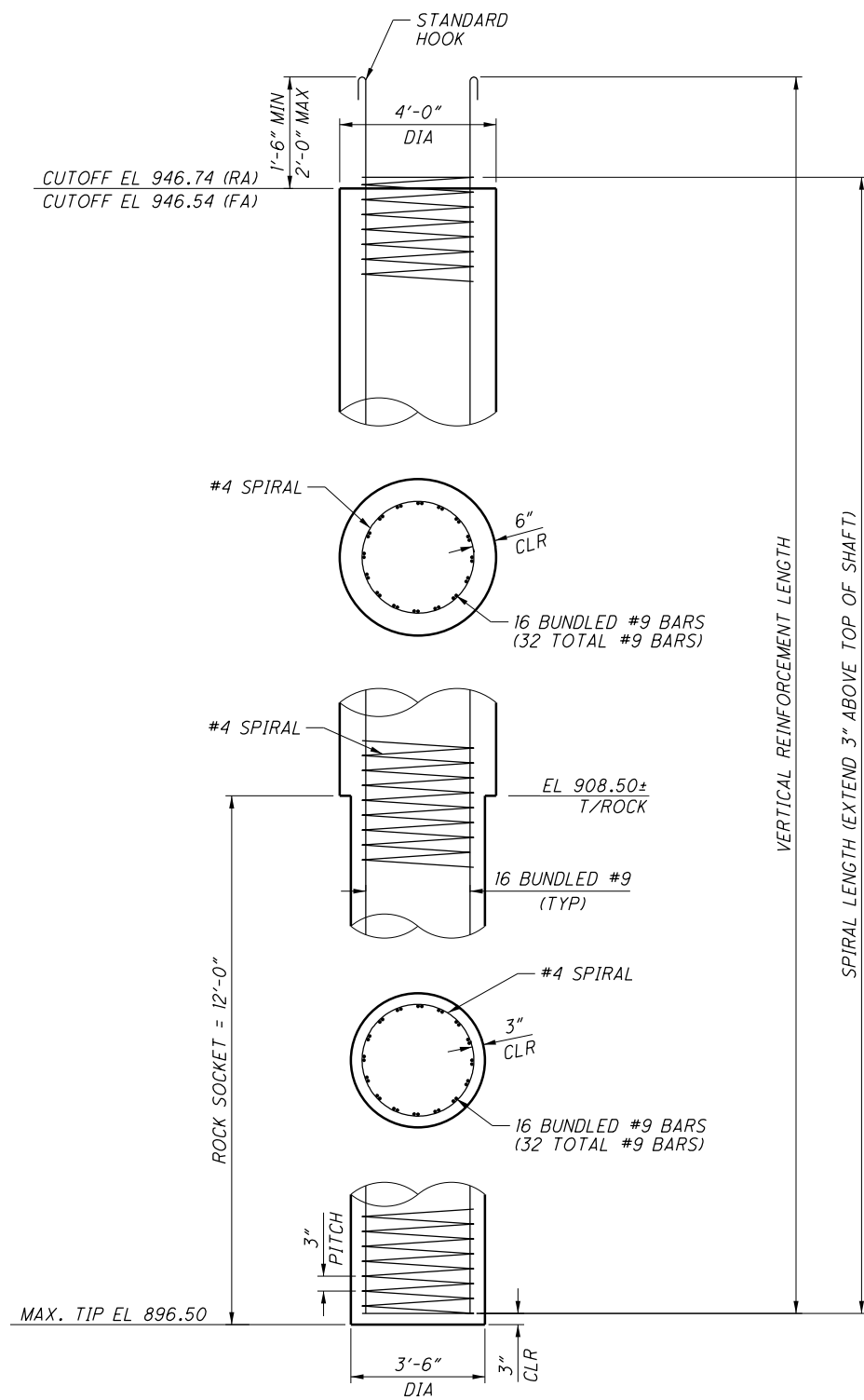
\* SHAFT LENGTH IS THE TOTAL LENGTH OF SHAFT, INCLUDING SOCKET.

**NOTES:**

- FOR FORWARD ABUTMENT FOUNDATION PLAN, ELEVATIONS AND DETAILS, SEE SHEET [10|42] [11|42] [14|42]
- FOR FORWARD ABUTMENT WORKING POINT DEFINITION, SEE SHEET [2|42].
- FOR DRILLED SHAFT DETAILS, SEE SHEET [9|42].
- SEDIMENT AT BASE OF DRILLED SHAFT ROCK SOCKET SHALL NOT EXCEED 1/2" DEPTH.
- SIDEWALLS OF DRILLED SHAFT ROCK SOCKET SHALL BE FREE OF ANY CUTTINGS.

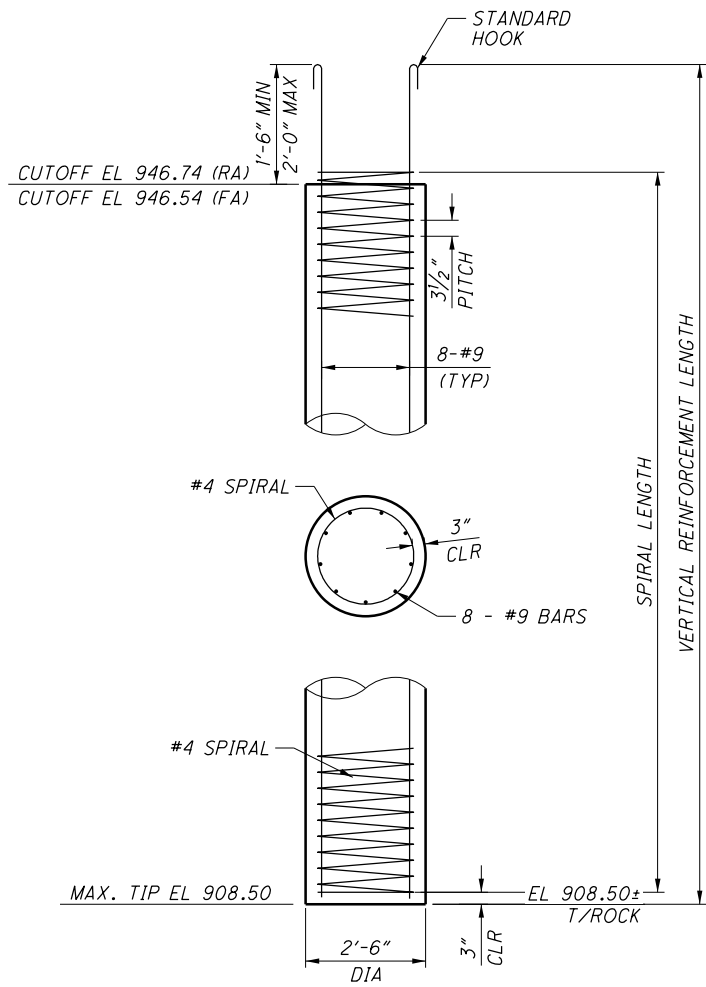
**LEGEND:**

- F## INDICATES DRILLED SHAFT NUMBER AT FORWARD ABUTMENT (DOUBLE CIRCLE INDICATES CSL TESTING IS REQUIRED)
- - 30" DIAMETER SHAFT TO TOP OF ROCK



**TYPICAL ABUTMENT SHAFT SECTION**

R1-R15, F1-F15

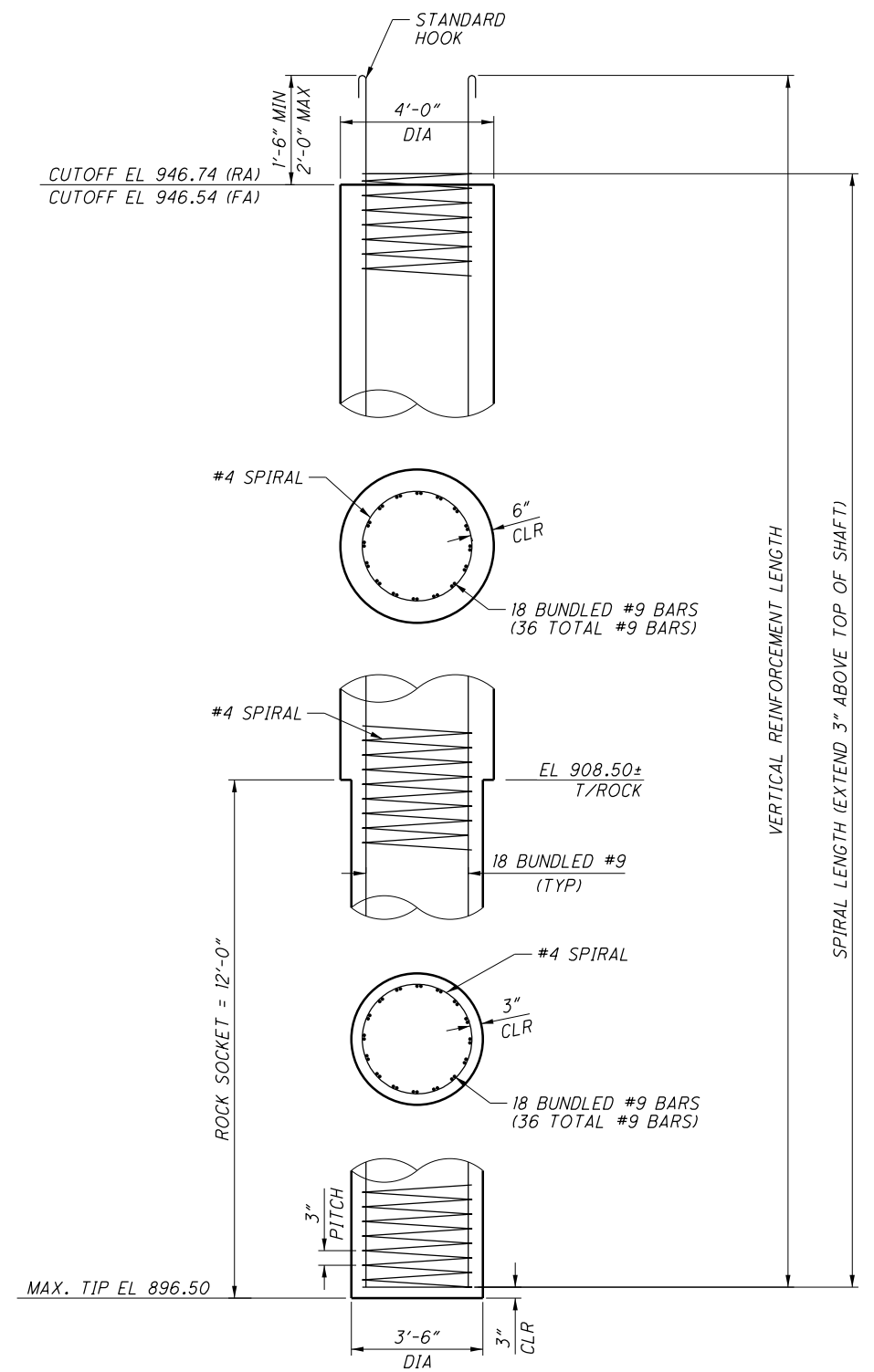


**TYPICAL BACKWALL EXTENSION SHAFT SECTION**

R35-R37, F34-F36

**NOTES:**

1. REFERENCE TABLE ON REAR ABUTMENT & FORWARD ABUTMENT PLANS FOR LENGTHS (7/42 & 8/42).
2. TOP OF SHAFT MAY EXTEND UP TO 3" INTO FOOTING. SPIRAL SHALL EXTEND 3" ABOVE TOP OF SHAFT.



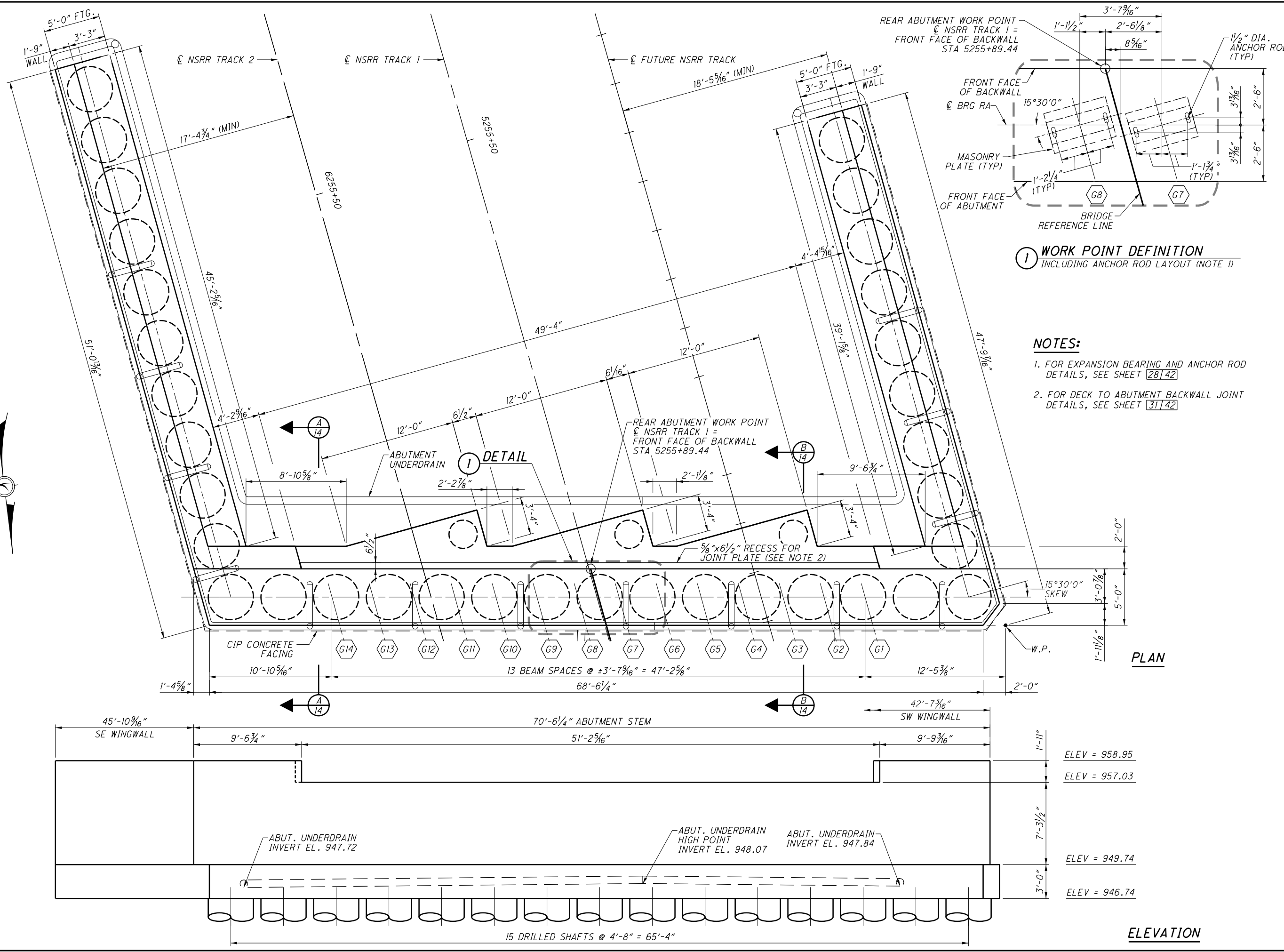
**TYPICAL WINGWALL SHAFT SECTION**

R16-R34, F16-F33

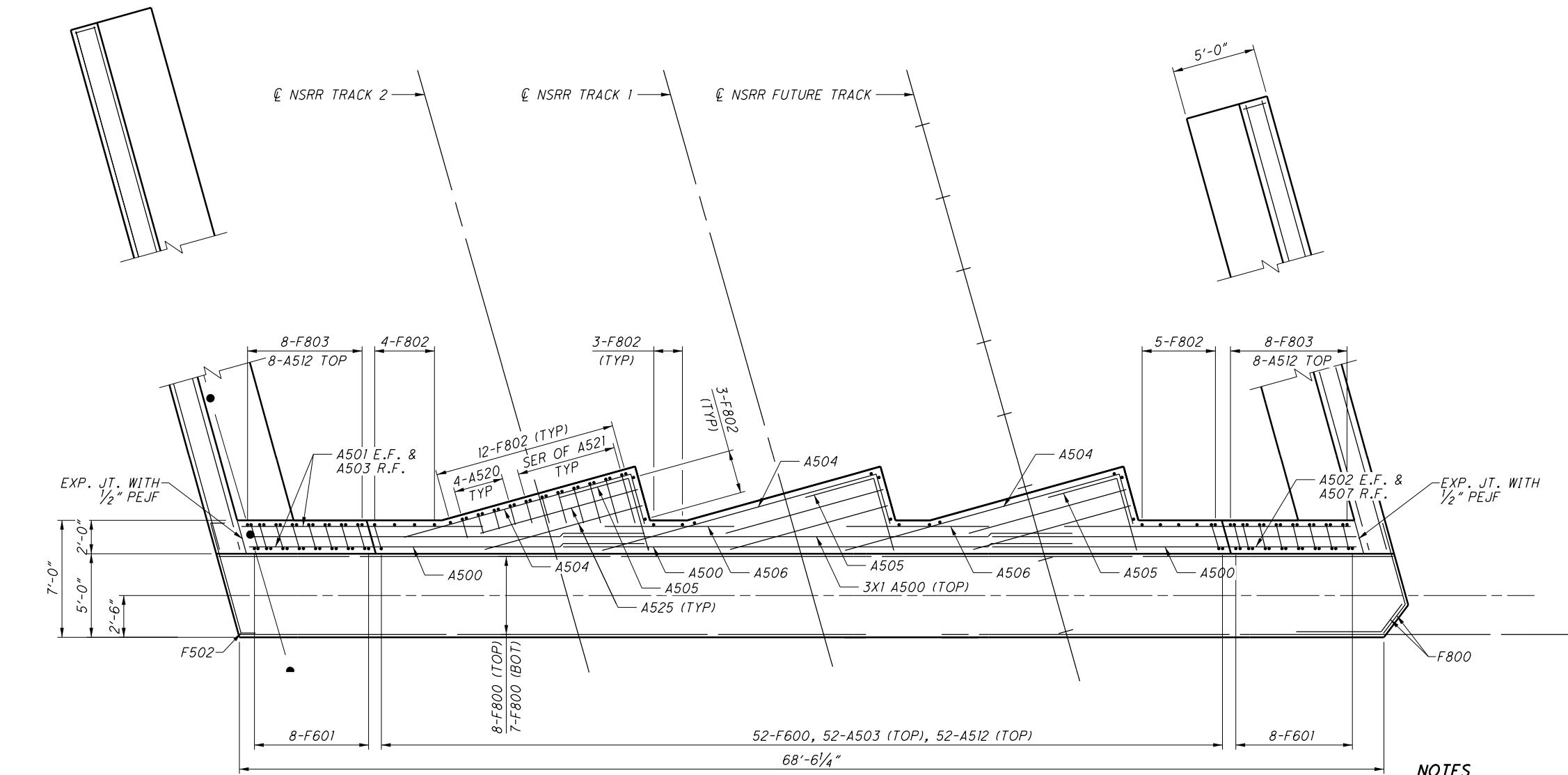
|          |                      |          |         |
|----------|----------------------|----------|---------|
| DESIGNED | JGC                  | CHECKED  | JJH     |
| DRAWN    | EBP                  | REVIEWED | EBP     |
| DATE     | 05/2021              | REVIEWED | EFD     |
| PROJECT  | 000T SPN-2100968     | DATE     | 05/2021 |
| FILE     | NSRR FILE: BRO019283 |          |         |

**FOUNDATION DETAILS**  
BRIDGE NO. DEL-36-1126 (NS MP S-23.80)  
NSRR OVER US 36 / 37 (CITY OF DELAWARE)

**POINT PROJECT**  
PID No. 103626

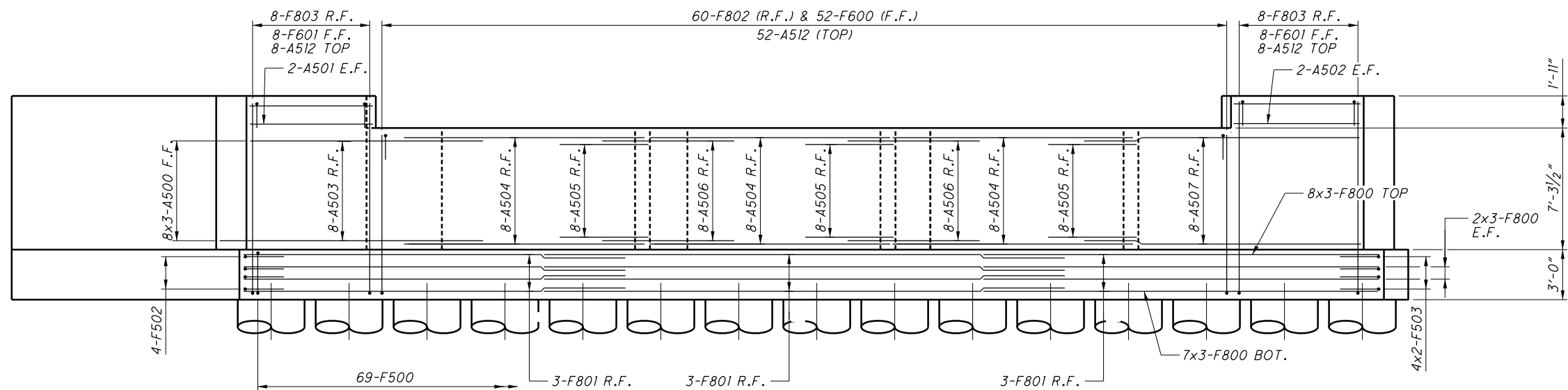


|                                                                                                                                                    |                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| <b>DESIGN AGENCY</b><br><b>Gannett Fleming</b><br>ENGINEERS & ARCHITECTS, P.C.<br>2500 CORPORATE EXCHANGE DRIVE, SUITE 230<br>COLUMBUS, OHIO 43231 |                                                                                                     |
| <b>DESIGNED</b><br>JGC<br><b>CHECKED</b><br>JH                                                                                                     | <b>DRAWN</b><br>EBP<br><b>REVISED</b>                                                               |
| <b>REVIEWED</b><br>EFD<br><b>DATE</b><br>05/2021                                                                                                   | <b>PROJECT</b><br>BRIDGE NO. DEL-36-1126 (NS MP S-23.80)<br>NSRR OVER US 36 / 37 (CITY OF DELAWARE) |
| <b>DOT SPN</b><br>2100968<br><b>NSRR FILE</b><br>BR0019283                                                                                         | <b>PID No.</b> 103626<br>10 / 42<br>442<br>644                                                      |



PLAN

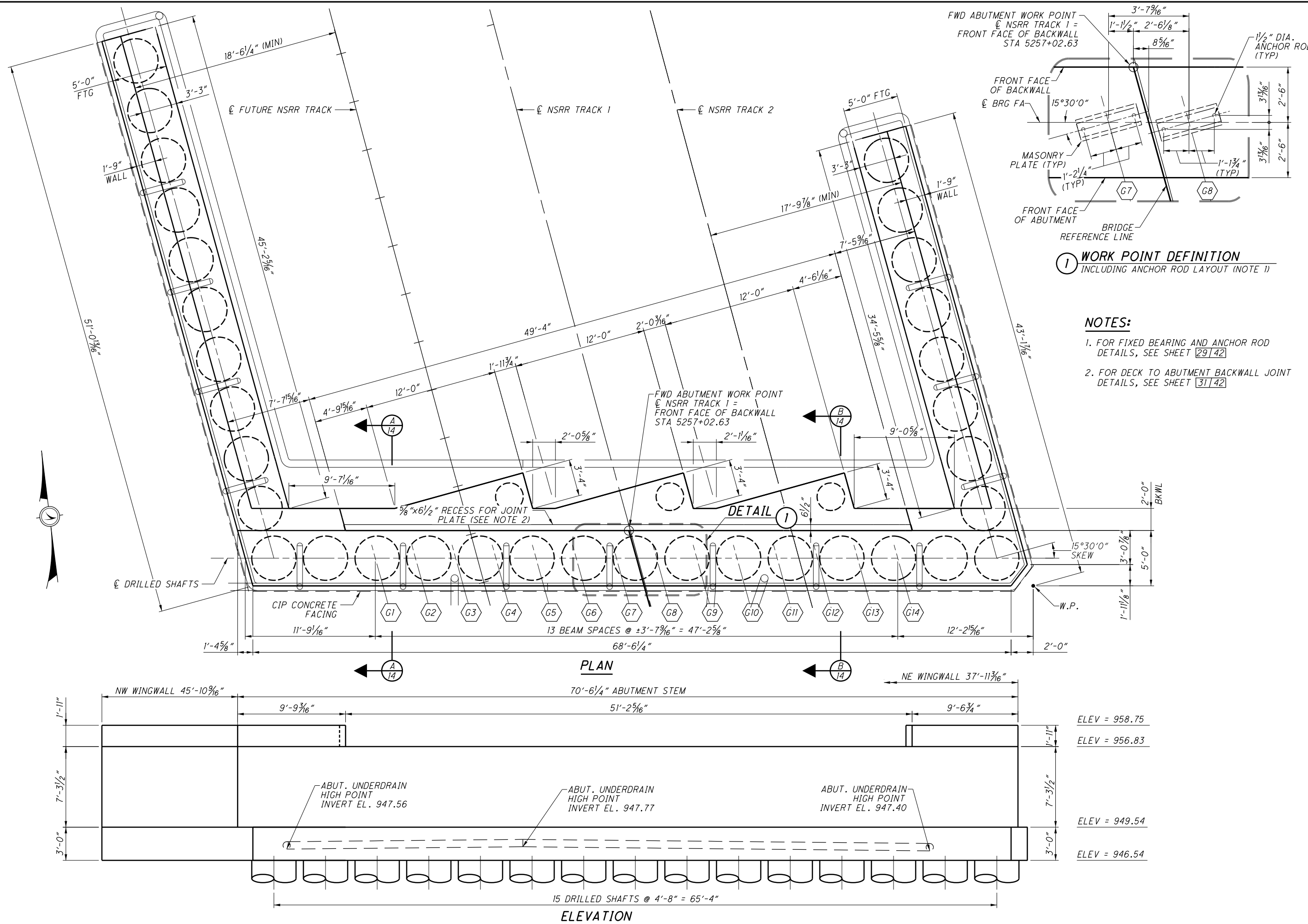
**NOTES**  
BARS INDICATED THUS 8x3-F800 ETC. INDICATES 8 LINES OF BARS WITH 3 LENGTHS PER LINE.



ELEVATION



|          |     |           |           |
|----------|-----|-----------|-----------|
| DESIGNED | JGC | CHECKED   | JUH       |
| DRAWN    | EBP | REVISD    |           |
| REVIEWED | EFD | DATE      | 05/2021   |
|          |     | 000T SPN  | 2100968   |
|          |     | NSRR FILE | BR0019283 |



**Gannett Fleming**  
ENGINEERS & ARCHITECTS, P.C.  
2800 CORPORATE EXCHANGE DRIVE, SUITE 230  
COLUMBIUS, OHIO 43231

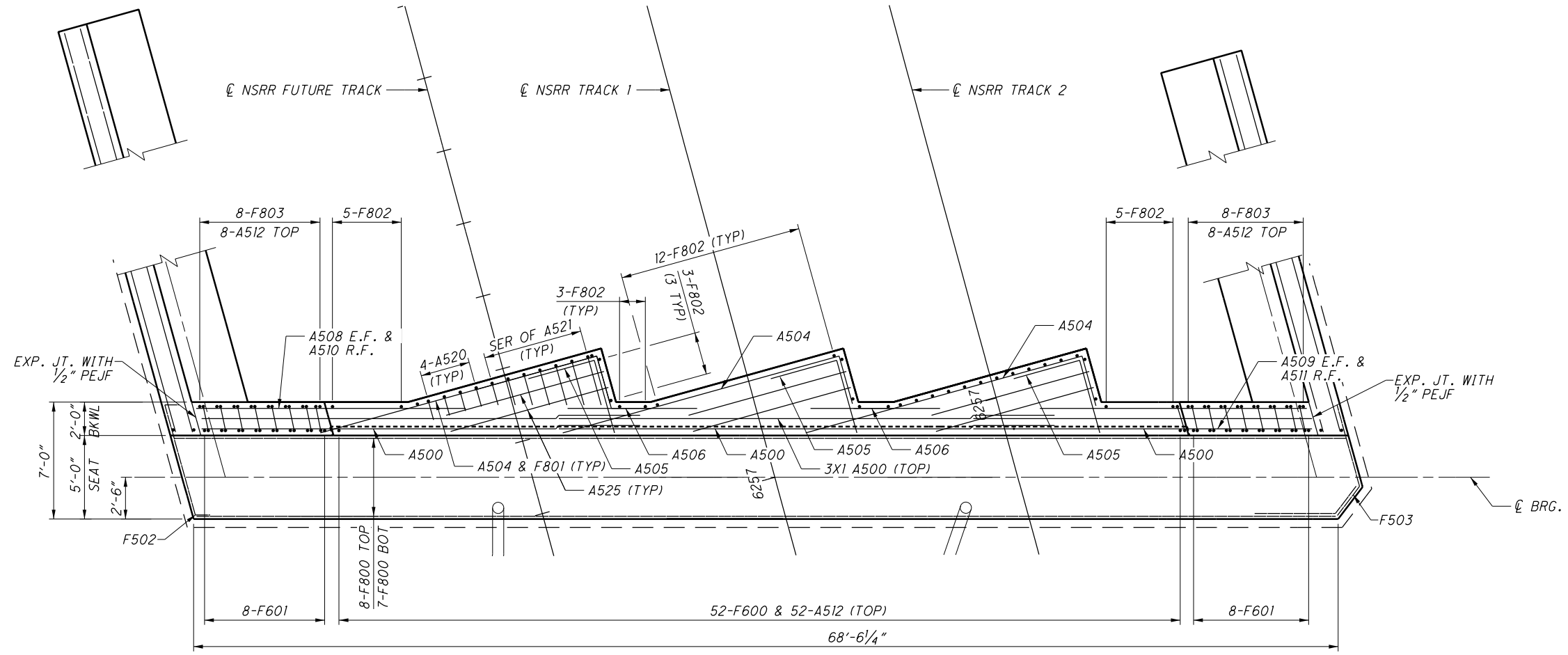
|          |                  |           |           |
|----------|------------------|-----------|-----------|
| DESIGNED | JGC              | CHECKED   | JUH       |
| DRAWN    | TAK              | REVISOR   |           |
| REVIEWED | EFD              | DATE      | 05/2021   |
| PROJECT  | 000T SPN-2100968 | NSRR FILE | BR0019283 |

**FORWARD ABUTMENT PLAN AND ELEVATION**  
BRIDGE NO. DEL-36-1126 (NS MP S-23.80)  
NSRR OVER US 36 / 37 (CITY OF DELAWARE)

**POINT PROJECT**  
PID No. 103626

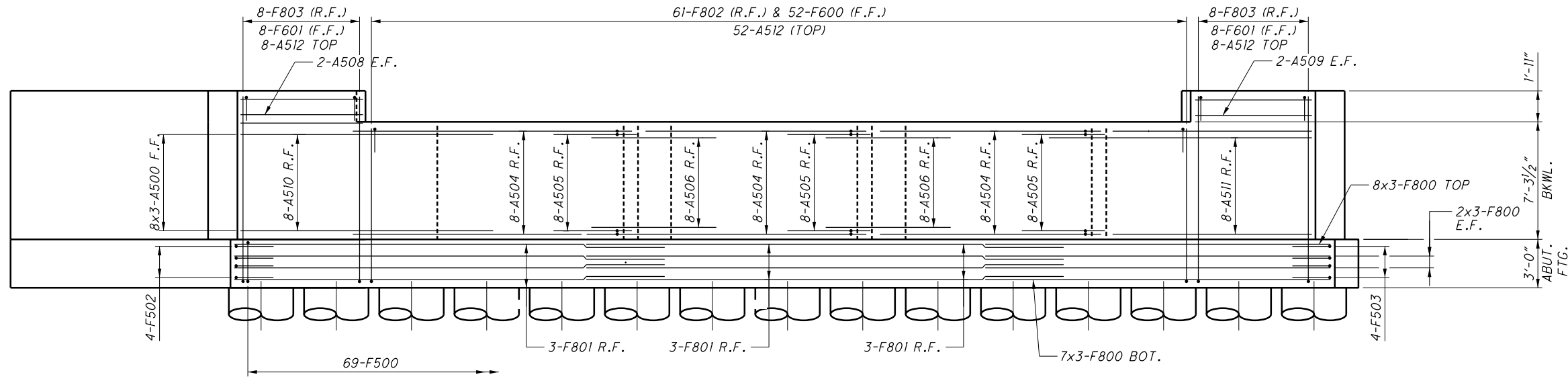
12 / 42

444  
644

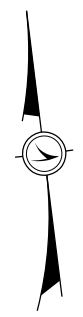


PLAN

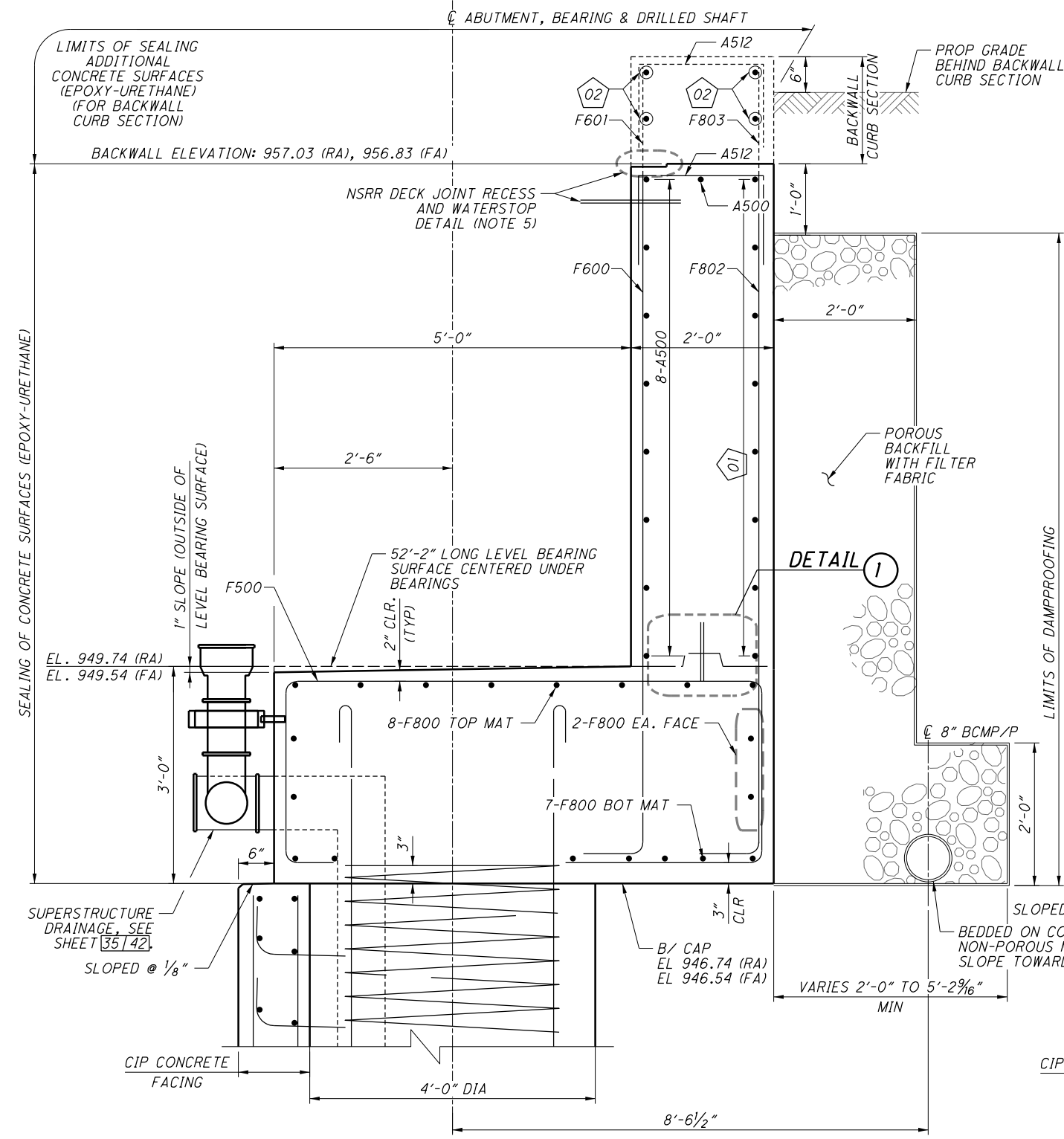
**NOTES**  
BARS INDICATED THUS 8x3-F800 ETC. INDICATES 8 LINES OF BARS WITH 3 LENGTHS PER LINE.



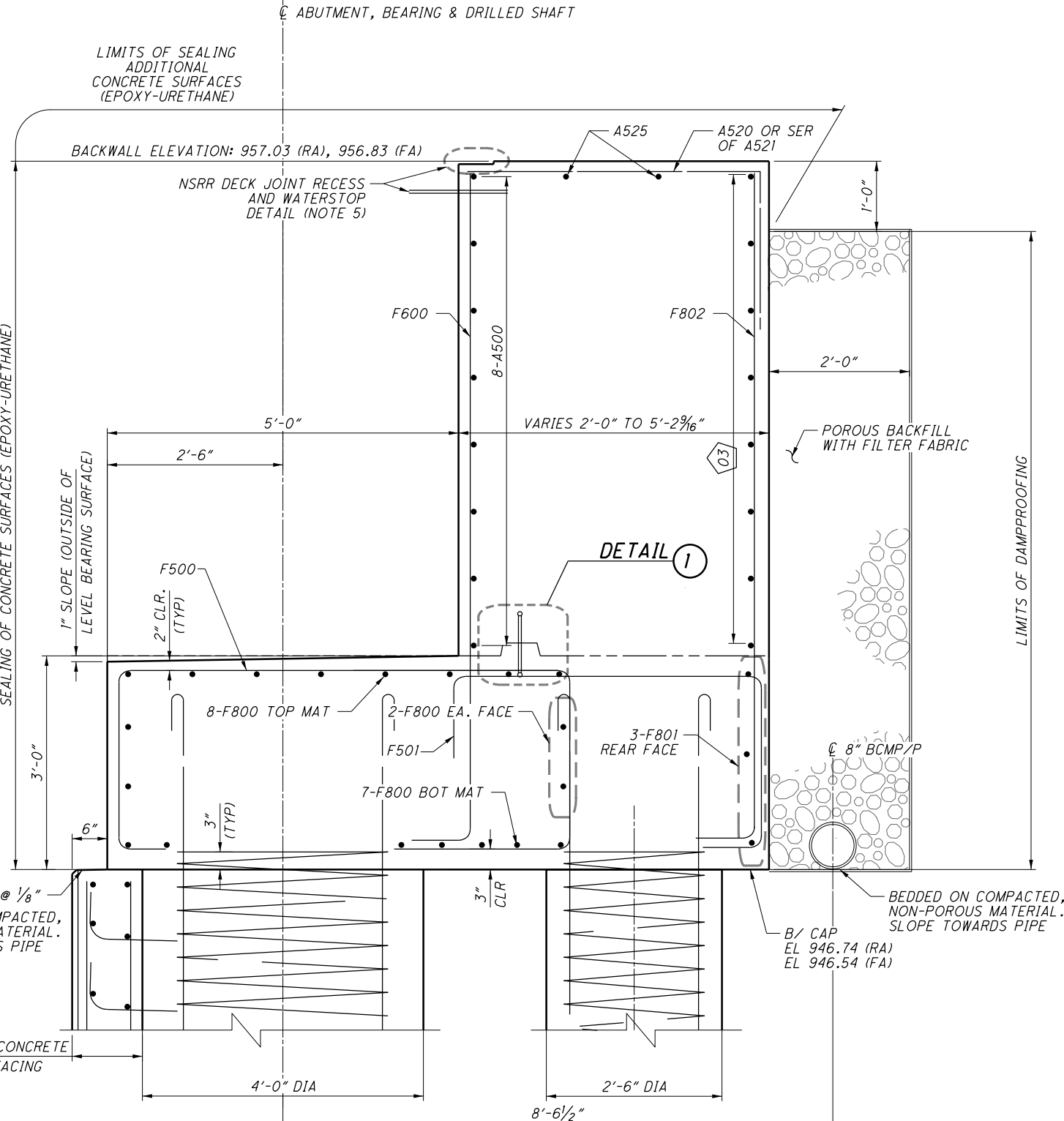
ELEVATION



|          |     |         |     |          |     |                      |         |
|----------|-----|---------|-----|----------|-----|----------------------|---------|
| DESIGNED | JGC | DRAWN   | EBP | REVIEWED | EFD | DATE                 | 05/2021 |
| CHECKED  | JUH | REVISED |     |          |     | 0001 SPN-2100968     |         |
|          |     |         |     |          |     | NSRR FILE: BR0019283 |         |



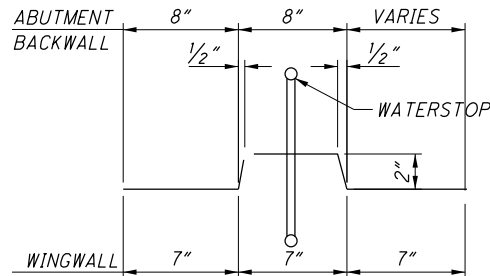
**A** SINGLE SHAFT CAP SUPPORT



**B** TWO SHAFT CAP SUPPORT

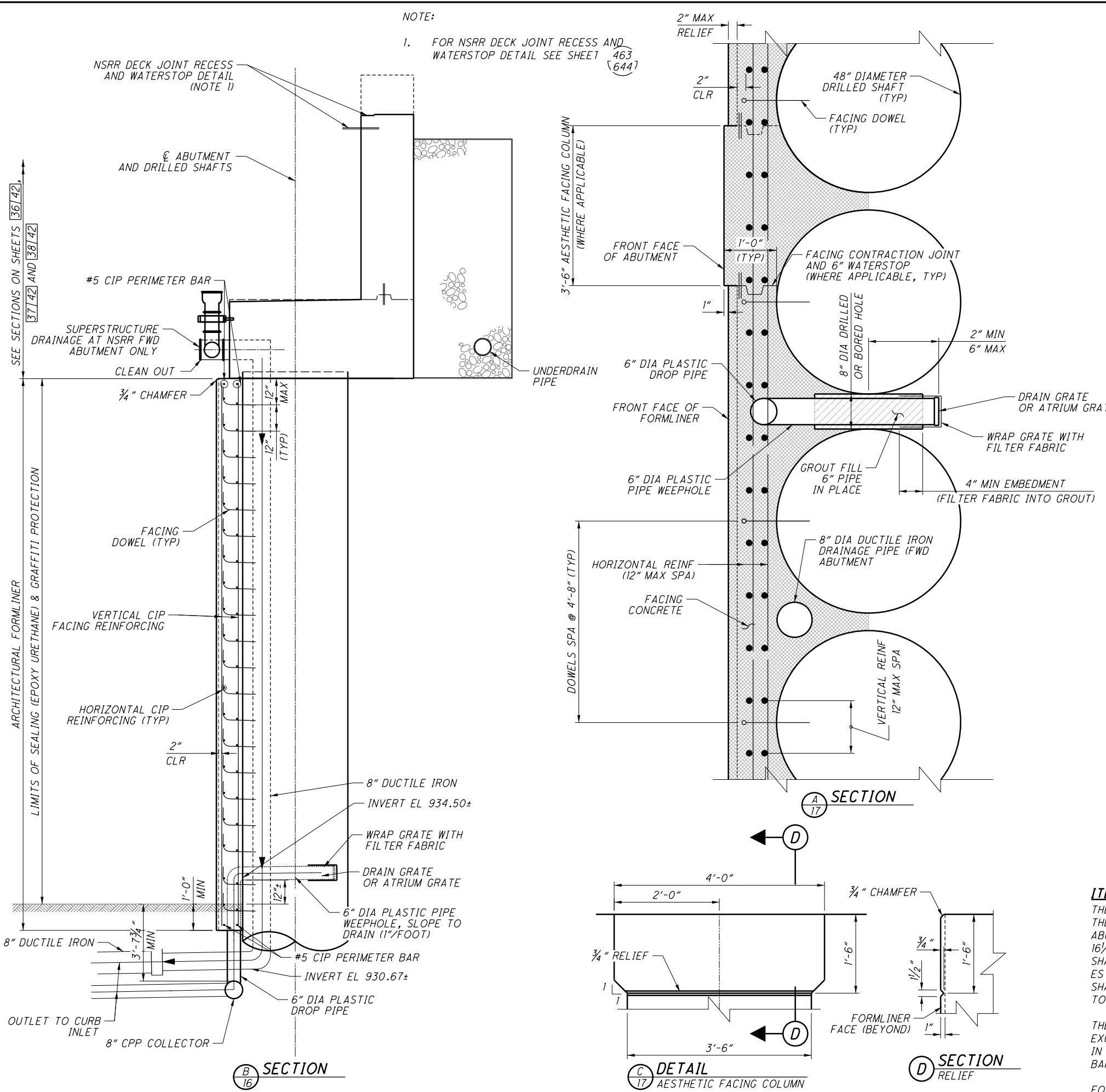
| REINFORCING |                  |          |                  |          |
|-------------|------------------|----------|------------------|----------|
| #           | REAR ABUTMENT    |          | FORWARD ABUTMENT |          |
|             | EAST END         | WEST END | EAST END         | WEST END |
| 01          | A503             | A507     | A511             | A510     |
| 02          | A501             | A502     | A509             | A508     |
| 03          | A504, A505, A506 |          | A504, A505, A506 |          |

- NOTES:**
1. WATERSTOPS SHALL BE 9"x3/8" PVC AND SHALL BE CONTINUOUS ACROSS JOINT.
  2. FOR FACING DETAILS, SEE SHEET [15/42].
  3. FOR SUPERSTRUCTURE DRAINAGE, SEE SHEET [23/42].
  4. FOR SHAFT REINFORCING, SEE SHEET [9/42].
  5. FOR NSRR DECK JOINT RECESS AND WATERSTOP DETAIL SEE SHEET [31/42].
  6. FOR LOCATION WHERE DETAIL A & DETAIL B ARE TAKEN SEE SHEETS [10/42] & [12/42].

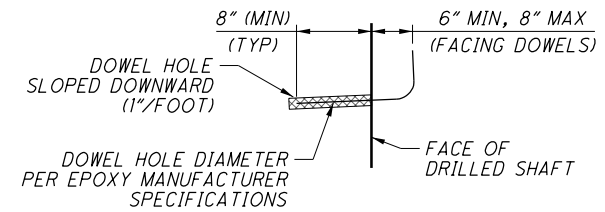


**C** CONSTRUCTION JOINT WITH RAISED KEY

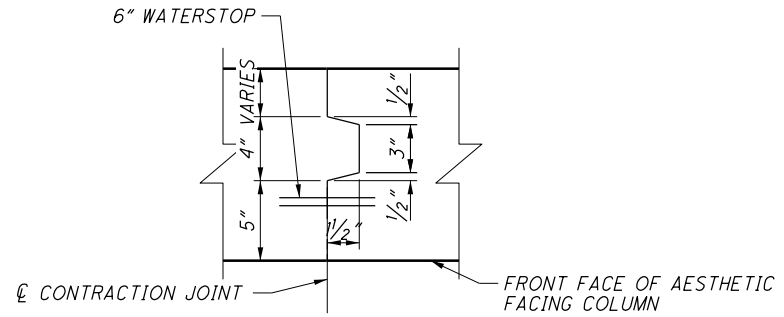




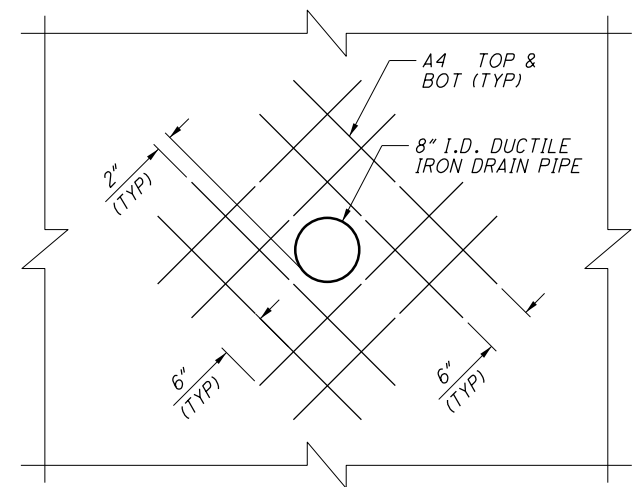
NOTE:  
 1. FOR NSRR DECK JOINT RECESS AND WATERSTOP DETAIL SEE SHEET 463 (644)



FACING DOWEL DETAIL



FACING CONTRACTION JOINT VERTICAL KEYWAY



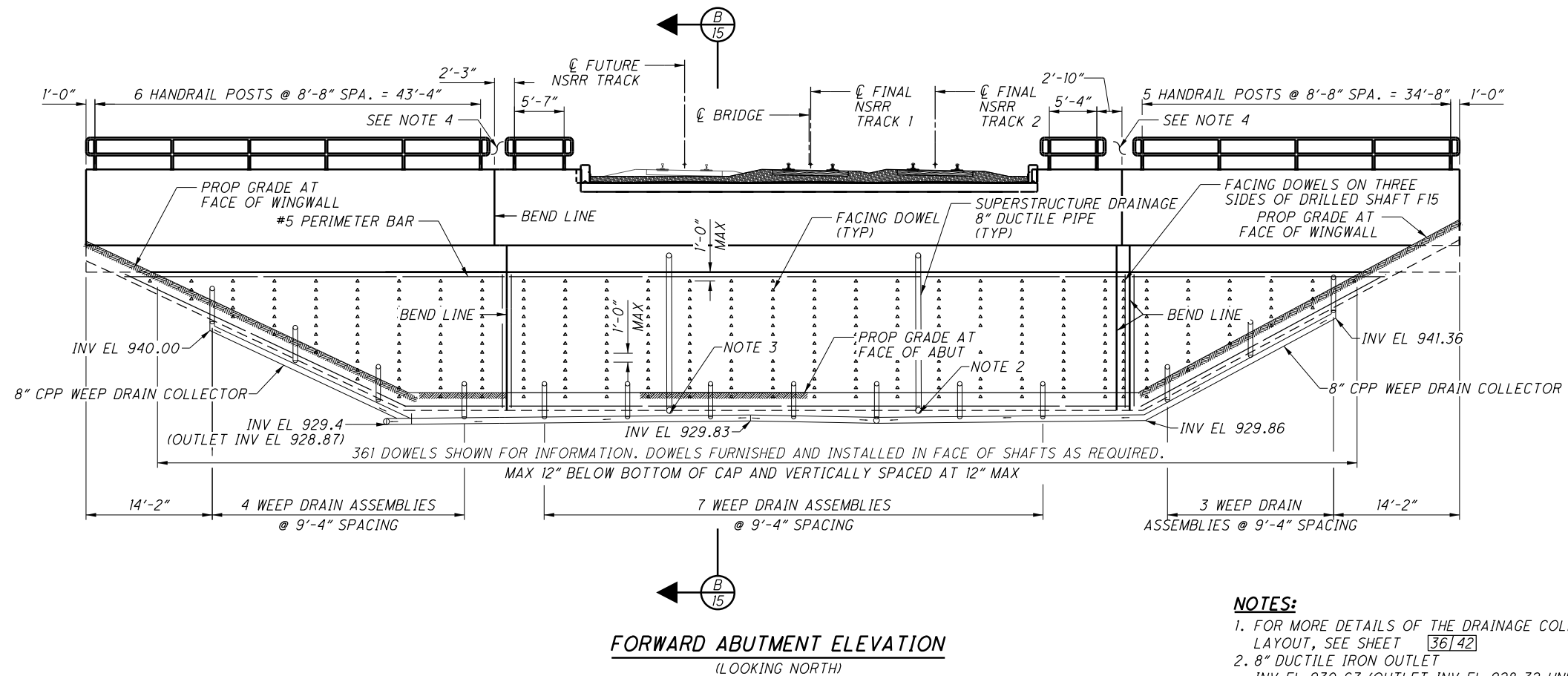
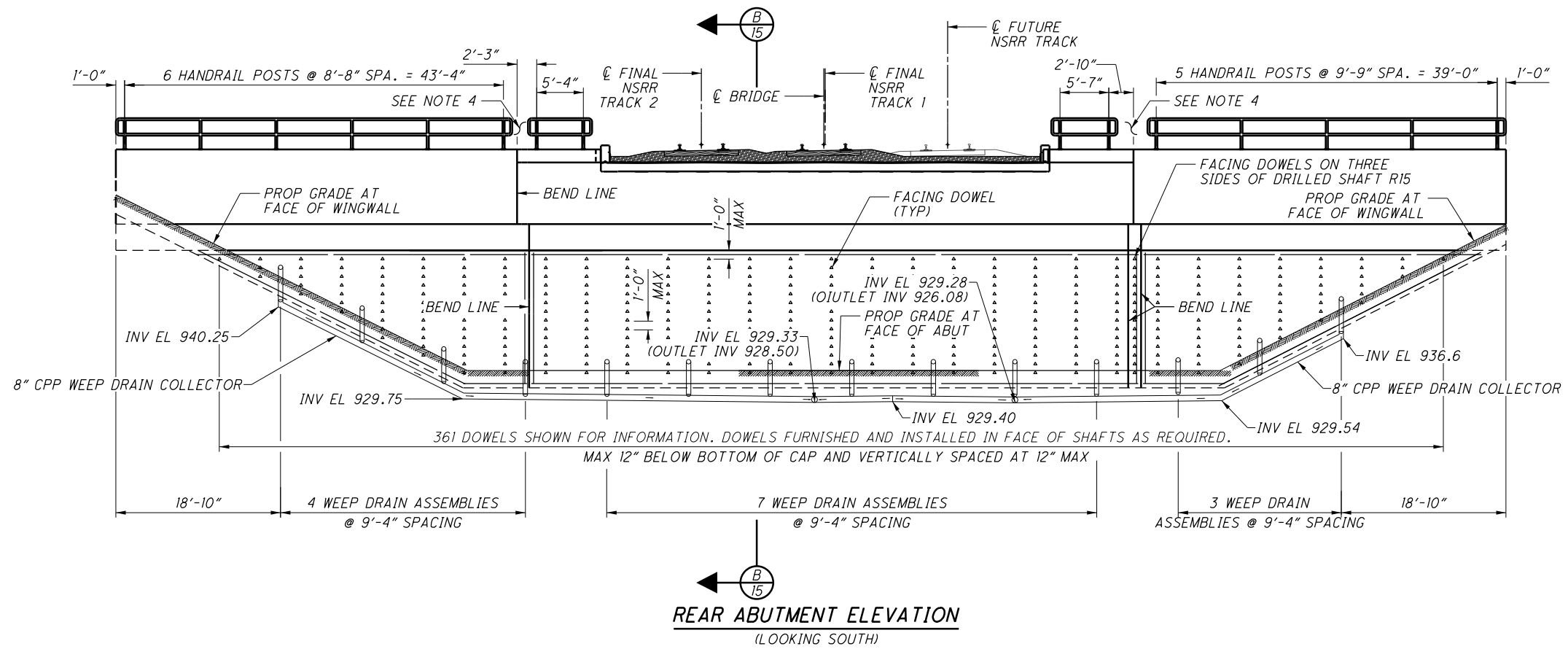
REINFORCING AT ABUTMENT DRAIN PIPES

**ITEM 511 - CONCRETE, MISC.: FACING OF SUBSTRUCTURE**

THE APPROXIMATE VOLUME OF CONCRETE IS 130 CUBIC YARDS TO FACE THE REAR ABUTMENT AND 127 CUBIC YARDS TO FACE THE FORWARD ABUTMENT. THIS VALUE IS BASED ON AN AVERAGE FACING THICKNESS OF 16 1/2" FROM C/C OF ADJACENT SHAFTS AND 18" THICK BEYOND THE LAST SHAFT AT THE SOUTHEAST CORNER. THIS VALUE IS GIVEN ONLY FOR ESTIMATING PURPOSES AND INCLUDES ANNULAR SPACES BETWEEN DRILLED SHAFTS. THE CONTRACTOR SHALL PROVIDE ACTUAL QUANTITIES REQUIRED TO FACE THE WALL PER THESE PLANS.

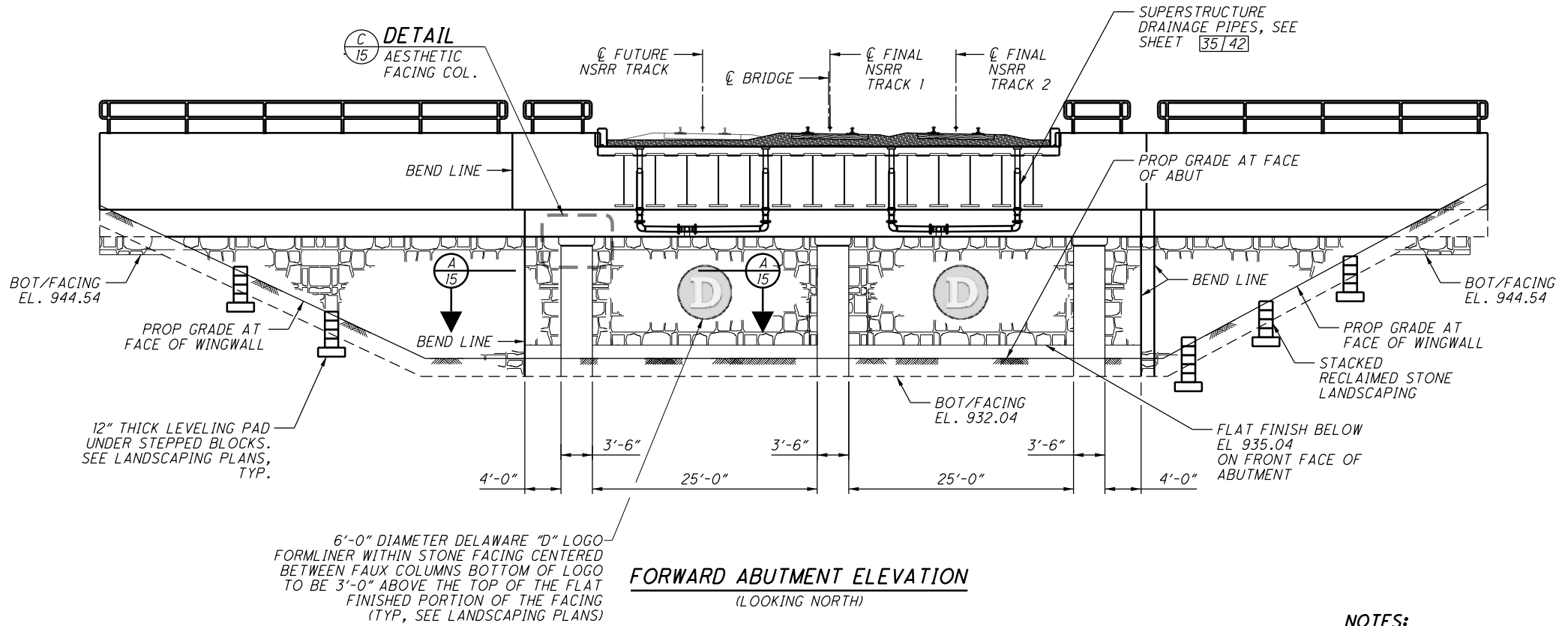
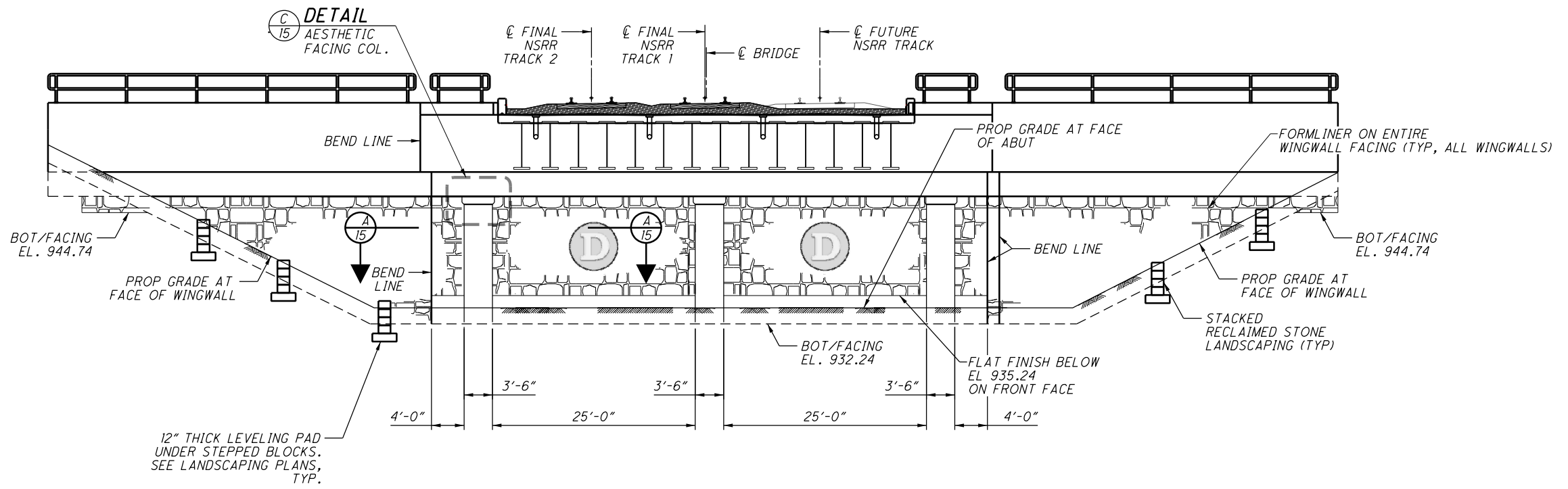
THE HORIZONTAL AND VERTICAL REINFORCING STEEL SPACING SHALL NOT EXCEED 12" AND SHALL CONTAIN 0.25 SQUARE INCHES OF STEEL PER FOOT IN EACH DIRECTION. REINFORCING STEEL MAY CONSIST OF REINFORCING BARS OR WELDED WIRE FABRIC. PERIMETER BARS SHALL BE #5.

FOR MORE NOTES, INCLUDING BASIS OF PAYMENT, SEE SHEET 4 | 42.



**NOTES:**

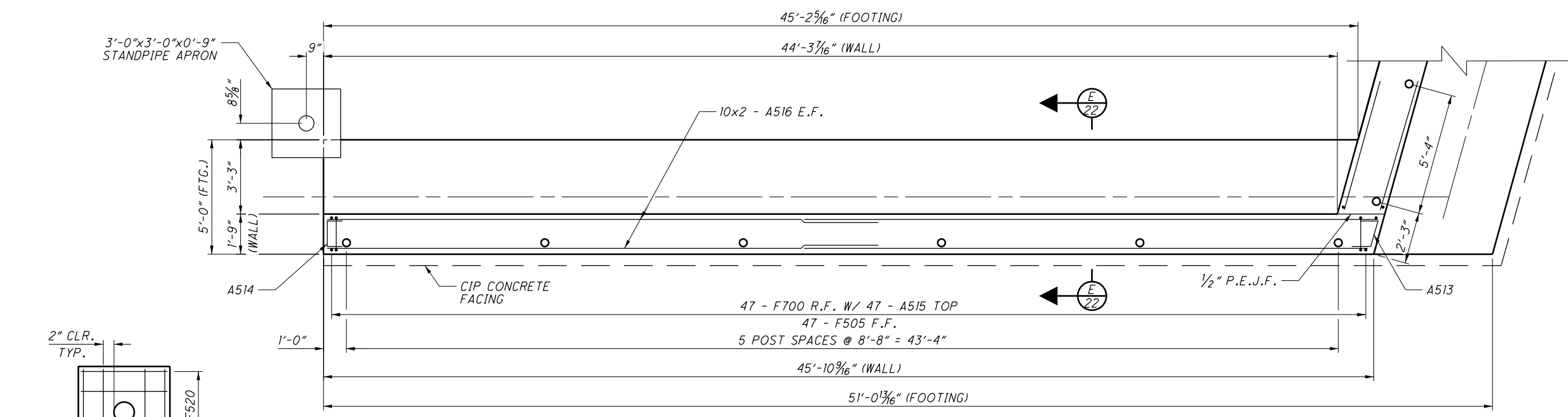
1. FOR MORE DETAILS OF THE DRAINAGE COLLECTION SYSTEM LAYOUT, SEE SHEET 36142
2. 8" DUCTILE IRON OUTLET  
INV EL 930.67 (OUTLET INV EL 928.32 UNDER BRIDGE)
3. 8" DUCTILE IRON OUTLET  
INV EL 930.67 (OUTLET INV EL 928.87 WEST OF BRIDGE)
4. MAXIMUM GAP BETWEEN HANDRAILS = 1'-0". GAP APPEARS LARGER DUE TO BEND LINE.



6'-0" DIAMETER DELAWARE "D" LOGO  
FORMLINER WITHIN STONE FACING CENTERED  
BETWEEN FAUX COLUMNS BOTTOM OF LOGO  
TO BE 3'-0" ABOVE THE TOP OF THE FLAT  
FINISHED PORTION OF THE FACING  
(TYP, SEE LANDSCAPING PLANS)

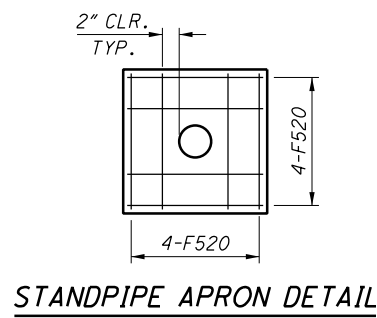
**NOTES:**  
1. RECLAIMED STONE LANDSCAPING FEATURES, INCLUDING LEVELING  
PAD, ARE DETAILED WITH LANDSCAPING PLANS, SEE SHEET **(TBD)**  
**(644)**

|                                                                                                                                                    |                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <b>DESIGN AGENCY</b><br><b>Gannett Fleming</b><br>ENGINEERS & ARCHITECTS, P.C.<br>2500 CORPORATE EXCHANGE DRIVE SUITE 230<br>COLUMBIAS, OHIO 43231 |                                |
| <b>DESIGNED</b><br>JGC<br>CHECKED<br>JKL                                                                                                           | <b>DRAWN</b><br>LAM<br>REVISED |
| <b>REVIEWED</b><br>EFD<br>000T SPN 2100968<br>NSRR FILE: BR0019283                                                                                 | <b>DATE</b><br>05/2021         |
| <b>POINT PROJECT</b><br>PID No. 103626                                                                                                             |                                |
| <b>REAR AND FORWARD FORMLINER ELEVATIONS</b><br>BRIDGE NO. DEL-36-1126 (NS MP S-23.80)<br>NSRR OVER US 36 / 37 (CITY OF DELAWARE)                  |                                |
| 17 / 42<br>(449)<br>(644)                                                                                                                          |                                |

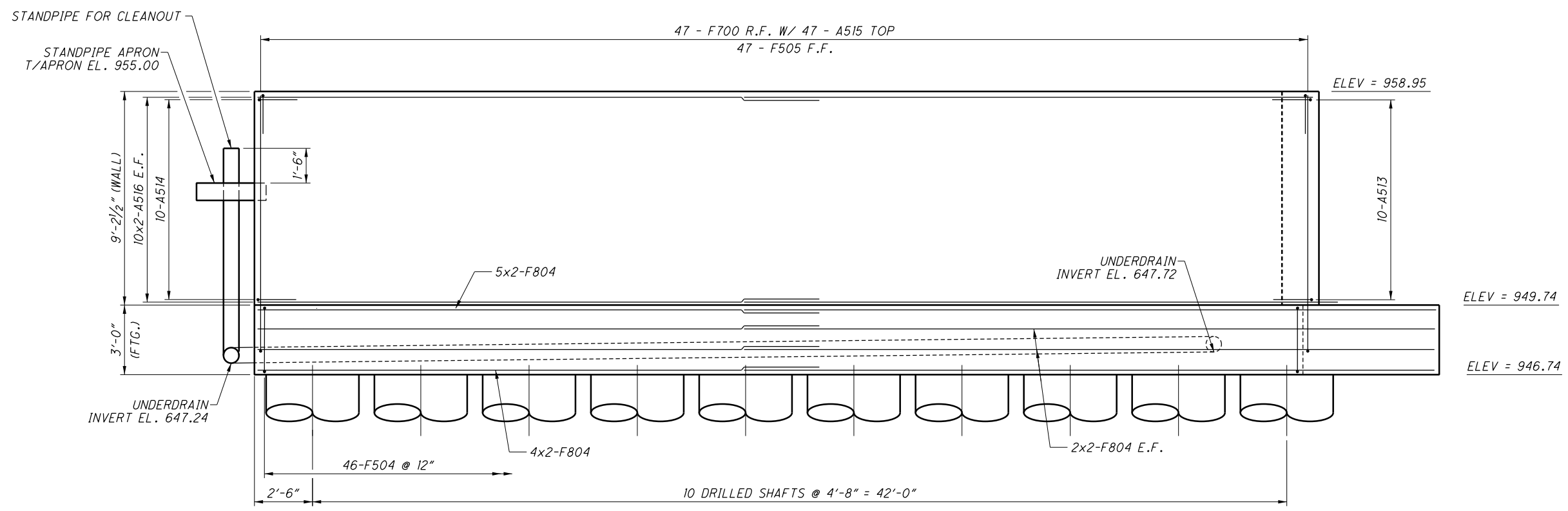


**SOUTHEAST WINGWALL PLAN**

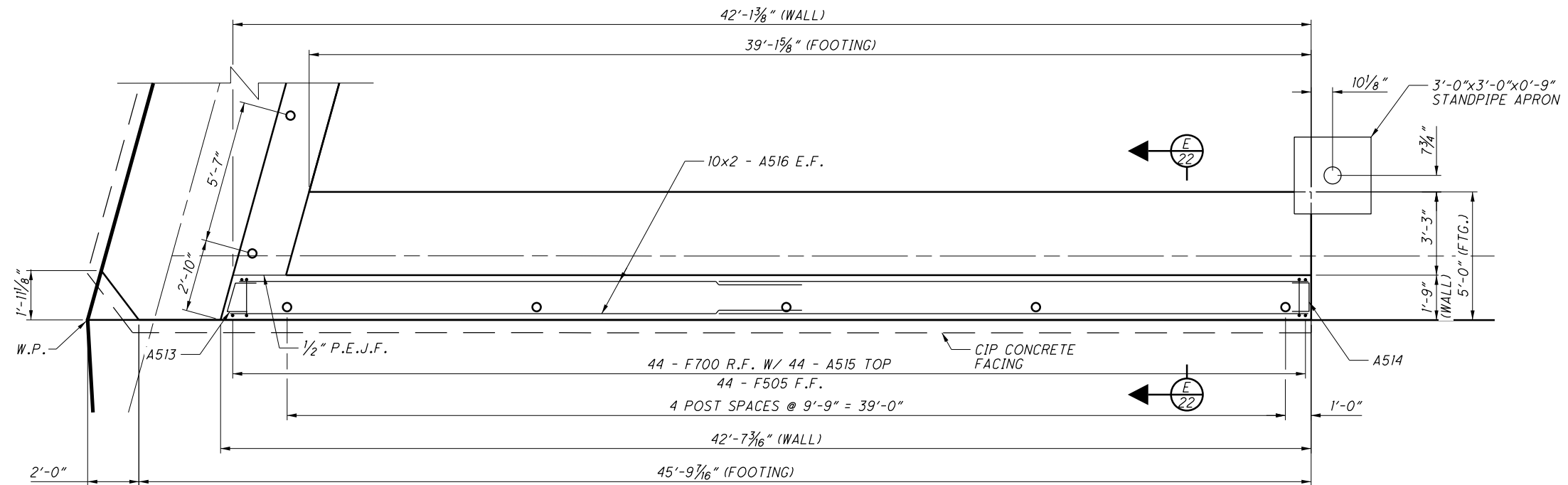
**NOTES**  
 BARS INDICATED THUS 10x2-A512 ETC. INDICATES 10 LINES OF BARS WITH 2 LENGTHS PER LINE.



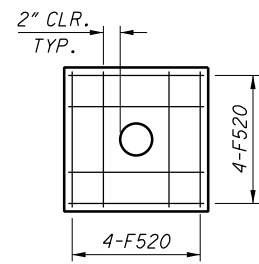
**STANDPIPE APRON DETAIL**



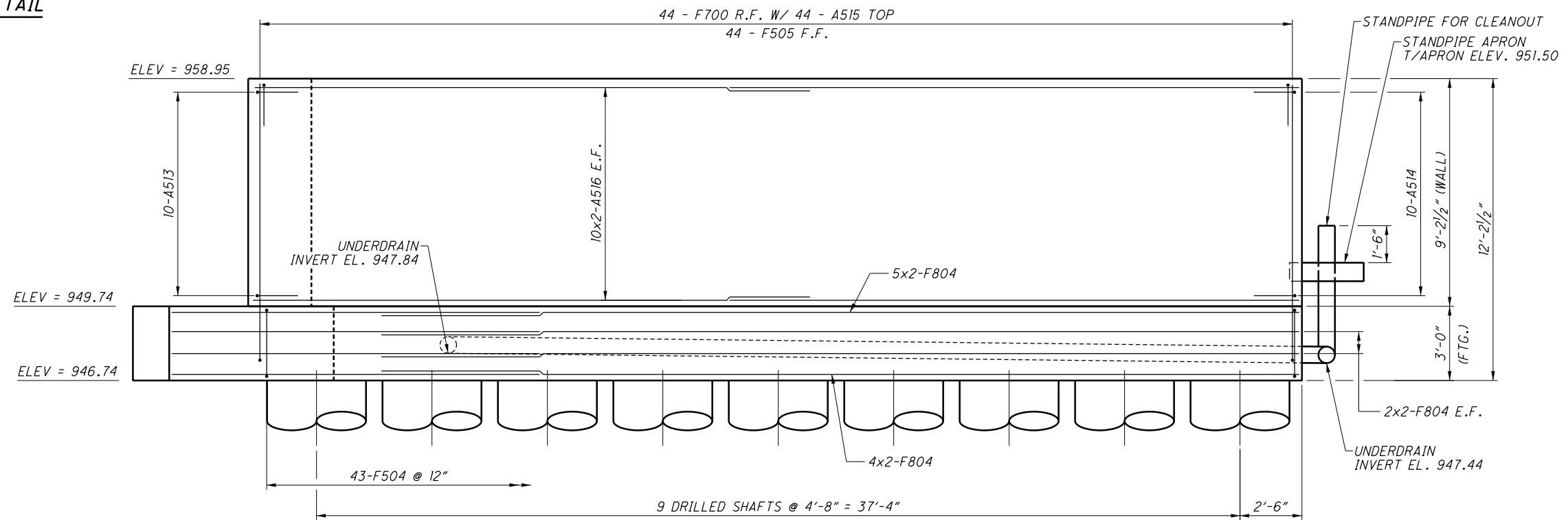
**SOUTHEAST WINGWALL ELEVATION**



**SOUTHWEST WINGWALL PLAN**

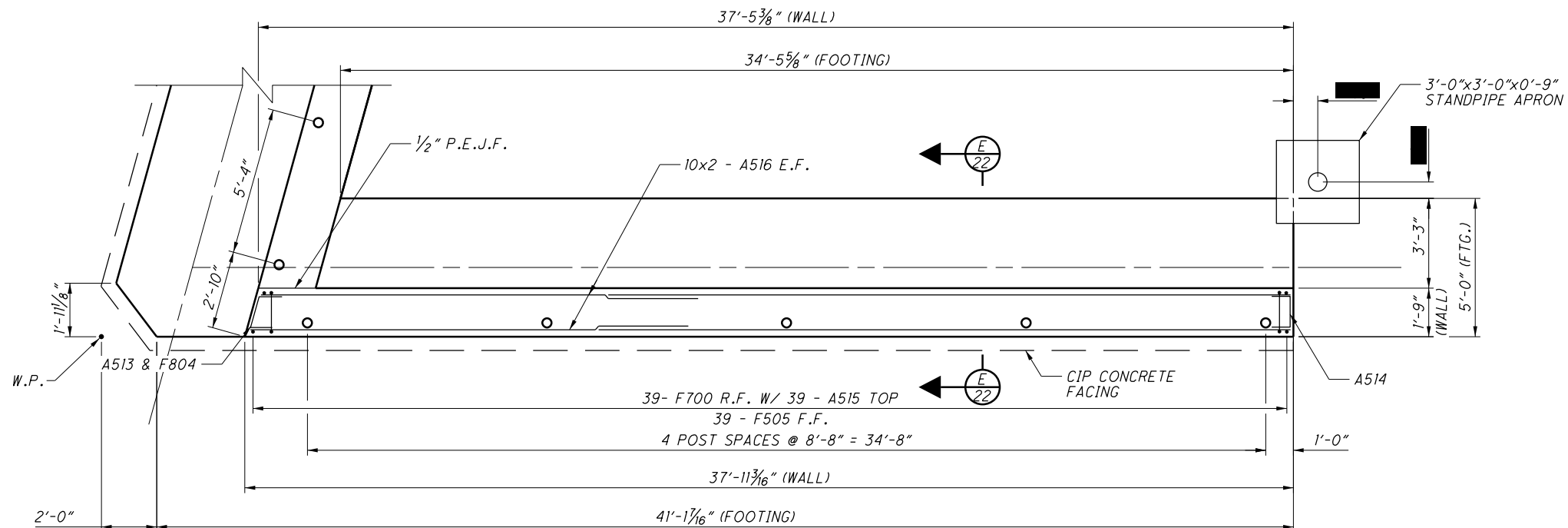
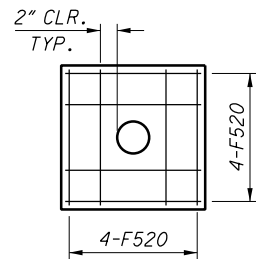


**STANDPIPE APRON DETAIL**

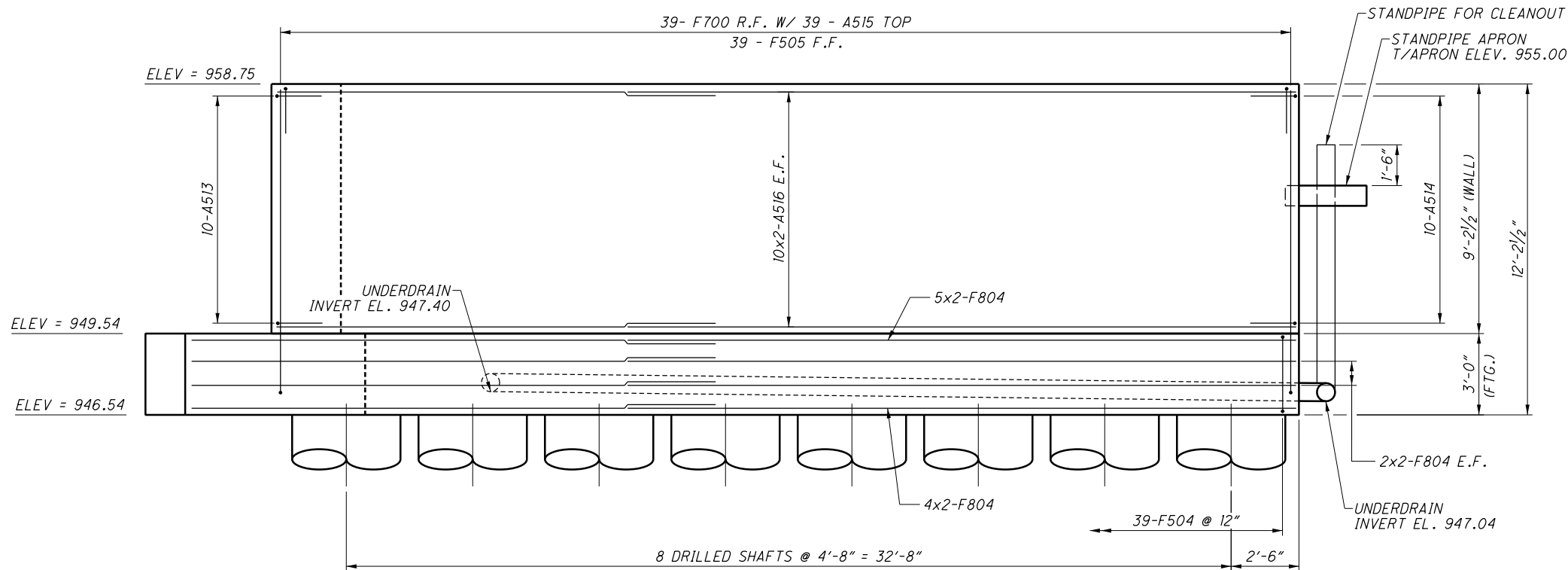


**SOUTHWEST WINGWALL ELEVATION**

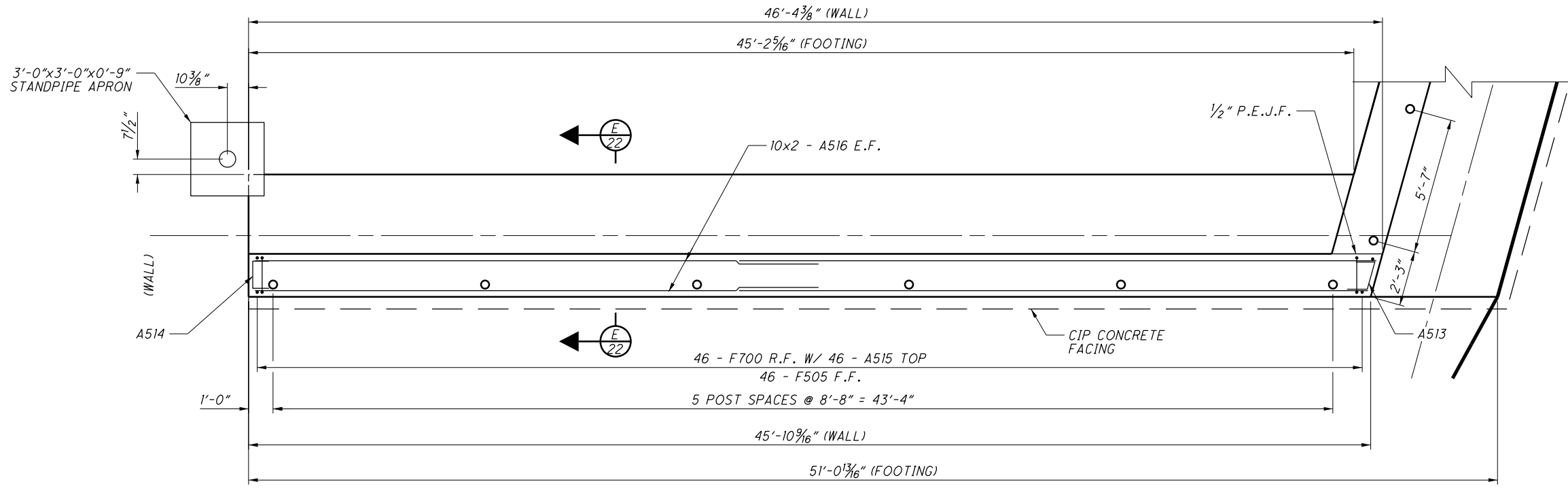
**STANDPIPE APRON DETAIL**



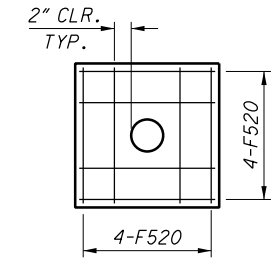
**NORTHEAST WINGWALL PLAN**



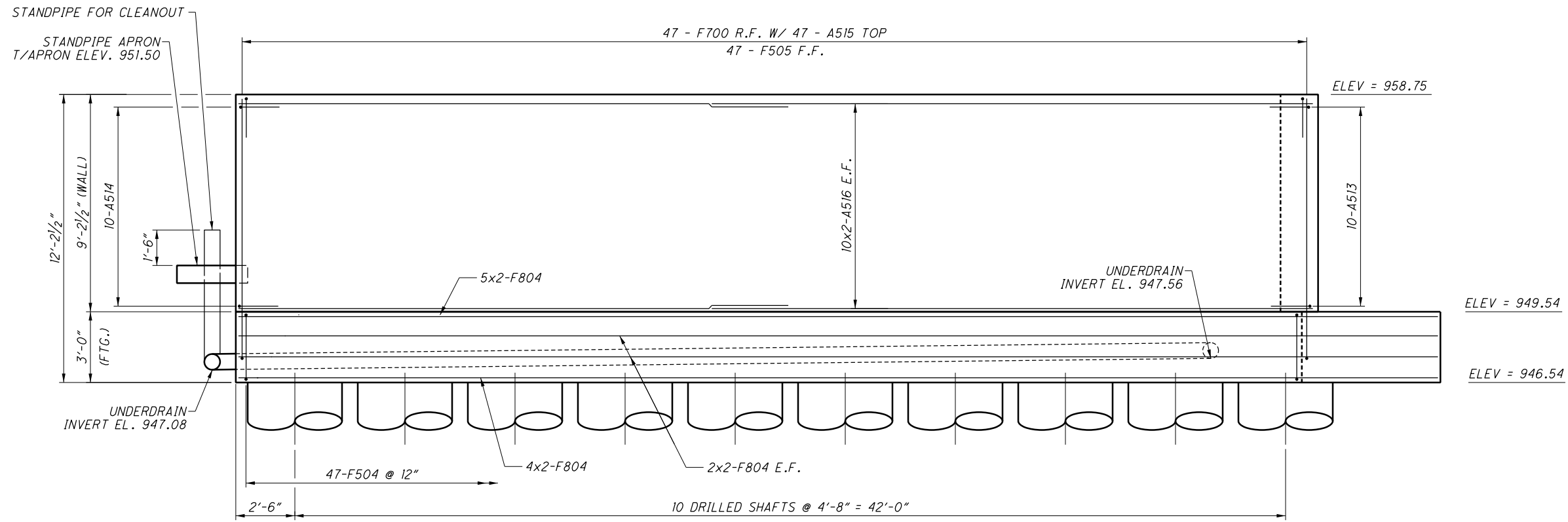
**NORTHEAST WINGWALL ELEVATION**



**NORTHWEST WINGWALL PLAN**

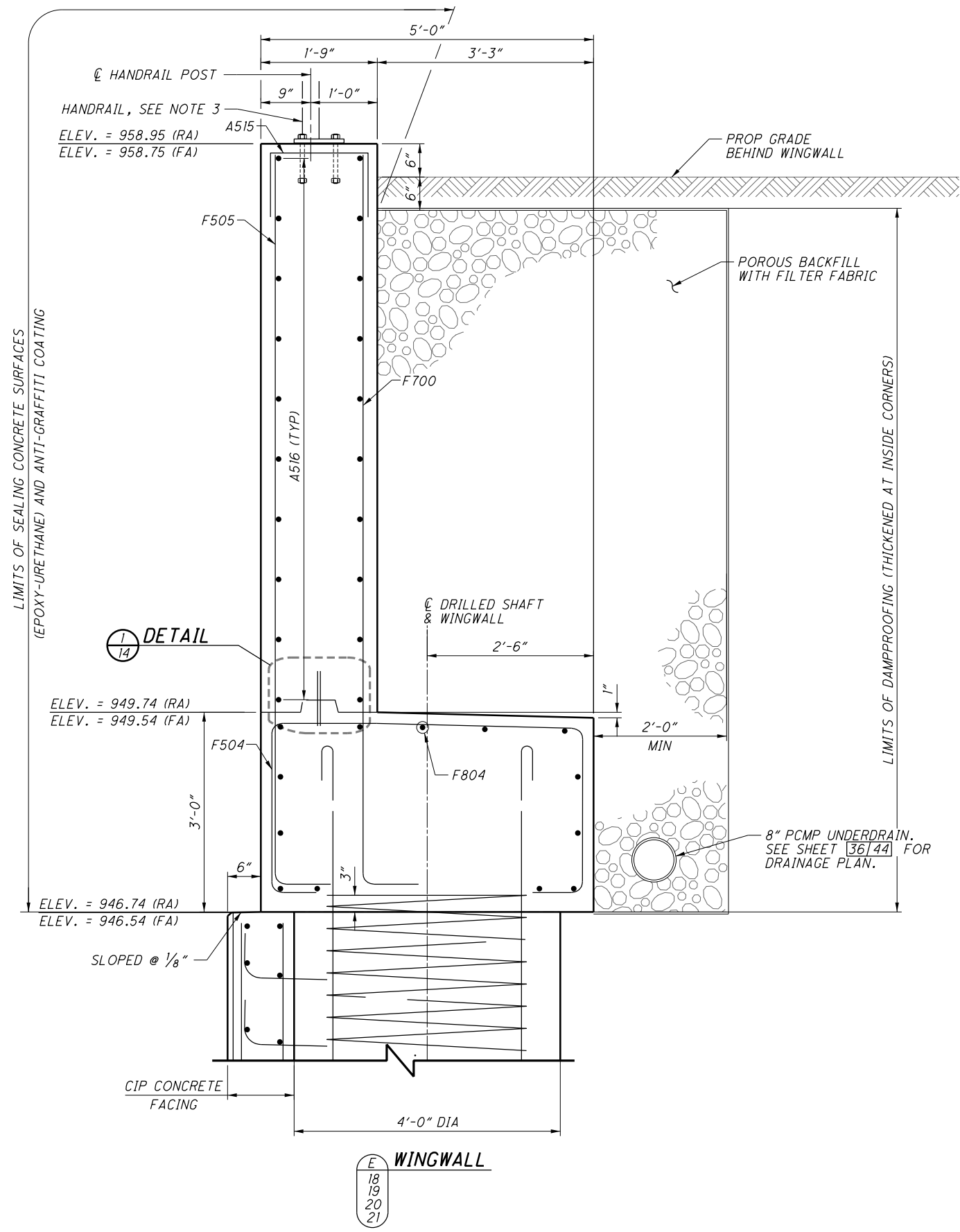


**STANDPIPE APRON DETAIL**



**NORTHWEST WINGWALL ELEVATION**

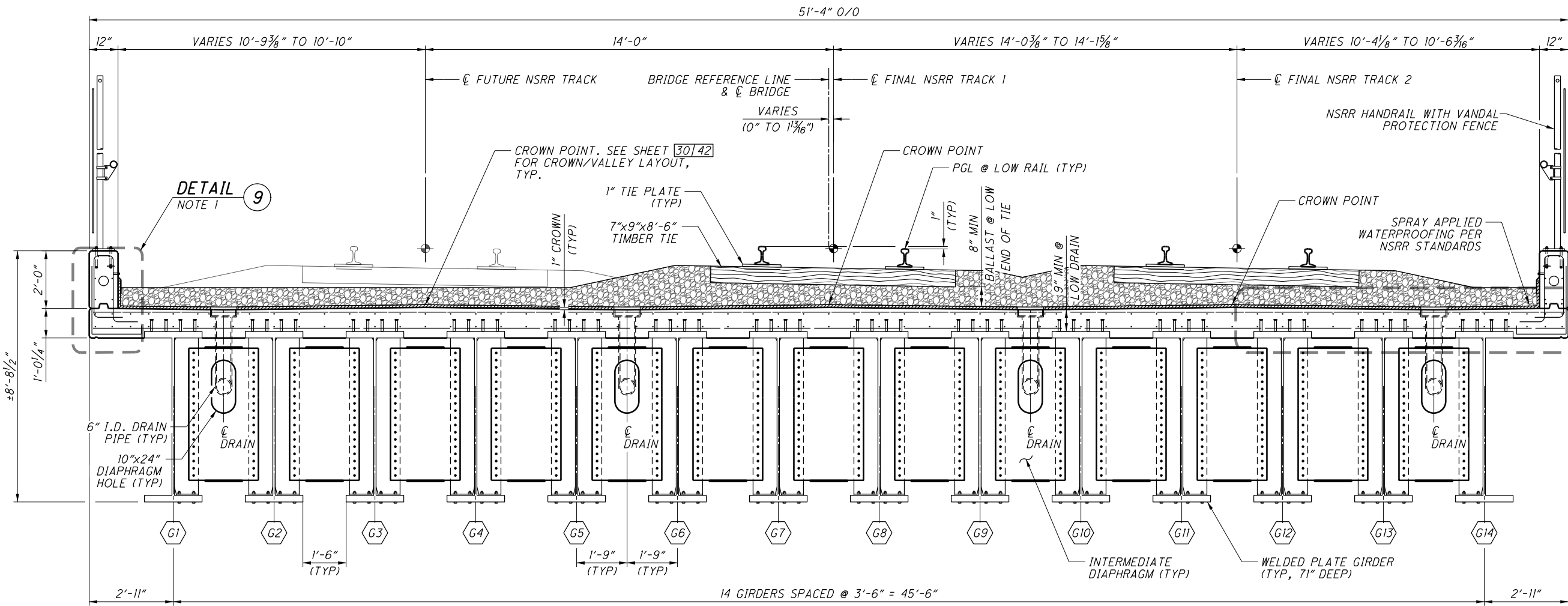
|           |           |          |         |
|-----------|-----------|----------|---------|
| DESIGNED  | JGC       | CHECKED  | JKL     |
| DRAWN     | EBP       | REVISION |         |
| REVIEWED  | EFD       | DATE     | 05/2021 |
| NSRR FILE | BRO019283 | ODOT SPN | 2100968 |



- NOTES:**
1. FOR FACING DETAILS, SEE SHEET [15/42].
  2. FOR SHAFT DETAILS, REINFORCING, AND ROCK SOCKETS SEE SHEET [9/42].
  3. FOR NSRR HANDRAIL DETAILS SEE SHEET [39/42].

|                                                                                                                                                           |                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| <p>DESIGN AGENCY<br/><b>Gannett Fleming</b><br/>ENGINEERS &amp; ARCHITECTS, P.C.<br/>2500 CORPORATE EXCHANGE DRIVE SUITE 230<br/>COLUMBUS, OHIO 43231</p> |                                                  |
| <p>DESIGNED<br/>JGC</p>                                                                                                                                   | <p>DATE<br/>05/2021</p>                          |
| <p>DRAWN<br/>EBP</p>                                                                                                                                      | <p>REVIEWED<br/>EFD</p>                          |
| <p>CHECKED<br/>JKL</p>                                                                                                                                    | <p>ODOT SPN-2100968<br/>NSRR FILE: BRO019283</p> |
| <p><b>WINGWALL TYPICAL SECTIONS</b><br/>BRIDGE NO. DEL-36-1126 (NS MP S-23.80)<br/>NSRR OVER US 36 / 37 (CITY OF DELAWARE)</p>                            |                                                  |
| <p><b>POINT PROJECT</b><br/>PID No. 103626</p>                                                                                                            |                                                  |
| <p>22 / 42</p>                                                                                                                                            |                                                  |
| <p>(454)<br/>644</p>                                                                                                                                      |                                                  |

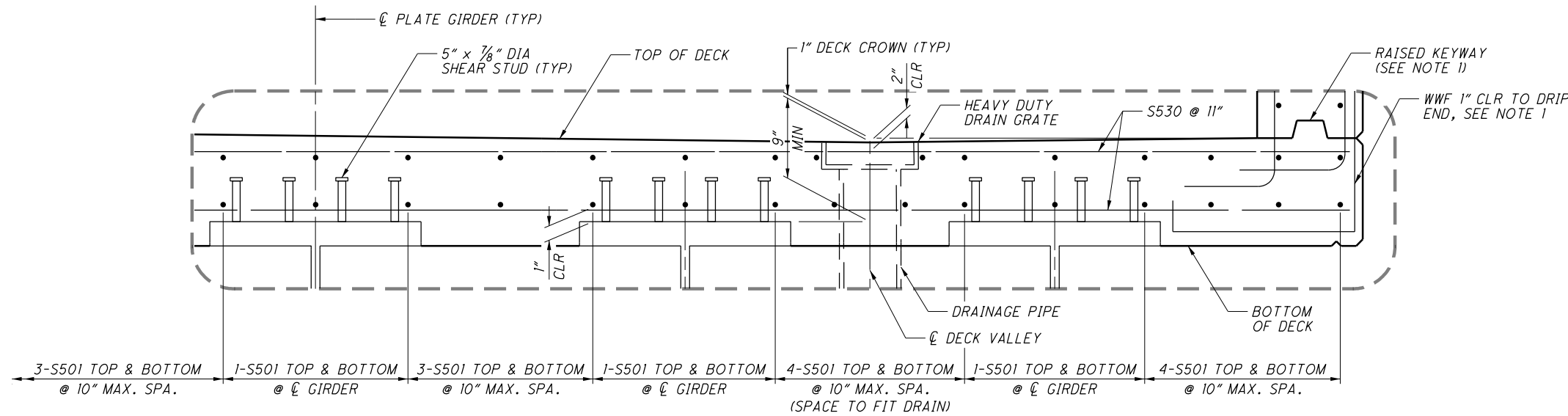




**TRANSVERSE SECTION**  
(LOOKING UPSTATION)

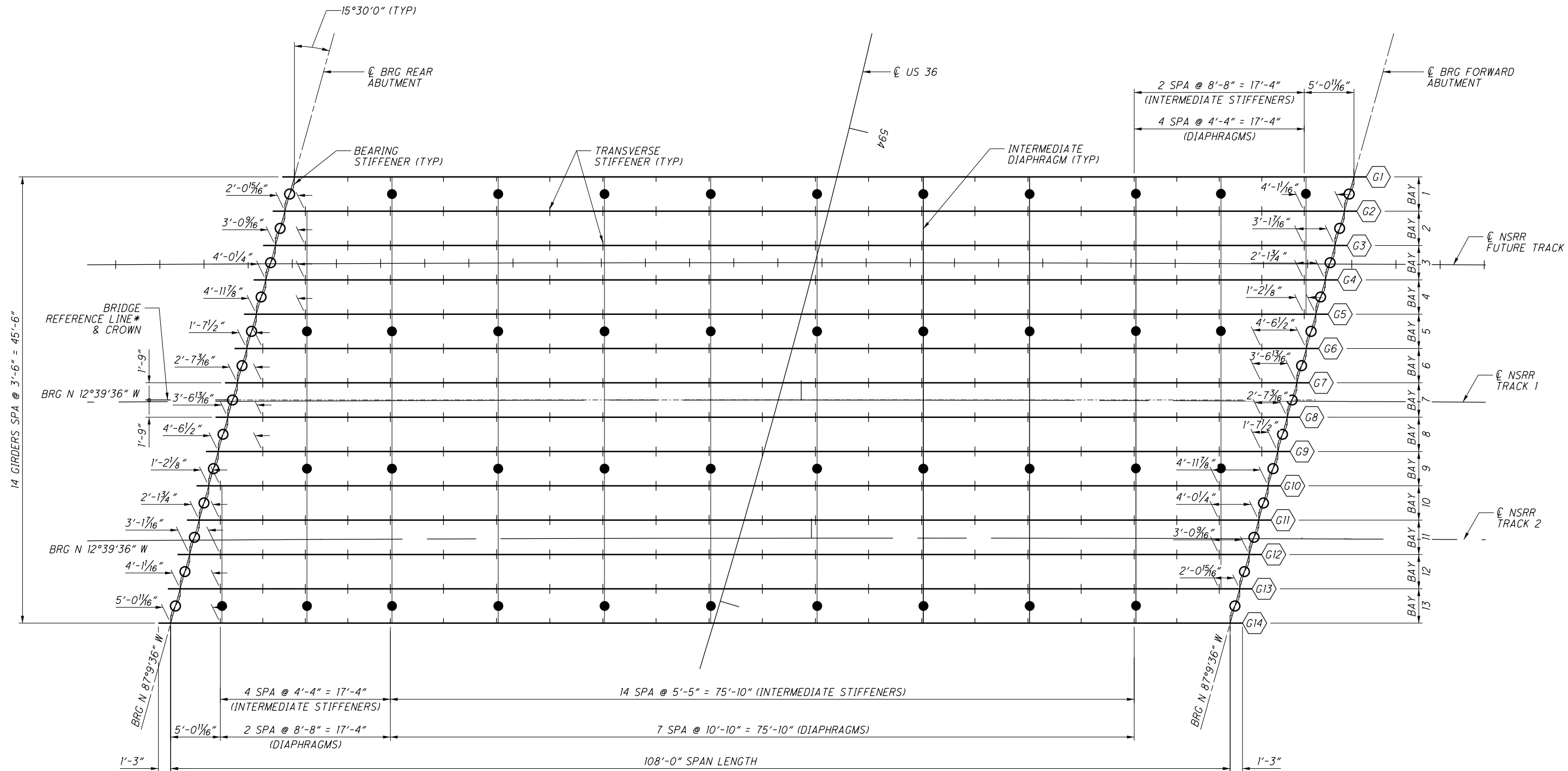
**NOTES:**

- FOR TYPICAL CURB, KEYWAY, OVERHANG, DRIP EDGE, WATERPROOFING, DECK DRAINAGE, HANDRAIL AND VANDAL PROTECTION FENCE DETAILS, SEE RAILROAD TYPICAL DETAILS ON SHEETS [32/42] & [37/42] THROUGH [41/42].



**TYPICAL SLAB REINFORCING DETAIL**  
MISC. DETAILS NOT SHOWN FOR CLARITY

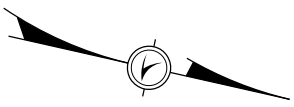
| STRUCTURE DEPTH TABLE          |                   |
|--------------------------------|-------------------|
| ELEMENT                        | DEPTH             |
| 141 RE RAIL                    | 7.4375"           |
| TIE PLATE                      | 1.0"              |
| TIE                            | 7.0"              |
| BALLAST UNDER END OF TIE (MIN) | 8.0"              |
| WATERPROOFING                  | 1.125"            |
| CROWN HEIGHT                   | 1.0"              |
| MIN CONCRETE DECK              | 9.0"              |
| GIRDER TOP FLANGE              | 2.75"             |
| GIRDER WEB                     | 65.5"             |
| GIRDER BOTTOM FLANGE           | 2.75"             |
| BOLT HEAD THICKNESS            | 0.625"            |
| TOTAL DEPTH FROM PGL           | 106.1875" (8.85') |



\*NOTE: EACH GIRDER PARALLEL TO BRIDGE REFERENCE LINE

**FRAMING PLAN**

UPSTATION →



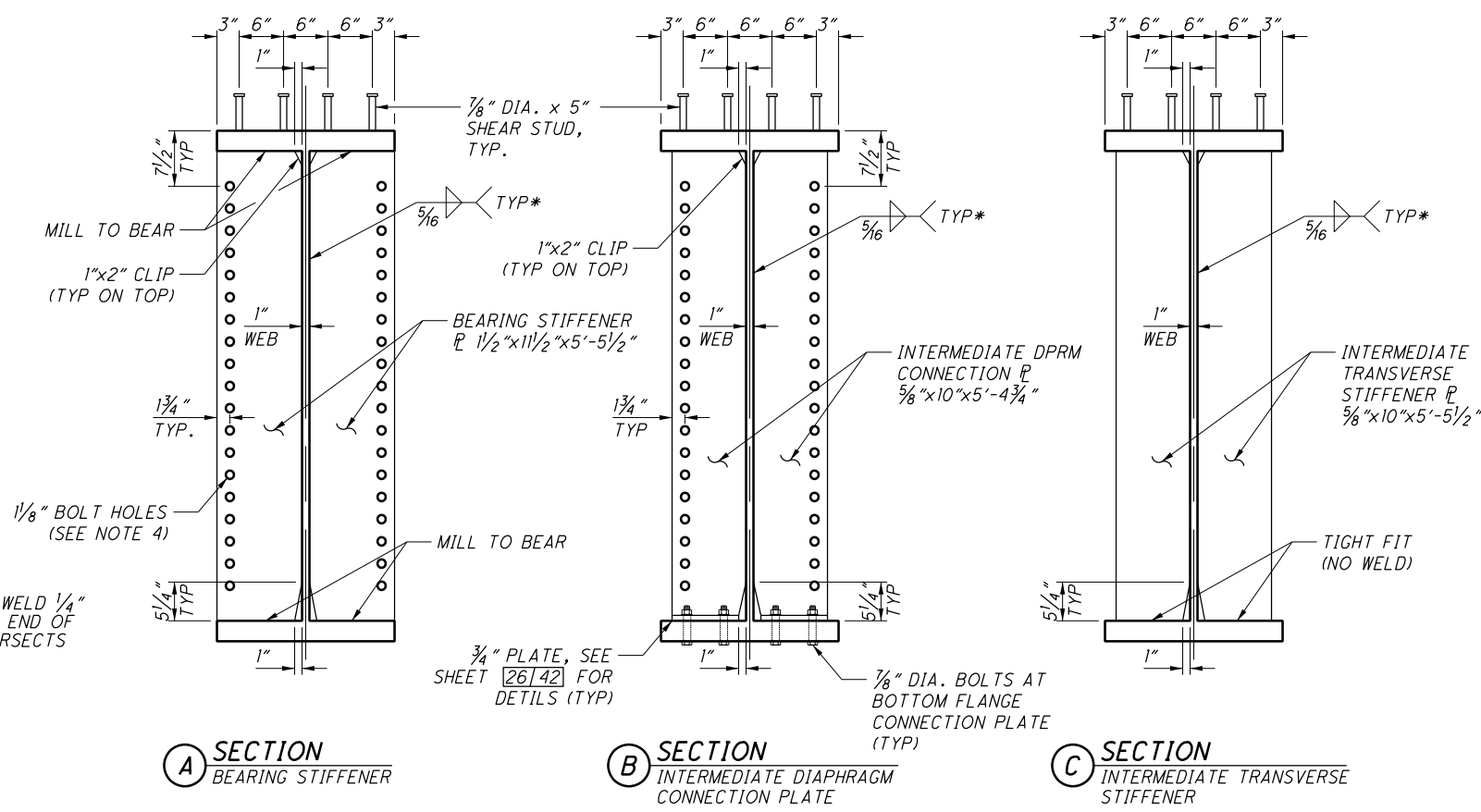
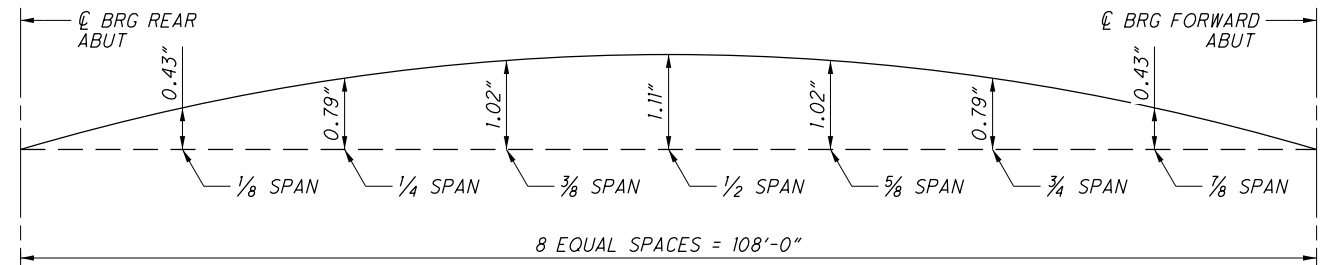
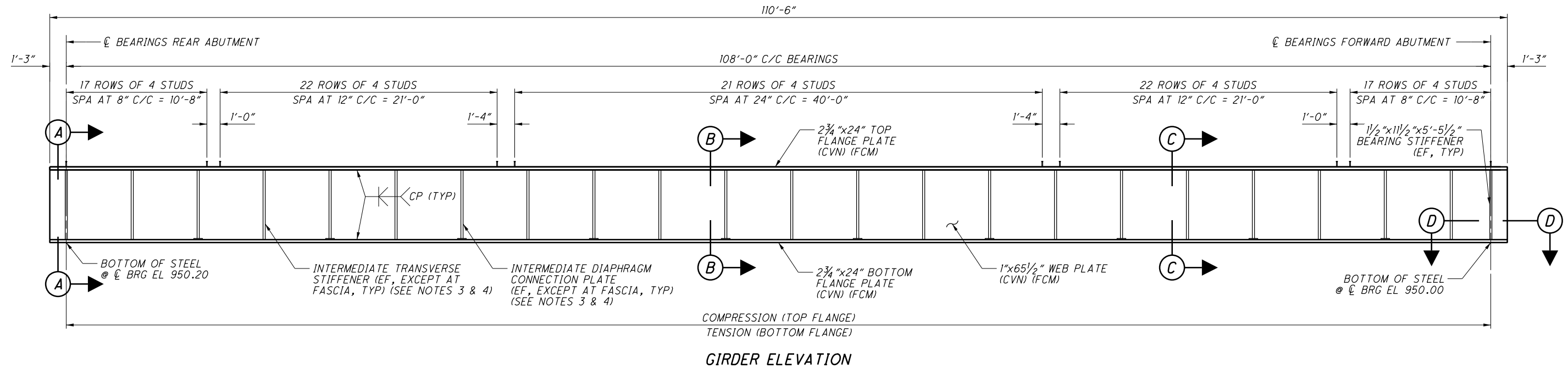
**LEGEND**

- = LOCATION OF DIAPHRAGM HOLE FOR DRAINAGE
- = LOCATION OF END DIAPHRAGM WITH BENT WEB PLATES & JACKING STIFFENERS

|          |                      |          |                      |
|----------|----------------------|----------|----------------------|
| DESIGNED | JKL                  | CHECKED  | MMZ                  |
| DRAWN    | IJK                  | REVIEWED |                      |
| DATE     | 05/2021              | DATE     | 05/2021              |
| PROJECT  | 0007 SPN-2100968     | PROJECT  | 0007 SPN-2100968     |
| FILE     | NSRR FILE: BR0019283 | FILE     | NSRR FILE: BR0019283 |

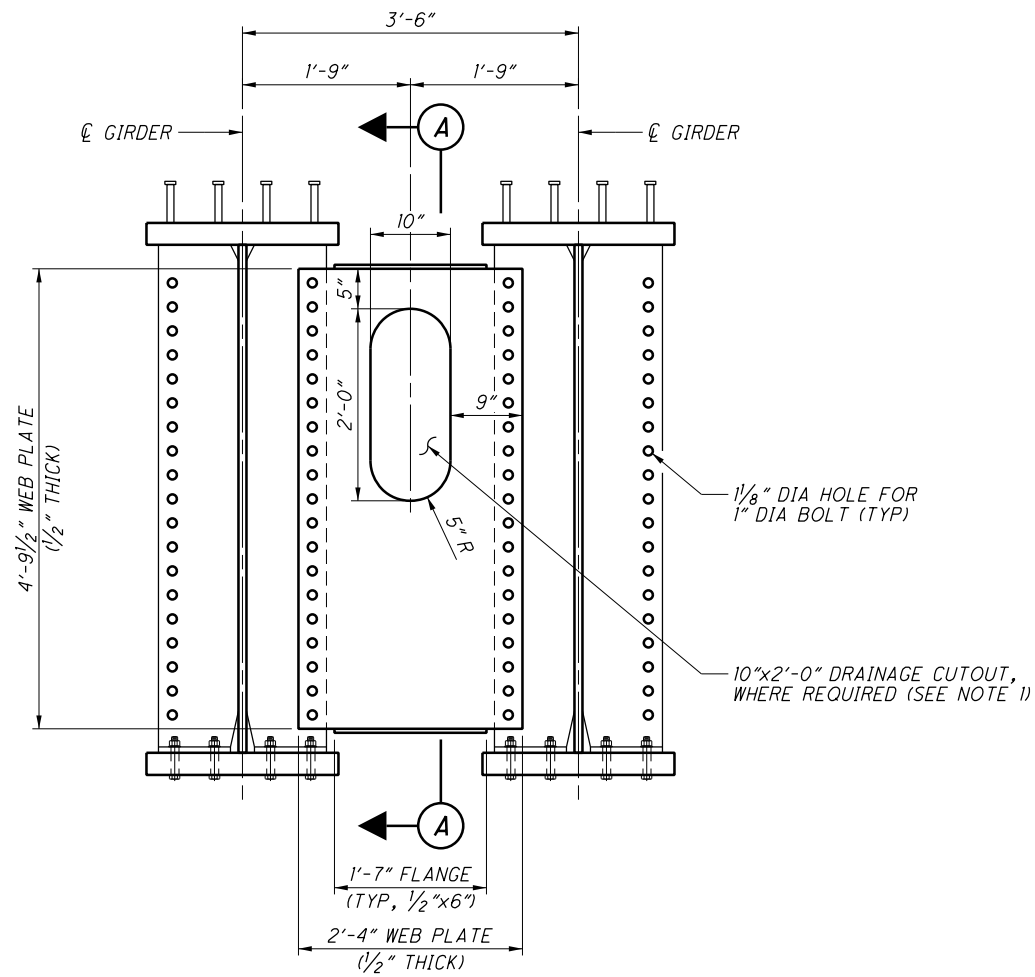
**FRAMING PLAN**  
BRIDGE NO. DEL-36-1126 (NS MP S-23.80)  
NSRR OVER US 36 / 37 (CITY OF DELAWARE)

**POINT PROJECT**  
PID No. 103626

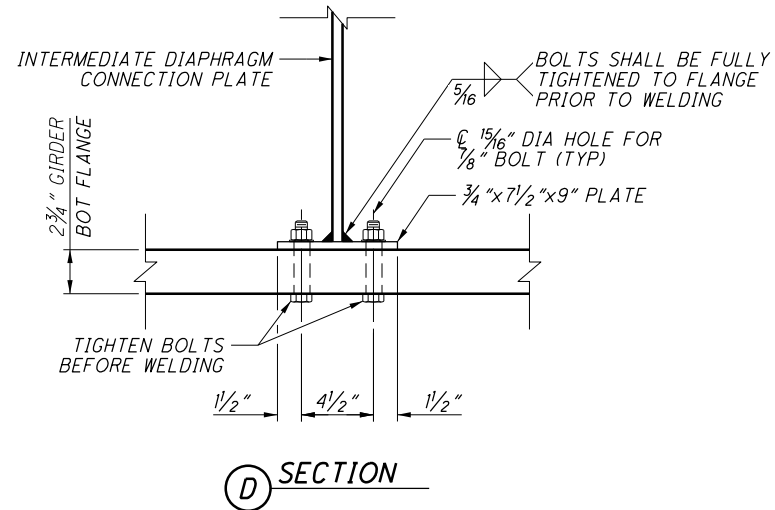
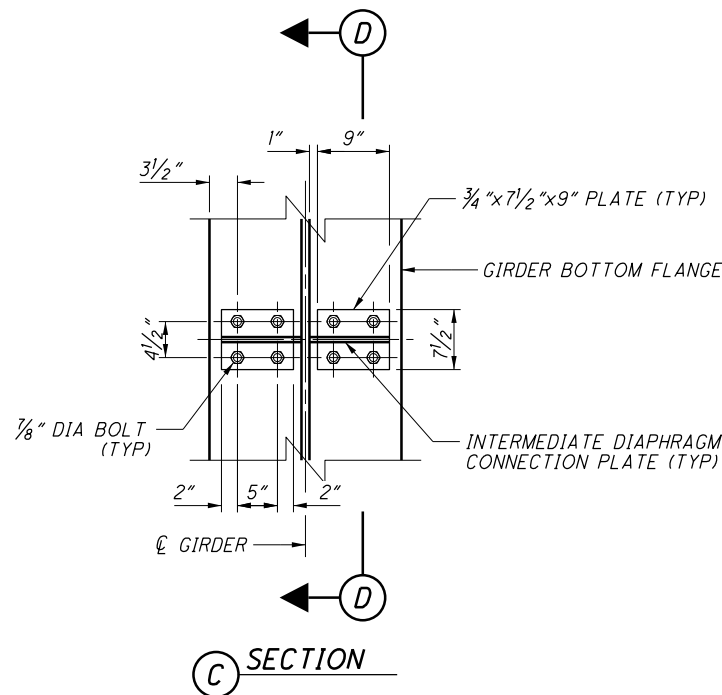
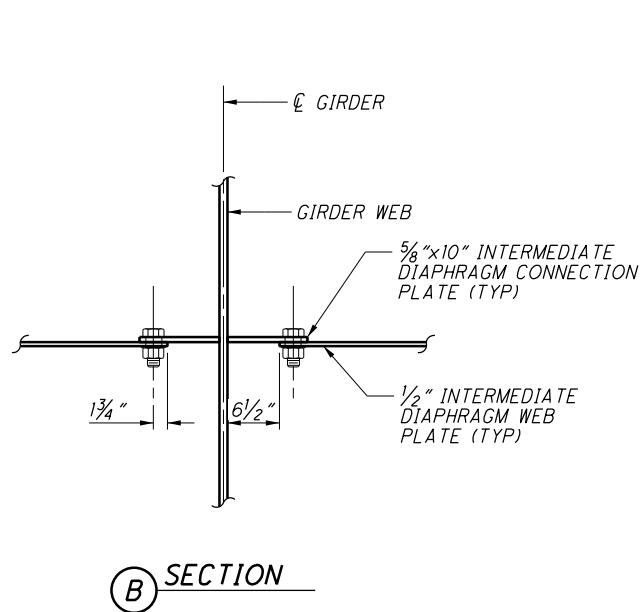
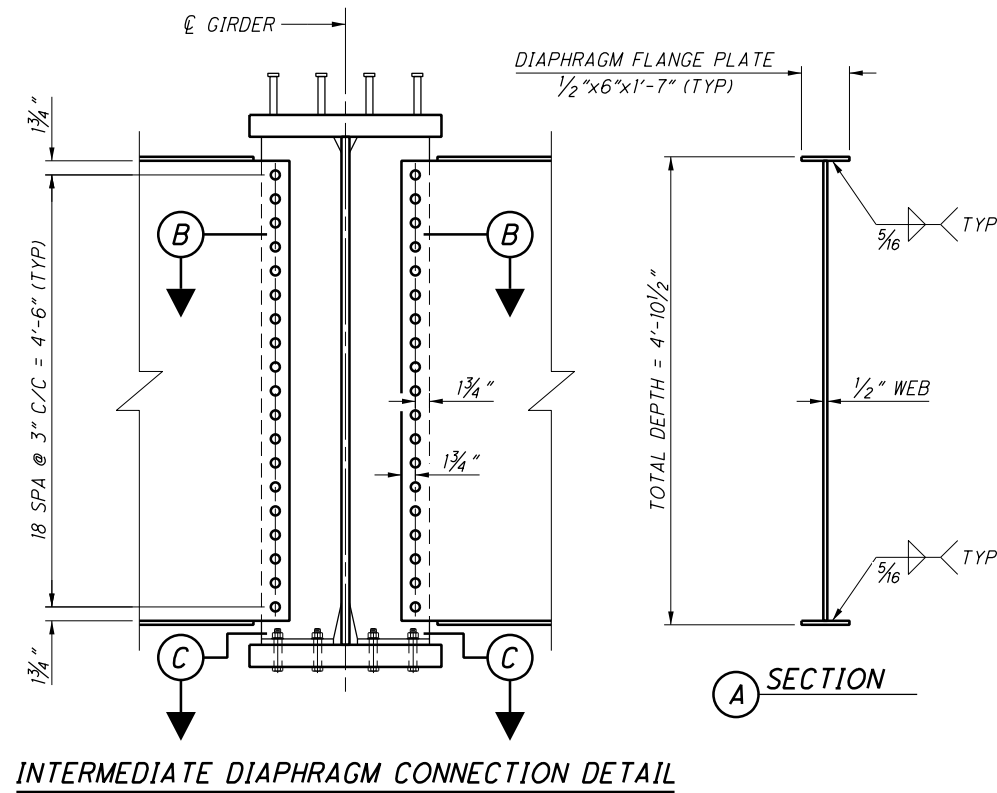


- NOTES:**
- HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER ASTM F3125 GRADE A325, UNLESS OTHERWISE NOTED.
  - (CVN) DENOTES A CHARPY V-NOTCH TEST IS REQUIRED. WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 AND AREMA CHAPTER 15 TABLES 15-9-2 AND 15-9-3.  
  
(FCM) DENOTES FRACTURE CRITICAL MEMBER. ALL FCM STEEL SHALL BE PROVIDED PER NORFOLK SOUTHERN SPECIFICATIONS FOR STRUCTURAL STEEL AND THE GENERAL NOTES ON SHEET.  $\frac{437}{644}$ .
  - FOR DIAPHRAGM INTERMEDIATE TRANSVERSE STIFFENER SPACING, SEE FRAMING PLAN SHEET  $\frac{24}{42}$ .
  - FOR DIAPHRAGM CONNECTION DETAILS, SEE SHEET  $\frac{26}{42}$  AND  $\frac{27}{42}$ .
  - CAMBER CALCULATIONS INCLUDE NON-COMPOSITE DEFLECTIONS DUE TO THE GIRDER SELF-WEIGHT AND CONCRETE DECK PLACEMENT. ALL OTHER DEAD LOAD DEFLECTIONS, INCLUDING SECONDARY CONCRETE POURS, BALLAST AND TRACK, ARE CALCULATED ASSUMING COMPOSITE SECTION PROPERTIES.
  - FOR SECTION D, SEE SHEET  $\frac{27}{42}$ .

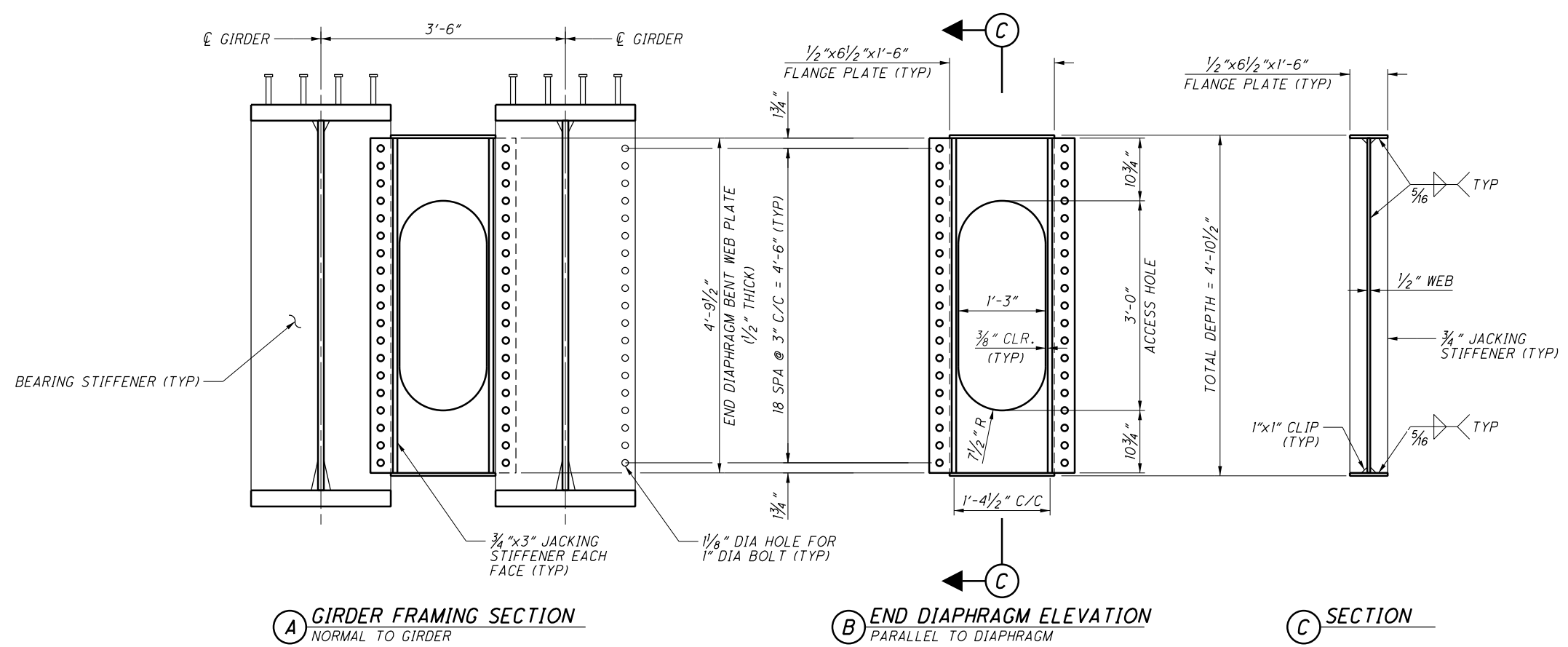
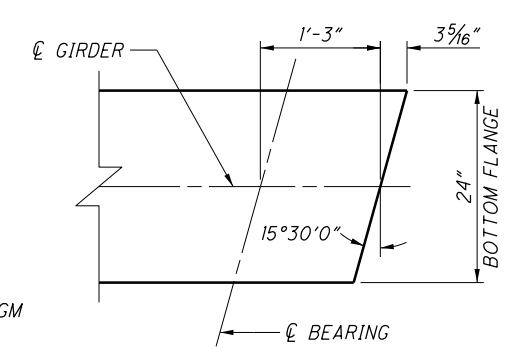
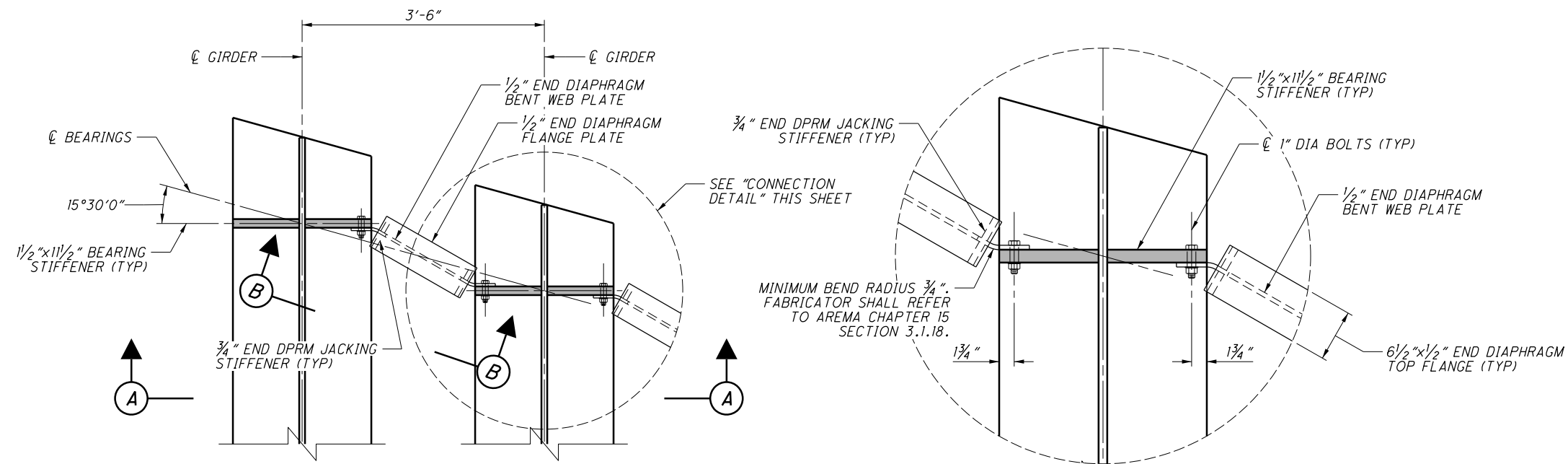
|                                                                                                                                 |                                                                                                |                                                                  |                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <br><b>Gannett Fleming</b><br>ENGINEERS & ARCHITECTS, P.C.<br>2500 CORPORATE EXCHANGE DRIVE, SUITE 230<br>COLUMBIUS, OHIO 43231 | DESIGN AGENCY<br>DATE: 05/2021<br>REVIEWED: EFD<br>DRAWN: LAM<br>DESIGNED: MMZ<br>CHECKED: JKL | DATE: 05/2021<br>EFD<br>000T SPN-2100968<br>NSRR FILE: BR0019283 | <b>GIRDER ELEVATION AND CAMBER DETAILS</b><br>BRIDGE NO. DEL-36-1126 (NS MP S-23.80)<br>NSRR OVER US 36 / 37 (CITY OF DELAWARE) |
| <b>POINT PROJECT</b><br>PID No. 103626                                                                                          |                                                                                                | 25 / 42<br>457 / 644                                             |                                                                                                                                 |



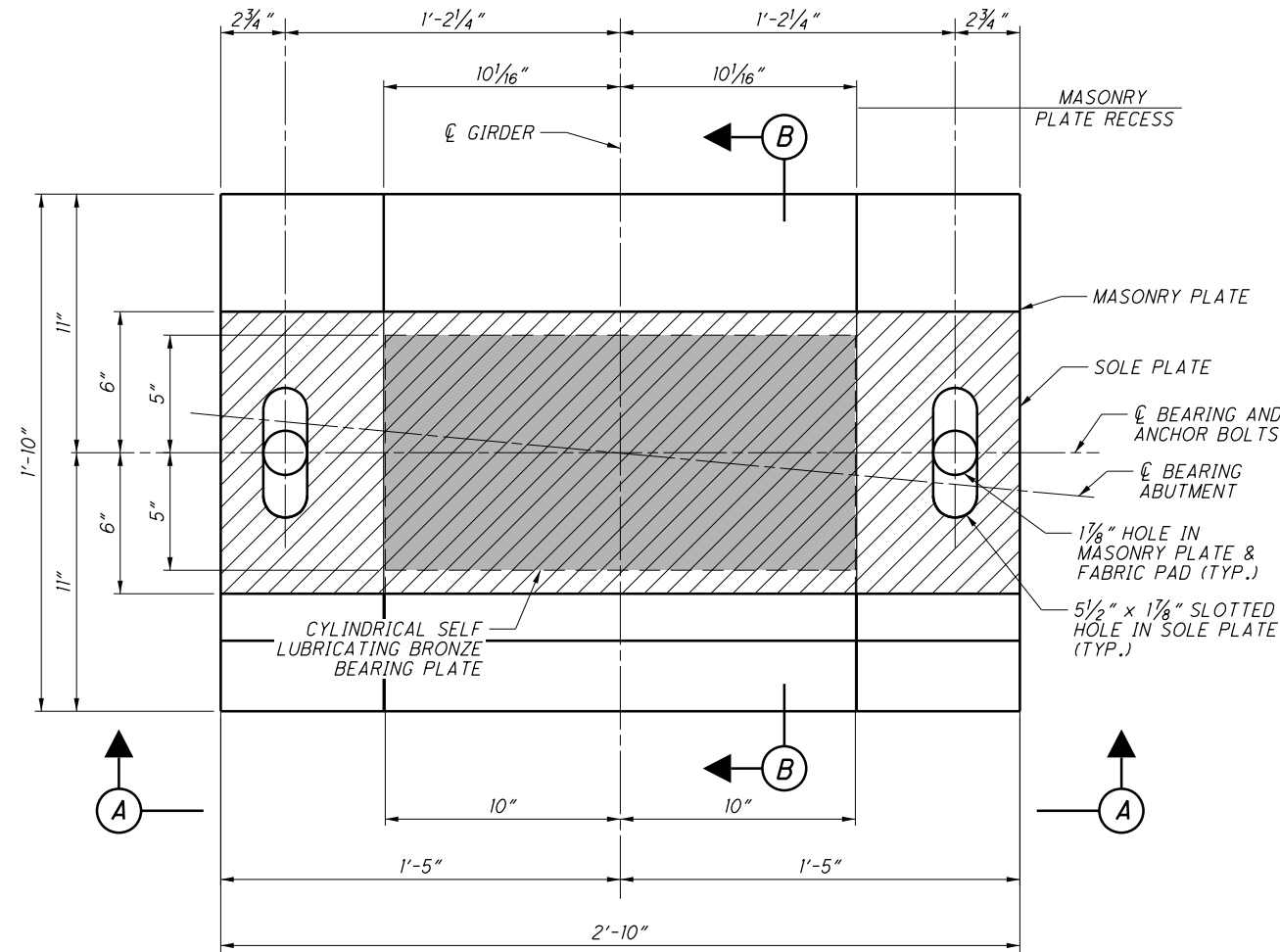
**INTERMEDIATE DIAPHRAGM DETAIL**  
(NORMAL TO REFERENCE CHORD)



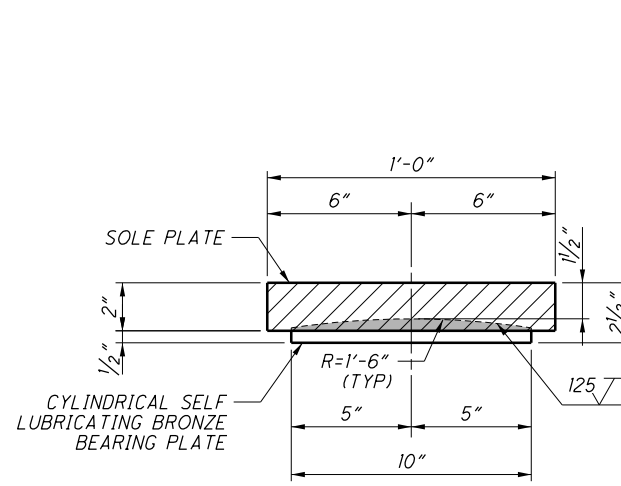
**NOTES:**  
1. FOR LOCATIONS OF PLATE DIAPHRAGM DRAINAGE HOLES, SEE FRAMING PLAN SHEET [24/42].



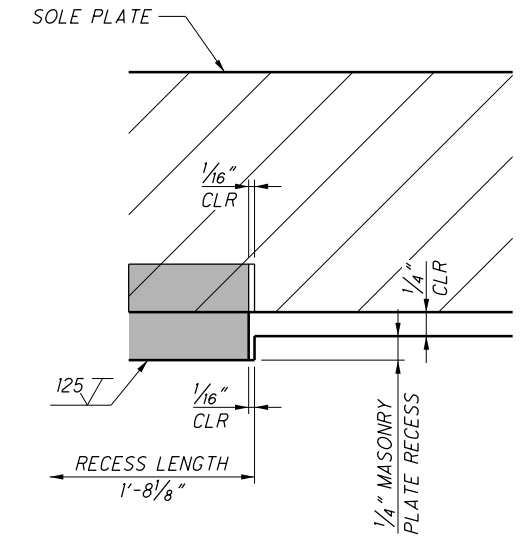
|                                                                                                                                         |            |
|-----------------------------------------------------------------------------------------------------------------------------------------|------------|
| <p><b>Gannett Fleming</b><br/>ENGINEERS &amp; ARCHITECTS, P.C.<br/>2600 CORPORATE EXCHANGE DRIVE SUITE 230<br/>COLUMBUS, OHIO 43231</p> |            |
| DESIGNED                                                                                                                                | DATE       |
| DRAWN                                                                                                                                   | REVIEWED   |
| CHECKED                                                                                                                                 | DATE       |
| NSRR FILE:                                                                                                                              | NSRR FILE: |
| <p><b>END DIAPHRAGM DETAILS</b><br/>BRIDGE NO. DEL-36-1126 (NS MP S-23.80)<br/>NSRR OVER US 36 / 37 (CITY OF DELAWARE)</p>              |            |
| <p><b>POINT PROJECT</b><br/>PID No. 103626</p>                                                                                          |            |
| <p>27 / 42</p>                                                                                                                          |            |
| <p>459<br/>644</p>                                                                                                                      |            |



**TYPICAL EXPANSION BEARING (RA)**  
14 REQUIRED (ANCHOR BOLTS NOT SHOWN)

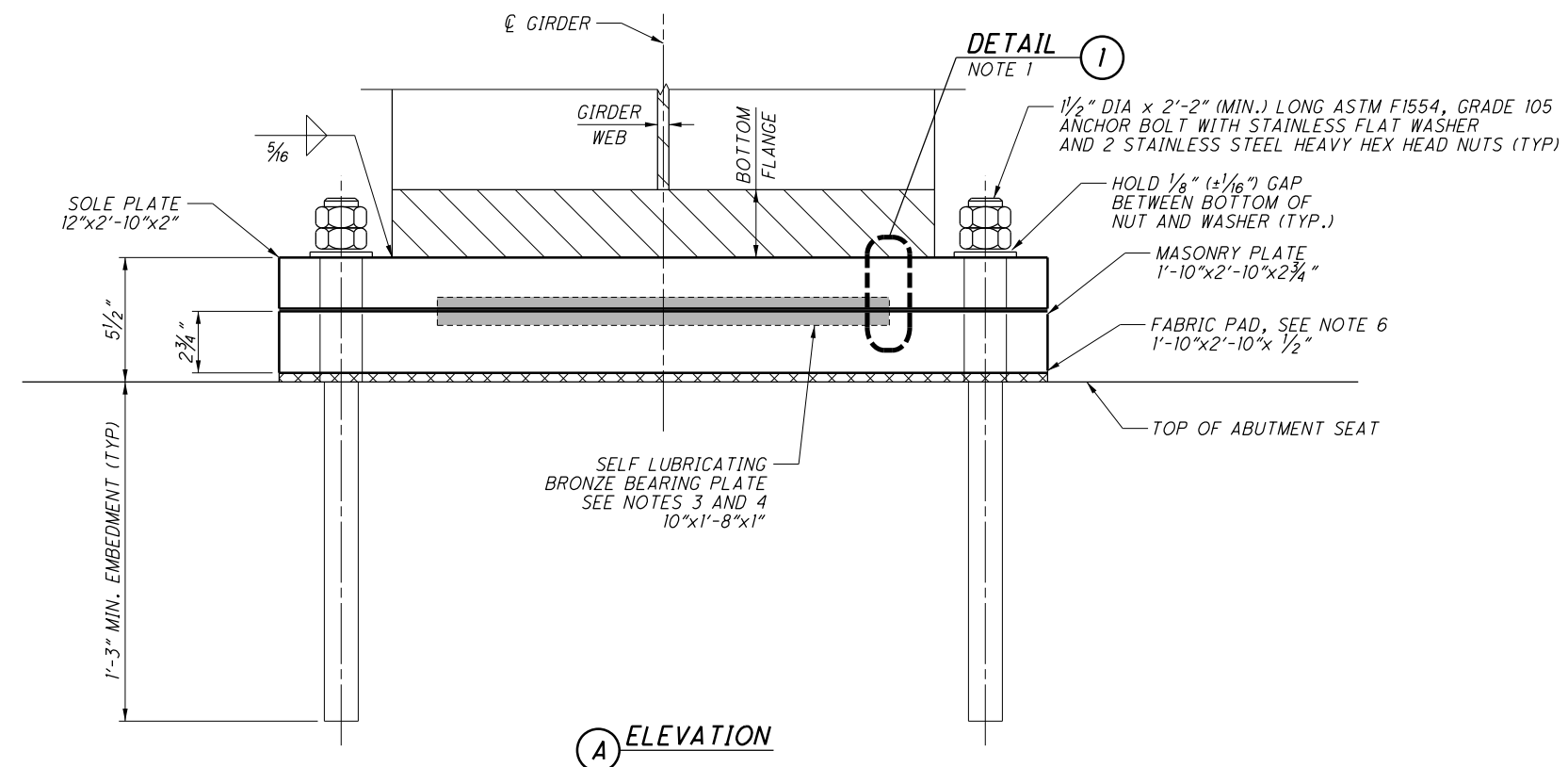


**B SECTION**  
CYLINDRICAL BEARING ASSEMBLY



**1 DETAIL**  
RECESS DETAILS  
NOTE: BOTT. FLANGE NOT SHOWN FOR CLARITY.

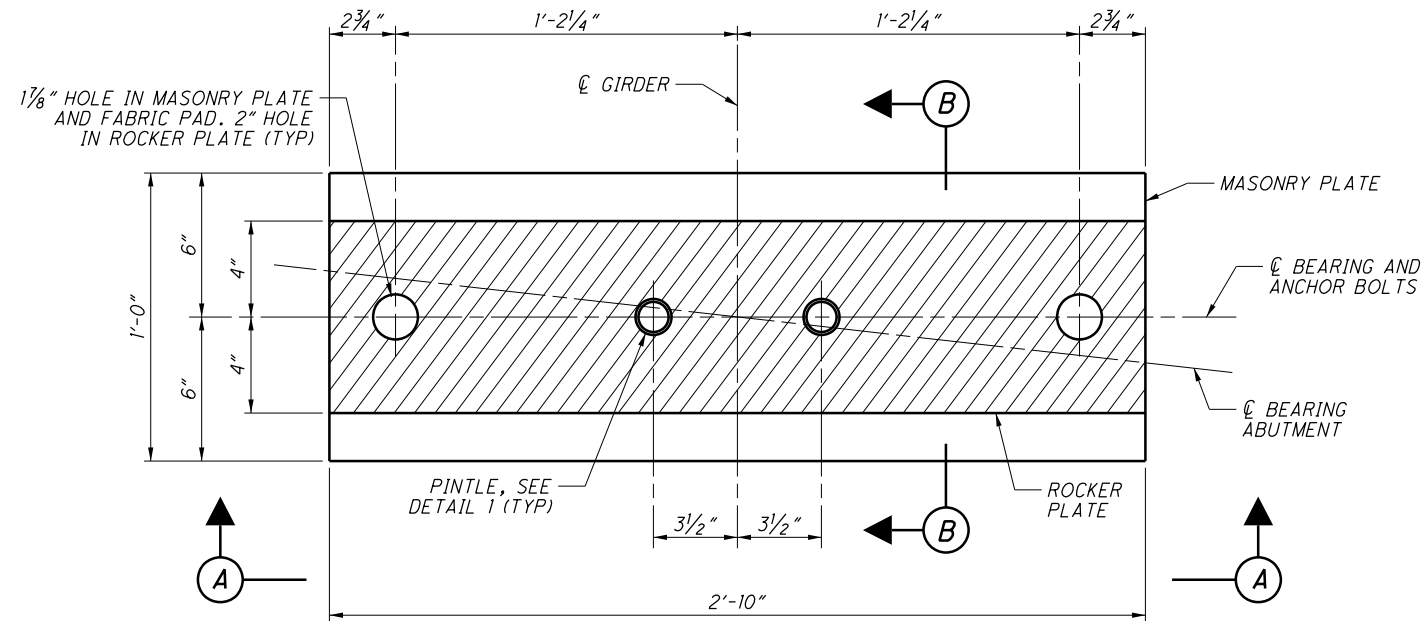
| UNFACTORED BEARING LOADS (KIP) |         |
|--------------------------------|---------|
| DEAD LOAD                      | 118.4 K |
| LIVE LOAD + IM                 | 252.3 K |
| TOTAL LOAD                     | 370.7 K |



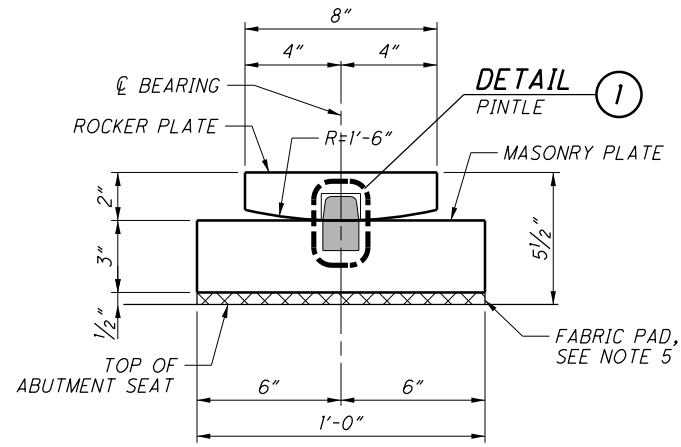
**A ELEVATION**

**NOTES:**

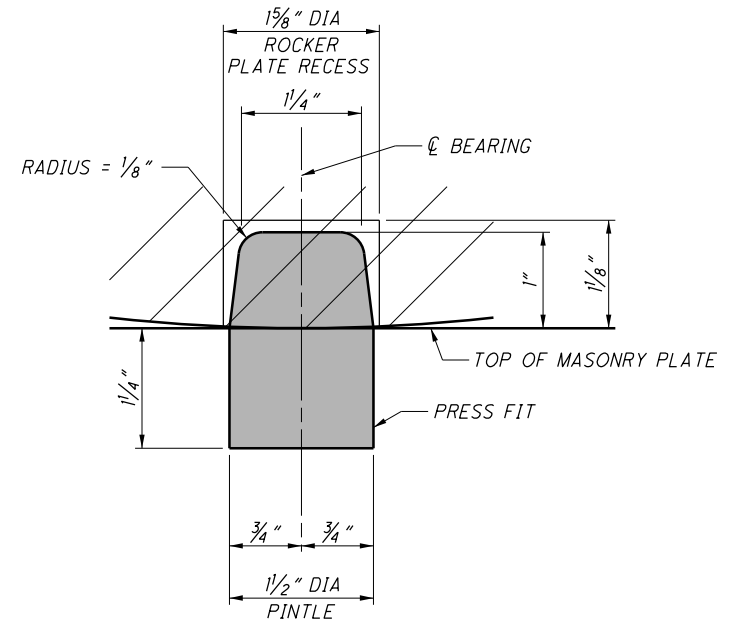
- SOLE PLATE AND MASONRY PLATES TO BE A709, GRADE 50. ANCHOR BOLTS TO BE SWEDGE BOLTS, F1554, GRADE 105.
- BEARINGS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF AREMA CHAPTER 15 AND THE NORFOLK SOUTHERN PUBLIC PROJECTS MANUAL.
- BRONZE BEARING PLATES SHALL CONFORM TO THE STANDARD SPECIFICATION FOR BRONZE CASTINGS FOR BRIDGES AND TURNABLES, ASTM B-22. ALLOY C91100 SHALL BE FURNISHED.
- SOLID LUBRICANT SHALL CONSIST OF A COMBINATION OF SOLIDS HAVING NON-DETERIORATING CHARACTERISTICS, AS WELL AS LUBRICATING QUALITIES AND SHALL BE CAPABLE OF WITHSTANDING LONG TERM ATMOSPHERIC PRESSURE, DE-ICING MATERIALS, AND WATER, MOLYBDENUM AND OTHER INGREDIENTS WHICH MAY PROMOTE ELECTROLYTIC OR CHEMICAL ACTION BETWEEN THE BEARING ELEMENTS SHALL NOT BE USED. SHELLAC, TAR AND ASPHALTS AND PETROLEUM PRODUCTS SHALL NOT BE USED AS BINDERS.
- EXPANSION BEARINGS SHALL HAVE MARKINGS MATCHED IN THE ENDS OF THE SOLE PLATES AND BRONZE PLATES TO FACILITATE THEIR POSITIONING FOR THE PROPER TEMPERATURE CORRECTION.
- FABRIC PADS SHALL BE PREFORMED FABRIC BEARING PADS, 1/2" THICK, AND SHALL BE EITHER:
  - SHOCK PAD STYLE 15175, AS MANUFACTURED BY THE ALERT MANUFACTURING AND SUPPLY COMPANY, CHICAGO, IL; OR
  - FABREEKA PADS, AS MANUFACTURED BY THE FABREEKA PRODUCTS COMPANY, BOSTON, MA; OR
  - SORBTEX PADS AS MANUFACTURED BY VOSS ENGINEERING, INC., CHICAGO, IL; OR
  - AN APPROVED EQUAL.
- PAYMENT FOR ANCHOR BOLTS, NUTS, WASHERS, FABRIC PAD INCLUDING INSTALLATION OF BEARING ASSEMBLY SHALL BE INCLUDED IN ITEM 516, BEARING DEVICE MISC.: CYLINDRICAL SELF LUBRICATING BRONZE PLATE.



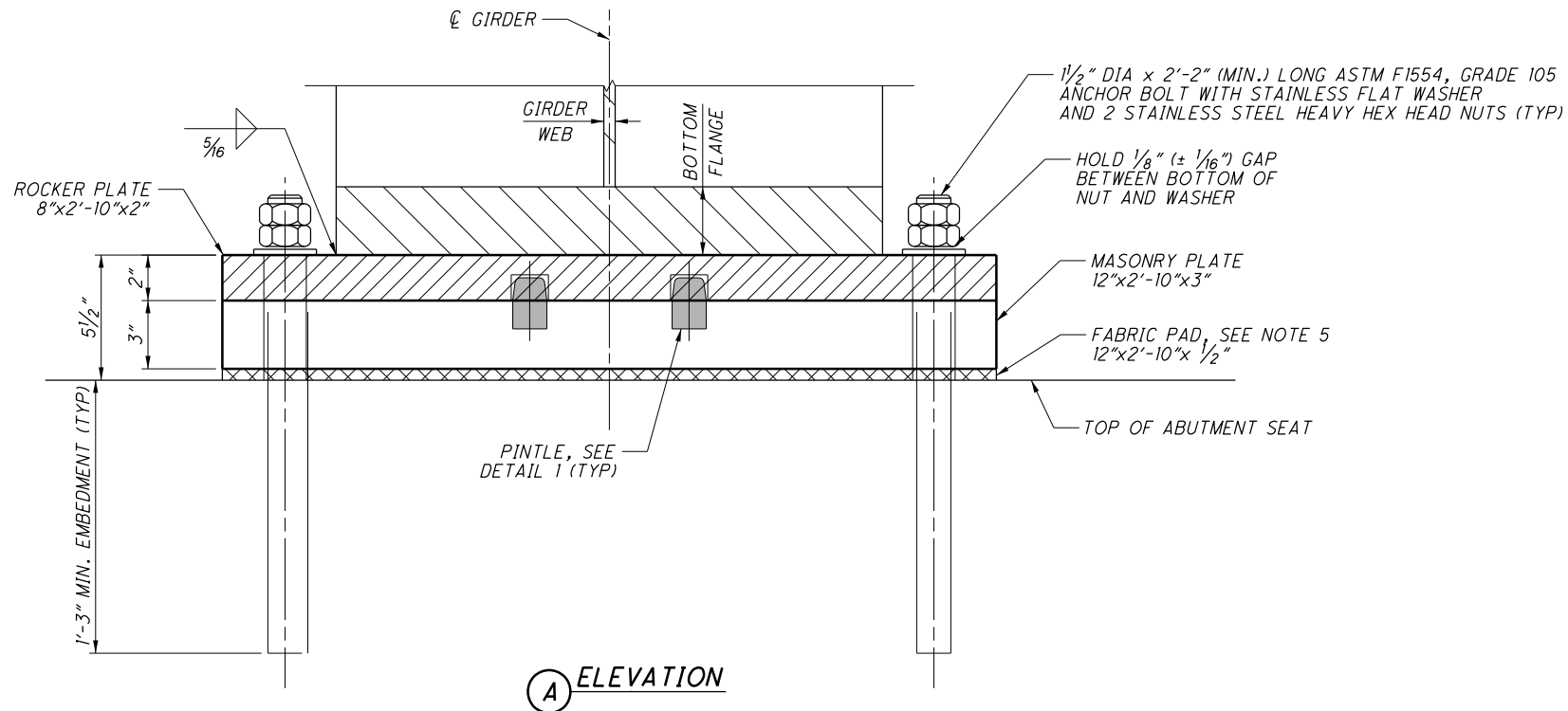
**TYPICAL FIXED BEARING (FA)**  
14 REQUIRED (ANCHOR BOLTS NOT SHOWN)



**B SECTION**  
ROCKER PLATE DETAILS



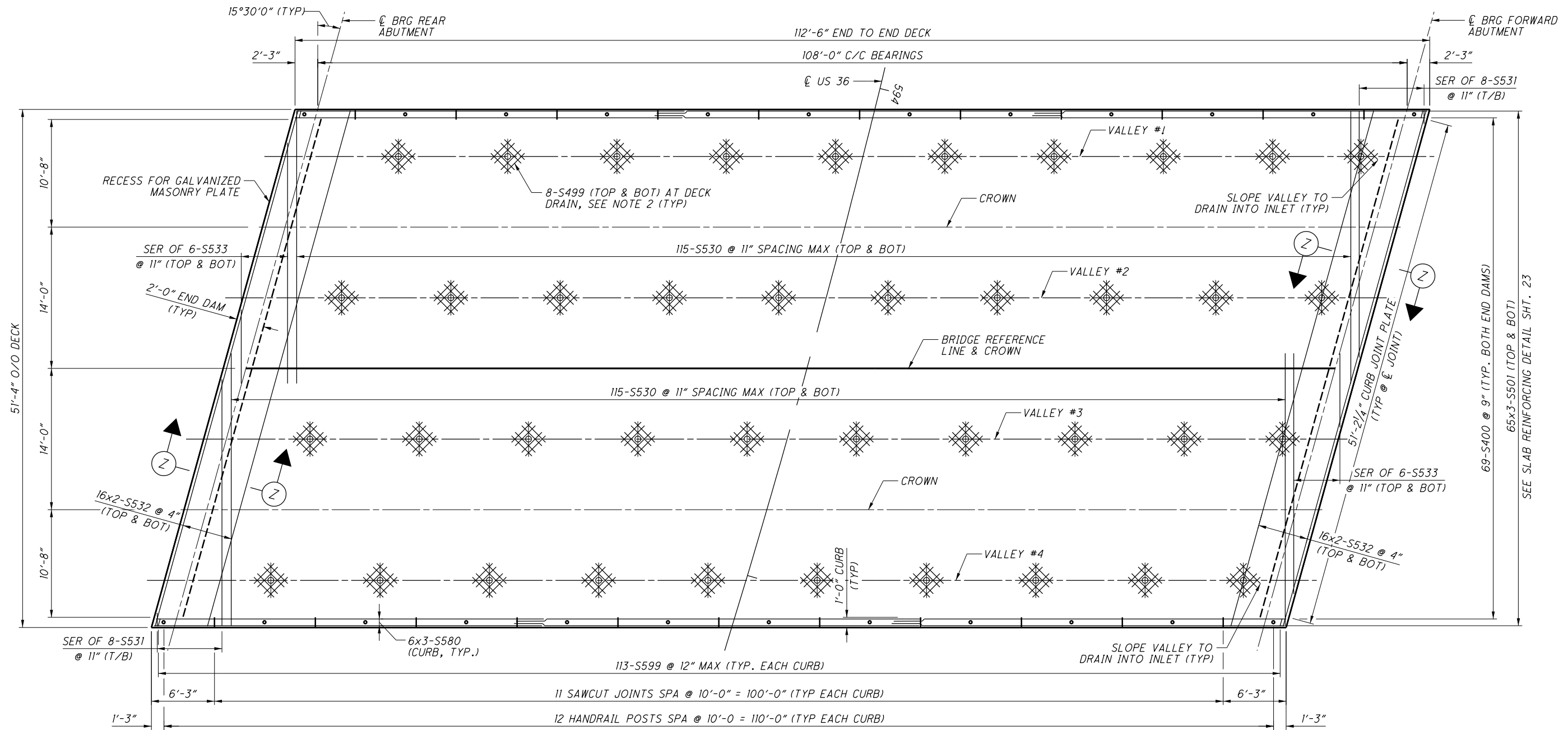
**1 DETAIL**  
PINTLE DETAILS



| UNFACTORED BEARING LOADS (KIP) |         |
|--------------------------------|---------|
| DEAD LOAD                      | 118.4 K |
| LIVE LOAD + IM                 | 252.3 K |
| TOTAL LOAD                     | 370.7 K |

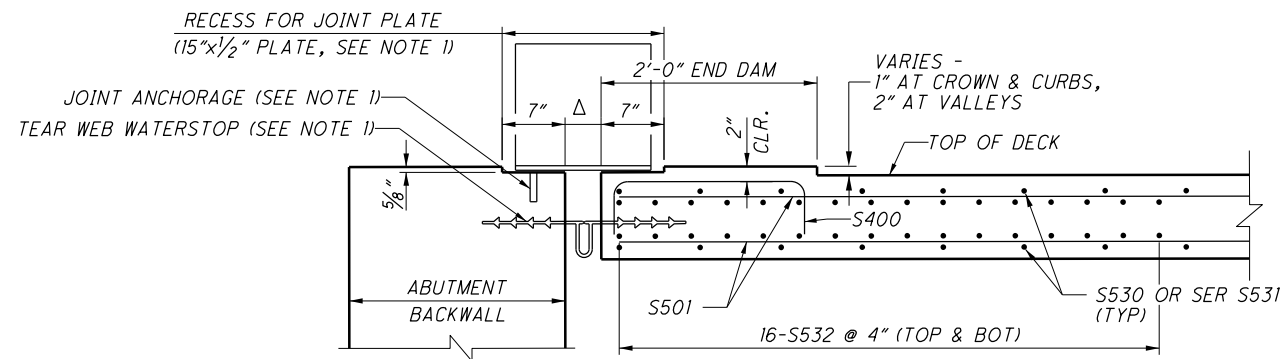
**NOTES:**

- ROCKER AND MASONRY PLATES TO BE A709, GRADE 50. ANCHOR BOLTS TO BE SWEDGE BOLTS, F1554, GRADE 105.
- BEARINGS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF AREMA CHAPTER 15 AND THE NORFOLK SOUTHERN PUBLIC PROJECTS MANUAL.
- BEARINGS SHALL BE ASSEMBLED COMPLETE IN THE SHOP, CHECKED FOR FIT AND BEARING OF ALL CONTACT SURFACES MARKED FOR ASSEMBLY IN THE FIELD.
- PROVIDE CARBON STEEL PINTLE STEEL CONFORMING TO THE REQUIREMENTS OF ASTM SPECIFICATION A668, CLASS F OR G (Fy = 50 KSI)
- FABRIC PADS SHALL BE PROVIDED AS PER NOTE 6 ON PREVIOUS SHEET.
- PAYMENT FOR ANCHOR BOLTS, NUTS, WASHERS, FABRIC PAD INCLUDING INSTALLATION OF BEARING ASSEMBLY SHALL BE INCLUDED IN ITEM 516, BEARING DEVICE, MISC.: ROCKER PLATE (FIXED).



**DECK REINFORCING PLAN**

UPSTATION →



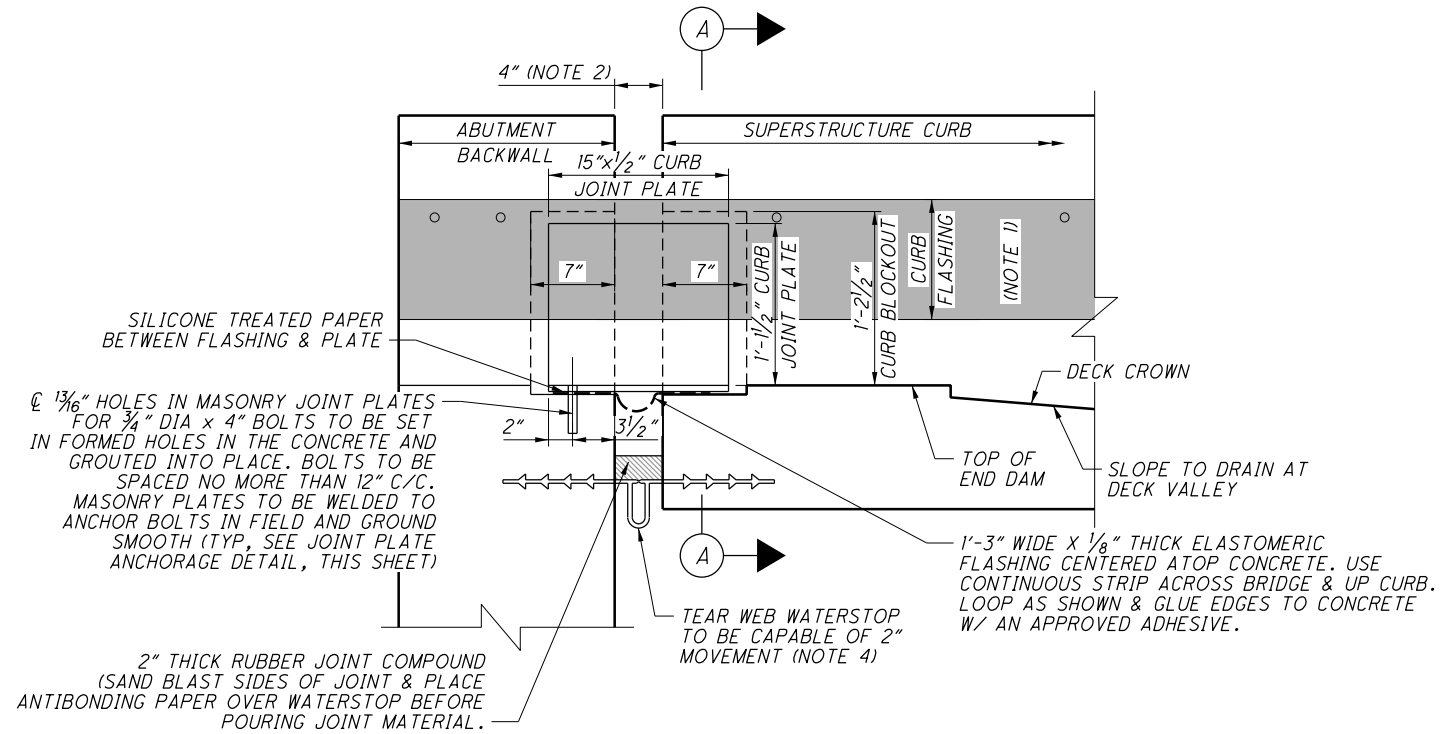
**SECTION ABUTMENT DAM DETAIL**

Δ = 4" AT FORWARD ABUTMENT  
Δ VALUE SHOULD BE LINEARLY INTERPOLATED FROM THE VALUES BELOW FOR REAR ABUTMENT:  
Δ = 3 3/4" @ 90°  
Δ = 4" @ 65° (THERMAL NEUTRAL)  
Δ = 4 1/4" @ 40°

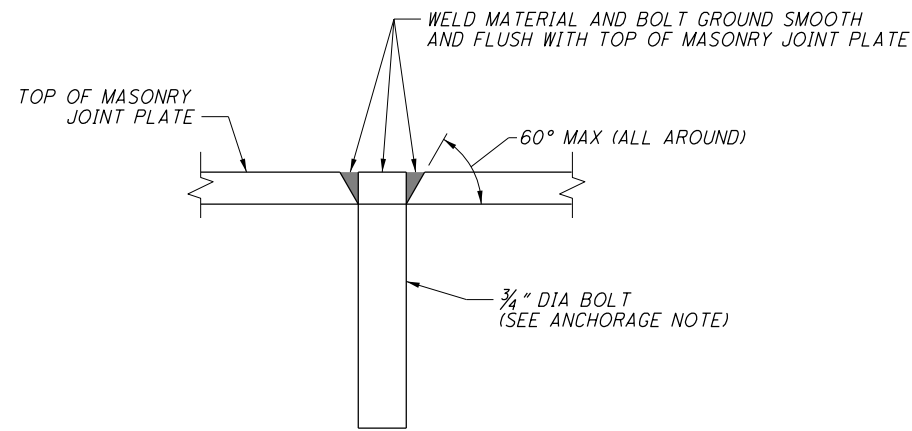
**NOTES:**

1. FOR DECK JOINT DETAILS, SEE JOINT DETAILS, SHEET [31/42](#).
2. FOR CURB REINFORCING DETAILS AND REINFORCING AT DECK DRAINS, SEE TYPICAL STRUCTURAL DETAILS, SHEET [32/42](#).
3. FOR DRAIN LOCATION AND DETAILS, SEE SHEET [35/42](#) AND SHEET [36/42](#).





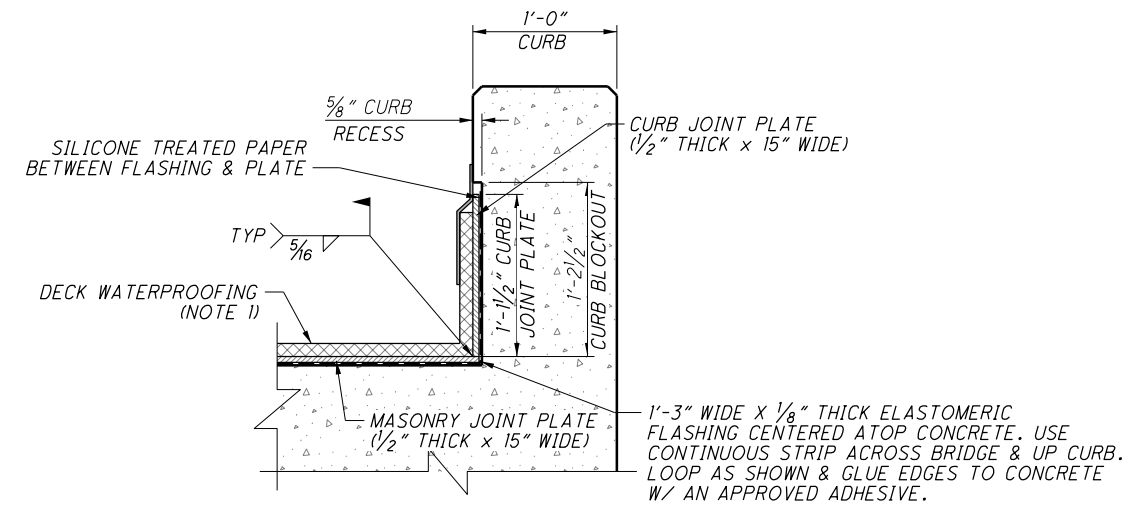
**DECK JOINT SECTION AT ABUTMENT**



**JOINT PLATE ANCHORAGE DETAIL**

**ANCHORAGE NOTE:**

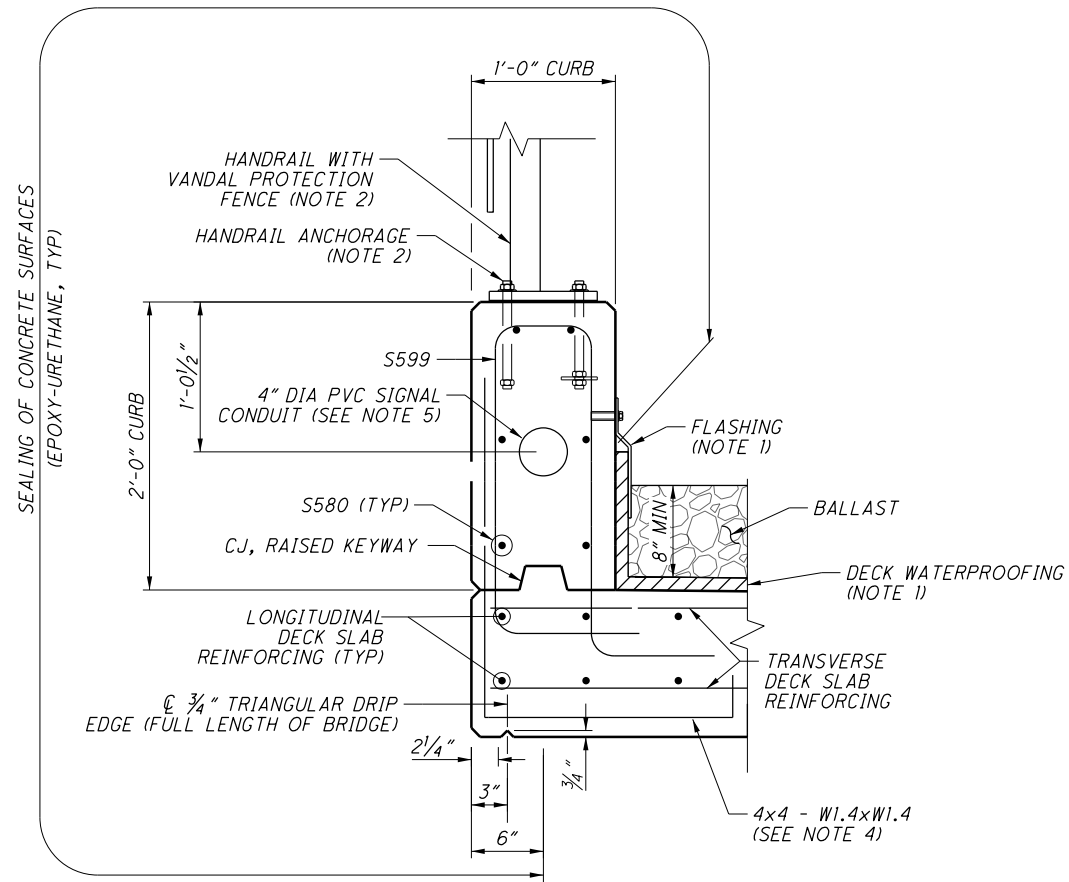
AT THE CONTRACTORS OPTION, THREADED INSERTS IN THE CONCRETE WITH COUNTERSUNK  $\frac{3}{4}$ " SCREWS MAY BE USED. IF USED, THE METHODS AND MATERIALS SHALL BE SUBMITTED TO NSRR AND APPROVED BY NSRR.



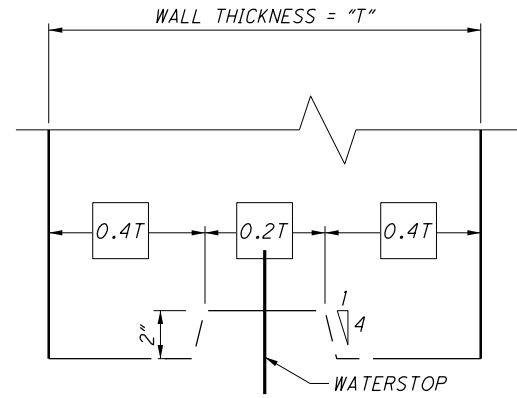
**SECTION A**  
DECK CURB SHOWN  
ABUTMENT BACKWALL SIMILAR

**NOTES:**

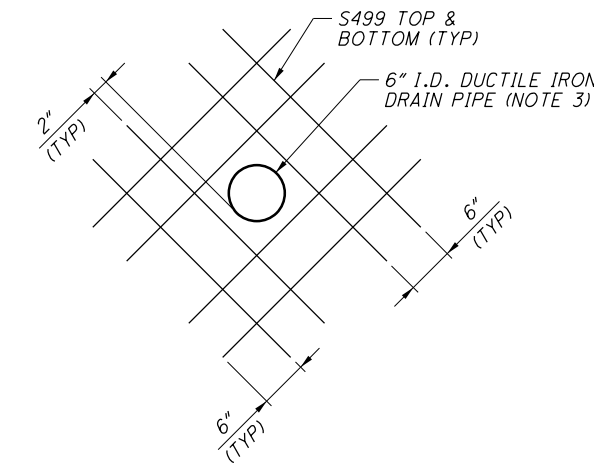
1. FOR WATERPROOFING DETAILS, INCLUDING CURB FLASHING, SEE SHEET [40/42].
2. BASIC JOINT OPENINGS GIVEN ARE AT THERMAL NEUTRAL TEMPERATURES. FOR OPENING WIDTHS AT VARIABLE TEMPERATURES, SEE SHEET [30/42].
3. JOINT PLATES AND ASSOCIATED HARDWARE SHALL BE STAINLESS STEEL. FOR LENGTH OF SKEWED DECK JOINT PLATE, SEE SHEET [30/42].
4. CAST THE TEAR-WEB WATERSTOPS 2" MIN. FROM THE BOTTOM OF THE DECK. EXTEND THE WATERSTOPS UP THE CURB. A BULB-TYPE WATERSTOP WITH A 2" DIAMETER BULB MAY BE SUBSTITUTED AT THE CONTRACTORS OPTION AND WITH THE APPROVAL OF NSRR.
5. PRIOR TO INSTALLING THE FLASHING AND EXPANSION JOINT PLATE COVER THE CONTRACTOR SHALL TEST THE JOINT FOR LEAKS AND MADE WATERTIGHT TO THE SATISFACTION OF NSRR.



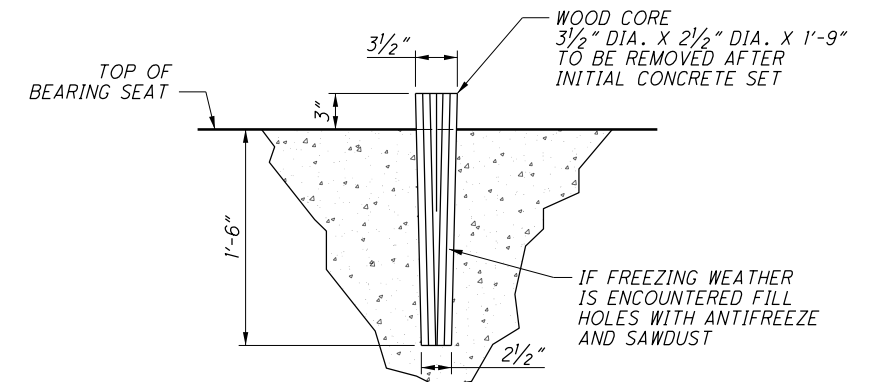
9 CURB DETAIL



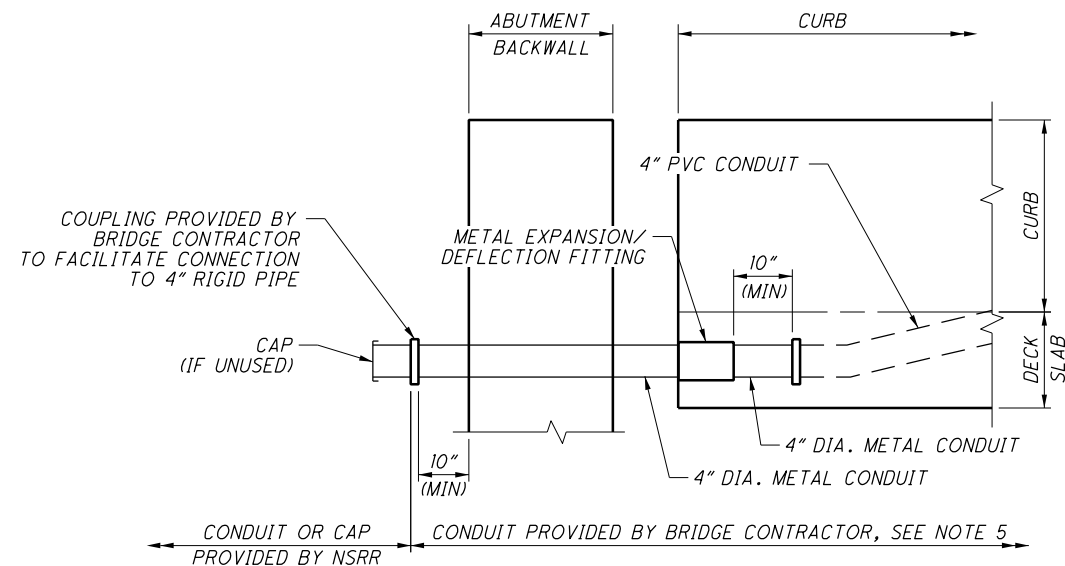
RAISED KEYWAY  
CONSTRUCTION JOINT



REINFORCING AT DECK DRAIN PIPES



ANCHOR BLOCK OUT DETAIL

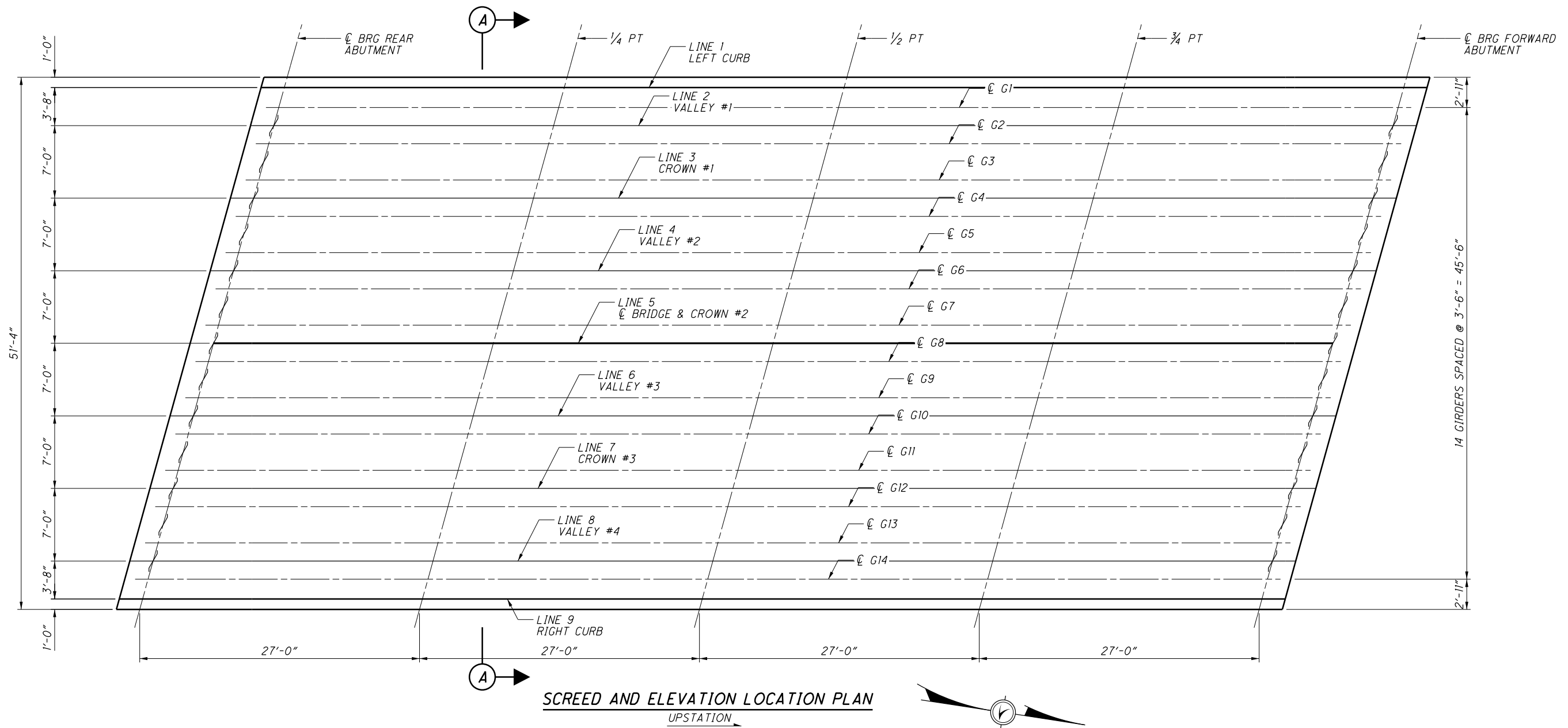


CONDUIT ELEVATION AT ABUTMENT

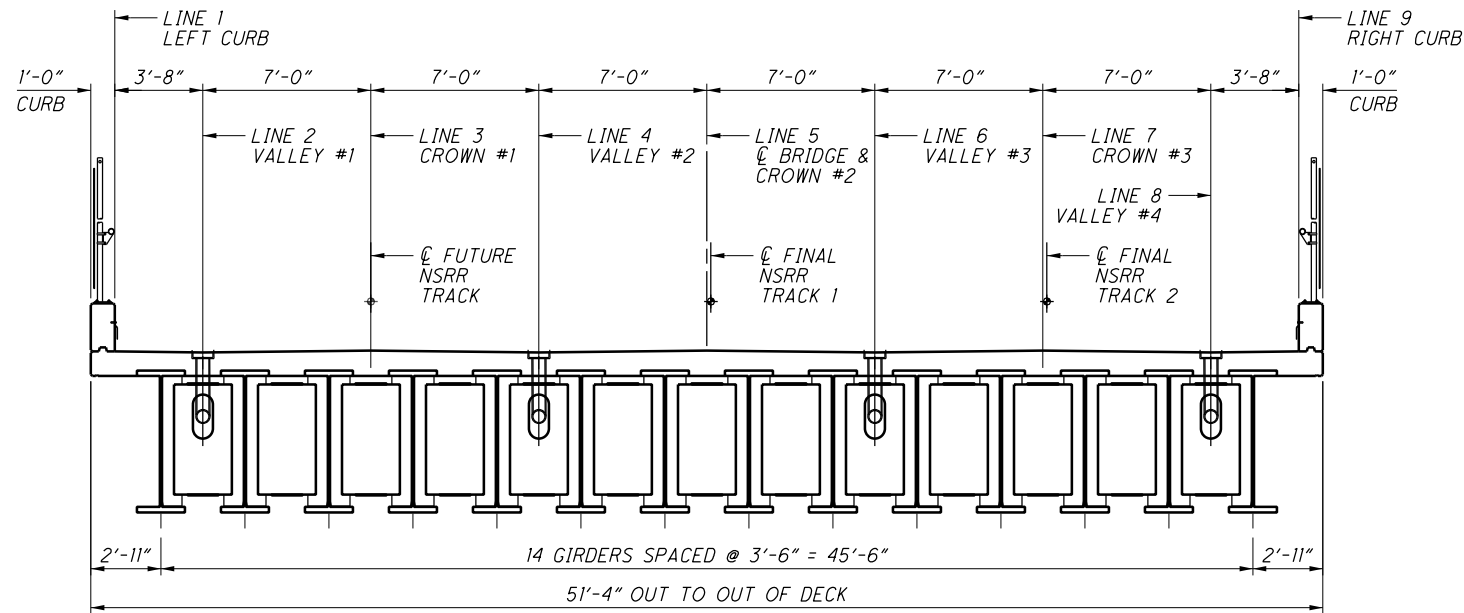
TRANSITION THE CONDUIT FROM THE PARAPET DOWN TO THE DECK SLAB WITHIN A HORIZONTAL DISTANCE OF 10'-0" (SEE NOTE 5)

**NOTES:**

1. FOR WATERPROOFING DETAILS, SEE SHEET [40/42].
2. FOR HANDRAIL WITH VANDAL PROTECTION FENCE, SEE SHEETS [37/42] THROUGH [39/42].
3. FOR DECK DRAIN DETAILS, INCLUDING GRATE, SEE SHEET [41/42].
4. 4x4 - W1.4xW1.4 GALVANIZED WELDED WIRE FABRIC PER ODOT CMS 709.08 PROVIDED ACROSS OVERHANGS. MESH SHALL EXTEND FROM 1" CLEAR OF EXTERIOR GIRDER TOP FLANGE, 1" ABOVE THE TOP OF THE DRIP EDGE, AND 6" ABOVE THE TOP OF THE CURB CONSTRUCTION JOINT. WWF TO BE TURNED UP INTO THE CAGE AT THE FLANGE LOCATION. FURNISHING AND INSTALLING THE WWF SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE DECK REINFORCING STEEL.
5. CONDUIT SHALL BE PAID FOR WITH ITEM 625, CONDUIT, 4", 725.051, AS PER PLAN AND SHALL INCLUDE ALL REQUIRED FITTINGS, ADAPTERS, METAL CONDUIT, AND OTHER SPECIAL ITEMS REQUIRED TO CONSTRUCT THE JOINTS SHOWN.



**SCREED AND ELEVATION LOCATION PLAN**  
UPSTATION



**TYPICAL TRANSVERSE SECTION**  
SCREED AND FINAL DECK LINES  
(LOOKING UPSTATION)

**NOTES:**  
1. FOR SCREED ELEVATION TABLES SEE SHEET 34/42

|                                                                                                                                          |                             |                      |                  |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------------------|------------------|
| <p><b>Gannett Fleming</b><br/>ENGINEERS &amp; ARCHITECTS, P.C.<br/>2600 CORPORATE EXCHANGE DRIVE, SUITE 230<br/>COLUMBUS, OHIO 43231</p> |                             |                      |                  |
| DESIGNED                                                                                                                                 | MMZ                         | CHECKED              | JKL              |
| DRAWN                                                                                                                                    | LAM                         | REVIEWED             | EFD              |
| DATE                                                                                                                                     | 05/2021                     | REVIEWED             | 0001 SPN-2100968 |
| BRIDGE NO.                                                                                                                               | DEL-36-1126 (NS MP S-23.80) | NSRR FILE:           | BR0019283        |
| PROJECT                                                                                                                                  | POINT PROJECT               | PID No.              | 103626           |
| FINAL DECK/SCREED LOCATIONS<br>BRIDGE NO. DEL-36-1126 (NS MP S-23.80)<br>NSRR OVER US 36 / 37 (CITY OF DELAWARE)                         |                             | 33 / 42<br>465 / 644 |                  |

SCREED ELEVATION TABLE

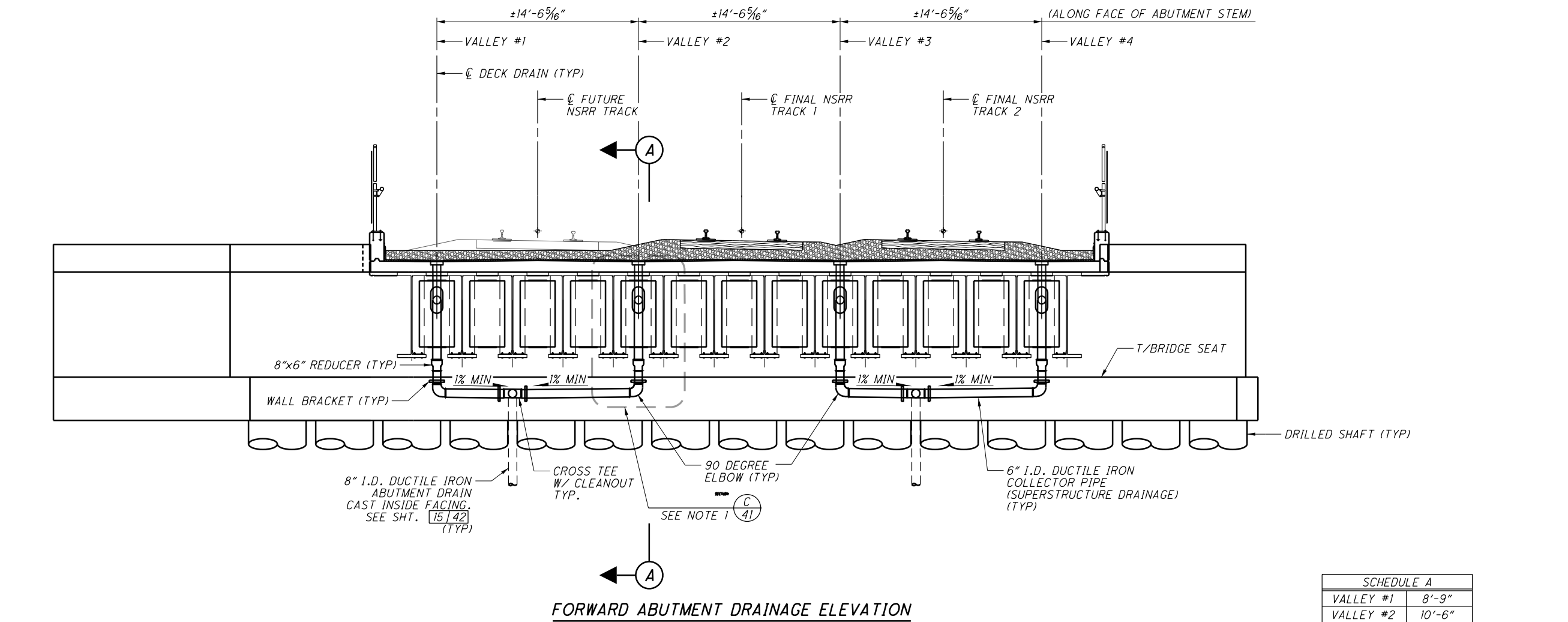
| LINE NO. | LOCATION            | ☉ BRG REAR ABUTMENT | 1/4 PT | 1/2 PT | 3/4 PT | ☉ BRG FORWARD ABUTMENT |
|----------|---------------------|---------------------|--------|--------|--------|------------------------|
| LINE 1   | LEFT CURB           | 956.95              | 956.94 | 956.90 | 956.84 | 956.75                 |
| LINE 2   | VALLEY #1           | 956.87              | 956.85 | 956.82 | 956.75 | 956.67                 |
| LINE 3   | CROWN #1            | 956.95              | 956.94 | 956.90 | 956.84 | 956.75                 |
| LINE 4   | VALLEY #2           | 956.87              | 956.85 | 956.82 | 956.75 | 956.67                 |
| LINE 5   | ☉ BRIDGE & CROWN #2 | 956.95              | 956.94 | 956.90 | 956.84 | 956.75                 |
| LINE 6   | VALLEY #3           | 956.87              | 956.85 | 956.82 | 956.75 | 956.67                 |
| LINE 7   | CROWN #3            | 956.95              | 956.94 | 956.90 | 956.84 | 956.75                 |
| LINE 8   | VALLEY #4           | 956.87              | 956.85 | 956.82 | 956.75 | 956.67                 |
| LINE 9   | RIGHT CURB          | 956.95              | 956.94 | 956.90 | 956.84 | 956.75                 |

FINAL DECK ELEVATION TABLE

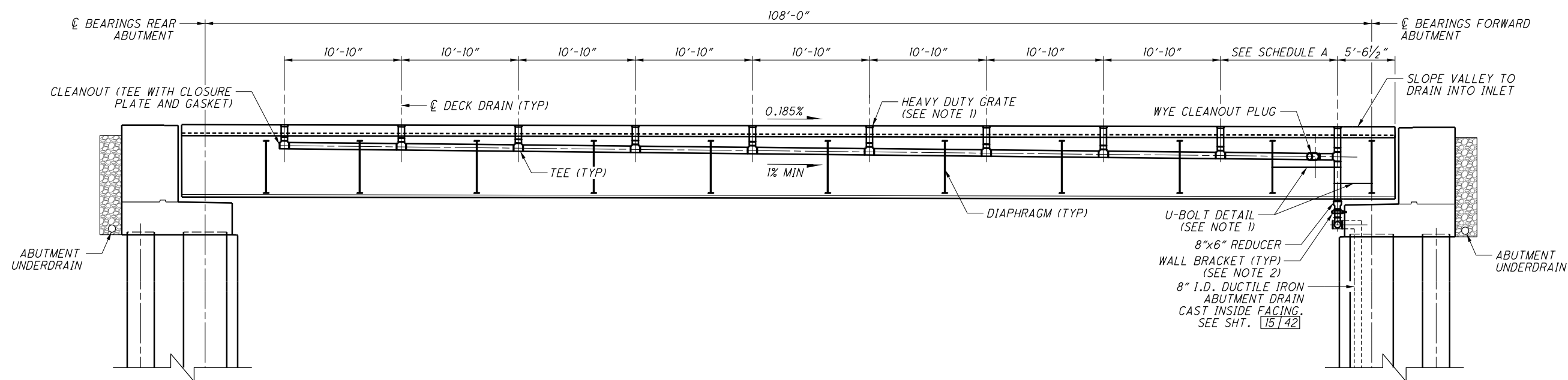
| LINE NO. | LOCATION            | ☉ BRG REAR ABUTMENT | 1/4 PT | 1/2 PT | 3/4 PT | ☉ BRG FORWARD ABUTMENT |
|----------|---------------------|---------------------|--------|--------|--------|------------------------|
| LINE 1   | LEFT CURB           | 956.95              | 956.90 | 956.85 | 956.80 | 956.75                 |
| LINE 2   | VALLEY #1           | 956.87              | 956.82 | 956.77 | 956.72 | 956.67                 |
| LINE 3   | CROWN #1            | 956.95              | 956.90 | 956.85 | 956.80 | 956.75                 |
| LINE 4   | VALLEY #2           | 956.87              | 956.82 | 956.77 | 956.72 | 956.67                 |
| LINE 5   | ☉ BRIDGE & CROWN #2 | 956.95              | 956.90 | 956.85 | 956.80 | 956.75                 |
| LINE 6   | VALLEY #3           | 956.87              | 956.82 | 956.77 | 956.72 | 956.67                 |
| LINE 7   | CROWN #3            | 956.95              | 956.90 | 956.85 | 956.80 | 956.75                 |
| LINE 8   | VALLEY #4           | 956.87              | 956.82 | 956.77 | 956.72 | 956.67                 |
| LINE 9   | RIGHT CURB          | 956.95              | 956.90 | 956.85 | 956.80 | 956.75                 |

NOTES:

1. WORK THIS SHEET WITH 33/42 .
2. SCREED ELEVATIONS SHOWN REPRESENT THE THEORETICAL DECK SURFACE LOCATION PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS. OTHER ANTICIPATED DEAD LOADS INCLUDE CURB CONCRETE, BALLAST, AND TRACKWORK BUT DOES NOT INCLUDE THE EFFECTS OF A FUTURE BALLAST.
3. FINAL DECK SURFACE ELEVATIONS SHOWN REPRESENT THE DECK SURFACE LOCATION AFTER ALL ANTICIPATED DEAD LOAD DEFLECTIONS HAVE OCCURRED. (DOES NOT INCLUDE FUTURE BALLAST)
4. CENTERLINE BEARING ELEVATIONS DO NOT INCLUDE 1" MINIMUM DEPTH OF END DAM.

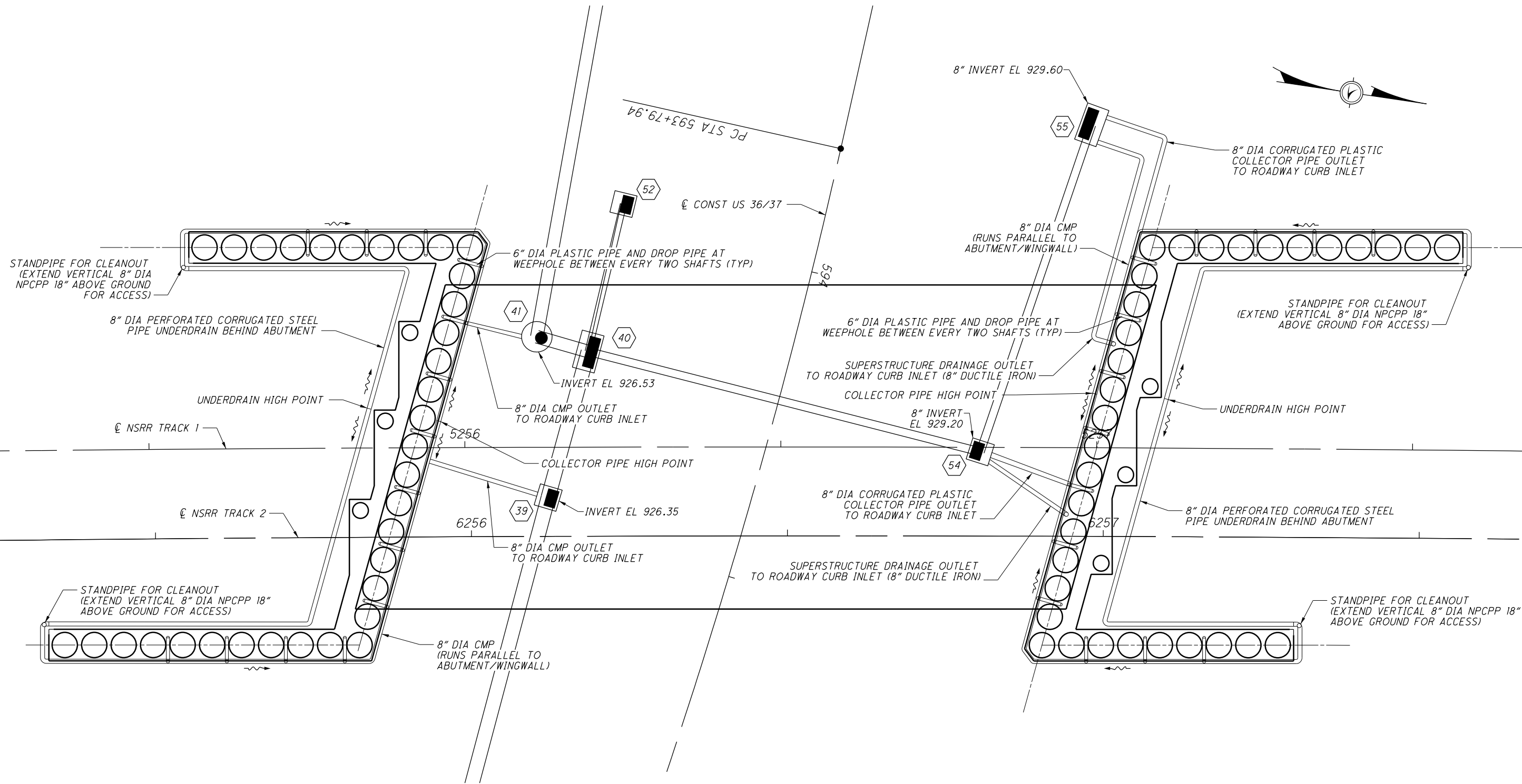


| SCHEDULE A |        |
|------------|--------|
| VALLEY #1  | 8'-9"  |
| VALLEY #2  | 10'-6" |
| VALLEY #3  | 9'-9"  |
| VALLEY #4  | 9'-9"  |



○ SUPERSTRUCTURE DRAINAGE

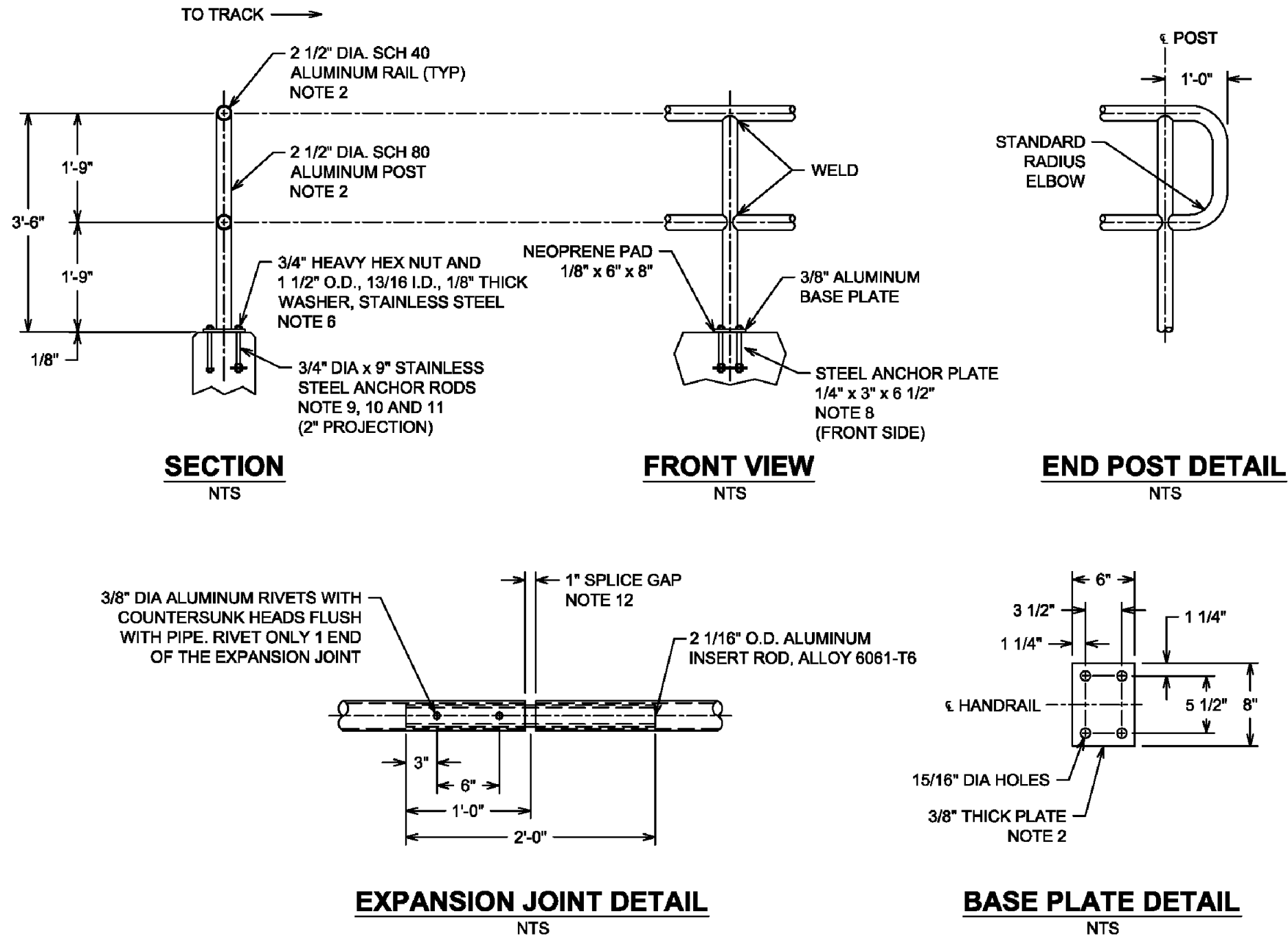
- NOTES:**
1. FOR TYPICAL NORFOLK SOUTHERN AND PROJECT DRAINAGE DETAILS, SEE SHEET 41/42
  2. ALL WALL BRACKET ANCHORS SHALL BE LOCATED A MINIMUM OF 3/2" FROM ANY EDGE OF THE ABUTMENT CAP FRONT FACE.




**BRIDGE DRAINAGE PLAN**

**NOTES:**

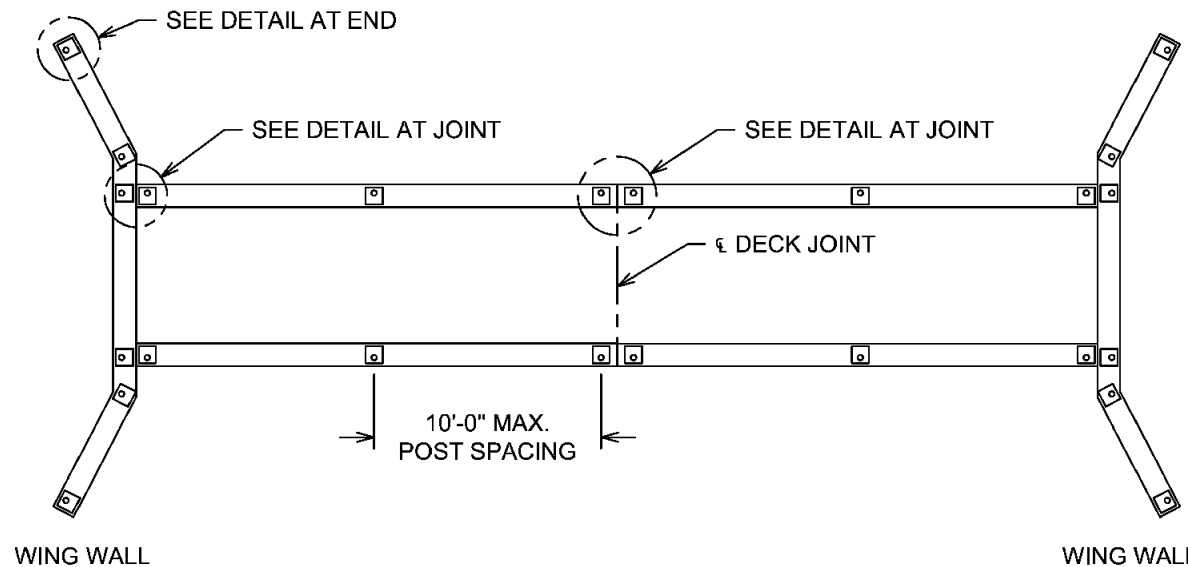
- JOINTS IN RAILING (SPLICE GAP) SHALL BE LOCATED IN POST SPACING PLAN.
- ALUMINUM PIPE TO BE ASTM B429, ALLOY 6061-T6 AND BASE PLATE TO BE ASTM B209, ALLOY 6061-T6.
- STAINLESS STEEL BOLTS, CAP SCREWS AND NUTS TO BE ASTM A276, TYPE 304, STAINLESS STEEL WASHERS TO BE ASTM A276, TYPE 302.
- POST TO BE SET PERPENDICULAR TO TOP OF CURB AND RAILS SHALL BE PLACED PARALLEL TO THE GRADE OF THE BRIDGE.
- CERTIFIED MILL REPORTS ARE REQUIRED FOR RAIL AND POST. SHOP INSPECTIONS ARE NOT REQUIRED.
- AFTER ANCHOR BOLT NUTS HAVE BEEN TIGHTENED, THREAD SHALL BE NICKED TO LOCK NUTS.
- CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE, THE CONTRACTOR MAY AT HIS OPTION HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.
- ANCHOR PLATES SHALL BE STEEL CONFORMING TO ASTM A36.
- ANCHOR RODS SHALL CONFORM TO ASTM A276, TYPE 302 OR 304 STAINLESS STEEL AND THREADS SHALL BE ROLLED, NOT CUT.
- UPPER ANCHOR ROD NUTS SHALL BE HEAVY HEX NUTS, PER ASTM A276 TYPE 302 OR 304 STAINLESS STEEL.
- LOWER ANCHOR ROD NUTS SHALL BE HEAVY STEEL HEX NUTS, PER ASTM A563.
- THE CENTERLINE OF ANY SPLICE AND/OR EXPANSION JOINT IS TO BE LOCATED AT LEAST 2'-0" AWAY FROM CENTERLINE OF POST. EXPANSION AND/OR SPLICE JOINTS FOR EACH RAIL OF TWO RAILINGS ARE TO BE PLACED IN THE SAME LOCATION AND IN THE SAME PANEL.
- WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT AWS STRUCTURAL WELDING CODE FOR ALUMINUM.



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| 9/23/2013 | 1    | REVISED NOTE 3 PUNCTUATION |
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**PUBLIC PROJECTS MANUAL**  
**TYPICAL DRAWINGS**  
**UNDERPASS BRIDGE DETAILS**  
**HANDRAIL**

REF. NO.: SEC 2 - UP - 4 - SHT 7  
DATE: JULY 1, 2013 DRAWING NO.: 13

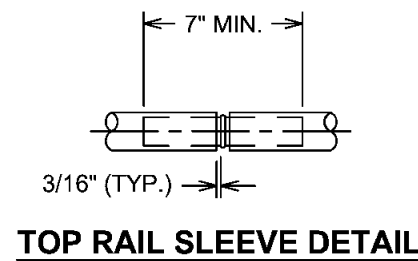


**FENCE AND HANDRAIL POST SPACING**

NTS

**NOTES:**

1. ALUMINUM PIPE TO BE ASTM B241, ALLOY 6061-T6, ALUMINUM BASE PLATE TO BE ASTM B-209, ALLOY 6061-T6.
2. FENCE FABRIC TO BE TYPE III ALUMINUM ALLOY WIRE ASTM B-211, ALLOY 6061-T89 OR T94.
3. BRACE RAIL AND BRACE ENDS, POST TOPS, TURNBUCKLES, TRUSS RODS, STRETCHER BARS, AND BAR BANDS TO BE IN ACCORDANCE WITH AASHTO M181.
4. STAINLESS STEEL BOLTS, NUTS AND ANCHOR RODS TO BE ASTM A-276, TYPE 304. STAINLESS STEEL WASHERS TO BE ASTM A-276, TYPE 302.
5. POST TO BE SET PERPENDICULAR TO TOP OF CURB AND RAILS SHALL BE PLACED PARALLEL TO THE GRADE OF THE BRIDGE.
6. BOTTOM OF BASE PLATE SHALL BE THOROUGHLY COATED WITH ALUMINUM IMPREGNATED CAULKING COMPOUND OR APPROVED QUALITY.
7. CERTIFIED MILL REPORTS ARE REQUIRED FOR POST, RAIL, AND FENCE FABRIC. SHOP INSPECTION IS NOT REQUIRED.
8. WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT AWS STRUCTURAL WELDING CODE - ALUMINUM.
9. SEE NS TYPICAL DRAWING NO. 15 FOR ADDITIONAL HANDRAIL DETAILS.



TOP RAIL - 1 1/4" SCH. 40 ALUM. PIPE (TYP.)  
 STANDARD INSIDE TOP RAIL SLEEVE AT APPROX. 20'-0" SPANS (SEE DETAIL)

HANDRAIL TO BE ATTACHED TO ONLY ONE FENCE POST AT JOINTS. PROVIDE HANDRAIL EXPANSION JOINT BETWEEN SPANS

BOTTOM TENSION WIRE OF 7 GA. ALUM. COATED STEEL SPRING WIRE FASTENED AT 2'-0"+ INTERVALS WITH 11 GA. GALV. STEEL HOG RINGS

6" FROM EDGE OF JOINT (TYP.)  
 8" (TYP.)  
 FENCE POST  
 JOINT

**DETAIL AT JOINT**

**DETAILS FOR CHAIN LINK FENCE**

NTS

9 GAGE, 1" MESH, TYPE III CHAINLINK FENCE FABRIC. BOTH SELVAGES TO BE KNUCKLED

BRACE RAIL IN EACH PANEL (TYP.)

ALUM. STRETCHER BAR BANDS

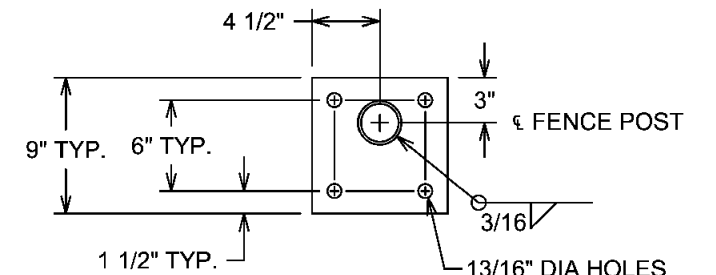
VARIES  
 FENCE POST

**DETAIL AT END**

FABRIC TO BE FASTENED TO TOP RAIL AT 2'-0"± INTERVALS WITH 9 GAGE ALUM. WIRE TIES

ALL FENCE POST TO BE 2 1/2" DIA. SCH 40 ALUM. PIPE

FABRIC TO BE FASTENED TO FENCE POST AT 1'-3"± INTERVALS WITH 9 GAGE ALUM. WIRE TIES



**BASE PLATE DETAIL**

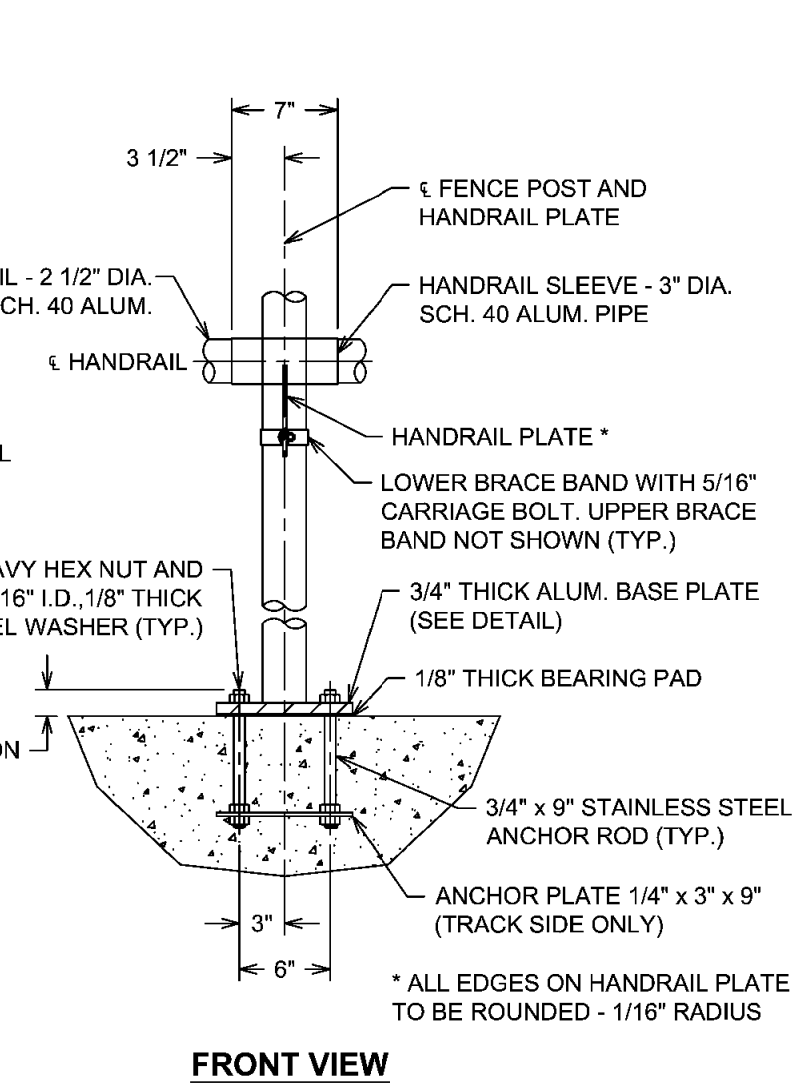
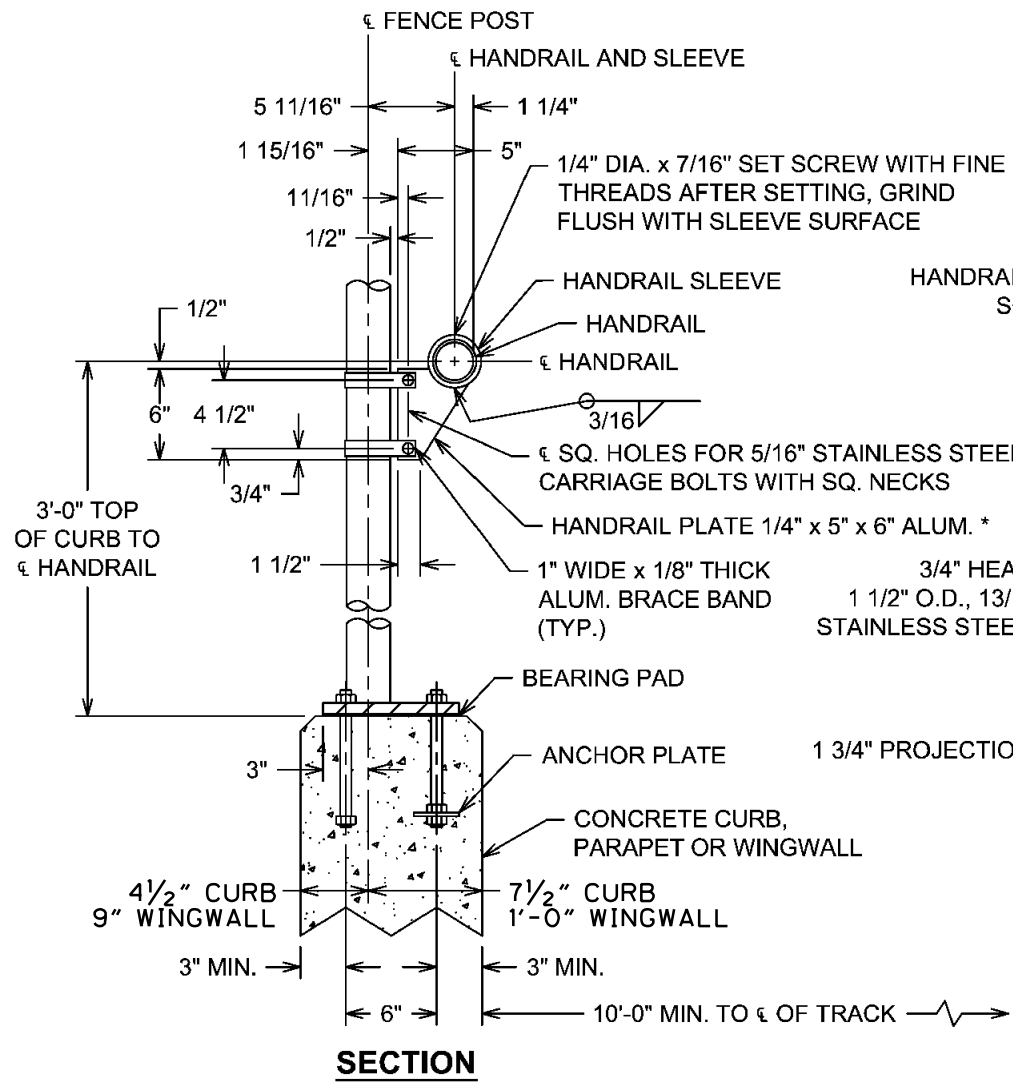
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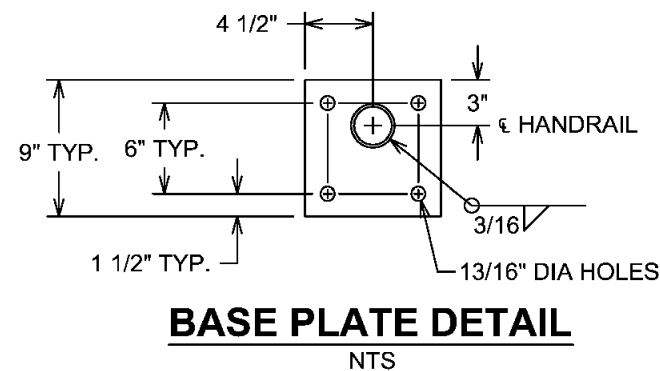
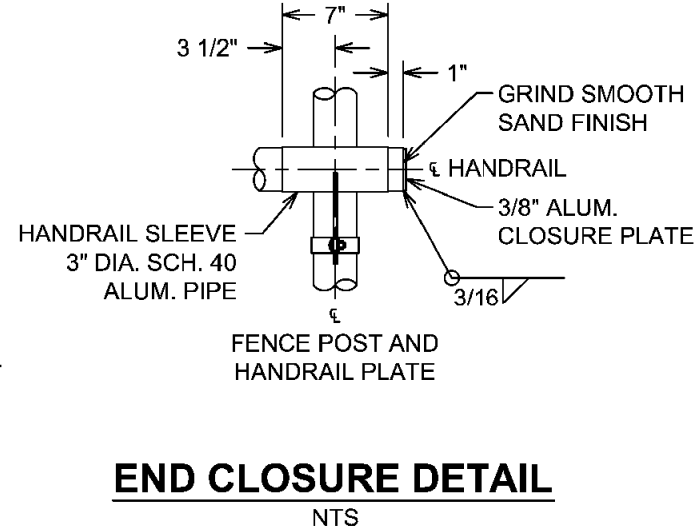
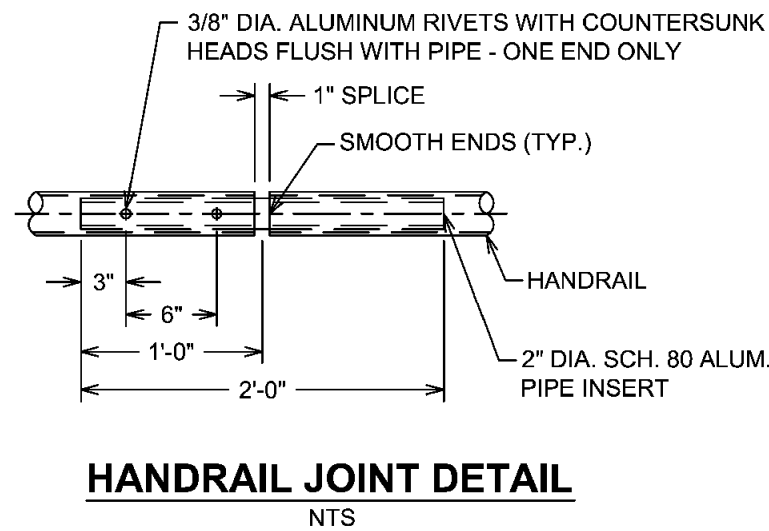
UNDERPASS BRIDGE DETAILS  
 VANDAL FENCING WITH HANDRAIL I

REF. NO.: N/A  
 DATE: JULY 1, 2013  
 DRAWING NO.: 14





**DETAILS FOR PIPE RAILING**  
NTS



**NOTES:**

1. JOINT IN HANDRAILING SHALL BE LOCATED IN POST SPACING PLAN.
2. ALL HANDRAIL PIPE, SLEEVES AND EXPANSION JOINTS TO BE SMOOTH AND FREE OF ALL SHARP EDGES.
3. ALUMINUM PIPE TO BE ASTM B241, ALLOY 6061-T6, ALUMINUM CLOSURE PLATE, AND HANDRAIL PLATE TO BE ASTM B-209, ALLOY 6061-T6.
4. STAINLESS STEEL BOLTS, NUTS AND ANCHOR RODS TO BE ASTM A-276, TYPE 304. STAINLESS STEEL WASHERS TO BE ASTM A-276, TYPE 302. ANCHOR ROD THREADS SHALL BE ROLLED, NOT CUT.
5. POST TO BE SET PERPENDICULAR TO TOP OF CURB AND RAILS SHALL BE PLACED PARALLEL TO THE GRADE OF THE BRIDGE.
6. BOTTOM OF BASEPLATE SHALL BE THOROUGHLY COATED WITH ALUMINUM IMPREGNATED CAULKING COMPOUND OR APPROVED QUALITY.
7. CERTIFIED MILL REPORTS ARE REQUIRED FOR POST AND RAIL. SHOP INSPECTION IS NOT REQUIRED.
8. AFTER ANCHOR BOLT AND OTHER BOLT NUTS HAVE BEEN TIGHTENED, THREADS SHALL BE NICKED TO LOCK NUTS.
9. THE ALUMINUM BRACE BANDS USED TO SECURE HANDRAIL SLEEVE SHALL BE OF SUCH SIZE NECESSARY TO CLAMP TIGHTLY TO FENCE POST.
10. WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT AWS STRUCTURAL WELDING CODE - ALUMINUM.
11. ANCHOR PLATE SHALL BE STEEL CONFORMING TO ASTM SPECIFICATION A36.
12. UPPER ANCHOR ROD NUTS SHALL BE HEAVY HEX NUTS, PER ASTM A276 TYPE 302 OR 304 STAINLESS STEEL.
13. LOWER ANCHOR ROD NUTS SHALL BE HEAVY HEX NUTS, PER ASTM A307.

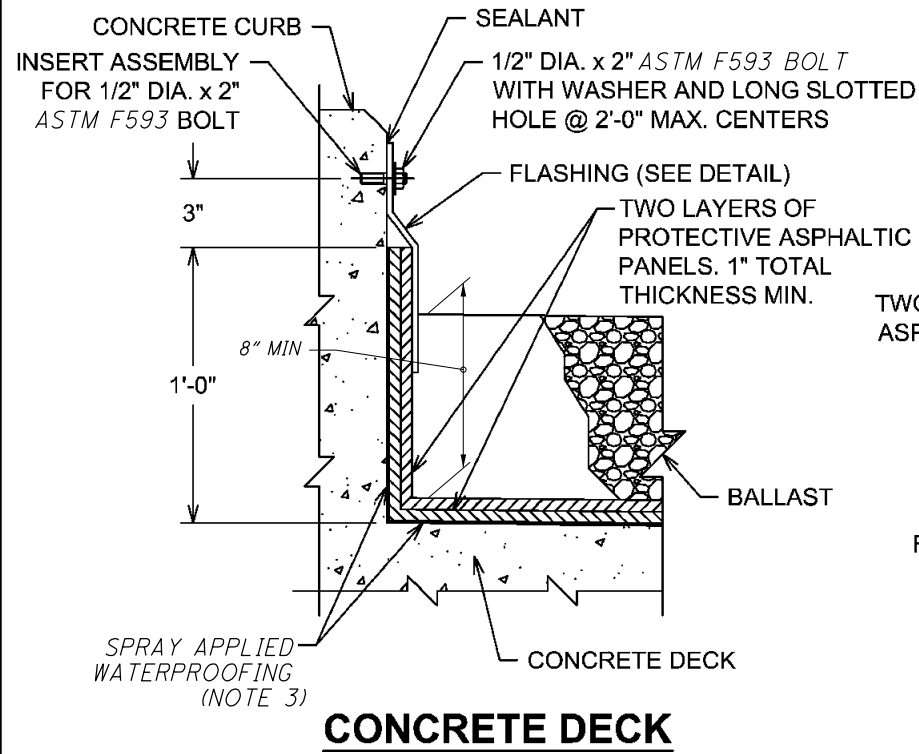
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**NORFOLK SOUTHERN**

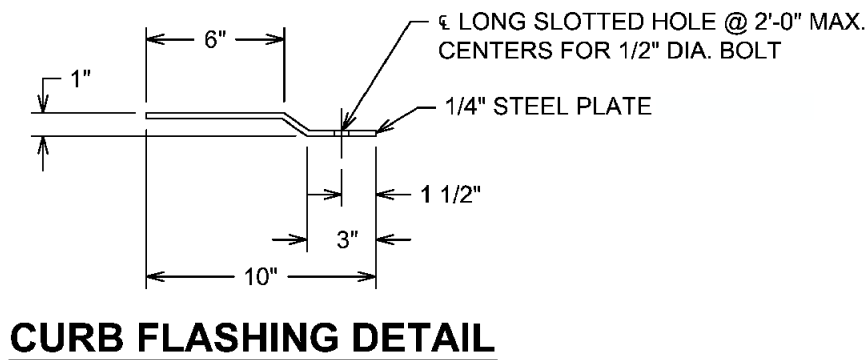
**PUBLIC PROJECTS MANUAL**  
**TYPICAL DRAWINGS**

**UNDERPASS BRIDGE DETAILS**  
**VANDAL FENCING WITH HANDRAIL II**

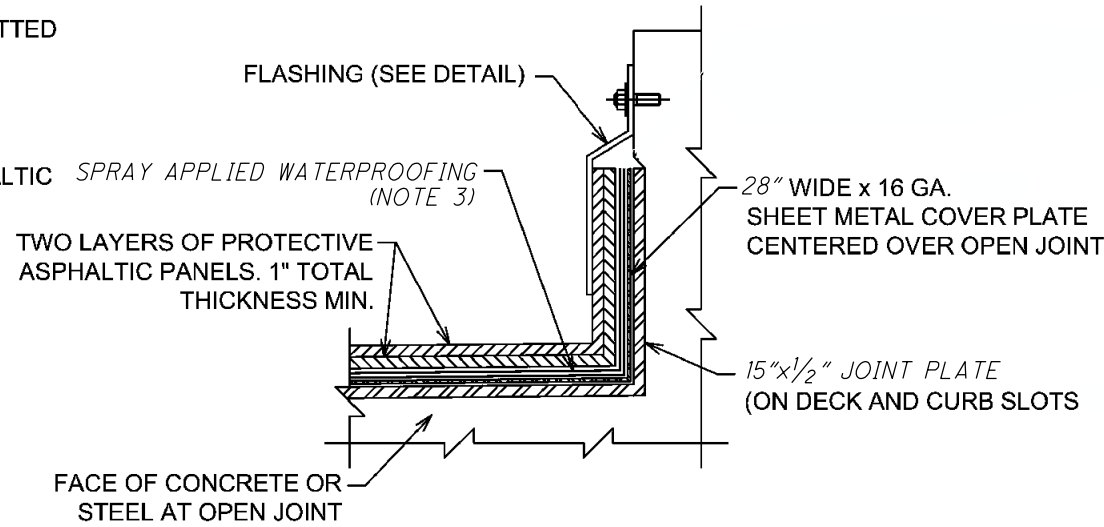
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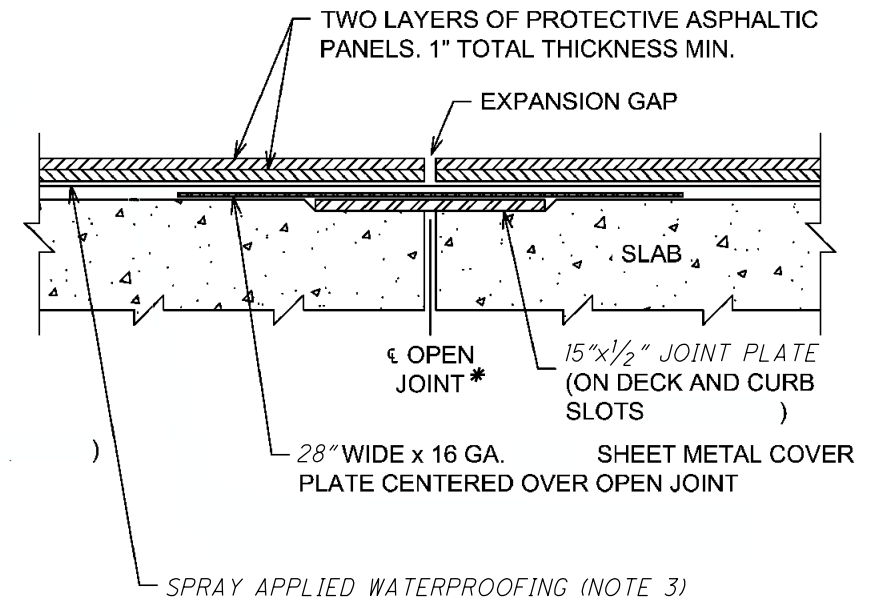
**CONCRETE DECK**



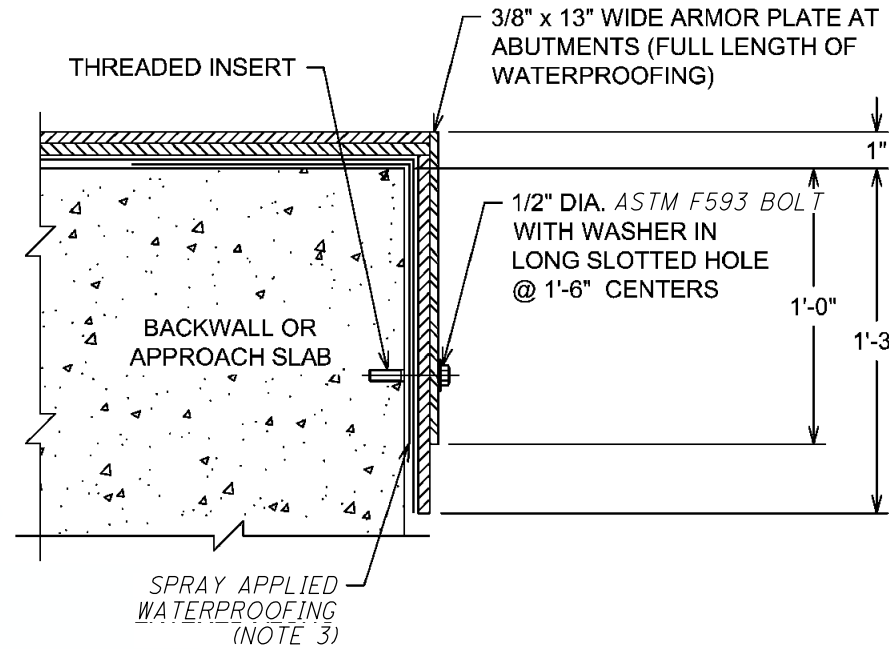
**CURB FLASHING DETAIL**



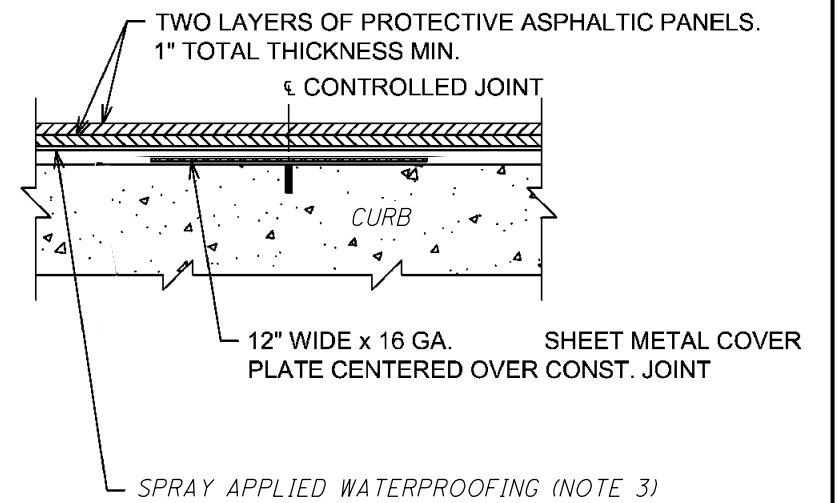
**TYPICAL TRANSVERSE SECTION AT OPEN JOINT\***



**TYPICAL LONGITUDINAL SECTION AT BENTS AND BACKWALL\***



**TYPICAL LONGITUDINAL SECTION AT END OF BACKWALL / APPROACH SLABS**



**TYPICAL LONGITUDINAL SECTION AT CONTROLLED JOINTS**

**NOTES:**

- ALL STRUCTURAL STEEL PLATES, BOLTS AND WASHERS SHALL BE *STAINLESS STEEL (INCLUDING WELD METAL)*.
- DISCONTINUE FLASHING OVER PIERS AND ABUTMENTS.
- SEE APPENDIX H.4.3 SECTION 6 OF THE NSRR PUBLIC PROJECTS MANUAL FOR WATERPROOFING SPECIFICATIONS.
- ALL DETAILS ARE DRAWN NOT TO SCALE.

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**PUBLIC PROJECTS MANUAL  
 TYPICAL DRAWINGS**

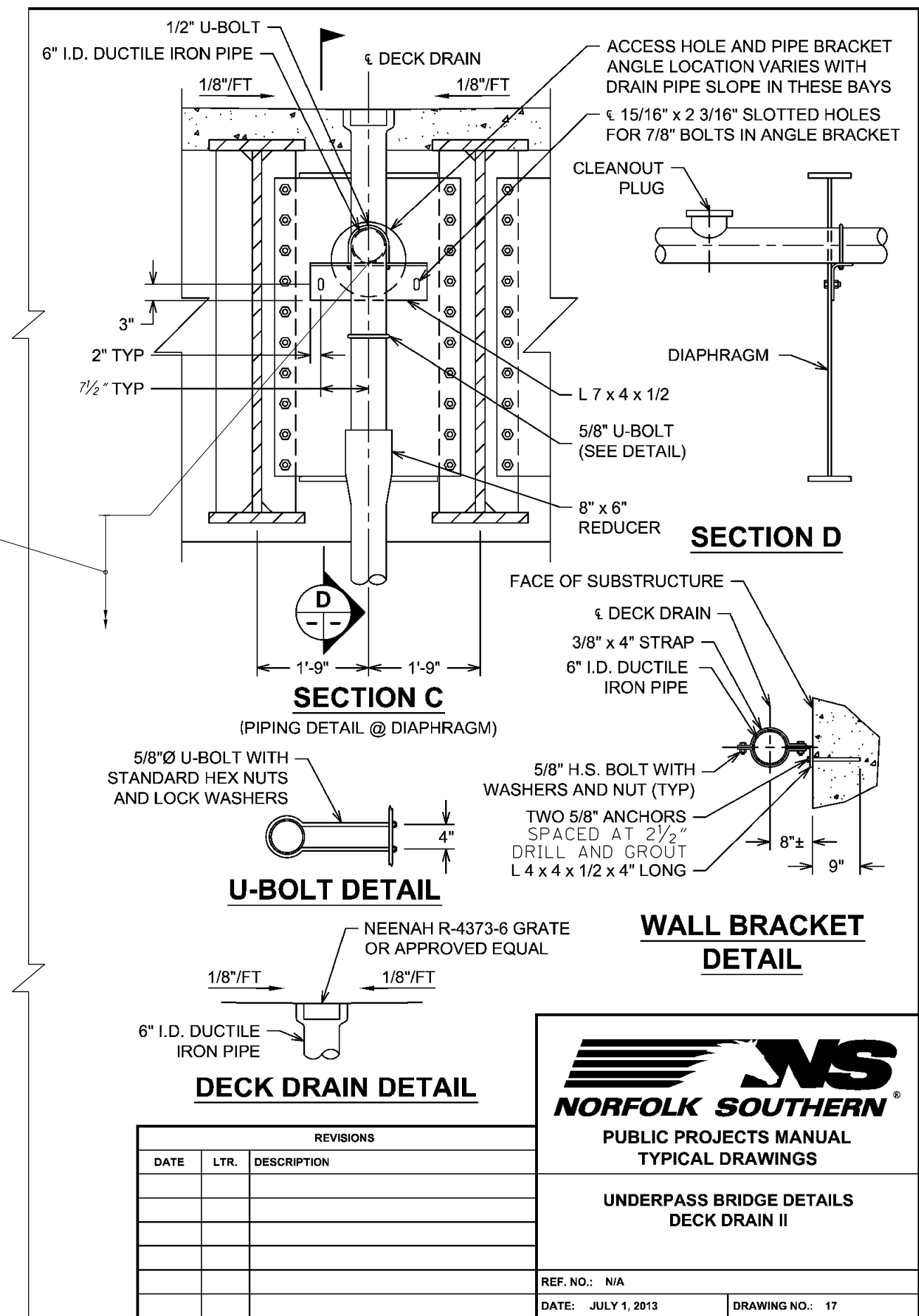
**UNDERPASS BRIDGE DETAILS  
 WATERPROOFING**

REF. NO.: N/A  
 DATE: JULY 1, 2013  
 DRAWING NO.: 18

**NOTES:**

1. ALL PIPES, TEES, BELLS AND BENDS SHALL BE CLASS 54 DUCTILE IRON.
2. USE MINIMUM 1% FALL ON DRAIN PIPES.

NOTE: DOWNSPOUT, REDUCER, AND ATTACHMENTS (INCLUDING 5/8" U BOLTS) ARE ONLY PRESENT AT END DIAPHRAGMS



**NORFOLK SOUTHERN**

PUBLIC PROJECTS MANUAL  
TYPICAL DRAWINGS

UNDERPASS BRIDGE DETAILS  
DECK DRAIN II

DESIGN AGENCY: **Gannett Fleming**  
ENGINEERS & ARCHITECTS, P.C.  
2500 CORPORATE EXCHANGE DRIVE, SUITE 230  
COLUMBIUS, OHIO 43231

|            |           |          |                  |
|------------|-----------|----------|------------------|
| DESIGNED   | NSRR      | CHECKED  | JKL              |
| DRAWN      | LAM       | REVIEWED | EFD              |
| DATE       | 05/2021   | REVISION | 0001 SPN-2100968 |
| NSRR FILE: | BR0019283 |          |                  |

NSRR MISCELLANEOUS DRAINAGE DETAILS  
BRIDGE NO. DEL-36-1126 (NS MP S-23.80)  
NSRR OVER US 36 / 37 (CITY OF DELAWARE)

POINT PROJECT  
PID No. 103626

41 / 42

473  
644



**NS OR NSRR = NORFOLK SOUTHERN RAILROAD**

1. LOCATION OF THE PROJECT IS WITHIN THE CITY OF DELAWARE, DELAWARE COUNTY, OHIO.
  2. THE PROJECT UNITS ARE U.S. SURVEY FEET OR DECIMALS OF A SURVEY FOOT UNLESS OTHERWISE NOTED.
  3. PROPOSED TRACK ALIGNMENTS ARE SHOWN AS CENTERLINE OF TRACK.
  4. PROPOSED VERTICAL ALIGNMENTS ARE SHOWN AS TOP OF GRADE RAIL. THE GRADE RAIL IS THE INSIDE (LOW) RAIL ON CURVES OR THE FIELD SIDE (OUTSIDE) RAIL ON TANGENTS. VERTICAL CURVES ARE PARABOLIC CURVES. GRADES ARE IN PERCENT, EXCEPT AS NOTED OTHERWISE.
  5. SUPERELEVATION (e<sub>a</sub>) IS THE VERTICAL HEIGHT IN INCHES OF THE OUTSIDE TOP OF RAIL ABOVE THE GRADE TOP OF RAIL WITHIN CURVES.
  6. HORIZONTAL CURVATURE IS DEFINED BY THE CHORD METHOD.
  7. SPIRAL TRANSITION CURVES ARE DEFINED BY THE AREMA CUBIC PARABOLA.
  8. TRACK DESIGN AND CONSTRUCTION SHALL CONFORM TO CURRENT APPLICABLE FEDERAL RAILROAD ADMINISTRATION, AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (AREMA), TO THE STANDARDS AND SPECIFICATIONS OF THE OWNING RAILROAD, AND ODOT STANDARDS AND SPECIFICATIONS.
- AREMA - AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION, CURRENT EDITION  
NSRR - NORFOLK SOUTHERN RAILWAY PUBLIC PROJECT MANUAL, CURRENT EDITION, INCLUDING APPENDICES INFORMATION FOR CONSTRUCTION AND IMPROVEMENT PROJECTS THAT MAY INVOLVE THE RAILROAD, INCLUDING APPENDICES; STANDARD SPECS FOR ROADBED CONSTRUCTION; AND STANDARD SPECS FOR TRACK CONSTRUCTION.
9. ALL TRACKWORK (ABOVE SUBBALLAST) TO BE FURNISHED AND PERFORMED BY RAILROAD FORCE ACCOUNT UNLESS NOTED OTHERWISE.

NSRR WILL PROVIDE ALL MATERIALS ABOVE SUBBALLAST FOR TRACKS THAT NSRR WILL OPERATE ON. UPON COMPLETION OF PHASE 2, THE TEMPORARY TRACKWORK MATERIALS SHALL BECOME THE PROPERTY OF THE CITY OF DELAWARE.

**SPECIFICATIONS AND SPECIAL PROVISIONS**

ALL WORK AND MATERIALS, ON, OVER, UNDER OR ADJACENT TO NSRR RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE LATEST REVISIONS OF THE NS "SPECIAL PROVISIONS FOR THE PROTECTION OF RAILWAY INTERESTS" AND STANDARD SPECIFICATIONS FOR MATERIALS AND CONSTRUCTION AS WELL AS APPLICABLE AMERICAN RAILWAY ENGINEERING AND MAINTENANCE OF WAY ASSOCIATION (AREMA) RECOMMENDED PRACTICES. CONTRACTOR SHALL ALLOW A MINIMUM OF 12 MONTHS FOR DELIVERY OF MATERIAL TO BE SUPPLIED BY NS AND/OR SPECIFIED SUPPLIERS.

**ITEM SPECIAL - RAIL ITEM, MISC.: SURVEY LAYOUT FOR TRACKWORK ALIGNMENT AND PROFILE**

THE CONTRACTOR IS TO PROVIDE ALL TRACKWORK ALIGNMENT AND PROFILE LAYOUT STAKING FOR CONSTRUCTION IN ACCORDANCE WITH ODOT CMS SECTION 623.08, AND NSRR REQUIREMENTS.

MAINLINE ALIGNMENT DESIGNS HERE-IN ARE TIED TO THE FIELD SURVEYED BY EMH&T CONSULTANTS DATED 5-30-2018. AS PART OF THIS PAY ITEM, THE CONTRACTOR WILL FIELD VERIFY LOCATION OF TRACKS AND APPURTENANCES, ALIGNMENT TIE-INS AND TOP OF RAIL ELEVATIONS PRIOR TO ANY WORK. FIELD ADJUSTMENT MAY BE REQUIRED.

ITEM SPECIAL, SURVEY LAYOUT FOR TRACKWORK ALIGNMENT AND PROFILE WILL BE PAID FOR AS A LUMP SUM AT THE CONTRACT PRICE BID.

**QUANTITY VERIFICATION BY ODOT**

ODOT SHALL VERIFY QUANTITIES AND INDICATE ANY MAJOR DISPARITY TO THE CITY OF DELAWARE.

**APPLICABILITY 'ONE CALL' UTILITY SERVICES**

"ONE CALL" SERVICES DO NOT LOCATE BURIED RAILROAD SIGNAL AND COMMUNICATIONS LINES. THE CONTRACTOR SHALL CONTACT THE RAILROAD'S REPRESENTATIVES FIVE (5) DAYS IN ADVANCE OF THOSE PLACES WHERE EXCAVATION, PILE DRIVING, OR HEAVY LOADS MAY DAMAGE RAILROAD UNDERGROUND LINES ON RAILROAD PROPERTY. UPON REQUEST FROM THE CONTRACTOR OR AGENCY, RAILROAD SIGNAL FORCES WILL LOCATE AND PAINT MARK OR FLAG RAILROAD UNDERGROUND SIGNAL, COMMUNICATION, AND POWER LINES LOCATED WITHIN THE AREA TO BE DISTURBED BY THE CONTRACTOR. THE CONTRACTOR SHALL AVOID EXCAVATION OR OTHER DISTURBANCE OF THESE LINES WHICH ARE CRITICAL TO THE SAFETY OF THE RAILROAD AND THE PUBLIC. IF DISTURBANCE OR EXCAVATION IS REQUIRED NEAR A BURIED RAILROAD SIGNAL, COMMUNICATION, OR POWER LINE, THE LINE SHALL BE POTHOLED MANUALLY WITH CAREFUL HAND EXCAVATION BY THE CONTRACTOR AND PROTECTED BY THE CONTRACTOR DURING THE COURSE OF THE DISTURBANCE UNDER THE SUPERVISION AND DIRECTION OF A RAILROAD SIGNAL REPRESENTATIVE.

**RAILROAD OPERATIONS**

THE CONTRACTOR'S WORK SHALL NOT INTERRUPT THE NORMAL OPERATIONS OF THE RAILROAD WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER IN CONSULTATION WITH THE NSRR REPRESENTATIVE.

THE LAYDOWN YARD LEAD SHALL NOT BE IMPEDED AT ANYTIME DURING CONSTRUCTION.

**TRACKWORK NOTES**

ALL JOINTS SHALL BE OF THE TYPES AND SIZES IN ACCORDANCE WITH NSRR AND AREMA STANDARDS. IF THE STANDARDS ARE CONFLICTING, THE MOST STRINGENT OF THE TWO SHALL APPLY. INSULATED JOINTS MUST BE SUPPORTED ON A SOUND, SMOOTH TIE, WELL TAMPED AND WELL DRAINED BALLAST.

**SUPERELEVATION MARKING**

AFTER CONSTRUCTION, CONTRACTOR SHALL MARK, ON THE WEB OF THE RAIL IN THE FIELD, LOCATIONS OF 'PC', 'FULL' AND 'PT' AND SUPERELEVATION DATA.

**UTILITY INSTALLATION/RELOCATIONS**

ALL UTILITY INSTALLATIONS OR RELOCATIONS THAT ARE REQUIRED IN CONJUNCTION WITH THIS PROJECT CAN BE INSTALLED OR RELOCATED AS PART OF THE PROJECT PROVIDED THE CONSTRUCTION IS PERFORMED BY THE PROJECT CONTRACTOR OR PROJECT CONTRACTOR'S SUB-CONTRACTOR. HOWEVER, THE UTILITY MUST SUBMIT AN APPLICATION FOR THE INSTALLATION OR RELOCATION FOR APPROPRIATE HANDLING FOR LICENSE AGREEMENT AND APPLICABLE FEES.

FOR NSRR UTILITY APPLICATIONS GO TO:

[HTTP://WWW.NSCORP.COM/CONTENT/NSCORP/EN/REAL-ESTATE/NORFOLK-SOUTHERN-SERVICES/WIRE-PIPELINE-FIBER-OPTIC-PROJECTS.HTML](http://www.nscorp.com/content/nscorp/en/real-estate/norfolk-southern-services/wire-pipeline-fiber-optic-projects.html)

NOTE: LICENSE AGREEMENT MUST BE EXECUTED PRIOR TO UTILITY BEING INSTALLED OR RELOCATED.

**EXISTING TRACK ROADBED HARDPAN**

THE EXISTING TRACK ROADBED HARDPAN SHALL NOT BE DISTURBED DURING CONSTRUCTION.

**RAILROAD SAFETY**

THE CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO PROTECT THE PUBLIC AND EMPLOYEES OF NS FROM ANY AND ALL DAMAGES, AND INJURIES FROM THEIR WORK.

THE CONTRACTOR SHALL REQUIRE ALL OF THEIR EMPLOYEES AT THE PROJECT SITE TO USE PERSONAL PROTECTIVE EQUIPMENT CONSISTENT WITH THE RAILROAD'S SAFETY RULES. THIS EQUIPMENT SHALL, AS A MINIMUM, INCLUDE SAFETY HAT, EYE PROTECTION WITH SIDE SHIELDS, AND 6" MINIMUM HEIGHT, LACE-UP SAFETY TOE SHOES WHILE PERSONS OCCUPY THE RAILROAD'S RIGHT OF WAY. WHEN CONDITIONS WARRANT, HEARING PROTECTION, FALL PROTECTION, AND RESPIRATORY PROTECTION SHALL ALSO BE FURNISHED AND UTILIZED, CONSISTENT WITH OSHA AND FRA REGULATIONS GOVERNING BRIDGE WORKERS SAFETY AND HEALTH.

PRIOR TO COMMENCING WORK ON THE RAILROAD'S RIGHT OF WAY, CONTRACTOR WILL PROVIDE RAILROAD WITH SIGNED DOCUMENTATION OF A TRAINING PROGRAM WITH REGARDS TO FRA FALL PROTECTION AS IT PERTAINS TO FRA 49 CFG PART 214.102 AND DOCUMENTATION OF A ROADWAY WORKERS SAFEST PROGRAM IN ACCORDANCE WITH R49 PART 214(C). ROADWAY WORKER SAFETY TRAINING WORK SHALL ALSO BE PROVIDED IN ACCORDANCE WITH PARAGRAPH A, SECTION 12 OF THE NS SPECIAL PROVISIONS.

DOCUMENTATION WILL CONTAIN A LIST OF ALL CONTRACTORS' EMPLOYEES TO BE INVOLVED WITH THIS PROJECT (ON-SITE INVOLVEMENT). CONTRACTOR SHALL FURNISH RAILROAD MANDATORY "FRA ON TRACK SAFETY MANUAL" TRAINING CONFIRMATION AND DOCUMENTATION OF E-RAIL SAFE TRAINING AND REGISTRATION FOR ALL TO VISIT OR WORK ON THE SITE.

ALL PERSONNEL WILL BE RAILROAD SAFETY TRAINED PRIOR TO VISITING CONSTRUCTION SITE.

**ITEM SPECIAL - RAIL ITEM, MISC.: SUBBALLAST**

SUBBALLAST TO BE PAID FOR WITH ITEM SPECIAL - RAIL ITEM, MISC.: SUBBALLAST. THE CONTRACTOR SHALL SUPPLY AND INSTALL SUBBALLAST.

SUBBALLAST SHALL BE CRUSHED RUN STONE (DENSE GRADED AGGREGATE), LIMESTONE OR GRANITE MATERIAL AND SHALL MEET THE REQUIREMENTS AS SET OUT IN CHAPTER 1, PART 2, SECTION 2.11, "SUBBALLAST SPECIFICATIONS" OF THE AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (AREMA) MANUAL.

GRADATION AS FOLLOWS:

| SIEVE SIZE                  | 2"  | 1"     | 3/8"  | NO. 10 | NO. 40 | NO. 200 |
|-----------------------------|-----|--------|-------|--------|--------|---------|
| % PASSING SIZE (OPTIMUM)    | 100 | 95     | 67    | 38     | 21     | 7       |
| PERMISSIBLE RANGE % PASSING | 100 | 90-100 | 50-84 | 26-50  | 12-30  | 5-12    |

SUBBALLAST SHALL BE SPREAD ON A GRADED ROADBED AS A BASE, WITH SUFFICIENT WIDTH TO ACCOMMODATE THE DESIRED NUMBER OF TRACKS. THE SUBBALLAST SHALL BE COMPACTED TO 95 PERCENT OF ITS MAXIMUM DRY DENSITY AND HAVE A MINIMUM DEPTH OF 12" PLACED IN (2) 6 INCH LIFTS SHALL BE USED.

**SEEDING AND MULCHING**

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

|                                  |               |
|----------------------------------|---------------|
| 659, SOIL ANALYSIS TEST          | 4 EACH        |
| 659, TOPSOIL                     | 4960 CU. YD.  |
| 659, SEEDING AND MULCHING        | 44632 SQ. YD. |
| 659, REPAIR SEEDING AND MULCHING | 2231 SQ. YD.  |
| 659, INTER-SEEDING               | 2231 SQ. YD.  |
| 659, COMMERCIAL FERTILIZER       | 6.22 TON      |
| 659, LIME                        | 9.22 ACRES    |
| 659, WATER                       | 367 M. GAL.   |
| 659, MOWING                      | 201 M. SQ.FT. |

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL WITHIN THE CONSTRUCTION LIMITS. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

**EROSION CONTROL**

SEE ODOT SUPPLEMENTAL SPECIFICATION 832 FOR EROSION CONTROL MEASURES.

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TRACK GENERAL NOTES

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ITEM SPECIAL - RAIL ITEM, MISC.: BALLAST

MATERIAL FOR BALLAST SHALL BE CLEAN CRUSHED STONE WITH A MINIMUM DEPTH OF 12 INCHES. GRIBS (SPACING BETWEEN THE CROSSTIES) SHALL BE FILLED WITH BALLAST TO THE TOP OF THE TIES.

STONE FOR USE AS BALLAST ON TRACKS, OR PORTIONS OF TRACKS, TO BE OWNED BY THE RAILWAY COMPANY, SHALL BE FURNISHED BY RAILROAD APPROVED QUARRY, AND SHALL BE CRUSHED STONE (GRANITE) CONFORMING TO THE REQUIREMENTS OF NS RAILWAY CHIEF ENGINEER.

BALLAST UNDER TEMPORARY TRACKS IS TO BE SUPPLIED BY NSRR AND PLACED BY NSRR IN PHASE 1. TEMPORARY BALLAST SHALL NOT BE MODIFIED UNLESS APPROVED BY NSRR. AT THE COMPLETION OF THE PROJECT, THE CONTRACTOR WILL BE REQUIRED TO REMOVE THE BALLAST AS DIRECTED BY THE CITY, WHO WILL TAKE OWNERSHIP OF THE TEMPORARY BALLAST.

OTHER BALLAST IS SUPPLIED AND PLACED BY THE RAILROAD.

BALLAST GRADATION SHALL CONFORM TO THE FOLLOWING TABLE:

Table with 4 columns: SIEVE DESIGNATION, SIEVE OPENING, #3 BALLAST (% PASSING SIEVE), #5 BALLAST (% PASSING SIEVE). Rows include sieve sizes from 2-1/2 inch to NO. 200.

ITEM SPECIAL - RAILROAD FLAGGING

FLAGGING FOR WORK ON RAILROAD RIGHT OF WAY SHALL BE COORDINATED, OBTAINED AND PAID FOR BY THE CONTRACTOR. FLAGGING SHALL BE PROVIDED BY THE CONTRACTOR WHENEVER REQUIRED BY THE NORFOLK SOUTHERN SPECIAL PROVISIONS FOR THE PROTECTION OF RAILWAY INTERESTS (SECTION 7.A.2).

NORFOLK SOUTHERN HAS THE SOLE AUTHORITY TO DETERMINE THE NEED FOR PROTECTIVE SERVICES TO PROTECT ITS OPERATIONS. IN GENERAL, THE REQUIREMENTS OF SUCH SERVICES WILL BE WHENEVER THE CONTRACTOR'S PERSONNEL OR EQUIPMENT ARE OR ARE LIKELY TO BE, WORKING ON THE RAILROAD'S RIGHT-OF-WAY, OR ACROSS, OVER, ADJACENT TO, OR UNDER A TRACK, OR WHEN SUCH WORK HAS DISTURBED OR IS LIKELY TO DISTURB A RAILROAD STRUCTURE OR THE RAILROAD ROADBED OR SURFACE AND ALIGNMENT OF ANY TRACK TO SUCH EXTENT THAT THE MOVEMENT OF TRAINS MUST BE CONTROLLED BY FLAGGING.

THE TOTAL DAYS IN THE ESTIMATED QUANTITIES IS BASED UPON AN ESTIMATE OF TOTAL FLAGGING DAYS NEEDED TO COMPLETE THE PLANNED WORK.

ONLY THE FOLLOWING CERTIFIED FLAGGING PROVIDERS ARE ACCEPTABLE BY NORFOLK SOUTHERN:

NATIONAL RAILROAD SAFETY SERVICES, INC. 7395 KINGSGATE WAY WEST CHESTER, OH 45069 https://www.nrssinc.net/ TIM SHEPHERD: 877-984-6777

RAILPROS 1320 Greenway Dr., Suite 490 Irving, TX 75038 (877) 315-0513 https://railpros.com/contact-field-services/

PAYMENT PER DAY FOR ITEM 690 99500 - SPECIAL - RAILROAD FLAGGING SHALL INCLUDE ALL COSTS OF THE FLAGGING SERVICE FOR THE DAYS USED, INCLUDING ANY CONTRACTOR OVERHEAD FOR ADMINISTERING THE CONTRACT WITH THE FLAGGING SERVICE.

ITEM 203 - EXCAVATION, AS PER PLAN

EXCAVATION SHALL BE IN CONFORMANCE WITH NS STANDARD SPECIFICATIONS FOR DESIGN AND CONSTRUCTION. IF BENCHING OF SLOPES CARRYING RAILROAD LIVE LOAD IS REQUIRED, THE HEIGHT SHALL NOT EXCEED 2'-0". BENCHING EXCAVATION QUANTITIES ARE NOT TABULATED HEREIN. IF BENCHING IS REQUIRED, THE QUANTITY AND COST OF EXCAVATING THE BENCH IS TO BE CONSIDERED INCIDENTAL TO THIS PAY ITEM.

PAYMENT FOR THE REMOVAL OF THE GRANULAR FILL BETWEEN THE TIED SHORING WALLS AT THE TEMPORARY BRIDGE IS TO BE INCLUDED WITH THIS PAY ITEM.

PRIOR TO PLACING THE FIRST LIFT OF EMBANKMENT FILL, PROOF ROLL THE PROPOSED LIMITS OF THE EMBANKMENT IN ACCORDANCE WITH ITEM 204 PROOF ROLLING. WHERE PROOF ROLLING INDICATES AREAS OF UNSTABLE OR UNSUITABLE SOILS, THE CONTRACTOR SHALL UNDERCUT THE FOUNDATION MATERIAL PER THE DETAILS SHOWN ON THE TYPICAL SECTION AND REPLACE WITH SUITABLE MATERIAL. THIS WORK IS INCIDENTAL TO ITEM 203 EMBANKMENT.

ITEM 611 - 36" CONDUIT, TYPE B, 707.19, APP

ALUMINIZED STEEL PIPE MATERIAL SHALL BE FORMED FROM ALUMINIZED SHEETS CONFORMING TO THE REQUIREMENTS OF ASTM A-929 AND AASHTO M-274-87 AND MANUFACTURED ACCORDING TO AASHTO M36. NO OTHER COATING SHALL BE REQUIRED. CORRUGATIONS SHALL BE ANNULAR RIVETED WITH A PROFILE OF 2-2/3 INCHES X 1/2 INCH UNLESS OTHERWISE SPECIFIED. COUPLING BANDS SHALL BE ONE PIECE ANNULAR CORRUGATED, MADE FROM ALUMINIZED STEEL, 2 FEET WIDE. COUPLING BANDS SHALL BE FASTENED USING A MINIMUM OF 3 GALVANIZED 1/2 INCH DIAMETER BOLTS. THESE PIPES AND ASSOCIATED DRAINAGE STRUCTURES SHALL HAVE MATERIALS AND INSTALLATION METHODS SHALL CONFORM TO NORFOLK SOUTHERN STANDARD SPECIFICATIONS FOR MATERIALS AND CONSTRUCTION. THE PIPES AND ASSOCIATED MANHOLES SHALL PROVIDE STRUCTURAL STABILITY AND HYDRAULIC CAPACITY FOR COOPER E-80 LOADING WHEN SUCH OR PORTIONS THERE OF ARE LOCATED WITHIN THE INFLUENCE OF THE RAILROAD'S LIVE LOAD.

RAIL ITEM, MISC.: TRACK REMOVED

THE CONTRACTOR SHALL REMOVE THE TRACK AT THE DIRECTION OF THE NS SUPERVISOR. THE CONTRACTOR WILL RETAIN OWNERSHIP OF THE TRACK AND IS RESPONSIBLE FOR ITS DISPOSAL. THE CONTRACTOR'S REMOVAL RESPONSIBILITIES ARE 1) REMOVAL OF EXISTING TRACK 1 & 2 ONCE REALIGNMENT ONTO THE SHOOFLY HAS OCCURED AND 2) REMOVAL OF TEMPORARY TRACKS AFTER REALIGNMENT TO THE PERMANENT ALIGNMENT OCCURS.

RAIL ITEM, MISC.: TRACK LINING AND GRADING

TRACK LINING AND GRADING SHALL BE IN CONFORMANCE WITH NS STANDARD SPECIFICATIONS FOR DESIGN AND CONSTRUCTION. WORK SHALL BE PERFORMED BY NSRR FORCES. ESTIMATED QUANTITY GIVEN FOR INFORMATION ONLY.

RAIL ITEM, MISC.: TIE AND RAIL

ALL RAILWAY TIES WILL BE IN ACCORDANCE WITH THE NORFOLK SOUTHERN RAILWAY QUALITY ASSURANCE SPECIFICATIONS FOR TIES AND TIMBERS. WORK SHALL BE PERFORMED BY NSRR FORCES. ESTIMATED QUANTITY GIVEN FOR INFORMATION ONLY.

RAIL ITEM, MISC.: CUT AND THROW

TRACK CUT AND THROW SHALL BE IN CONFORMANCE WITH NS STANDARD SPECIFICATIONS FOR DESIGN AND CONSTRUCTION. WORK SHALL BE PERFORMED BY NSRR FORCES. ESTIMATED QUANTITY GIVEN FOR INFORMATION ONLY.

ITEM 203 - EMBANKMENT, AS PER PLAN

EMBANKMENT SHALL BE IN CONFORMANCE WITH NS STANDARD SPECIFICATIONS FOR DESIGN AND CONSTRUCTION. IF BENCHING OF SLOPES CARRYING RAILROAD LIVE LOAD IS REQUIRED, THE HEIGHT SHALL NOT EXCEED 2'-0". FILL QUANTITIES DUE TO BENCHING ARE NOT INCLUDED IN THE VALUES TABULATED HEREIN. IF BENCHING IS REQUIRED, THE QUANTITY AND COST OF PLACING FILL IN THE BENCHED EXCAVATION IS TO BE CONSIDERED INCIDENTAL TO THIS ITEM. ITEM 204 SUBGRADE COMPACTION, APP AND ITEM 204 - PROOF ROLLING, APP ARE CONSIDERED INCIDENTAL TO THIS ITEM.

PLACEMENT OF GRANULAR FILL BETWEEN THE TIED SHORING WALLS AT THE TEMPORARY BRIDGE ARE INCLUDED FOR PAYMENT WITH THE TEMPORARY BRIDGE QUANTITIES.

STAGED CONSTRUCTION

THESE PLANS SHOW STAGED TRACK WORK/CONSTRUCTION. CONTRACTOR SHALL INTEGRATE, STAGE, AND COORDINATE ALL WORK WITH ADJACENT BRIDGE AND ROADWAY PROJECTS AS NECESSARY. SEE THE BRIDGE PLANS FOR PHASED CONSTRUCTION NOTES RELATED TO THE RAILROAD STRUCTURES AND THE ROADWAY'S MAINTENANCE OF TRAFFIC PLANS FOR PHASING NOTES RELATED TO THE CONSTRUCTION OF US 36 AND SR 37. THE CONTRACTOR IS RESPONSIBLE FOR COMPLETING THE CONSTRUCTION FROM THE TOP OF SUB BALLAST DOWN PRIOR TO NS RAILROAD FORCES SCHEDULING THE TRACK WORK.

NSRR RAILROAD FORCES

NSRR WILL PROVIDE AND INSTALL ALL MATERIALS ABOVE SUBBALLAST FOR BOTH TRACKS IN PHASE 1 AND PHASE 2. THE NS TEMPORARY TRACKWORK MATERIALS FROM PHASE 1 SHALL BECOME THE PROPERTY OF THE CITY OF DELAWARE AFTER SHIFTING TRAIN TRAFFIC TO THE FINAL ALIGNMENT POSITION IN PHASE 2.

THE ESTIMATED QUANTITIES FOR NORFOLK SOUTHERN FORCES ARE PROVIDED FOR INFORMATION ONLY.

ITEM SPECIAL - RAIL ITEM, MISC.: BALLAST OVER BRIDGE WATERPROOFING

THE CONTRACTOR SHALL SUPPLY AND PLACE AN INITIAL 6 INCHES OF BALLAST ATOP THE COMPLETED BRIDGE WATERPROOFING AT THE DIRECTION OF THE NS SUPERVISOR. THE BALLAST SHALL BE FROM A NS PREFERRED VENDOR (A LIST OF VENDORS IS AVAILABLE UPON REQUEST FROM NS). PAYMENT FOR THIS ITEM FOR THE AMOUNT OF BALLAST SUPPLIED AND PLACED ATOP THE BRIDGE PER NS REQUIREMENTS.

ITEM SPECIAL - RAIL ITEM, MISC.: BALLAST OVER BRIDGE WATERPROOFING 107 CY

US 36 AND SR 37 RAILROAD GENERAL SUMMARY

Main summary table with columns: SHEET NUMBER (475-600), ITEM, TOTAL, UNIT, DESCRIPTION, SEE SHEET NO. Includes rows for Contractor Forces, Excavation, Embankment, and various material quantities.

TRACK GENERAL NOTES DEL -36 - 11.03 476 644

**ABBREVIATIONS**

A.D.B.E AS DIRECTED BY ENGINEER  
 A.O.B.E AS ORDERED BY ENGINEER  
 ABAN. ABANDONED  
 ABUT ABUTMENT  
 AH, AHD AHEAD  
 APPROX. APPROXIMATE  
 AREMA AMERICAN RAILWAY ENGINEERING & MAINTENANCE OF WAY ASSOCIATION

BOS BOTTOM OF STEEL  
 BEG BEGINNING  
 BG BELLS, GATES  
 BK BACK  
 BL BASE LINE  
 BLK/SIG BLOCK POINT/SIGNAL LOCATION  
 BR BRIDGE

C TO C CENTER TO CENTER  
 CC CENTER OF CURVE  
 CL CENTERLINE  
 CPI POINT OF INTERSECTION OF SIMPLE CURVE  
 CS CURVE TO SPIRAL

Ds DELTA OF SPIRAL  
 DWG(S) DRAWING(S)

E EAST  
 e EXTERNAL (VERTICAL)  
 Ea TRACK SUPER ELEVATION  
 EB EASTBOUND  
 ESHW ESTIMATED SEASONAL HIGH WATER  
 Eu TRACK UNDERBALANCE ELEVATION  
 EXIST EXISTING

FLBG FLASHING LIGHTS, BELLS, GATES  
 FT. FEET

G GRADE  
 GRD GROUND

I/L INTERLOCKING  
 IJ, INJ INSULATED JOINT

L LENGTH  
 L LENGTH OF HORIZONTAL CURVE  
 Lc LENGTH OF CURVE  
 Lch LONG CHORD OF CURVE  
 LCHs LONG CHORD OF SPIRAL  
 LH, RH LEFT HAND, RIGHT HAND  
 LOC LOCATION  
 LLT LAST LONG TIE  
 Ls LENGTH OF SPIRAL  
 LT LEFT  
 LT LONG TANGENT  
 LTs LONG TANGENT OF SPIRAL  
 LTT LAST TURNOUT TIE  
 LVC LENGTH OF VERTICAL CURVE

M/L, M.L., MAIN MAIN LINE  
 Mc MID-ORDINATE OF CURVE  
 MIN MINIMUM  
 MOW MAINTENANCE OF WAY  
 MP MILE POST  
 MPF MOVABLE POINT FROG  
 MPH MILES PER HOUR

N/A NOT APPLICABLE  
 N/F NOW OR FORMALLY  
 N NORTH  
 NIC NOT IN CONTRACT  
 NTS NOT TO SCALE

OH OVERHEAD  
 OHB OVERHEAD BRIDGE

PL PROPERTY LINE  
 PC, POC POINT OF/ON CURVE  
 POF POINT OF FROG  
 PGL PROFILE GRADE LINE  
 PI POINT OF INTERSECTION  
 POC POINT ON CURVE  
 PROP PROPOSED  
 PS POINT OF SWITCH  
 PT/POT POINT OF/ON TANGENT  
 PVC POINT OF VERTICAL CURVE  
 PVI POINT OF VERTICAL INTERSECTION  
 PVT POINT OF VERTICAL TANGENT

r RATE OF CHANGE OF GRADE  
 RT RIGHT  
 R RADIUS  
 ROW, R/W RIGHT OF WAY  
 RR RAILROAD

S/B SIGNAL BRIDGE  
 S SOUTH  
 SC SPIRAL TO CURVE  
 SECT. SECTION  
 SIG SIGNAL  
 SPI POINT OF INTERSECTION OF SPIRAL  
 ST SPIRAL TO TANGENT  
 STA. STATION  
 STD. STANDARD  
 STs SHORT TANGENT OF SPIRAL

TBR TO BE REMOVED  
 T/R, TOR TOP OF RAIL  
 T TANGENT LENGTH  
 TBA TO BE ABANDONED  
 TBD TO BE DETERMINED  
 TC TANGENT OF CURVE  
 TK, TRK TRACK  
 T.O. TURNOUT  
 TOR TOP OF RAIL  
 Ts TANGENT OF SPIRAL  
 TPY. TYPICAL

UG, U/G UNDER GRADE OR UNDERGROUND  
 UD UNDERDRAIN  
 UON UNLESS OTHERWISE NOTED  
 US/BG U.S. BRIDGE

V.C. VERTICAL CURVE  
 VAR VARIES  
 VERT VERTICAL

W WEST, WIDE OR WIDTH  
 W/., W/O. WITH, WITHOUT  
 WB WESTBOUND

X/O, X-OVER CROSSOVER  
 XING CROSSING  
 Xs X DISTNACE OF SPIRAL

Ys Y DISTANCE OF SPIRAL

CALCULATED  
 CDR  
 CHECKED  
 JLF

**TRACK GENERAL NOTES - ABBREVIATIONS**

**CONVENTIONAL SYMBOLS**

**RIGHT OF WAY**

|                           | EXISTING   | PROPOSED |
|---------------------------|------------|----------|
| RIGHT OF WAY              | — Ex R/W — | — R/W —  |
| AERIAL EASEMENT           | — Ex A —   | — A —    |
| CHANNEL EASEMENT          | — Ex CH —  | — CH —   |
| FLOWAGE EASEMENT          | — Ex FL —  | — CH —   |
| LIMITED ACCESS EASEMENT   | — Ex CH —  | — FL —   |
| RAILROAD EASEMENT         | — Ex RR —  | — RR —   |
| SCENIC EASEMENT           | — Ex SC —  | — SC —   |
| SLOPE EASEMENT            | — Ex SL —  | — SL —   |
| SEWER EASEMENT            | — Ex SW —  | — SW —   |
| UTILITY EASEMENT          | — Ex U —   | — U —    |
| STANDARD HIGHWAY EASEMENT | — Ex SH —  | — SH —   |

**TOPOGRAPHIC**

|                       | CLOCKWISE | COUNTERCLOCKWISE |        |
|-----------------------|-----------|------------------|--------|
| TREE LINE             |           |                  |        |
| SHRUB LINE            |           |                  |        |
|                       | EXISTING  | PROPOSED         | REMOVE |
| TREE                  |           |                  |        |
| SHRUB REMOVE          |           |                  |        |
| EVERGREEN             |           |                  |        |
| STUMP                 |           |                  |        |
| MAILBOX               |           |                  |        |
| WATER SERVICE         |           |                  |        |
| WETLAND               |           |                  |        |
| GRASS                 |           |                  |        |
| ARIEAL TARGET POST    |           |                  |        |
| LIGHT                 |           |                  |        |
| TELEPHONE MARKER      |           |                  |        |
| FIRE HYDRANT          |           |                  |        |
| WATER METER           |           |                  |        |
| WATER VALVE           |           |                  |        |
| UTILITY VALVE UNKNOWN |           |                  |        |
| TELEPHONE POLE        |           |                  |        |
| POWER POLE            |           |                  |        |
| WATER VALVE           |           |                  |        |

**UTILITIES**

|                         | EXISTING    | PROPOSED |
|-------------------------|-------------|----------|
| GAS LINE                | — G —       | — G —    |
| GAS VALVE               |             |          |
| FIBER OPTIC TV          | — FOctv —   | — FO —   |
| TELECOMMUNICATIONS LINE | — T —       | — T —    |
| WATER LINE              | — W —       | — W —    |
| CABLE TV                | — CTV —     |          |
| GAS METER               |             |          |
| OIL LINE                | — O —       |          |
| OVERHEAD COMBINED LINES | — OH-Comb — |          |
| OVERHEAD CABLE TV       | — OH-CTV —  |          |
| OVERHEAD ELECTRIC       | — OH-E —    |          |

**TRAFFIC CONTROL**

|                                   | EXISTING | PROPOSED |
|-----------------------------------|----------|----------|
| GUARDRAIL BARRIER DESIGN          |          |          |
| GUARDRAIL BARRIER DESIGN REPLACED |          |          |
| FENCE LINE                        |          |          |
| GATE                              |          |          |
| CABLE GUARDRAIL                   |          |          |
| GUARDRAIL LEFT                    |          |          |
| GUARDRAIL LEFT REPLACED           |          |          |
| GUARDRAIL RIGHT                   |          |          |
| GUARDRAIL RIGHT REPLACED          |          |          |
| RAILROAD LINE, 1:1 TO 1:50 SCALE  |          |          |
| RAILROAD LINE, 1:100 & OVER SCALE |          |          |
| CENTER LINE                       |          |          |
| NOISE WALL                        |          |          |
| SIGNAL/TRAFFIC INTERCONNECT       |          |          |

**SURVEY CONTROL**

|                            |          |
|----------------------------|----------|
| EXISTING R/W MONUMENT BOX  |          |
| PROPOSED R/W MONUMENT BOX  |          |
| EXISTING CONCRETE MONUMENT |          |
| PROPOSED CONCRETE MONUMENT |          |
| RAILROAD SPIKE FOUND       |          |
| RAILROAD SPIKE SET         |          |
| IRON PIN FOUND             | ○ I.P.F. |
| IRON PIN FOUND W/ ID CAP   | ⊙ I.P.F. |
| IRON PIN SET W/ ID CAP     | ● I.P.S. |
| IRON PIPE FOUND            | ⊙ I.P.F. |
| IRON PIPE SET              | ● I.P.S. |
| P.K. NAIL FOUND            | ○ P.K.F. |
| P.K. NAIL SET              | ● P.K.S. |

**PROPERTY AND CORPORATION LIMITS**

|                       |  |
|-----------------------|--|
| CORPORATION LINE      |  |
| COUNTY LINE           |  |
| TOWNSHIP LINE         |  |
| SECTION LINE          |  |
| OWNERSHIP HOOK SYMBOL |  |
| PROPERTY LINE SYMBOL  |  |
| BREAK LINE SYMBOL     |  |
| RESIDENTIAL           |  |
| COMMERCIAL            |  |
| OUT-BUILDING          |  |

**DRAINAGE**

|                  | EXISTING    | PROPOSED |
|------------------|-------------|----------|
| FLOOD BOUNDARY   |             |          |
| FLOODWAY         |             |          |
| CATCH BASIN      |             |          |
| MANHOLE          |             |          |
| FLOW ARROW       |             |          |
| DRAINAGE CULVERT |             |          |
| DITCH LINE       |             |          |
| STORM SEWER LINE |             |          |
| UNDERDRAIN       |             |          |
| TRENCH DRAIN     |             |          |
| DRAINAGE AREA    |             |          |
| MAJOR CONTOURS   | --- 935 --- | — 935 —  |
| MINOR CONTOURS   |             |          |

**MOT**

|                           | EXISTING | PROPOSED |
|---------------------------|----------|----------|
| EDGE OF PAVEMENT          |          |          |
| EDGE OF SHOULDER          |          |          |
| DITCH/CREEK               |          |          |
| CROSSWALK LINE            |          |          |
| DOUBLE SOLID              |          |          |
| DRUMS                     |          |          |
| PORTABLE CONCRETE BARRIER |          |          |
| PASSING PROHIBITED LEFT   |          |          |
| PASSING PROHIBITED RIGHT  |          |          |

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CALCULATED  
CDR  
CHECKED  
JLF

**LEGEND**

**DEL-36-11.03**

478  
644



SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE BELOW FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

USE THE FOLLOWING PROJECT CONTROL, VERTICAL POSITIONING, AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

PROJECT CONTROL

POSITIONING METHOD: STATIC/RAPID GPS OBSERVATIONS, TOTAL STATION MEASUREMENTS AND DIFFERENTIAL LEVELING

MONUMENT TYPE: 13/16" I.D. IRON PIPES WITH ALUMINUM CAP, 13/16" I.D. IRON PIPES WITH PLASTIC CAP INSCRIBED "EMHT INC" AND MAGNETIC NAILS

VERTICAL POSITIONING  
ORTHOMETRIC HEIGHT DATUM: NAVD88  
GEOID: GEOID12B

HORIZONTAL POSITIONING  
REFERENCE FRAME: NAD83 (2011)  
ELLIPSOID: GRS80

MAP PROJECTION: LAMBERT CONFORMAL CONIC  
COORDINATE SYSTEM: OHIO STATE PLANE (NORTH ZONE)  
COMBINED SCALE FACTOR: 1.0000100201 (GRID TO GROUND)

ORIGIN OF COORDINATE  
SYSTEM: 0,0,0

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 823.

UNITS ARE IN U.S. SURVEY FEET. USE THE FOLLOWING CONVERSION FACTOR: 1 METER = 3.280833333 U.S. SURVEY FEET.

BENCHMARKS

BENCHMARK: SOURCE Y307  
NGS BENCHMARK DISK "KZ1562" SET ON THE TOP OF THE EAST END OF THE BRIDGE SEAT OF THE MAIN TRACK OVERPASS (EAST ONE OF TWO) OVER U.S. HIGHWAY 36 (WILLIAM STREET), 7 FEET EAST OF THE EAST RAIL, 2.2 FEET NORTH OF THE SOUTH FACE OF THE ABUTMENT AND 4 FEET BELOW THE LEVEL OF THE TRACK. NOTE - MARK MAY BE REACHED BY GOING 0.45 MILES EAST ALONG U.S. HIGHWAY 36 FROM THE DELAWARE CITY HALL.

ELEVATION = 902.70

BENCHMARK: BM#1  
A 308 NGS BENCHMARK DISK "KZ1567" BEING ABOUT 1.0 MILE EAST ALONG U.S. HIGHWAY 36 FROM THE DELAWARE CITY HALL, ABOUT 90 YARDS EAST OF THE EAST EDGE OF THE PENNSYLVANIA RAILROAD OVERPASS OVER THE HIGHWAY, IN FRONT OF THE WDLR RADIO STATION, SET ON THE TOP OF THE SOUTHWEST CORNER OF A 3-FOOT SQUARE AND 6 FOOT DEEP CATCH BASIN, 21 FEET NORTH OF THE CENTER LINE OF THE HIGHWAY AND 1 FOOT BELOW THE LEVEL OF THE HIGHWAY.

ELEVATION = 934.69 (EMHT ELEV.)

BENCHMARK: BM#2  
RAILROAD SPIKE IN THE WEST SIDE OF A UTILITY POLE AT THE NORTHEAST CORNER OF BOWTOWN ROAD AND SUNBURY ROAD (U.S. 36/37).

ELEVATION = 937.24

BENCHMARK: BM#3  
CHISELED "X" ON THE SOUTHEAST BOLT OF THE METAL SIGNAL POLE LOCATED AT THE SOUTHEAST CORNER OF THE INTERSECTION OF CHANNING STREET AND EAST CENTRAL AVENUE (U.S. 37).

ELEVATION = 920.80

BENCHMARK: BM#4  
CHISELED "X" ON THE NORTH FLANGE BOLT OF THE FIRE HYDRANT LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF EAST WINTER STREET AND EAST CENTRAL AVENUE (U.S. 37).

ELEVATION = 928.39

BENCHMARK: BM#5  
CHISELED "X" ON THE NORTH FLANGE BOLT OF THE FIRE HYDRANT LOCATED IN FRONT OF 342 EAST WILLIAM STREET (U.S. 36).

ELEVATION = 931.13

BENCHMARK: BM#7  
CHISELED "X" ON THE EAST FLANGE BOLT OF THE FIRST FIRE HYDRANT NORTH OF THE INTERSECTION OF KILBOURNE ROAD (STATE ROUTE 521) AND FIELDCREST DRIVE. BEING ON THE WEST SIDE OF KILBOURNE ROAD (STATE ROUTE 521).

ELEVATION = 943.83

BENCHMARK: BM#8  
CHISELED SQUARE ON THE NORTH CORNER OF THE CONCRETE BASE FOR THE TRAFFIC CONTROL BOX LOCATED 50 FEET OF THE EAST POINT CROSSING.

ELEVATION = 932.38

BENCHMARK: BM#16  
CHISELED "X" ON THE NORTH RIM OF A SANITARY MANHOLE LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF KILBOURNE ROAD (STATE ROUTE 521) AND SUNBURY ROAD (U.S. 36/37).

ELEVATION = 938.92

CONTROL POINTS

| POINT NO. | NORTHING (Ground) | EASTING (Ground) | ELEV.   | DESCRIPTION                          |
|-----------|-------------------|------------------|---------|--------------------------------------|
| 1         | 225348.489        | 1820438.519      | 945.923 | 1152 GPS 1 171062 IPSw/cap           |
| 15        | 230018.923        | 1818732.153      | 941.56  | 1152 15 IPSw/cap                     |
| 16        | 229555.276        | 1818270.974      | 941.53  | 1152 16 IPSw/cap                     |
| 17        | 229810.283        | 1817654.100      | 936.45  | 1152 17 IPSw/cap                     |
| 18        | 230070.634        | 1816945.883      | 938.366 | 1152 18 IPSw/cap                     |
| 19        | 230409.555        | 1816054.076      | 935.31  | 1173 19 CHIS TRI Tri w/punch         |
| 20        | 230390.254        | 1815770.720      | 933.42  | 1173 20 CHIS TRI Tri w/punch         |
| 21        | 230584.860        | 1815336.255      | 935.52  | 1152 21 IPSw/cap                     |
| 22        | 230804.133        | 1814898.321      | 931.03  | 1165 22 W/SHIN MAGS                  |
| 201       | 230495.703        | 1815368.976      | 932.765 | 1152 GPS 201 82171 IPSw/cap          |
| 202       | 230322.583        | 1816352.227      | 936.545 | 1152 GPS 202 82171 IPSw/cap          |
| 203       | 231157.027        | 1813799.766      | 920.561 | 1152 GPS 203 IPSw/cap                |
| 204       | 230967.753        | 1814328.168      | 926.155 | 1152 GPS 204 IPSw/cap                |
| 205       | 229368.603        | 1818512.304      | 940.535 | 1152 GPS 205 W/ALUM CAP IPSw/cap     |
| 206       | 229097.457        | 1819185.048      | 938.63  | 1152 GPS 206 W/ALUM CAP IPSw/cap     |
| 207       | 230359.321        | 1819261.453      | 941.666 | 1152 GPS 207 IPSw/cap                |
| 208       | 230741.357        | 1819851.620      | 941.585 | 1165 GPS 208 W/SHIN MAGS             |
| 209       | 232848.958        | 1815429.135      | 932.455 | 1152 GPS 209 IPSw/cap                |
| 210       | 232999.000        | 1815856.528      | 935.487 | 1152 GPS 210 IPSw/cap                |
| 211       | 228094.454        | 1817155.494      | 912.913 | 1152 GPS 211 IPSw/cap                |
| 212       | 228490.014        | 1816801.095      | 912.88  | 1152 GPS 212 IPSw/cap                |
| 213       | 228762.633        | 1815453.308      | 929.375 | 1152 GPS 213 IPSw/cap                |
| 214       | 228644.683        | 1815812.508      | 927.059 | 1152 GPS 214 IPSw/cap                |
| 224       | 224370.591        | 1820242.139      | 939.885 | 1152 GPS 214 171062 IPSw/cap         |
| 300       | 230455.832        | 1815509.921      | 932.54  | 1152 GPS 300 W/ALUM CAP DLZ IPSw/cap |
| 401       | 230361            | 1816224          | 934.685 | 1085 BM#1 A 308 BMF                  |
| 402       | 230338            | 1816323          | 937.24  | 1085 BM#2 RRS BMF                    |
| 403       | 231165            | 1813796          | 920.797 | 1185 BM#3 CHIS X BMS                 |
| 404       | 230953            | 1814335          | 928.394 | 1185 BM#4 CHIS X BMS                 |
| 407       | 230529            | 1819520          | 943.83  | 1185 BM#7 CHIS X BMS                 |
| 408       | 230383            | 1815597          | 932.38  | 1085 BM#8 CHIS SQ BMF                |
| 416       | 229586            | 1818270          | 938.92  | 1185 BM#16 CHIS X BMS                |

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TRACK GENERAL NOTES - SURVEY PARAMETERS

DEL -36 -11.03

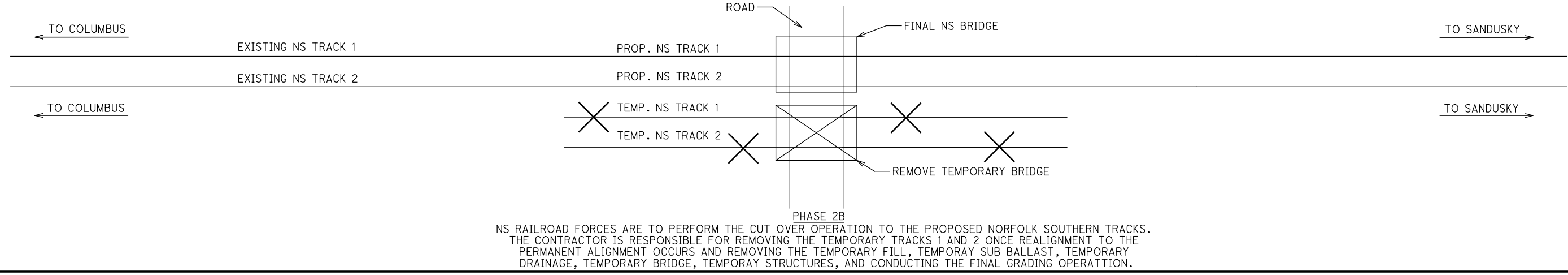
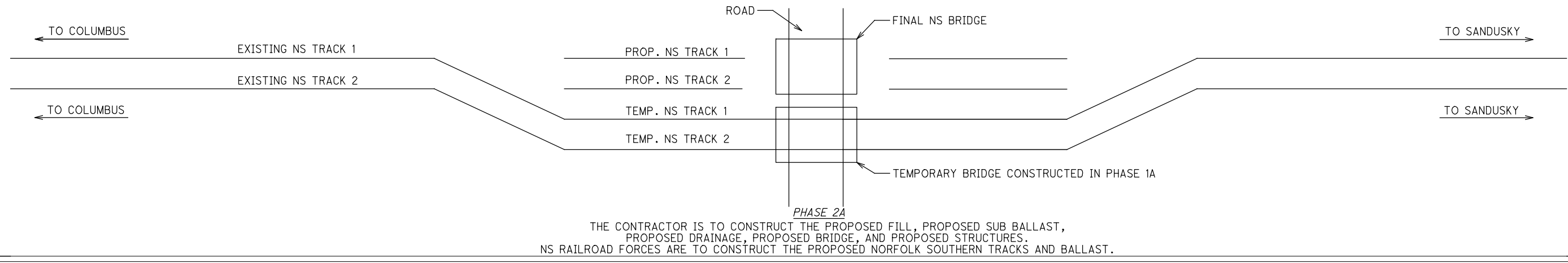
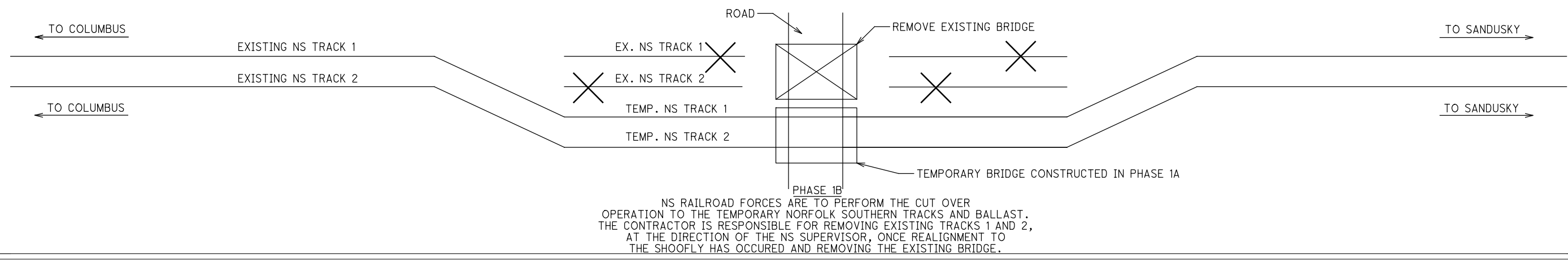
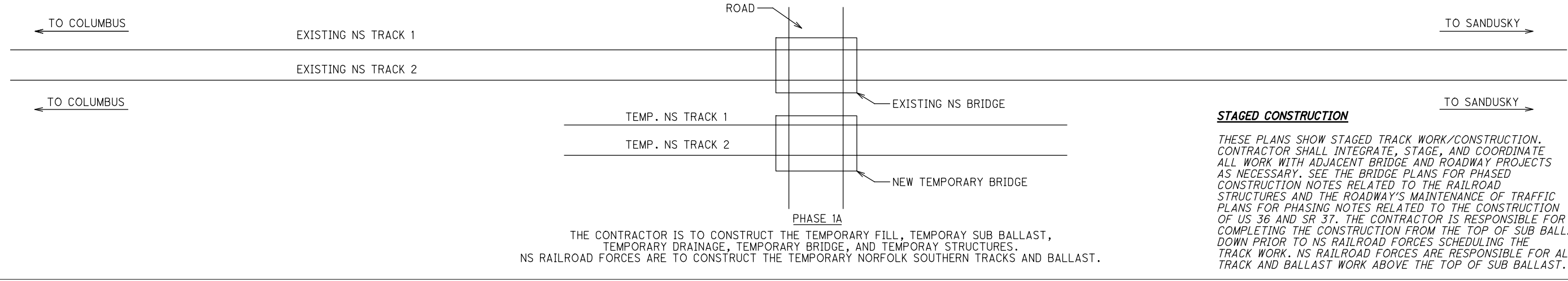
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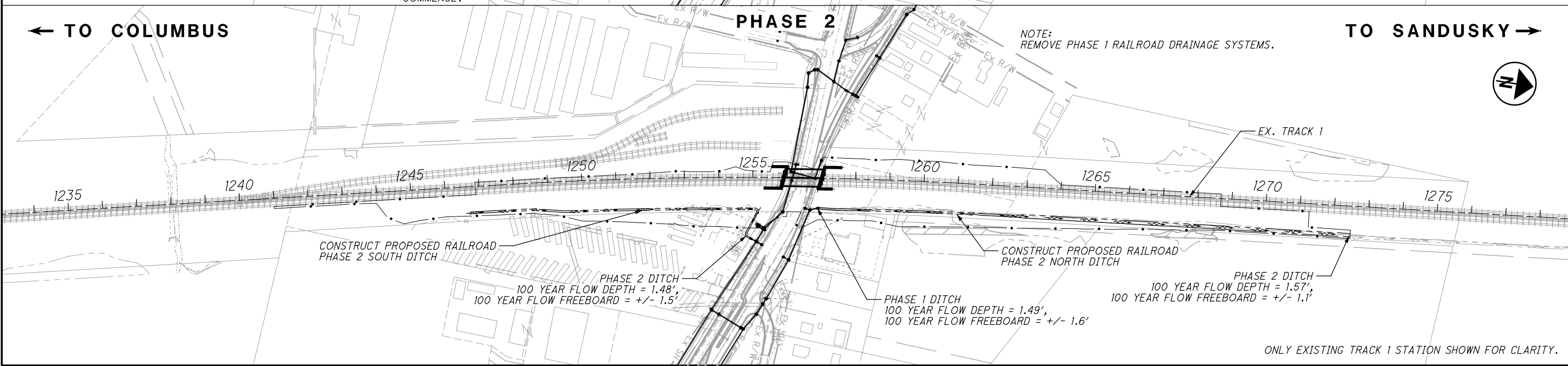
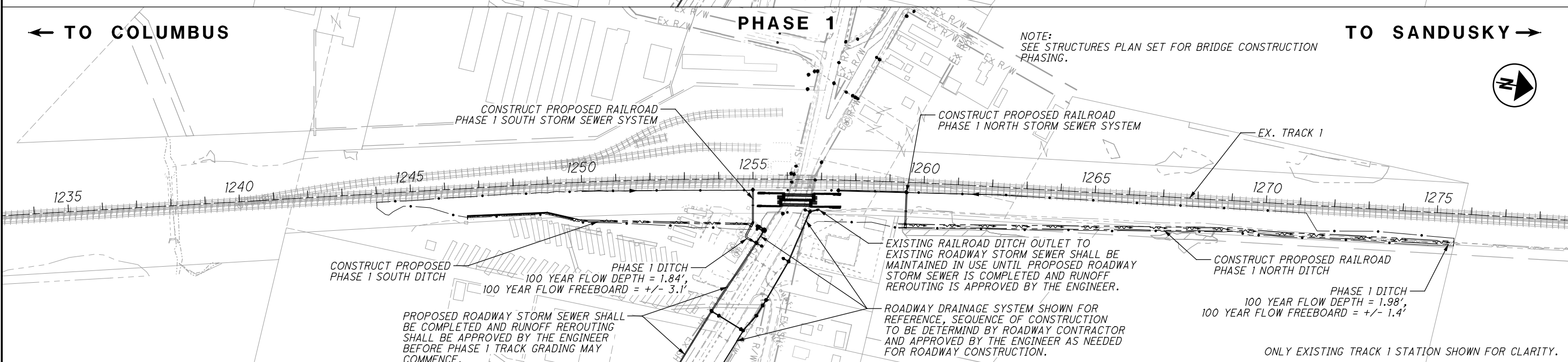
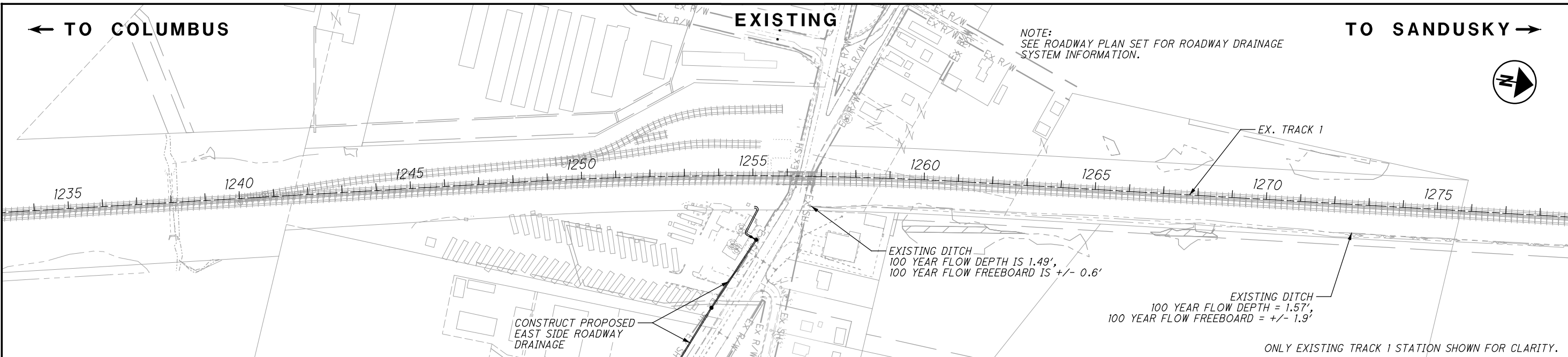
TRACK STAGING SCHEMATIC

DEL-36-11.03

480  
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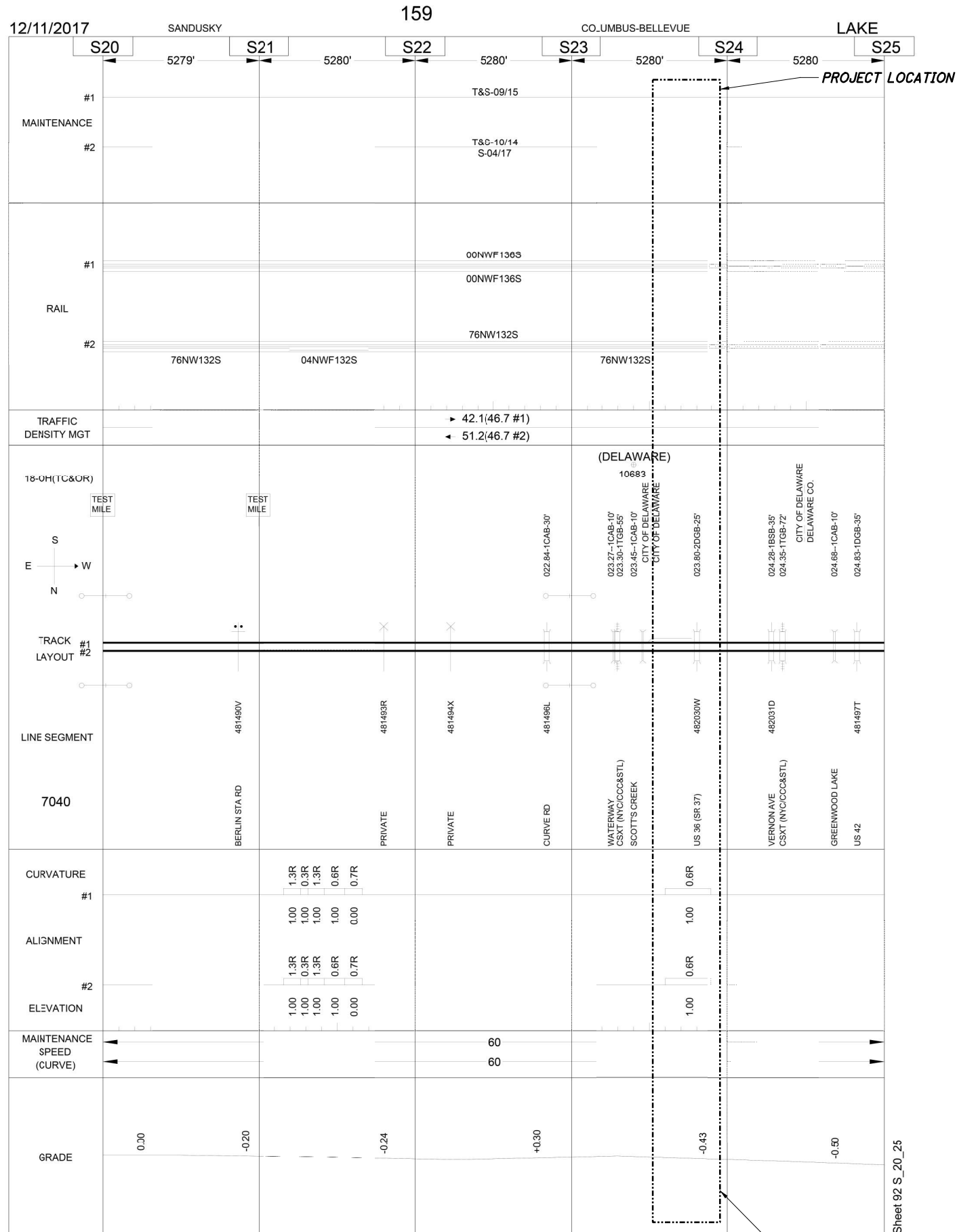
|            |     |     |     |
|------------|-----|-----|-----|
| CALCULATED | 0   | 150 | 300 |
| CDR        |     |     |     |
| CHECKED    | JLF |     |     |

HORIZONTAL SCALE IN FEET

**DRAINAGE PHASING PLAN**

**DEL-36-11.03**

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**PROPOSED TRACK CHART INFORMATION**

| PHASE | TRACK # | STA.       | STA.       | LENGTH | CURVATURE     | ELEVATION | PROFILE | TRACK WORK                                         |
|-------|---------|------------|------------|--------|---------------|-----------|---------|----------------------------------------------------|
| 1     | 1       | 4246+09.41 | 4268+47.20 | 2238   | 1° 0' / 1° 0' | 1"        | -0.27%  | CONSTRUCT TEMPORARY TRACK 1                        |
|       | 2       | 3245+89.02 | 3268+62.75 | 2274   | 0°45' / 0°35' | 1"        | 0.15%   | CONSTRUCT TEMPORARY TRACK 2                        |
|       | 1       | 4255+86.86 | 4256+77.36 | 91     |               |           |         | CONSTRUCT TEMPORARY BRIDGE NS MP S-23.80           |
|       | 1       | 1246+09.41 | 1268+49.81 | 2240   | 0°30'00"      | 1"        | -       | REMOVE EXISTING TRACK 1                            |
|       | 2       | 2245+89.02 | 2268+68.43 | 2279   | 0°29'30"      | 1"        | -       | REMOVE EXISTING TRACK 2                            |
|       | 1       | 1256+19.52 | 1256+80.59 | 61     |               |           |         | REMOVE EXISTING BRIDGE 023.80-2DGB-25*             |
| 2     | 1       | 5246+09.22 | 5268+50.26 | 2241   | 0°30'00"      | 1"        | 0.28%   | CONSTRUCT PROPOSED TRACK 1 (ON EXISTING ALIGNMENT) |
|       | 2       | 6245+89.11 | 6268+65.62 | 2277   | 0°29'00"      | 1"        | 0.18%   | CONSTRUCT PROPOSED TRACK 2                         |
|       | 1       | 5255+89.38 | 5257+02.58 | 113    |               |           |         | CONSTRUCT PROPOSED BRIDGE NS MP S-23.80            |
|       | 1       | 4246+08.82 | 4268+47.65 | 2239   | 1°0' / 1°0'   | 1"        | -0.27%  | REMOVE TEMPORARY TRACK 1                           |
|       | 2       | 3245+88.77 | 3268+62.96 | 2274   | 0°45' / 0°35' | 1"        | 0.15%   | REMOVE TEMPORARY TRACK 2                           |
|       | 1       | 4255+86.86 | 4256+77.36 | 91     |               |           |         | REMOVE TEMPORARY BRIDGE NS MP S-23.80              |

**TRACK QUANTITIES**

| PHASE                                | TRACK | STATION    | STATION    | REMOVED     | LINING AND GRADING | PROPOSED    | CUT AND THROW |
|--------------------------------------|-------|------------|------------|-------------|--------------------|-------------|---------------|
|                                      |       |            |            | LF          | LF                 | LF          | EACH          |
| 1                                    | 1     | 4241+00.00 | 4246+09.41 |             | 509                |             |               |
|                                      |       | 4246+09.41 | 4268+47.20 | 2238        |                    | 2238        | 2             |
|                                      | 2     | 3238+00.00 | 3245+89.02 |             | 703                |             |               |
|                                      |       | 3245+89.02 | 3268+62.75 | 2274        |                    | 2274        | 2             |
| 2                                    | 1     | 5241+00.00 | 5246+09.22 |             | 509                |             |               |
|                                      |       | 5246+09.22 | 5268+50.26 | 2241        |                    | 2241        | 2             |
|                                      |       | 5268+50.26 | 5275+50.00 |             | 700                |             |               |
|                                      | 2     | 6238+00.00 | 6245+89.11 |             | 789                |             |               |
|                                      |       | 6245+89.11 | 6268+65.62 | 2277        |                    | 2277        | 2             |
|                                      |       | 6268+65.62 | 6275+50.00 |             | 684                |             |               |
| <b>TOTALS CARRIED TO SUB SUMMARY</b> |       |            |            | <b>9030</b> | <b>5370</b>        | <b>9030</b> | <b>8</b>      |

General Reference Only - Not for Operational Purposes

Sheet 92 S\_20\_25

CALCULATED  
CDR  
CHECKED  
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TRACK LINING CHART

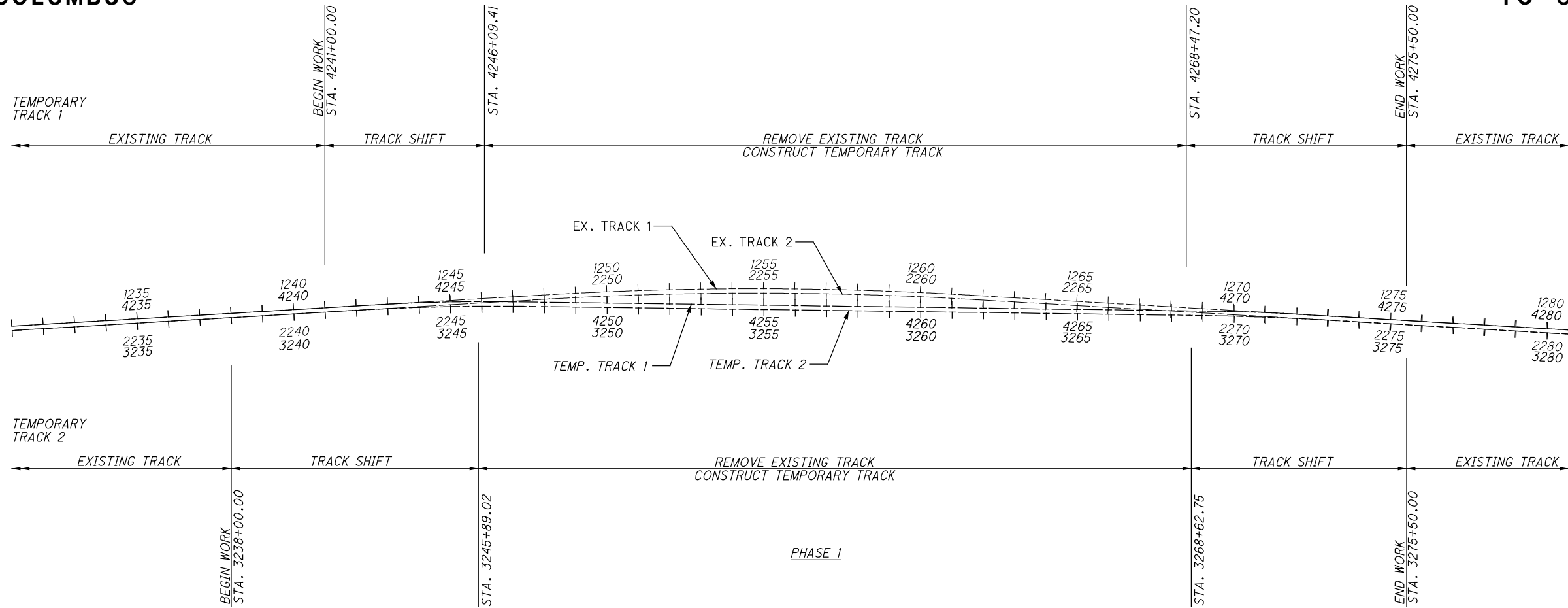
DEL-36-11.03

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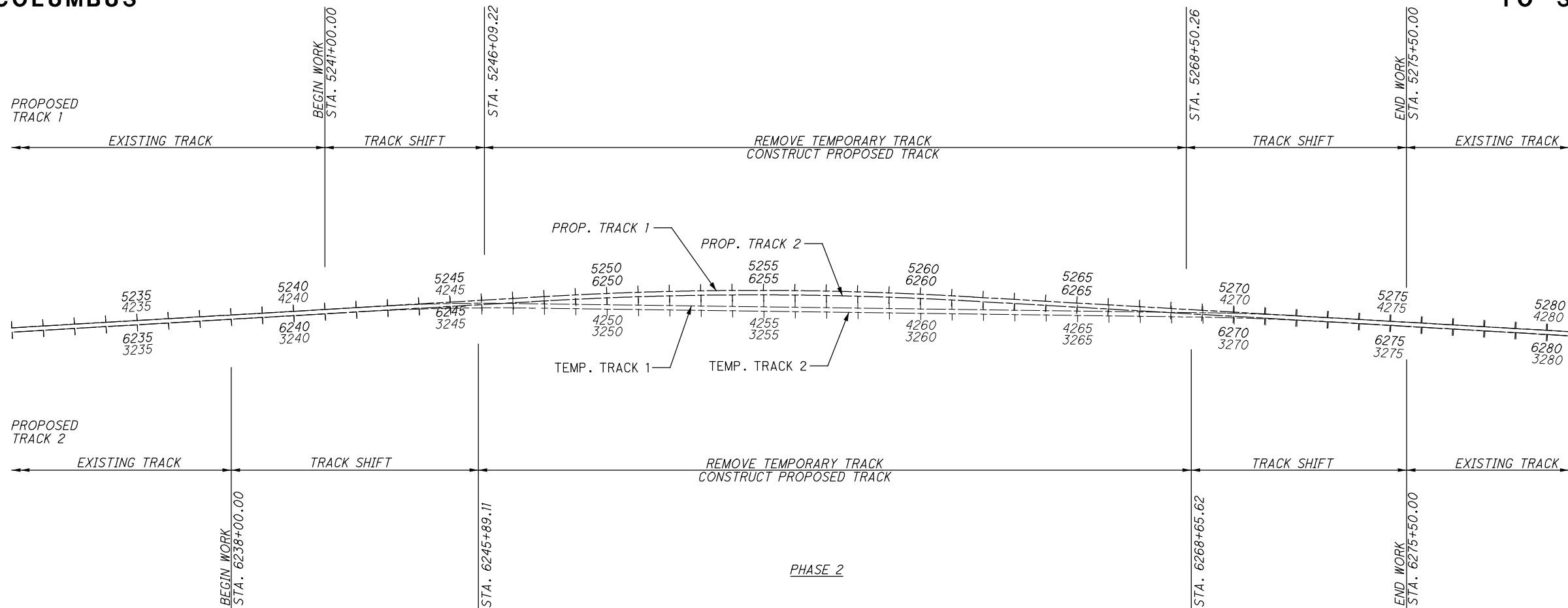
← TO COLUMBUS

TO SANDUSKY →



← TO COLUMBUS

TO SANDUSKY →



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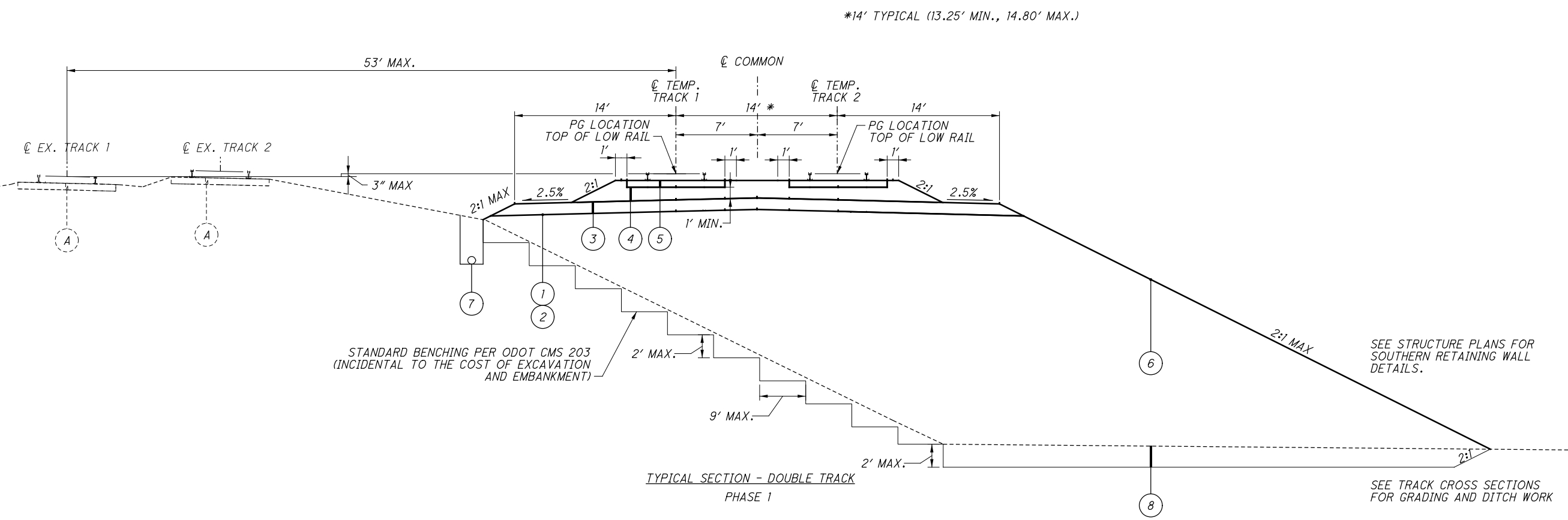
TRACK LINING CHART

DEL-36-11.03

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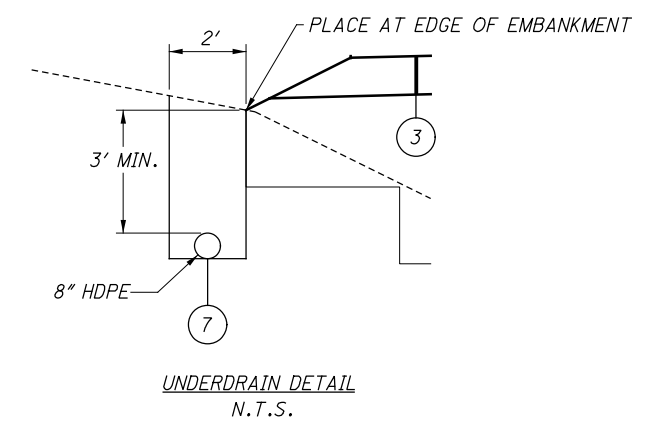
PROPOSED LEGEND

- ① ITEM 204 - SUBGRADE COMPACTION, AS PER PLAN
- ② ITEM 204 - PROOF ROLLING, AS PER PLAN
- ③ ITEM SPECIAL RAIL ITEM, MISC.: SUB-BALLAST - 12" DEPTH
- ④ ITEM SPECIAL RAIL ITEM, MISC.: BALLAST
- ⑤ ITEM SPECIAL RAIL ITEM, MISC.: TIE AND RAIL
- ⑥ ITEM 659 - SEEDING AND MULCHING
- ⑦ ITEM 605 - 8" HDPE UNDERDRAIN IN GRANULAR BACKFILL TRENCH
- ⑧ ITEM 203 - EXCAVATION, AS PER PLAN

EXISTING LEGEND

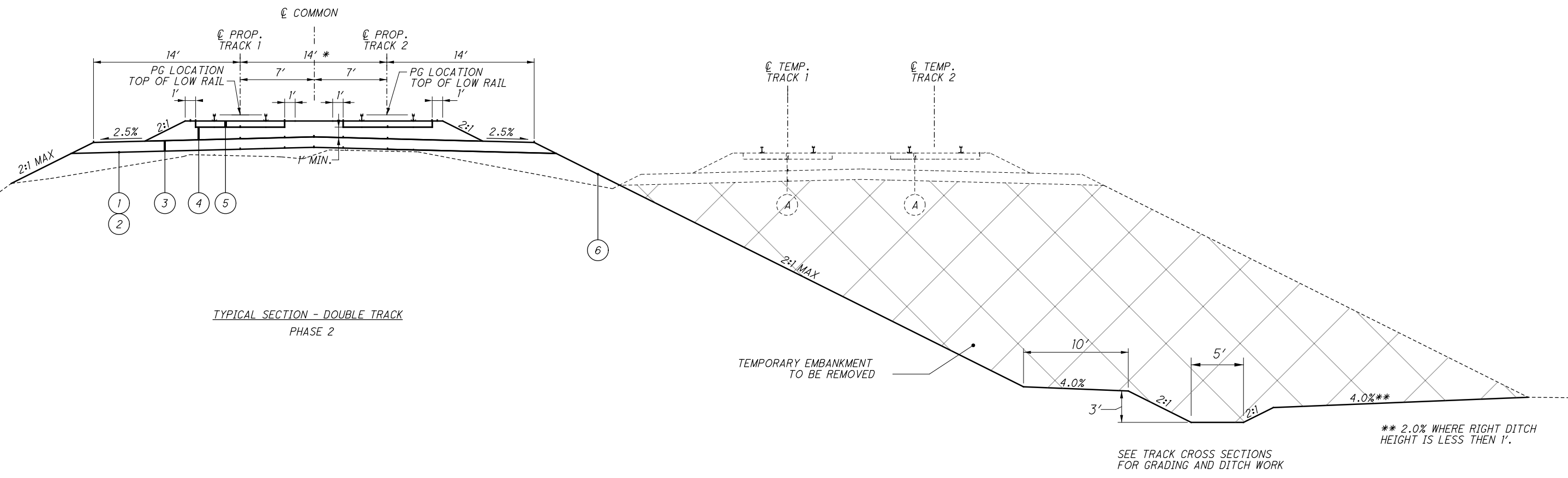
- ⊙ EXISTING TIE AND RAIL

| <u>NSRR TRACK STRUCTURE</u>                            |       |
|--------------------------------------------------------|-------|
| 136# RE RAIL (7 7/16")                                 | 0.62' |
| TIE PLATE (3/4")                                       | 0.06' |
| WOOD TIE (7")                                          | 0.58' |
|                                                        | 1.26' |
| TOP OF RAIL PROFILE GRADE<br>TO SUBGRADE CROWN = 3.26' |       |



\*14' TYPICAL (13.25' MIN., 14.20' MAX.)

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TYPICAL SECTION - DOUBLE TRACK  
PHASE 2

PROPOSED LEGEND

- ① ITEM 204 - SUBGRADE COMPACTION, AS PER PLAN
- ② ITEM 204 - PROOF ROLLING, AS PER PLAN
- ③ ITEM SPECIAL RAIL ITEM, MISC.: SUB-BALLAST - 12" DEPTH
- ④ ITEM SPECIAL RAIL ITEM, MISC.: BALLAST
- ⑤ ITEM SPECIAL RAIL ITEM, MISC.: TIE AND RAIL
- ⑥ ITEM 659 - SEEDING AND MULCHING

EXISTING LEGEND

- Ⓐ EXISTING TIE AND RAIL

| NSRR TRACK STRUCTURE                                   |       |
|--------------------------------------------------------|-------|
| 136# RE RAIL (7 7/16")                                 | 0.62' |
| TIE PLATE (3/4")                                       | 0.06' |
| WOOD TIE (7")                                          | 0.58' |
|                                                        | 1.26' |
| TOP OF RAIL PROFILE GRADE<br>TO SUBGRADE CROWN = 3.26' |       |

SEE TRACK CROSS SECTIONS  
FOR GRADING AND DITCH WORK

\*\* 2.0% WHERE RIGHT DITCH  
HEIGHT IS LESS THEN 1'.



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← TO COLUMBUS

TO SANDUSKY →

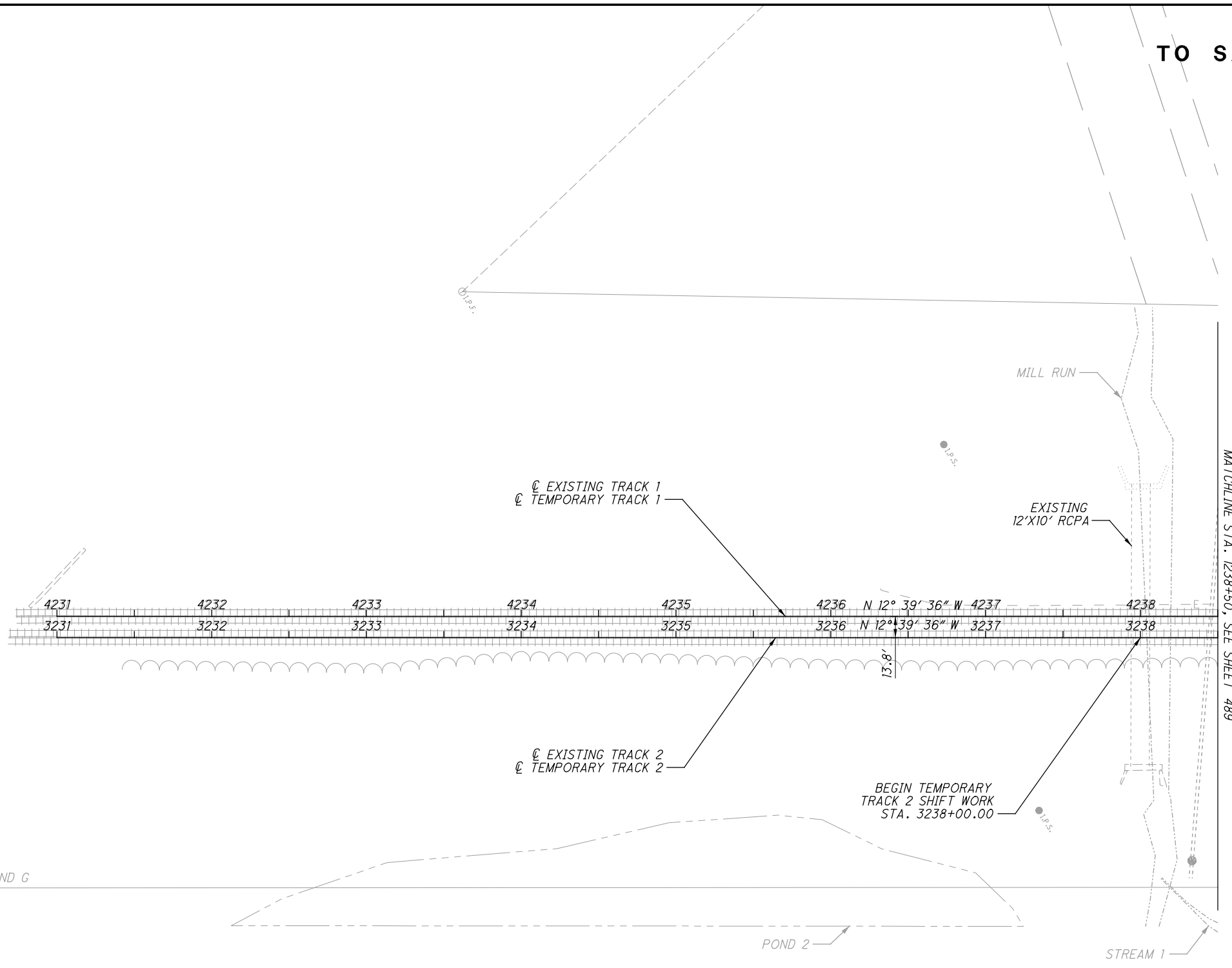


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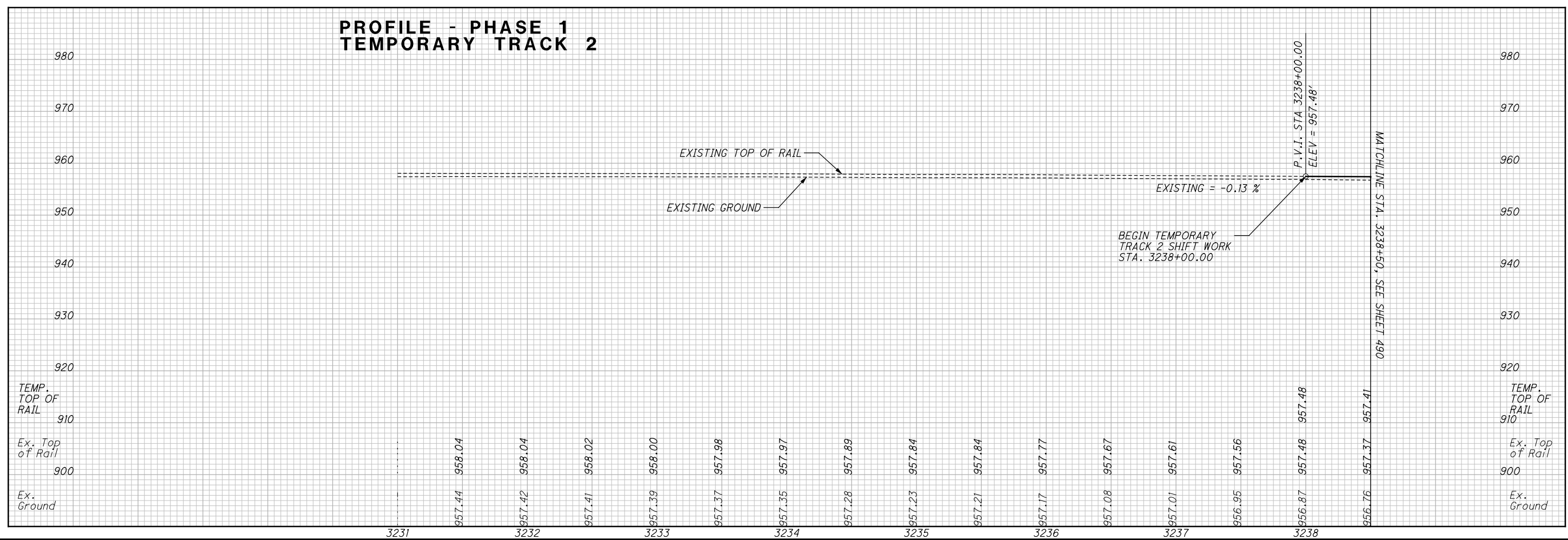
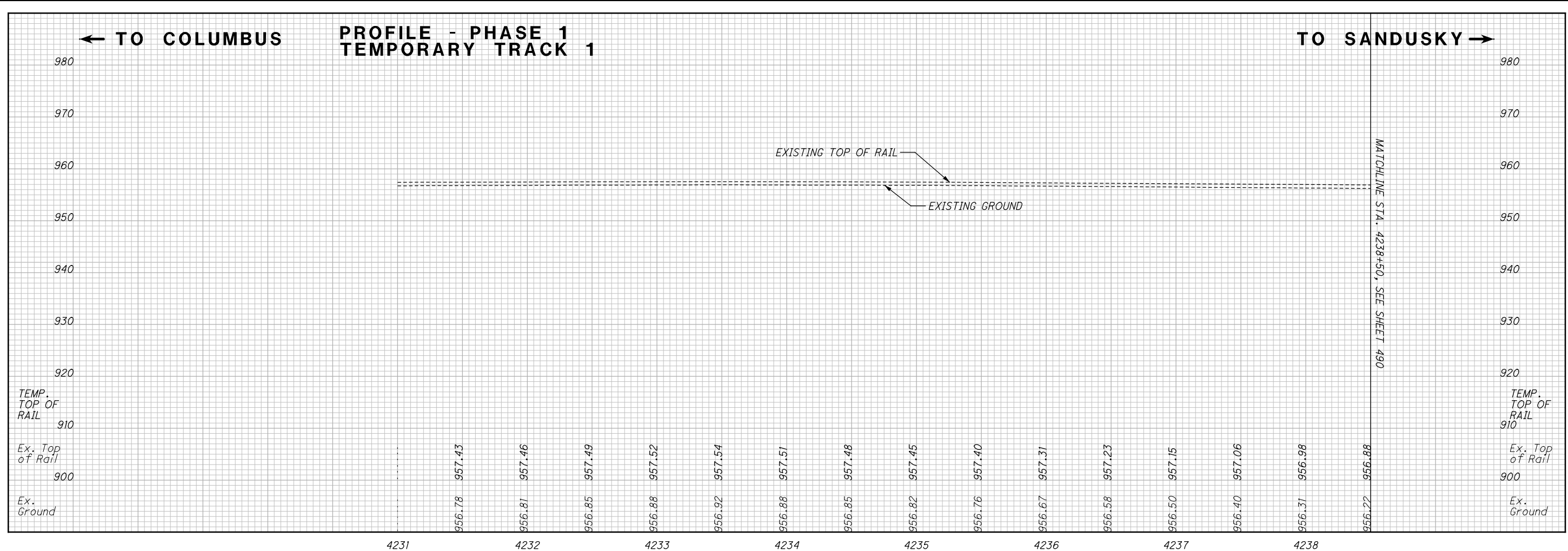
TRACK PLAN - PHASE 1  
EX. STA. 1231+00 TO EX. STA. 1238+50

DEL-36-11.03

487  
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**TRACK PROFILES - PHASE 1**  
**EX. STA. 1231+00 TO EX. STA. 1238+50**

**DEL-36-11.03**

488  
644

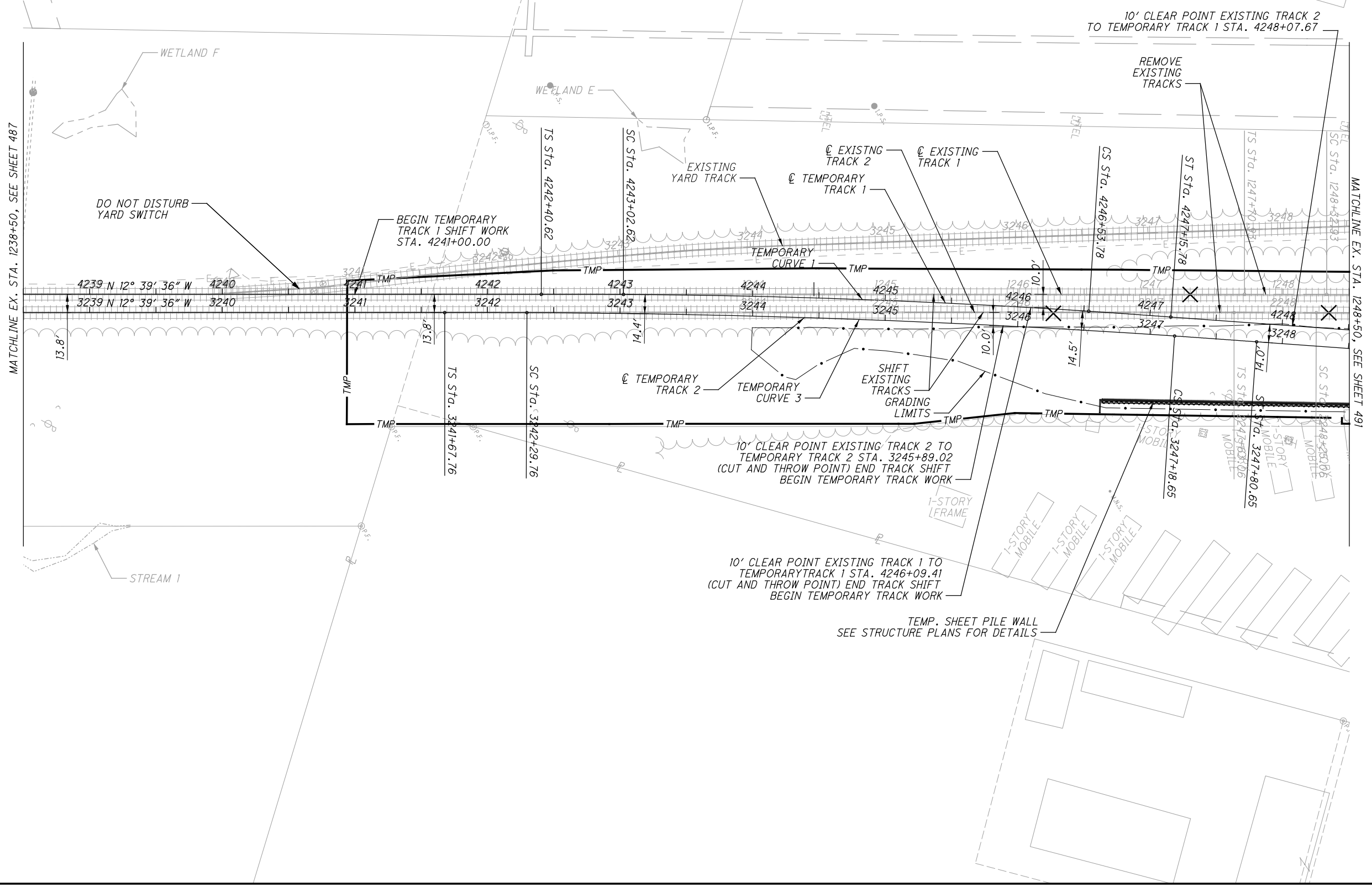
← TO COLUMBUS

TO SANDUSKY →

NOTE:  
 SHIFT EXISTING TRACK 1 FROM STA. 4241+00.00 TO STA. 4246+09.41.  
 REMOVE EXISTING TRACK 1 FROM STA. 4246+09.41 TO STA. 4268+47.20.  
 SHIFT EXISTING TRACK 2 FROM STA. 3238+00.00 TO STA. 3245+89.02.  
 REMOVE EXISTING TRACK 2 FROM STA. 3245+89.02. TO STA. 3268+62.75.

TEMP. CURVE 1 PI  
 STA. 4244+78.29  
 $Dc = 1^{\circ}00'00''$   
 $\Delta c = 3^{\circ}30'42''$  (RT)  
 $R = 5729.65'$   
 $Ea = 1''$   
 $Ls1 = 62.00'$   
 $Ls2 = 62.00'$   
 $DS = 60$  MPH (F)

TEMP. CURVE 3 PI  
 STA. 3244+74.33  
 $Dc = 0^{\circ}45'00''$   
 $\Delta c = 3^{\circ}40'00''$  (RT)  
 $R = 7639.49'$   
 $Lc = 488.89'$   
 $Ea = 1''$   
 $Ls1 = 62.00'$   
 $Ls2 = 62.00'$   
 $DS = 60$  MPH (F)



X = REMOVAL

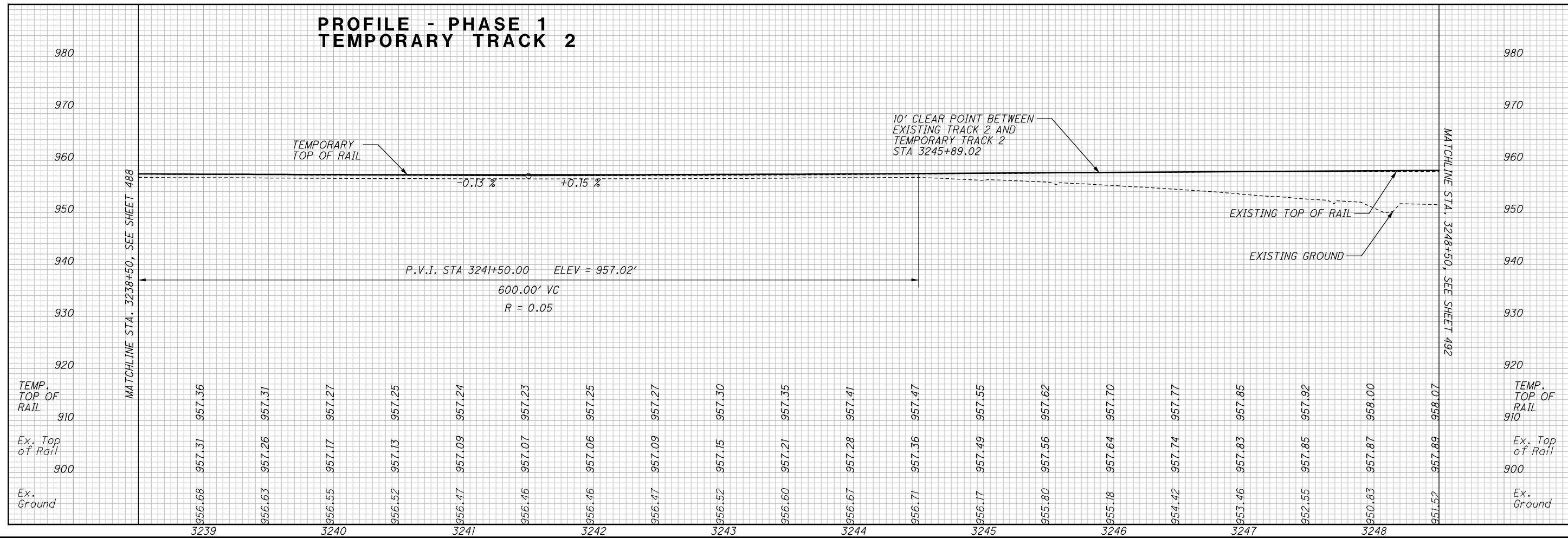
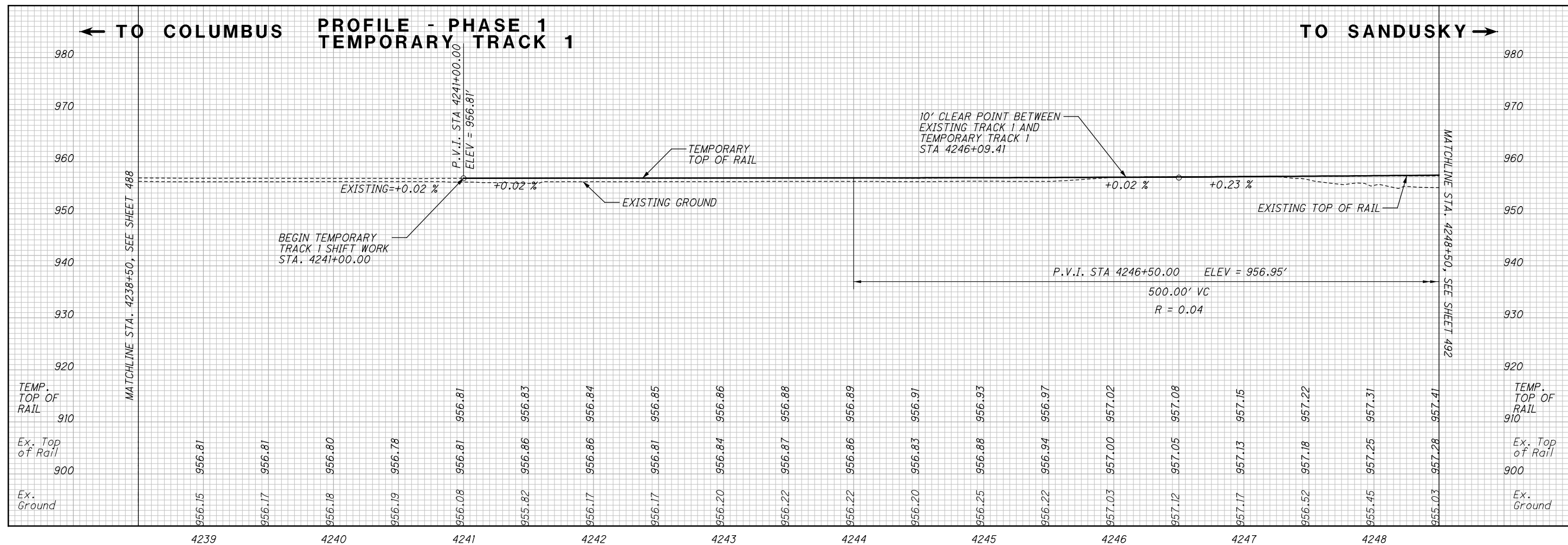
TRACK PLAN - PHASE 1  
 EX. STA. 1238+50 TO EX. STA. 1248+50

DEL-36-11.03

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TRACK PROFILES - PHASE 1  
EX. STA. 1238+50 TO EX. STA. 1248+50

DEL-36-11.03

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← TO COLUMBUS

TO SANDUSKY →

NOTES:

- ① PROPOSED ROADWAY STORM SEWER SHALL BE COMPLETED AND RUNOFF REROUTING SHALL BE APPROVED BY THE ENGINEER BEFORE PHASE I TRACK GRADING MAY COMMENCE.
- ② EXISTING RAILROAD DITCH OUTLET TO EXISTING ROADWAY STORM SEWER SHALL BE MAINTAINED IN USE UNTIL PROPOSED ROADWAY STORM SEWER IS COMPLETED AND RUNOFF REROUTING IS APPROVED BY THE ENGINEER.

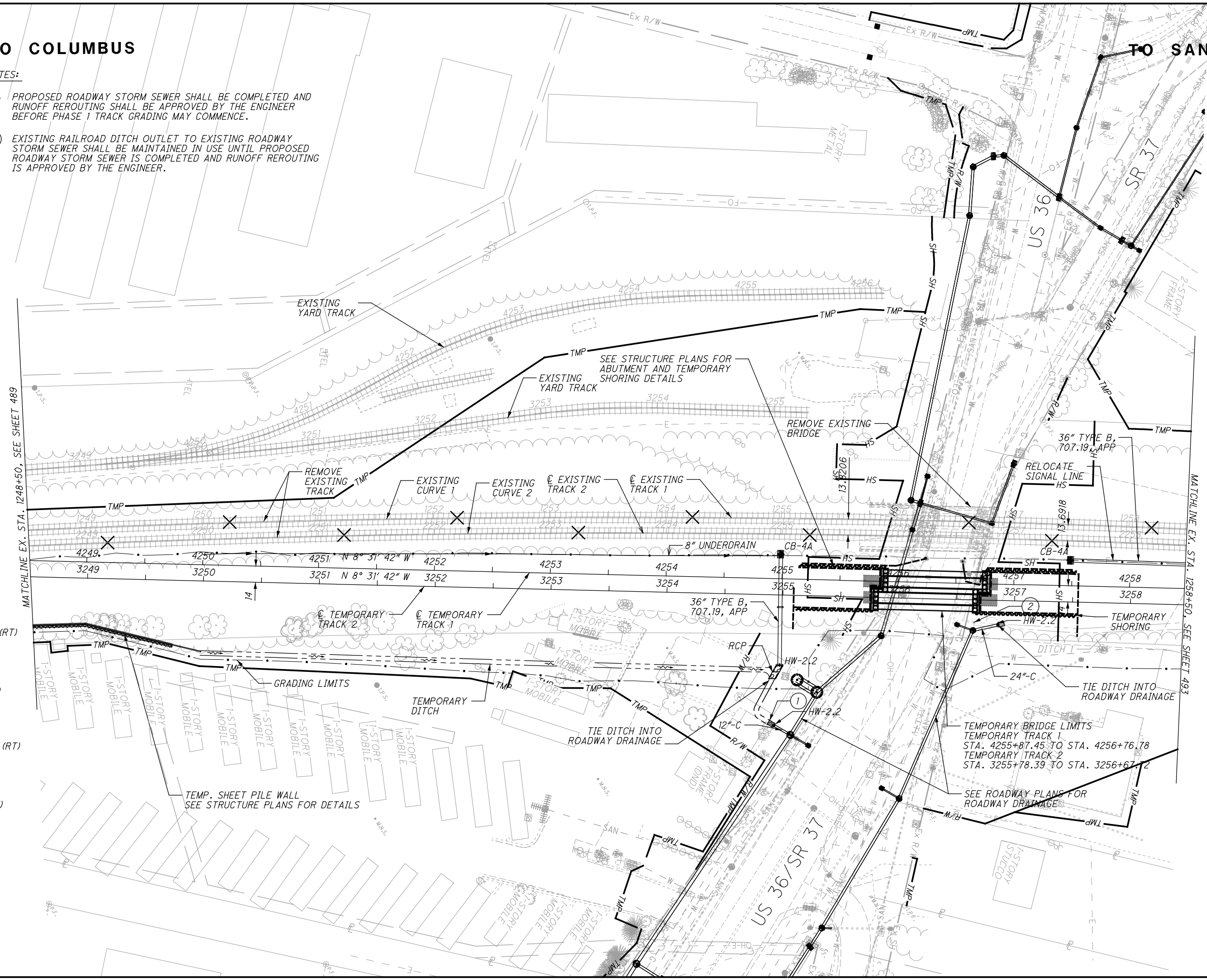

  

  
 CALCULATED: CDR  
 CHECKED: JLF

**TRACK PLAN - PHASE 1**  
**EX. STA. 1248+50 TO EX. STA. 1258+50**

**DEL-36-11.03**

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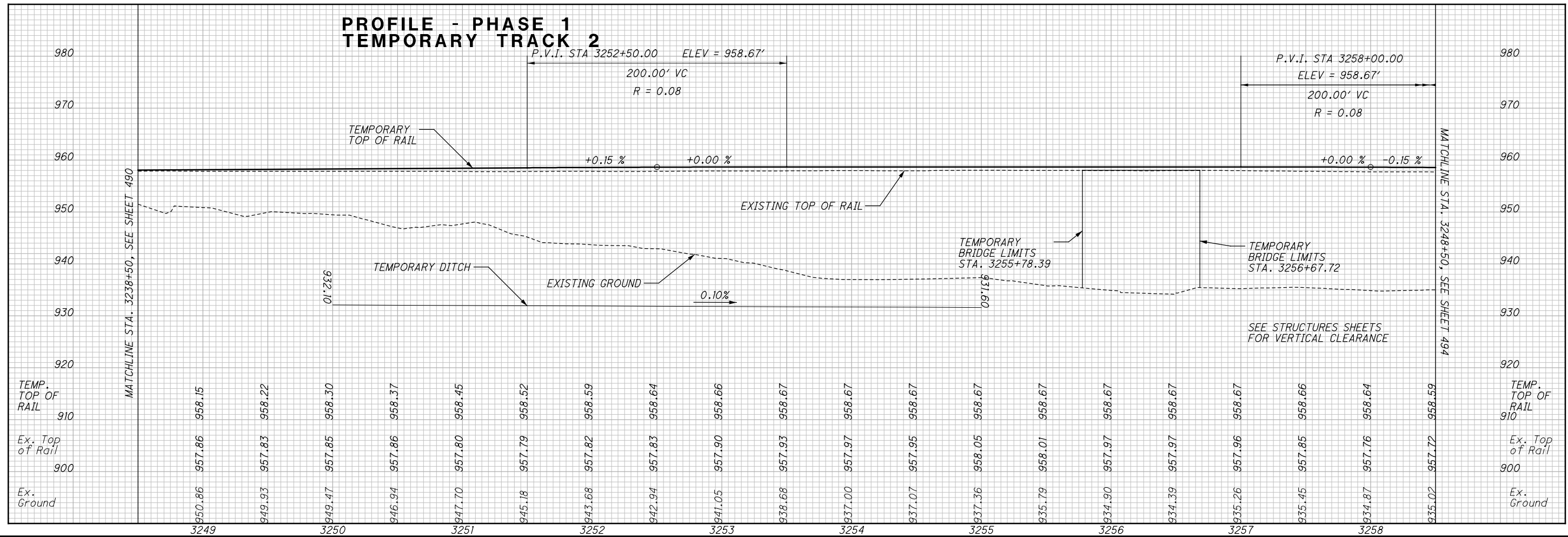
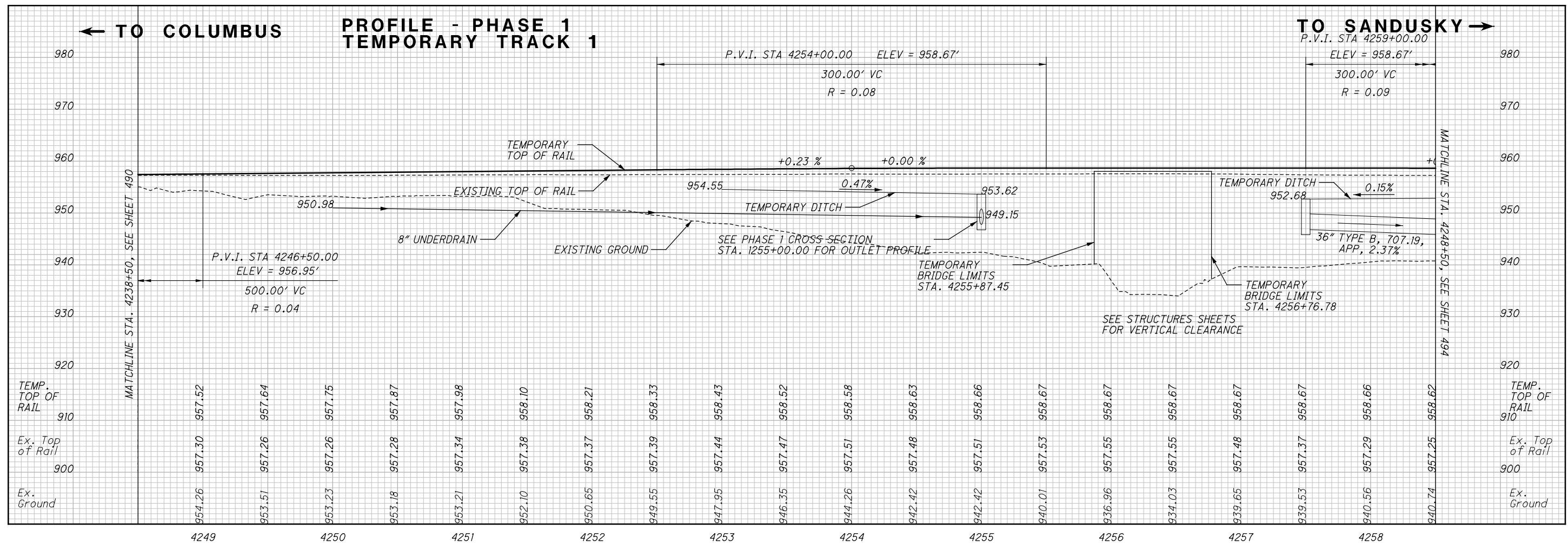


EX. CURVE 1 PI  
 STA. 1254+71.62  
 $Dc = 0^{\circ}30'00''$   
 $\Delta c = 6^{\circ}22'45''$  (RT)  
 $R = 11,459.19'$   
 $Lc = 1,275.85'$   
 $Ea = 1''$   
 $Ls1 = 62.00'$   
 $Ls2 = 62.00'$   
 $DS = 60$  MPH (F)

EX. CURVE 2 PI  
 STA. 2254+75.10  
 $Dc = 0^{\circ}29'30''$   
 $\Delta c = 6^{\circ}23'04''$  (RT)  
 $R = 11,653.41'$   
 $Lc = 1,298.52'$   
 $Ea = 1''$   
 $Ls1 = 62.00'$   
 $Ls2 = 62.00'$   
 $DS = 60$  MPH (F)

X = REMOVAL

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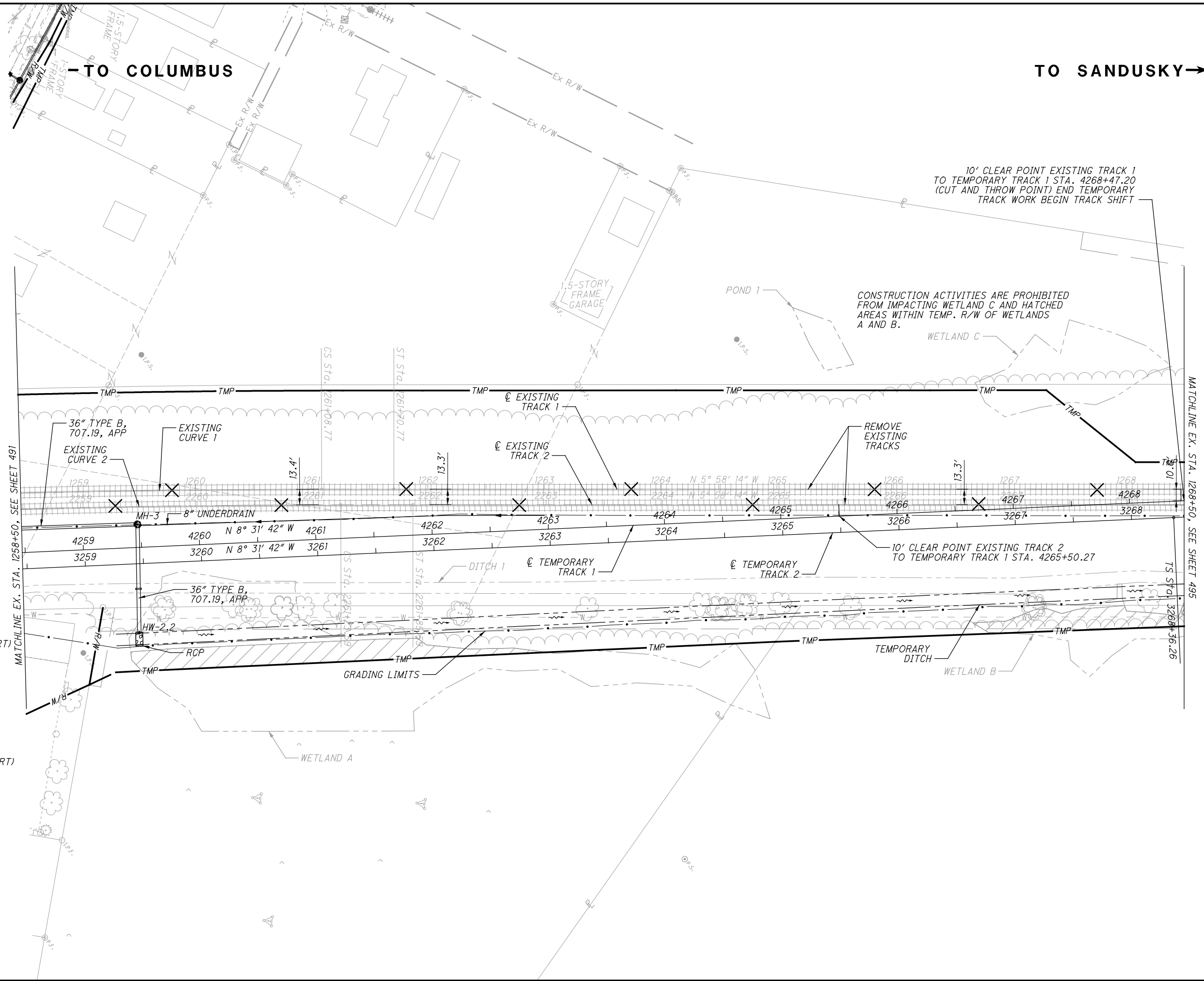
CALCULATED  
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TRACK PROFILES - PHASE 1  
EX. STA. 1248+50 TO EX. STA. 1258+50

DEL-36-11.03

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EX. CURVE 1 PI  
 STA. 1254+71.62  
 $Dc = 0^{\circ}30'00''$   
 $\Delta c = 6^{\circ}22'45''$  (RT)  
 $R = 11,459.19'$   
 $Lc = 1,275.85'$   
 $Ea = 1'$   
 $Ls1 = 62.00'$   
 $Ls2 = 62.00'$   
 $DS = 60$  MPH (F)

EX. CURVE 2 PI  
 STA. 2254+75.10  
 $Dc = 0^{\circ}29'30''$   
 $\Delta c = 6^{\circ}23'04''$  (RT)  
 $R = 11,653.41'$   
 $Lc = 1,298.52'$   
 $Ea = 1'$   
 $Ls1 = 62.00'$   
 $Ls2 = 62.00'$   
 $DS = 60$  MPH (F)

X = REMOVAL

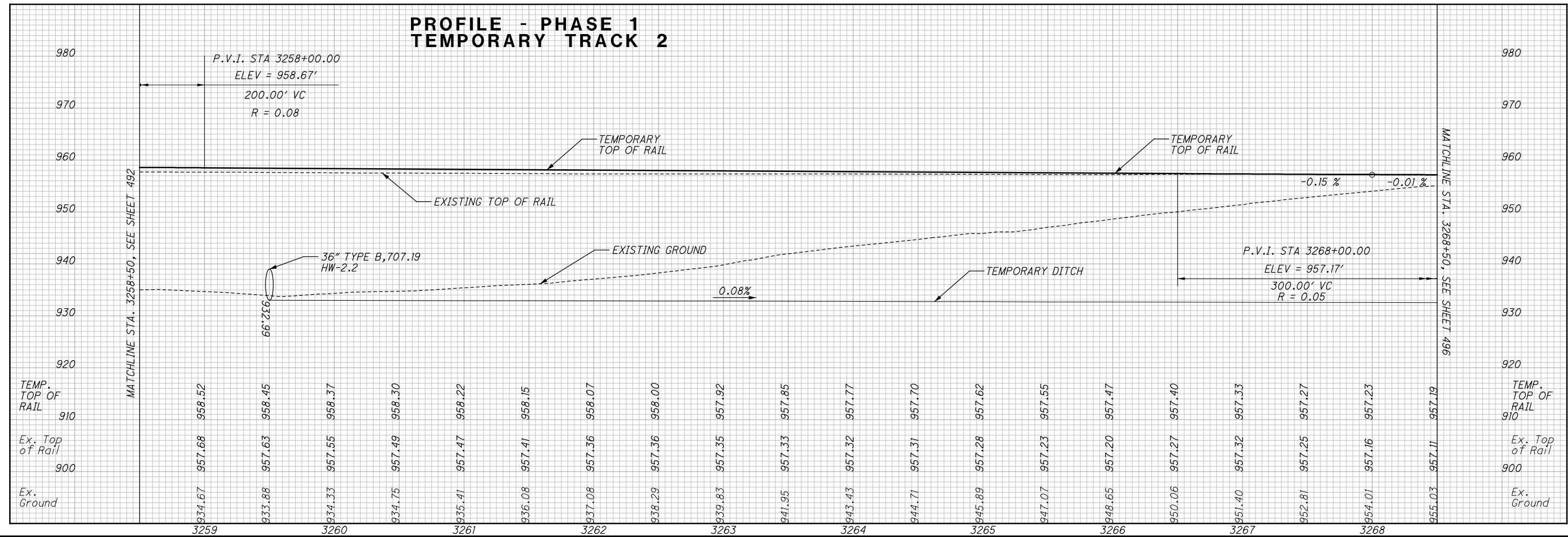
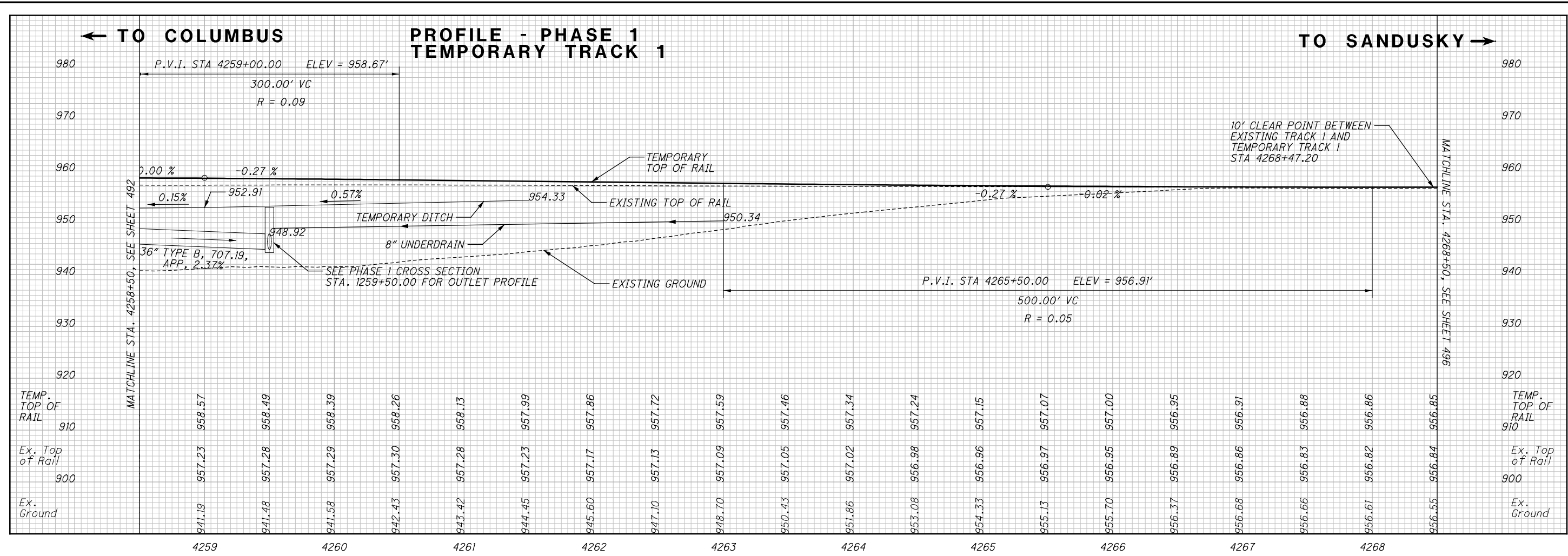
CALCULATED  
 CDR  
 CHECKED  
 JLF

0 40 80  
 HORIZONTAL  
 SCALE IN FEET

N

TRACK PLAN - PHASE 1  
 EX. STA. 1258+50 TO EX. STA. 1268+50

DEL-36-11.03



CALCULATED  
CDR  
CHECKED  
JLF

TRACK PROFILES - PHASE 1  
EX. STA. 1258+50 TO EX. STA. 1268+50

DEL-36-11.03

494  
644



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← TO COLUMBUS

TO SANDUSKY →

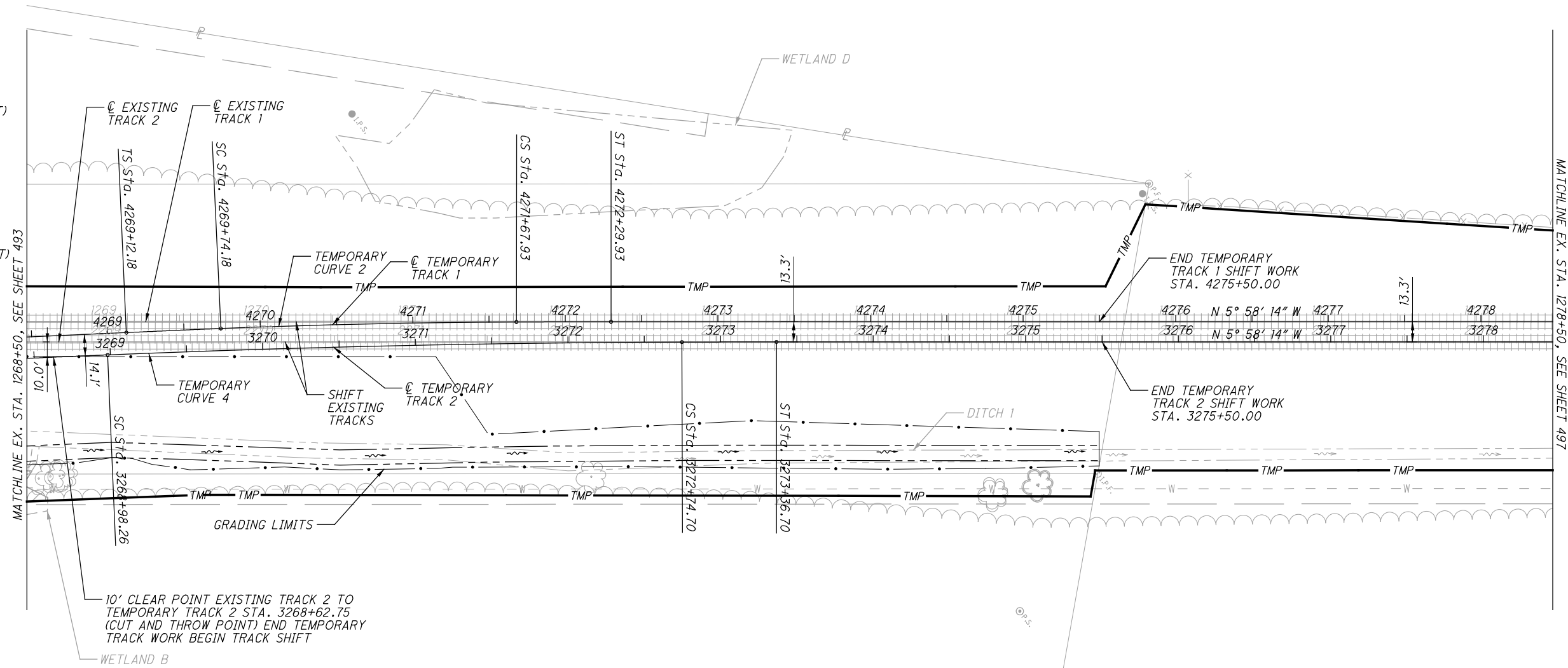
NOTE:  
SHIFT EXISTING TRACK 1 FROM STA. 4268+47.20 TO 4275+50.00.  
SHIFT EXISTING TRACK 2 FROM STA. 3268+62.75 TO 3275+50.00.

CALCULATED  
CDR  
CHECKED  
JLF

0 40 80  
20  
HORIZONTAL  
SCALE IN FEET

TEMP. CURVE 2 PI  
STA. 4270+71.08  
Dc = 1°00'00"  
Δc = 1°56'15" (RT)  
R = 5729.65'  
Lc = 193.76'  
Ea = 1"  
Ls1 = 62.00'  
Ls2 = 62.00'  
DS = 60 MPH (F)

TEMP. CURVE 4 PI  
STA. 3270+86.51  
Dc = 0°35'00"  
Δc = 2°11'45" (RT)  
R = 9,822.18'  
Lc = 376.44'  
Ea = 1"  
Ls1 = 62.00'  
Ls2 = 62.00'  
DS = 60 MPH (F)



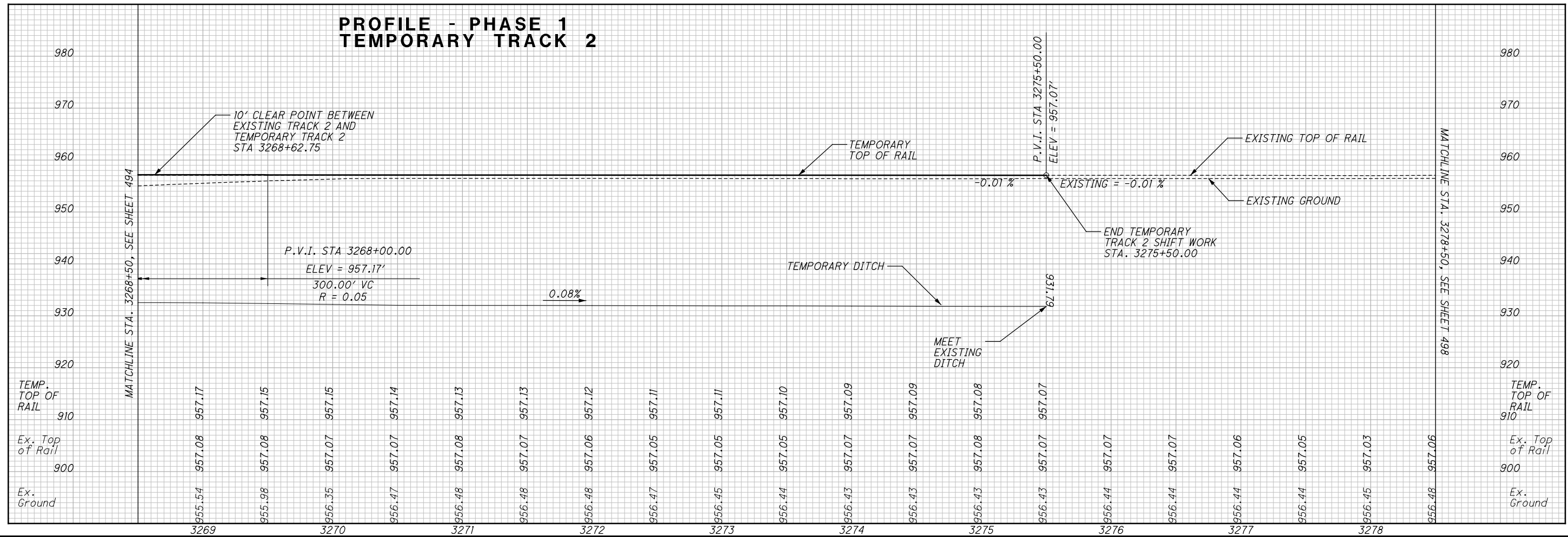
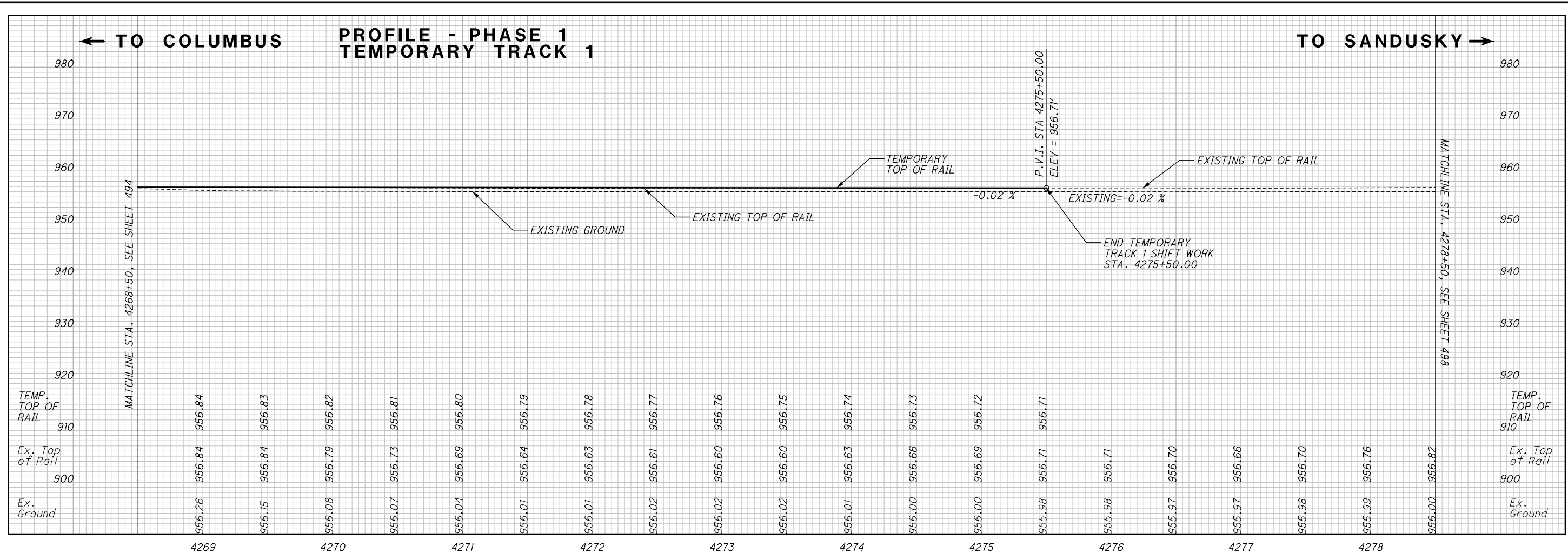
10' CLEAR POINT EXISTING TRACK 2 TO  
TEMPORARY TRACK 2 STA. 3268+62.75  
(CUT AND THROW POINT) END TEMPORARY  
TRACK WORK BEGIN TRACK SHIFT

CONSTRUCTION ACTIVITIES ARE PROHIBITED  
FROM IMPACTING WETLAND C AND HATCHED  
AREAS WITHIN TEMP. R/W OF WETLANDS  
A AND B.

TRACK PLAN - PHASE 1  
EX. STA. 1268+50 TO EX. STA. 1278+50

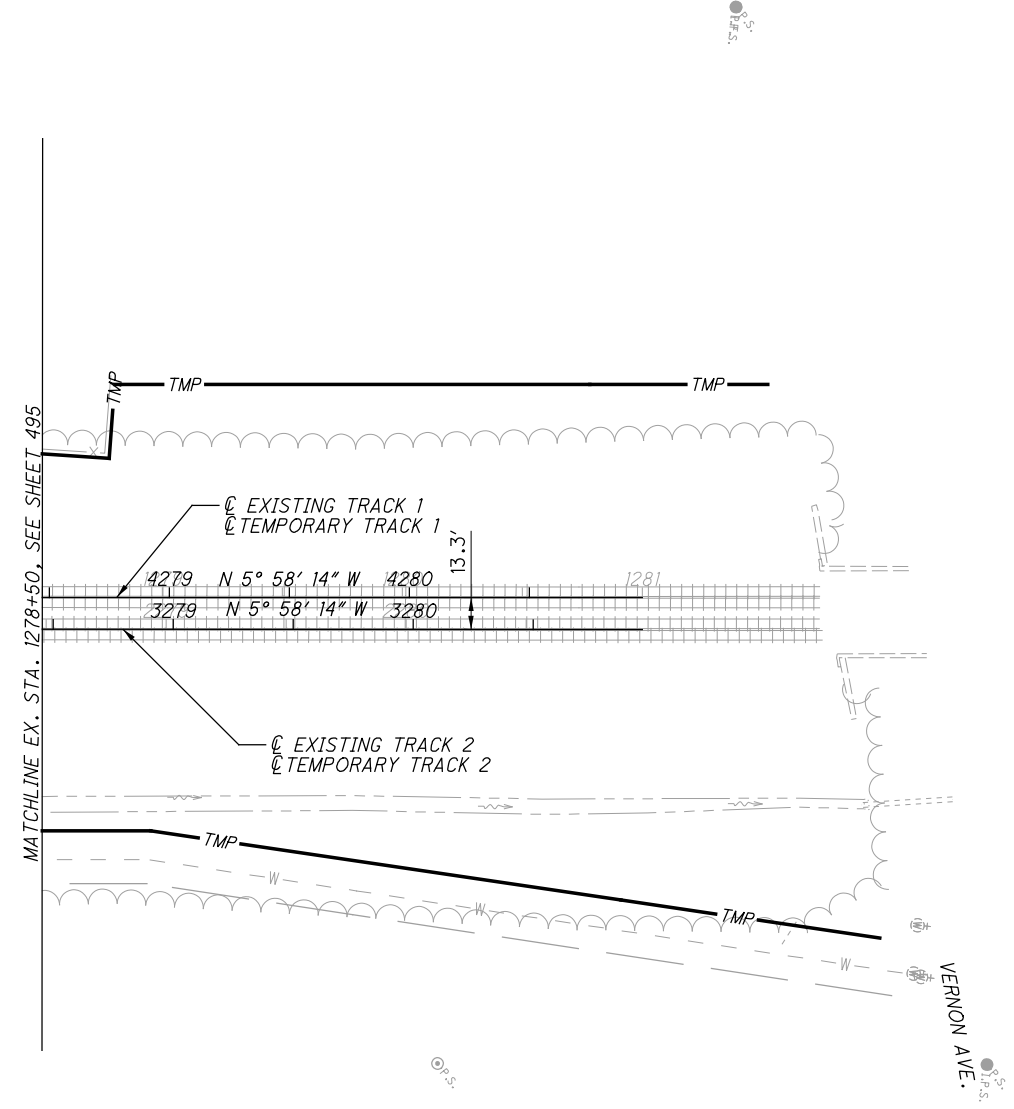
DEL-36-11.03

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← TO COLUMBUS

TO SANDUSKY →

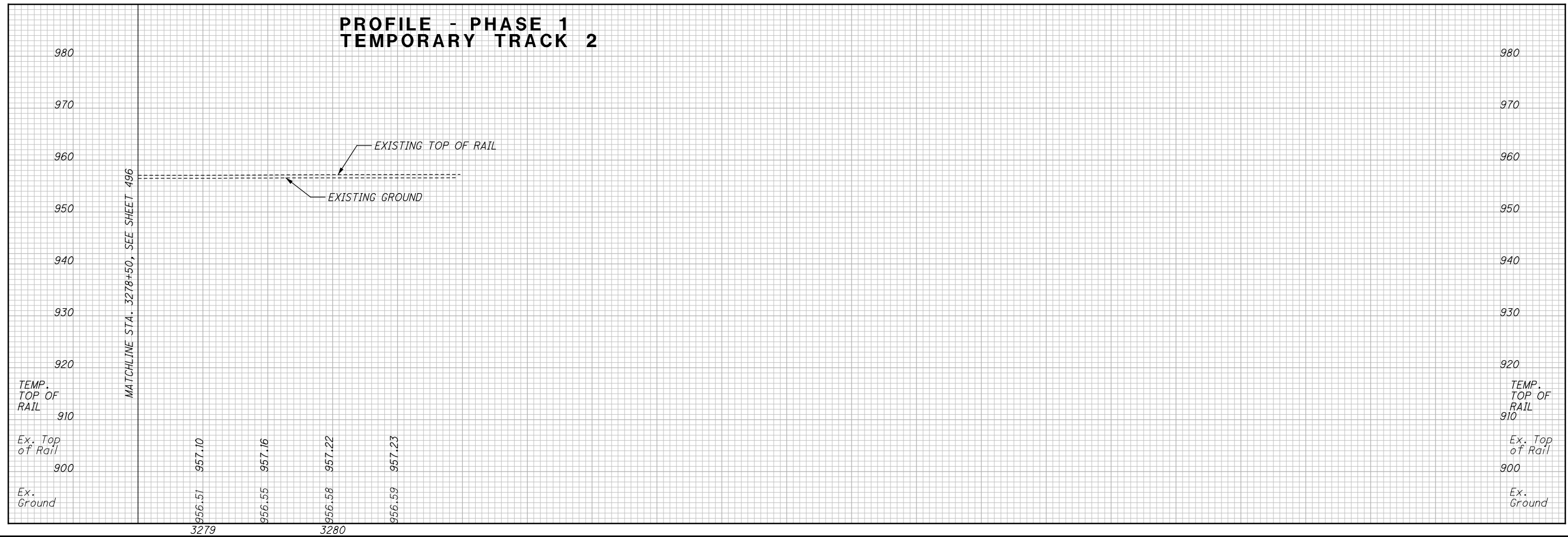
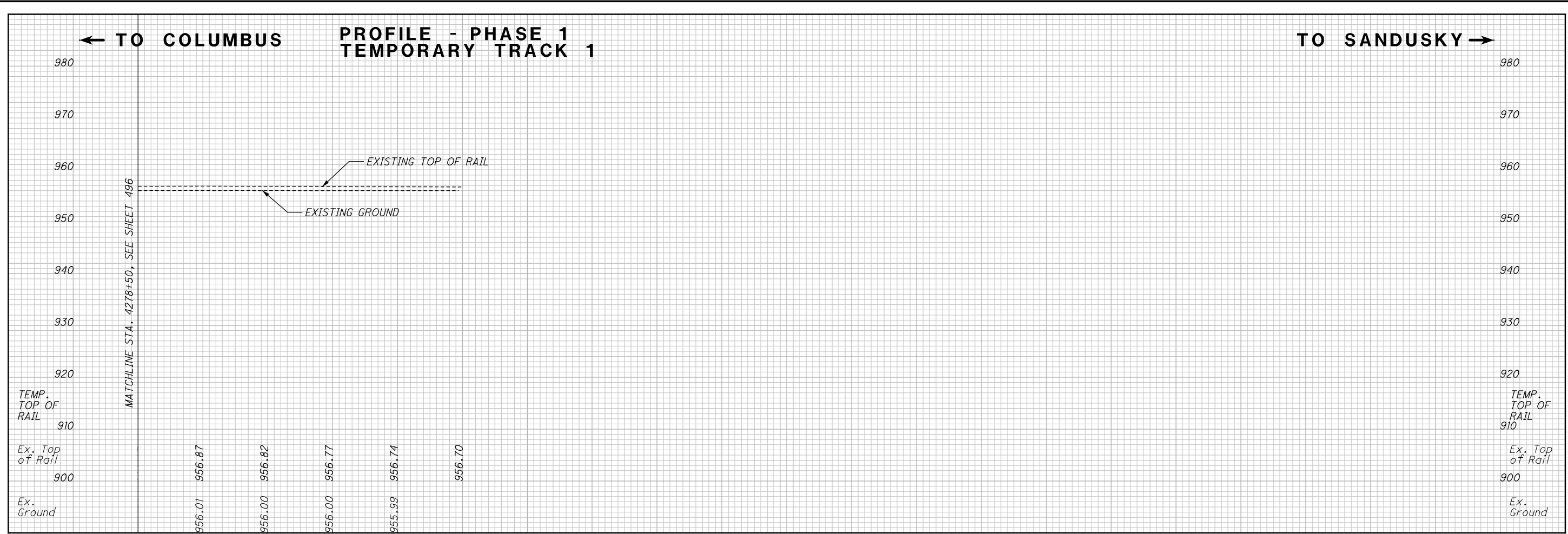


|            |     |
|------------|-----|
| CALCULATED | JLF |
| CDR        | JLF |
| CHECKED    | JLF |

**TRACK PLAN - PHASE 1**  
**EX. STA. 1278+50 TO EX. STA. 1281+00**

**DEL-36-11.03**

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CALCULATED  
CDR  
CHECKED  
JLF

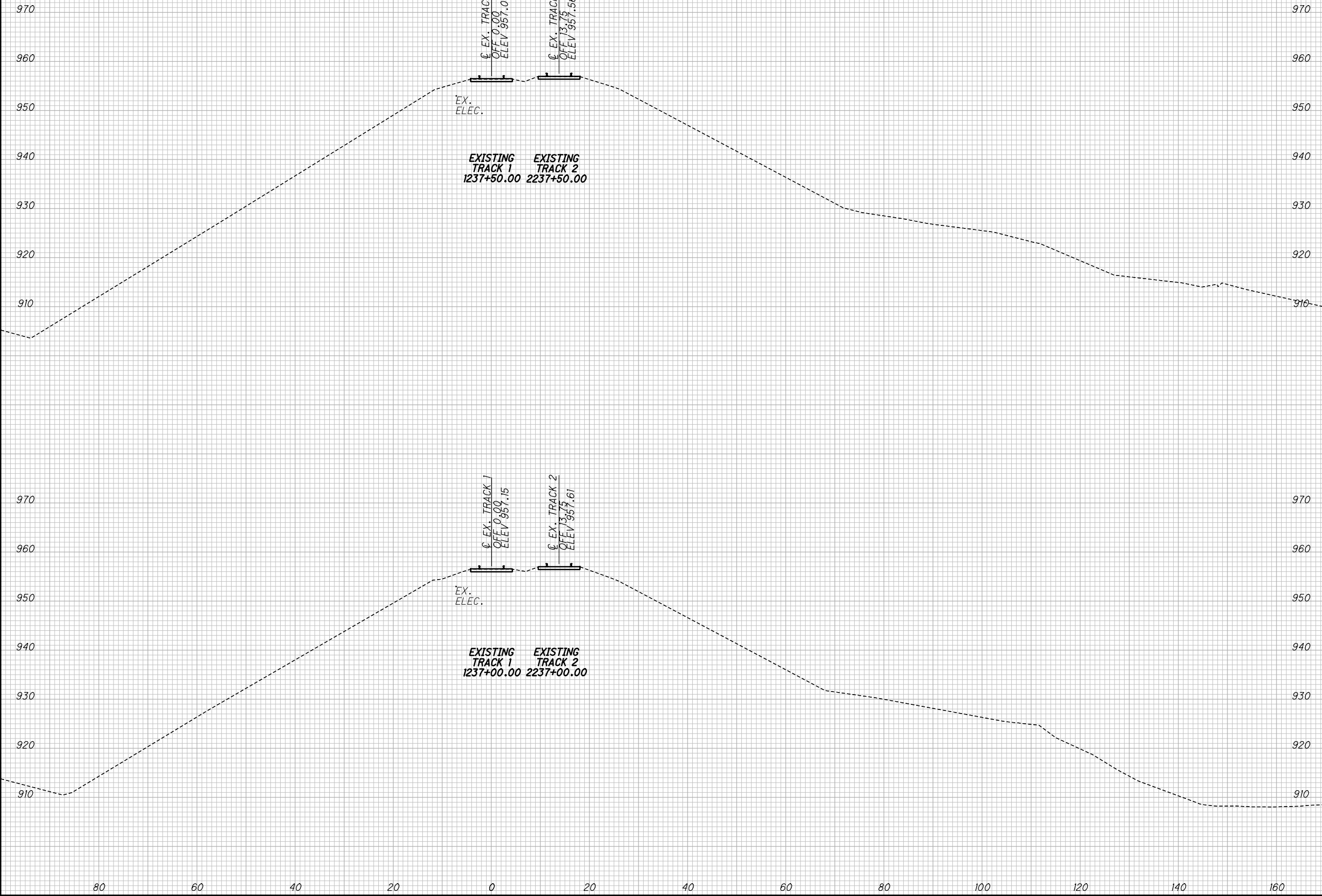
TRACK PROFILES - PHASE 1  
EX. STA. 1278+50 TO EX. STA. 1281+00

DEL-36-11.03

498  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

CROSS SECTIONS NS RR - PHASE 1  
 STA. 1237+00.00 TO STA. 1237+50.00

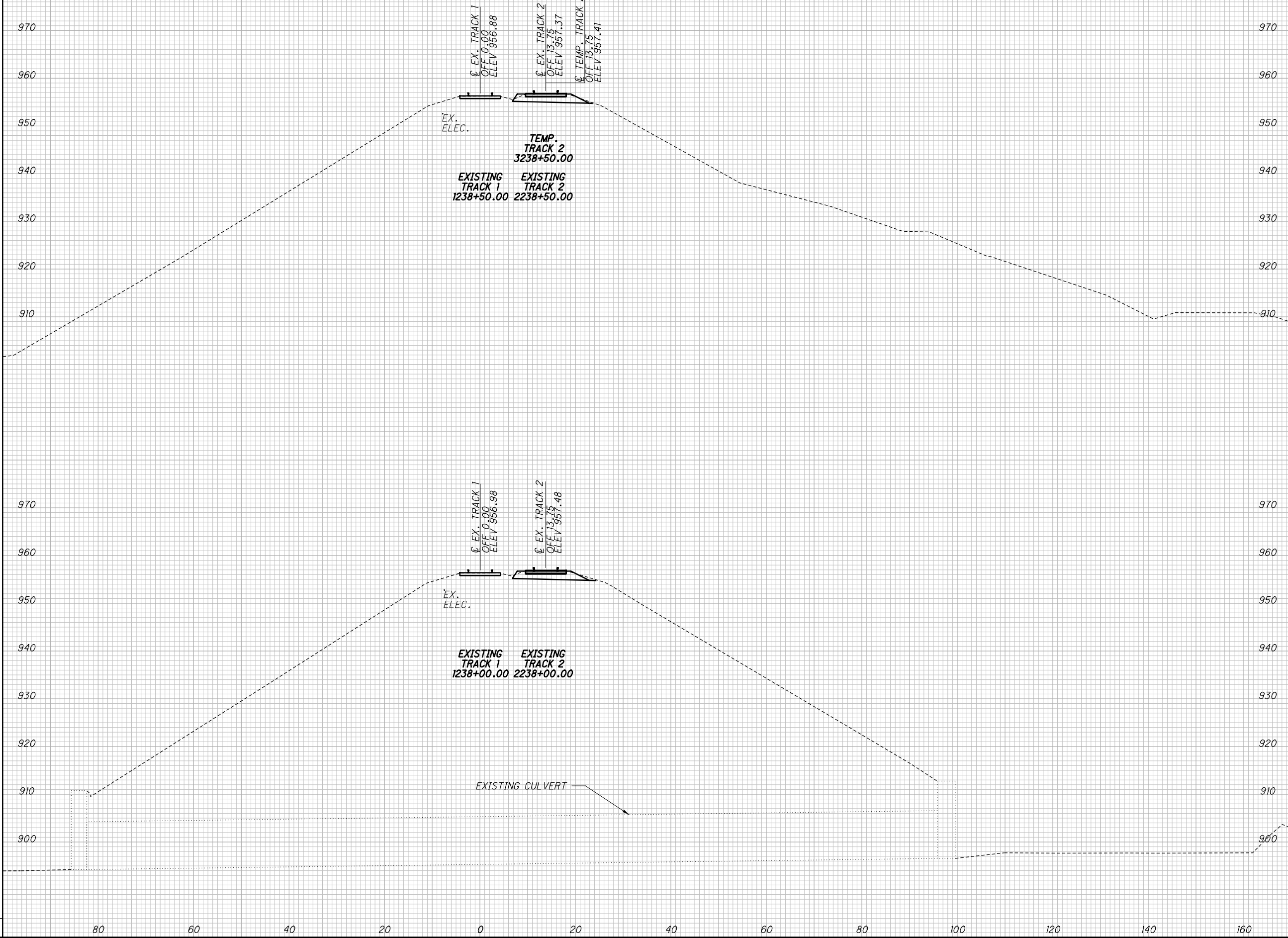
DEL-36-11.03

499  
644

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SEEDING  
END SO.  
WIDTH YDS.

END AREA  
CUT FILL  
VOLUME  
CUT FILL  
CALCULATED  
CDR  
CHECKED  
JLF



CROSS SECTIONS NS RR - PHASE 1  
STA. 1238+00.00 TO STA. 1238+50.00

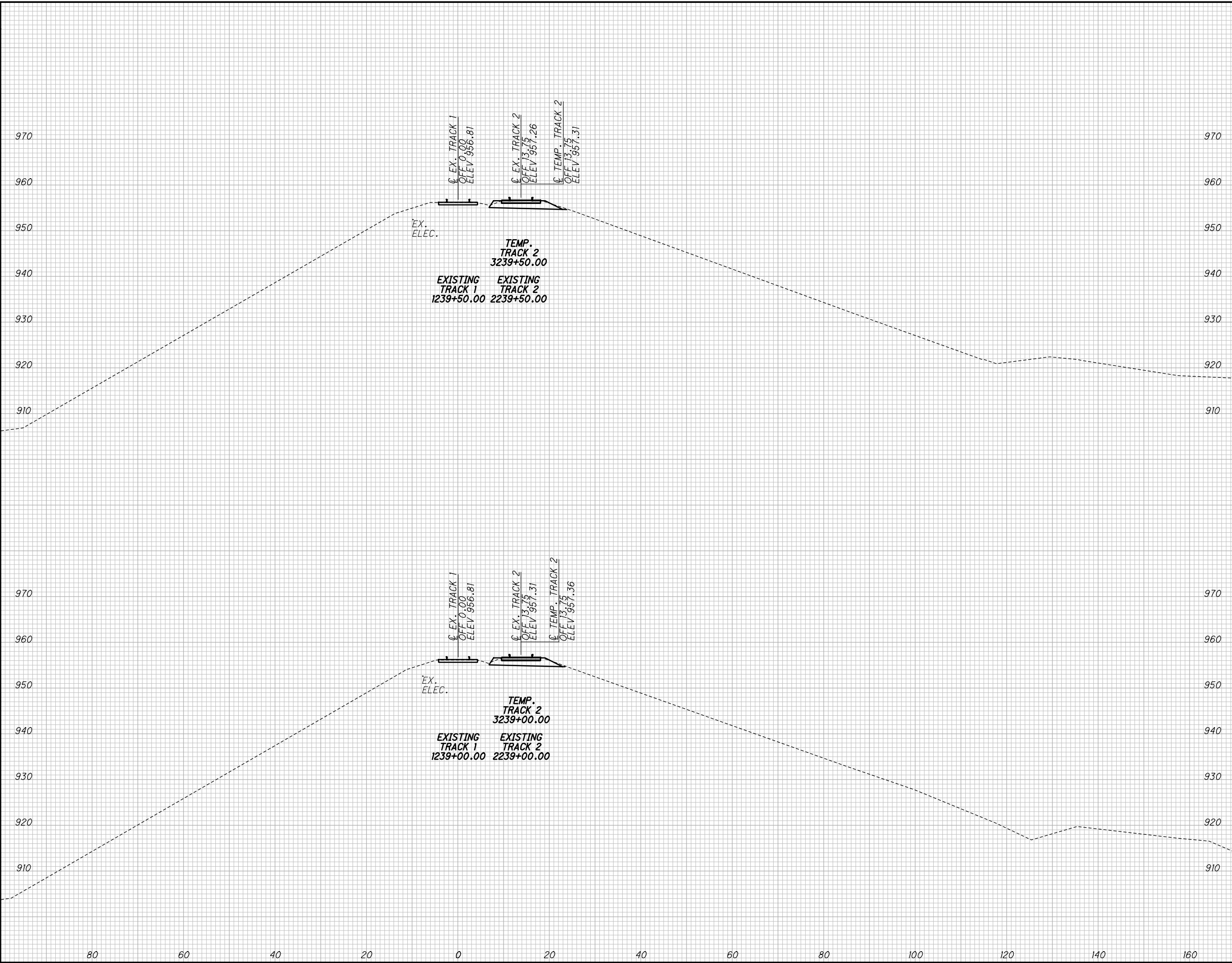
DEL-36-11.03

500  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

CROSS SECTIONS NS RR - PHASE 1  
STA. 1239+00.00 TO STA. 1239+50.00

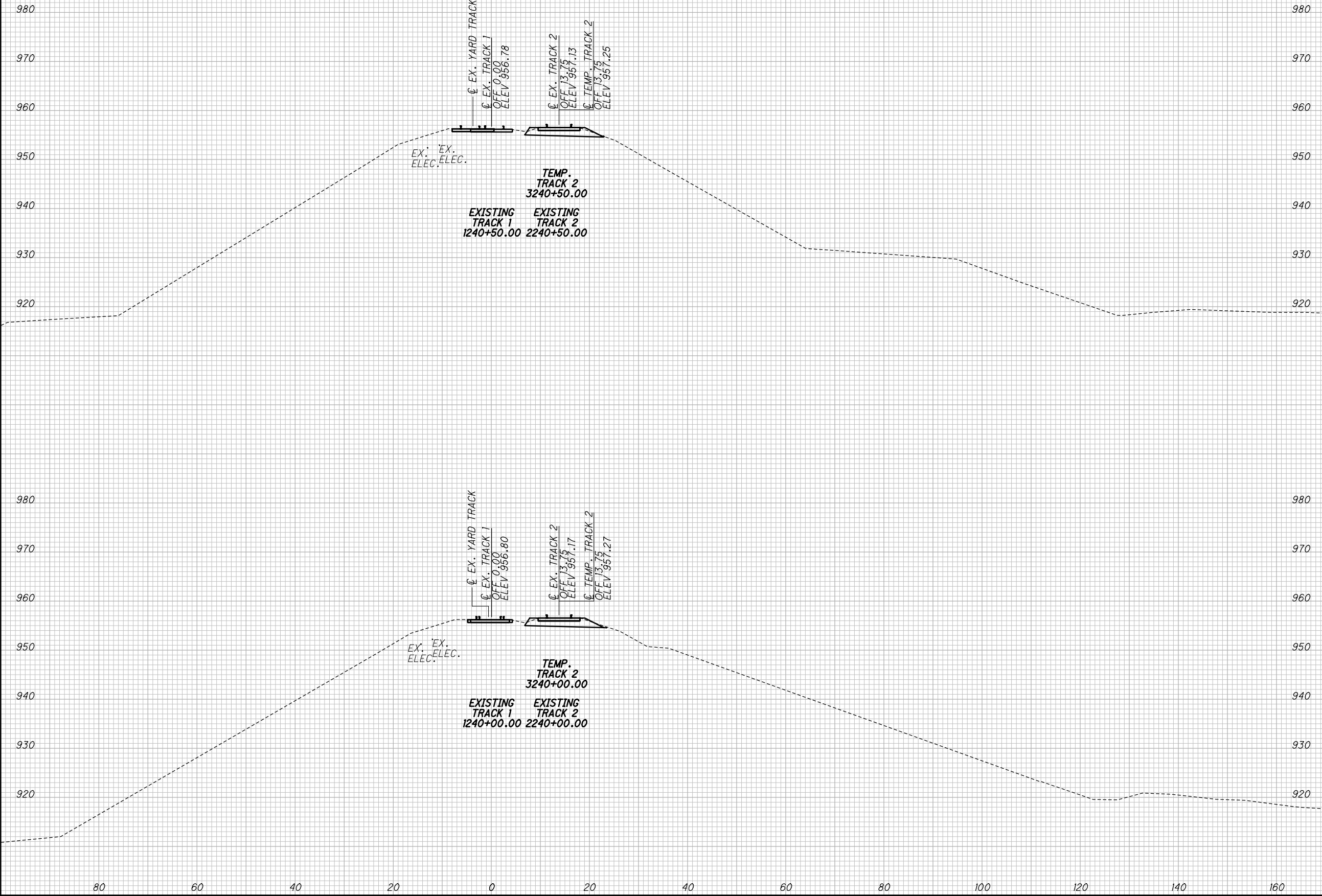
DEL-36-11.03

501  
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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

CROSS SECTIONS NS RR - PHASE 1  
STA. 1240+00.00 TO STA. 1240+50.00

DEL-36-11.03

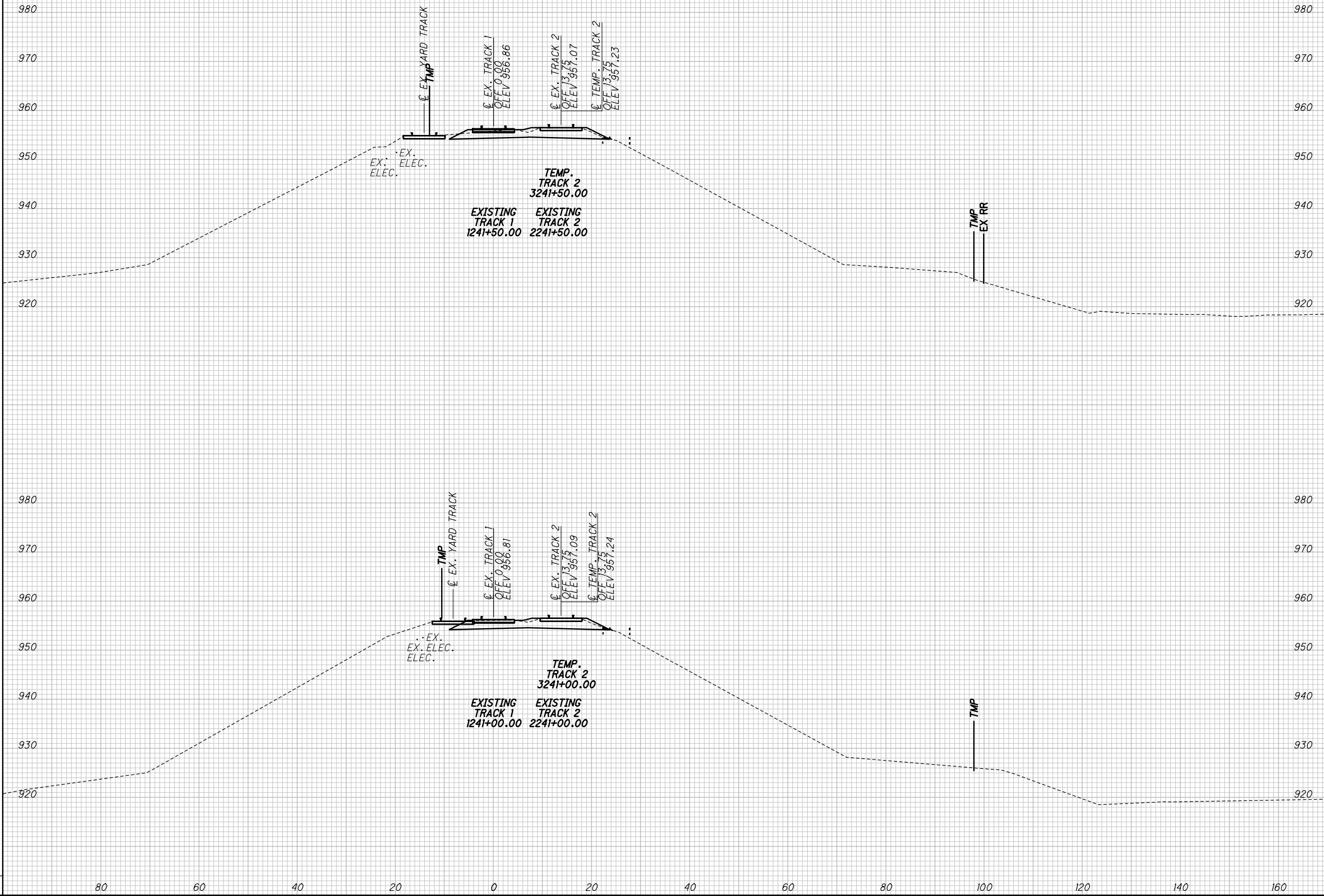
502  
644



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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



CROSS SECTIONS NS RR - PHASE 1  
STA. 1241+00.00 TO STA. 1241+50.00

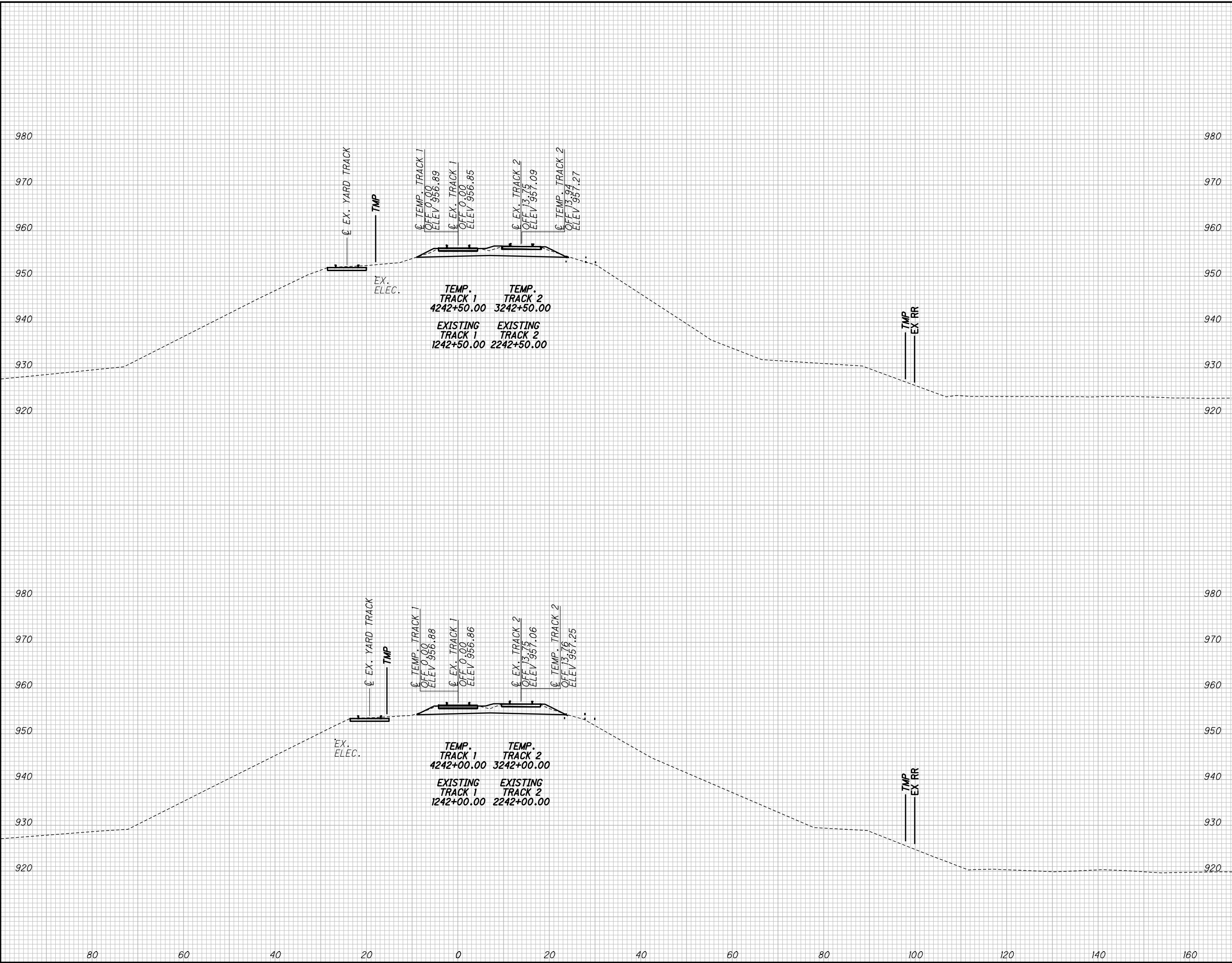
DEL-36-11.03

503  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED CDR | CHECKED JLF |
|----------|------|--------|------|----------------|-------------|
| CUT      | FILL | CUT    | FILL |                |             |
|          |      |        |      |                |             |

CROSS SECTIONS NS RR - PHASE 1  
STA. 1242+00.00 TO STA. 1242+50.00

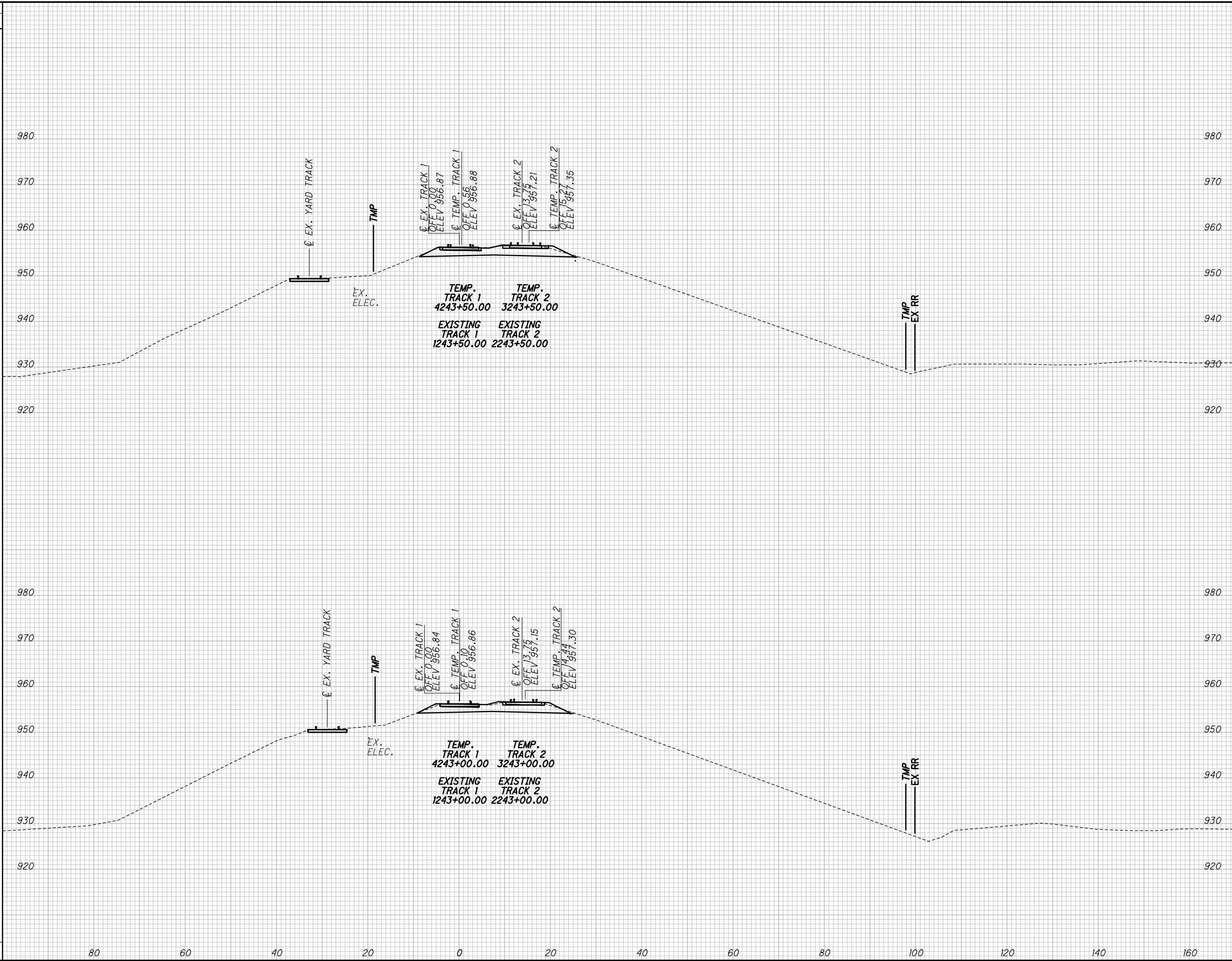
DEL-36-11.03

504  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |

CROSS SECTIONS NS RR - PHASE 1  
STA. 1243+00.00 TO STA. 1243+50.00

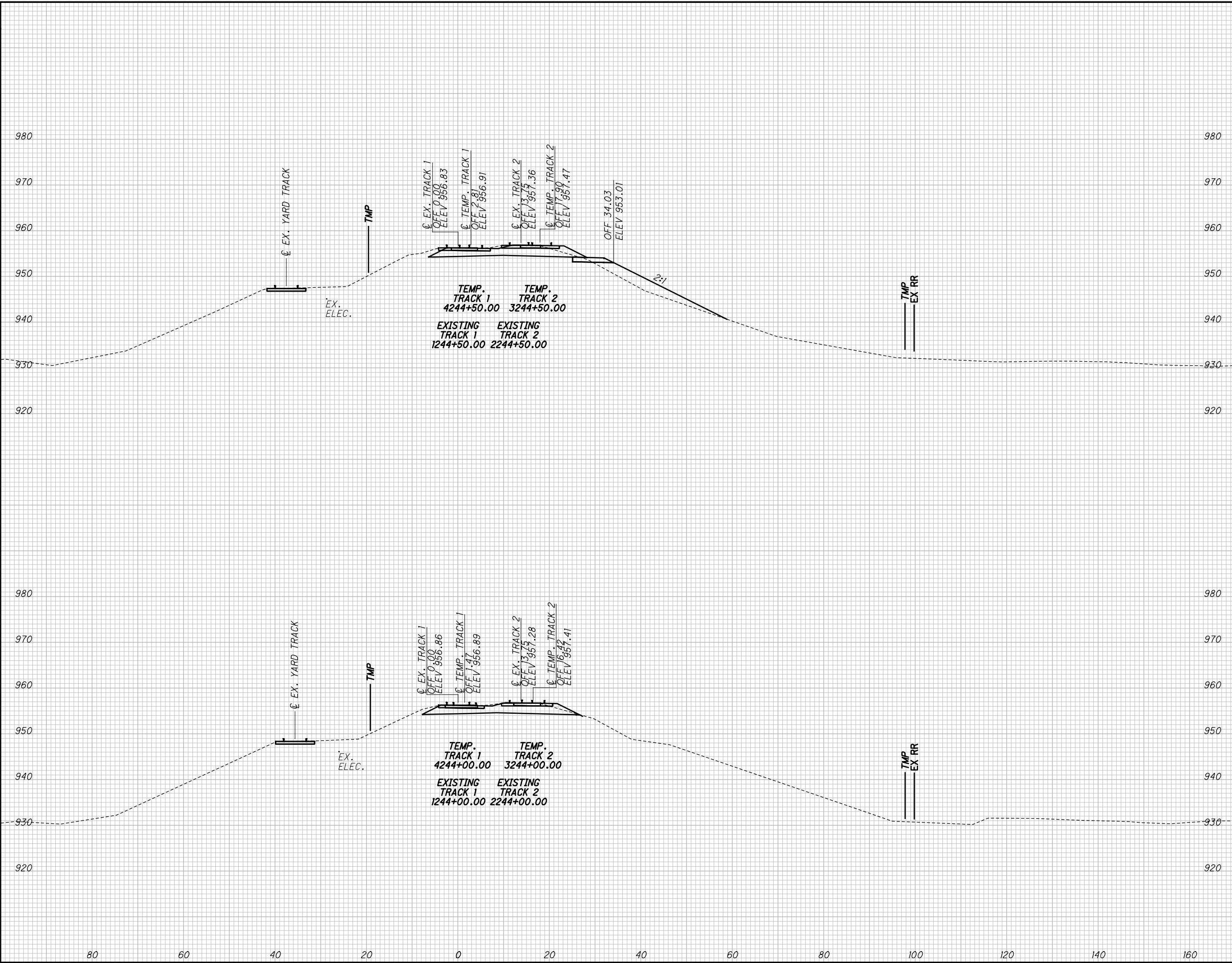
DEL-36-11.03

505  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |

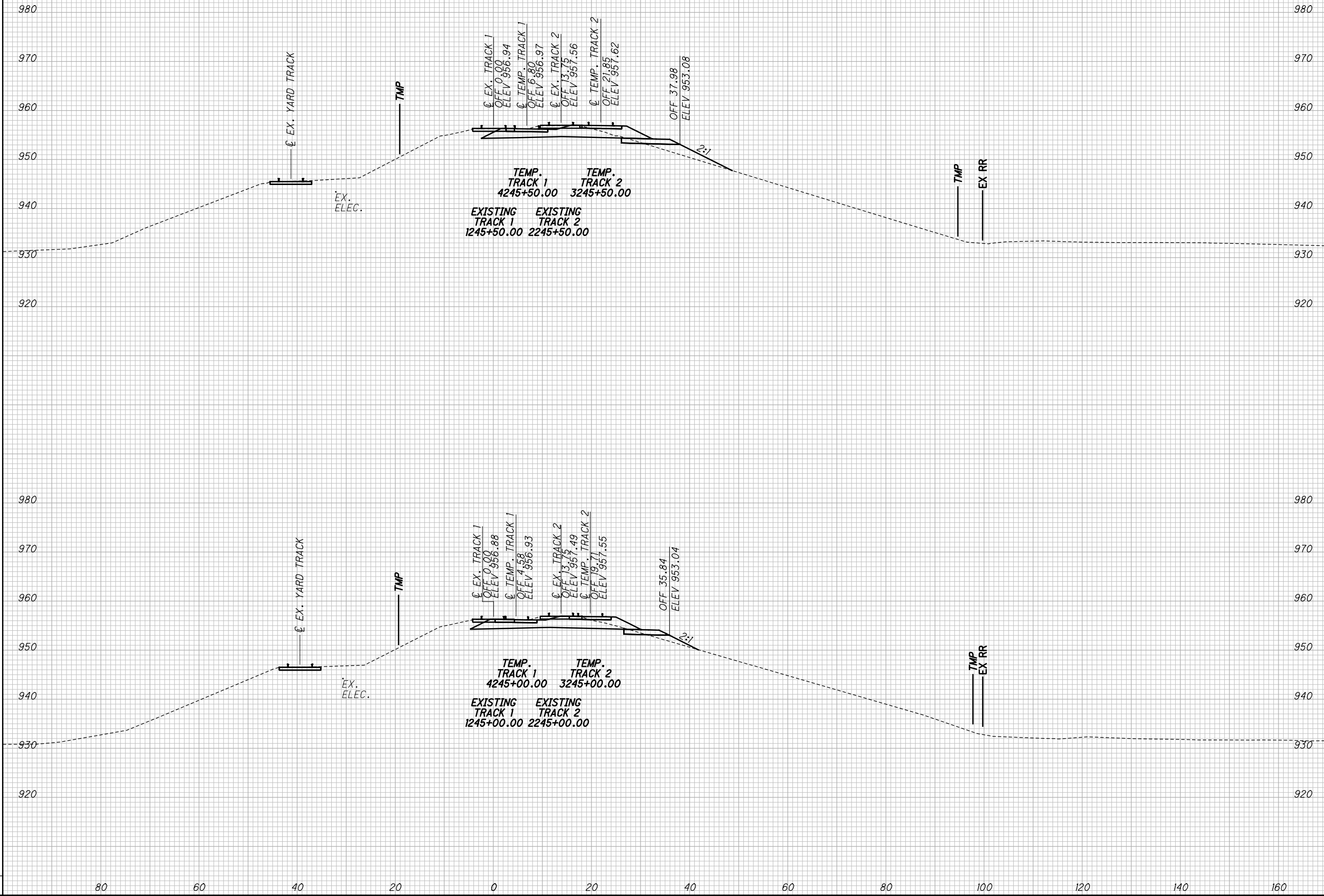
CROSS SECTIONS NS RR - PHASE 1  
STA. 1244+00.00 TO STA. 1244+50.00

DEL-36-11.03

506  
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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

**CROSS SECTIONS NS RR - PHASE 1  
STA. 1245+00.00 TO STA. 1245+50.00**

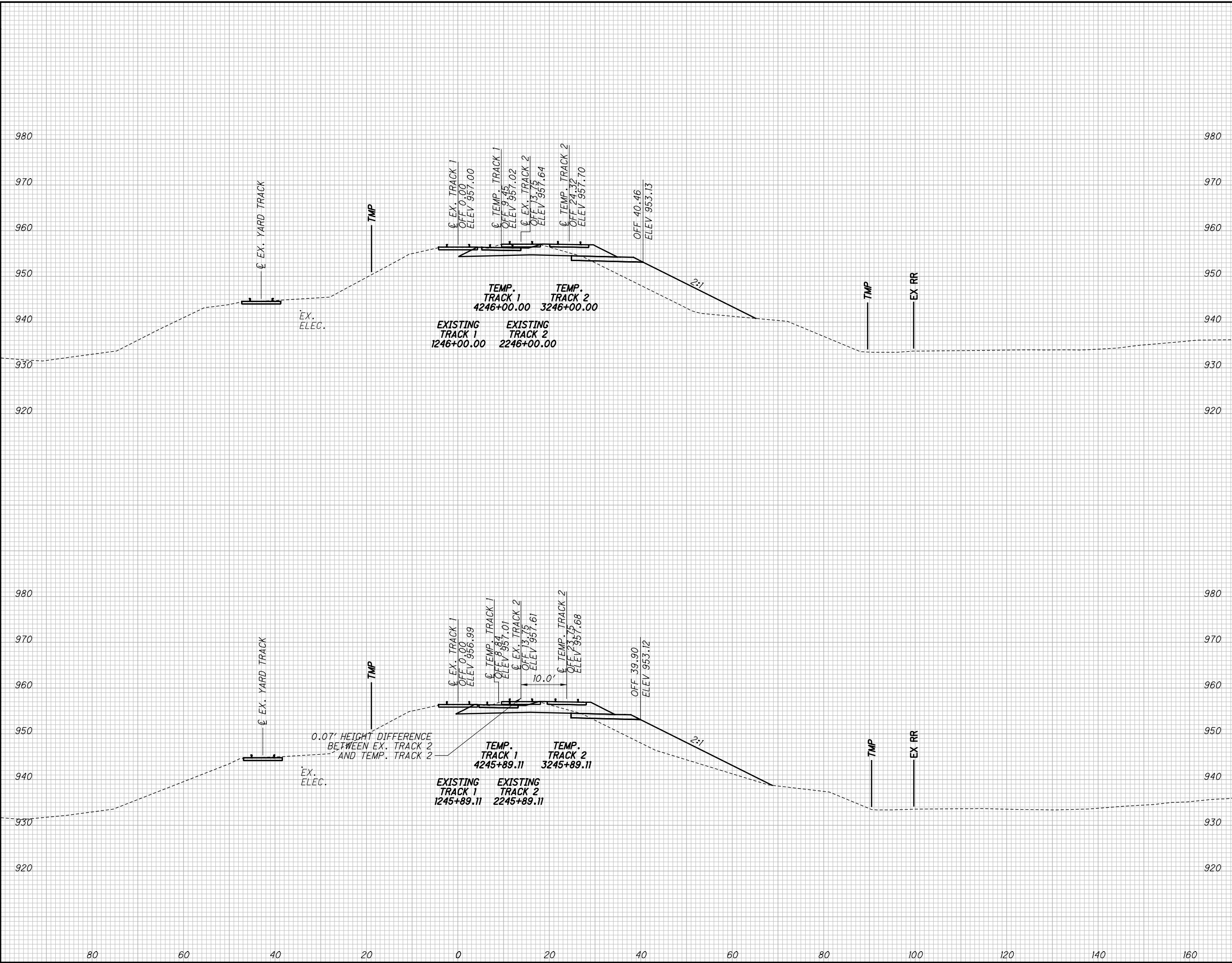
**DEL-36-11.03**

507  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

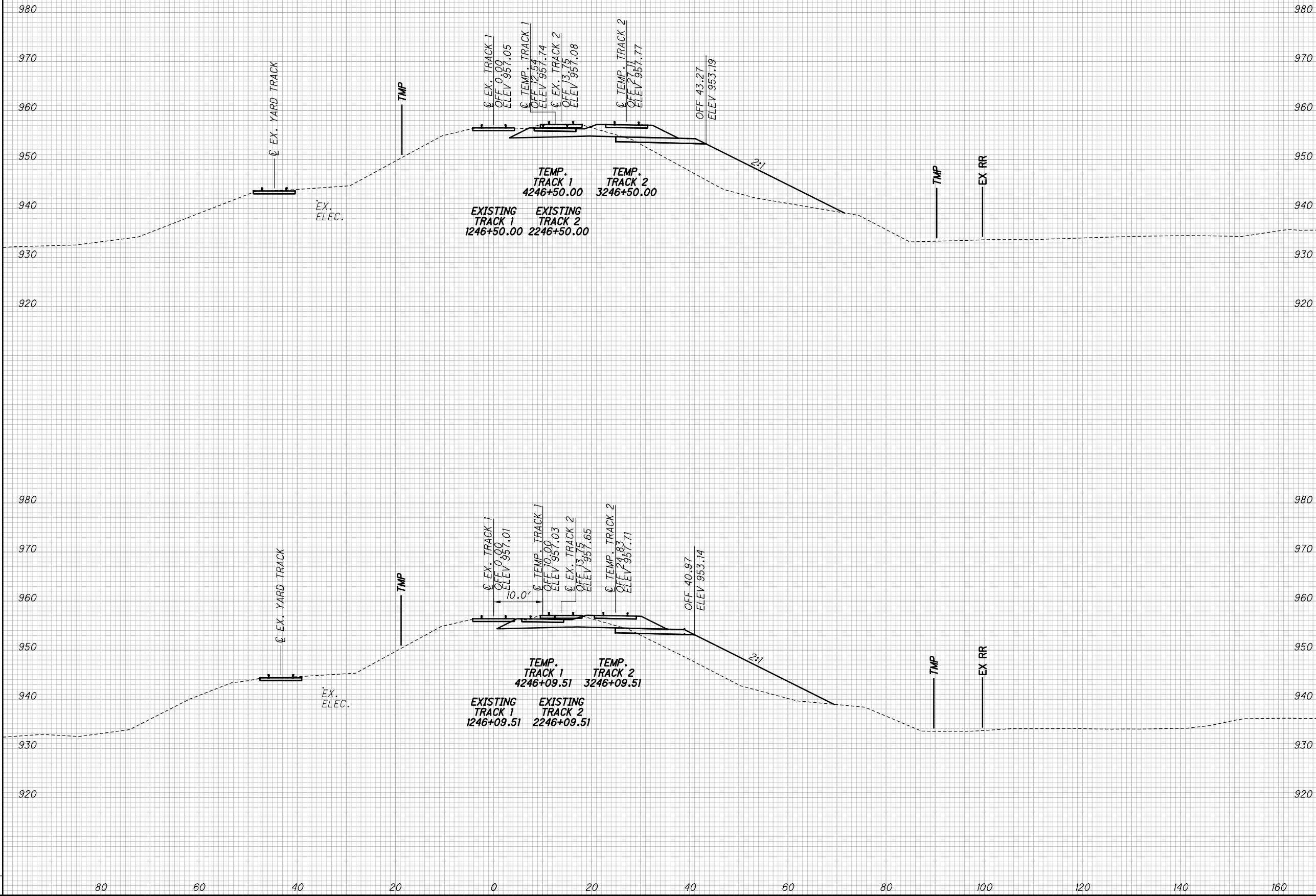
CROSS SECTIONS NS RR - PHASE 1  
STA. 1245+89.11 TO STA. 1246+00.00

DEL-36-11.03

508  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

CROSS SECTIONS NS RR - PHASE 1  
STA. 1246+09.51 TO STA. 1246+50.00

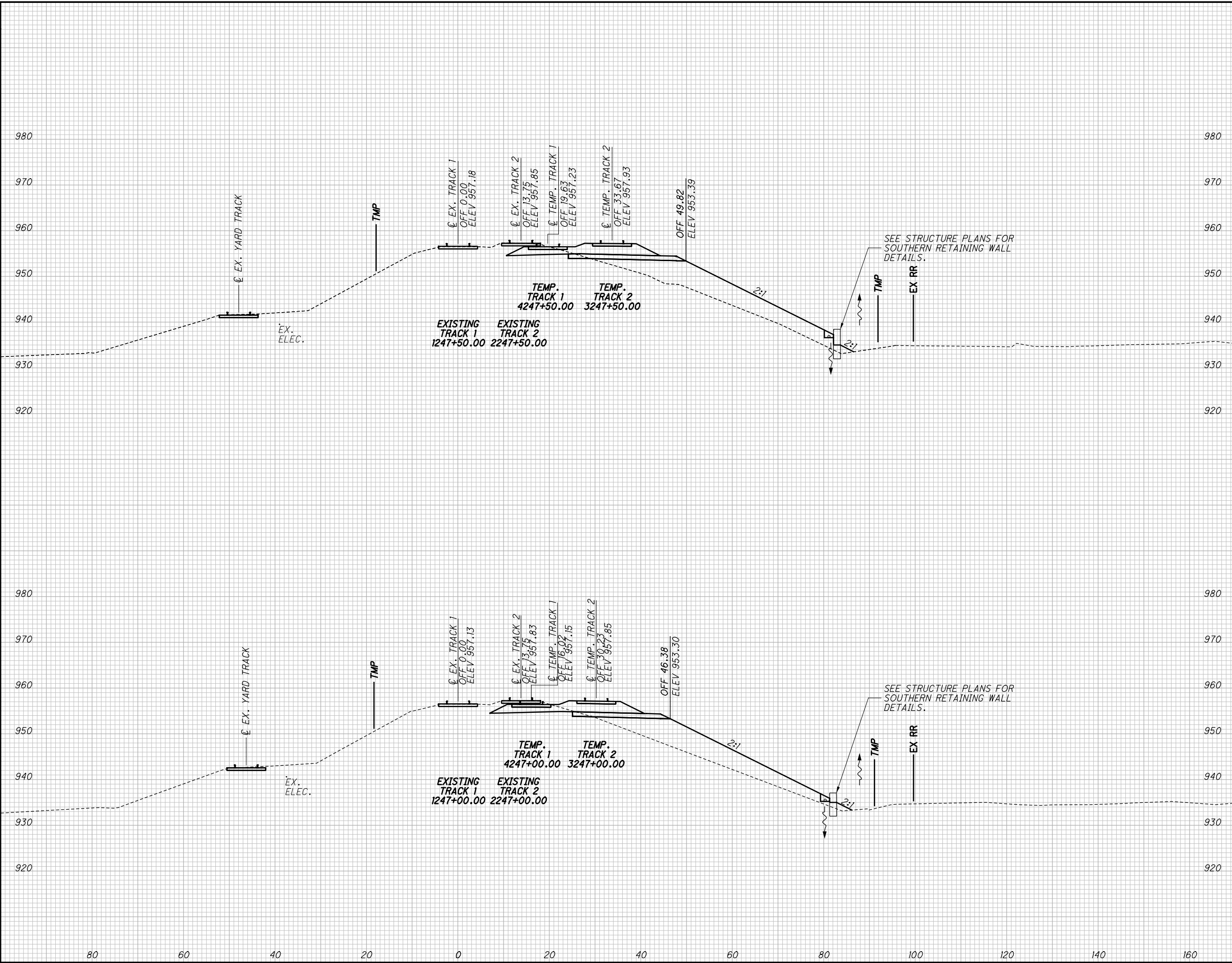
DEL-36-11.03

509  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED CDR | CHECKED JLF |
|----------|------|--------|------|----------------|-------------|
| CUT      | FILL | CUT    | FILL |                |             |
|          |      |        |      |                |             |

CROSS SECTIONS NS RR - PHASE 1  
STA. 1247+00.00 TO STA. 1247+50.00

DEL-36-11.03

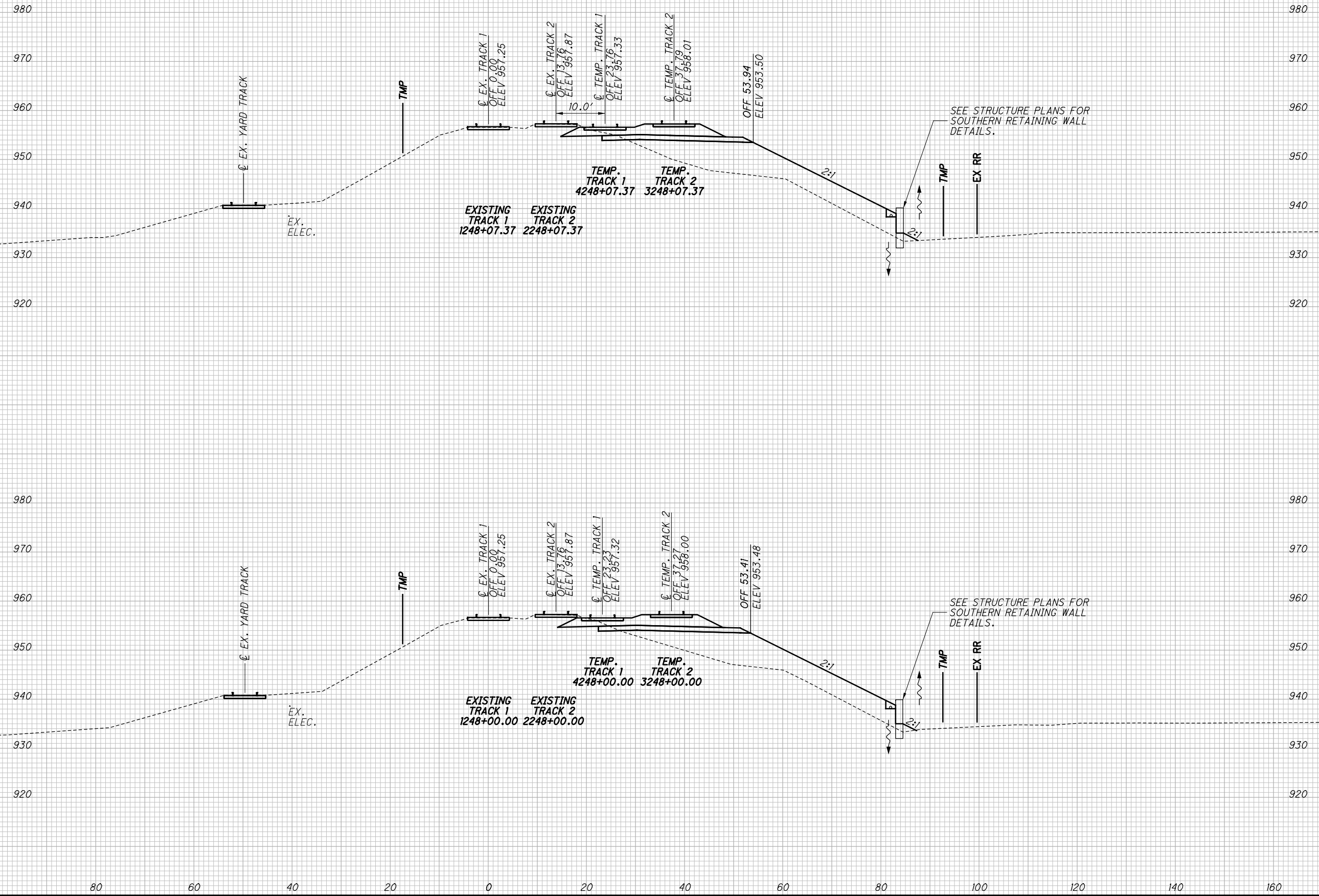
510  
644



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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



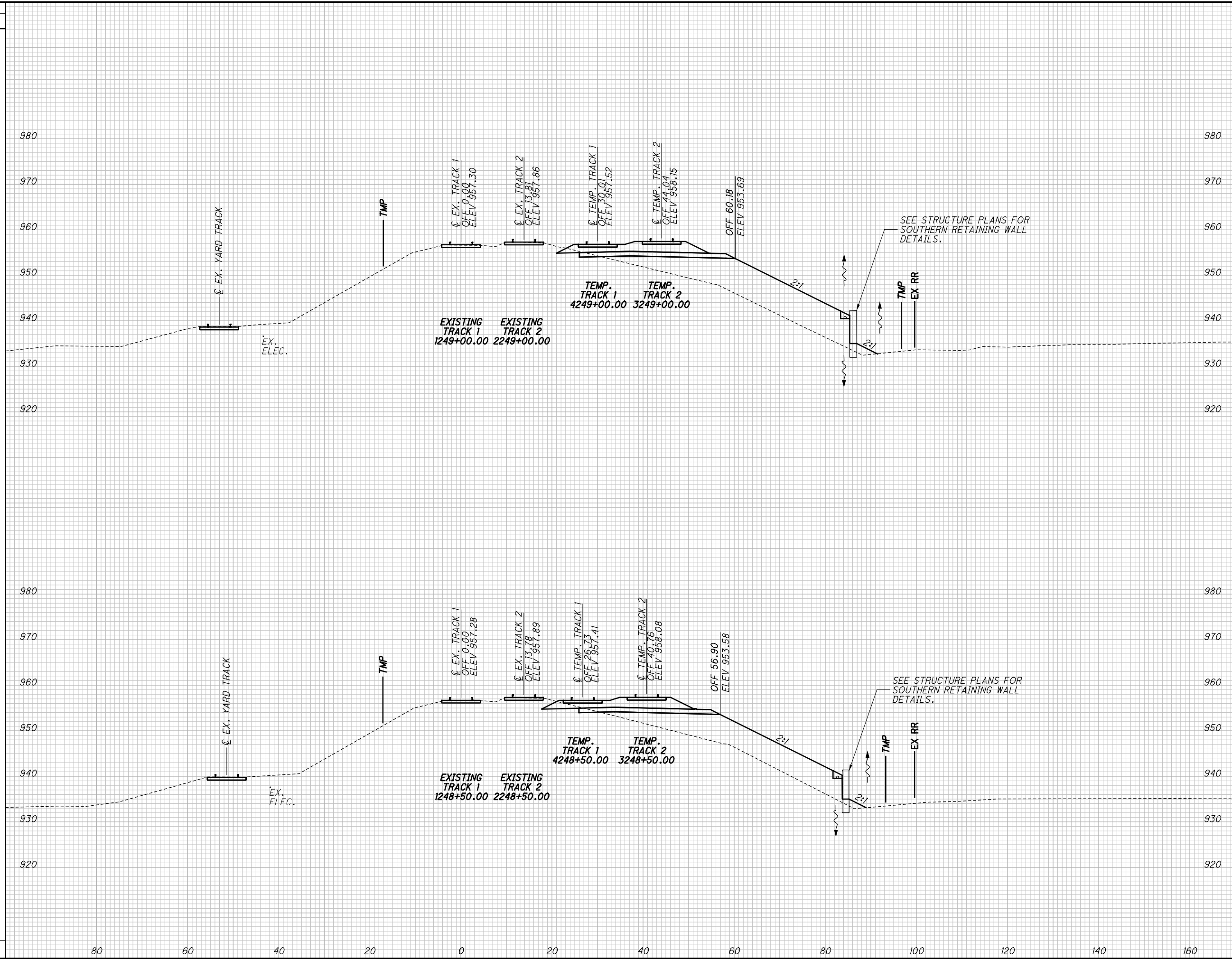
CROSS SECTIONS NS RR - PHASE 1  
STA. 1248+00.00 TO STA. 1248+07.37

DEL-36-11.03

511  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

CROSS SECTIONS NS RR - PHASE 1  
STA. 1248+50.00 TO STA. 1249+00.00

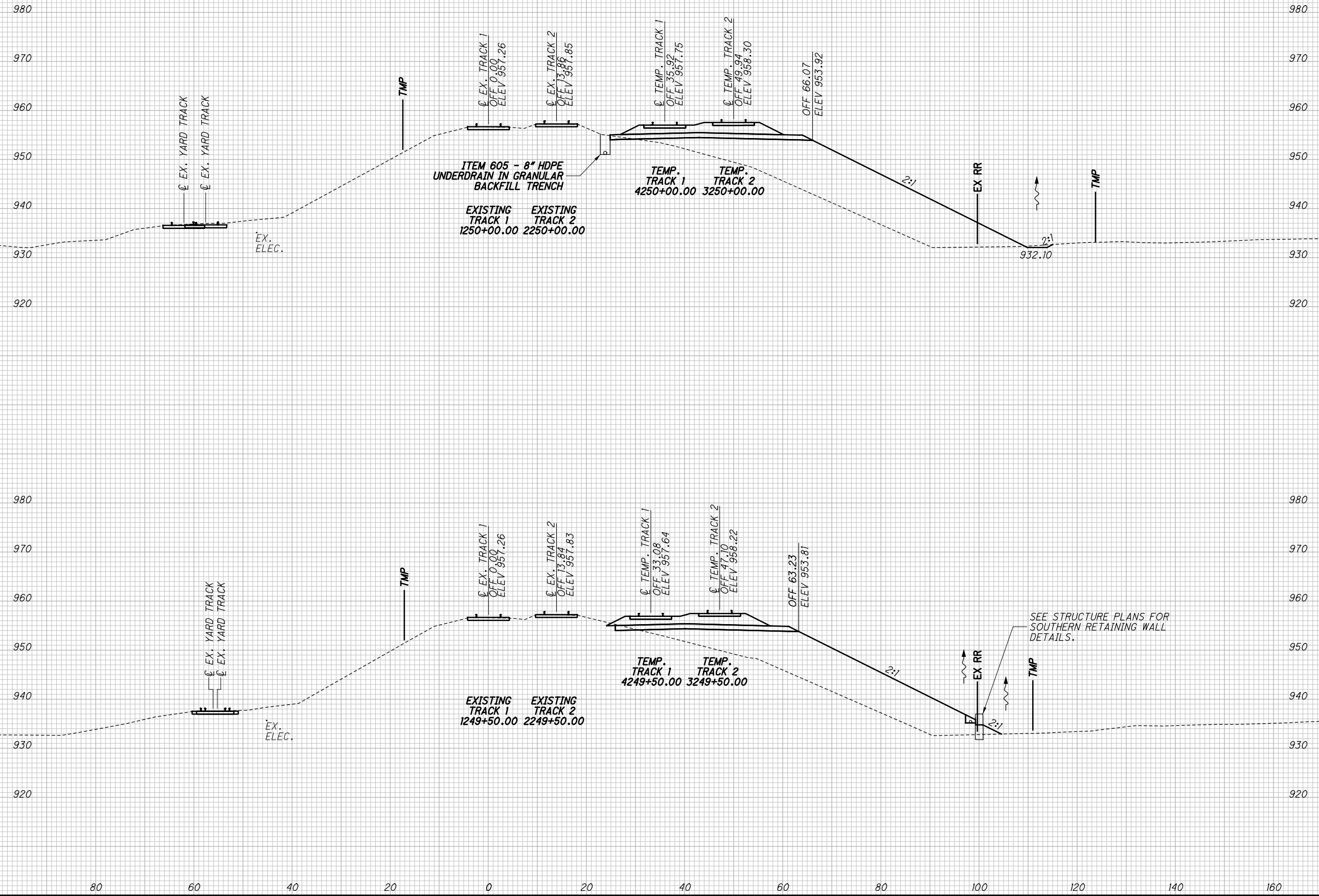
DEL-36-11.03

512  
644

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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



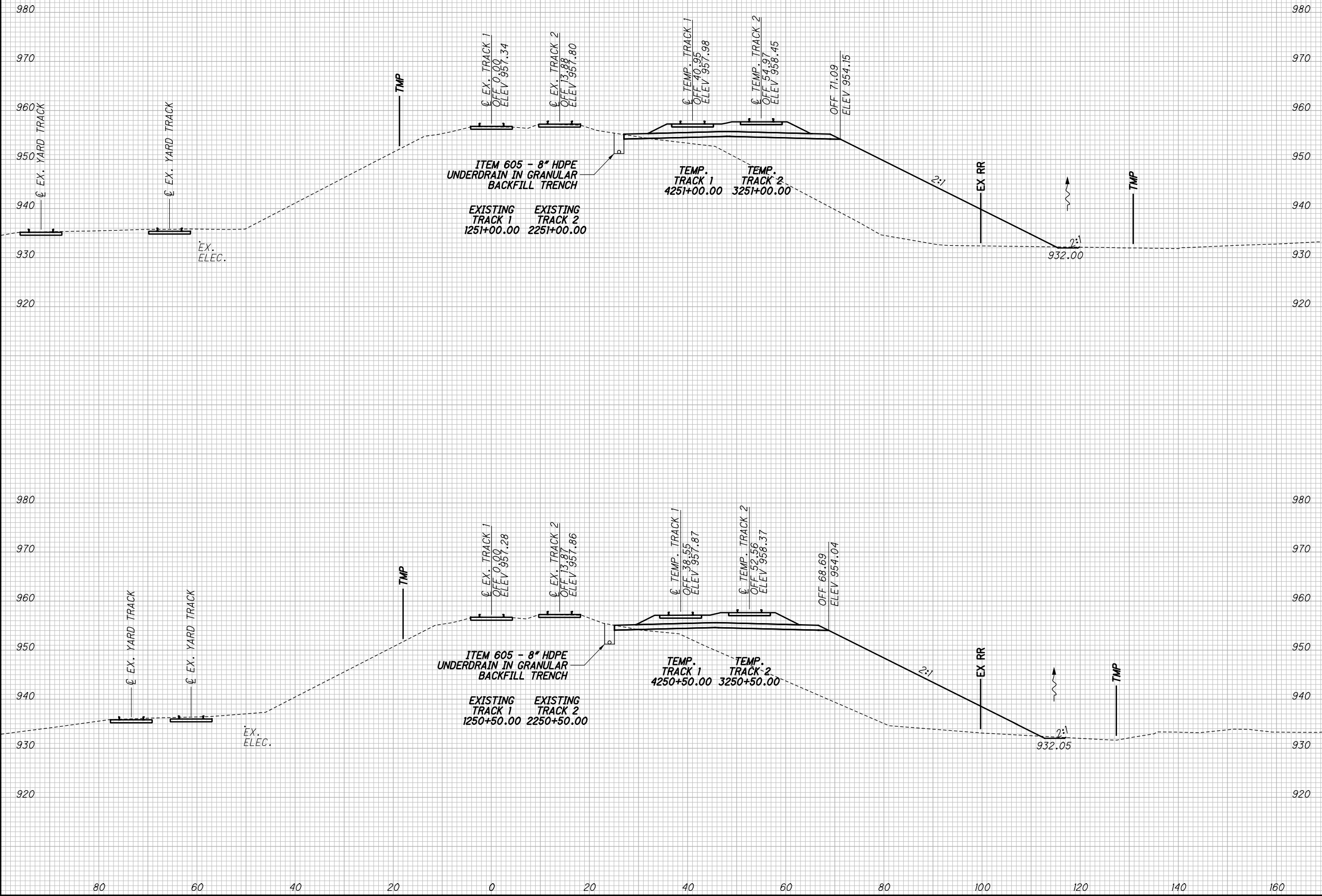
**CROSS SECTIONS NS RR - PHASE 1  
STA. 1249+50.00 TO STA. 1250+00.00**

**DEL-36-11.03**

513  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

CROSS SECTIONS NS RR - PHASE 1  
STA. 1250+50.00 TO STA. 1251+00.00

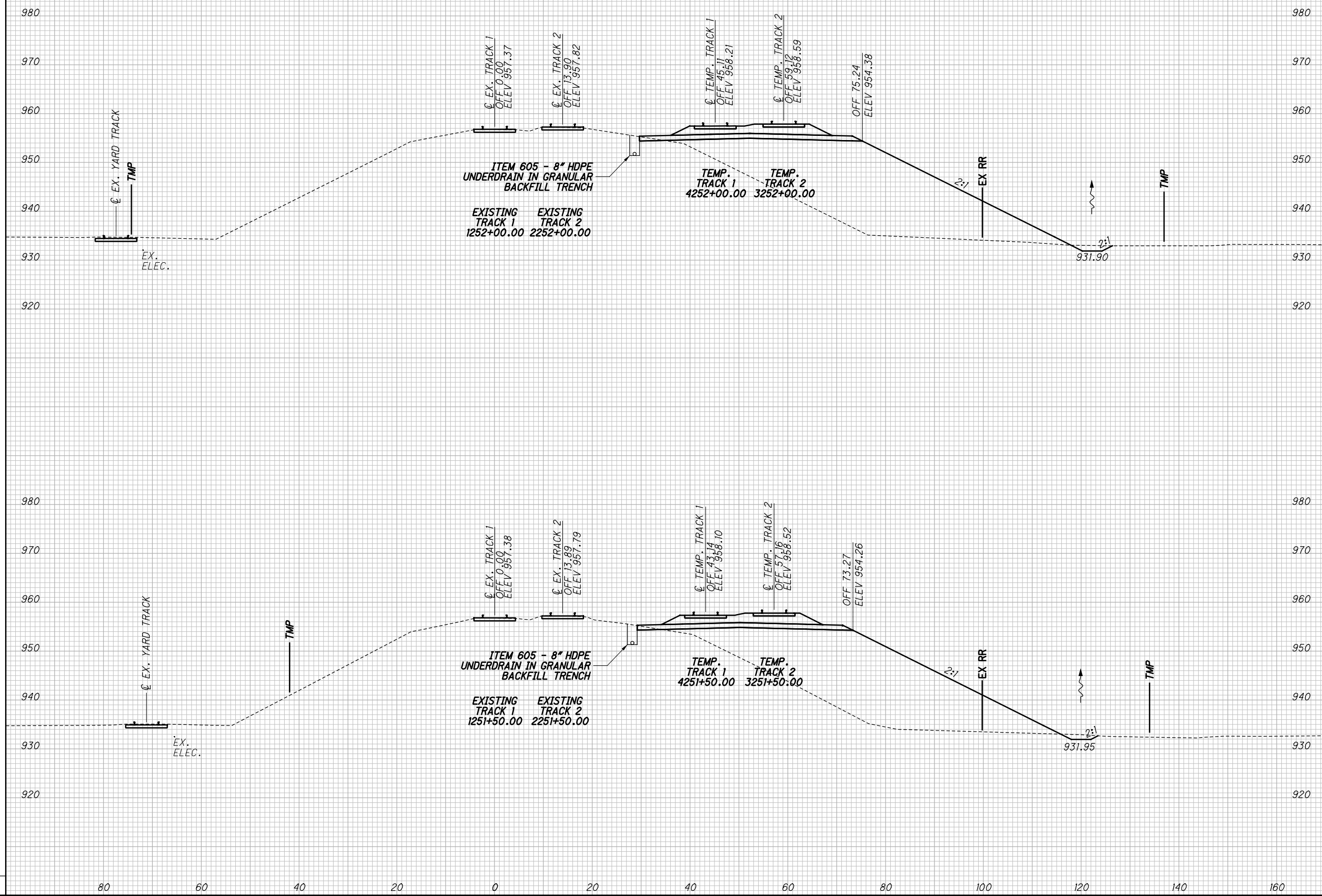
DEL-36-11.03

514  
644

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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



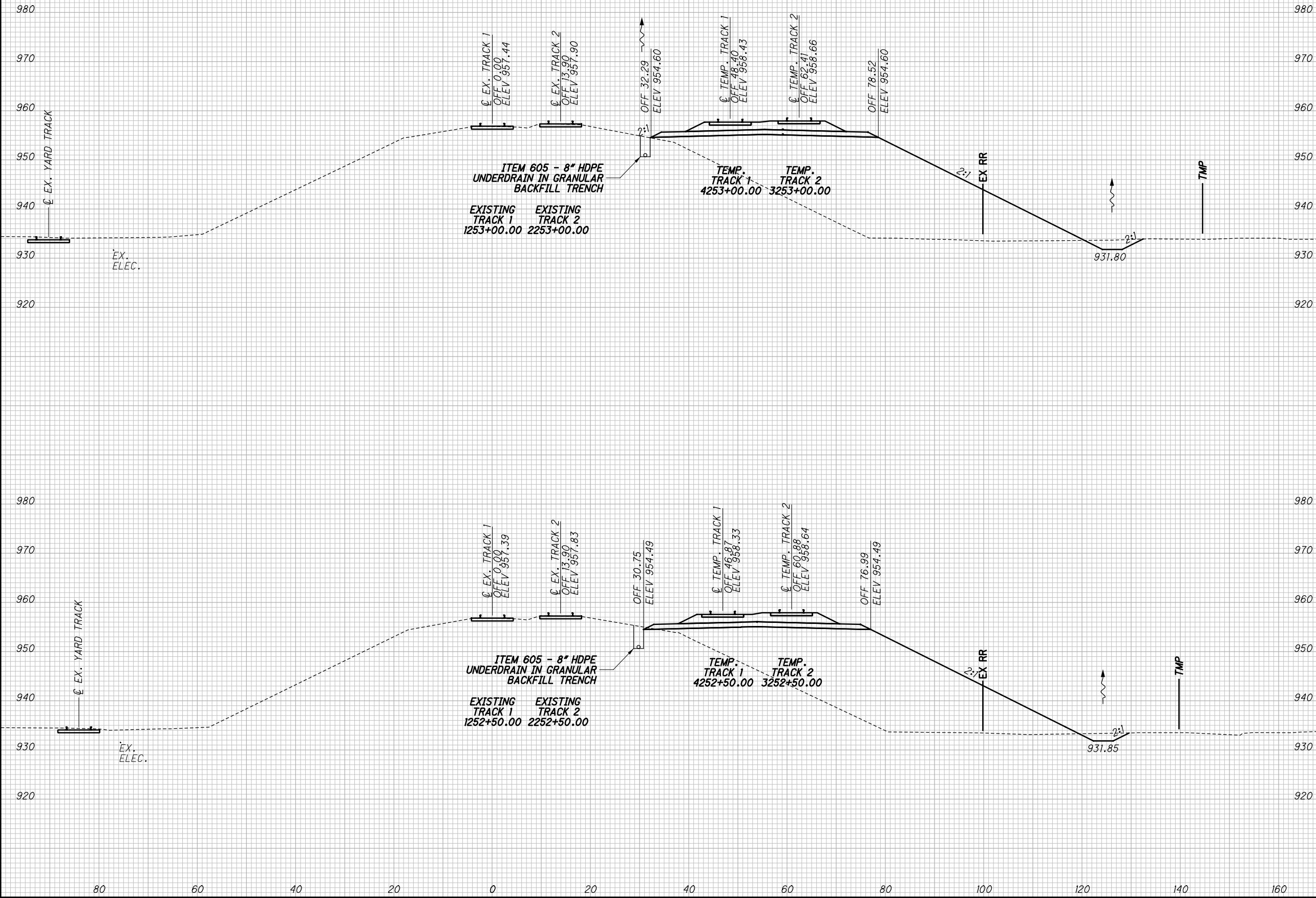
CROSS SECTIONS NS RR - PHASE 1  
STA. 1251+50.00 TO STA. 1252+00.00

DEL-36-11.03

515  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

CROSS SECTIONS NS RR - PHASE 1  
STA. 1252+50.00 TO STA. 1253+00.00

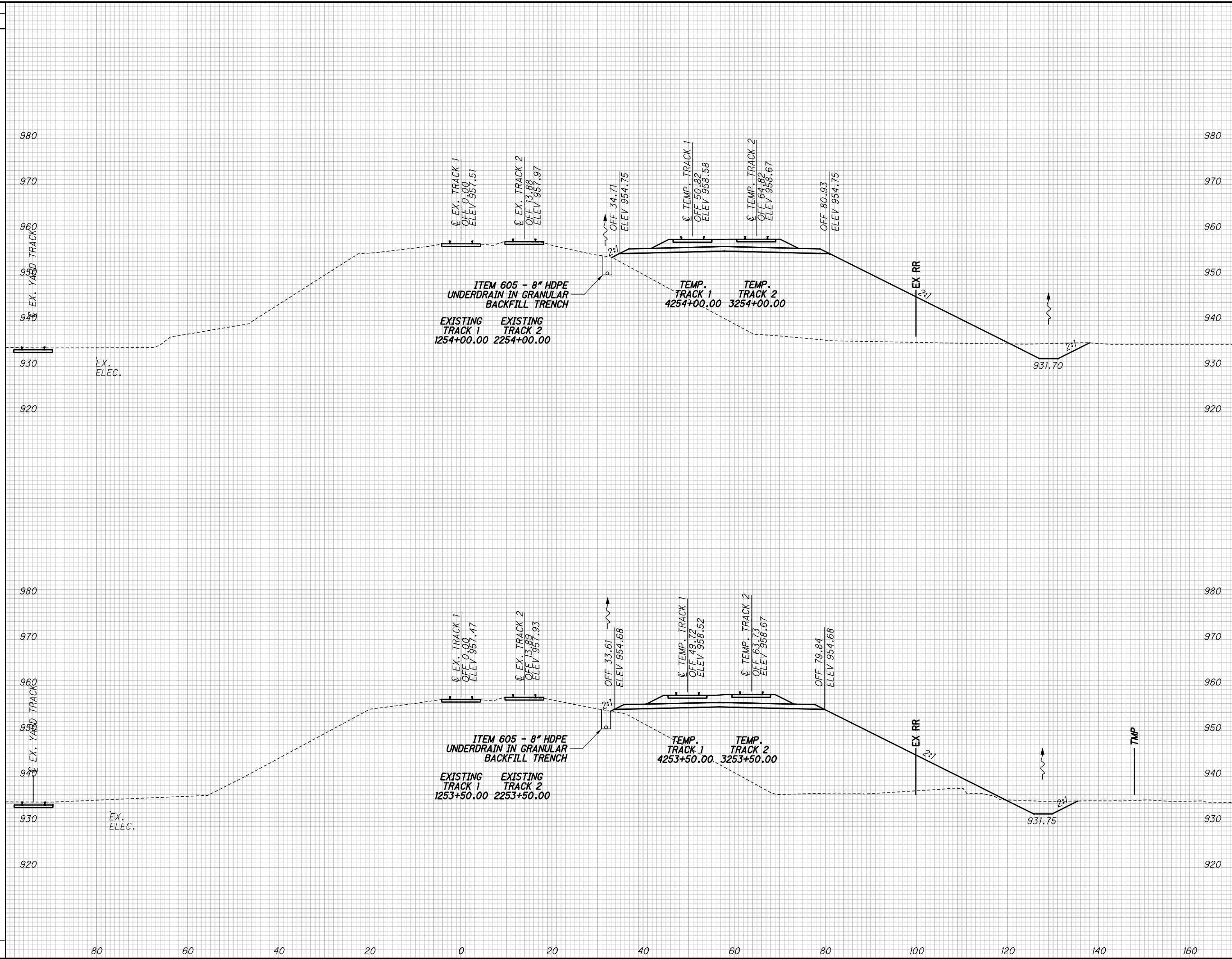
DEL-36-11.03

516  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

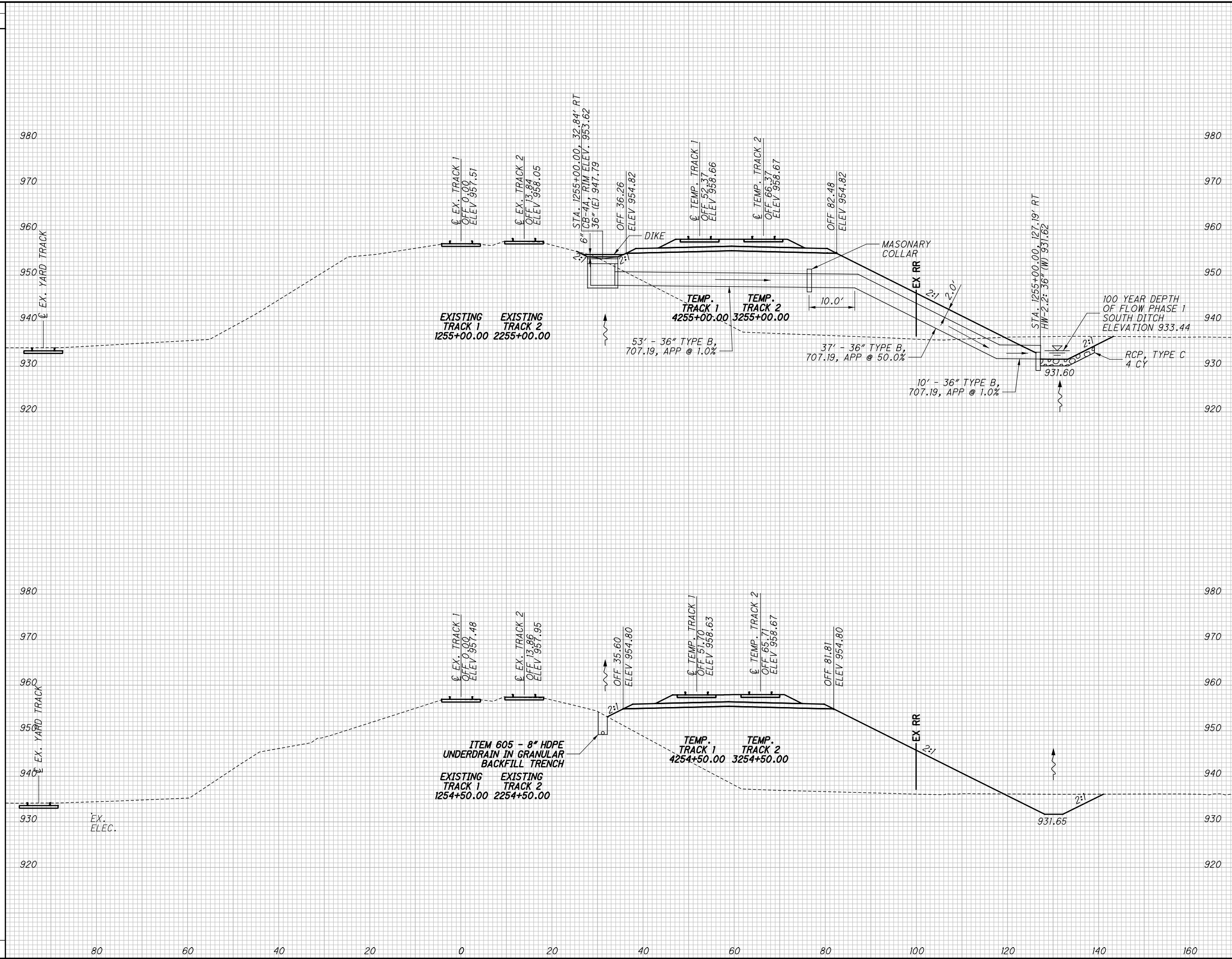
CROSS SECTIONS NS RR - PHASE 1  
STA. 1253+50.00 TO STA. 1254+00.00

DEL-36-11.03

517  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

**CROSS SECTIONS NS RR - PHASE 1**  
**STA. 1254+50.00 TO STA. 1255+00.00**

**DEL-36-11.03**

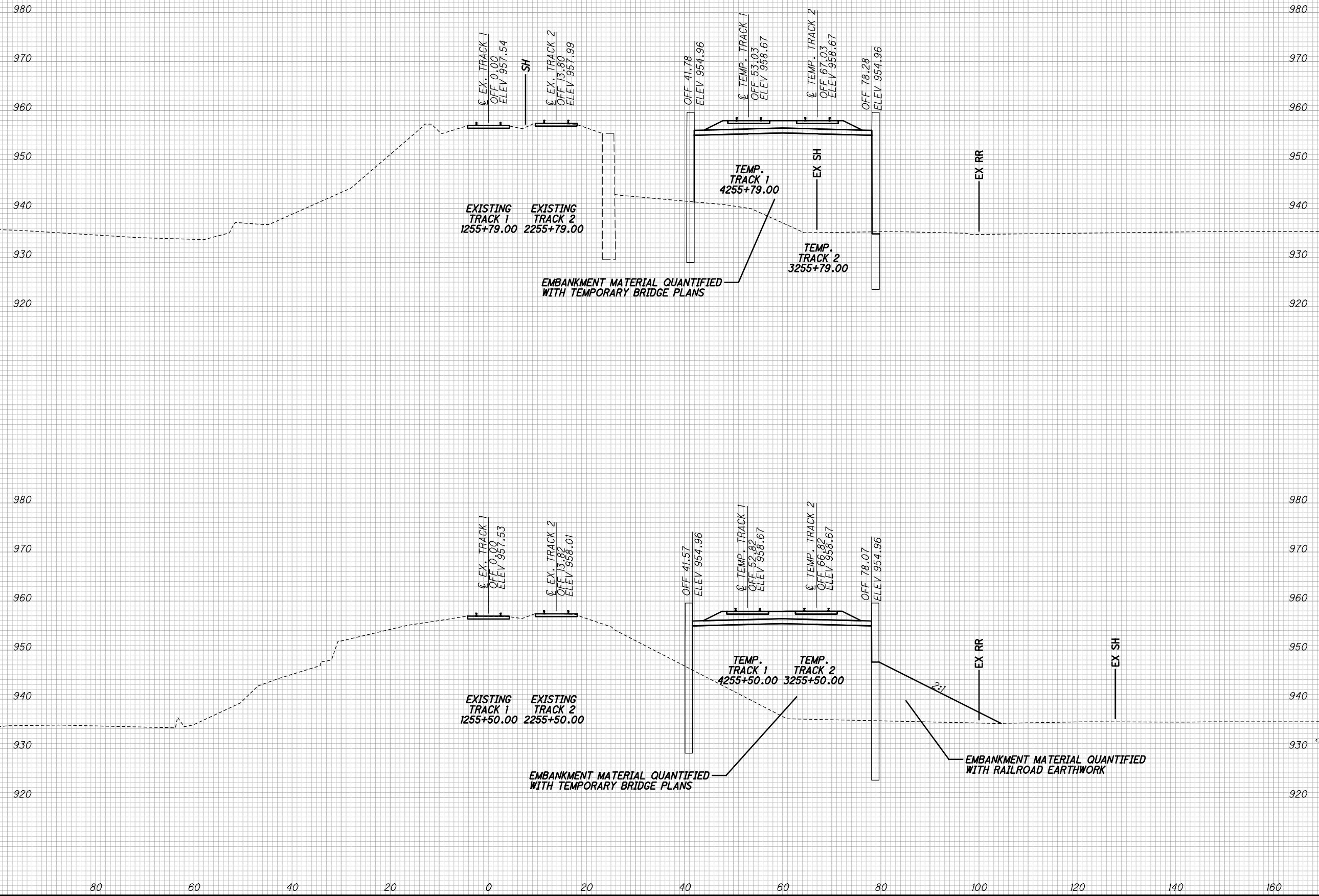
518  
644



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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



CROSS SECTIONS NS RR - PHASE 1  
STA. 1255+50.00 TO STA. 1255+92.80

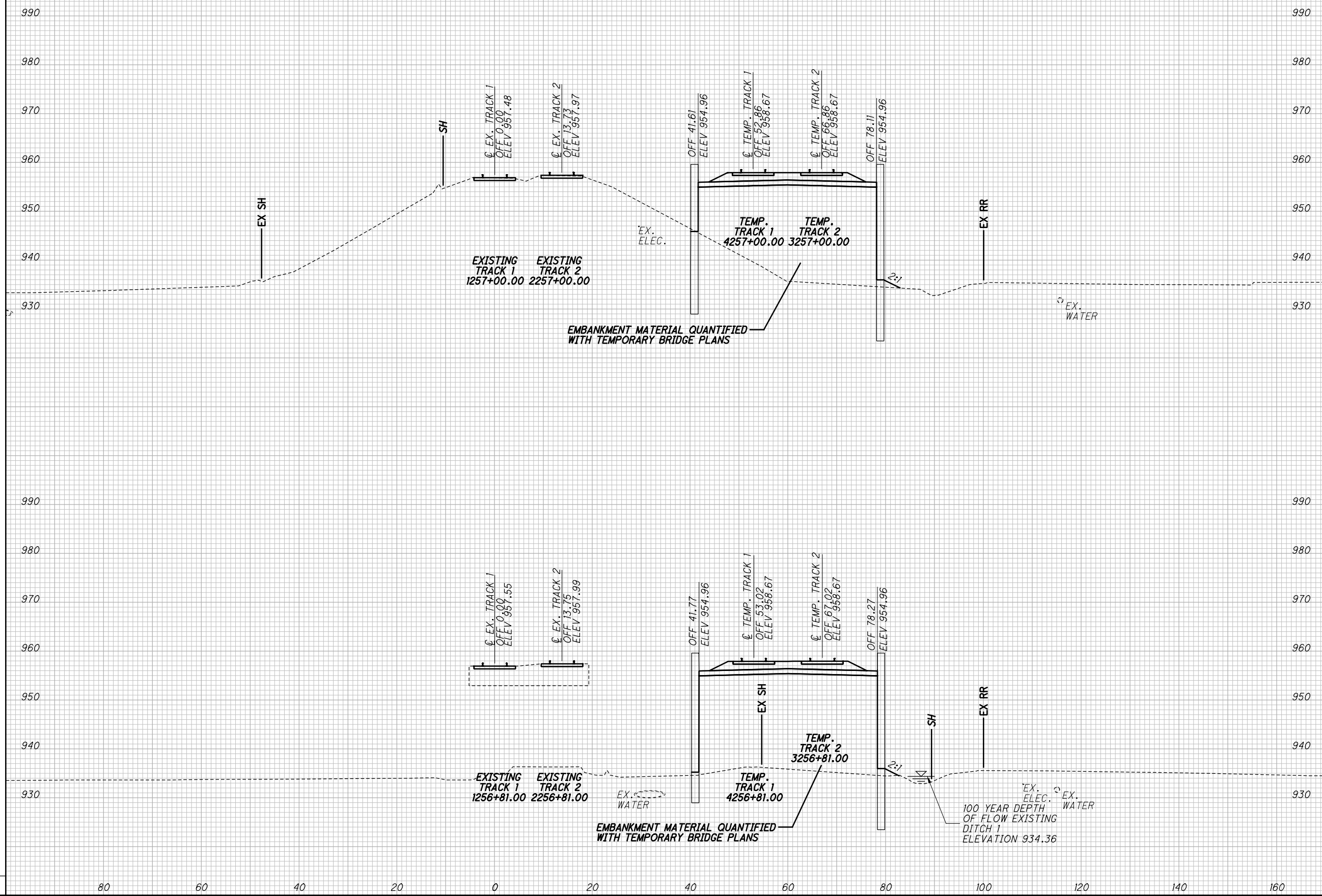
DEL-36-11.03

519  
644

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SEEDING  
END SO.  
WIDTH YDS.

END AREA  
CUT FILL  
VOLUME  
CUT FILL  
CALCULATED  
CDR  
CHECKED  
JLF



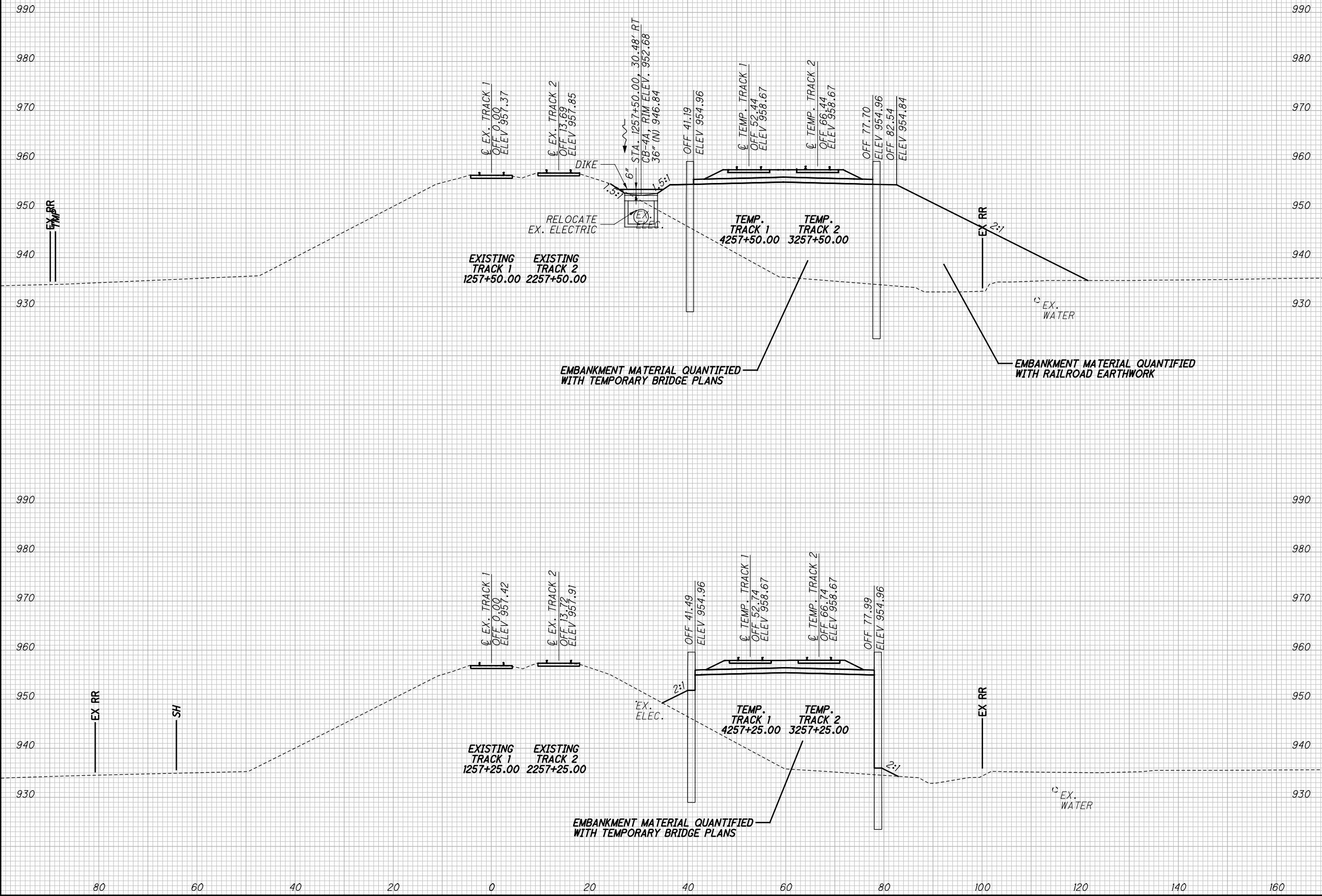
CROSS SECTIONS NS RR - PHASE 1  
STA. 1256+68.00 TO STA. 1257+00.00

DEL-36-11.03

520  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

CROSS SECTIONS NS RR - PHASE 1  
 STA. 1257+17.87 TO STA. 1257+50.00

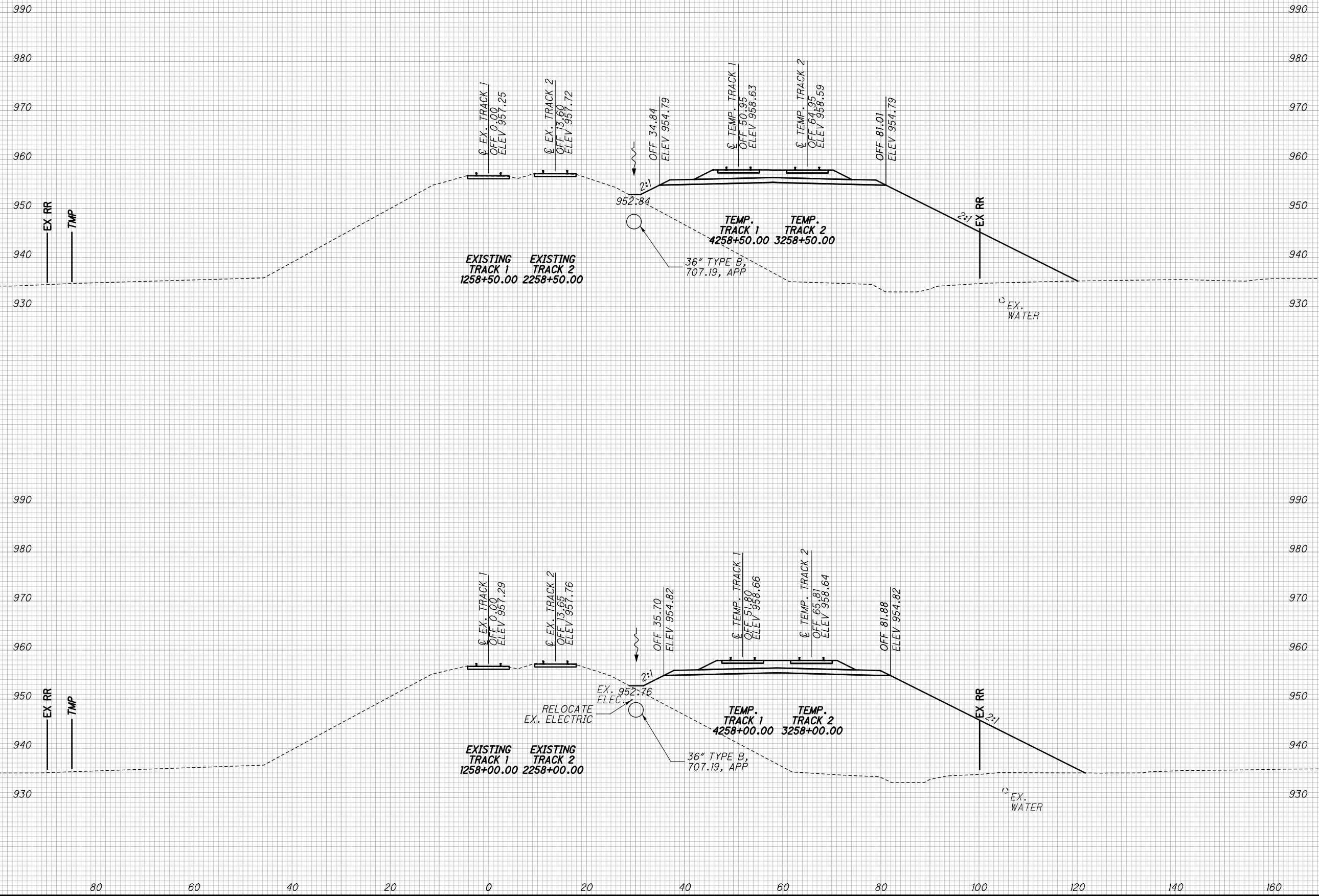
DEL-36-11.03

521  
644

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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



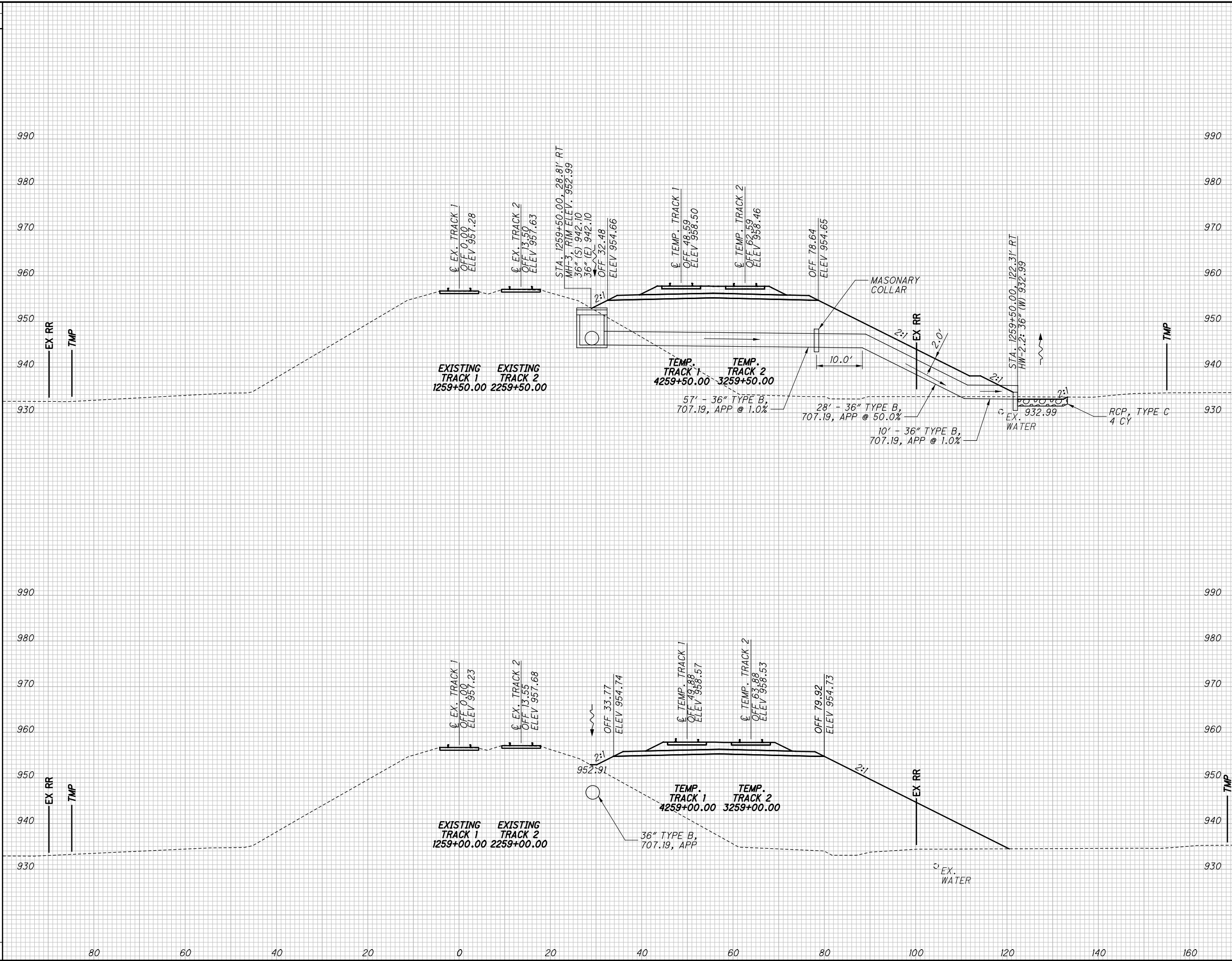
CROSS SECTIONS NS RR - PHASE 1  
STA. 1258+00.00 TO STA. 1258+50.00

DEL-36-11.03

522  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

**CROSS SECTIONS NS RR - PHASE 1  
STA. 1259+00.00 TO STA. 1259+50.00**

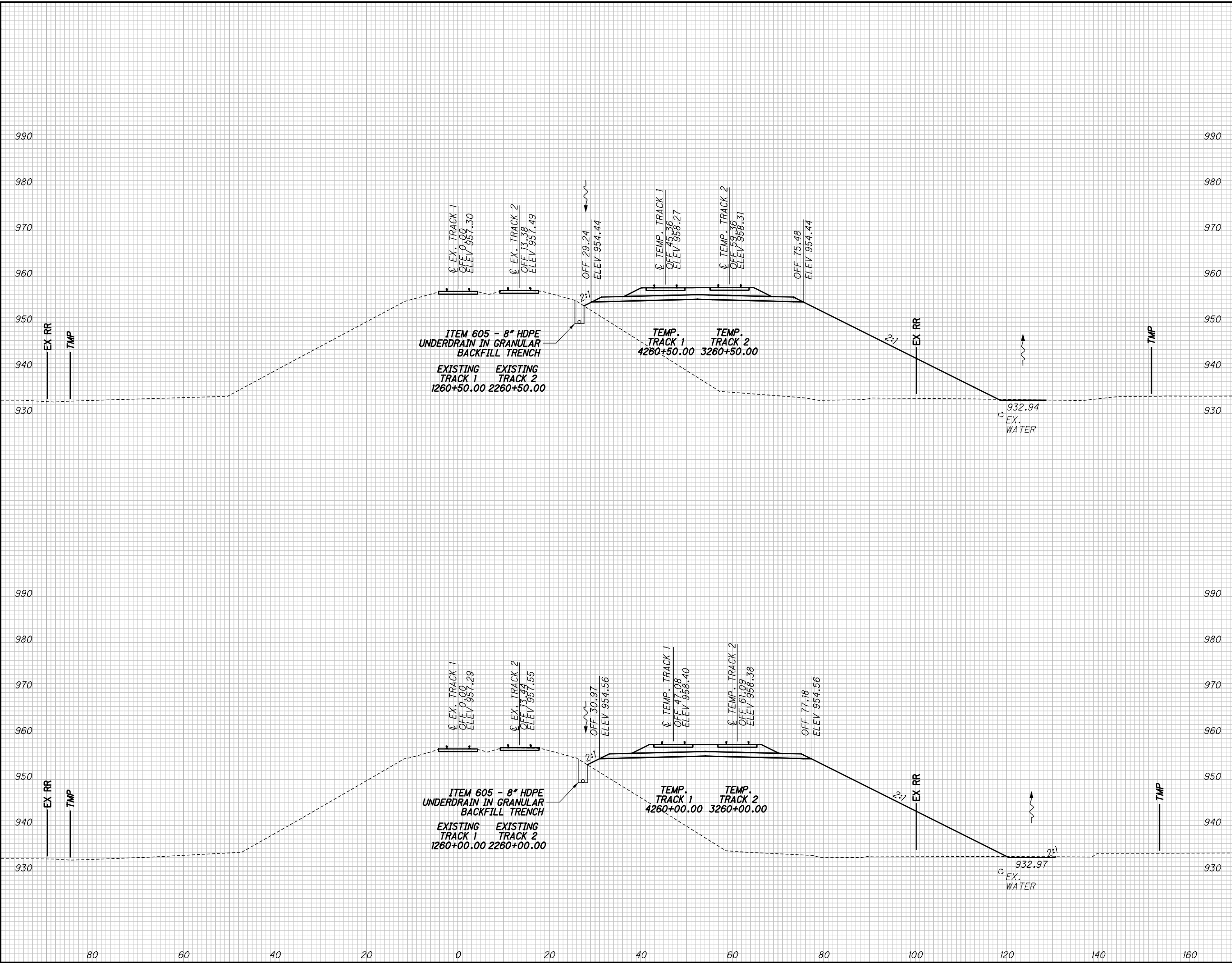
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523  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

**DEL-36-11.03**

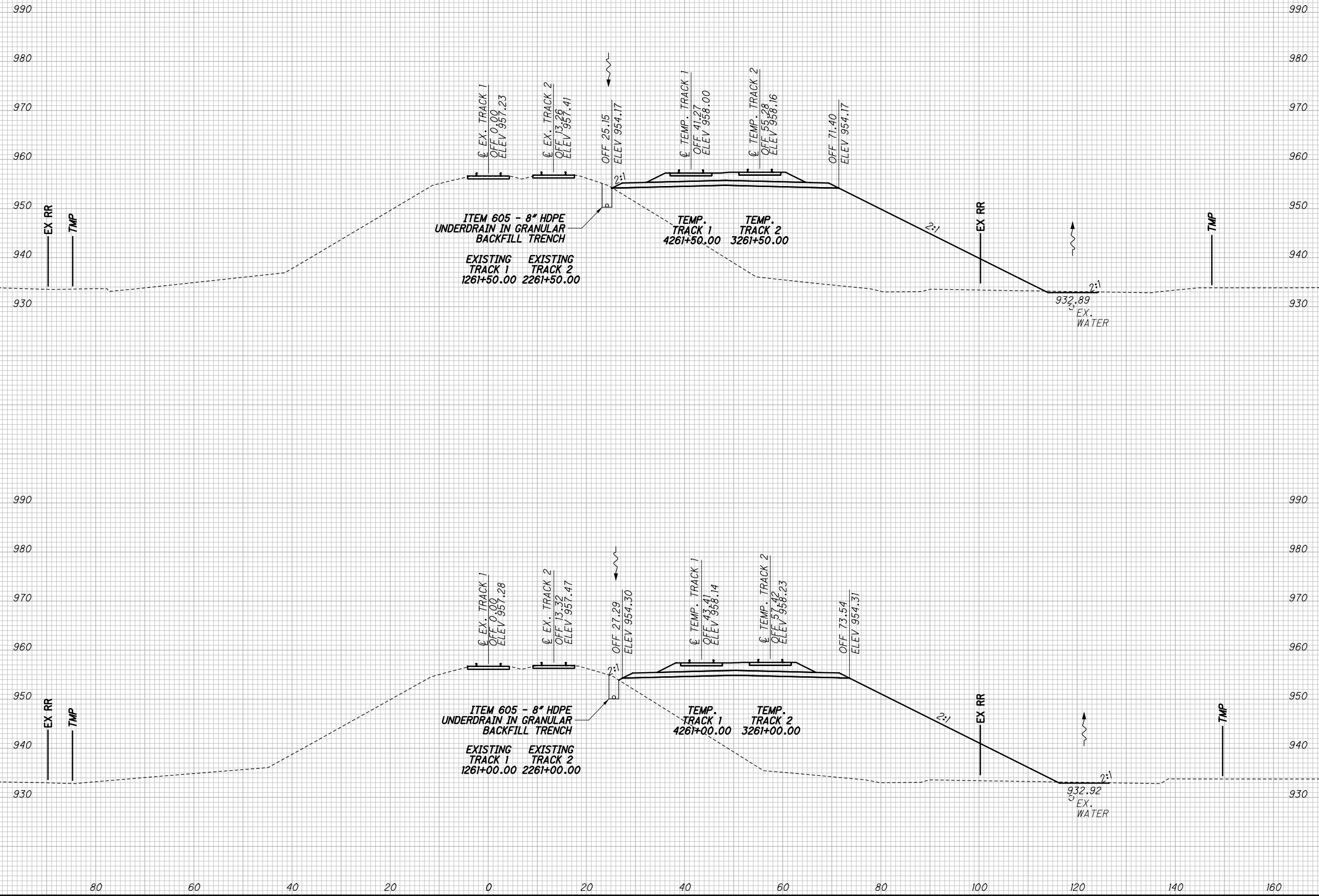
**CROSS SECTIONS NS RR - PHASE 1**  
**STA. 1260+00.00 TO STA. 1260+50.00**

524  
644

p:\gfnnet-pw-bentley.com\gfnnet-pw-0\Documents\Projects\63519\03626\Design\Railroad\sheet\03626\_RRX132.dgn Design 5/6/2022 1:46:44 PM CREBAR

SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |



CROSS SECTIONS NS RR - PHASE 1  
STA. 1261+00.00 TO STA. 1261+50.00

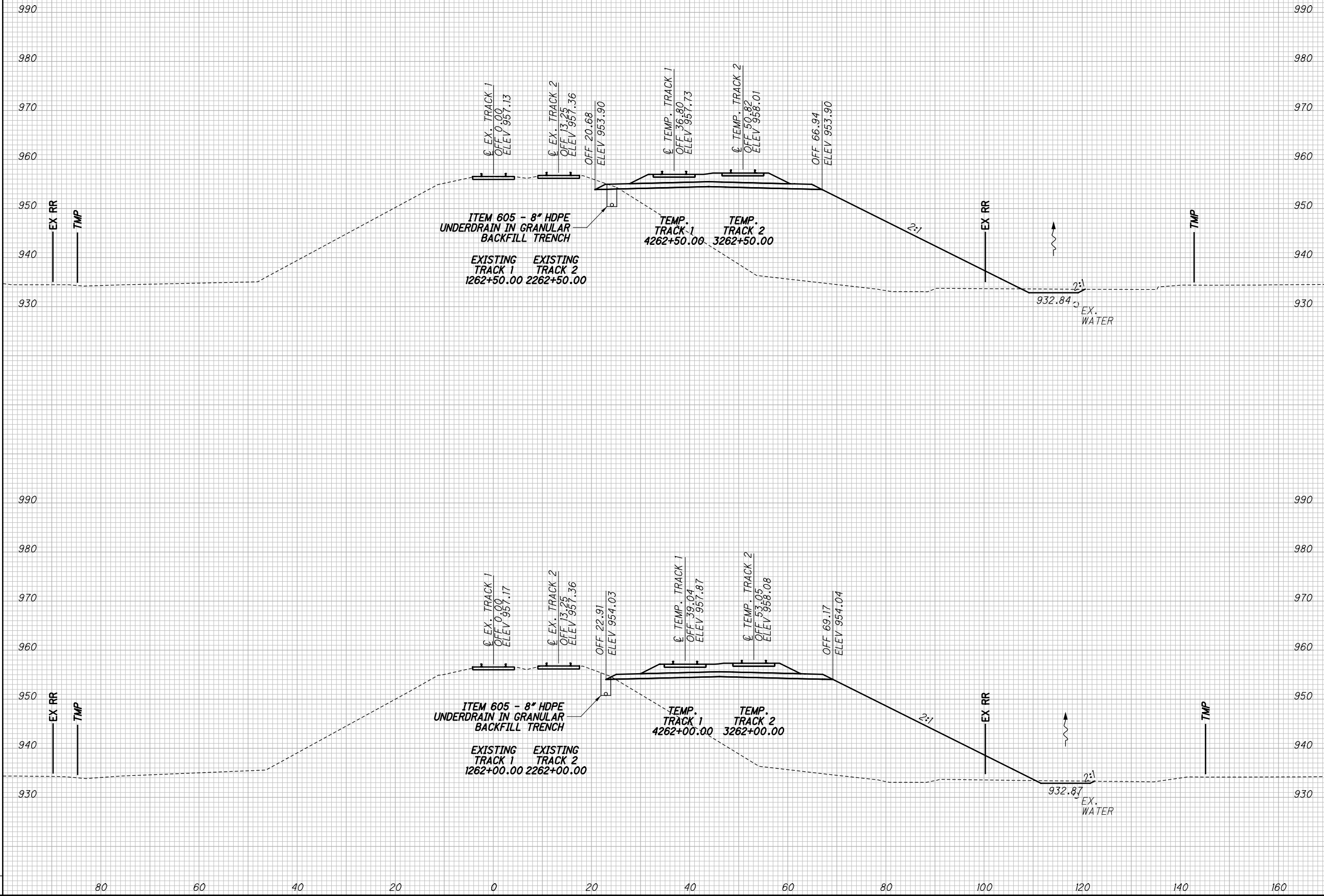
DEL-36-11.03

525  
644

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SEEDING  
END SO.  
WIDTH YDS.

END AREA  
CUT FILL  
VOLUME  
CUT FILL  
CALCULATED  
CDR  
CHECKED  
JLF



CROSS SECTIONS NS RR - PHASE 1  
STA. 1262+00.00 TO STA. 1262+50.00

DEL-36-11.03

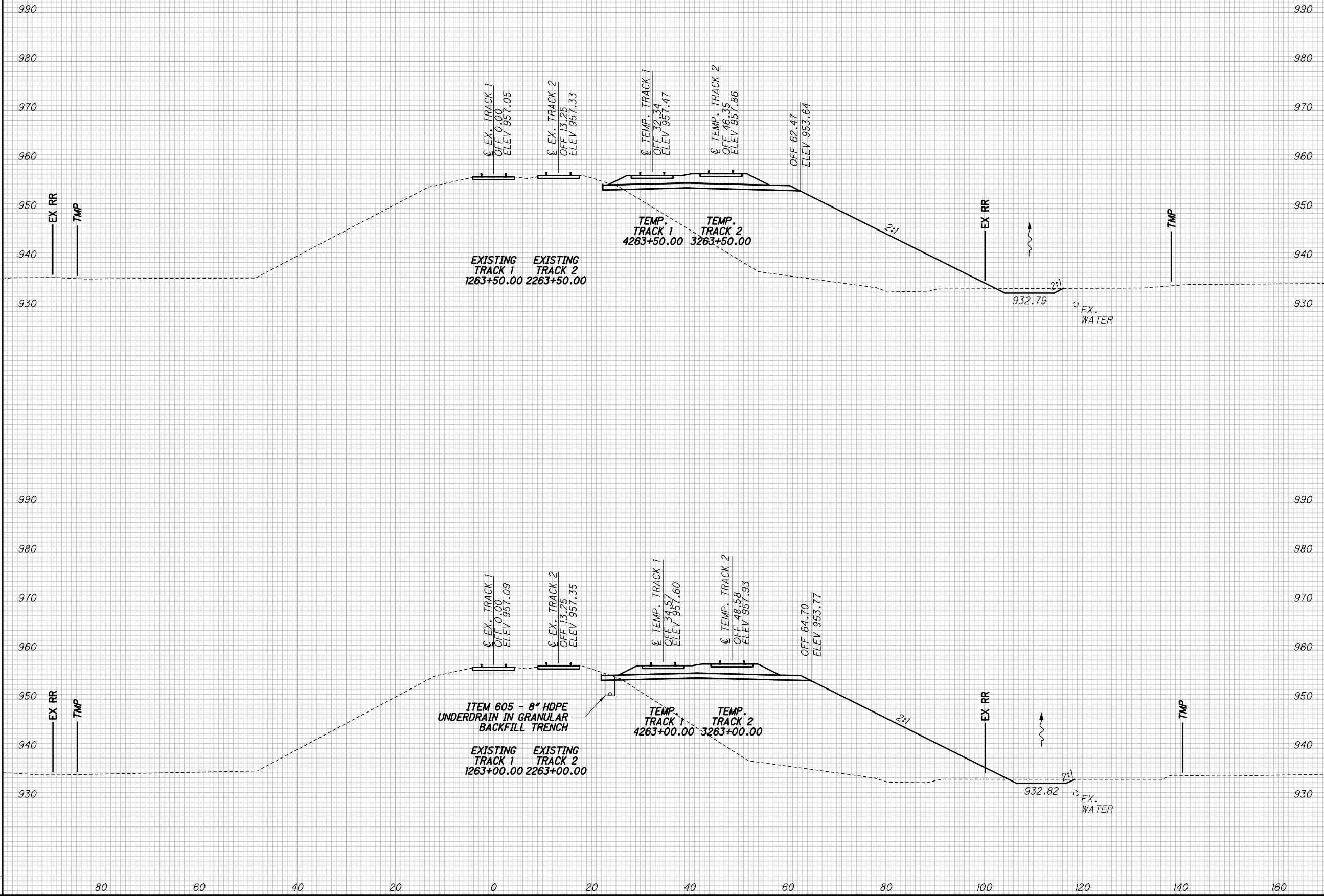
526  
644



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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



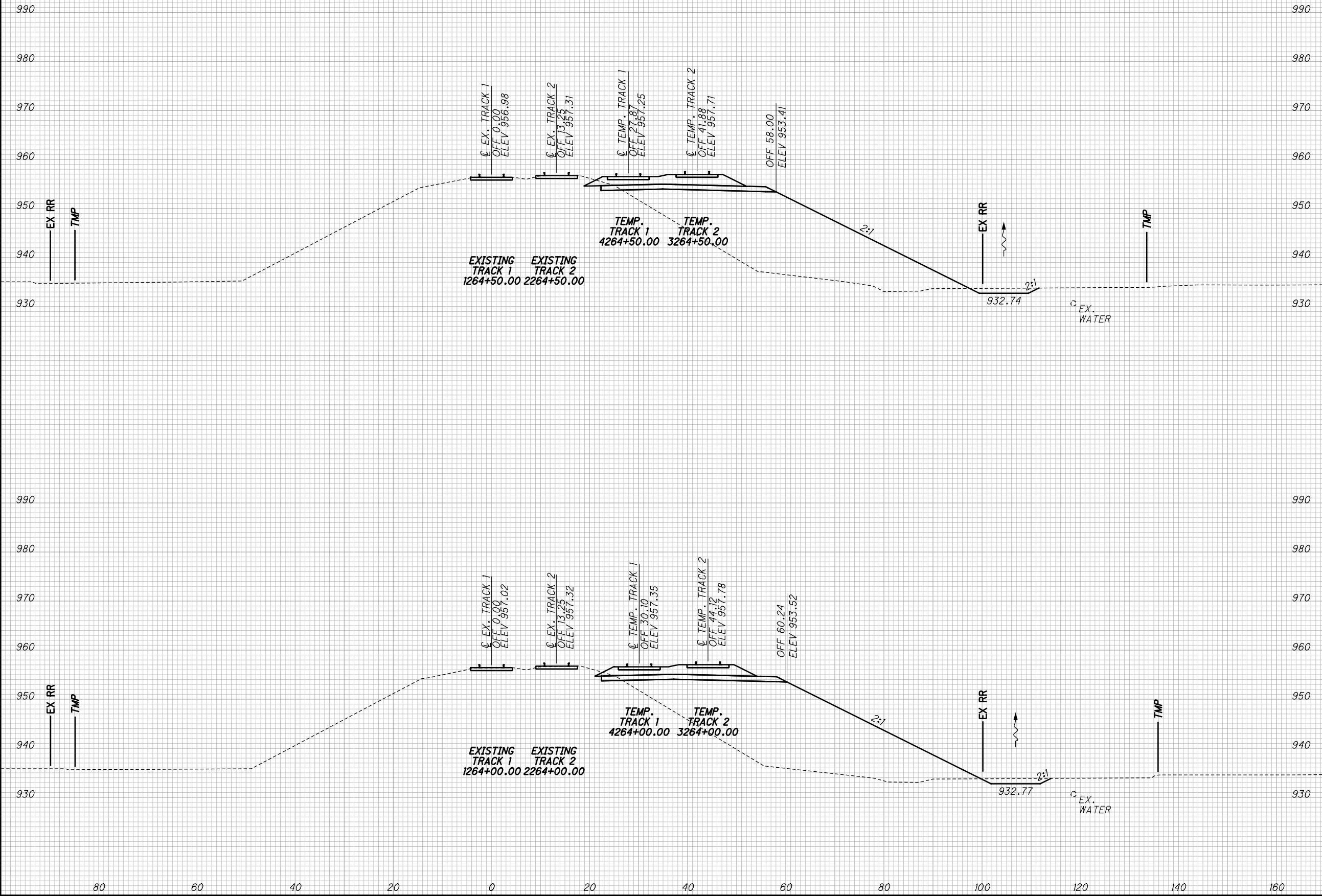
CROSS SECTIONS NS RR - PHASE 1  
STA. 1263+00.00 TO STA. 1263+50.00

DEL-36-11.03

527  
644

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SEEDING  
END SO.  
WIDTH YDS.



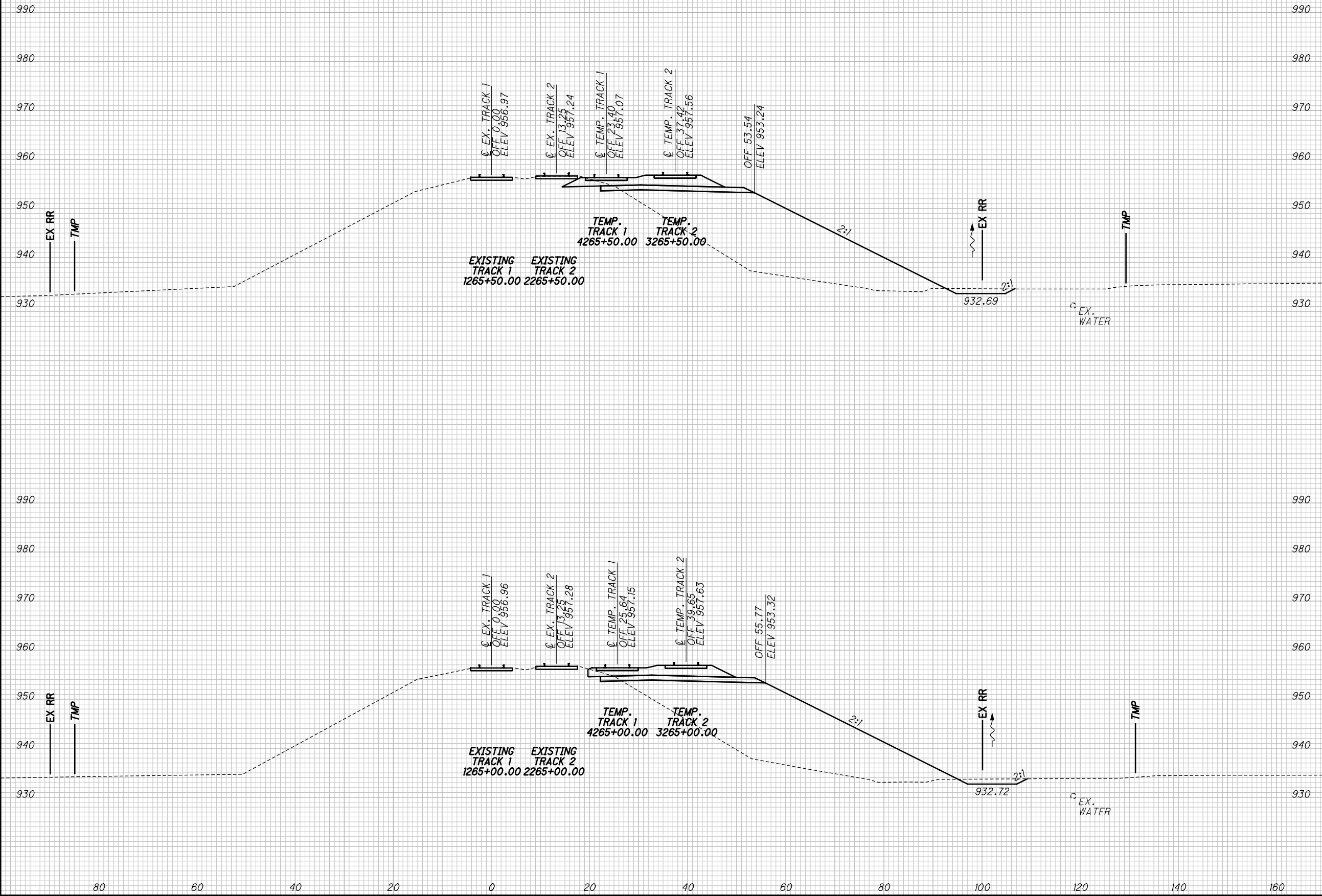
| END AREA                                  |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|-------------------------------------------|------|--------|------|-------------------|----------------|
| CUT                                       | FILL | CUT    | FILL |                   |                |
|                                           |      |        |      |                   |                |
| <b>DEL -36 -11.03</b>                     |      |        |      |                   |                |
| <b>CROSS SECTIONS NS RR - PHASE 1</b>     |      |        |      |                   |                |
| <b>STA. 1264+00.00 TO STA. 1264+50.00</b> |      |        |      |                   |                |

528  
644

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SEEDING  
END SO.  
WIDTH YDS.

END AREA  
CUT FILL  
VOLUME  
CUT FILL  
CALCULATED  
CDR  
CHECKED  
JLF



CROSS SECTIONS NS RR - PHASE 1  
STA. 1265+00.00 TO STA. 1265+50.00

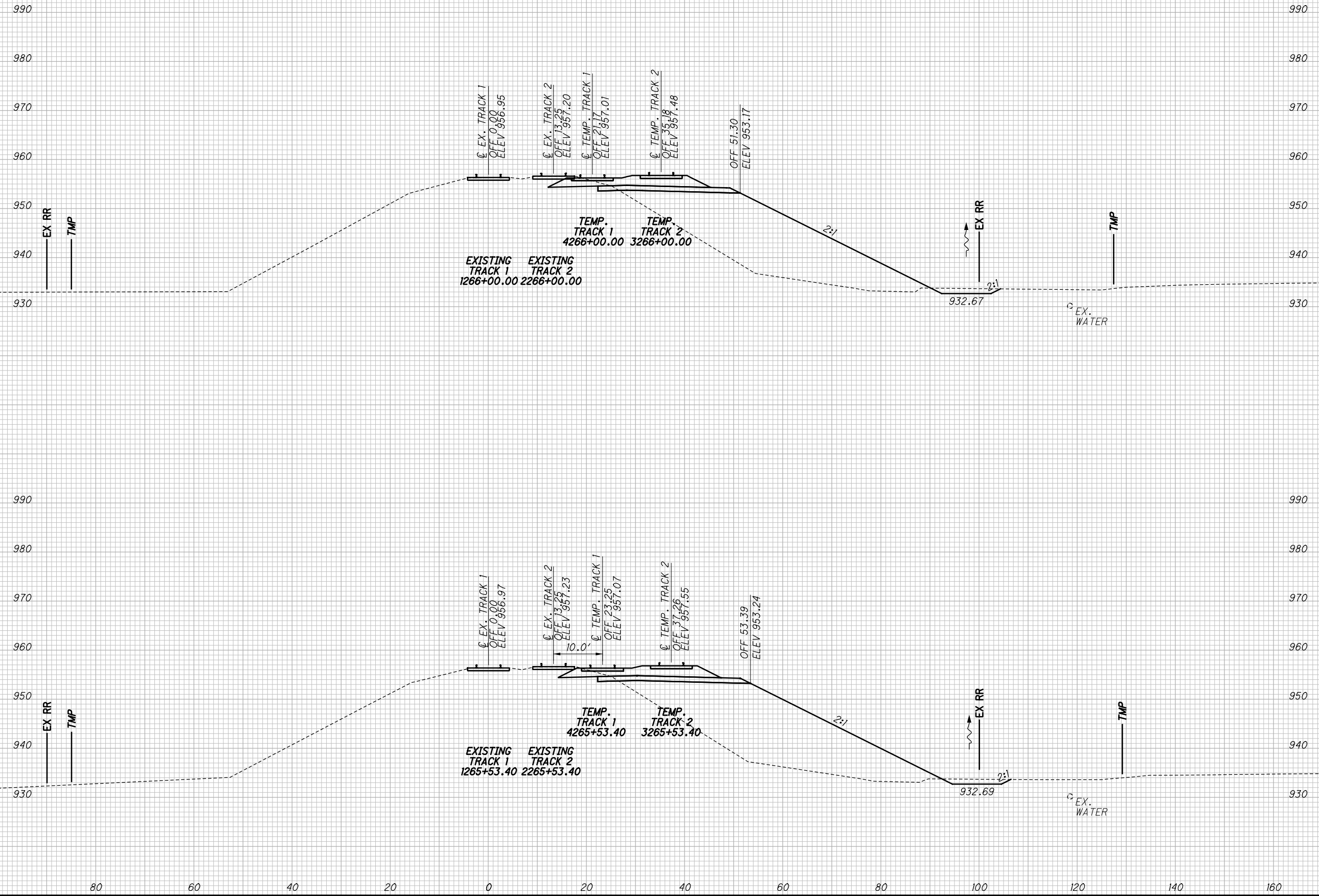
DEL-36-11.03

529  
644

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SEEDING  
END SO.  
WIDTH YDS.

END AREA  
CUT FILL  
VOLUME  
CUT FILL  
CALCULATED  
CDR  
CHECKED  
JLF



CROSS SECTIONS NS RR - PHASE 1  
STA. 1265+53.40 TO STA. 1266+00.00

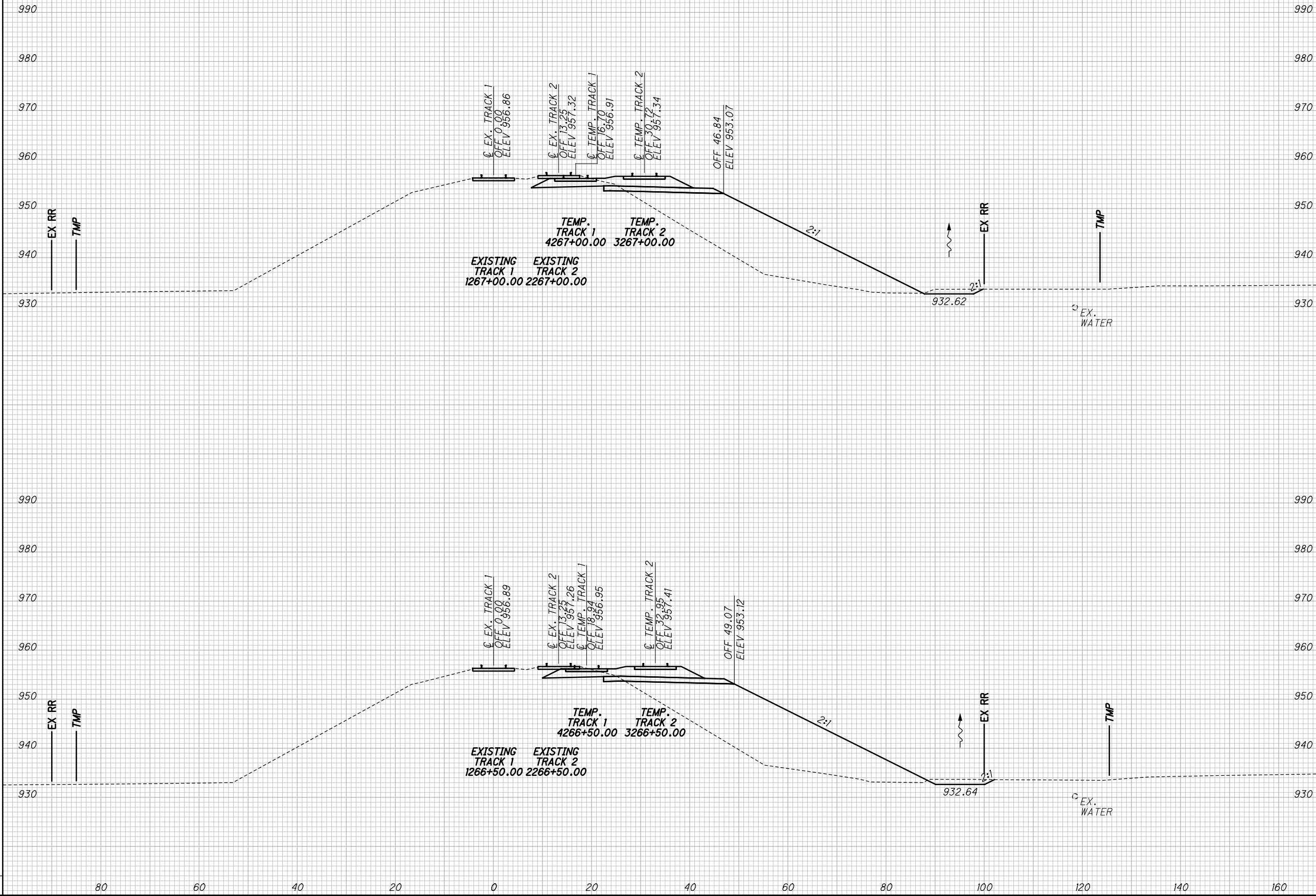
DEL-36-11.03

530  
644

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| SEEDING   |          |
|-----------|----------|
| END WIDTH | SO. YDS. |
|           |          |

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



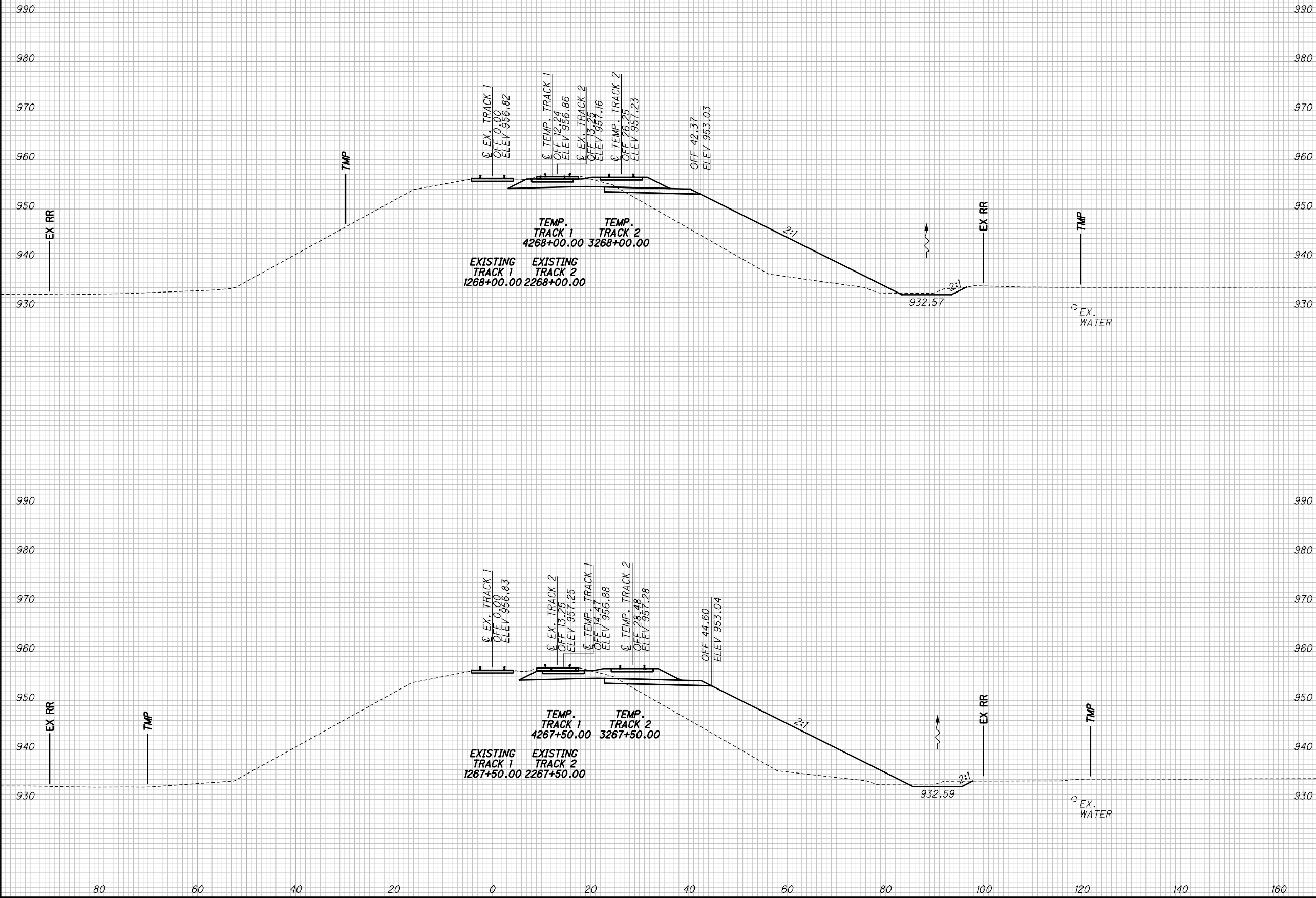
**CROSS SECTIONS NS RR - PHASE 1  
STA. 1266+50.00 TO STA. 1267+00.00**

**DEL-36-11.03**

531  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|--------|------|-------------------|----------------|
|          | CUT    | FILL |                   |                |
|          |        |      |                   |                |

**CROSS SECTIONS NS RR - PHASE 1  
STA. 1267+50.00 TO STA. 1268+00.00**

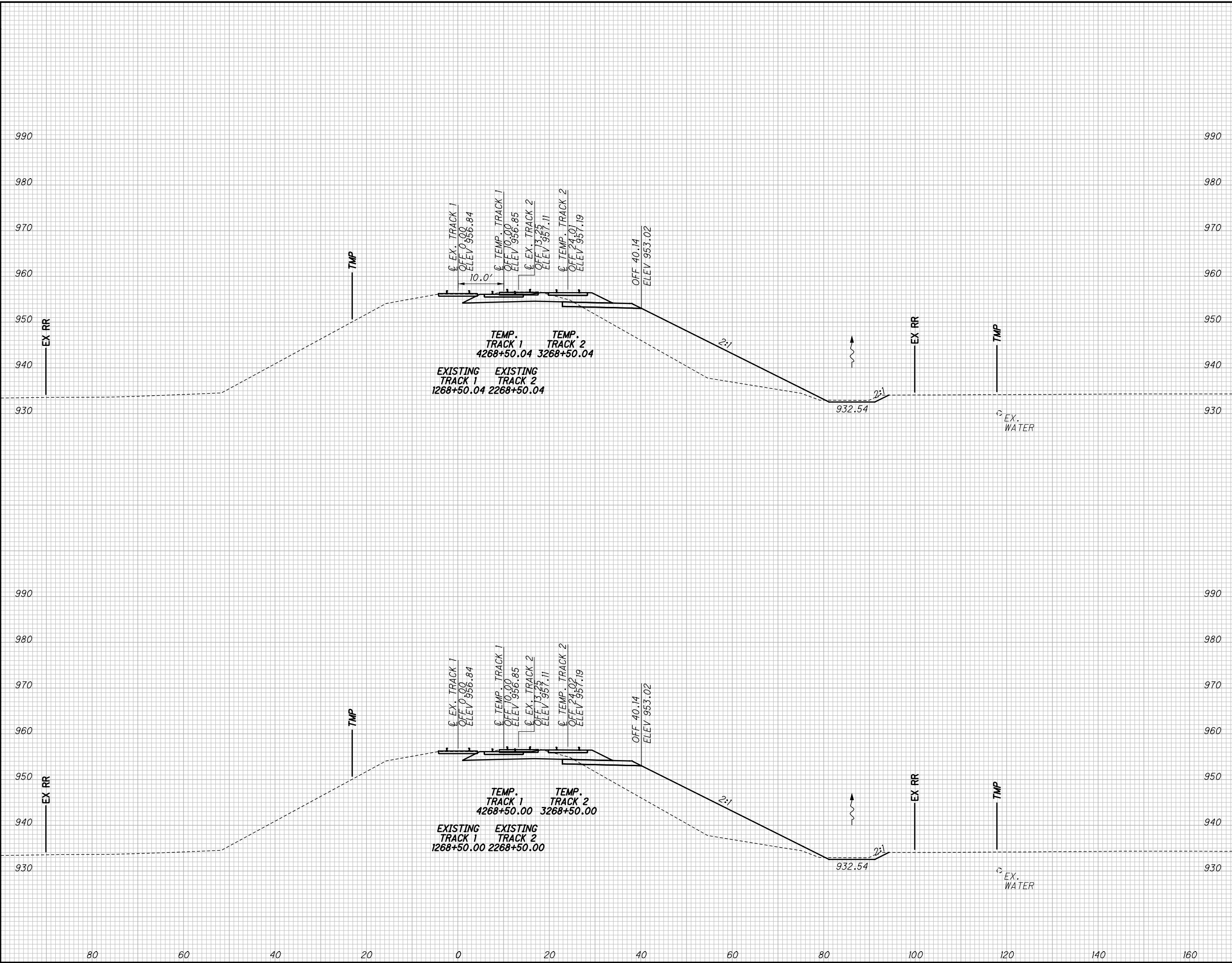
**DEL-36-11.03**

532  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |

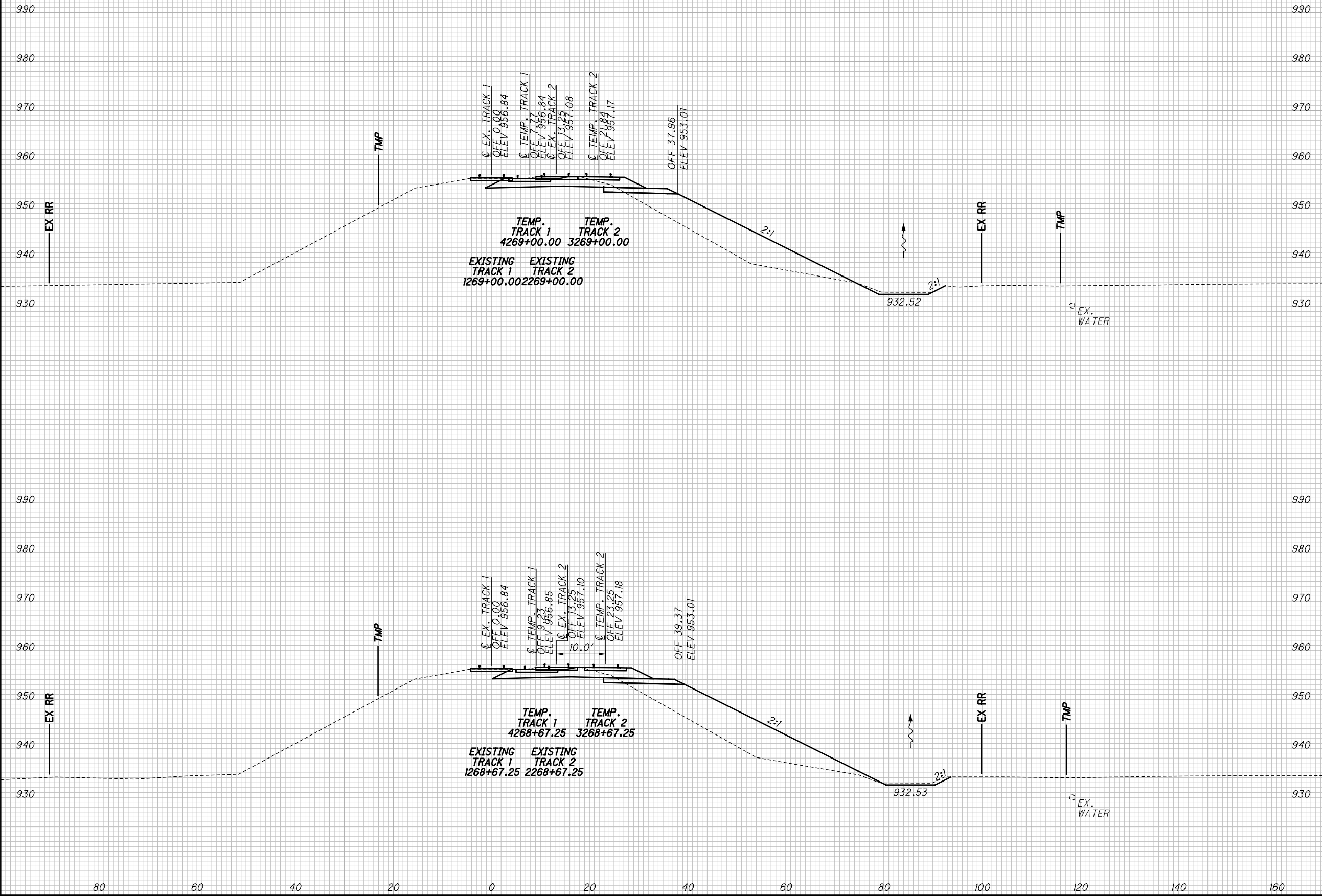
**DEL-36-11.03**

**CROSS SECTIONS NS RR - PHASE 1**  
**STA. 1268+50.00 TO STA. 1268+50.04**

533  
644

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SEEDING  
END SO.  
WIDTH YDS.



END AREA  
CUT FILL

VOLUME  
CUT FILL

CALCULATED  
CDR

CHECKED  
JLF

CROSS SECTIONS NS RR - PHASE 1  
STA. 1268+67.25 TO STA. 1269+00.00

DEL-36-11.03

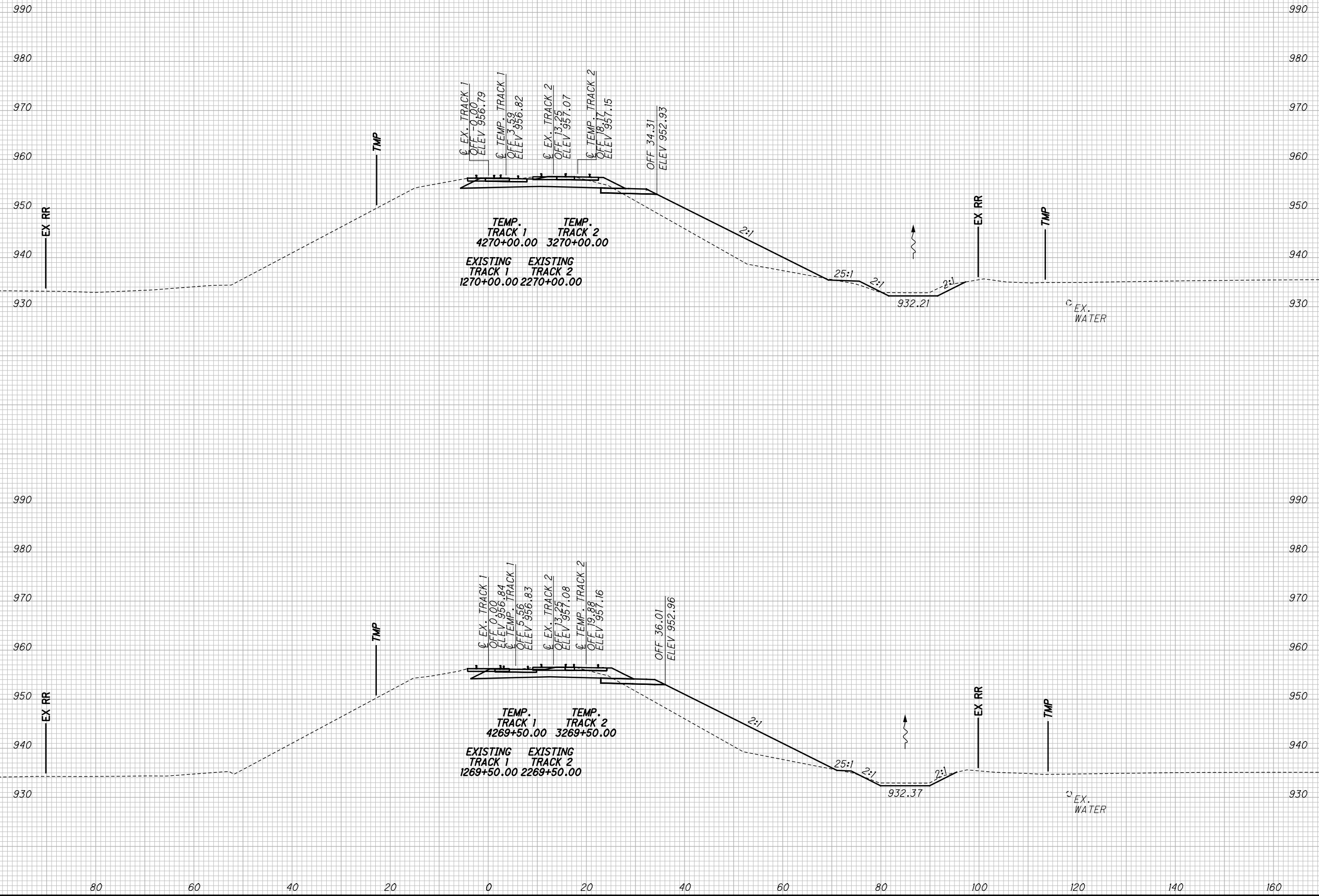
534  
644



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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



CROSS SECTIONS NS RR - PHASE 1  
STA. 1269+50.00 TO STA. 1270+00.00

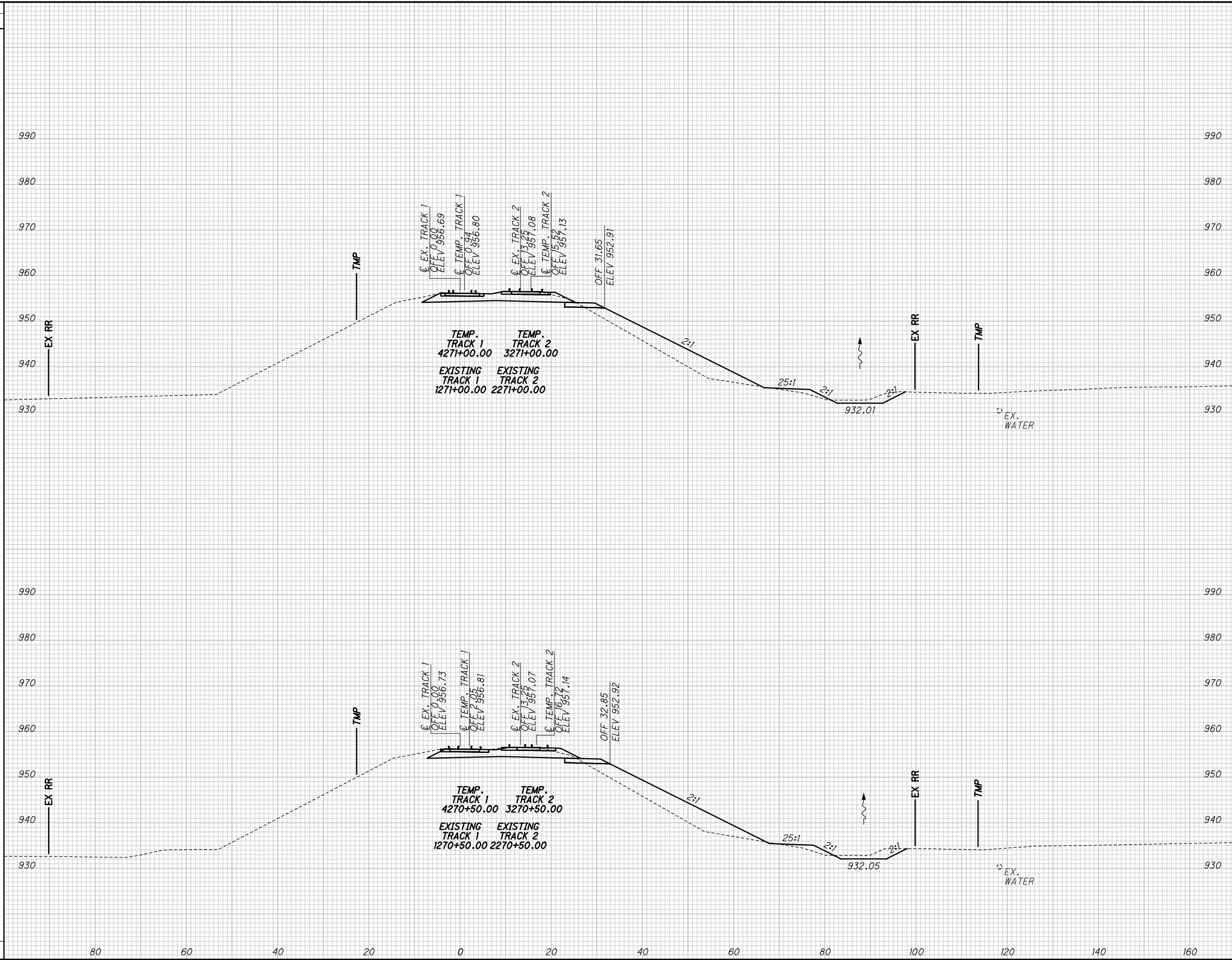
DEL-36-11.03

535  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |

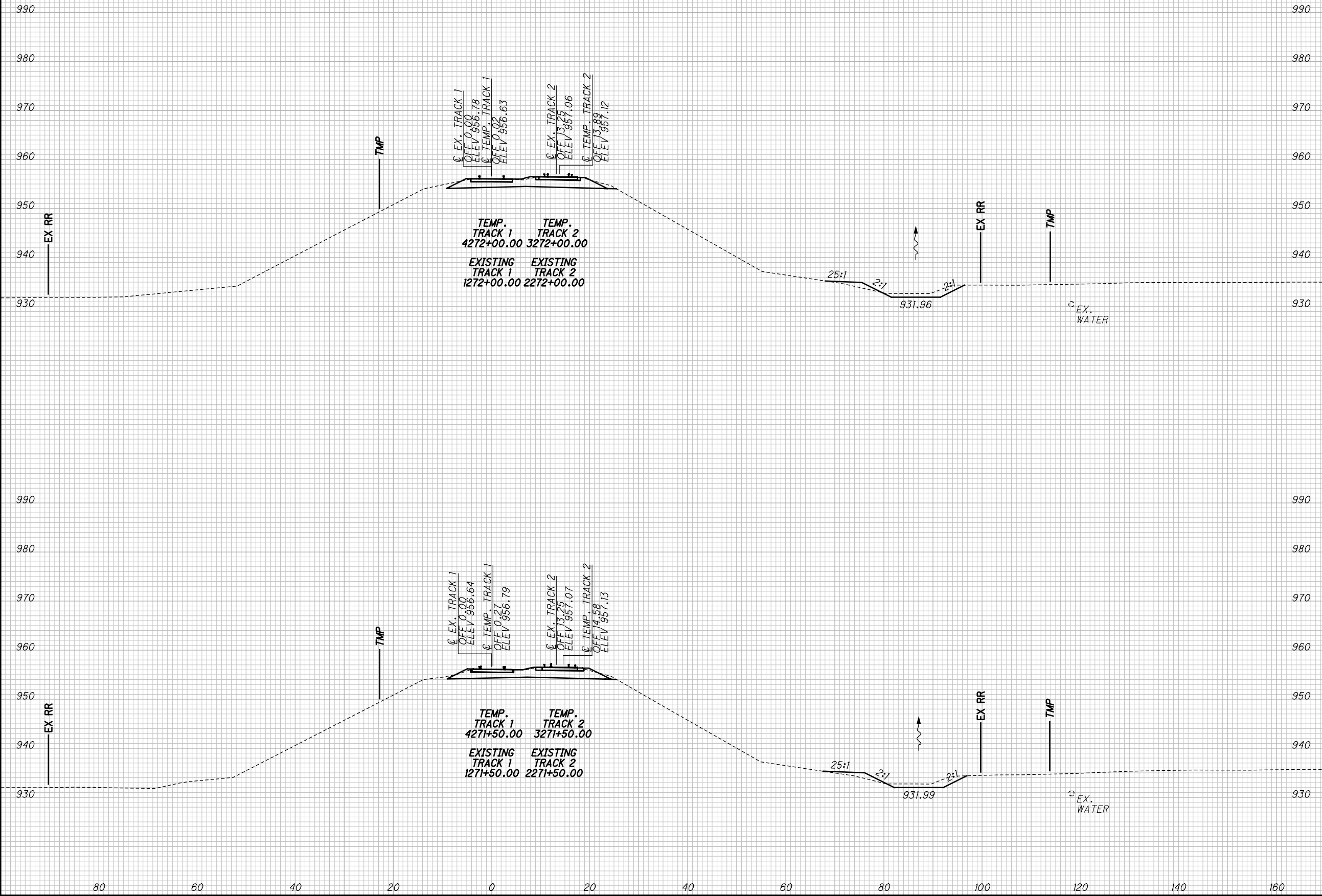
CROSS SECTIONS NS RR - PHASE 1  
STA. 1270+50.00 TO STA. 1271+00.00

DEL-36-11.03

536  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |

CROSS SECTIONS NS RR - PHASE 1  
STA. 1271+50.00 TO STA. 1272+00.00

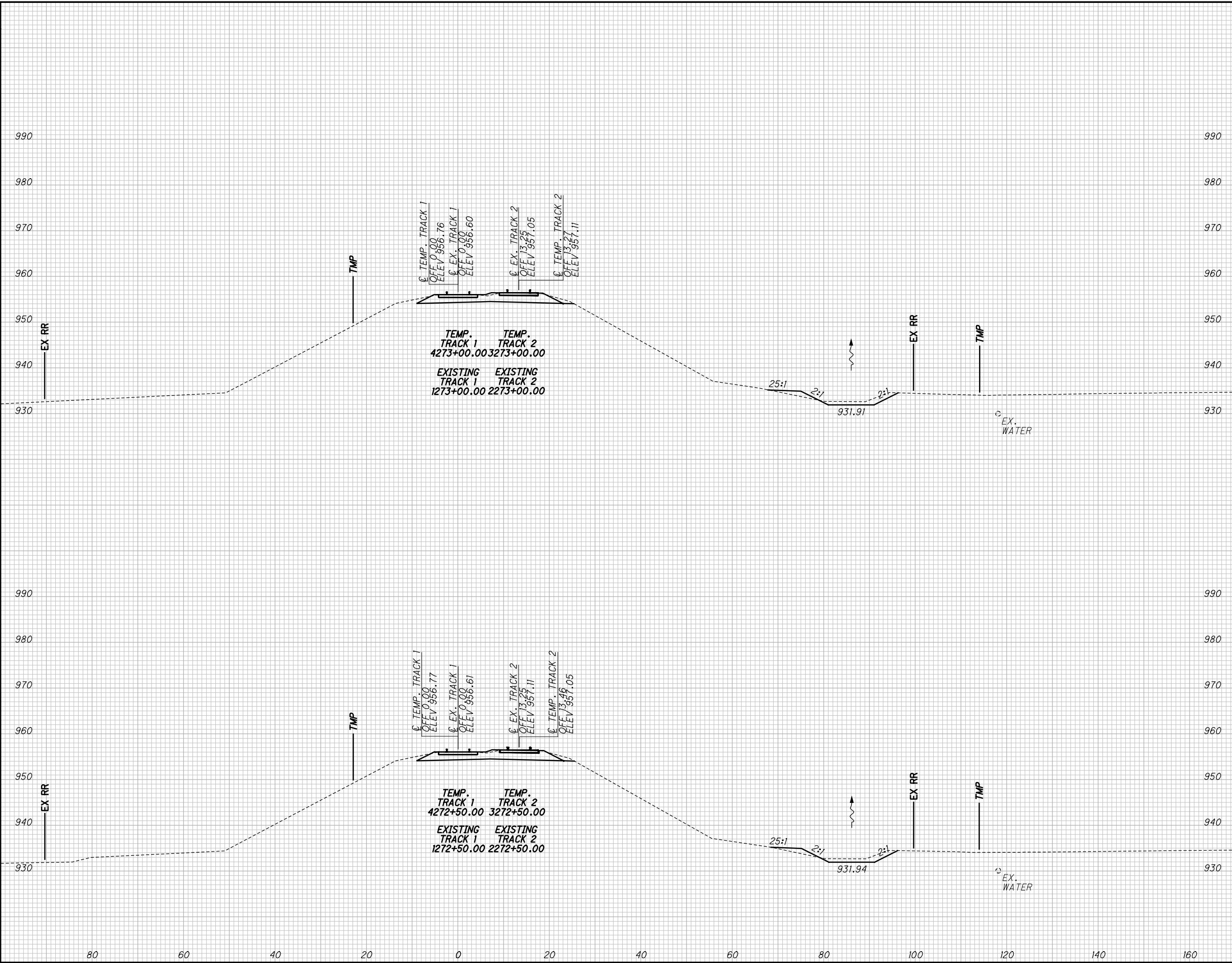
DEL-36-11.03

537  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |

**CROSS SECTIONS NS RR - PHASE 1  
STA. 1272+50.00 TO STA. 1273+00.00**

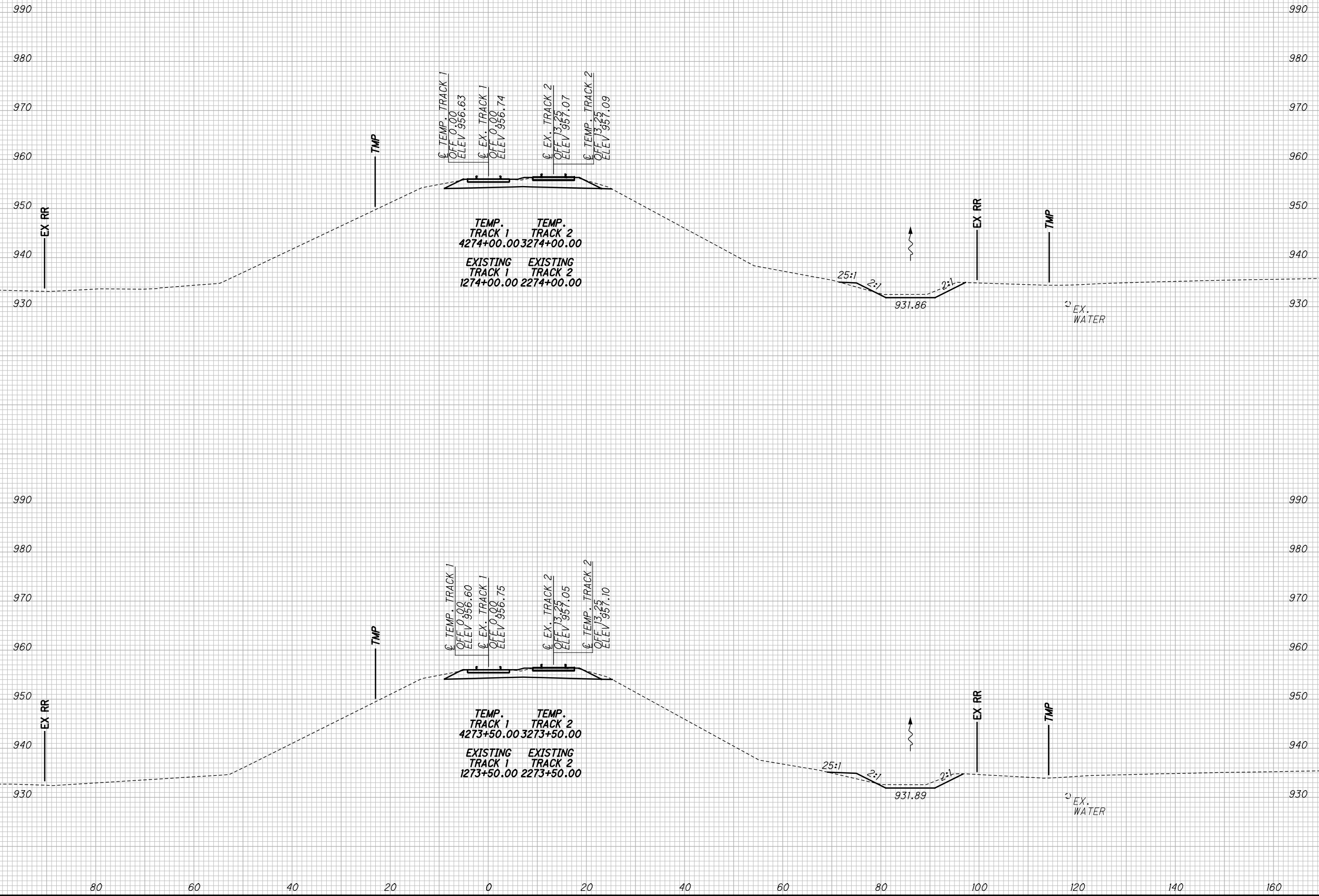
**DEL-36-11.03**

538  
644

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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



**CROSS SECTIONS NS RR - PHASE 1  
STA. 1273+50.00 TO STA. 1274+00.00**

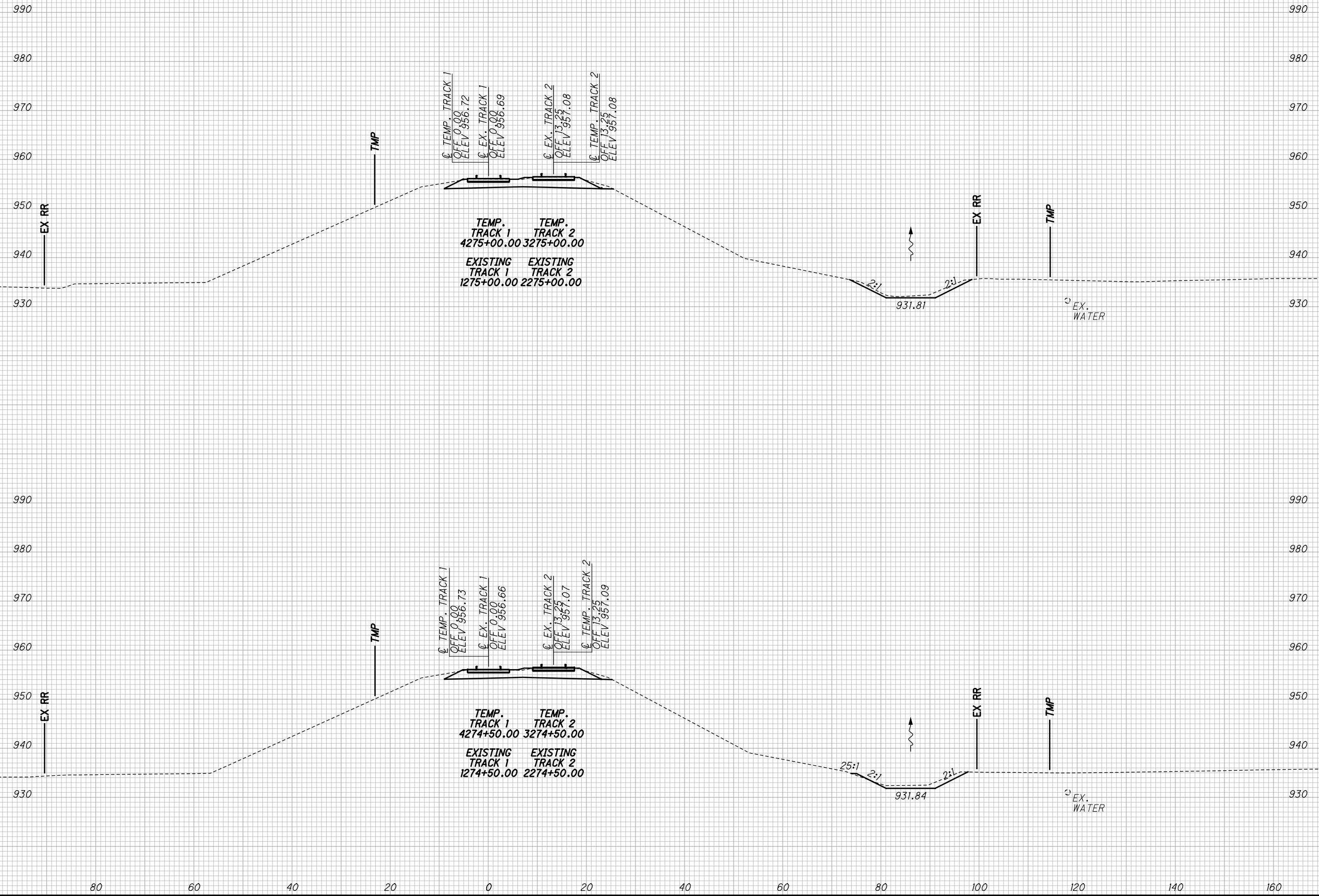
**DEL-36-11.03**

539  
644

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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |



CROSS SECTIONS NS RR - PHASE 1  
STA. 1274+50.00 TO STA. 1275+00.00

DEL-36-11.03

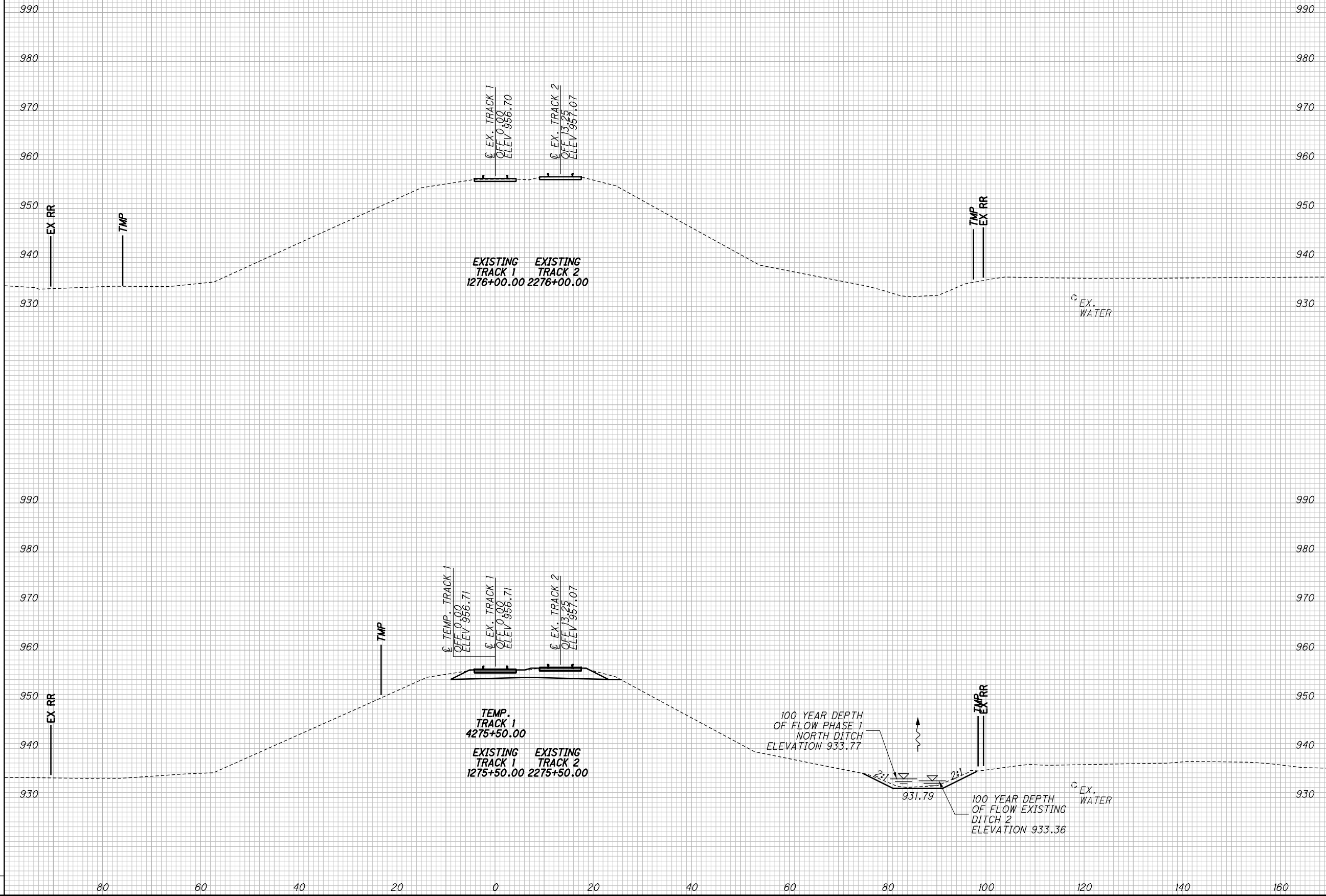
540  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



CROSS SECTIONS NS RR - PHASE 1  
STA. 1275+50.00 TO STA. 1276+00.00

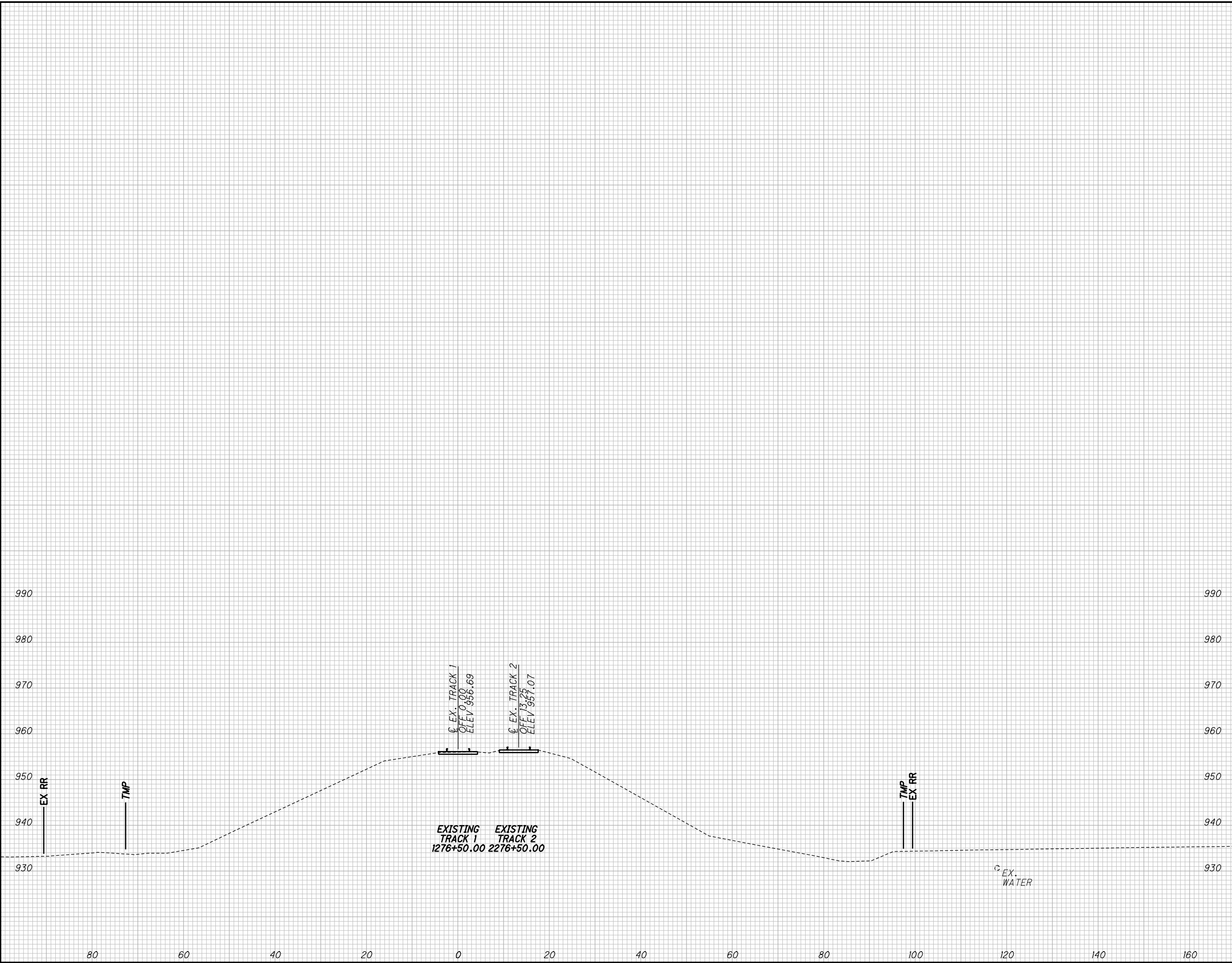
DEL-36-11.03

541  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

CROSS SECTIONS NS RR - PHASE 1  
STA. 1276+50.00

DEL-36-11.03

542  
644

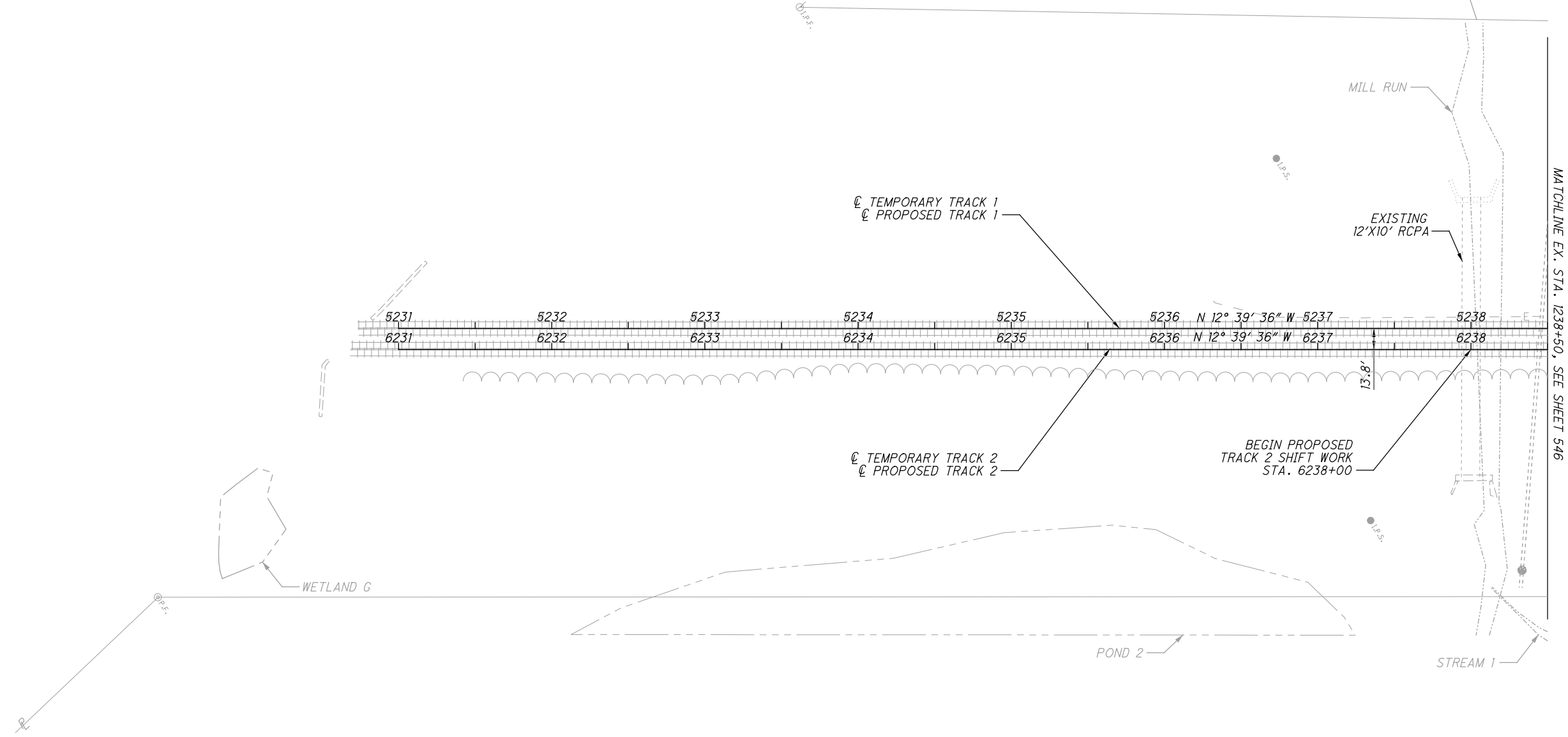




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← TO COLUMBUS

TO SANDUSKY →



|            |     |
|------------|-----|
| CALCULATED | JLF |
| CDR        | JLF |
| CHECKED    | JLF |

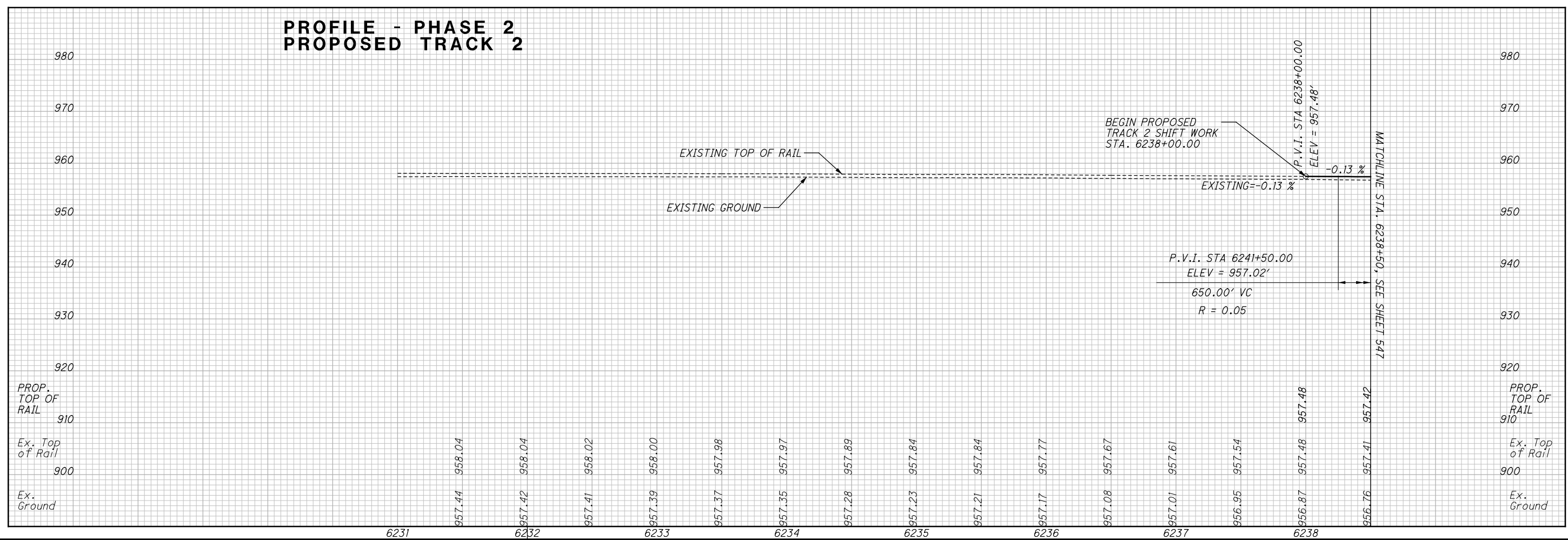
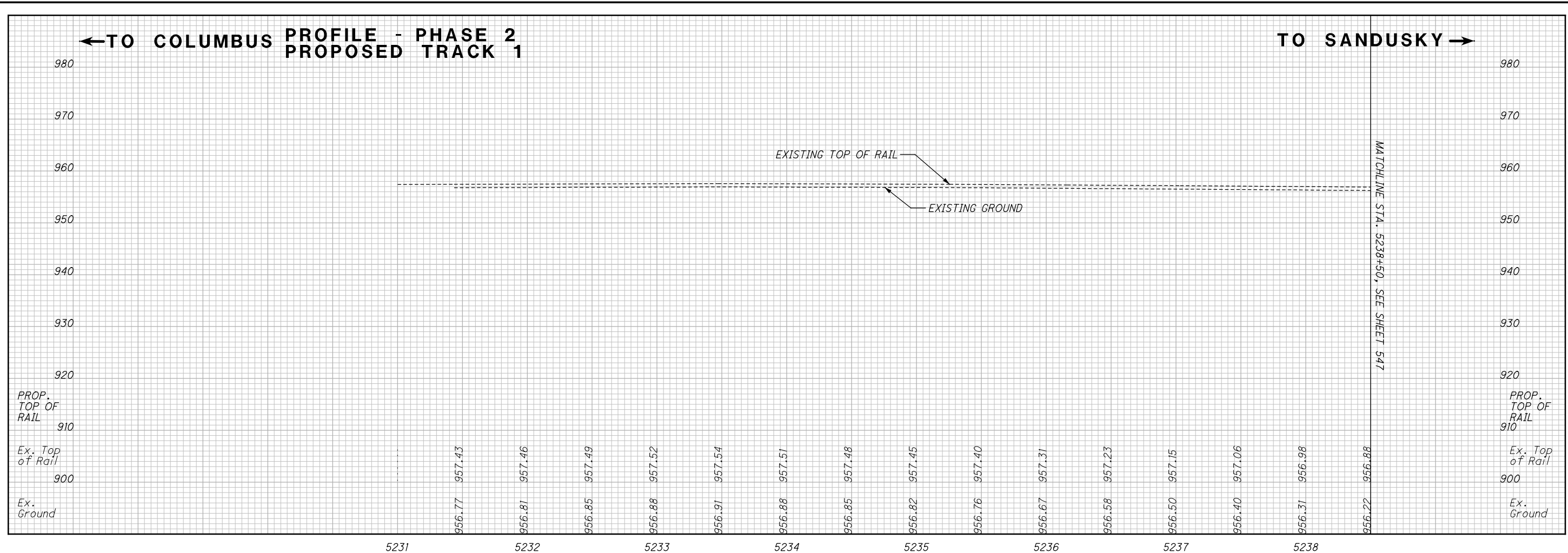
0 40 80  
HORIZONTAL  
SCALE IN FEET

**TRACK PLAN - PHASE 2**  
**EX. STA. 1231+00 TO EX. STA. 1238+50**

**DEL-36-11.03**

544  
644

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CALCULATED  
CDR  
CHECKED  
JLF

TRACK PROFILES - PHASE 2  
EX. STA. 1231+00 TO EX. STA. 1238+50

DEL-36-11.03

545  
644

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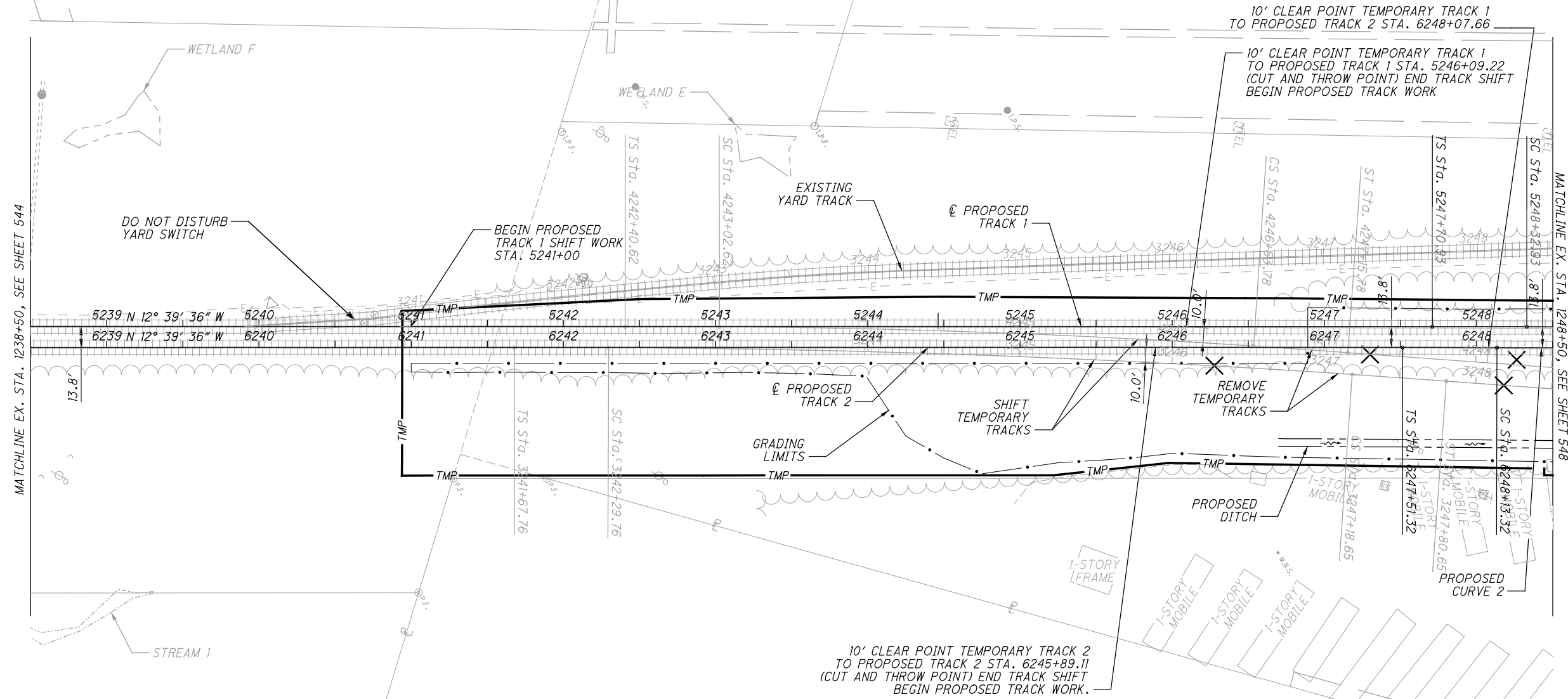
← TO COLUMBUS

TO SANDUSKY →

NOTE:  
SHIFT TEMPORARY TRACK 1 FROM STA. 5241+00.00 TO STA. 5246+09.22.  
REMOVE TEMPORARY TRACK 1 FROM STA. 5246+09.22 TO STA. 5268+50.26.  
SHIFT TEMPORARY TRACK 2 FROM STA. 6238+50.00 TO STA. 6245+89.11.  
REMOVE TEMPORARY TRACK 2 FROM STA. 6245+89.11 TO STA. 6268+65.62.

CALCULATED CDR CHECKED JLF

0 40 80  
20  
HORIZONTAL SCALE IN FEET



PROP. CURVE 1 PI  
STA. 5254+71.62  
Dc = 0°30'00"  
Δc = 6°22'45" (RT)  
R = 11,459.19'  
Lc = 1,275.85'  
Ea = 1"  
Ls1 = 62.00'  
Ls2 = 62.00'  
DS = 60 MPH (F)

PROP. CURVE 2 PI  
STA. 6254+75.10  
Dc = 0°29'00"  
Δc = 6°23'22" (RT)  
R = 11,854.33'  
Lc = 1,321.98'  
Ea = 1"  
Ls1 = 62.00'  
Ls2 = 62.00'  
DS = 60 MPH (F)

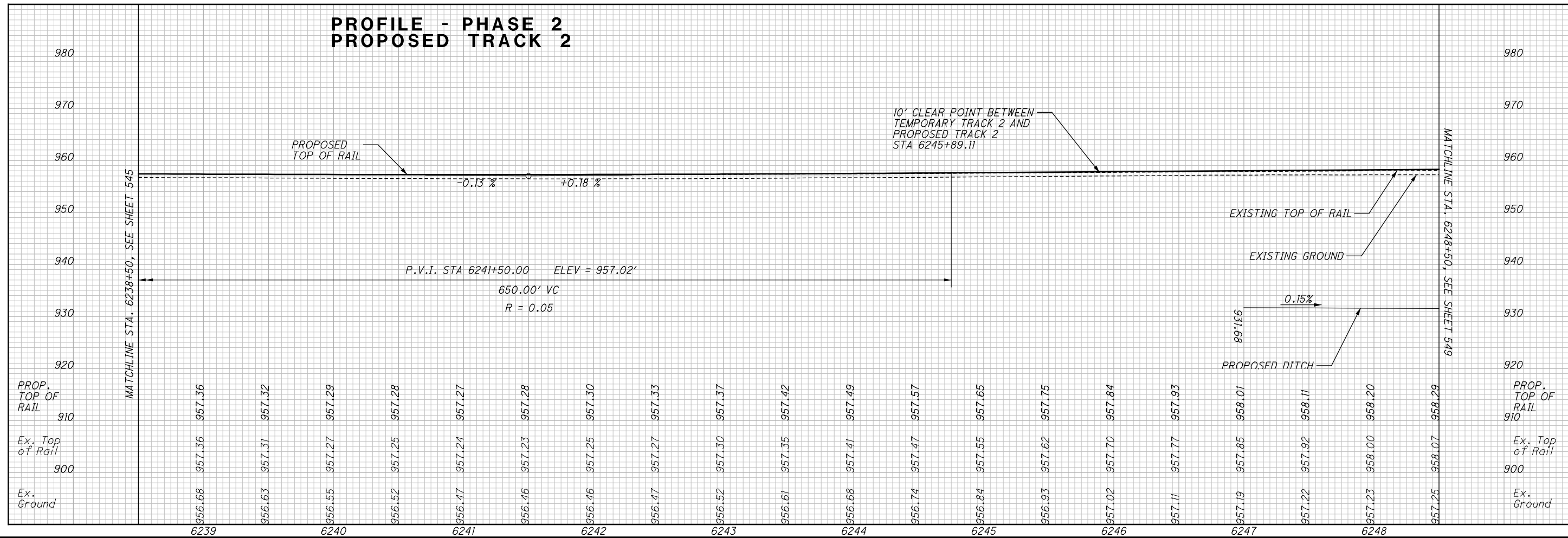
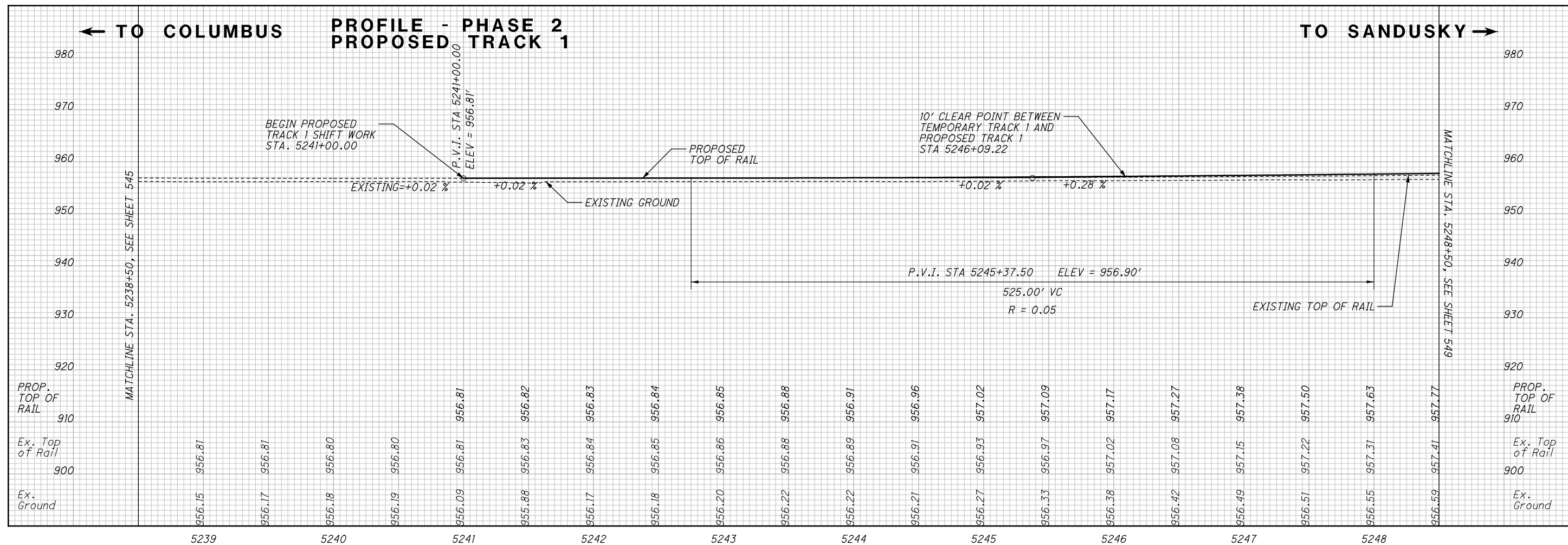
X = REMOVAL

TRACK PLAN - PHASE 2  
EX. STA. 1238+50 TO EX. STA. 1248+50

DEL-36-11.03

546  
644

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CALCULATED  
CDR  
CHECKED  
JLF

TRACK PROFILES - PHASE 2  
EX. STA. 1238+50 TO EX. STA. 1248+50

DEL-36-11.03

547  
644

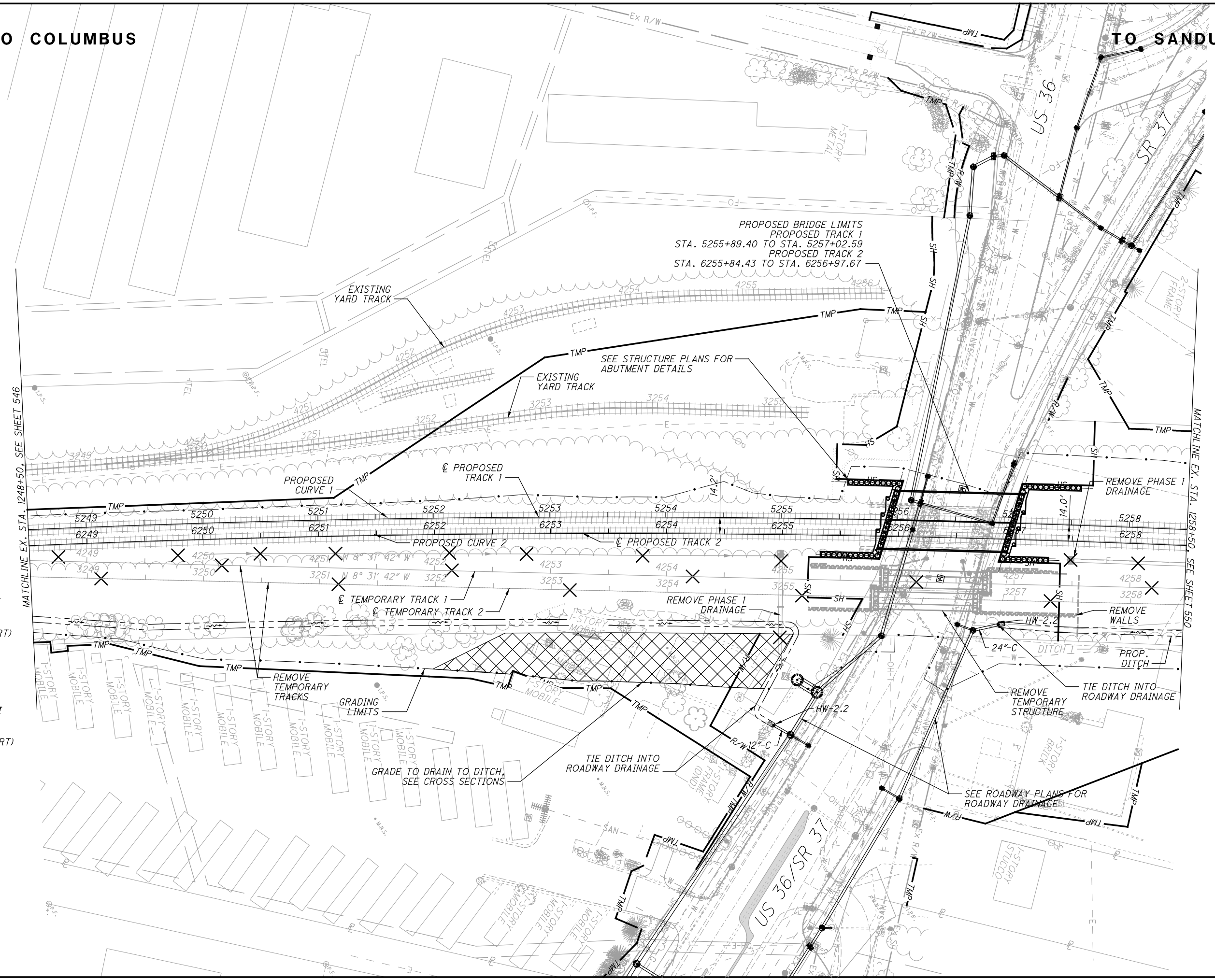
← TO COLUMBUS

TO SANDUSKY →



CALCULATED CDR CHECKED JLF

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PROPOSED BRIDGE LIMITS  
PROPOSED TRACK 1  
STA. 5255+89.40 TO STA. 5257+02.59  
PROPOSED TRACK 2  
STA. 6255+84.43 TO STA. 6256+97.67

PROP. CURVE 1 PI  
STA. 5254+71.62  
Dc = 0°30'00"  
Δc = 6°22'45" (RT)  
R = 11,459.19'  
Lc = 1,275.85'  
Ea = 1"  
Ls1 = 62.00'  
Ls2 = 62.00'  
DS = 60 MPH (F)

PROP. CURVE 2 PI  
STA. 6254+75.10  
Dc = 0°29'00"  
Δc = 6°23'22" (RT)  
R = 11,854.33'  
Lc = 1,321.98'  
Ea = 1"  
Ls1 = 62.00'  
Ls2 = 62.00'  
DS = 60 MPH (F)

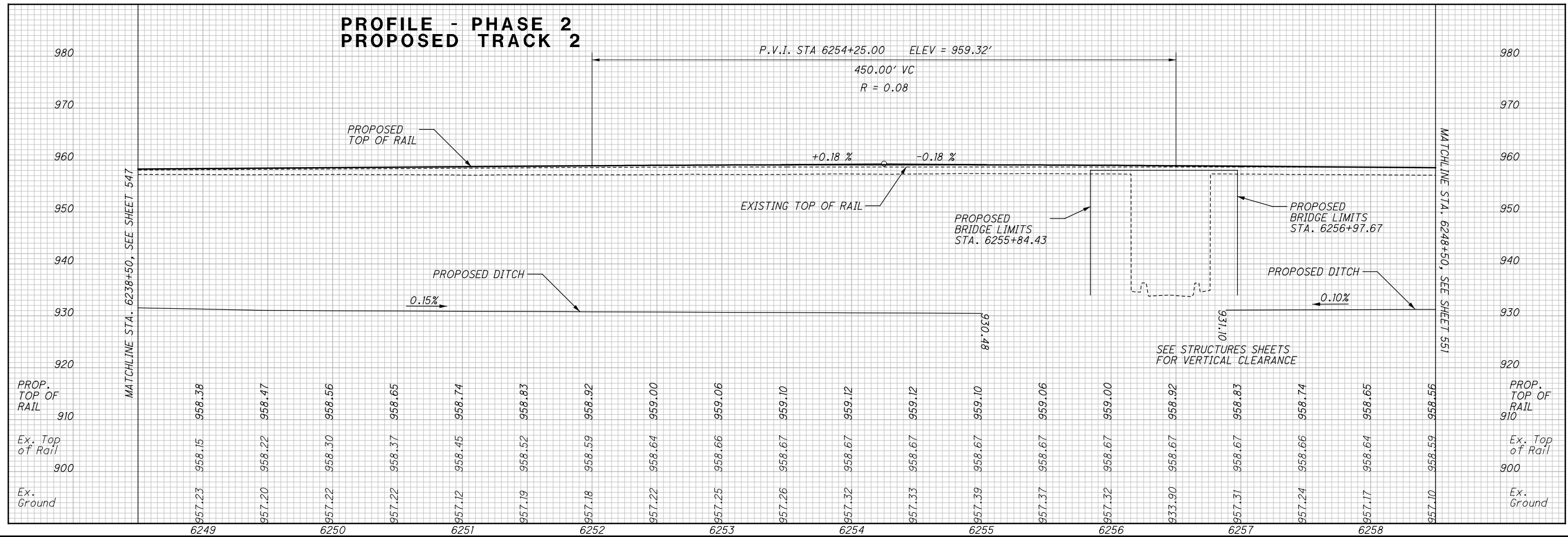
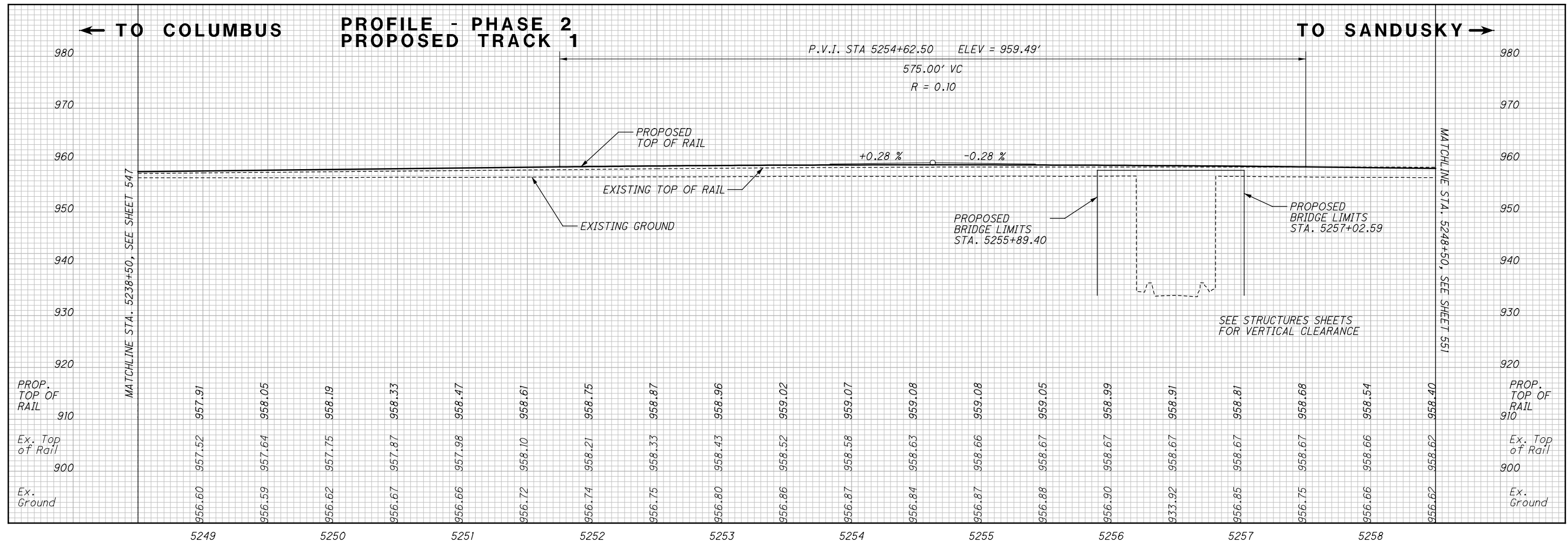
X = REMOVAL

TRACK PLAN - PHASE 2  
EX. STA. 1248+50 TO EX. STA. 1258+50

DEL-36-11.03

548  
644

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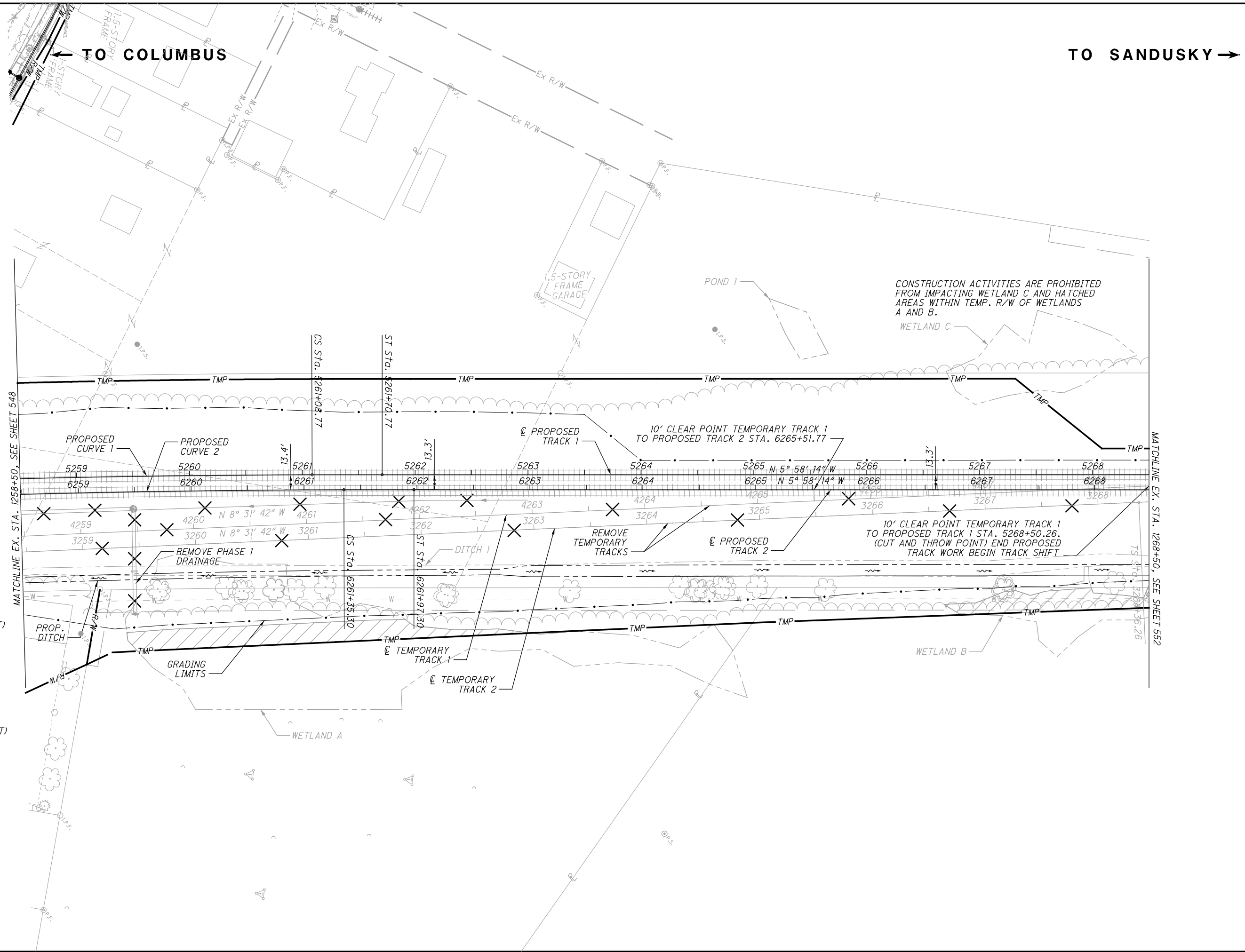
CALCULATED  
CDR  
CHECKED  
JLF

TRACK PROFILES - PHASE 2  
EX. STA. 1248+50 TO EX. STA. 1258+50

DEL-36-11.03

549  
644

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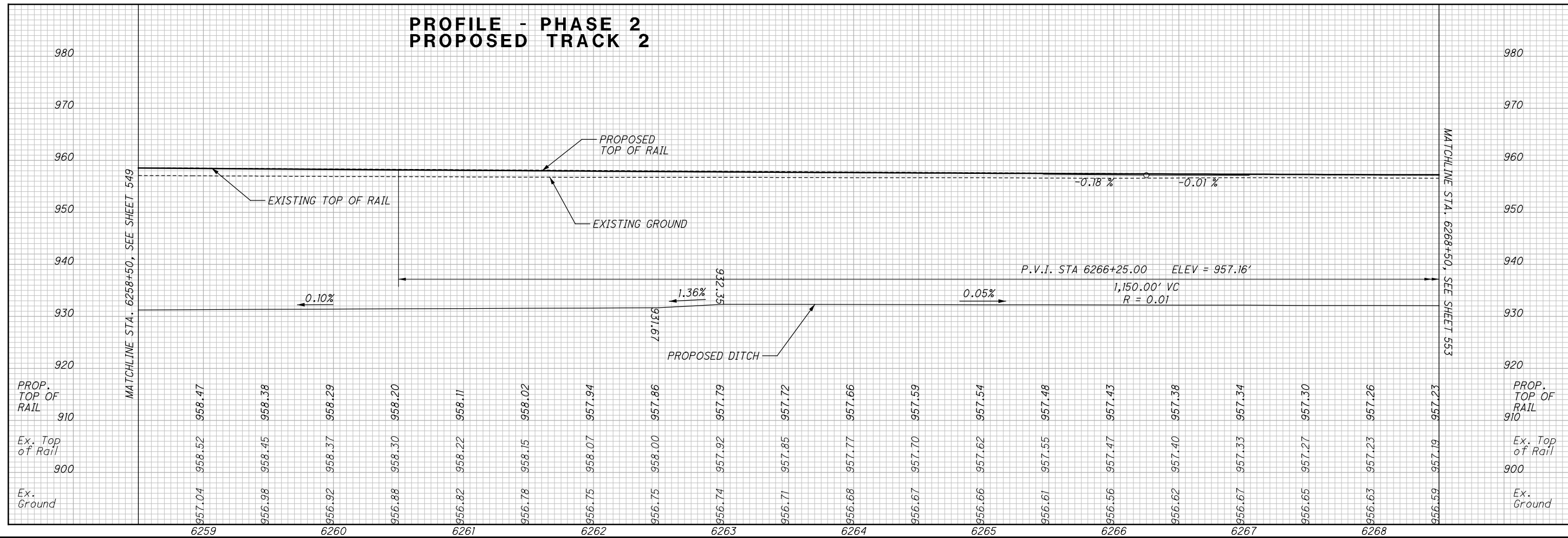
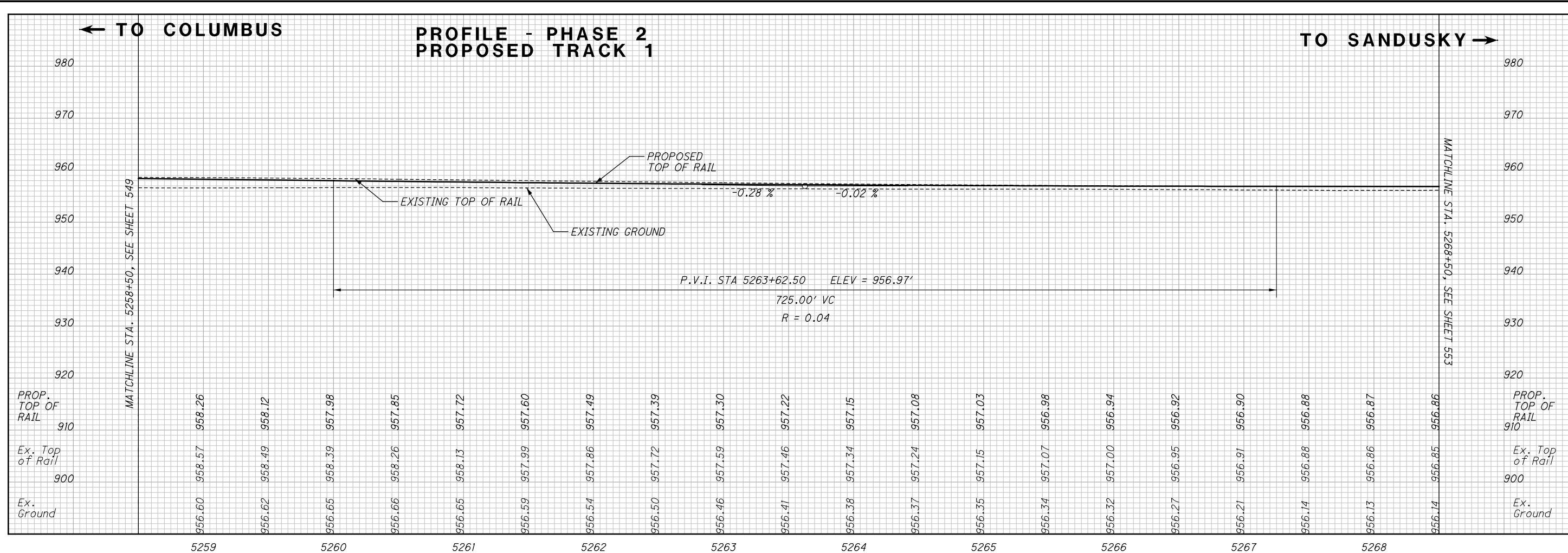
  
 20 HORIZONTAL SCALE IN FEET

CALCULATED CDR CHECKED JLF  
**TRACK PLAN - PHASE 2**  
**EX. STA. 1258+50 TO EX. STA. 1268+50**

**DEL-36-11.03**  
 550  
 644



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CALCULATED  
CDR  
CHECKED  
JLF

TRACK PROFILES - PHASE 2  
EX. STA. 1258+50 TO EX. STA. 1268+50

DEL-36-11.03

551  
644

← TO COLUMBUS

TO SANDUSKY →

NOTE:  
SHIFT TEMPORARY TRACK 1 FROM STA. 5268+50.26 TO STA. 5275+52.88.  
SHIFT TEMPORARY TRACK 2 FROM STA. 6268+65.62 TO STA. 6275+50.00.

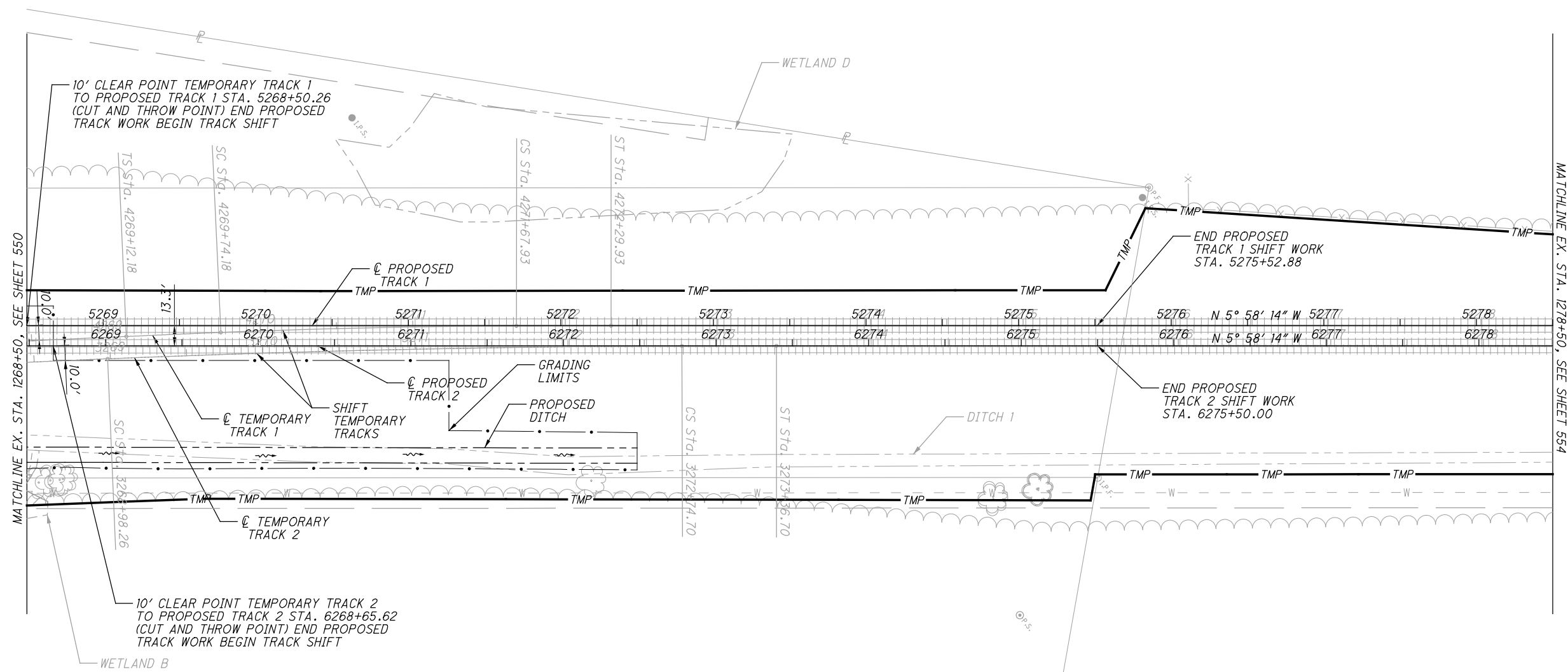


CALCULATED  
CDR  
CHECKED  
JLF

TRACK PLAN - PHASE 2  
EX. STA. 1268+50 TO EX. STA. 1278+50

DEL-36-11.03

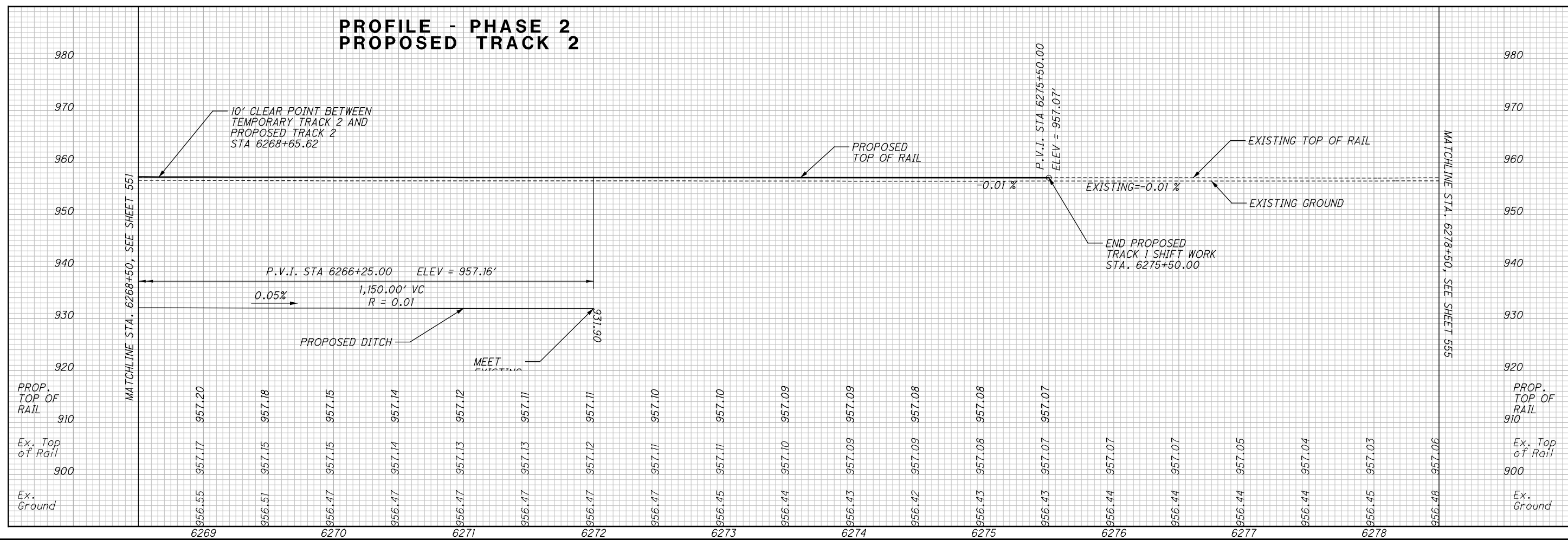
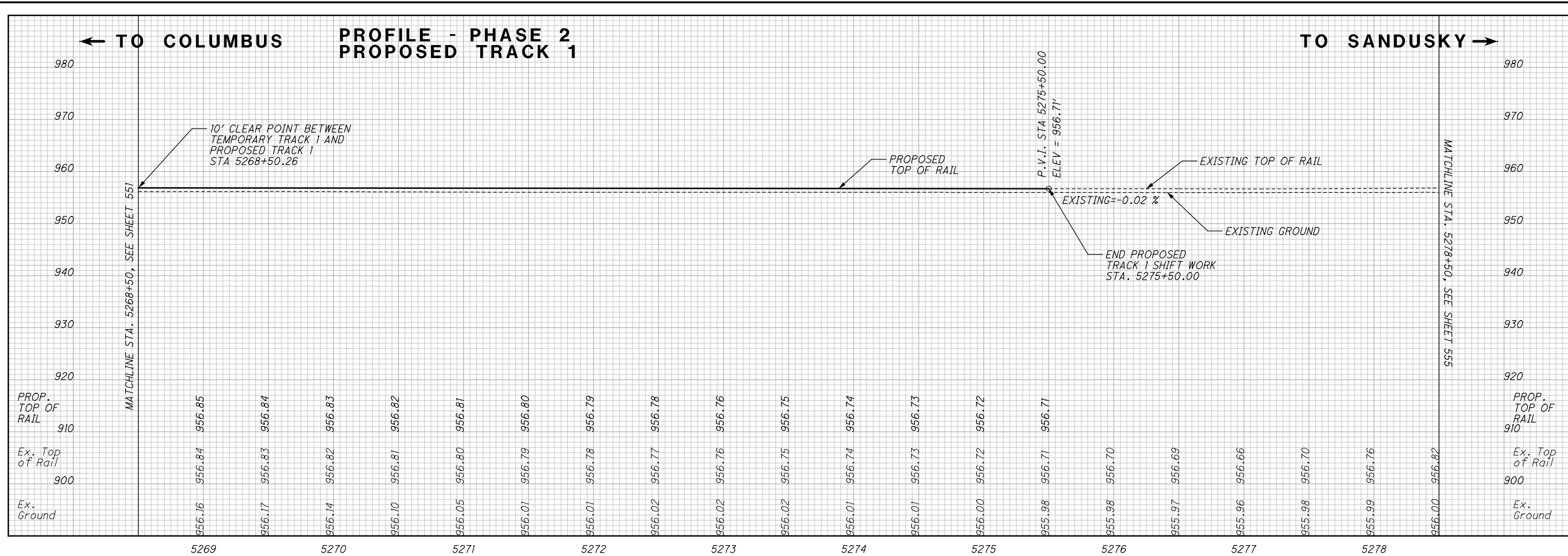
552  
644



CONSTRUCTION ACTIVITIES ARE PROHIBITED FROM IMPACTING WETLAND C AND HATCHED AREAS WITHIN TEMP. R/W OF WETLANDS A AND B.

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CALCULATED  
CDR  
CHECKED  
JLF

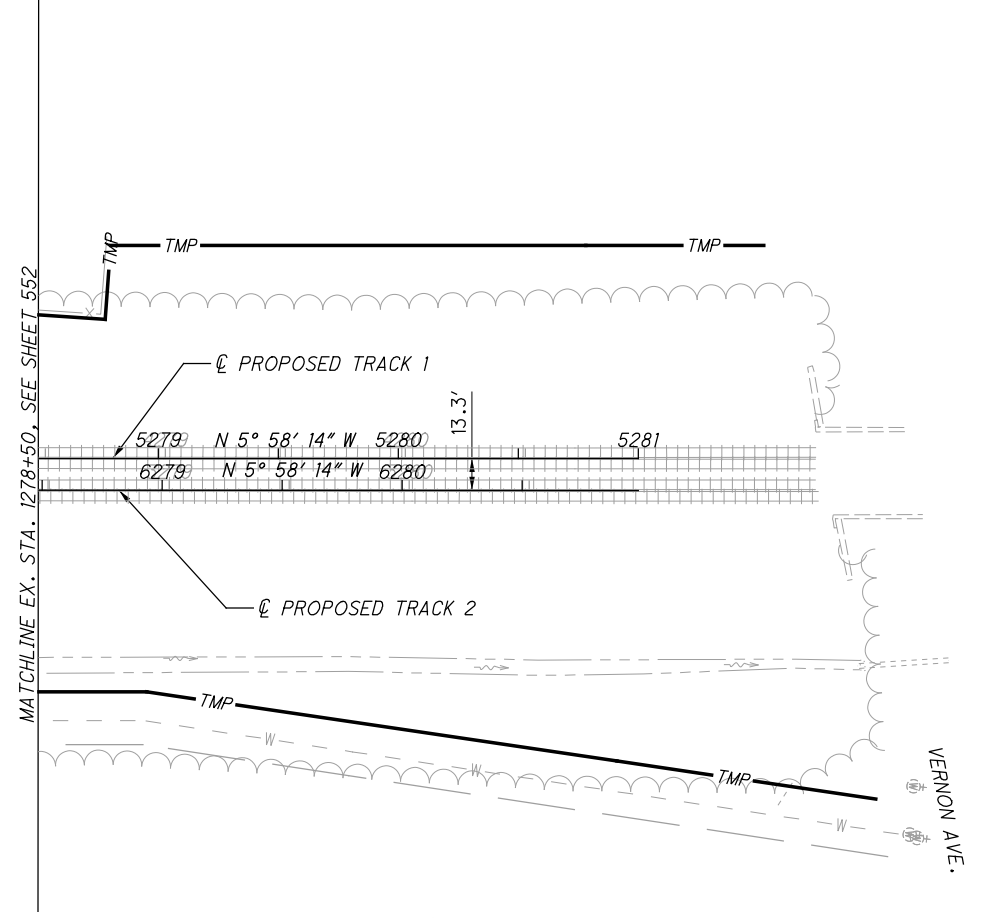
TRACK PROFILES - PHASE 2  
EX. STA. 1268+50 TO EX. STA. 1278+50

DEL-36-11.03

553  
644

← TO COLUMBUS

TO SANDUSKY →



|            |     |         |     |
|------------|-----|---------|-----|
| CALCULATED | CDR | CHECKED | JLF |
|------------|-----|---------|-----|

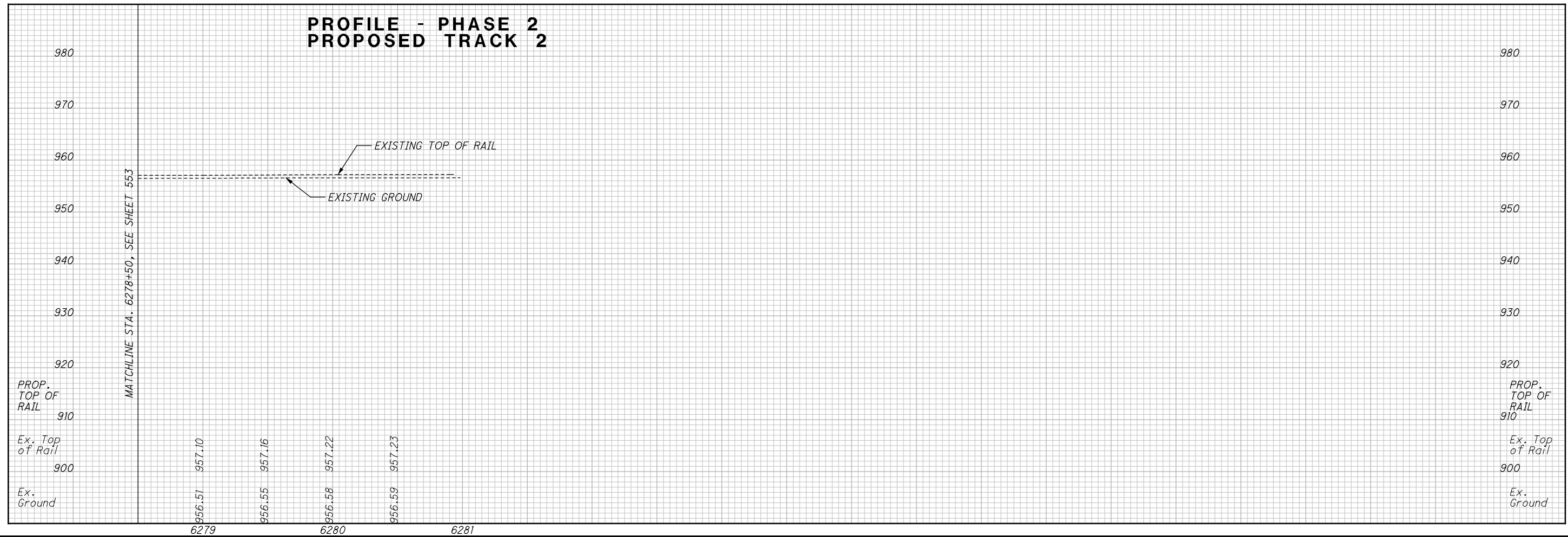
0 40 80  
HORIZONTAL SCALE IN FEET

**TRACK PLAN - PHASE 2**  
**EX. STA. 1278+50 TO EX. STA. 1281+00**

**DEL-36-11.03**

554  
644

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|            |
|------------|
| CALCULATED |
| CDR        |
| CHECKED    |
| JLF        |

**TRACK PROFILES - PHASE 2**  
**EX. STA. 1278+50 TO EX. STA. 1281+00**

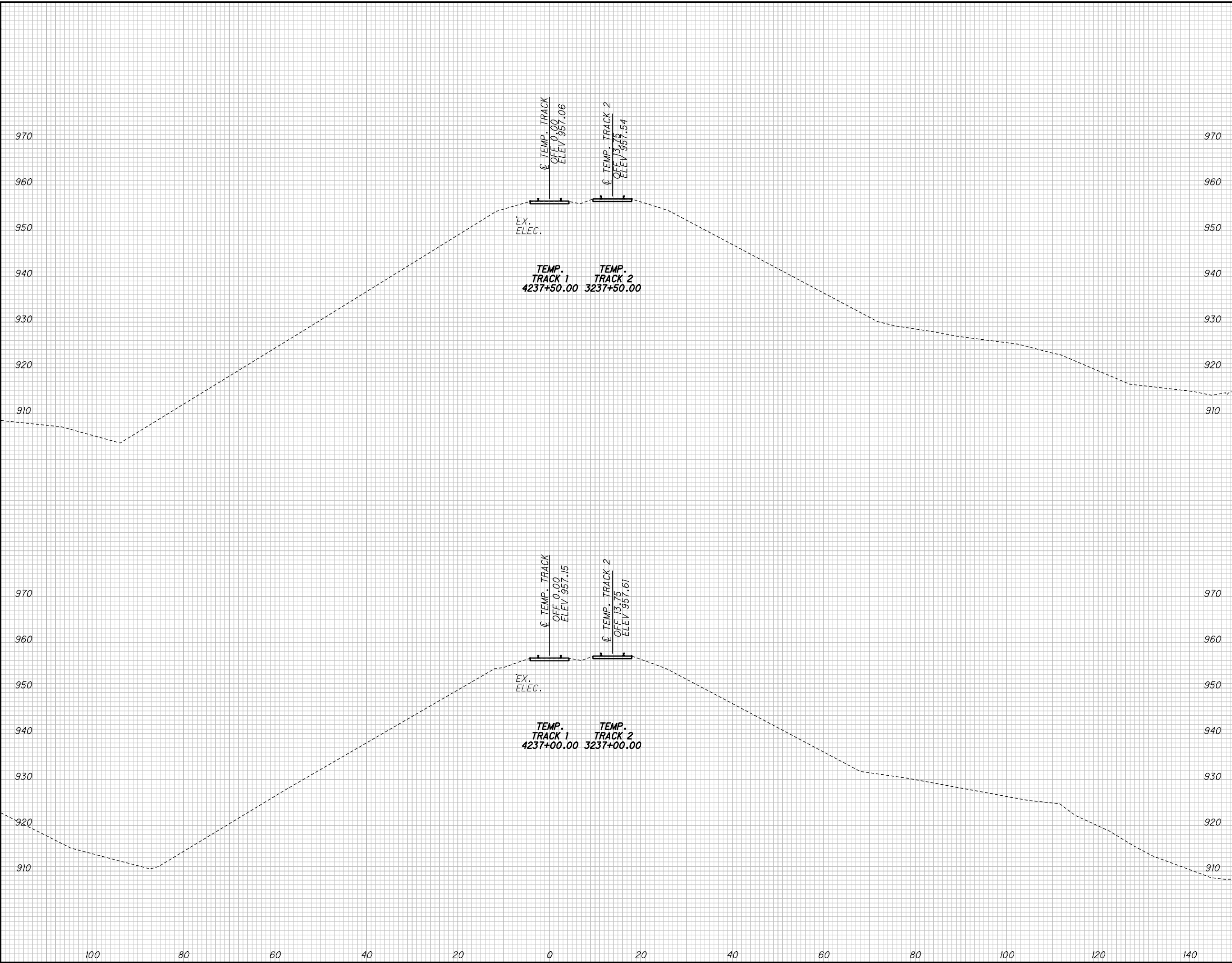
**DEL-36-11.03**

|     |
|-----|
| 555 |
| 644 |

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED CDR | CHECKED JLF |
|----------|------|--------|------|----------------|-------------|
| CUT      | FILL | CUT    | FILL |                |             |
|          |      |        |      |                |             |

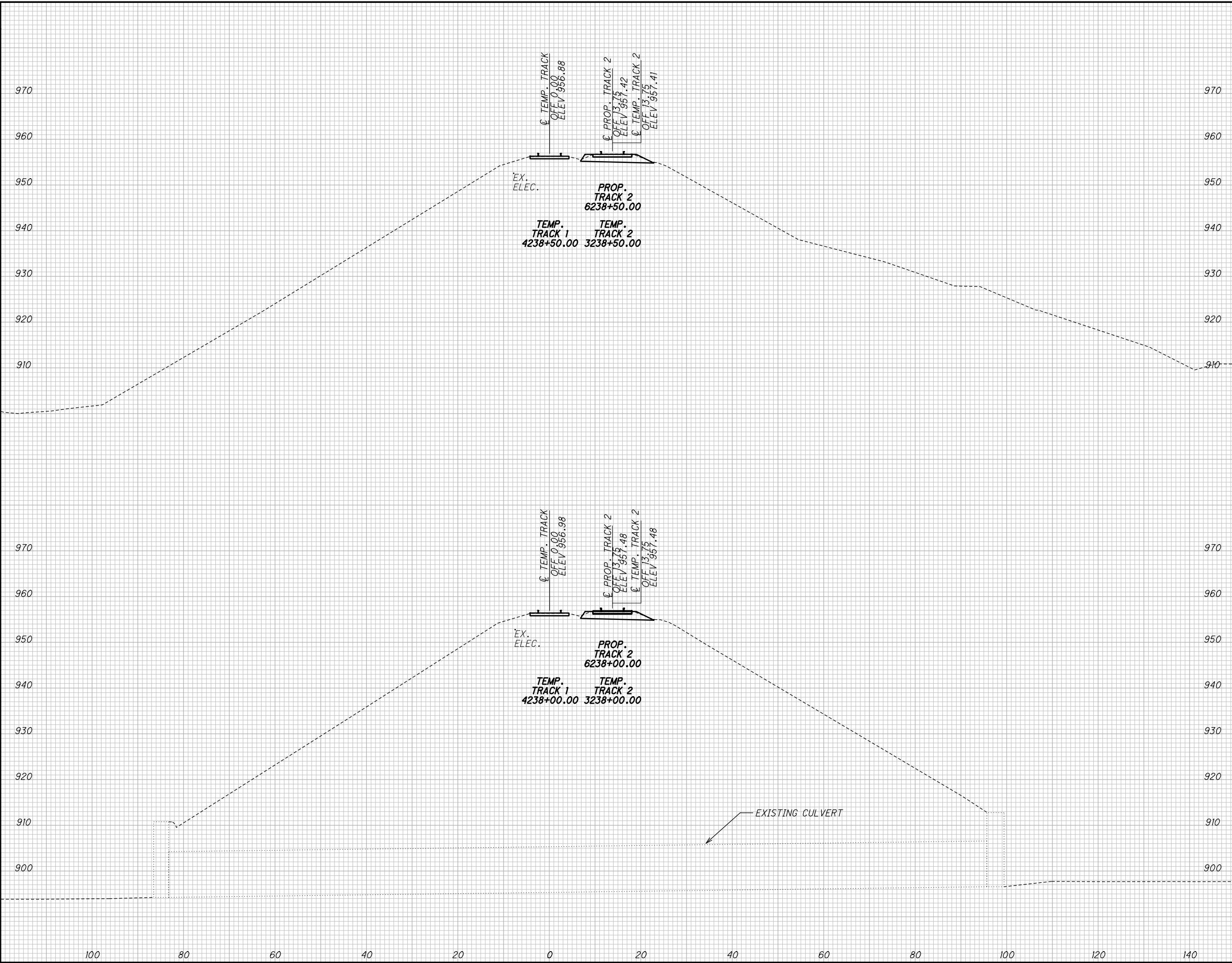
CROSS SECTIONS NS RR - PHASE 2  
STA. 4237+00.00 TO STA. 4237+50.00

DEL-36-11.03

556  
644

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SEEDING  
END SO.  
WIDTH YDS.



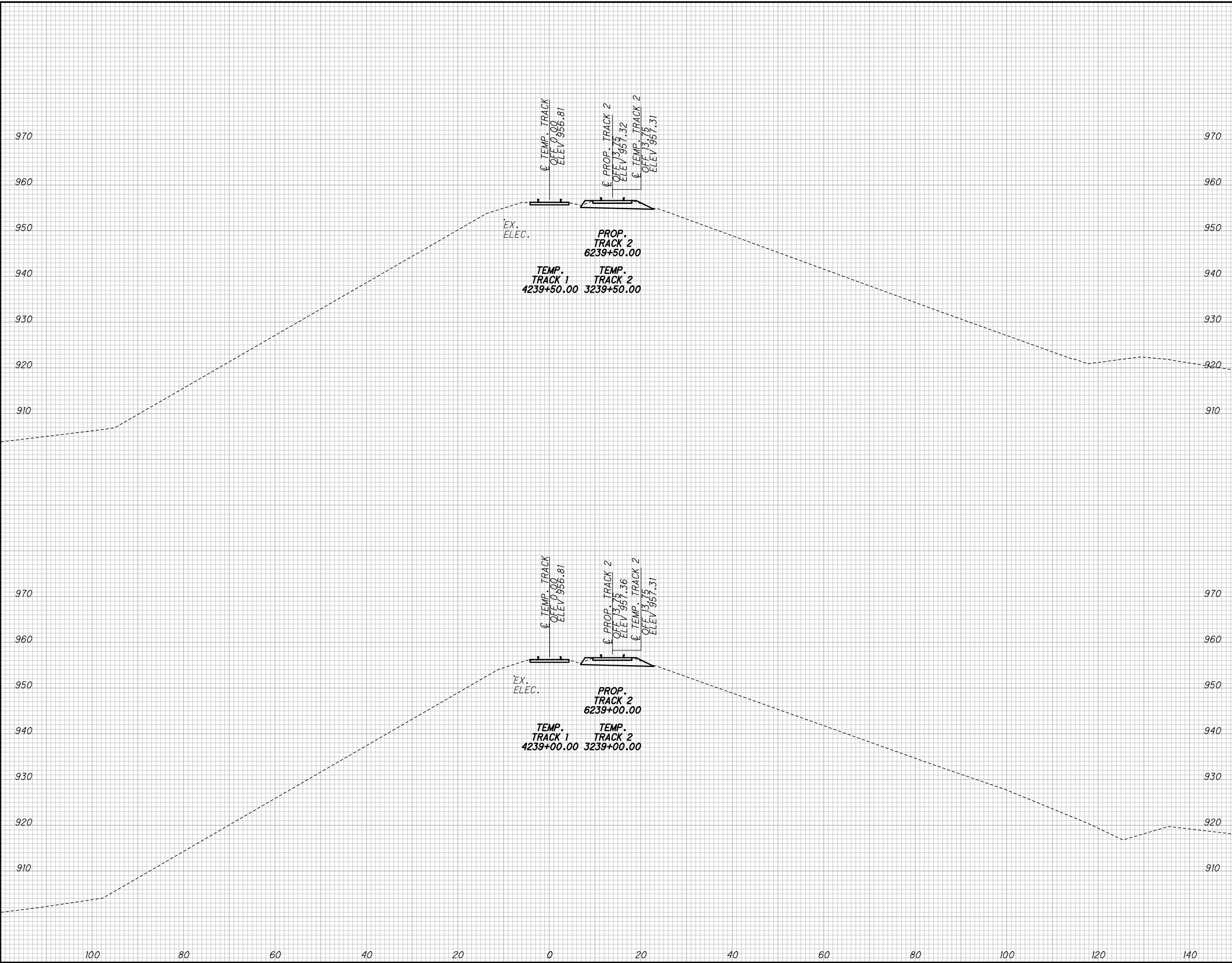
| END AREA                                  |      | VOLUME |      | CALCULATED |     |
|-------------------------------------------|------|--------|------|------------|-----|
| CUT                                       | FILL | CUT    | FILL | CDR        | JLF |
|                                           |      |        |      |            |     |
| <b>DEL -36 -11.03</b>                     |      |        |      |            |     |
| <b>CROSS SECTIONS NS RR - PHASE 2</b>     |      |        |      |            |     |
| <b>STA. 4238+00.00 TO STA. 4238+50.00</b> |      |        |      |            |     |

557  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      |
|----------|------|--------|------|
| CUT      | FILL | CUT    | FILL |
|          |      |        |      |

CALCULATED CDR  
 CHECKED JLF  
**DEL-36-11.03**  
**CROSS SECTIONS NS RR - PHASE 2**  
**STA. 4239+00.00 TO STA. 4239+50.00**

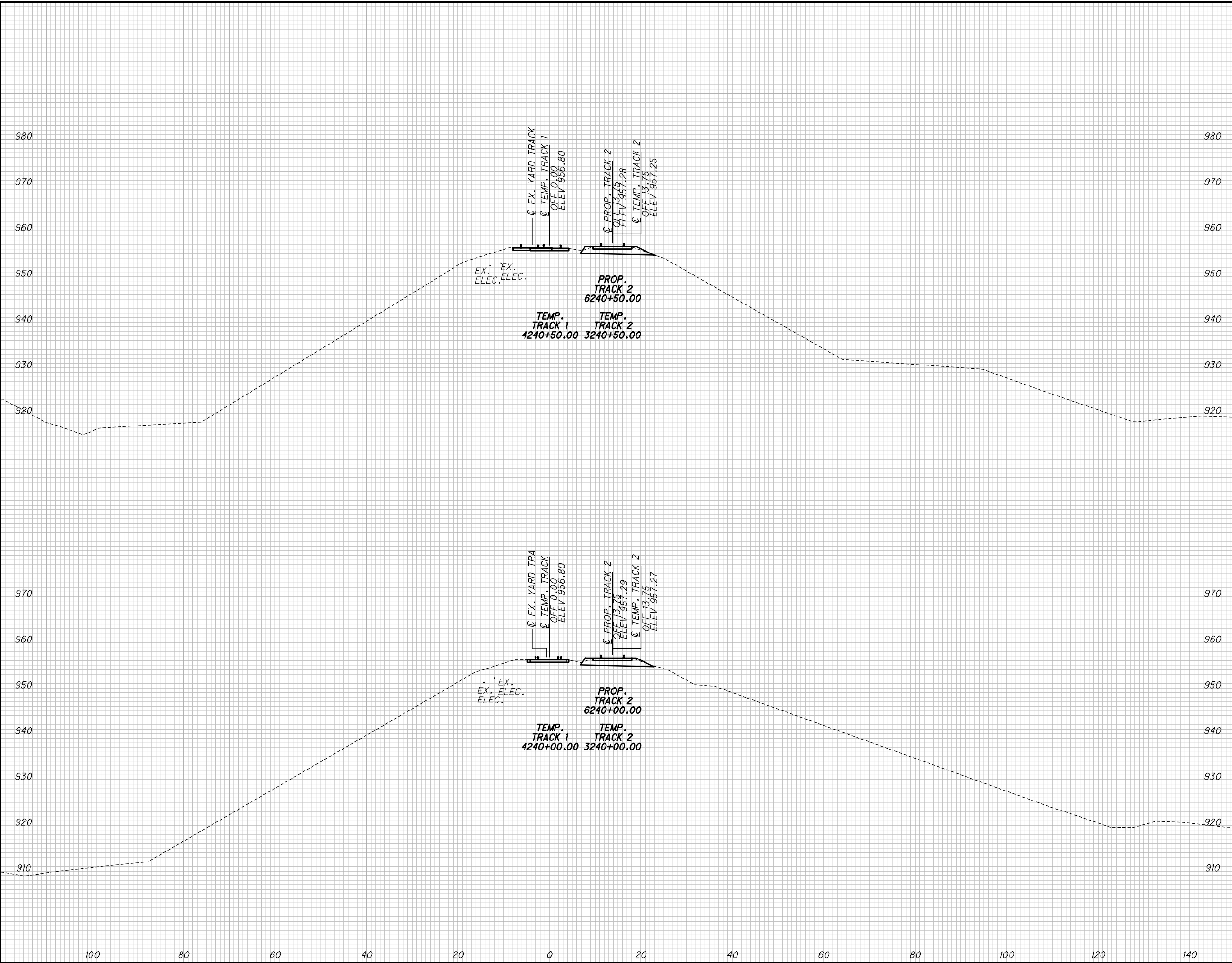
558  
644



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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

CROSS SECTIONS NS RR - PHASE 2  
STA. 4240+00.00 TO STA. 4240+50.00

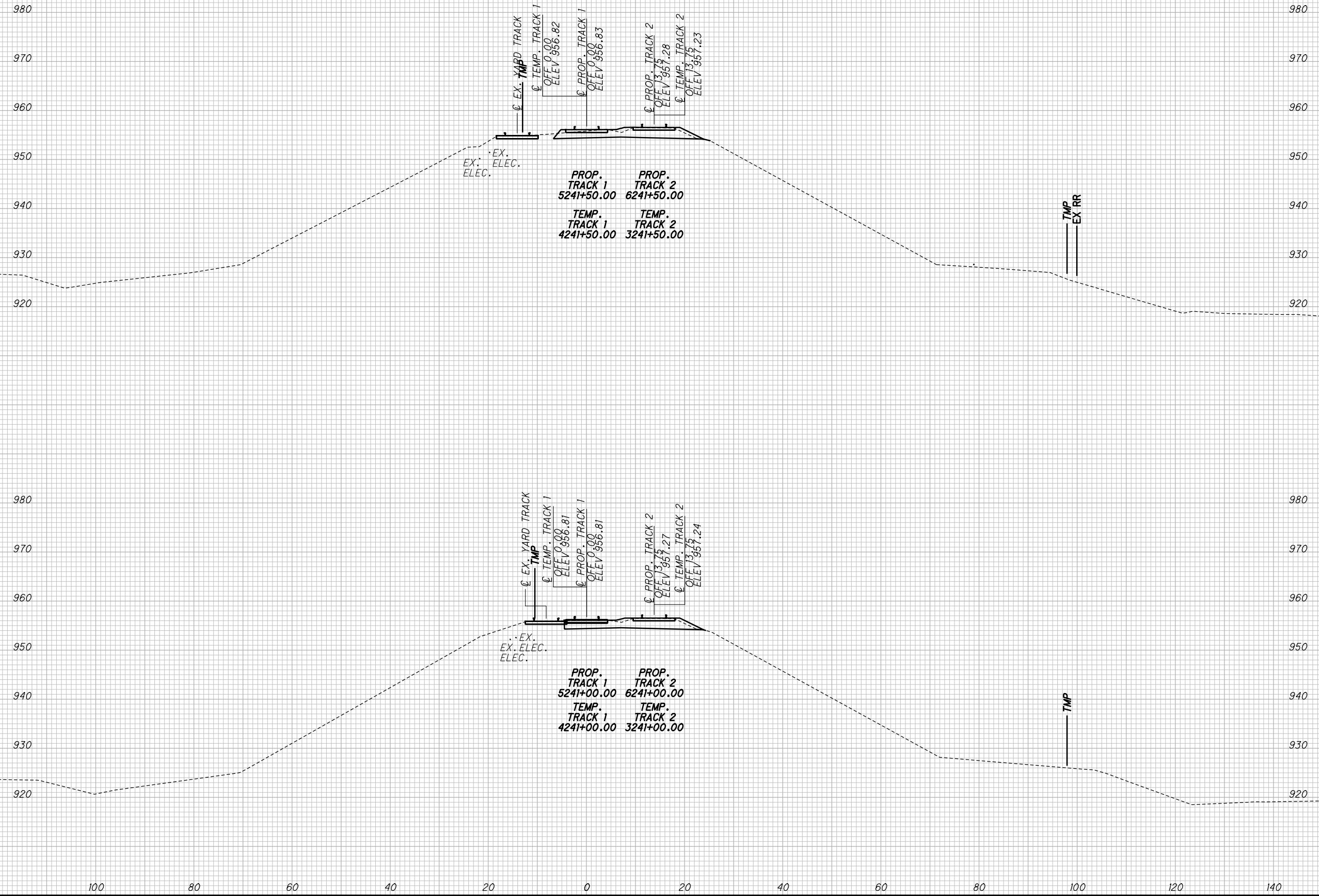
DEL-36-11.03

559  
644

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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



**CROSS SECTIONS NS RR - PHASE 2  
STA. 4241+00.00 TO STA. 4241+50.00**

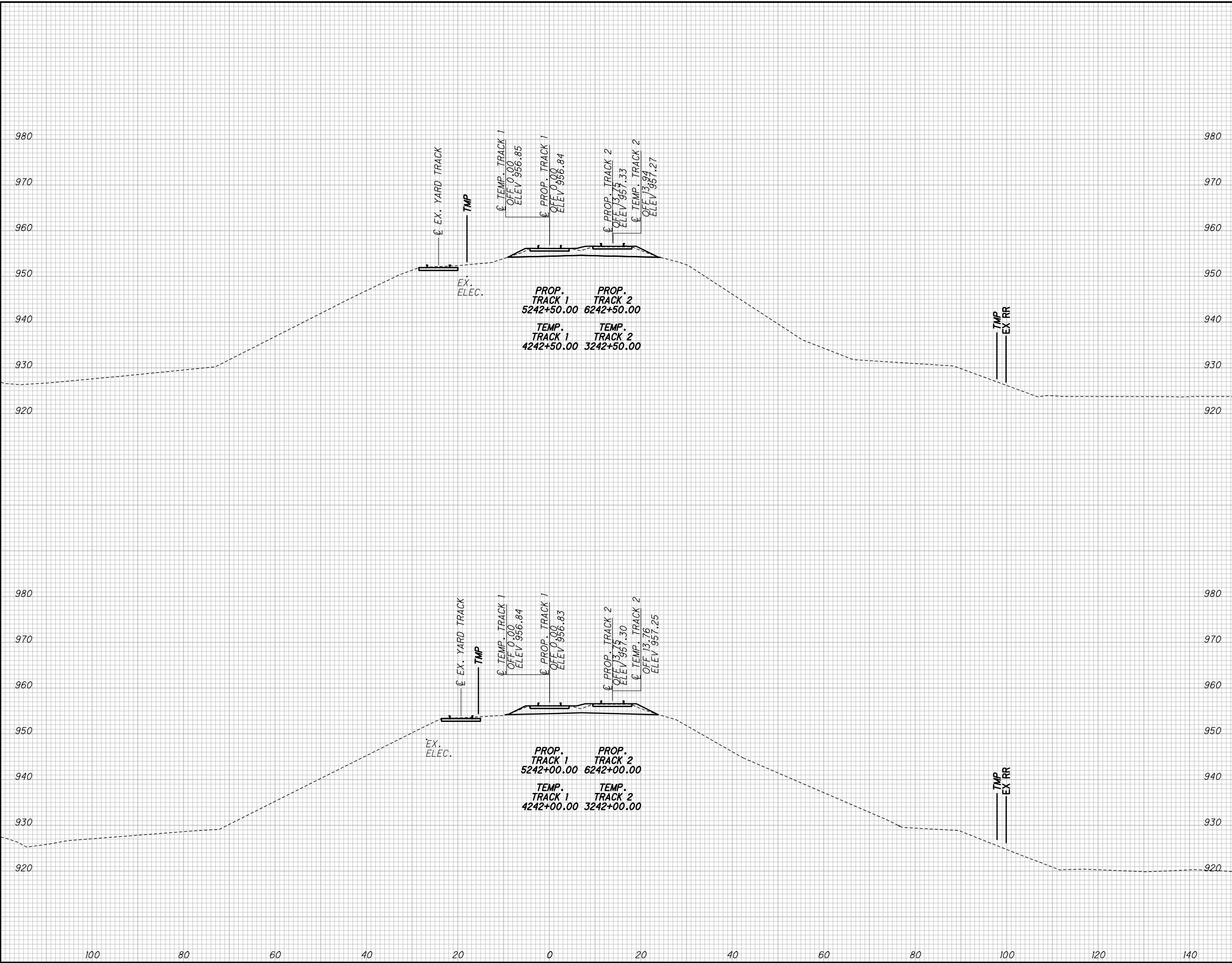
**DEL-36-11.03**

560  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |

**CROSS SECTIONS NS RR - PHASE 2  
STA. 4242+00.00 TO STA. 4242+50.00**

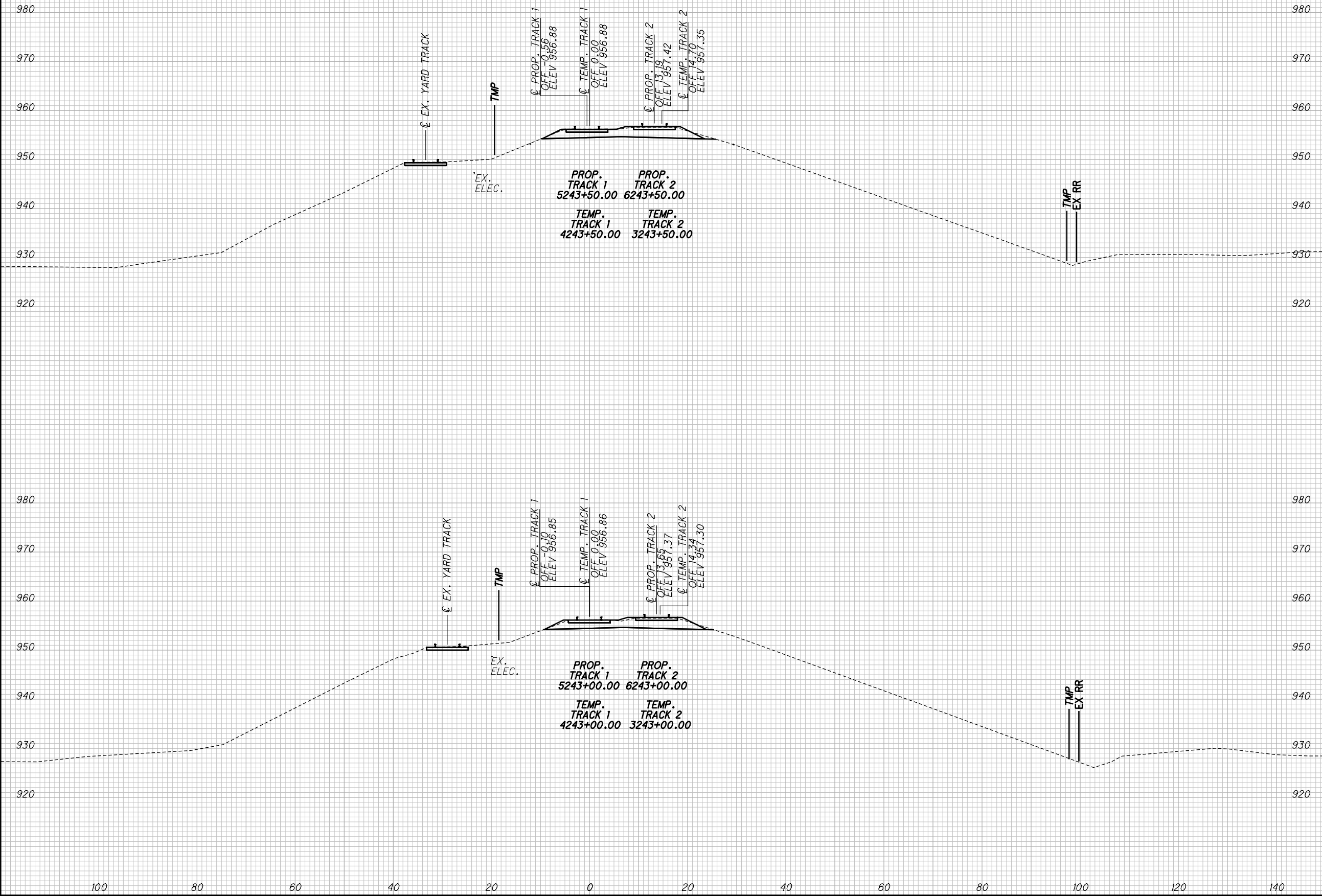
**DEL-36-11.03**

561  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

**CROSS SECTIONS NS RR - PHASE 2  
STA. 4243+00.00 TO STA. 4243+50.00**

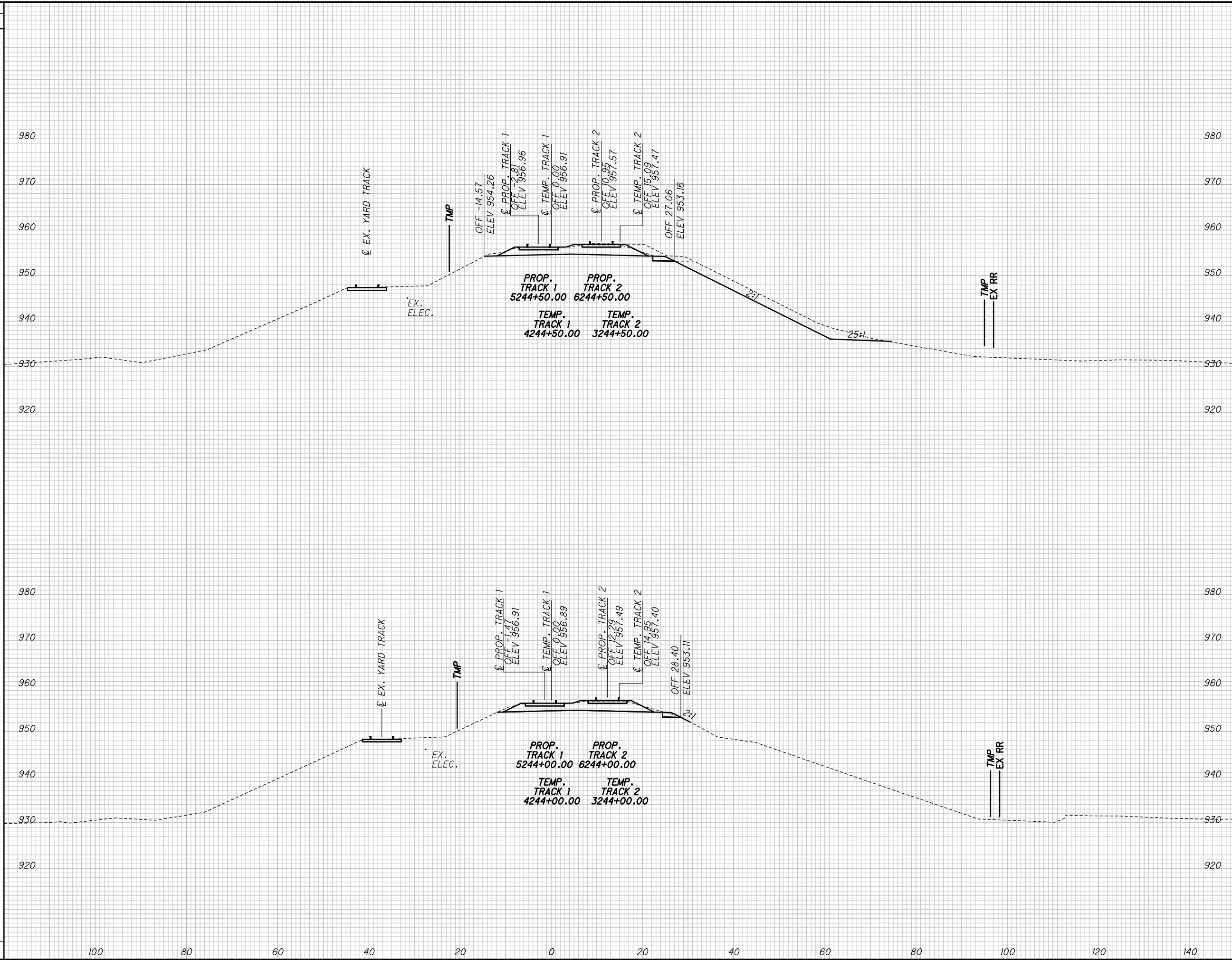
**DEL-36-11.03**

562  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA | VOLUME | CALCULATED | CHECKED | JLF |
|----------|--------|------------|---------|-----|
|          |        |            |         |     |
|          |        |            |         |     |

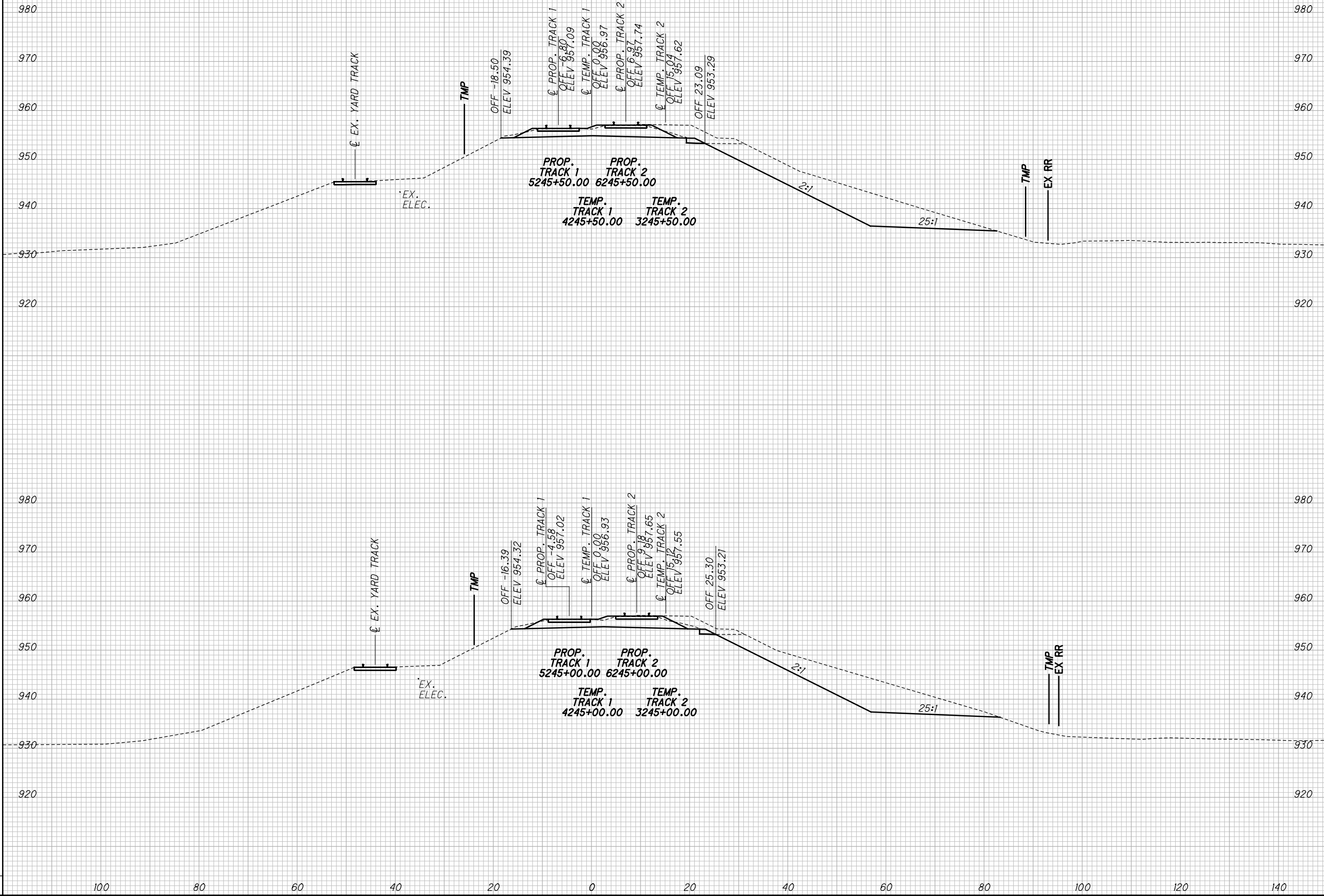
CROSS SECTIONS NS RR - PHASE 2  
STA. 4244+00.00 TO STA. 4244+50.00

DEL-36-11.03

563  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

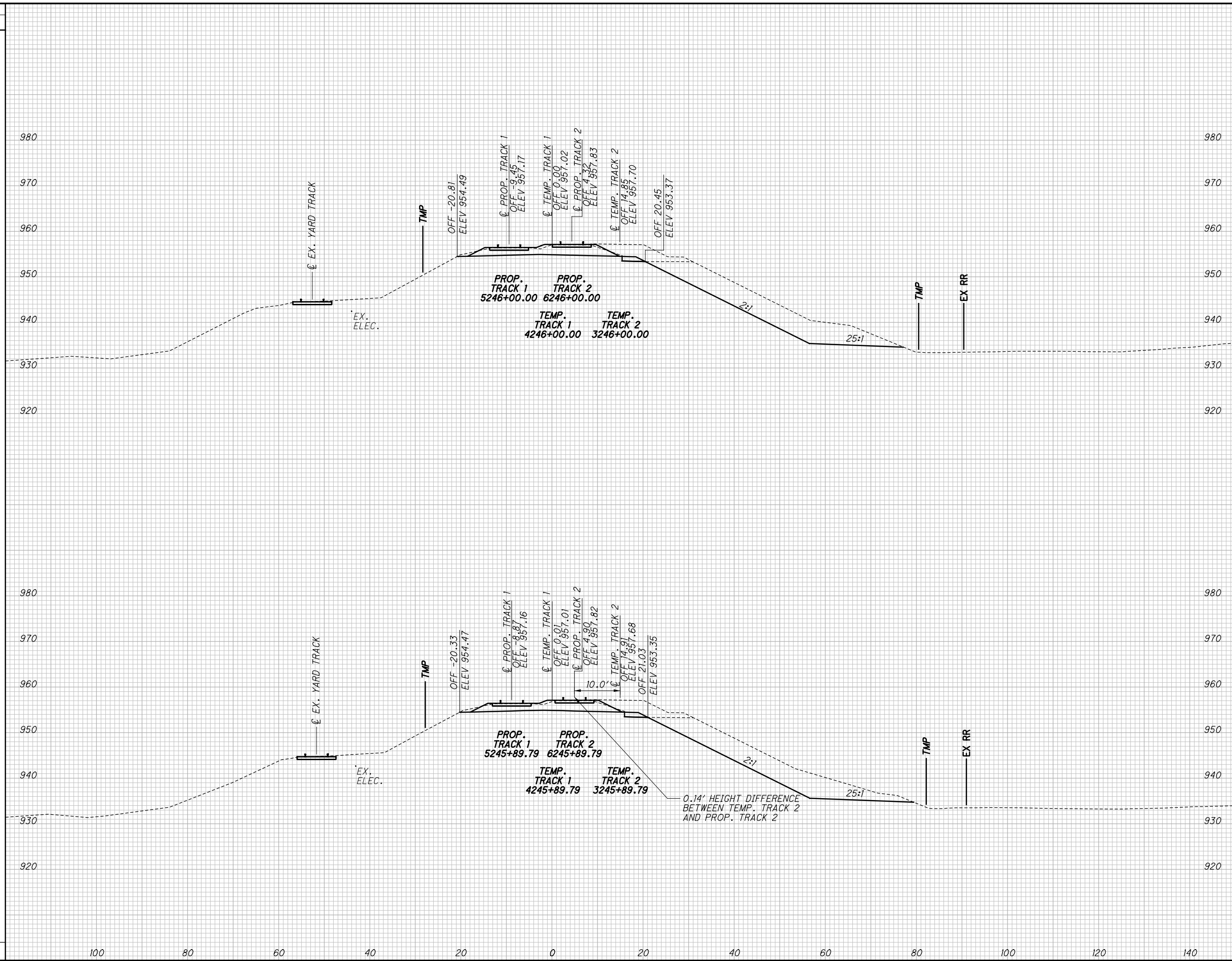
**CROSS SECTIONS NS RR - PHASE 2  
STA. 4245+00.00 TO STA. 4245+50.00**

**DEL-36-11.03**

564  
644

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| SEEDING   |          |
|-----------|----------|
| END WIDTH | SO. YDS. |
|           |          |



| END AREA |      | VOLUME |      |
|----------|------|--------|------|
| CUT      | FILL | CUT    | FILL |
|          |      |        |      |

DEL-36-11.03

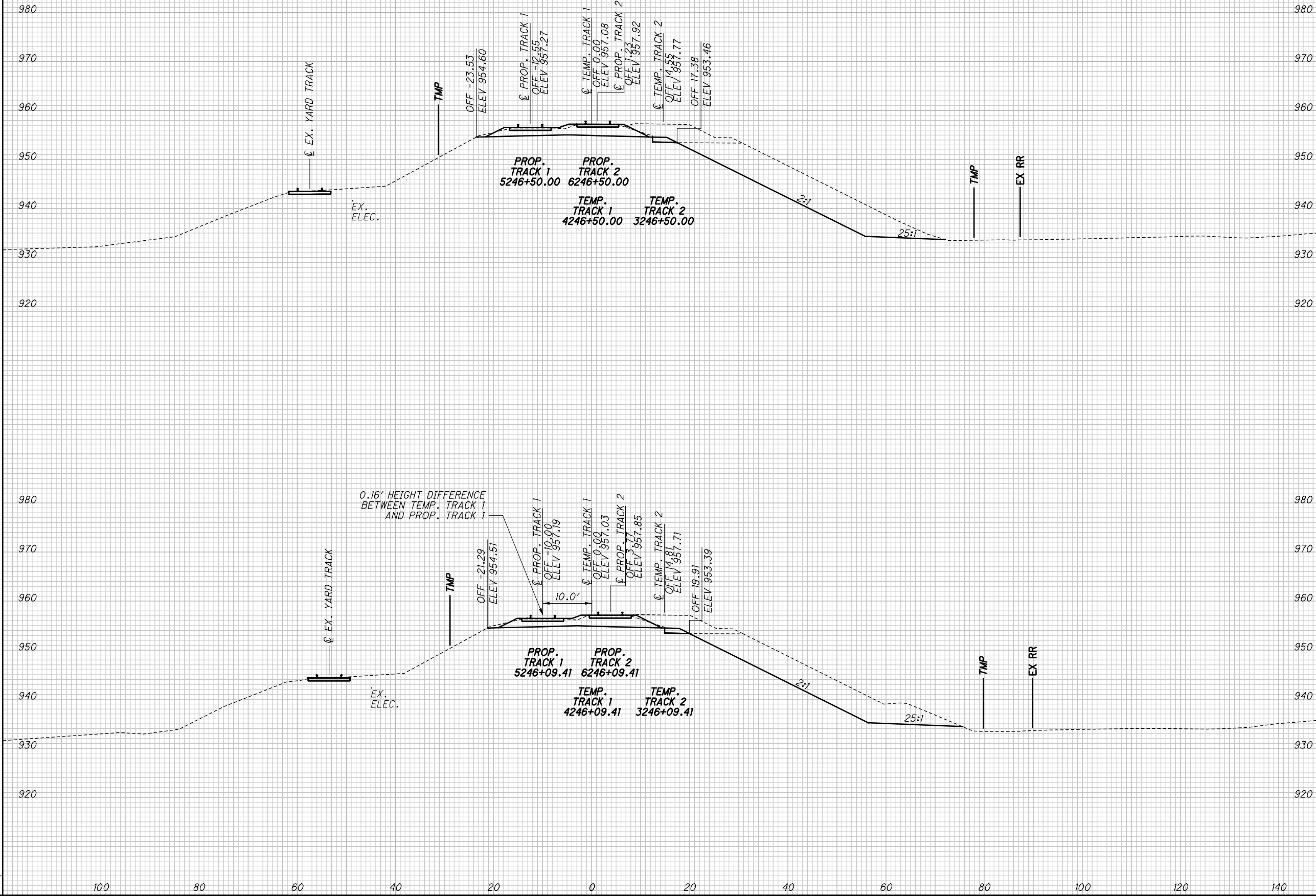
CROSS SECTIONS NS RR - PHASE 2  
STA. 4245+89.79 TO STA. 4246+00.00

CALCULATED CDR  
CHECKED JLF

565  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

**CROSS SECTIONS NS RR - PHASE 2  
STA. 4246+09.41 TO STA. 4246+50.00**

**DEL-36-11.03**

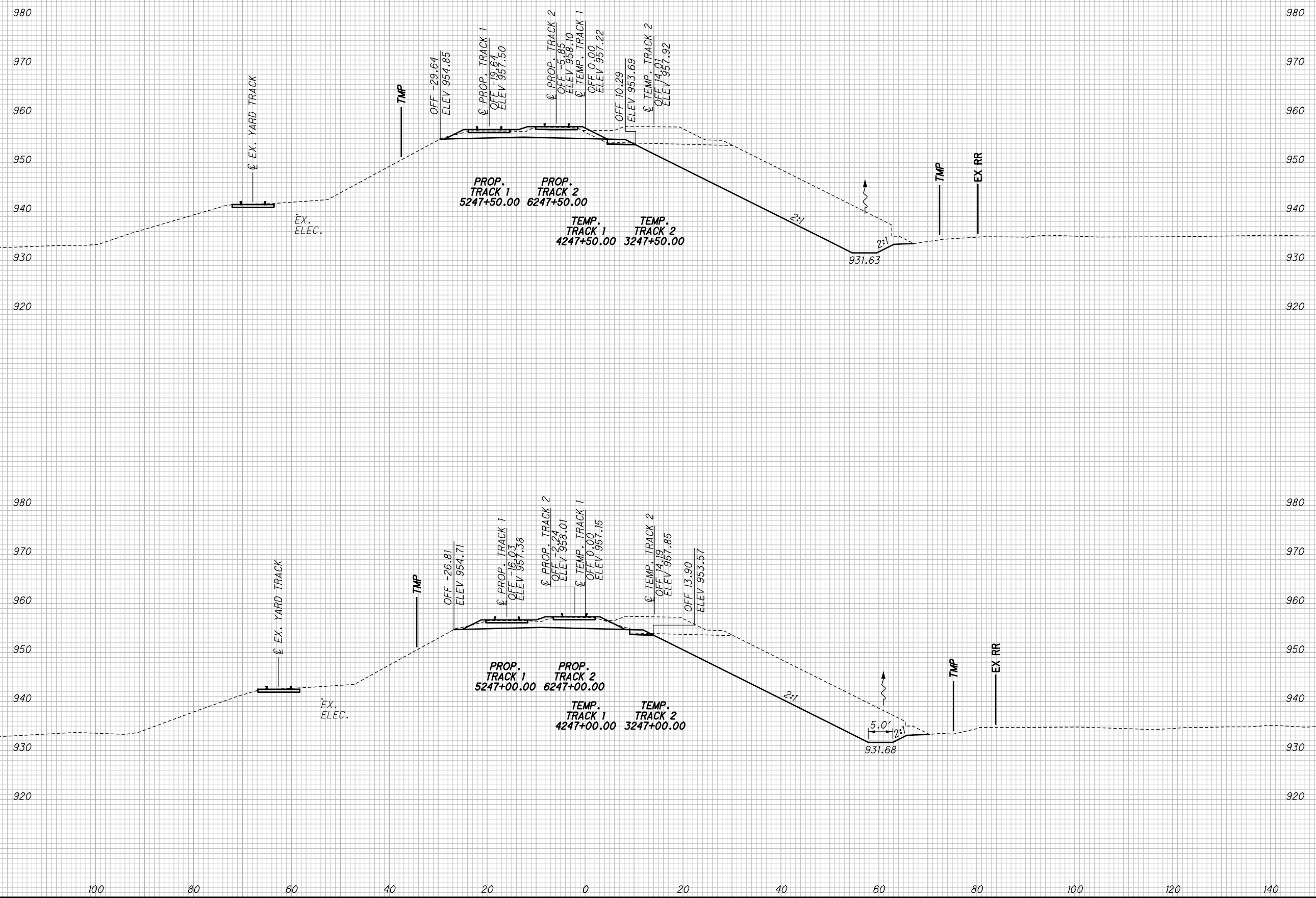
566  
644



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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



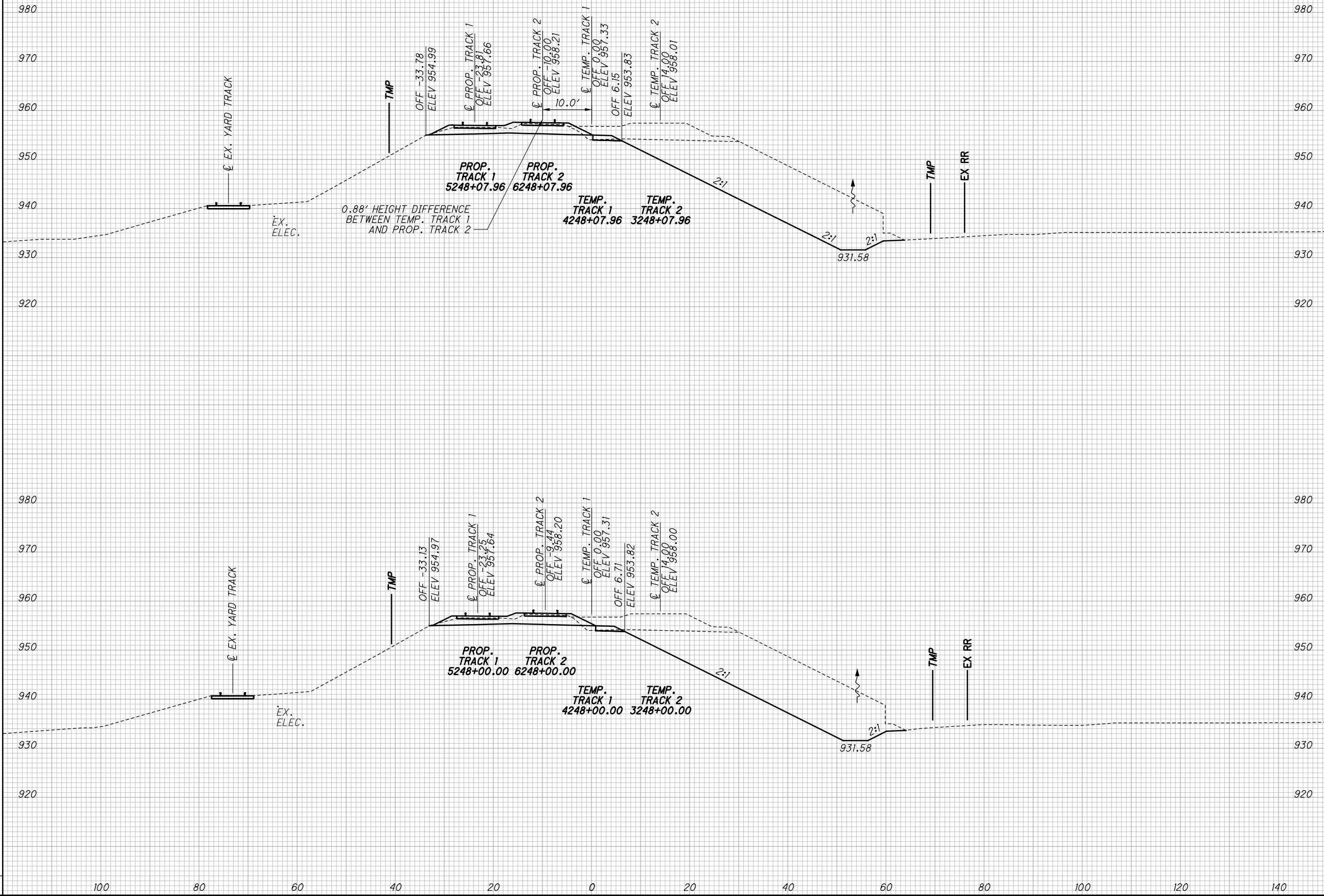
**CROSS SECTIONS NS RR - PHASE 2  
STA. 4247+00.00 TO STA. 4247+50.00**

**DEL-36-11.03**

567  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

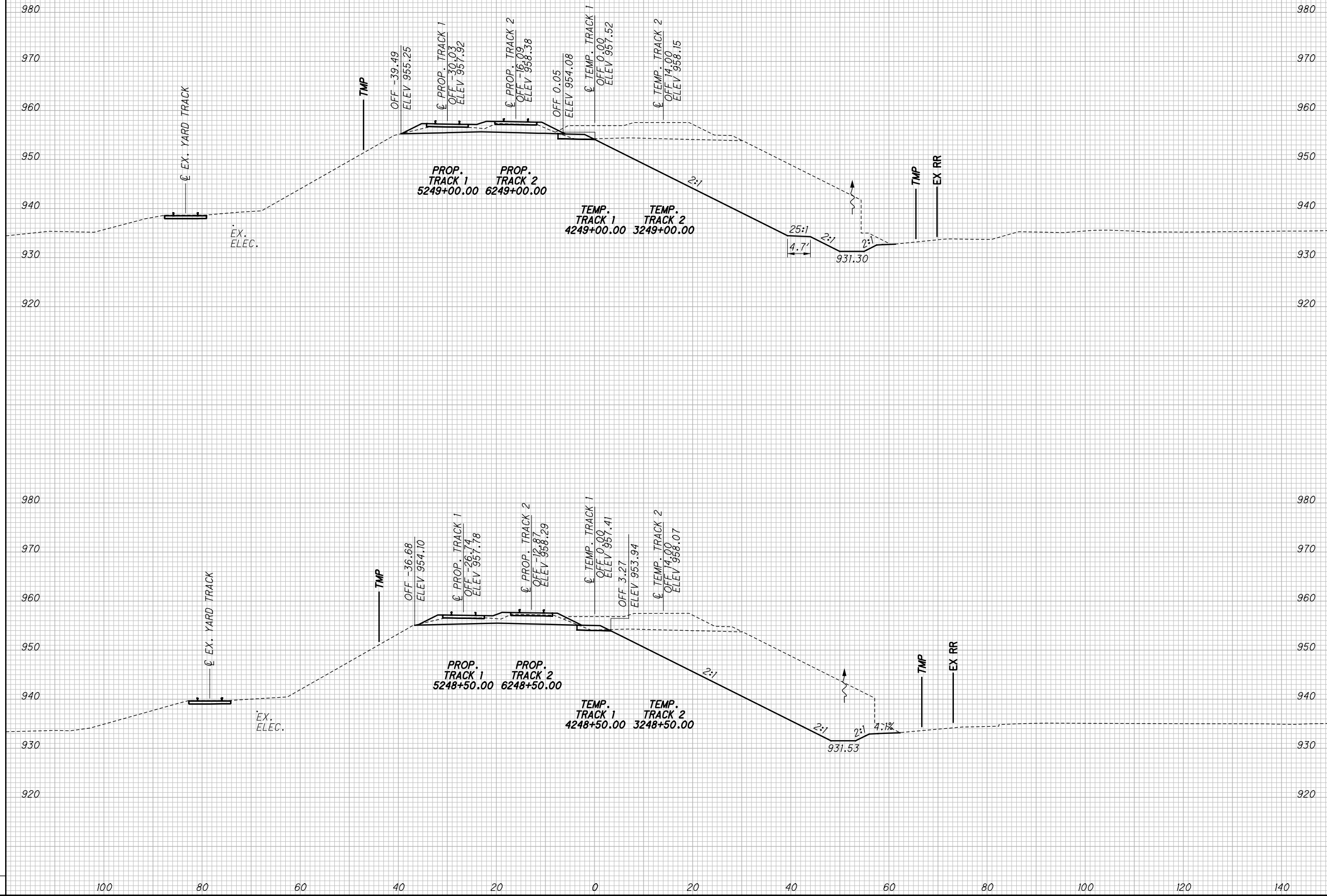
**CROSS SECTIONS NS RR - PHASE 2  
STA. 4248+00.00 TO STA. 4248+07.96**

**DEL-36-11.03**

568  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

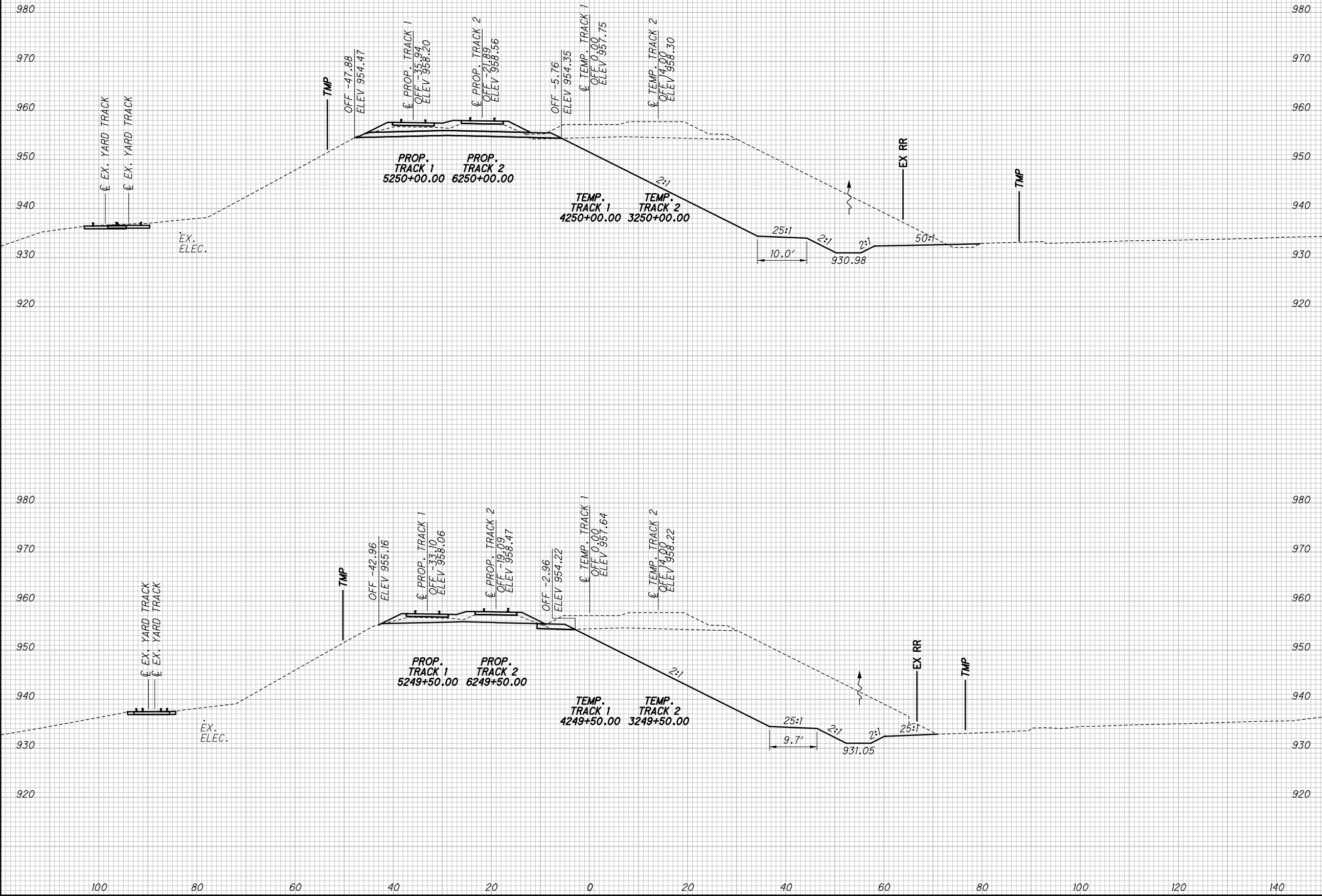
**CROSS SECTIONS NS RR - PHASE 2  
STA. 4248+50.00 TO STA. 4249+00.00**

**DEL-36-11.03**

569  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

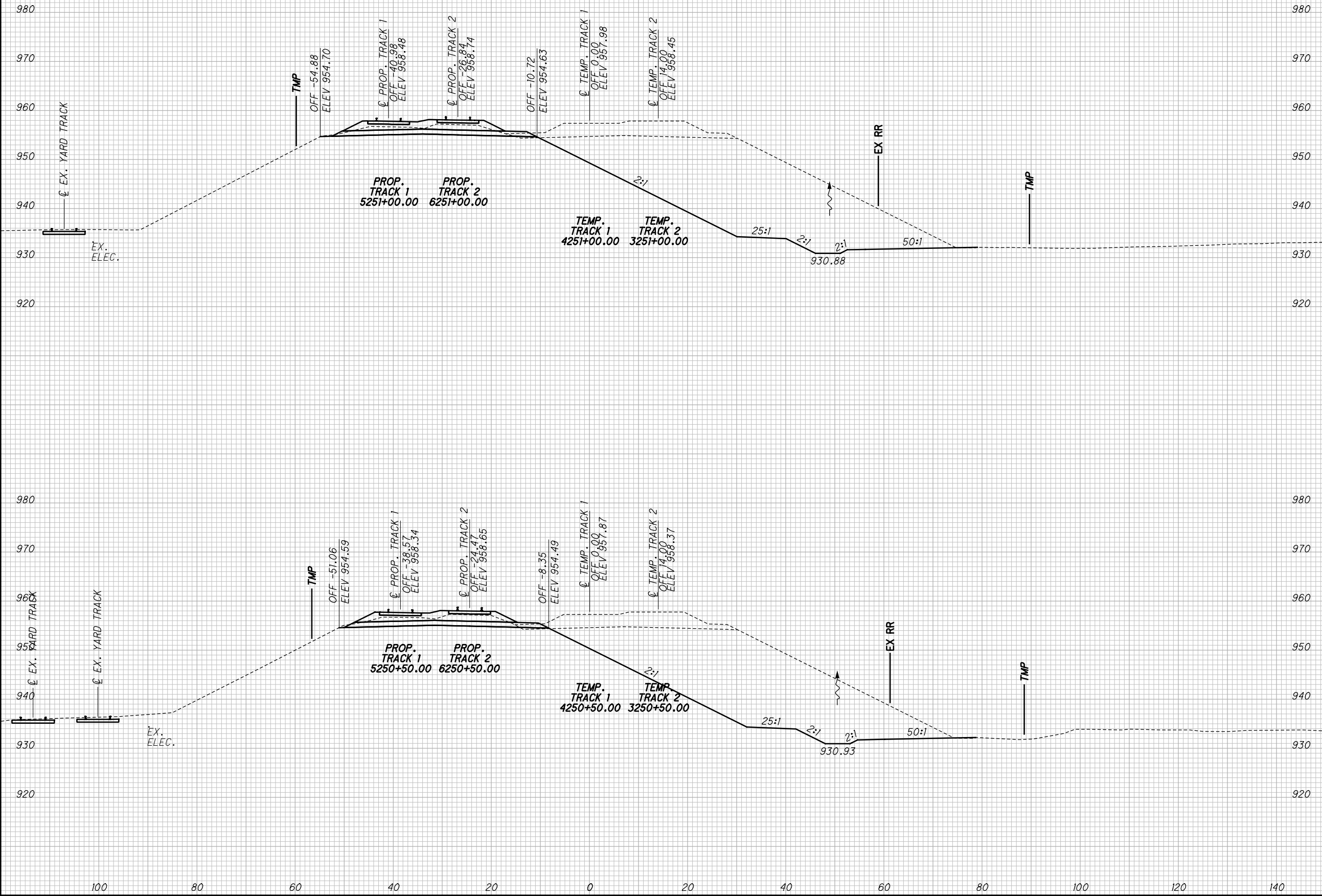
CROSS SECTIONS NS RR - PHASE 2  
STA. 4249+50.00 TO STA. 4250+00.00

DEL-36-11.03

570  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

**CROSS SECTIONS NS RR - PHASE 2  
STA. 4250+50.00 TO STA. 4251+00.00**

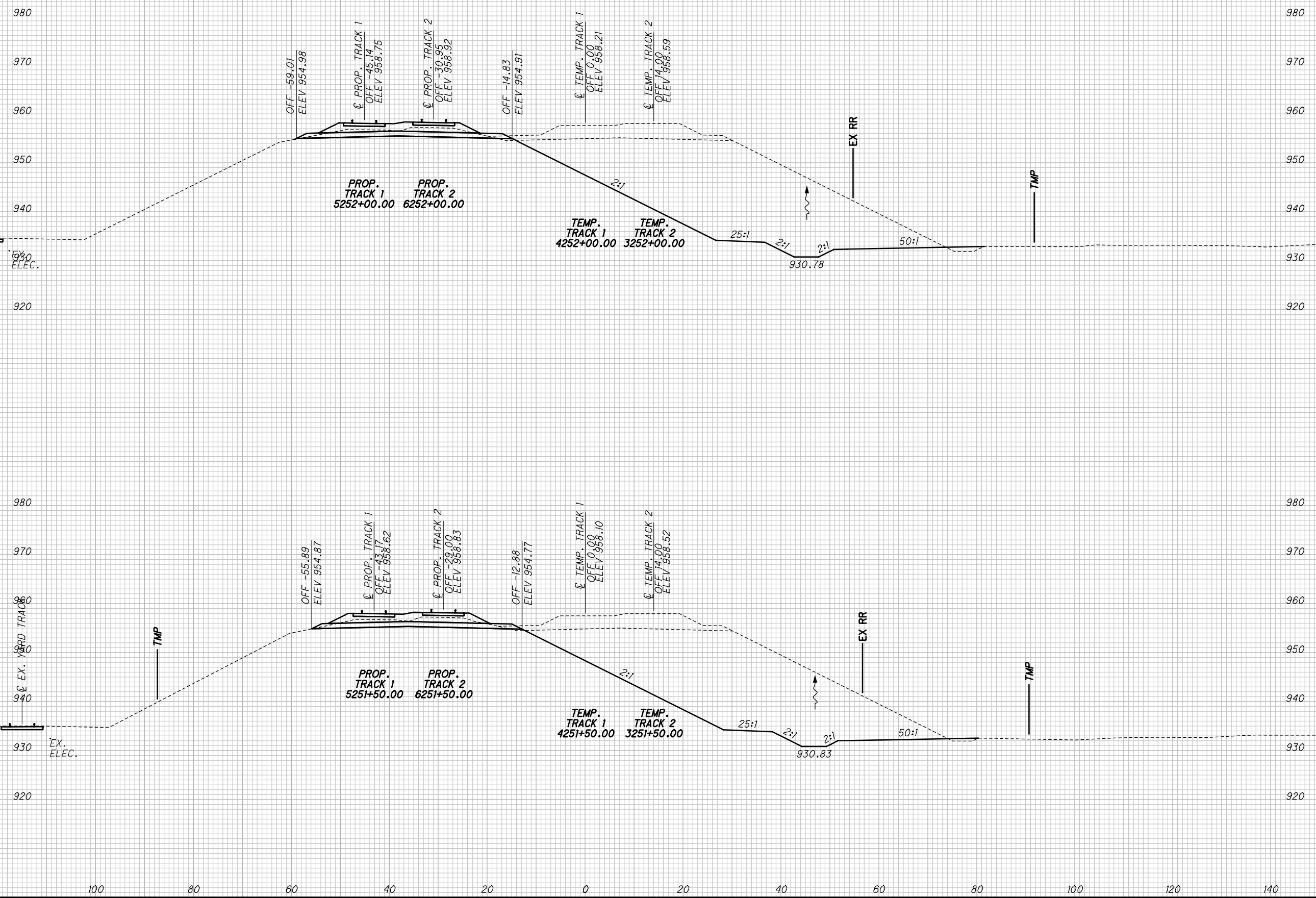
**DEL-36-11.03**

571  
644

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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



**CROSS SECTIONS NS RR - PHASE 2  
STA. 4251+50.00 TO STA. 4252+00.00**

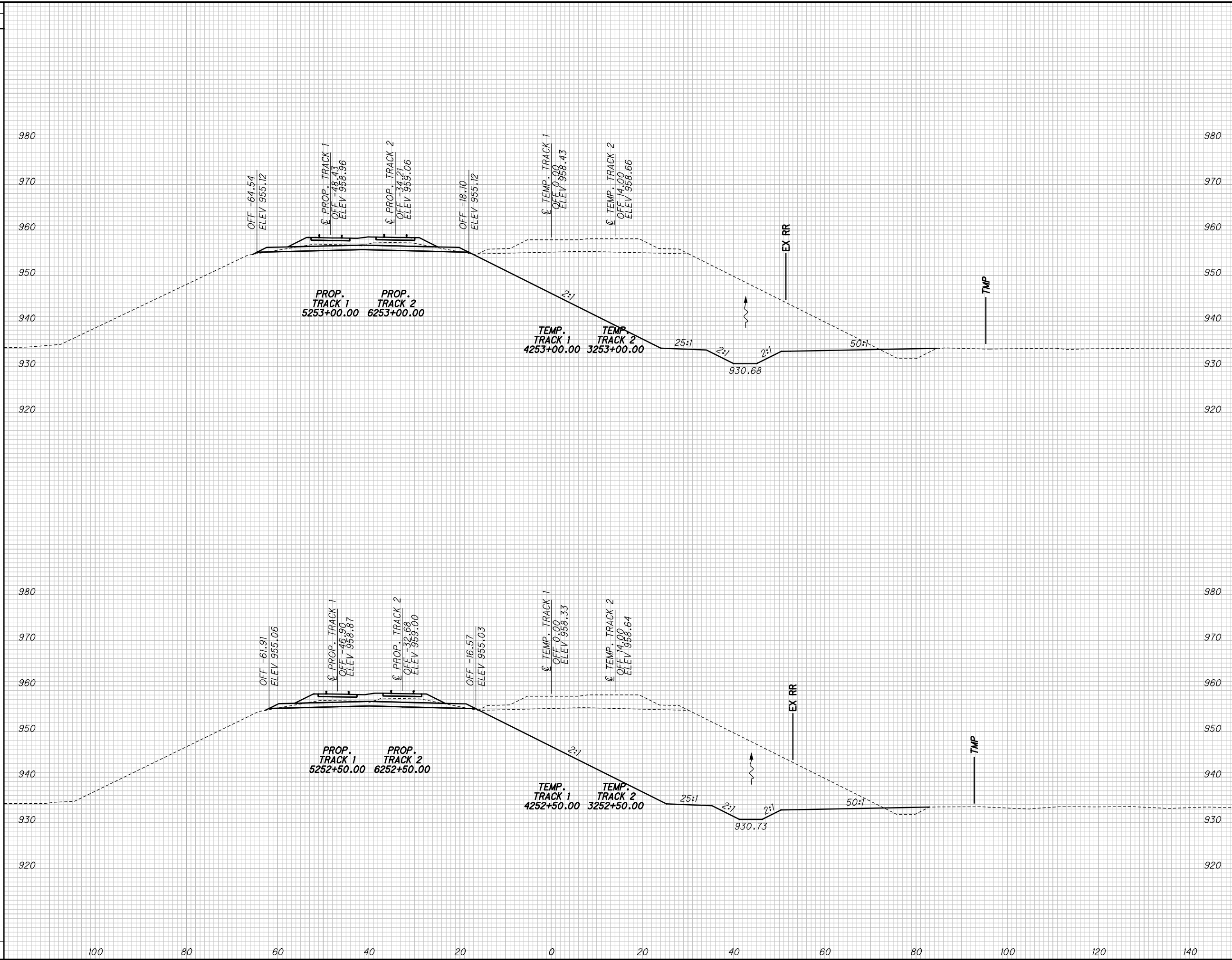
**DEL-36-11.03**

572  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

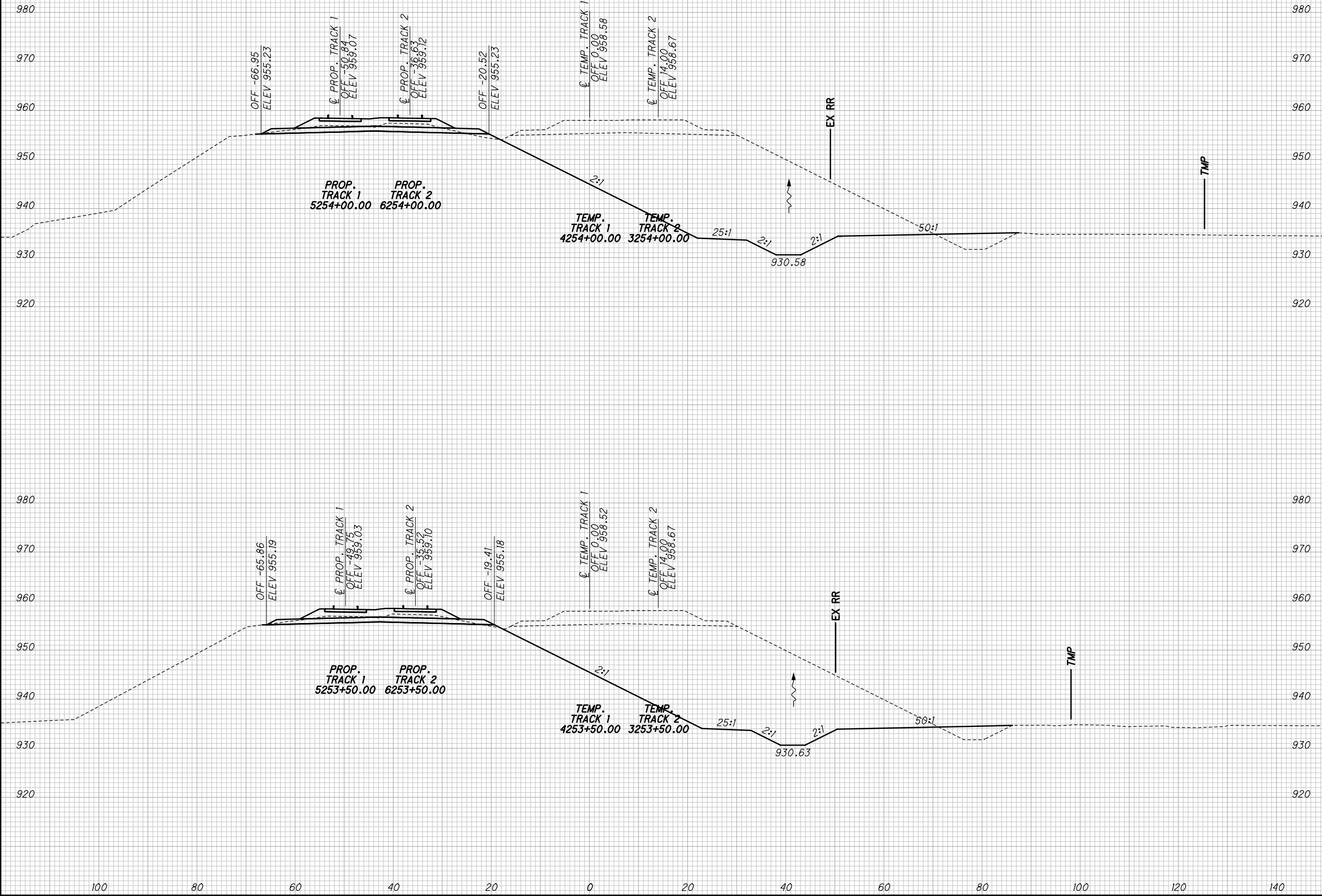
CROSS SECTIONS NS RR - PHASE 2  
STA. 4252+50.00 TO STA. 4253+00.00

DEL-36-11.03

573  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |

CROSS SECTIONS NS RR - PHASE 2  
STA. 4253+50.00 TO STA. 4254+00.00

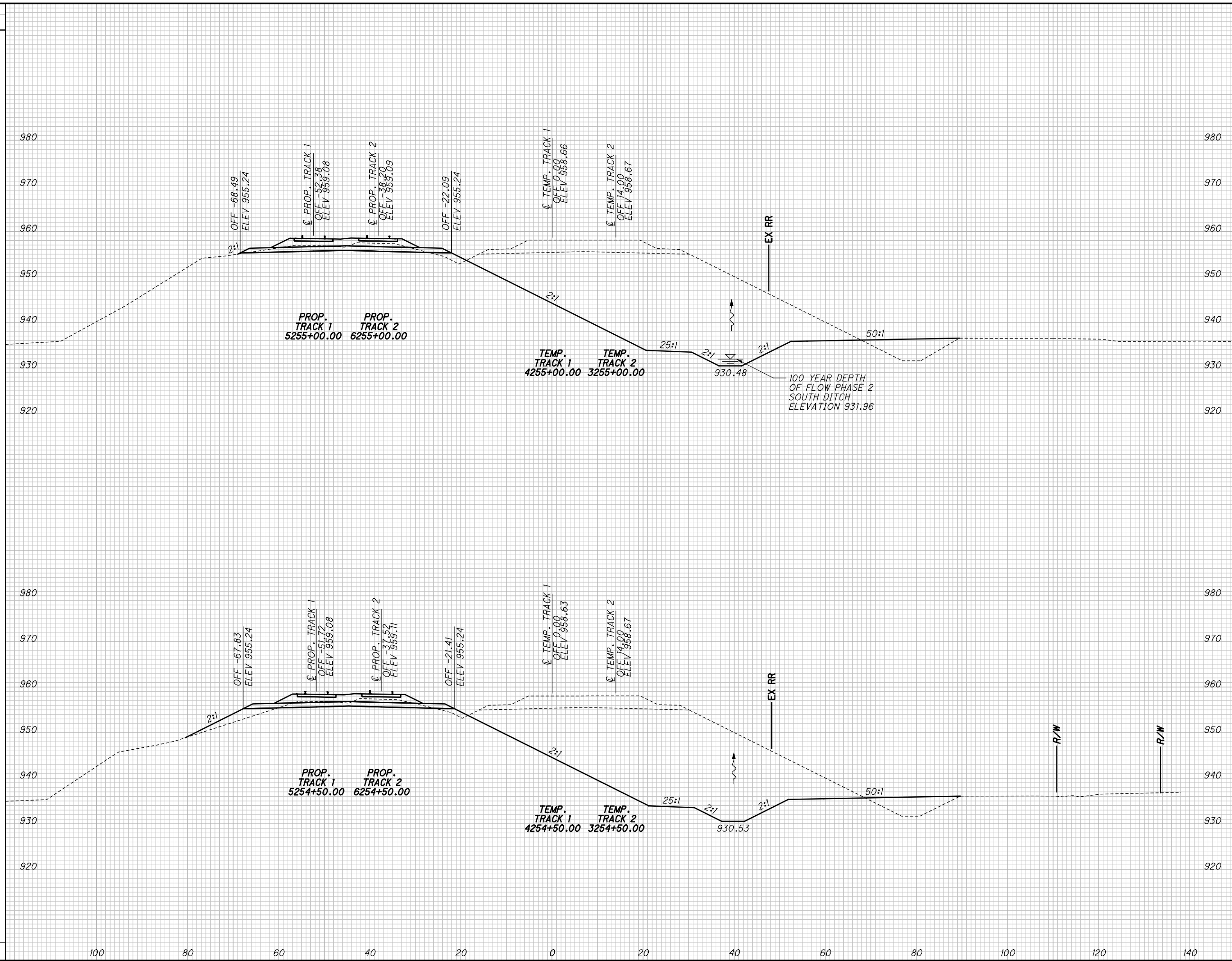
DEL-36-11.03

574  
644



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| SEEDING   |          |
|-----------|----------|
| END WIDTH | SO. YDS. |
|           |          |



| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |

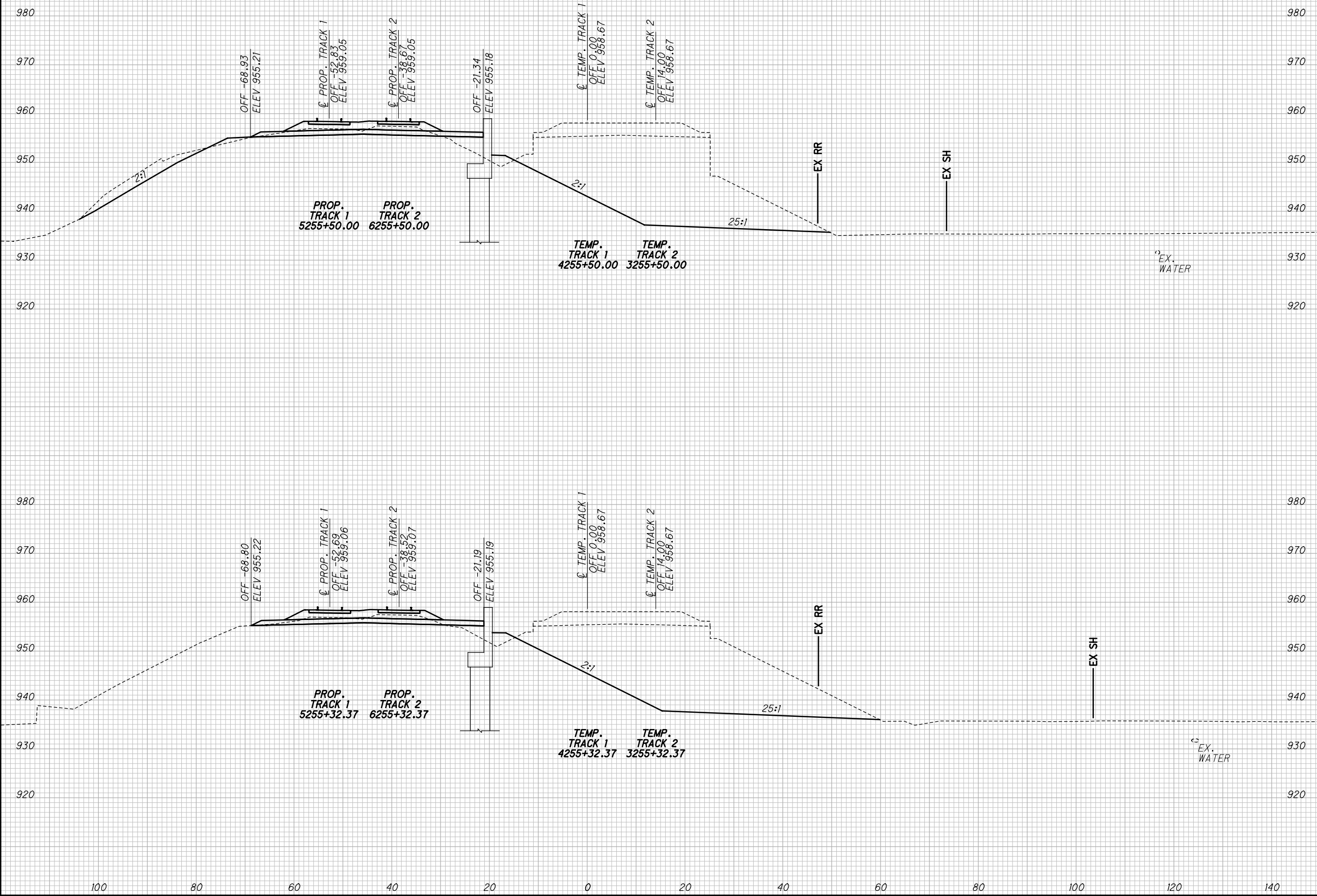
**CROSS SECTIONS NS RR - PHASE 2  
STA. 4254+50.00 TO STA. 4255+00.00**

**DEL-36-11.03**

575  
644

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SEEDING  
END SO.  
WIDTH YDS.

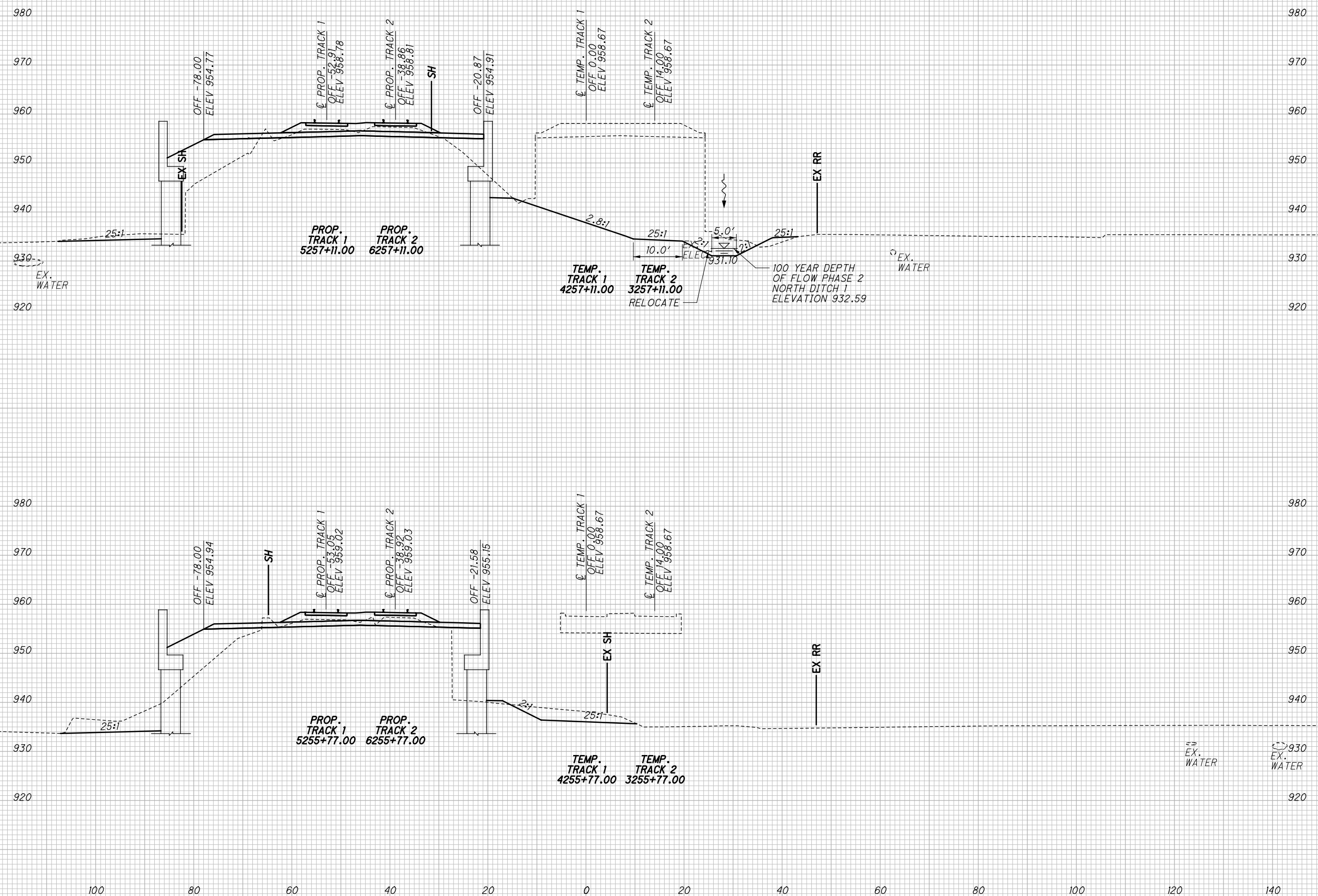


| END AREA                                  |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|-------------------------------------------|------|--------|------|-------------------|----------------|
| CUT                                       | FILL | CUT    | FILL |                   |                |
|                                           |      |        |      |                   |                |
| <b>CROSS SECTIONS NS RR - PHASE 2</b>     |      |        |      |                   |                |
| <b>STA. 4255+32.15 TO STA. 4255+50.00</b> |      |        |      |                   |                |
| <b>DEL-36-11.03</b>                       |      |        |      |                   |                |
| 576<br>644                                |      |        |      |                   |                |

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| SEEDING   |          |
|-----------|----------|
| END WIDTH | SO. YDS. |
|           |          |

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



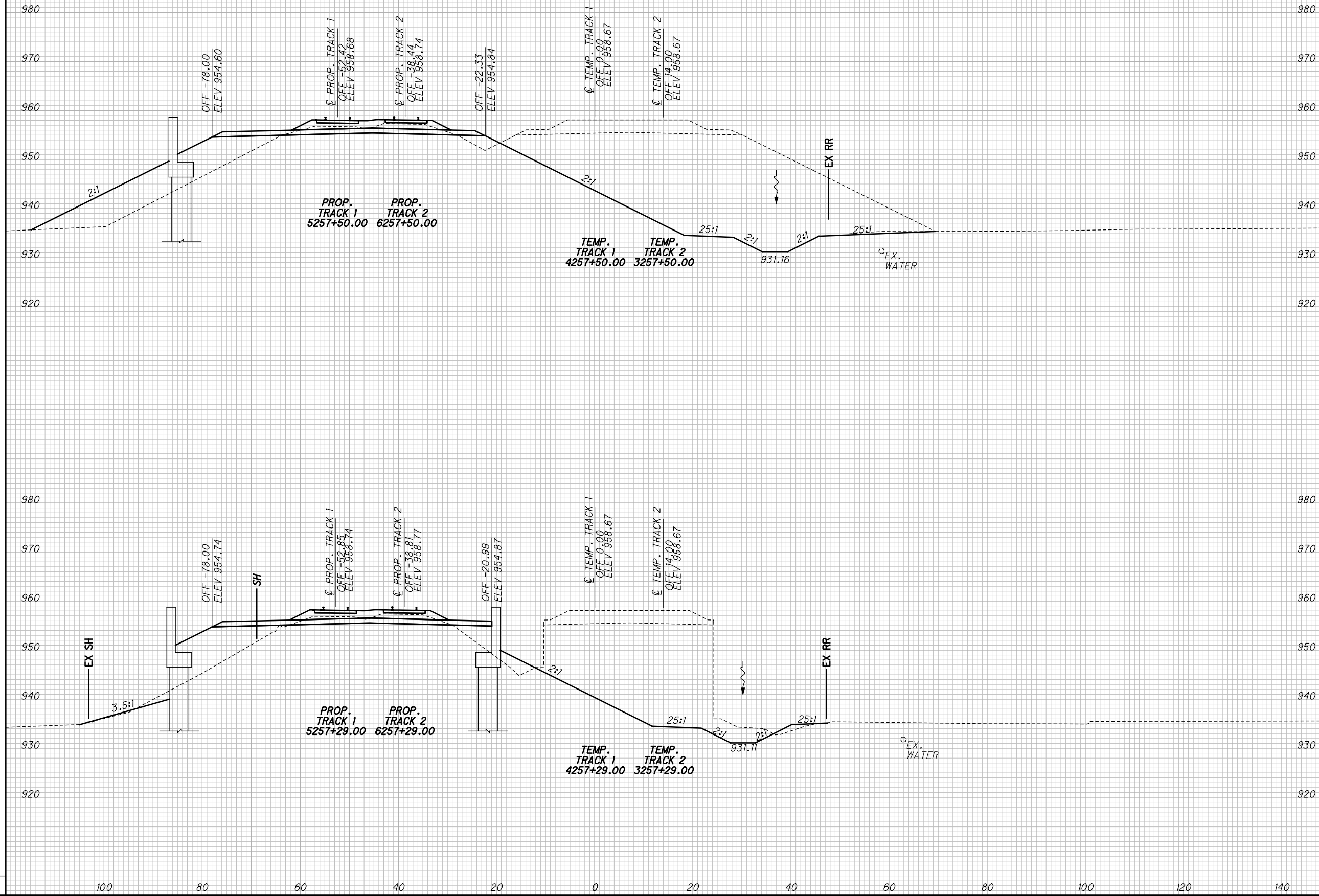
**CROSS SECTIONS NS RR - PHASE 2  
STA. 4255+97.00 TO STA. 4256+88.56**

**DEL-36-11.03**

577  
644

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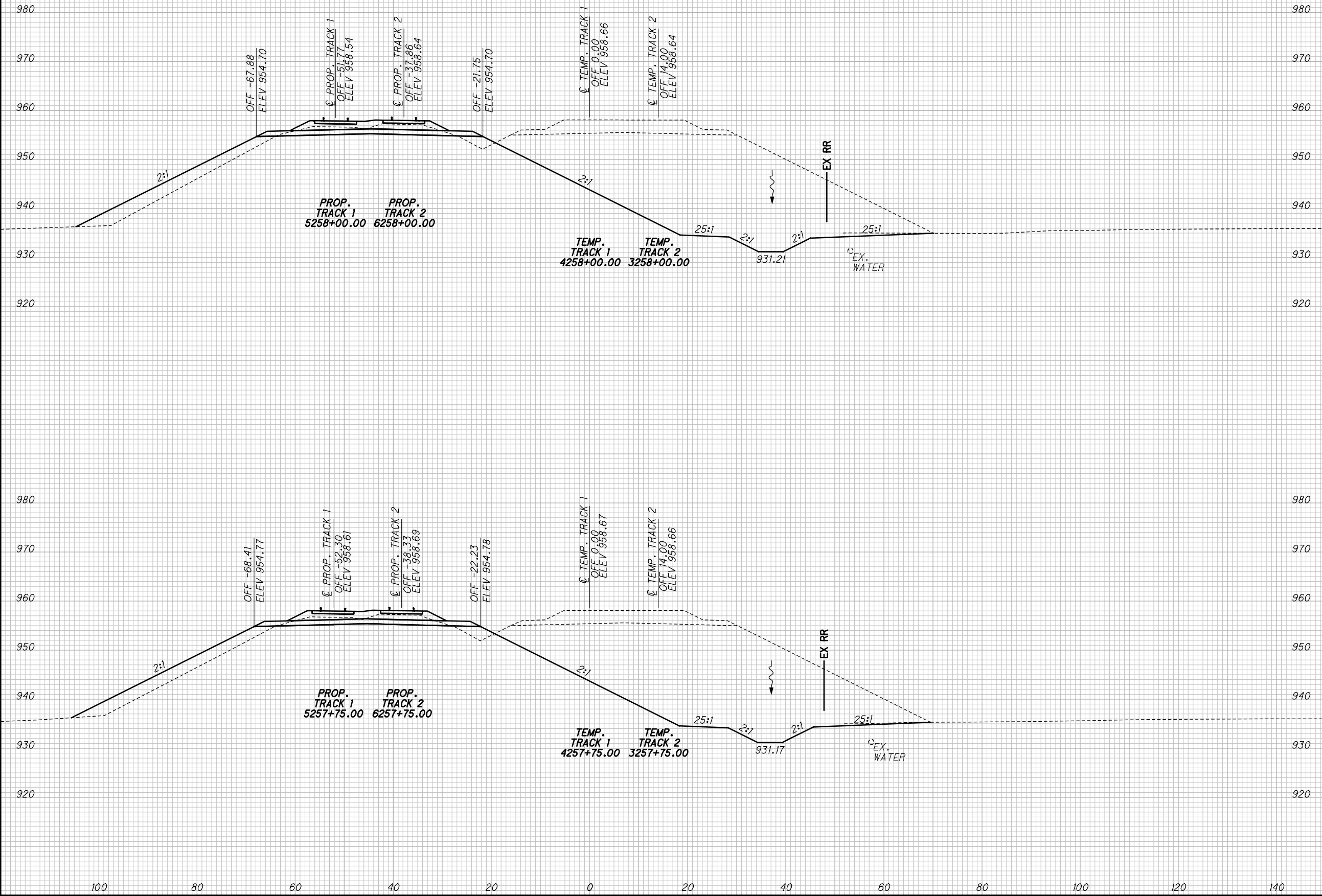
SEEDING  
END SO.  
WIDTH YDS.



| END AREA                                  |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|-------------------------------------------|------|--------|------|-------------------|----------------|
| CUT                                       | FILL | CUT    | FILL |                   |                |
|                                           |      |        |      |                   |                |
| <b>DEL -36 -11.03</b>                     |      |        |      |                   |                |
| <b>CROSS SECTIONS NS RR - PHASE 2</b>     |      |        |      |                   |                |
| <b>STA. 4257+00.00 TO STA. 4257+50.00</b> |      |        |      |                   |                |

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SEEDING  
END SO.  
WIDTH YDS.

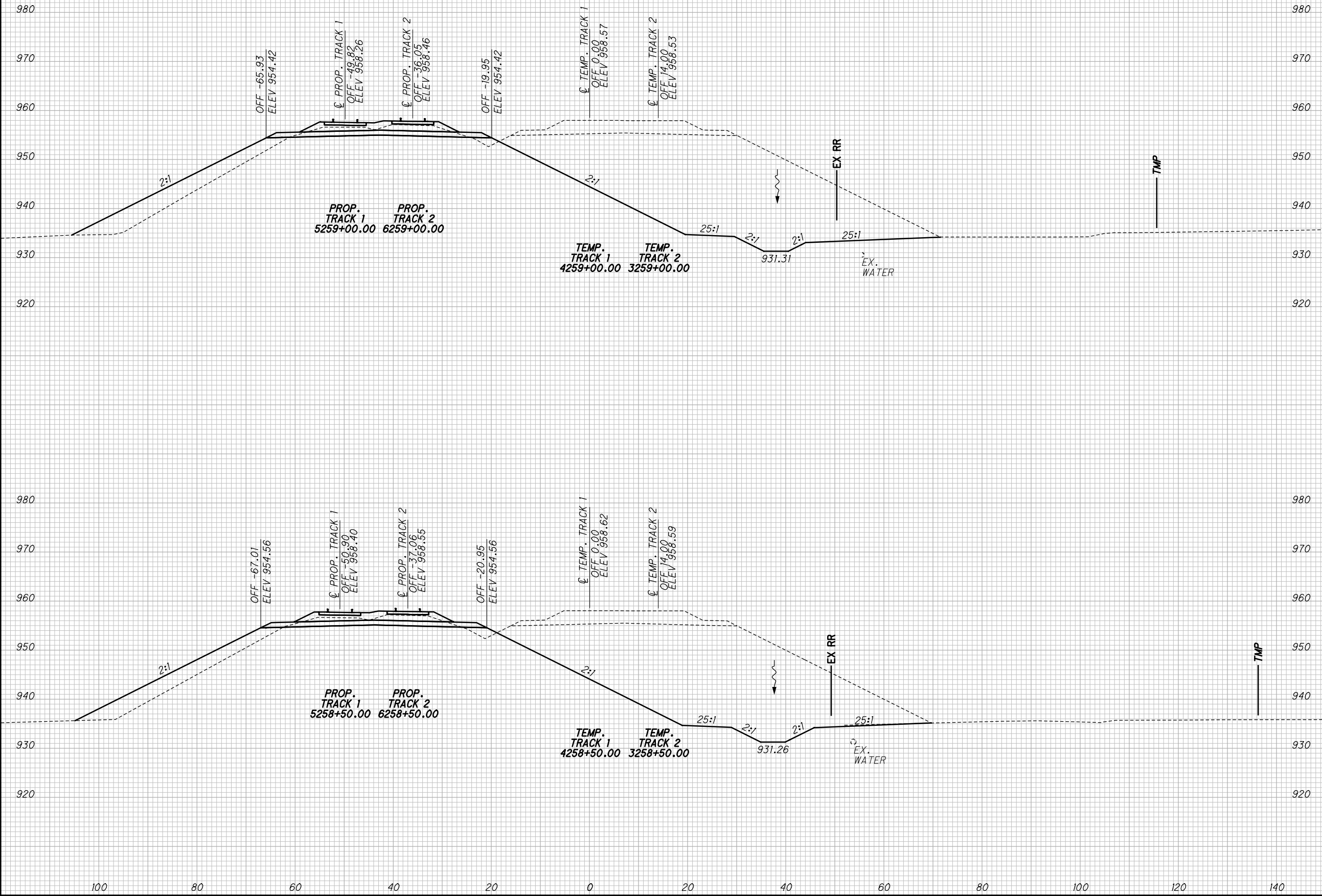


| END AREA                                  |      | VOLUME |      | CALCULATED |     |
|-------------------------------------------|------|--------|------|------------|-----|
| CUT                                       | FILL | CUT    | FILL | CDR        | JLF |
|                                           |      |        |      |            |     |
| <b>DEL -36 -11.03</b>                     |      |        |      |            |     |
| <b>CROSS SECTIONS NS RR - PHASE 2</b>     |      |        |      |            |     |
| <b>STA. 4257+60.00 TO STA. 4258+00.00</b> |      |        |      |            |     |

579  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

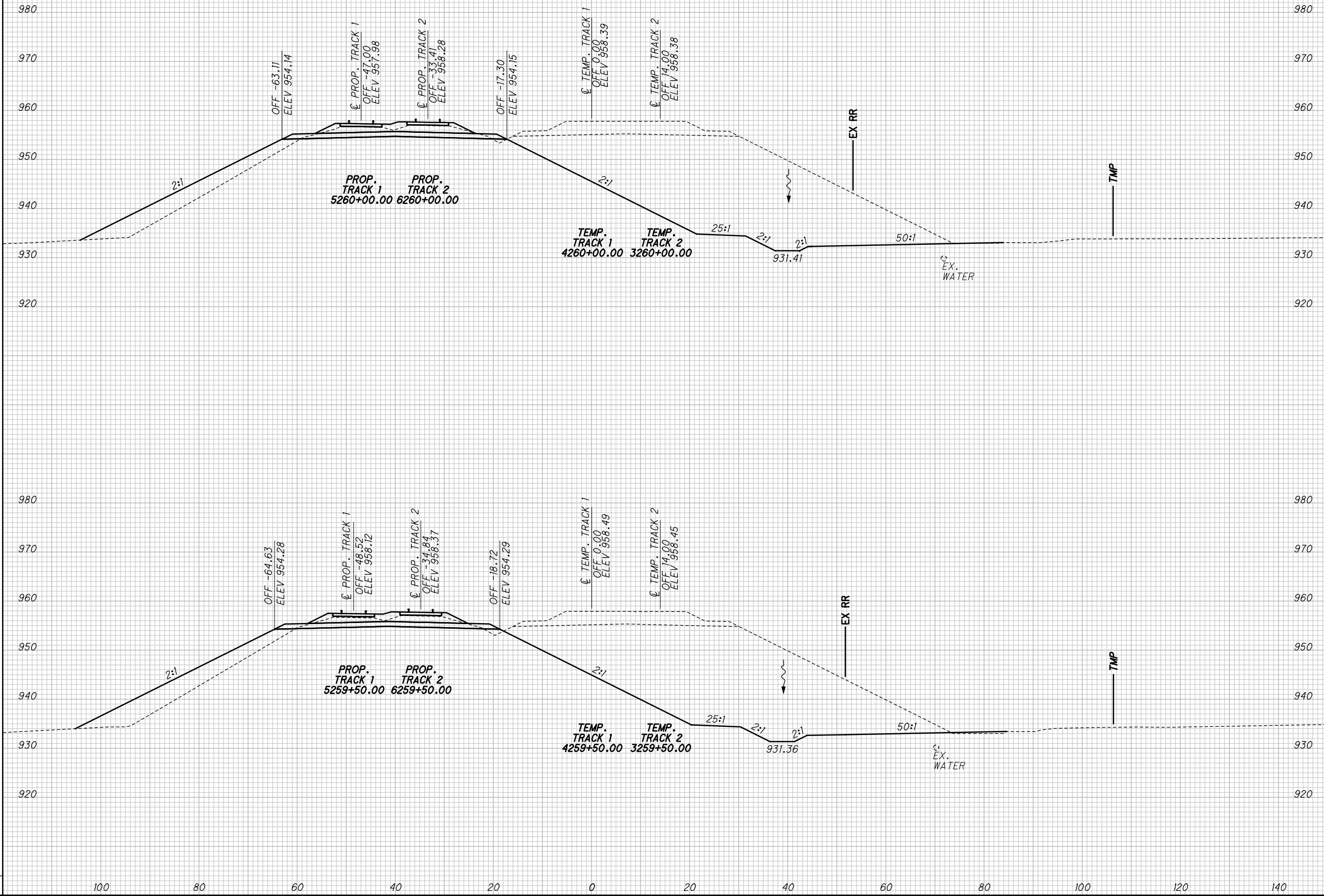
**CROSS SECTIONS NS RR - PHASE 2  
STA. 4258+50.00 TO STA. 4259+00.00**

**DEL-36-11.03**

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |

CROSS SECTIONS NS RR - PHASE 2  
STA. 4259+50.00 TO STA. 4260+00.00

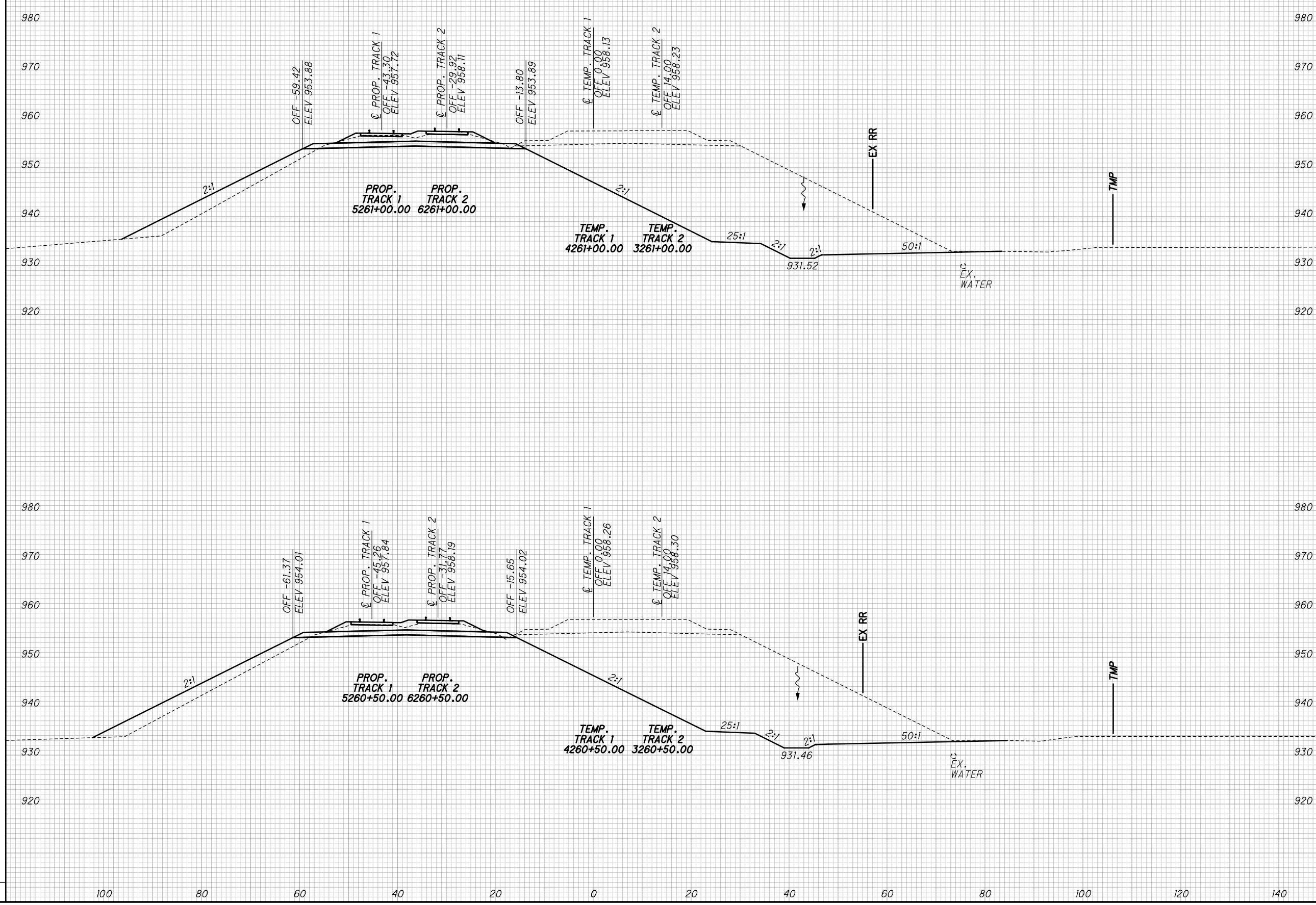
DEL-36-11.03

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| SEEDING   |          |
|-----------|----------|
| END WIDTH | SO. YDS. |
|           |          |

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



**CROSS SECTIONS NS RR - PHASE 2  
STA. 4260+50.00 TO STA. 4261+00.00**

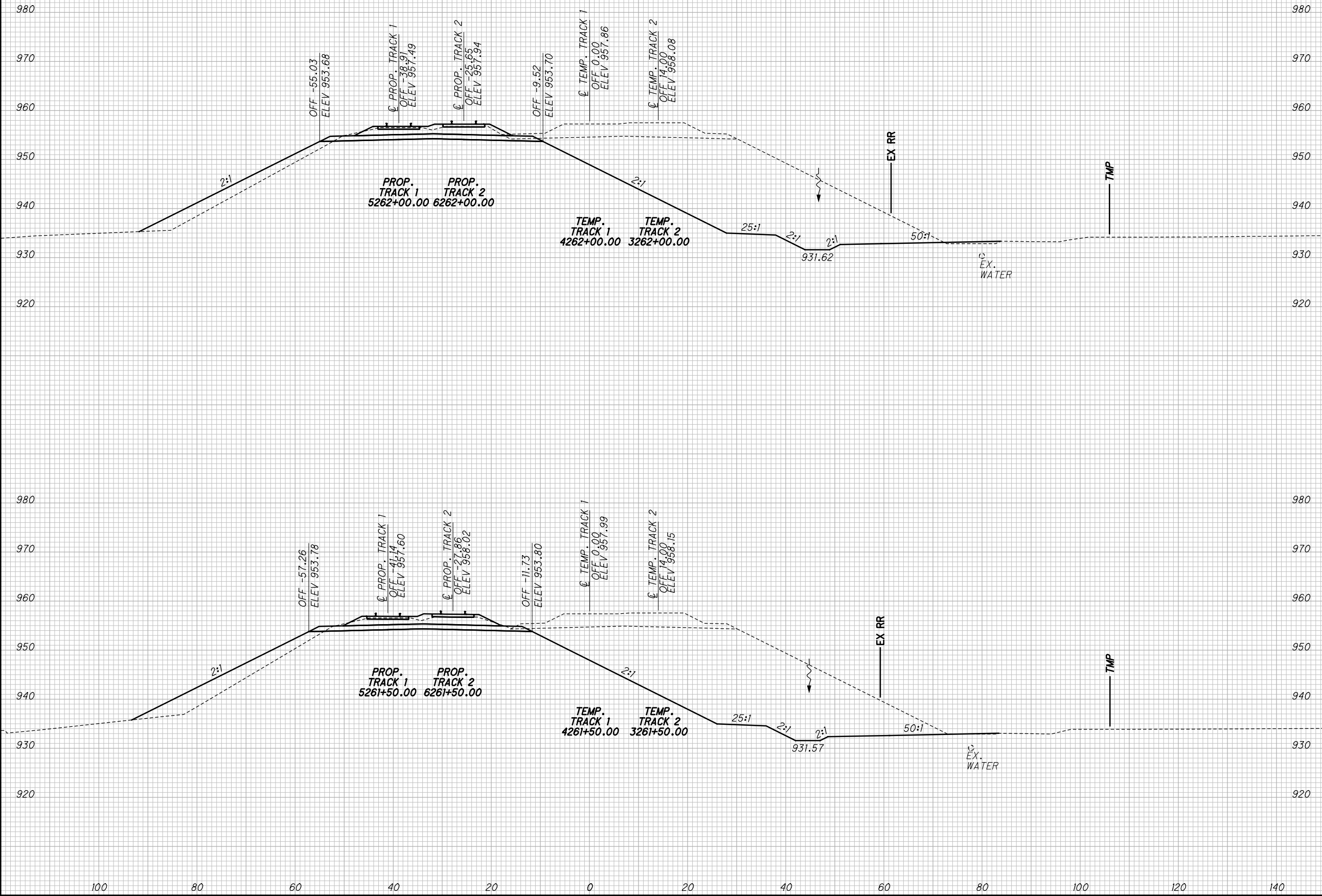
**DEL-36-11.03**

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SEEDING  
END SO.  
WIDTH YDS.



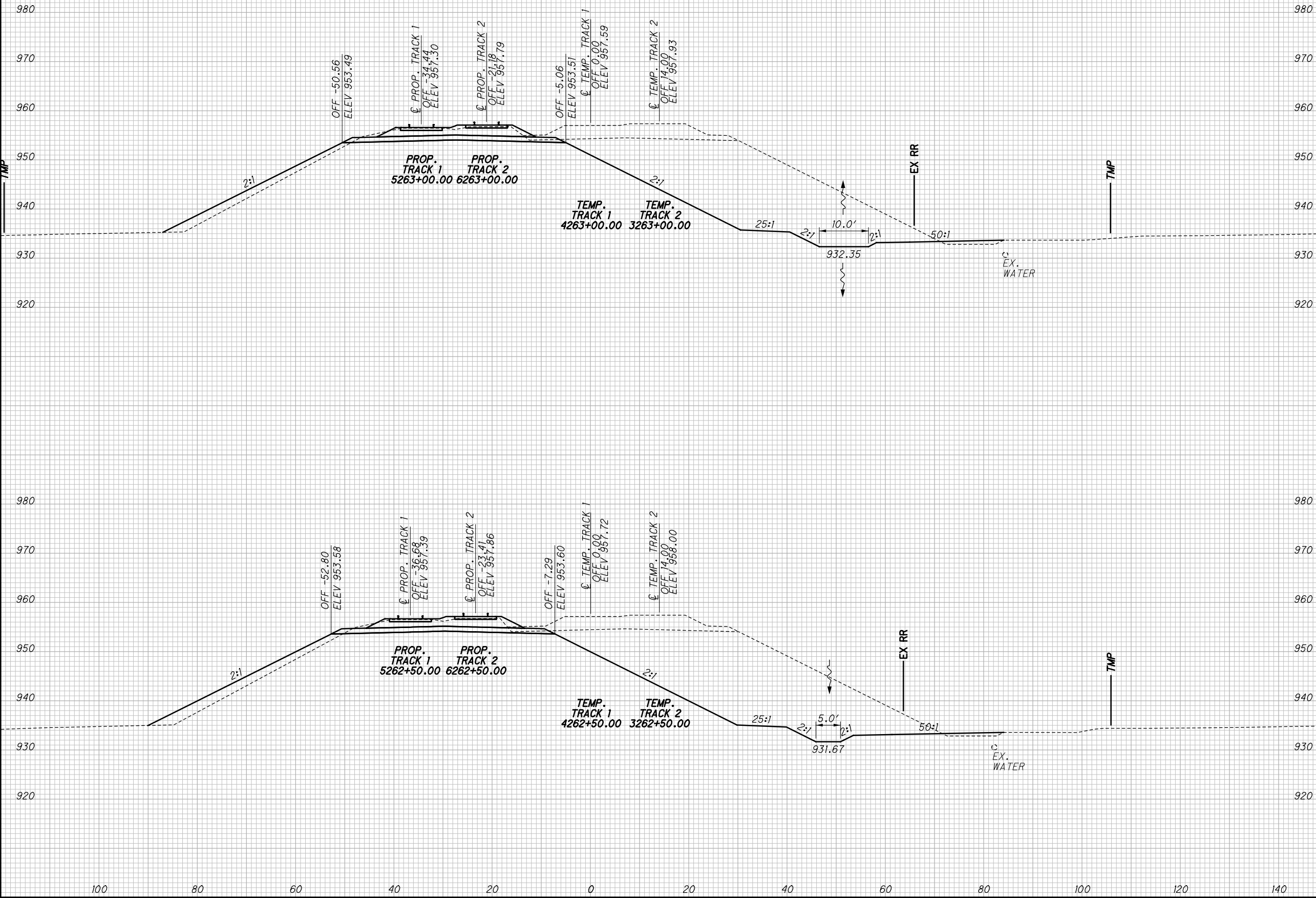
| END AREA                                  |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|-------------------------------------------|------|--------|------|-------------------|----------------|
| CUT                                       | FILL | CUT    | FILL |                   |                |
|                                           |      |        |      |                   |                |
| <b>DEL -36 -11.03</b>                     |      |        |      |                   |                |
| <b>CROSS SECTIONS NS RR - PHASE 2</b>     |      |        |      |                   |                |
| <b>STA. 4261+50.00 TO STA. 4262+00.00</b> |      |        |      |                   |                |

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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



CROSS SECTIONS NS RR - PHASE 2  
STA. 4262+50.00 TO STA. 4263+00.00

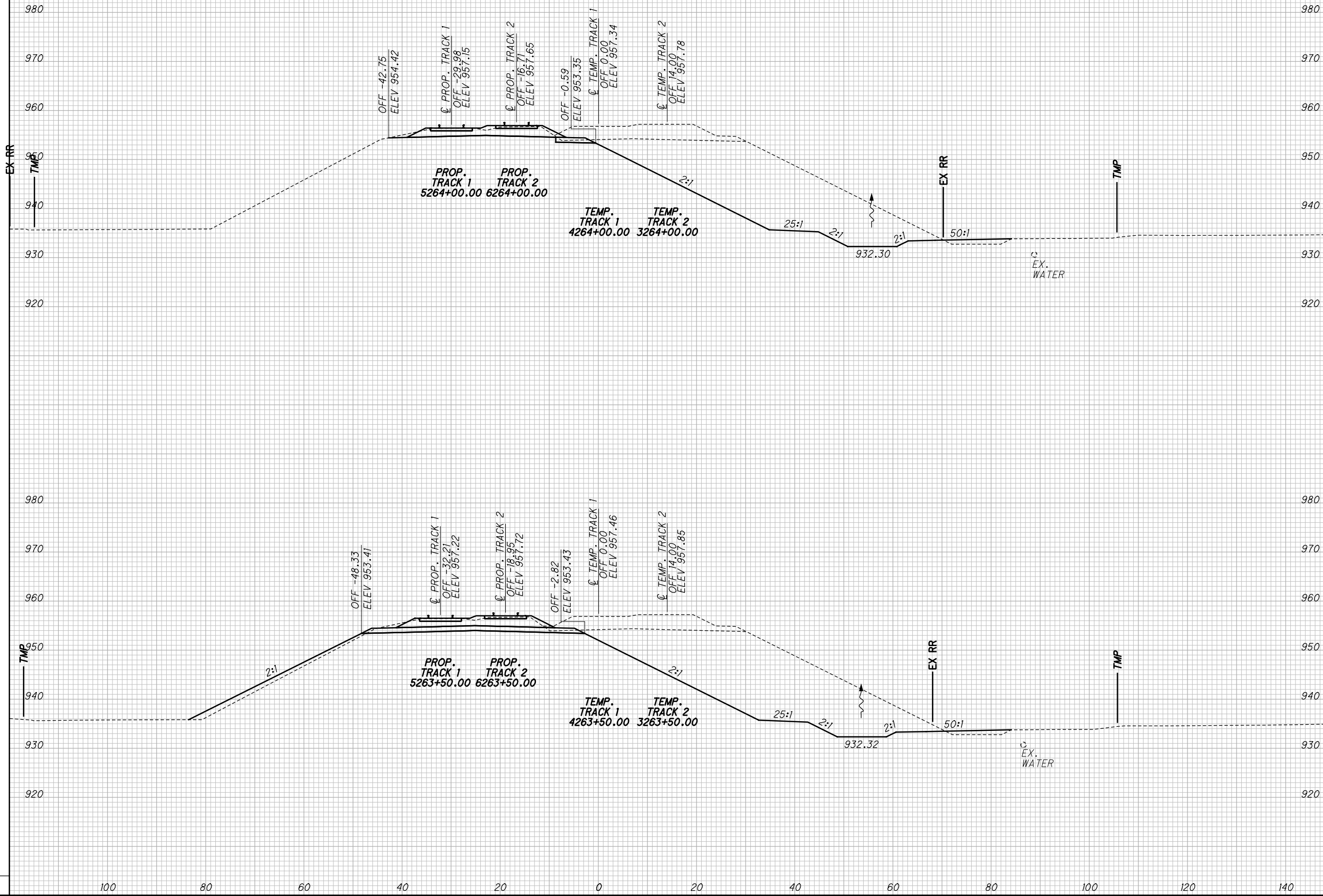
DEL-36-11.03

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| SEEDING   |          |
|-----------|----------|
| END WIDTH | SO. YDS. |
|           |          |

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



**CROSS SECTIONS NS RR - PHASE 2  
STA. 4263+50.00 TO STA. 4264+00.00**

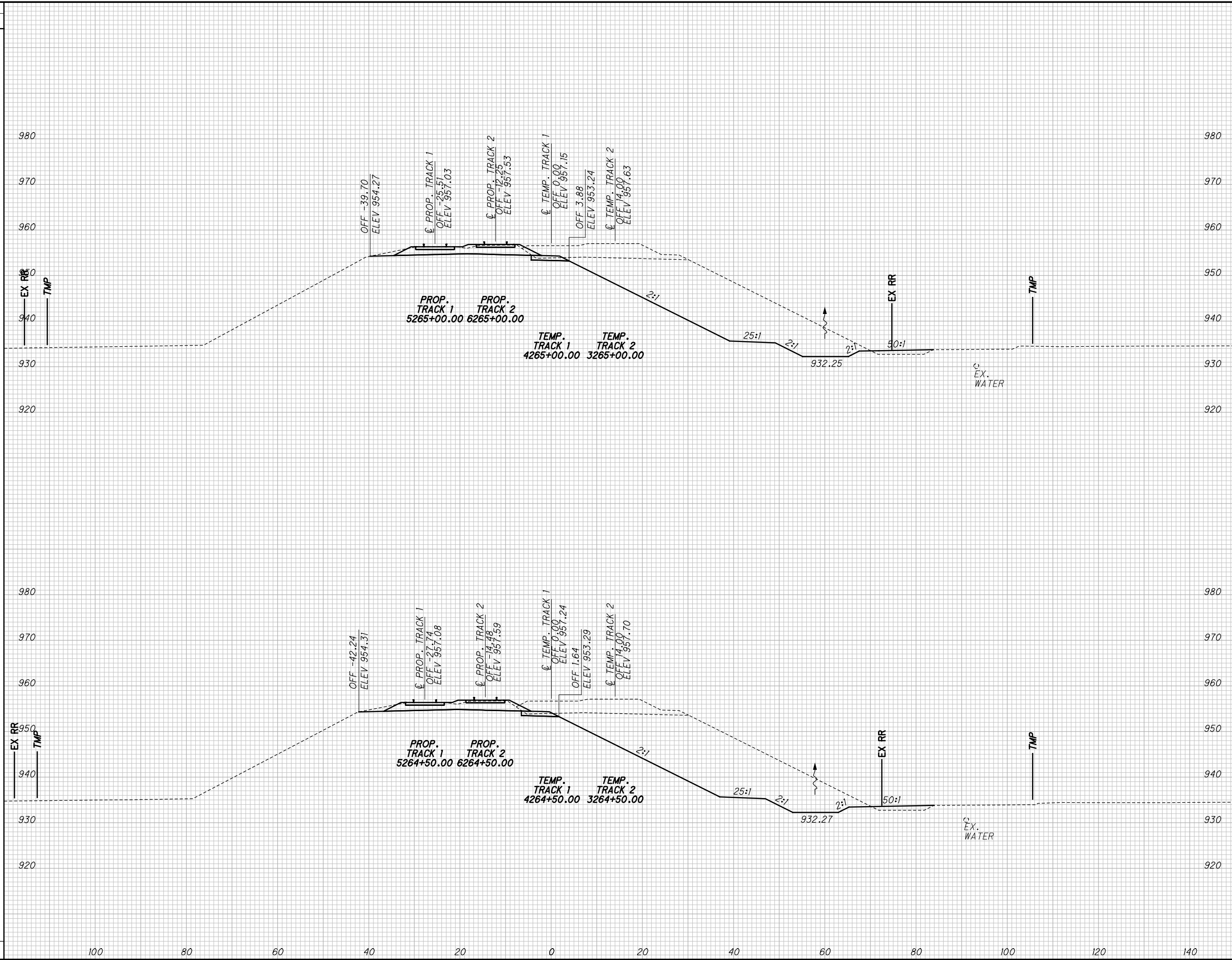
**DEL-36-11.03**

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA | VOLUME | CALCULATED |      | CDR | CHECKED | JLF |
|----------|--------|------------|------|-----|---------|-----|
|          |        | CUT        | FILL |     |         |     |
|          |        |            |      |     |         |     |

CROSS SECTIONS NS RR - PHASE 2  
STA. 4264+50.00 TO STA. 4265+00.00

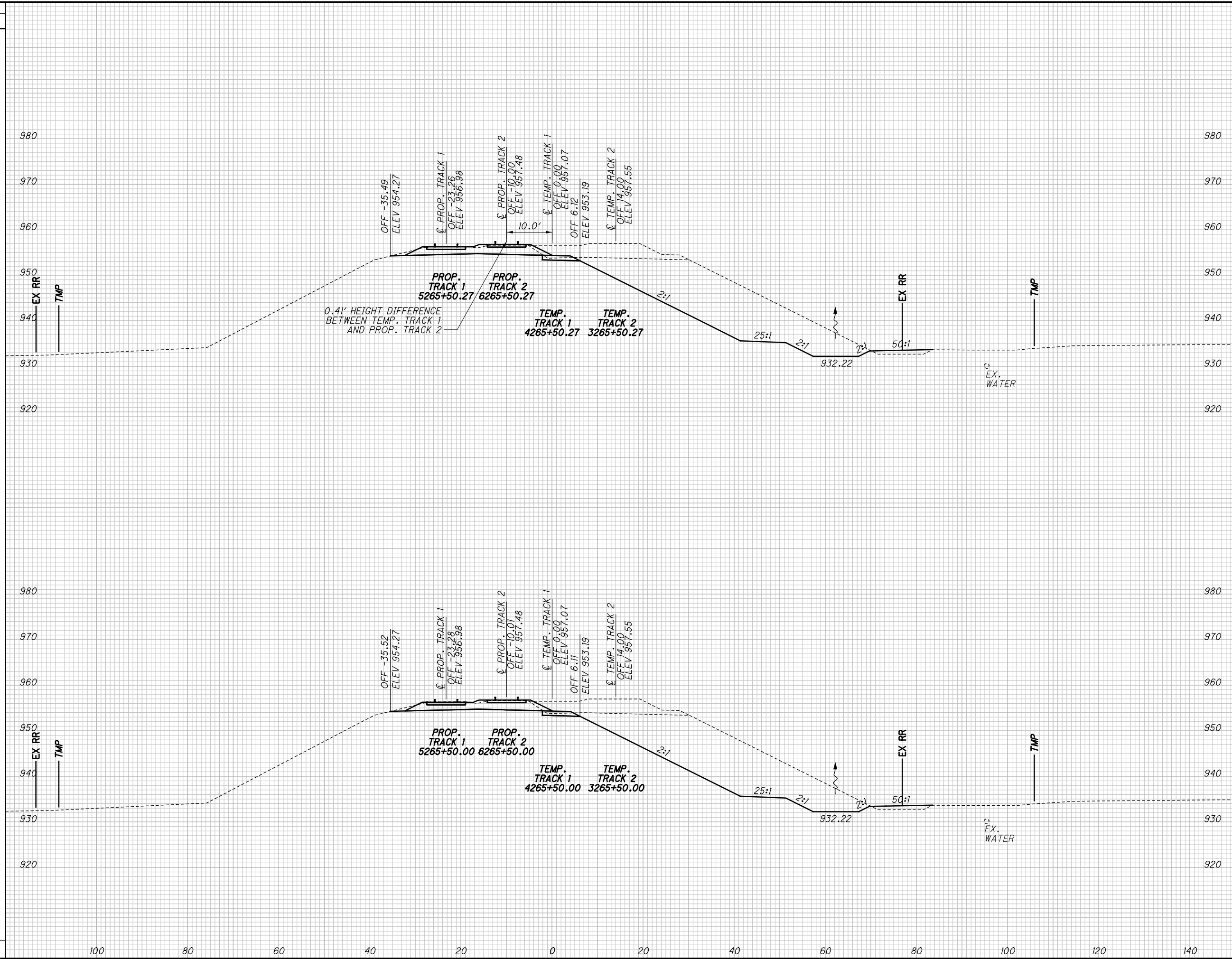
DEL-36-11.03

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      |
|----------|------|--------|------|
| CUT      | FILL | CUT    | FILL |
|          |      |        |      |

CALCULATED CDR CHECKED JLF

**CROSS SECTIONS NS RR - PHASE 2**  
**STA. 4265+50.00 TO STA. 4265+50.27**

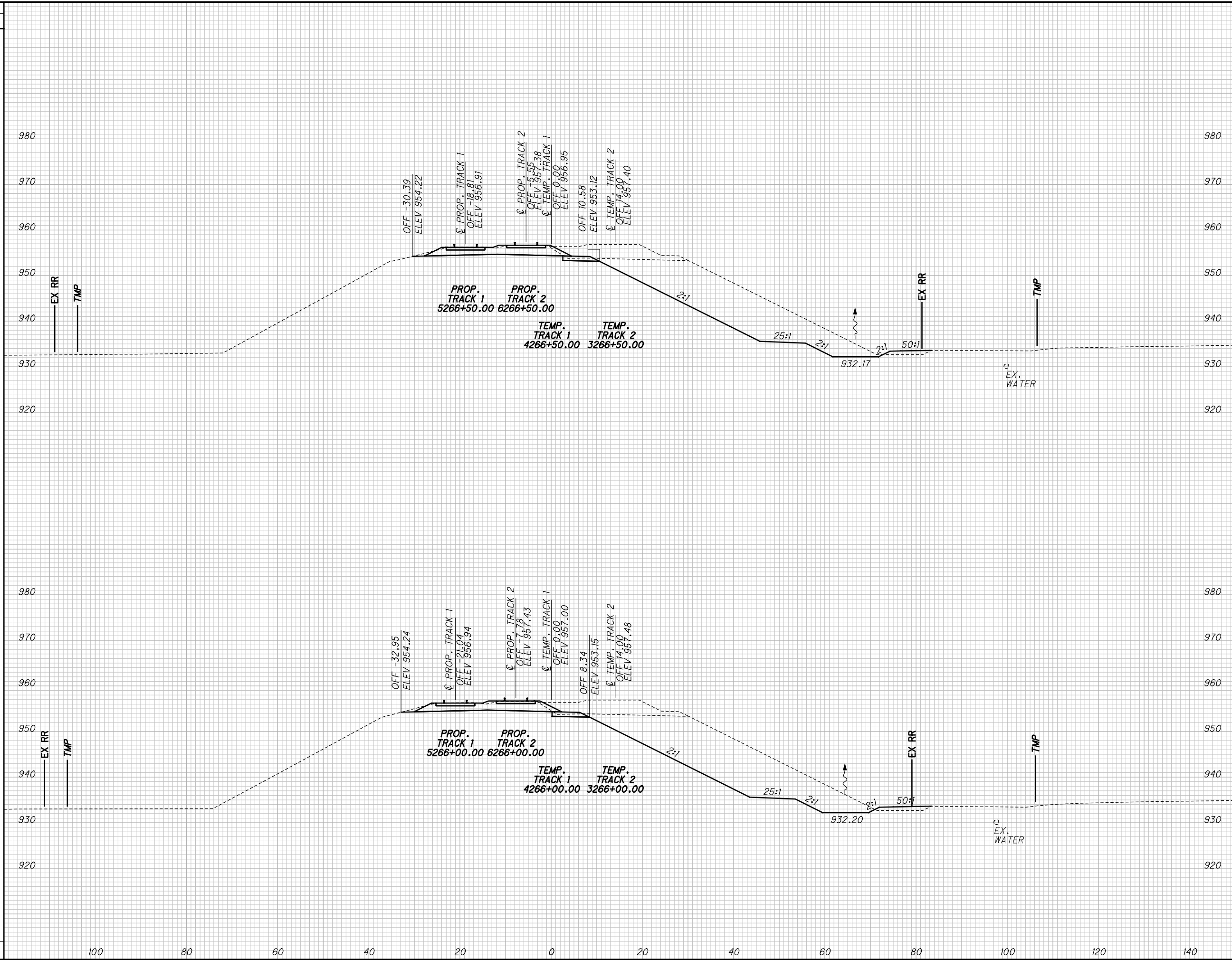
**DEL-36-11.03**

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |

CROSS SECTIONS NS RR - PHASE 2  
STA. 4266+00.00 TO STA. 4266+50.00

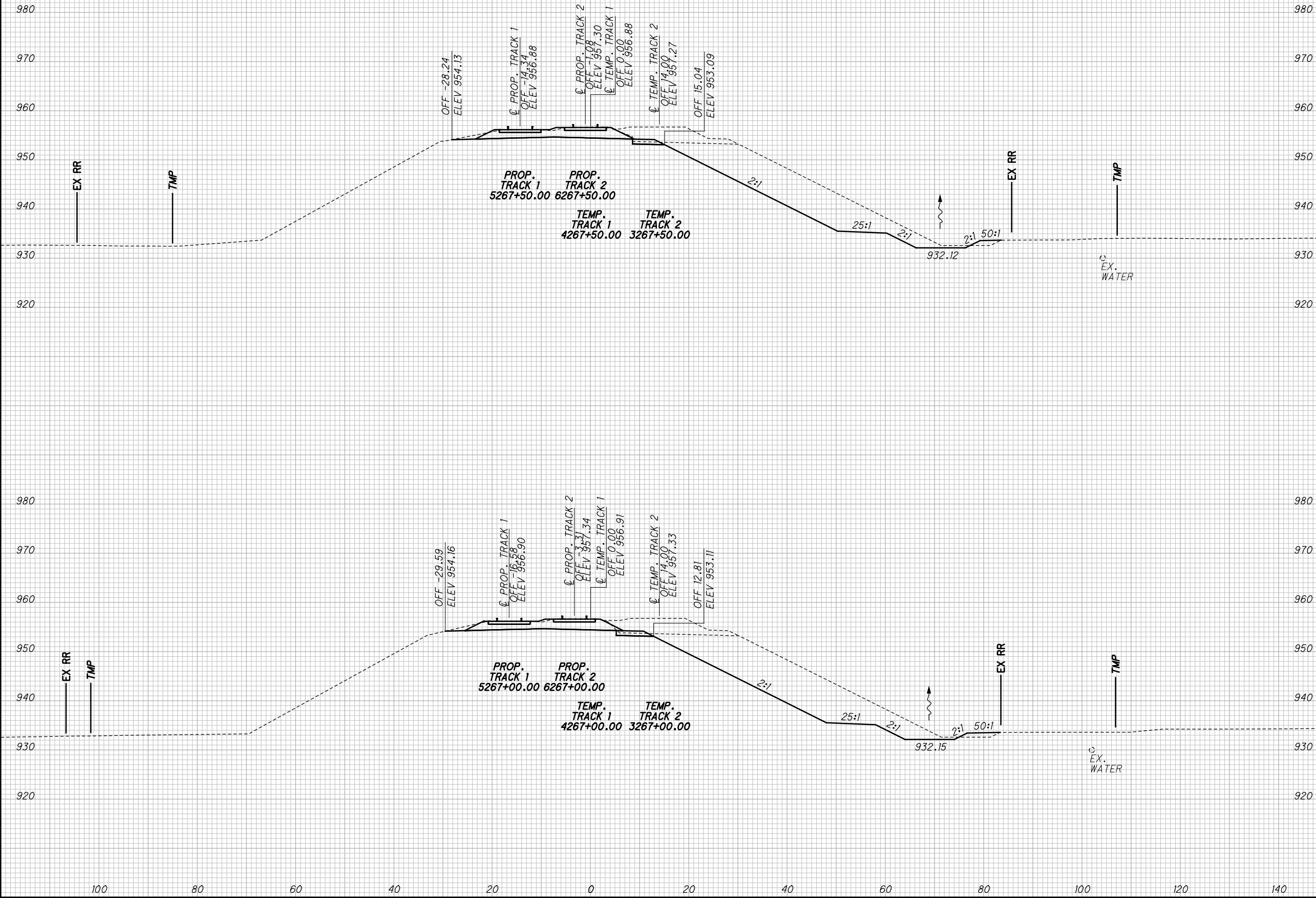
DEL-36-11.03

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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



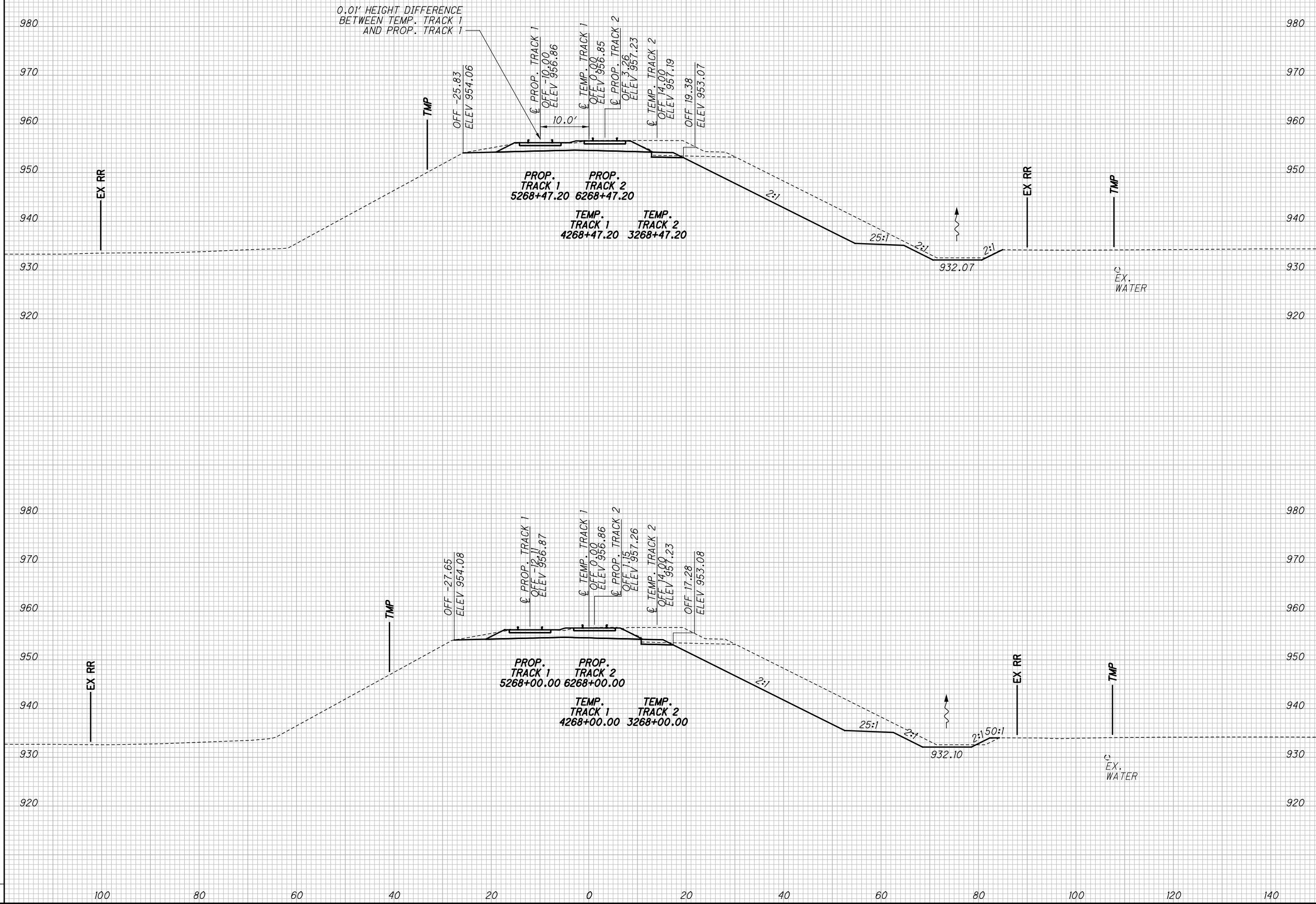
**CROSS SECTIONS NS RR - PHASE 2  
STA. 4267+00.00 TO STA. 4267+50.00**

**DEL-36-11.03**

589  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|--------|------|-------------------|----------------|
|          | CUT    | FILL |                   |                |
|          |        |      |                   |                |

**DEL -36 -11.03**

**CROSS SECTIONS NS RR - PHASE 2  
STA. 4268+00.00 TO STA. 4268+47.20**

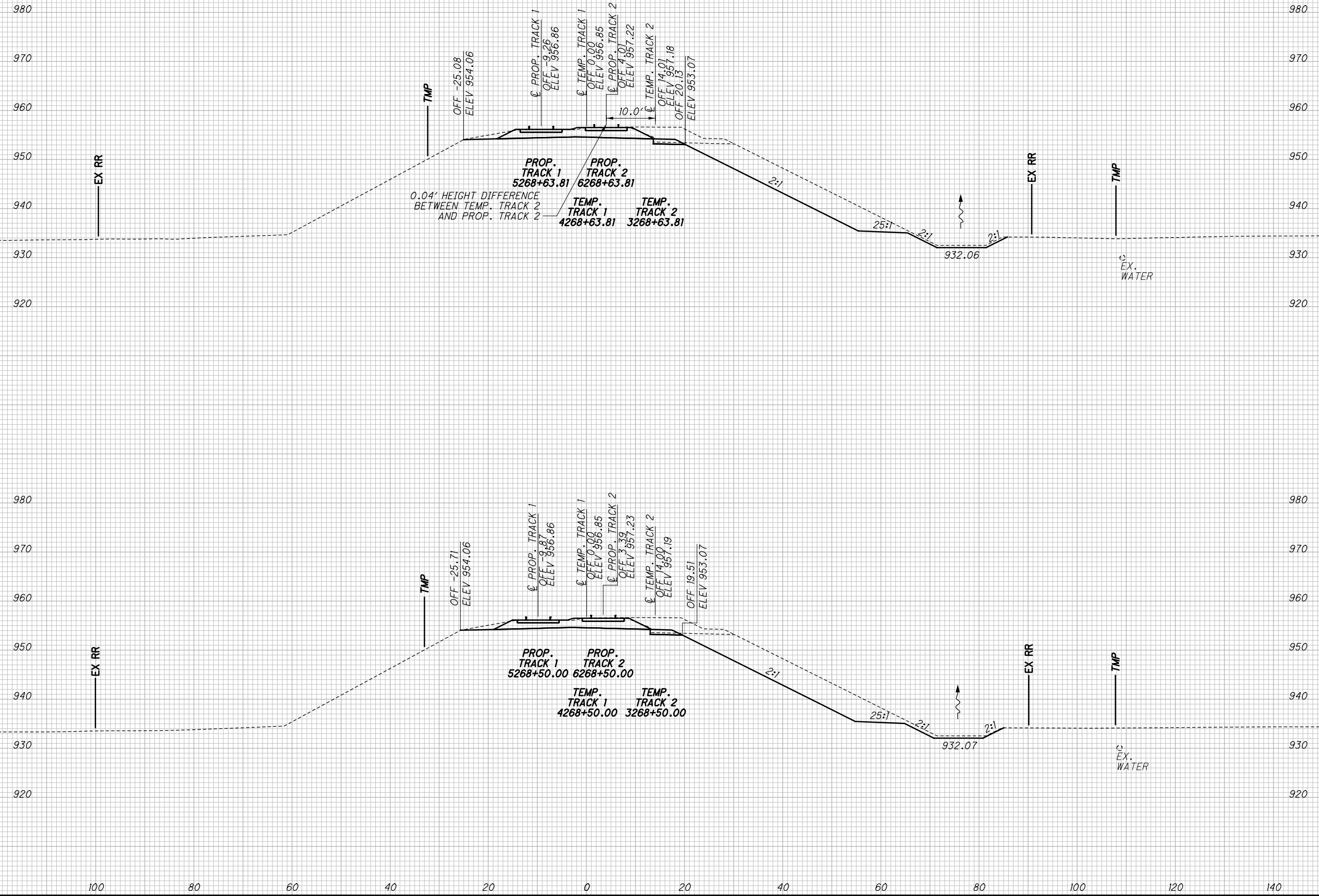
590  
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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



**CROSS SECTIONS NS RR - PHASE 2  
STA. 4268+50.00 TO STA. 4268+63.81**

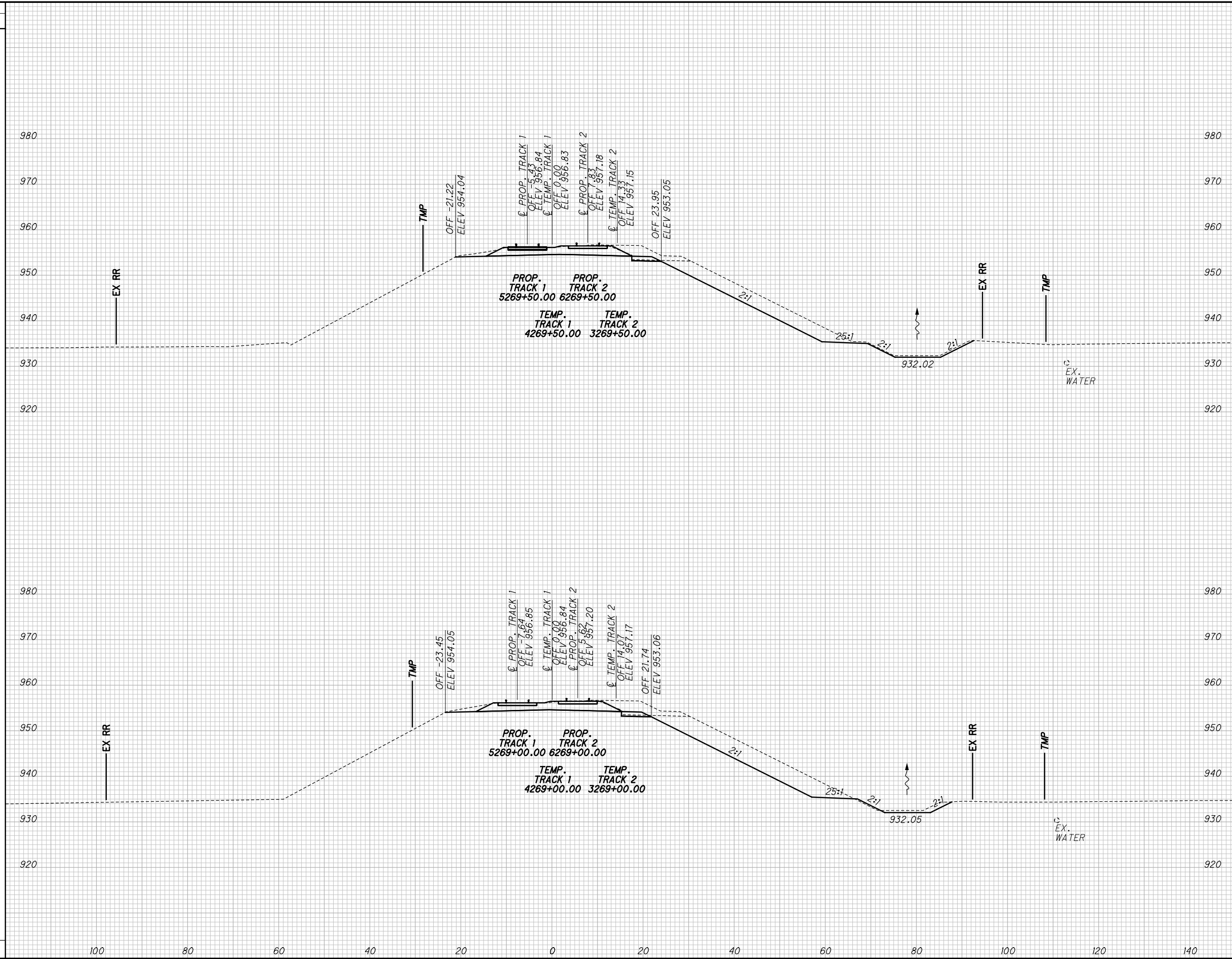
**DEL-36-11.03**

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |

CROSS SECTIONS NS RR - PHASE 2  
STA. 4269+00.00 TO STA. 4269+50.00

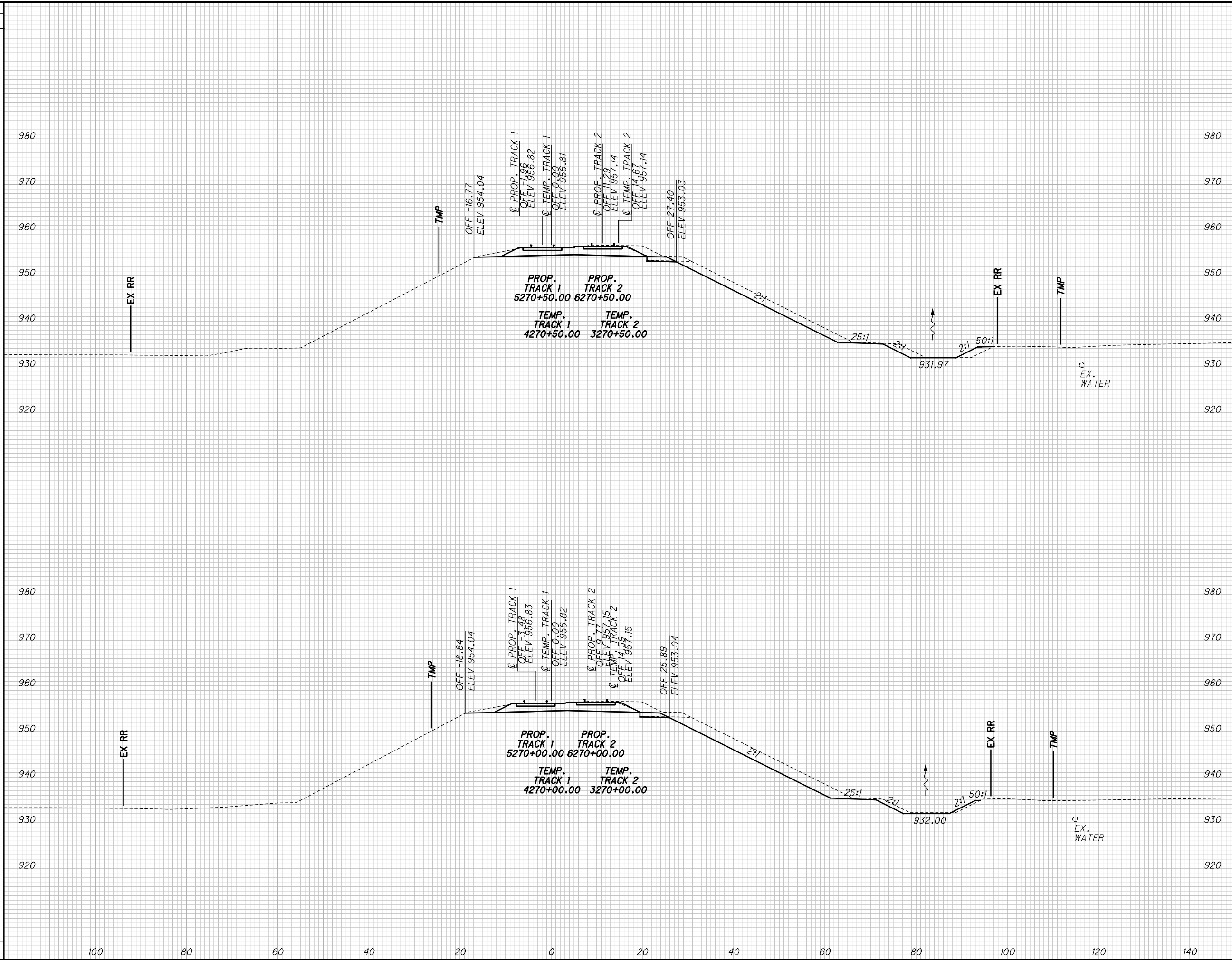
DEL-36-11.03

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |

CROSS SECTIONS NS RR - PHASE 2  
STA. 4270+00.00 TO STA. 4270+50.00

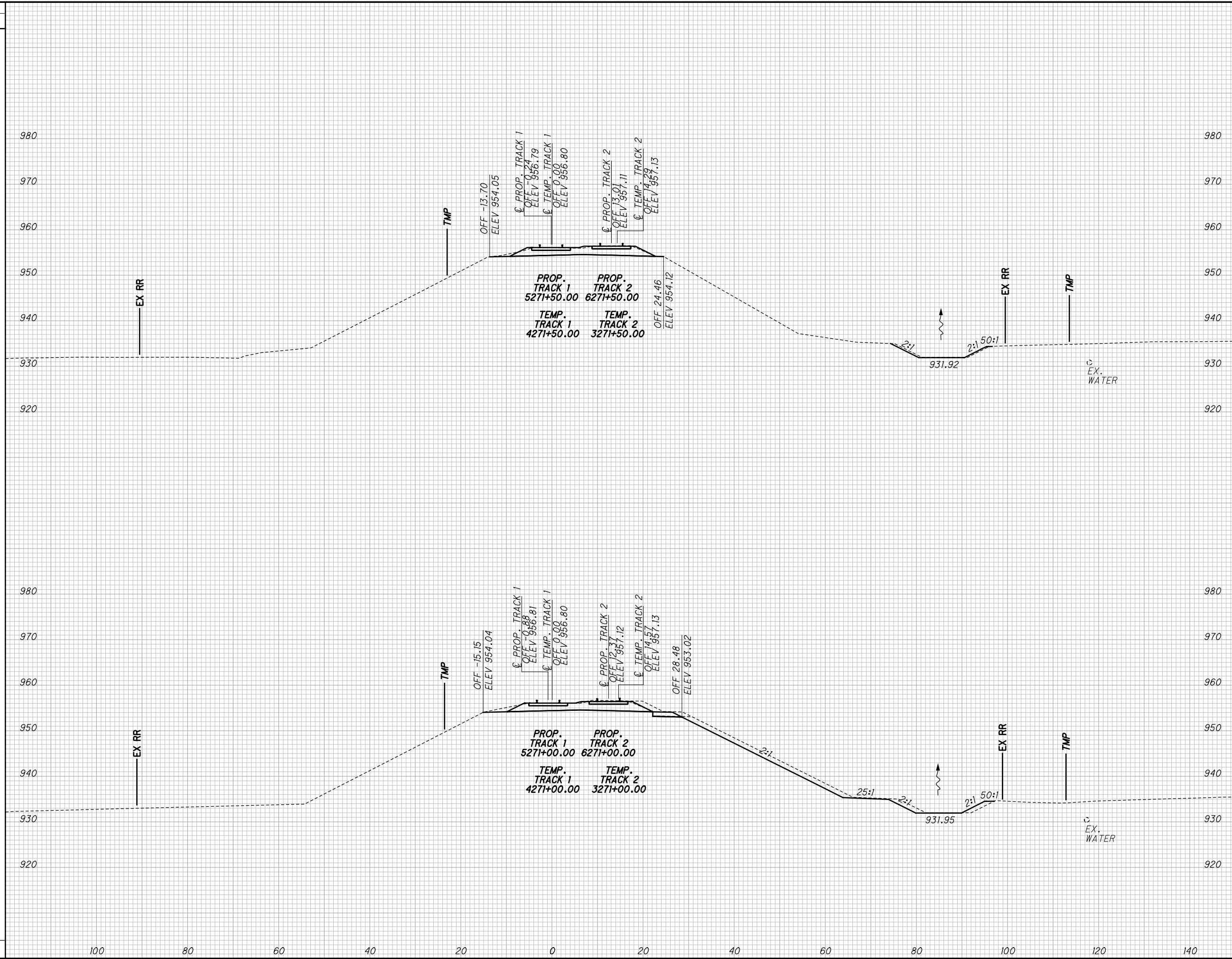
DEL-36-11.03

593  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |

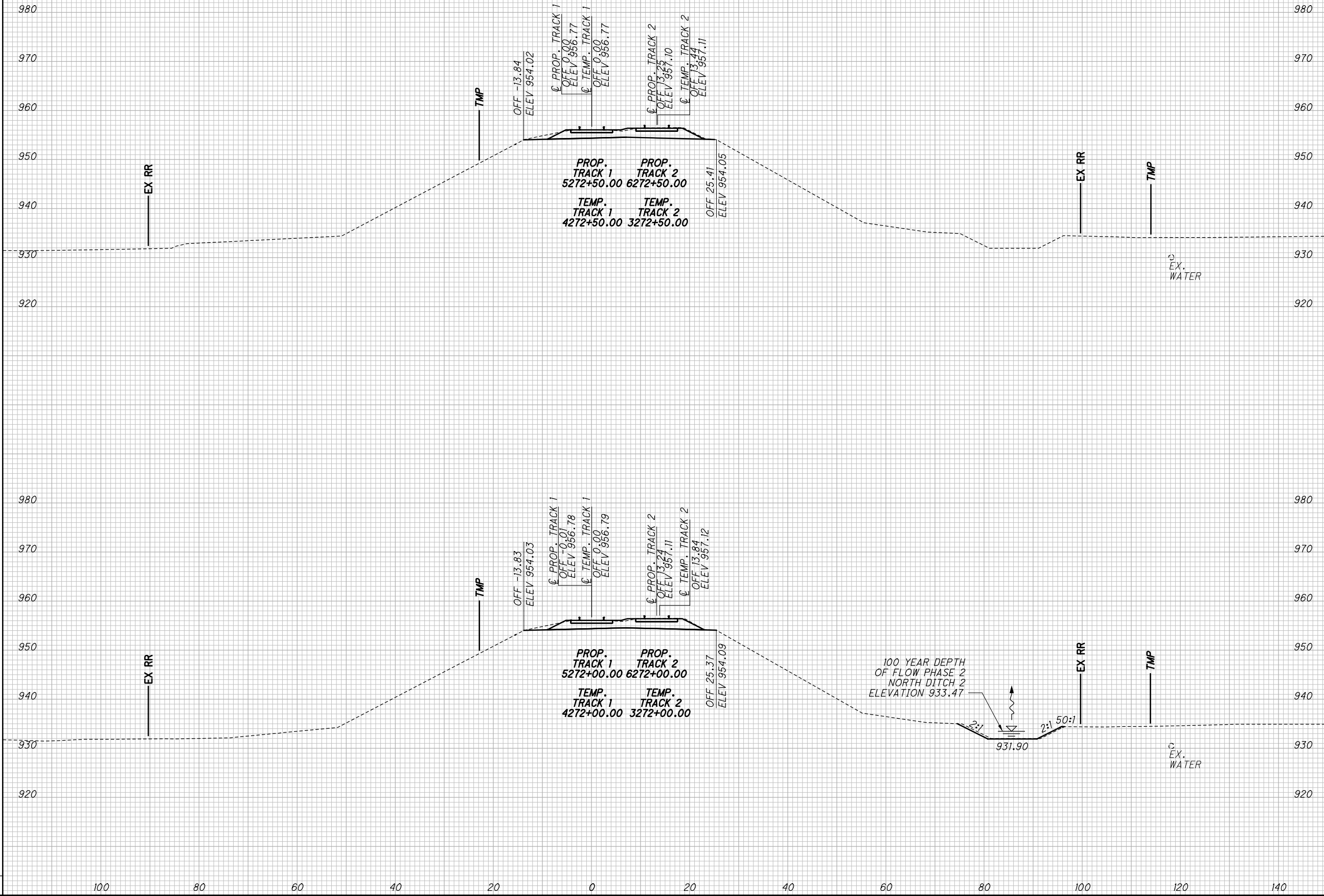
**DEL-36-11.03**

**CROSS SECTIONS NS RR - PHASE 2**  
**STA. 4271+00.00 TO STA. 4271+50.00**

594  
644

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SEEDING  
END SO.  
WIDTH YDS.



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

**CROSS SECTIONS NS RR - PHASE 2  
STA. 4272+00.00 TO STA. 4272+50.00**

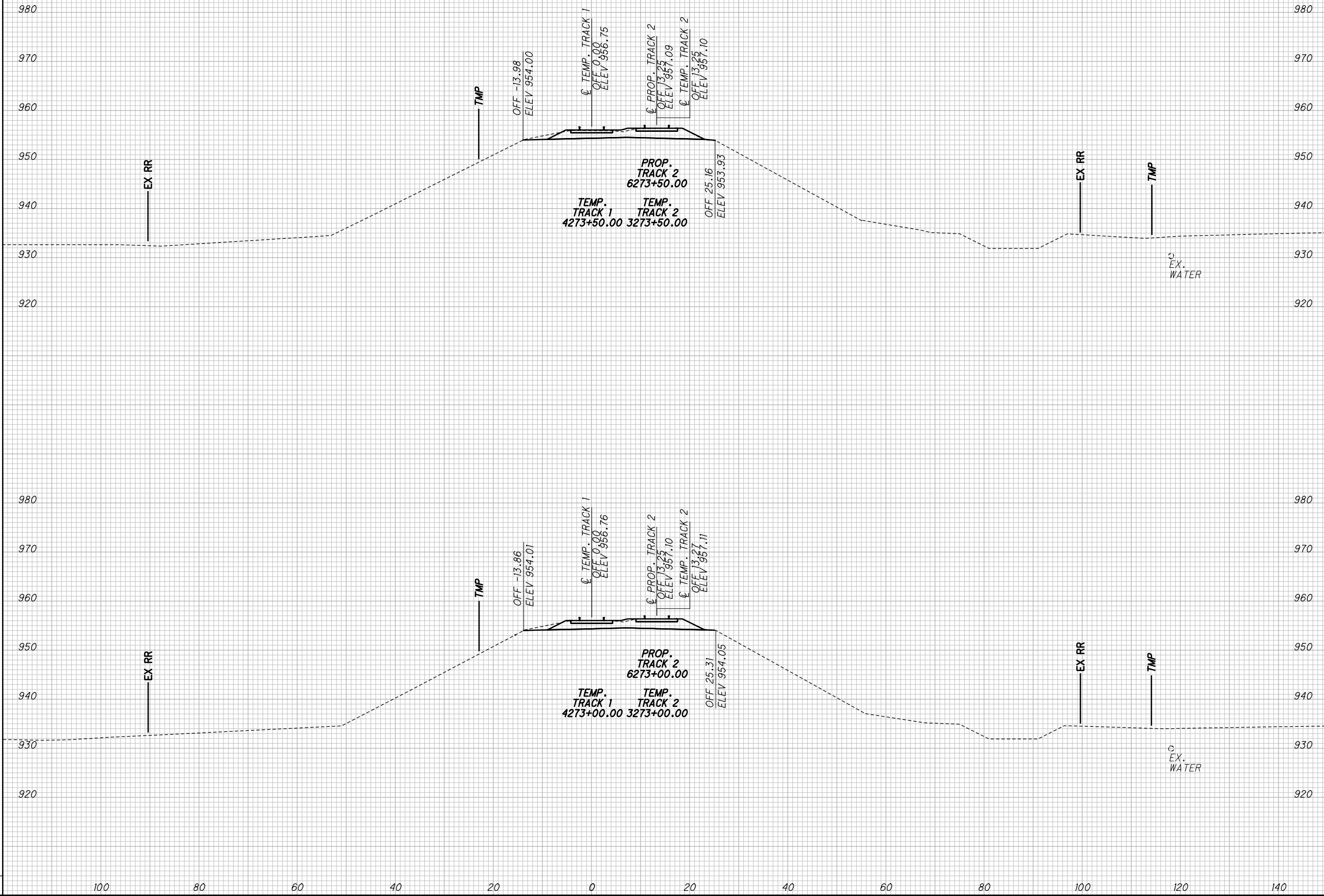
**DEL-36-11.03**

595  
644

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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



**CROSS SECTIONS NS RR - PHASE 2  
STA. 4273+00.00 TO STA. 4273+50.00**

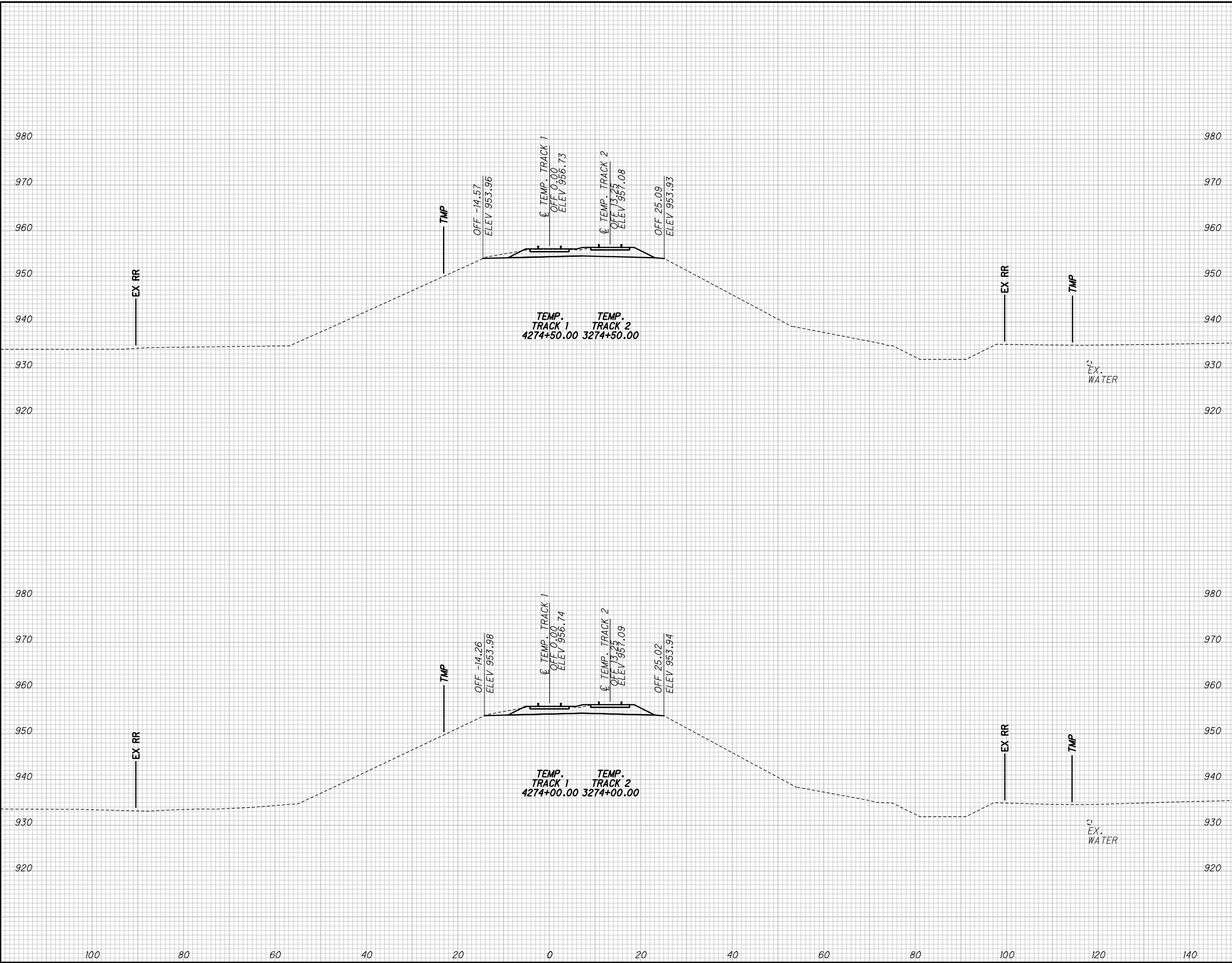
**DEL-36-11.03**

596  
644

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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |

**DEL -36 -11.03**

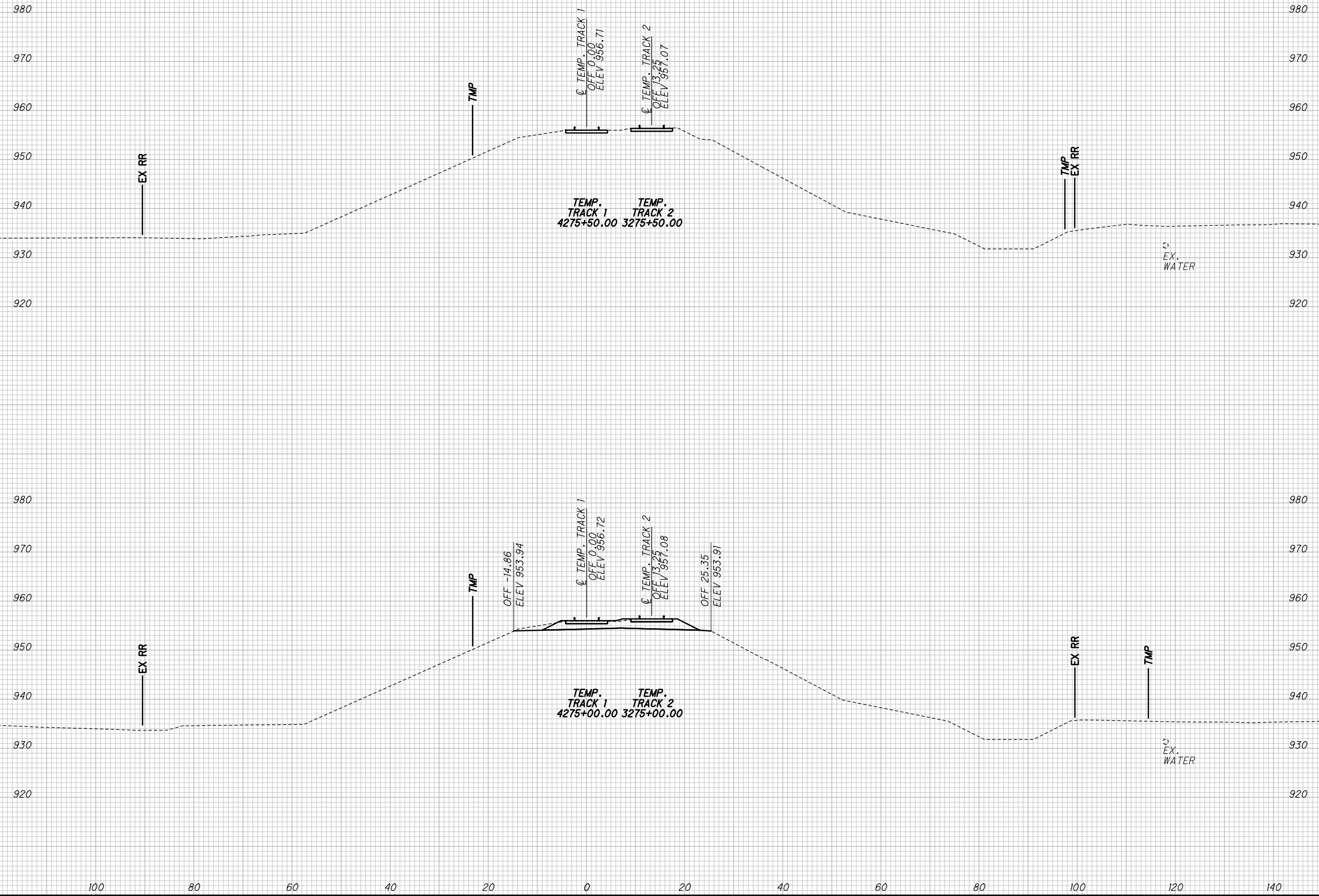
**CROSS SECTIONS NS RR - PHASE 2**  
**STA. 4274+00.00 TO STA. 4274+50.00**

597  
644

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SEEDING  
END SO.  
WIDTH YDS.

| END AREA |      | VOLUME |      | CALCULATED |     |
|----------|------|--------|------|------------|-----|
| CUT      | FILL | CUT    | FILL | CDR        | JLF |
|          |      |        |      |            |     |



**CROSS SECTIONS NS RR - PHASE 2  
STA. 4275+00.00 TO STA. 4275+50.00**

**DEL-36-11.03**

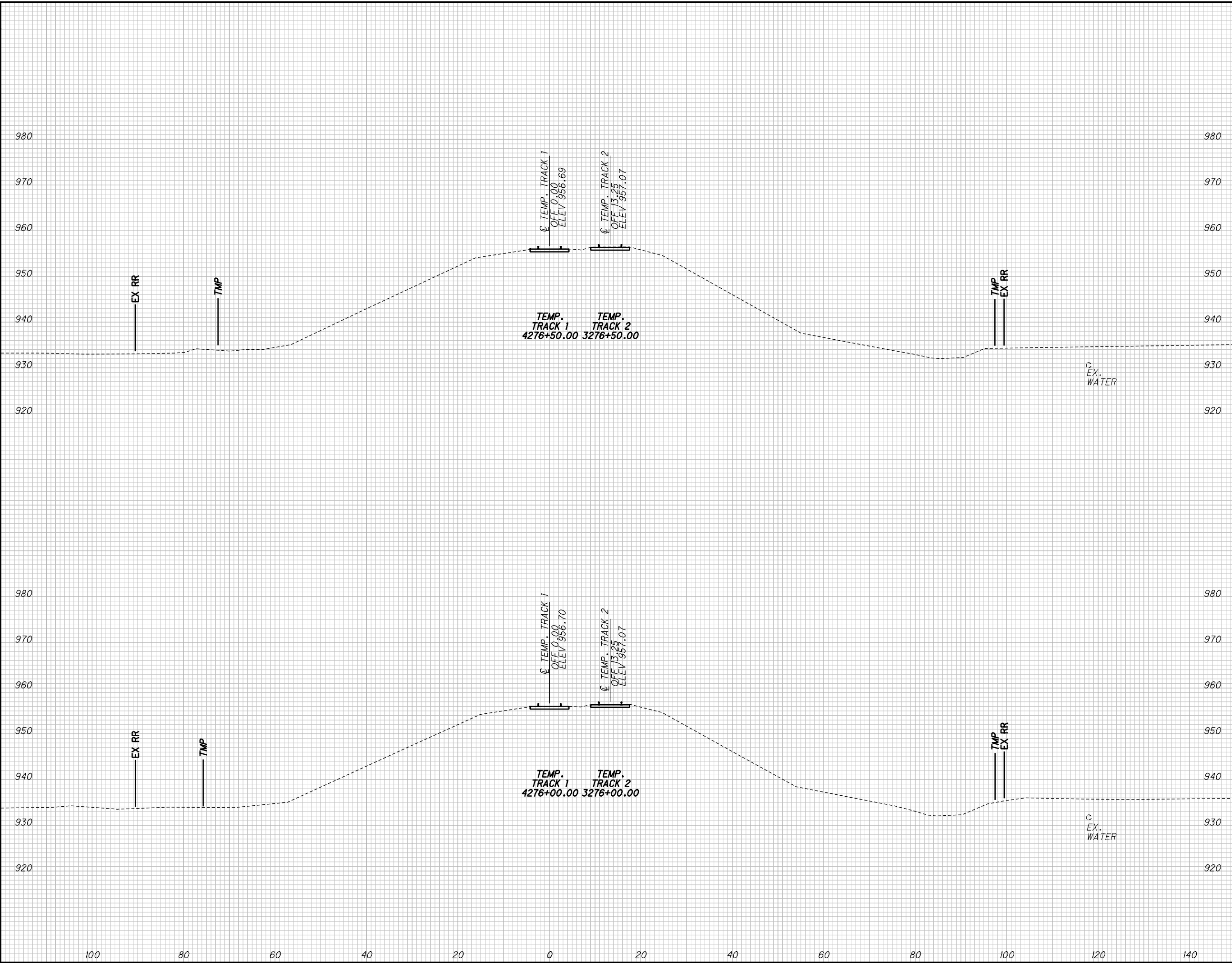
598  
644



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SEEDING

| END WIDTH | SO. YDS. |
|-----------|----------|
|           |          |



| END AREA |      | VOLUME |      | CALCULATED<br>CDR | CHECKED<br>JLF |
|----------|------|--------|------|-------------------|----------------|
| CUT      | FILL | CUT    | FILL |                   |                |
|          |      |        |      |                   |                |

CROSS SECTIONS NS RR - PHASE 2  
STA. 4276+00.00 TO STA. 4276+50.00

DEL-36-11.03

599  
644



**PROJECT DESCRIPTION**  
 REPLACEMENT OF THE NORFOLK SOUTHERN RAILROAD BRIDGE OVER U.S. 36/S.R. 37. ROADWAY, INTERSECTION, SIDEWALK, SIGNAL, SHARED USE PATH, LIGHTING, AND DRAINAGE IMPROVEMENTS TO U.S. 36/S.R. 37, EAST WILLIAM ST, CENTRAL AVE, BOWTOWN RD, AND EAST POINT CROSSING.

**PLANS PREPARED BY:**  
 FIRM NAME : EVANS, MECHWART, HAMBLETON & TILTON, INC.  
 R/W DESIGNER: BRIAN McCUTCHEM  
 R/W REVIEWER: JOSHUA M. MEYER, P.S. 8485  
 FIELD REVIEWER: STEVEN GEIGER, BRIAN McCUTCHEM, BRANDON KING  
 PRELIMINARY FIELD REVIEW DATE: 2/6/2020  
 TRACINGS FIELD REVIEW DATE: 11/10/2020  
 OWNERSHIP UPDATED BY: BRANDON KING  
 DATE COMPLETED: 11/6/2020  
 PLAN COMPLETION DATE: 11/11/2020

**TYPES OF TITLE LEGEND**  
 WD = WARRANTY DEED  
 SH = STANDARD HIGHWAY EASEMENT  
 T = TEMPORARY EASEMENT  
 V = ACQUIRED IN THE NAME OF THE CITY OF DELAWARE  
 E = EXCESS LAND

# RIGHT OF WAY LEGEND SHEET DEL-36-11.03

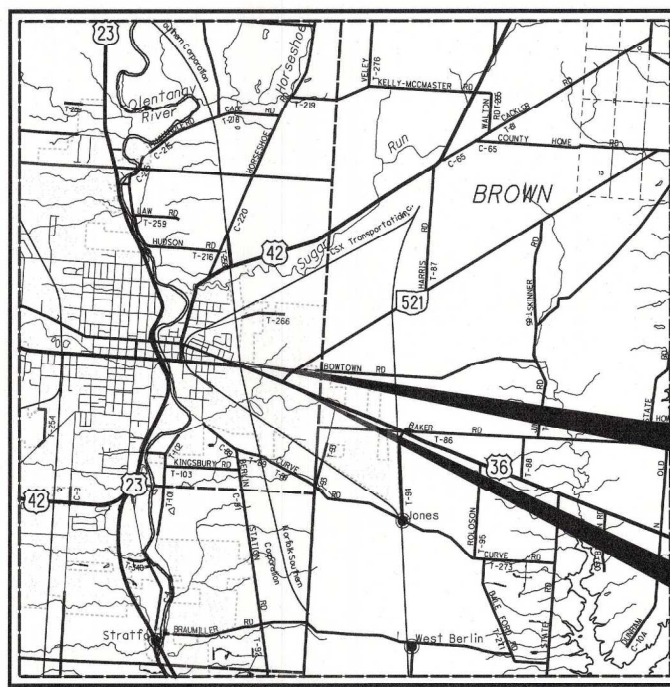
DELAWARE COUNTY  
 DELAWARE TOWNSHIP  
 CITY OF DELAWARE  
 QTR. TWP. 4, T. 5 N., R. 19 W.  
 FARM LOTS 11, 12, 15, 16 & 28  
 UNITED STATES MILITARY DISTRICT

**CONVENTIONAL SYMBOLS**

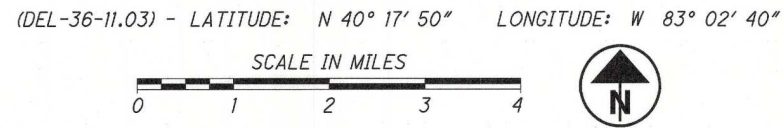
|                            |                |                         |           |
|----------------------------|----------------|-------------------------|-----------|
| County Line                | -----          | Edge of Shoulder (Ex)   | -----     |
| Township Line              | -----          | Edge of Shoulder (Pr)   | -----     |
| Section Line               | -----          | Ditch / Creek (Ex)      | -----     |
| Corporation Line           | ----- or ----- | Ditch / Creek (Pr)      | -----     |
| Fence Line (Ex)            | -----          | Tree Line (Ex)          | -----     |
| Center Line                | -----          | Ownership Hook Symbol Z | Example Z |
| Railroad Right of Way (Ex) | ----- Ex RR    | Property Line Symbol P  | Example P |
| Railroad Right of Way (Pr) | ----- RR       | Break Line Symbol       | Example   |
| Right of Way (Ex)          | ----- Ex R/W   | Tree (Pr)               | Tree (Ex) |
| Right of Way (Pr)          | ----- R/W      | Shrub (Ex)              | -----     |
| Standard Highway Ease.(Ex) | ----- Ex SH    | Tree (Remove)           | -----     |
| Standard Highway Ease.(Pr) | ----- SH       | Shrub (Remove)          | -----     |
| Temporary Right of Way     | ----- TMP      | Evergreen (Ex)          | -----     |
| Channel Ease. (Pr)         | ----- CH       | Evergreen (Remove)      | -----     |
| Utility Ease. (Ex)         | ----- Ex U     | Stump                   | -----     |
| Railroad                   | -----          | Stump (Removed)         | -----     |
| Guardrail (Ex)             | ----- (Pr)     | Wetland (Pr)            | -----     |
| Construction Limits        | -----          | Grass (Pr)              | -----     |
| Edge of Pavement (Ex)      | -----          | Aerial Target           | -----     |
| Edge of Pavement (Pr)      | -----          | Post (Ex)               | -----     |

**STRUCTURE KEY**

- RESIDENTIAL
- COMMERCIAL
- OUT-BUILDING



DEL-36-11.03  
 BEGIN ACQUISITION  
 WILLIAM ST. (U.S. 36) - STA. 585+44.80  
 CENTRAL AVE. (S.R. 37) - STA. 78+80.51  
 S.R. 521 - STA. 1+66.08  
  
 DEL-36-11.03  
 END ACQUISITION  
 S.R. 36/37 - STA. 621+05.13  
 S.R. 521 - STA. 8+72.57



**INDEX OF SHEETS:**

|                            |         |
|----------------------------|---------|
| RIGHT OF WAY LEGEND        | 1       |
| CENTERLINE PLAT            | 2 - 5   |
| PROPERTY MAP               | 6 - 7   |
| SUMMARY OF ADDITIONAL R/W  | 8 - 10  |
| R/W TOPO & BOUNDARY SHEETS | 11 - 34 |
| R/W DETAIL SHEET           | 35      |
| RAILROAD PLAT              | 36 - 44 |

NOTES: THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE OBTAINED FROM THE OWNER OF THE UTILITIES AS REQUIRED BY SECTION 153.64 O.R.C.

**FINAL**  
 NOVEMBER 2020

I, JOSHUA M. MEYER, P. S. have conducted a survey of the existing conditions for the Ohio Department of Transportation in 2018 and 2019. The results of that survey are contained herein. Underground utility locations are shown for informational purposes only. Though they are believed to be accurate, their location is as marked on the ground by the utility company per OUPS and OCPUPS Confirmation Number A806100139, A806100142, A806100143, A806100155, A806100167, A806100174, A809402788, A809402793, A809402794, A809402803, A809402806, A809402809, A809402813, B806100739 and those markings subsequently being surveyed as a part of this project. The horizontal coordinates expressed herein are ground coordinates and are based on the Ohio State Plane Coordinates System NORTH Zone on NAD 83 (2011) datum. The Project Coordinates (US Survey Feet) are relative to State Plane Grid Coordinates (US Survey Feet) by a Project Adjustment Factor of 1.0000100201 (Grid to Ground). As a part of this project I have reestablished the locations of the existing property lines and the existing centerline of Right of Way for property takes contained herein. As a part of this project I have established the proposed property lines, calculated the Gross Take, present roadway occupied (PRO), Net Take and Net Residue; as well as prepared the legal descriptions necessary to acquire the parcels as shown herein. As a part of this work I have set right of way monuments at the property corners, property line intersection, points along the right of way and/or angle points on the right of way, Section Corners and other points as shown herein. All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "Minimum Standards for Boundary Surveys in the State of Ohio" unless noted. The words I and my as used herein are to mean either myself or someone working under my direct supervision.

JOSHUA M. MEYER, Professional Land Surveyor 8485

Date: 7-6-2022

SURVEYORS SEAL

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>ELECTRIC</b></p> <p>AEP OHIO POWER<br/>                 700 MORRISON RD., 3rd FLOOR<br/>                 GAHANNA, OHIO 43230<br/>                 PAUL PAXTON<br/>                 (614) 883-6831<br/>                 PTPAXTON@AEP.COM<br/>                 MICHAEL POWERS (TRC)<br/>                 (614) 636-6493<br/>                 MAPOWERS@TRCCOMPANIES.COM</p> <p>CONSOLIDATED COOPERATIVE<br/>                 5255 STATE ROUTE 95<br/>                 MT. GILEAD, OHIO 43338<br/>                 TYLER THOMPSON<br/>                 (419) 949-2977<br/>                 TTHOMPSON@CONSOLIDATED.COOP</p> <p><b>GAS</b></p> <p>COLUMBIS GAS OF OHIO<br/>                 3550 JOHNNY APPLESEED CT.<br/>                 COLUMBUS, OHIO 43231<br/>                 ROB CALDWELL<br/>                 (614) 818-2104<br/>                 RCALDWELL@NISOURCE.COM</p> <p>SUBURBAN NATURAL GAS<br/>                 2626 LEWIS CENTER RD.<br/>                 LEWIS CENTER, OHIO 43035<br/>                 AARON ROLL<br/>                 (740) 548-2450<br/>                 AROLL@SNGCO.COM</p> <p><b>TELEPHONE / CABLE</b></p> <p>AT&amp;T (OHIO)<br/>                 2932 6th ST.<br/>                 IRONTON, OHIO 45638<br/>                 CHARLES JOHNSON<br/>                 (740) 532-9943<br/>                 CJ3237@ATT.COM</p> | <p><b>TELEPHONE / CABLE (CONT.)</b></p> <p>SPECTRUM<br/>                 3760 INTERCHANGE RD.<br/>                 COLUMBUS, OHIO 43204<br/>                 SAM LUTZ<br/>                 (614) 481-5047<br/>                 SAMUEL.LUTZ@CHARTER.COM</p> <p>FRONTIER COMMUNICATIONS<br/>                 1300 COLUMBUS-SANDUSKY RD.<br/>                 MARION, OHIO 43302<br/>                 CHRIS AVERY<br/>                 (740) 383-0551<br/>                 IRA.AVERY@FTR.COM</p> <p>VERIZON BUSINESS<br/>                 120 RAVINE ST.<br/>                 AKRON, OHIO 44303<br/>                 AL GUEST<br/>                 (330) 253-8267<br/>                 ALLEN.GUEST@VERIZON.COM</p> <p>WIDE OPEN WEST<br/>                 3675 CORPORATE DR.<br/>                 COLUMBUS, OHIO 43231<br/>                 STEVEN CALLAHAN<br/>                 (614) 948-4636<br/>                 STEVEN.CALLAHAN@WOWINC.COM<br/>                 KANN KHAY (TEAM FISHEL)<br/>                 (614) 291-8515</p> <p>EVERSTREAM<br/>                 240 N. 5TH ST., SUITE 168<br/>                 COLUMBUS, OHIO 43215<br/>                 MATT HILL<br/>                 (412) 860-5223<br/>                 MHILL@EVERSTREAM.NET</p> | <p><b>WATER</b></p> <p>CITY OF DELAWARE<br/>                 DEPARTMENT OF PUBLIC UTILITIES<br/>                 WATER TREATMENT FACILITY<br/>                 3080 U.S. 23 NORTH<br/>                 DELAWARE, OHIO 43015<br/>                 (740) 203-1900</p> <p><b>SEWER</b></p> <p>CITY OF DELAWARE<br/>                 DEPARTMENT OF PUBLIC UTILITIES<br/>                 WASTEWATER TREATMENT FACILITY<br/>                 225 N. CHERRY ST.<br/>                 DELAWARE, OHIO 43015<br/>                 (740) 203-1950</p> <p><b>TRAFFIC</b></p> <p>CITY OF DELAWARE (TRAFFIC)<br/>                 440 E. WILLIAM ST.<br/>                 DELAWARE, OHIO 43015<br/>                 NATHAN McCOY<br/>                 (740) 203-1731</p> |
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**BASIS FOR BEARINGS:**

THE BEARINGS SHOWN HEREON ARE BASED ON THE OHIO STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NAD83 (2011). THE PORTION OF THE CENTERLINE OF U.S. ROUTE 36 (E. WILLIAM ST.) HAVING A BEARING OF S 85° 46' 57" E IS DESIGNATED THE BASIS OF BEARING FOR THIS SURVEY AS SHOWN ON RIGHT OF WAY PLAN DEL-36-10.59 ON FILE WITH THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 6, DELAWARE OHIO.

**BASIS OF EXISTING C/L OF RIGHT OF WAY AND RIGHT OF WAY WIDTH**

THE EXISTING CENTERLINE OF RIGHT OF WAY AND RIGHT OF WAY WIDTH WERE DETERMINED USING FOUND MONUMENTATION AND OHIO DEPARTMENT OF TRANSPORTATION RIGHT OF WAY PLANS KNOWN AS, DEL-36-10.59, DEL-36-(11.32-13.14), DEL-521-1.60 ON FILE WITH THE OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 6 OFFICE, DELAWARE OHIO, AND THE RECORDS OF DELAWARE COUNTY, INCLUDING THE SUBDIVISION PLATS KNOWN AS:

- P.B. 2, P. 121 - A.L. PARKERS ADDITION TO THE TOWN OF DELAWARE
- P.B. 2, P. 182 - A.L. PARKERS ADDITION
- P.B. 2, P. 188 - GEORGE E. LITTLE'S ADDITION
- P.B. 2, P. 220 - RESUBDIVISION OF GEORGE W. LITTLE'S ADDITION
- P.B. 3, P. 40 - EMERSON'S ADDITION
- P.B. 7, P. 9 - CHRISTIAN SUBDIVISION
- P.B. 7, P. 15 - KELLY SUBDIVISION
- P.B. 7, P. 187 - 36/37 & 521 CENTERLINE PLAT
- P.B. 10, P. 68 - BUSSART SUBDIVISION
- P.B. 20, P. 63 - MAHONEY-McNAMARA SUBDIVISION
- P.C. 1, S. 644 - KENSINGTON PLACE SECTION 1
- P.C. 4, S. 2 - GLENNWOOD COMMONS
- P.C. 4, S. 15 - EAST POINT CROSSING
- P.C. 4, S. 53 - GLENNWOOD COMMONS PHASE 2

**EX. C R/W CURVE DATA RAILROAD**

CURVE DATA XRR-1  
 P.I. Sta. 1254+59.83  
 $\Delta = 6^\circ 41' 08" (RT)$   
 $Dc = 0^\circ 30' 00"$   
 $R = 11,459.19'$   
 $T = 669.32'$   
 $L = 1,337.12'$   
 $E = 19.53'$   
 $C = 1,336.37'$   
 $C.B. = N 9^\circ 20' 47" W$

**MONUMENT LEGEND**

- ⊠ EXISTING C R/W MONUMENT BOX
- ⊙ EXISTING CONCRETE MONUMENT
- ⊚ RAILROAD SPIKE FOUND
- ⊙ P.K. NAIL FOUND
- ⊙ M.N.F. MAG NAIL FOUND
- ⊠ STONE FOUND
- ⊠ PROPOSED C R/W MONUMENT BOX

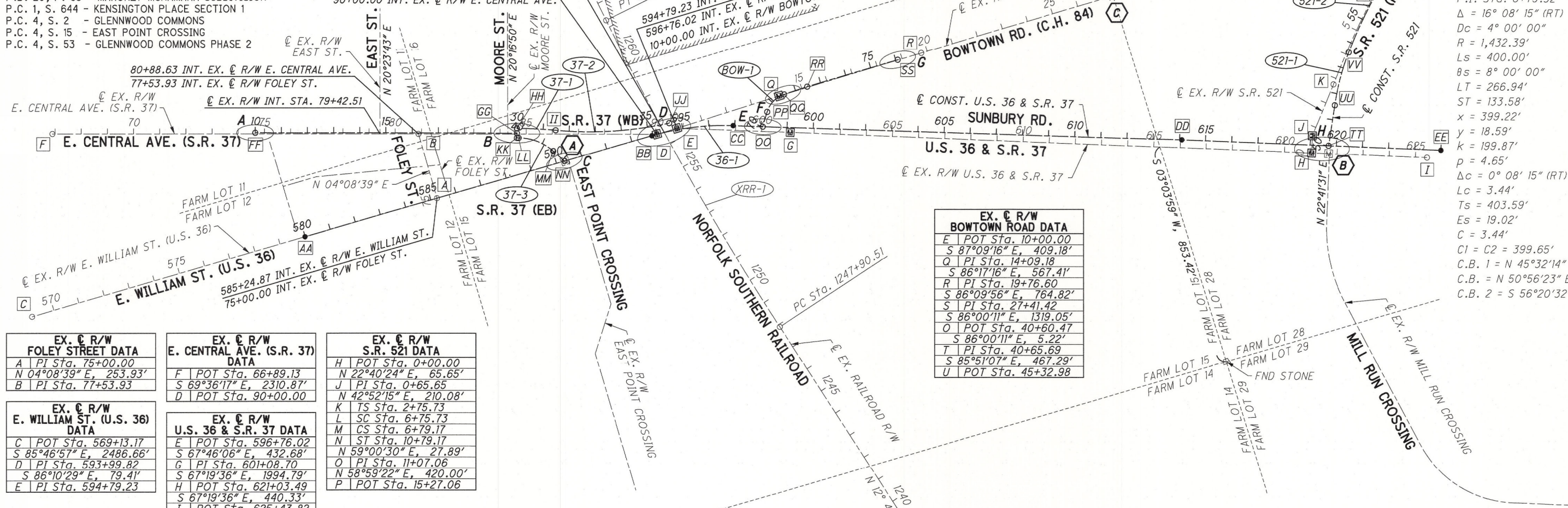
DELAWARE COUNTY  
 DELAWARE TOWNSHIP  
 CITY OF DELAWARE  
 QTR. TWP. 4, T. 5 N., R. 19 W.  
 FARM LOTS 11, 12, 15, 16 & 28  
 UNITED STATES MILITARY DISTRICT

**EX. C R/W CURVE DATA S.R. 521**

CURVE DATA X521-1  
 P.I. Sta. 6+79.32  
 $\Delta = 16^\circ 08' 15" (RT)$   
 $Dc = 4^\circ 00' 00"$   
 $R = 1,432.39'$   
 $Ls = 400.00'$   
 $Bs = 8^\circ 00' 00"$   
 $LT = 266.94'$   
 $ST = 133.58'$   
 $x = 399.22'$   
 $y = 18.59'$   
 $k = 199.87'$   
 $p = 4.65'$   
 $\Delta c = 0^\circ 08' 15" (RT)$   
 $Lc = 3.44'$   
 $Ts = 403.59'$   
 $Es = 19.02'$   
 $C = 3.44'$   
 $C1 = C2 = 399.65'$   
 $C.B. 1 = N 45^\circ 32' 14" E$   
 $C.B. = N 50^\circ 56' 23" E$   
 $C.B. 2 = S 56^\circ 20' 32" W$

**EX. C R/W BOWTOWN ROAD DATA**

|   |                       |
|---|-----------------------|
| E | POT Sta. 10+00.00     |
| S | 87°09'16" E, 409.18'  |
| Q | PI Sta. 14+09.18      |
| S | 86°17'16" E, 567.41'  |
| R | PI Sta. 19+76.60      |
| S | 86°09'56" E, 764.82'  |
| S | PI Sta. 27+41.42      |
| S | 86°00'11" E, 1319.05' |
| O | POT Sta. 40+60.47     |
| S | 86°00'11" E, 5.22'    |
| T | PI Sta. 40+65.69      |
| S | 85°51'07" E, 467.29'  |
| U | POT Sta. 45+32.98     |



**EX. C R/W FOLEY STREET DATA**

|   |                      |
|---|----------------------|
| A | PI Sta. 75+00.00     |
| N | 04°08'39" E, 253.93' |
| B | PI Sta. 77+53.93     |

**EX. C R/W E. CENTRAL AVE. (S.R. 37) DATA**

|   |                       |
|---|-----------------------|
| F | POT Sta. 66+89.13     |
| S | 69°36'17" E, 2310.87' |
| D | POT Sta. 90+00.00     |

**EX. C R/W S.R. 521 DATA**

|   |                      |
|---|----------------------|
| H | POT Sta. 0+00.00     |
| N | 22°40'24" E, 65.65'  |
| J | PI Sta. 0+65.65      |
| N | 42°52'15" E, 210.08' |
| K | TS Sta. 2+75.73      |
| L | SC Sta. 6+75.73      |
| M | CS Sta. 6+79.17      |
| N | ST Sta. 10+79.17     |
| N | 59°00'30" E, 27.89'  |
| O | PI Sta. 11+07.06     |
| N | 58°59'22" E, 420.00' |
| P | POT Sta. 15+27.06    |

**EX. C R/W E. WILLIAM ST. (U.S. 36) DATA**

|   |                       |
|---|-----------------------|
| C | POT Sta. 569+13.17    |
| S | 85°46'57" E, 2486.66' |
| D | PI Sta. 593+99.82     |
| S | 86°10'29" E, 79.41'   |
| E | PI Sta. 594+79.23     |

**EX. C R/W U.S. 36 & S.R. 37 DATA**

|   |                       |
|---|-----------------------|
| E | POT Sta. 596+76.02    |
| S | 67°46'06" E, 432.68'  |
| G | PI Sta. 601+08.70     |
| S | 67°19'36" E, 1994.79' |
| H | POT Sta. 621+03.49    |
| S | 67°19'36" E, 440.33'  |
| I | POT Sta. 625+43.82    |

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*Joshua M. Meyer*  
 JOSHUA M. MEYER, Professional Land Surveyor 8485

Date: 6-18-2021

- ⊠ - FOR FOUND MONUMENTATION TABLE SEE SHEET 3
  - ⊠-X - FOR PROP. CURVE DATA AND C DATA SEE SHEET 3
  - X - FOR CENTERLINE DETAILS SEE SHEETS 4 & 5
- FOR PROPOSED MONUMENTATION TABLES SEE SHEET 3

SURVEYORS SEAL



RECEIVED \_\_\_\_\_, 20\_\_\_\_  
 RECORDED \_\_\_\_\_, 20\_\_\_\_  
 BOOK \_\_\_\_\_ PAGE \_\_\_\_\_  
 COUNTY RECORDER

CENTERLINE PLAT (1 of 4)

DEL-36-11.03

PID NO. 103626

R/W DESIGNER BLM R/W REVIEWER JMM

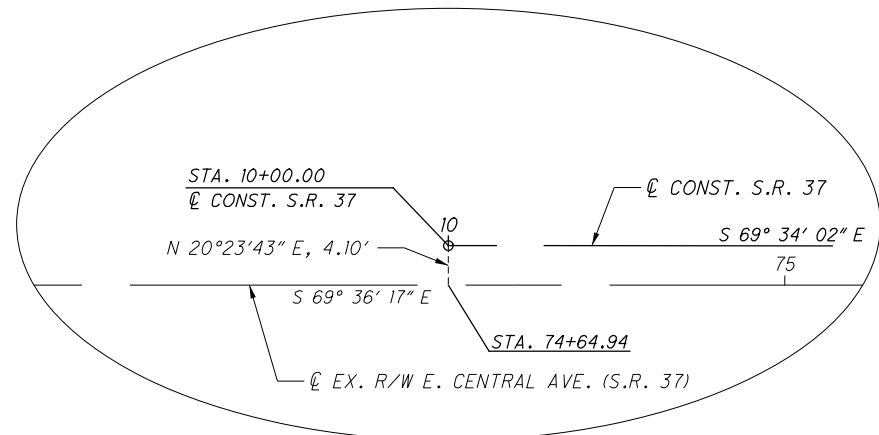
2 / 44

602 / 644

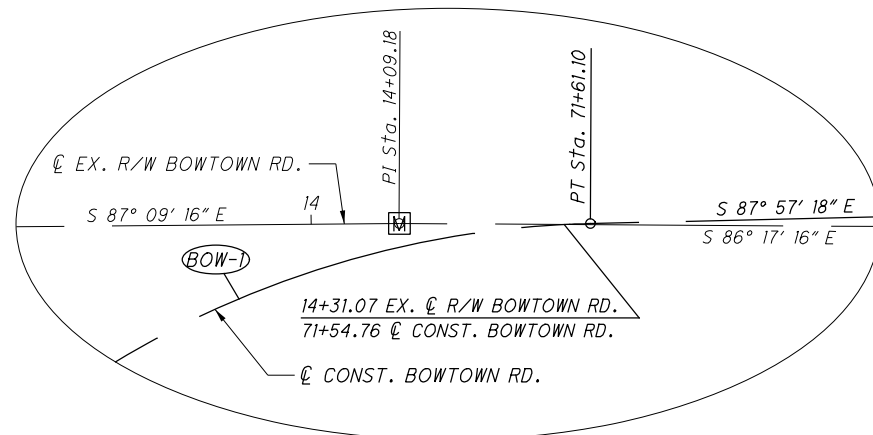
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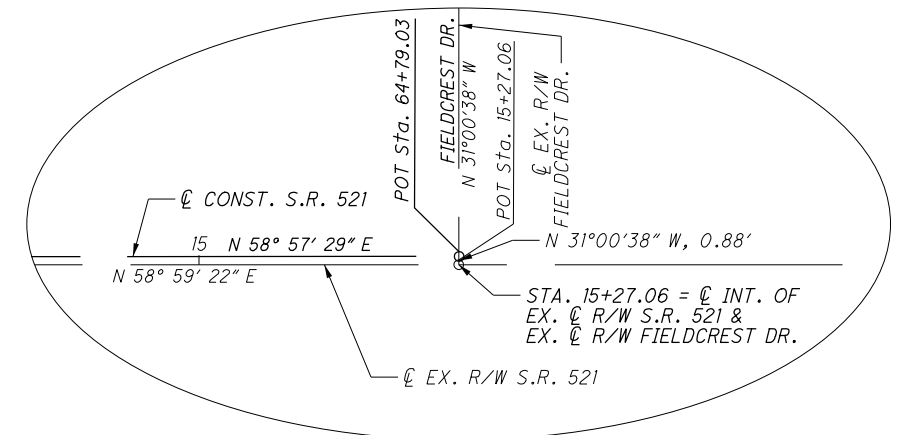
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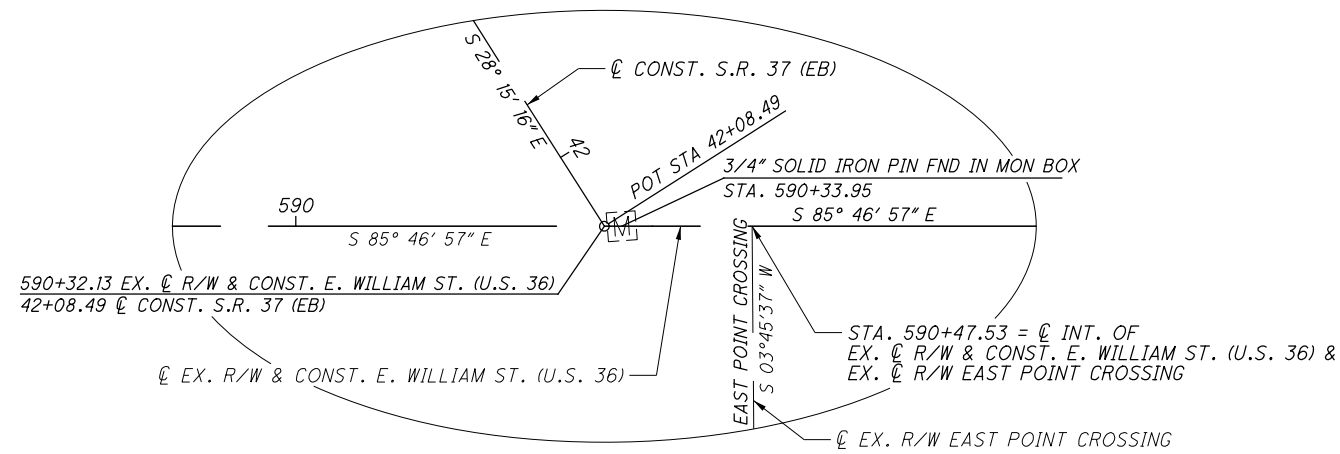
**DETAIL A**



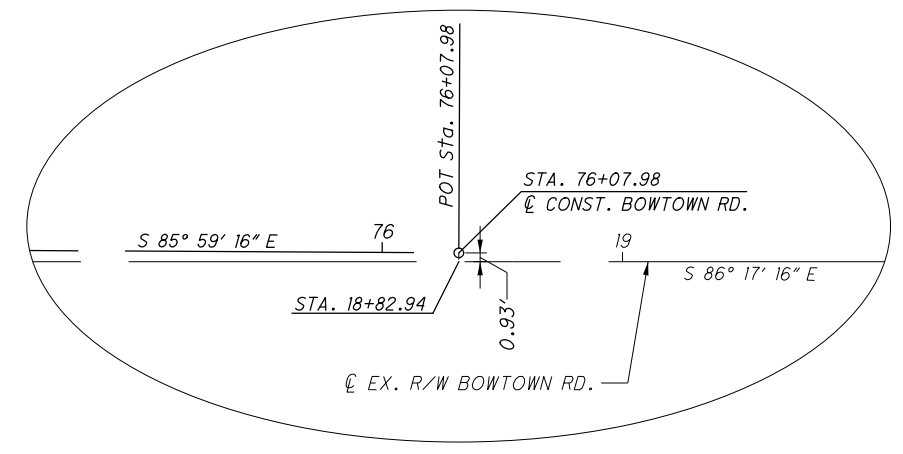
**DETAIL F**



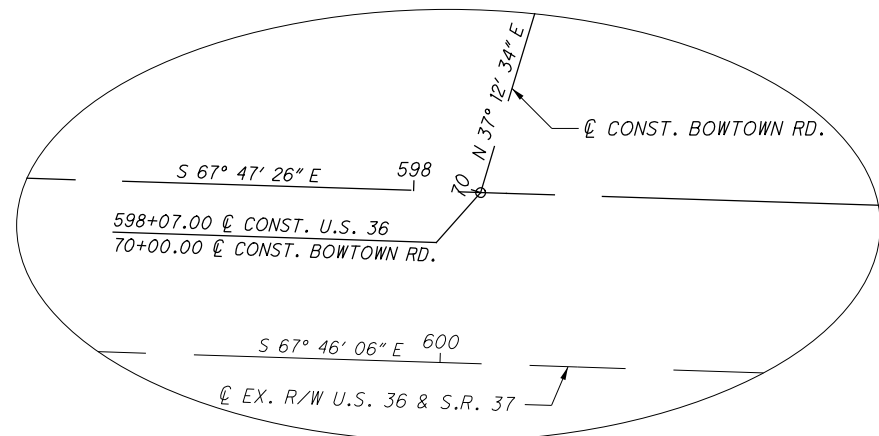
**DETAIL J**



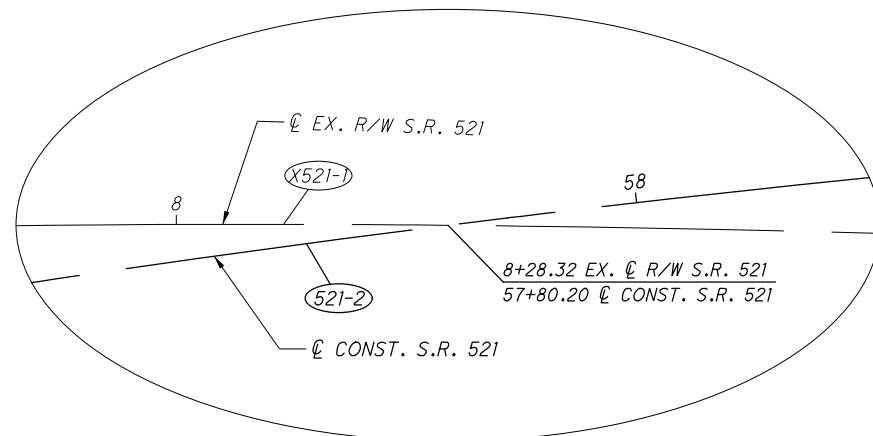
**DETAIL C**



**DETAIL G**

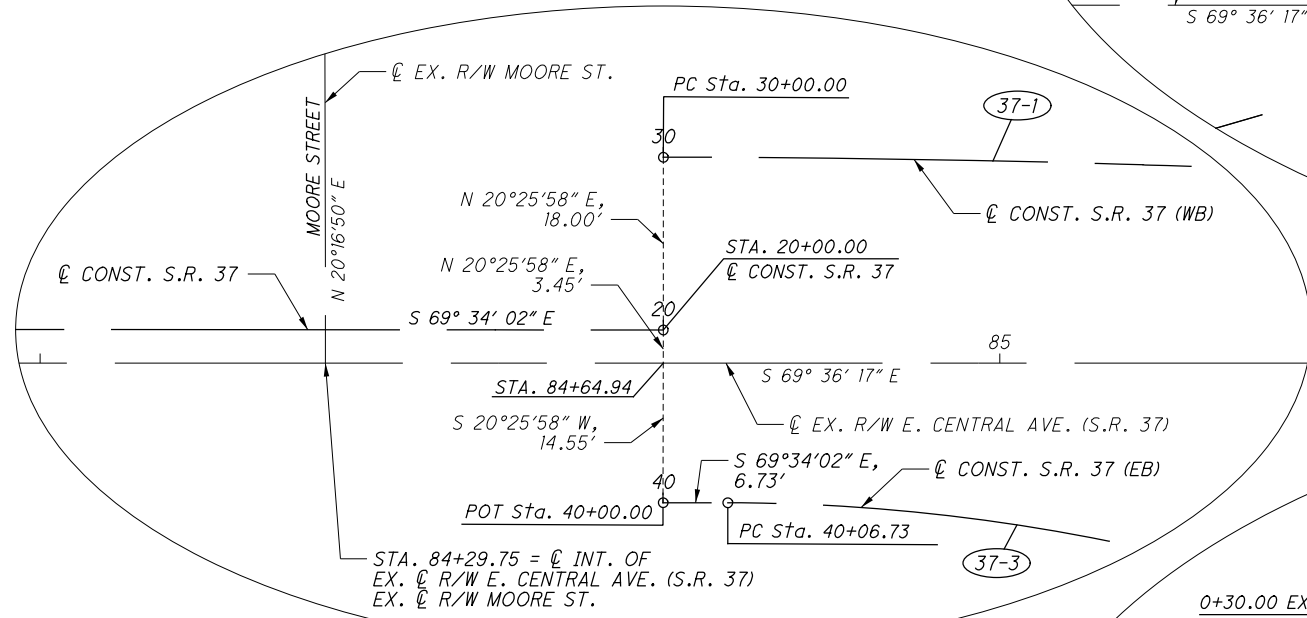


**DETAIL E**

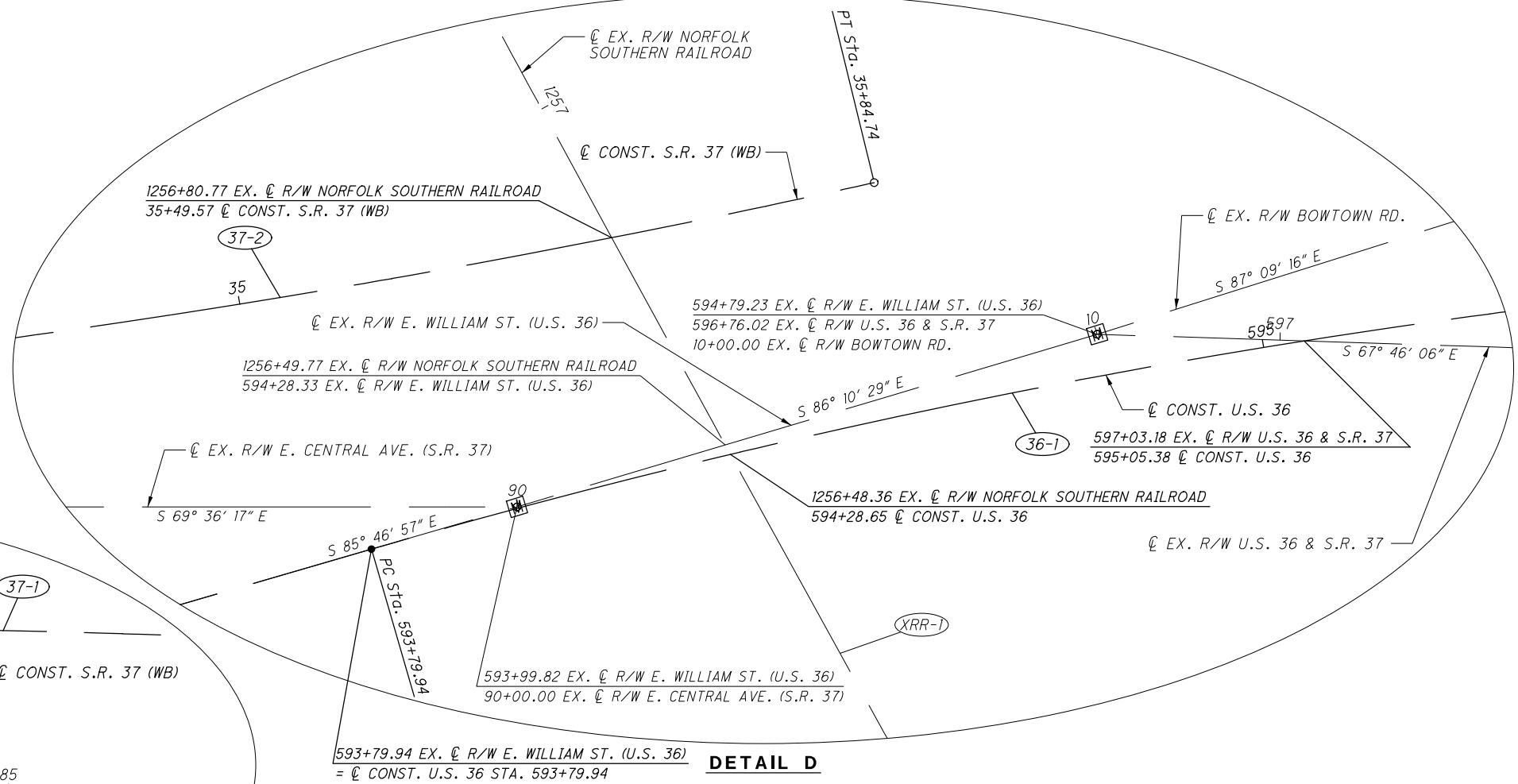


**DETAIL I**

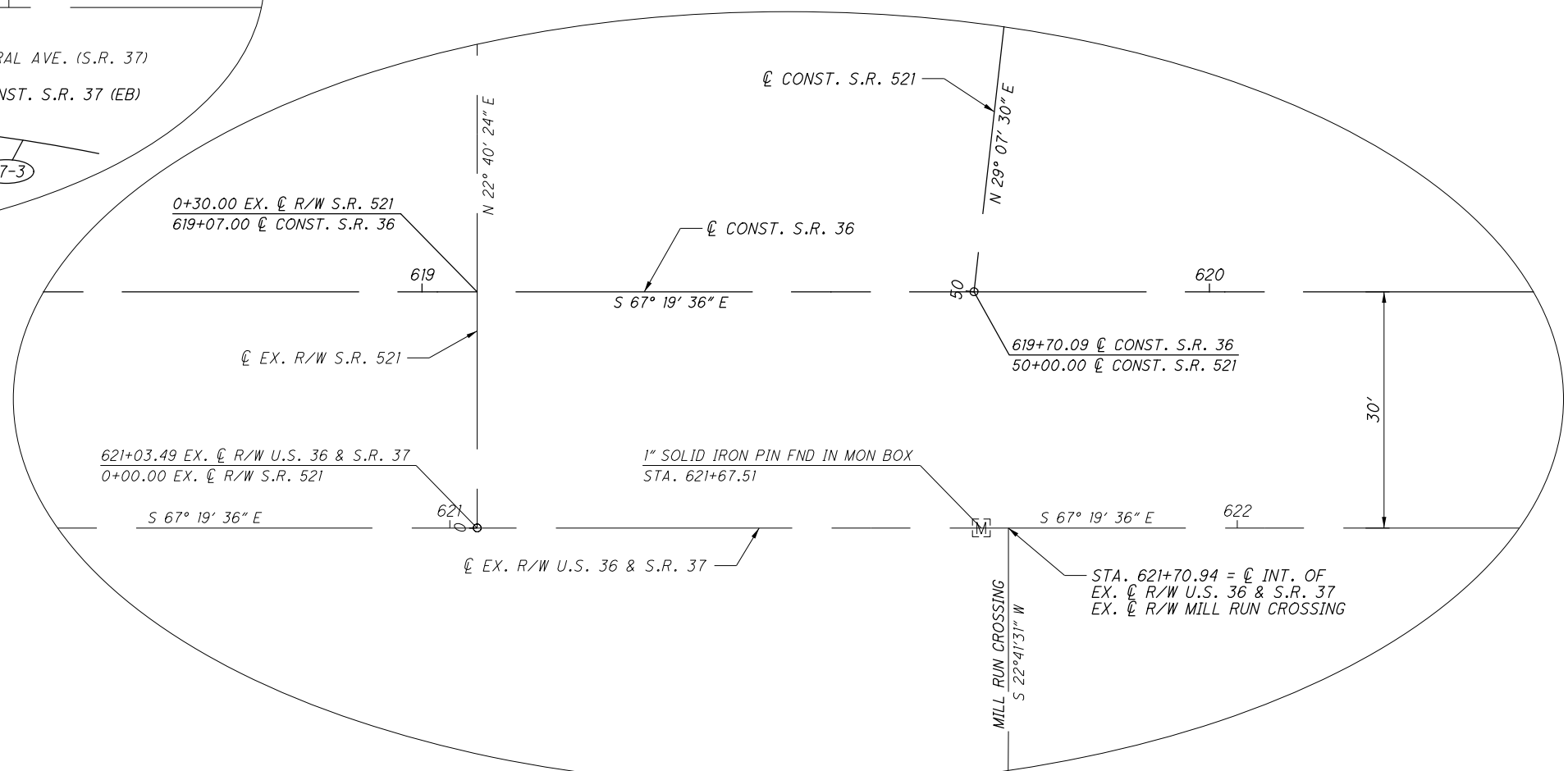
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**DETAIL B**



**DETAIL D**



**DETAIL H**

PID NO. 103626

R/W DESIGNER BLM R/W REVIEWER JMM

CENTERLINE PLAT (4 of 4)

DEL-36-11.03

5/44

605/644

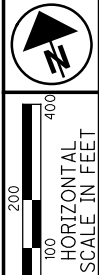
OWNERSHIP NAME AND NUMBER

- 1 MEEKER RENTALS LLC,  
AN OHIO LIMITED LIABILITY COMPANY
- 2 THE STATE OF OHIO
- 3 THE STATE OF OHIO,  
DEPARTMENT OF TRANSPORTATION
- 4 THE CITY OF DELAWARE, OHIO  
51944224001000
- 5 STOP-N-GO STORAGE OF DELAWARE LLC,  
AN OHIO LIMITED LIABILITY COMPANY
- 6 NORFOLK AND WESTERN RAILWAY COMPANY,  
A VIRGINIA CORPORATION  
(N.K.A. NORFOLK SOUTHERN RAILWAY COMPANY)
- 7 SUN-DEL PARK LLC,  
AN OHIO LIMITED LIABILITY COMPANY
- 8 TRI TOWNSHIP BOARD OF FIRE DISTRICT TRUSTEES,  
DELAWARE COUNTY, OHIO  
51944210011000
- 9 501 BOWTOWN RD., LLC,  
AN OHIO LIMITED LIABILITY COMPANY  
51944210012000
- 9A 501 BOWTOWN RD., LLC,  
AN OHIO LIMITED LIABILITY COMPANY
- 10 CHARLES R. KELLEY ETAL  
51944210015000
- 11 C-N & L, INCORPORATED
- 12 LUCKY 13 PROPERTIES, LLC,  
AN OHIO LIMITED LIABILITY COMPANY  
51944302007000, 51944302003000  
51944302008000
- 13 EDWARD J. AMBROSE AND KAREN L. AMBROSE  
51944210016000
- 14 AUTHENTIC FOODS, LLC,  
LIMITED LIABILITY COMPANY
- 15 AVAK SUNBURY, LLC,  
AN OHIO LIMITED LIABILITY COMPANY
- 16 LED INVESTMENTS LLC,  
AN OHIO LIMITED LIABILITY COMPANY
- 17 OAKLAND NURSERY, INC.,  
AN OHIO CORPORATION  
51944402008000, 51944402009000,  
51944402010000, 51944402011000,  
51944402012000
- 18 SUNBURY 680, LLC
- 19 HYE RYEE PROPERTY, LLC, AN OHIO  
LIMITED LIABILITY COMPANY AND  
CHONG RYEE PROPERTY, LLC, AN  
OHIO LIMITED LIABILITY COMPANY
- 20 DELAWARE REAL ESTATE HOLDINGS,  
LLC, AN OHIO LIMITED LIABILITY  
COMPANY
- 21 FRISCH ENTERPRISES, INC.,  
AN OHIO CORPORATION
- 22 LESLIE DANIEL PROPERTIES LLC,  
AN OHIO CORPORATION
- 23 LISA CROSS  
JAMES E. CROSS
- 24 ROGER WEARS  
LISA R. WEARS
- 25 STEPHANIE M. STROMBERG
- 26 CODY NOBLE  
MIA NOBLE
- 27 ELAINE M. RATHSACK  
5194421105000
- 28 DEREK THOMAS HARTSCHUH  
5194421106000
- 29 CHRISTINE M. GRAVES  
5194421107000
- 30 CUTMAN LAND COMPANY, LTD.,  
AN OHIO LIMITED LIABILITY COMPANY  
51944211097000
- 31 MIKHAN PROPERTIES, LLC
- 32 B. HARRIS ANGELL  
MARLINDA H. ANGELL
- 33 HODA MOSTAFA
- 34 DENNIS M. KELLEY ETAL
- 35 COLE'S INVESTMENT PROPERTIES, LLC
- 36 CITY OF DELAWARE, A MUNICIPAL CORPORATION
- 37 LF INVESTMENTS, LLC,  
AN OHIO LIMITED LIABILITY COMPANY  
51944223020000
- 38 JERAMY L. MILLER  
AMBER D. MILLER  
51944223002000
- 39 TIMOTHY R. CARR  
SANDRA L. CARR  
51944223003000  
51944223004000
- 40 RICKY L. MARTIN  
JOY L. MARTIN
- 41 MEEKER RENTALS LLC,  
AN OHIO LIMITED LIABILITY COMPANY  
(NO PARCEL NUMBER EXISTS)

MATCH LINE, SEE THIS SHEET

MATCH LINE, SEE THIS SHEET

DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOTS 11, 12, 15, 16 & 28  
UNITED STATES MILITARY DISTRICT



PID NO. 103626  
R/W DESIGNER BLM  
R/W REVIEWER JMM

PROPERTY MAP (1 OF 2)

DEL-36-11.03

6 / 44  
606  
644

BEGIN ACQUISITION  
E. CENTRAL AVE., STA. 78+80.51

BEGIN ACQUISITION  
E. WILLIAM ST., STA. 585+44.80

END ACQUISITION  
U.S. 36 & S.R. 37, STA. 621+05.13

END ACQUISITION  
S.R. 521, STA. 8+72.57

BEGIN ACQUISITION  
S.R. 521, STA. 1+66.08

| REV. BY                    | DATE     | DESCRIPTION                           |
|----------------------------|----------|---------------------------------------|
| DJF                        | 12/10/21 | UPDATED PARCEL 41 OWNERSHIP           |
| BLM                        | 8/10/21  | UPDATED PARCEL 19 OWNERSHIP           |
| BLM                        | 5/27/21  | UPDATED PARCEL 26 OWNERSHIP           |
| BRK                        | 5/05/21  | UPDATED PARCEL 9A OWNERSHIP           |
| BRK                        | 4/06/21  | UPDATED PARCELS 16, 28 & 41 OWNERSHIP |
| <b>REV. BY DATE</b>        |          | <b>DESCRIPTION</b>                    |
| DATE COMPLETED: 11/11/2020 |          |                                       |

NOTE:  
FOR EASEMENT DESCRIPTIONS SEE  
SHEET 7.

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EASEMENT DESCRIPTIONS

**A** INGRESS/EGRESS EASEMENT TO FOLEY STREET ALONG SOUTH END OF LOT 1728 D.B. 422, P. 507

**B** 30' WATER EASEMENT CITY OF DELAWARE D.B. 305, P. 373

**C** TELECOMMUNICATIONS EASEMENT CITY OF DELAWARE, OHIO O.R. 919, P. 2723

**D** SIDEWALK EASEMENT CITY OF DELAWARE, OHIO O.R. 1380, P. 800

**E** 5' ELECTRIC EASEMENT COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY D.B. 411, P. 198

**F** 10' SANITARY SEWER EASEMENT STOP-N-GO STORAGE OF DELAWARE, LLC O.R. 1380, P. 798

**G** 20' SEWER EASEMENT CITY OF DELAWARE, OHIO D.B. 495, P. 511

**H** 50' TEMPORARY EASEMENT CITY OF DELAWARE, OHIO D.B. 495, P. 511

**I** ELECTRIC EASEMENT (NO WIDTH STATED) ALONG HIGHWAY (CO. POLE 45-35 TO OBT POLE TR 40 P17) COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY D.B. 302, P. 424

**J** 10' ELECTRIC EASEMENT COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY D.B. 339, P. 381

**K** 10' ELECTRIC EASEMENT COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY O.R. 339, P. 382

**L** EASEMENT FOR HIGHWAY PURPOSES STATE OF OHIO PARCEL NO. 5, 0.11 AC. (DEED) D.B. 301, P. 429

**M** 25' INGRESS/EGRESS AND UTILITY EASEMENT TRACT I D.B. 364, P. 171

**N** 10' WATERLINE EASEMENT PARCEL "D" CITY OF DELAWARE D.B. 405, P. 97

**O** INGRESS/EGRESS EASEMENT CITY OF DELAWARE D.B. 405, P. 97

**P** INGRESS/EGRESS AND UTILITY EASEMENT TRACT II D.B. 364, P. 171

**Q** INGRESS/EGRESS EASEMENT CITY OF DELAWARE D.B. 405, P. 97

**R** 10' Waterline Easement Parcel "E" City of Delaware D.B. 405, P. 97

**S** 10' WATERLINE EASEMENT PARCEL "F" CITY OF DELAWARE D.B. 405, P. 97

**T** 5' GASLINE EASEMENT THE DELAWARE GAS COMPANY D.B. 298, P. 569

**U** 5' TELEPHONE EASEMENT THE OHIO BELL TELEPHONE COMPANY D.B. 305, P. 110

**V** 6' ELECTRIC EASEMENT COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY O.R. 441, P. 439

**W** EASEMENT FOR HIGHWAY PURPOSES STATE OF OHIO PARCEL NO. 6, 0.17 AC. (DEED) D.B. 301, P. 61

**X** ELECTRIC EASEMENT (NO WIDTH STATED) ALONG HIGHWAY DELAWARE RURAL ELECTRIC COOPERATIVE, INC. D.B. 325, P. 422

**Y** EASEMENT FOR HIGHWAY PURPOSES STATE OF OHIO PARCEL NO. 11 D.B. 302, P. 107

**Z** 20' ELECTRIC EASEMENT CONSOLIDATED ELECTRIC COOPERATIVE, INC. O.R. 208, P. 2636

**AA** 10' PUBLIC ACCESS EASEMENT P.C. 4, P. 2

**BB** 30' TEMPORARY EASEMENT CITY OF DELAWARE, OHIO O.R. 495, P. 488

**CC** 20' SANITARY SEWER EASEMENT CITY OF DELAWARE, OHIO O.R. 495, P. 488

**DD** 30' TEMPORARY EASEMENT CITY OF DELAWARE, OHIO O.R. 495, P. 488

**EE** 20' ELECTRIC EASEMENT CONSOLIDATED ELECTRIC COOPERATIVE, INC. O.R. 208, P. 2633

**FF** 20' SANITARY SEWER EASEMENT D.B. 604, P. 552

**GG** 10' EASEMENT P.C. 4, P. 2 PARTIALLY RELEASED BY O.R. 1702, P. 1074

**HH** 10' Electric Easement Consolidated Electric Cooperative, Inc. O.R. 870, P. 100

**II** 15' EASEMENT P.C. 4, P. 2

**JJ** 10' FIBER OPTIC EASEMENT THE OHIO BELL TELEPHONE COMPANY O.R. 814, P. 208

**KK** 60' INGRESS/EGRESS EASEMENT D.B. 425, P. 208

**LL** 15' STORM WATER EASEMENT CITY OF DELAWARE, OHIO O.R. 1651, P. 1712

**MM** 10' INGRESS/EGRESS EASEMENT COUNTY OF DELAWARE, OHIO D.B. 472, P. 579

**NN** 20' WATER LINE EASEMENT COUNTY OF DELAWARE, OHIO D.B. 472, P. 579

**OO** 15' TEMPORARY EASEMENT COUNTY OF DELAWARE, OHIO D.B. 472, P. 579

**PP** 50' INGRESS/EGRESS EASEMENT O.R. 488, P. 479

**QQ** 50' INGRESS/EGRESS EASEMENT D.B. 382, P. 360

**RR** ELECTRIC EASEMENT (NO WIDTH STATED) COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY O.R. 302, P. 425

**SS** 10' ELECTRIC EASEMENT COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY D.B. 379, P. 633

**TT** 10' WATER LINE EASEMENT CITY OF DELAWARE & PRESIDENTIAL REAL ESTATE, INC. O.R. 646, P. 749

**UU** 10' ELECTRIC EASEMENT COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY D.B. 306, P. 30

**VV** 10' ELECTRIC EASEMENT (ALONG LINES AS INSTALLED) COLUMBUS SOUTHERN POWER COMPANY O.R. 525, P. 267

**WW** PIPELINE EASEMENT (BLANKET IN NATURE) SINCLAIR REFINING COMPANY D.B. 505, P. 252

**XX** PIPELINE EASEMENT (BLANKET IN NATURE) SUBURBAN FUEL GAS, INC. O.R. 527, P. 84

**YY** 15' PIPELINE EASEMENT SUBURBAN NATURAL GAS COMPANY O.R. 609, P. 639 (UNABLE TO PLOT FROM DESCRIPTION GIVEN IN DEED OF EASEMENT)

**ZZ** 10' ELECTRIC EASEMENT COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY D.B. 306, P. 30

**AAA** 20' ELECTRIC EASEMENT COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY D.B. 302, P. 426

**BBB** 10' ELECTRIC EASEMENT (ALONG UTILITIES AS INSTALLED) NO DESCRIPTION FOR EASEMENT. CONSOLIDATED ELECTRIC COOPERATIVE, INC. O.R. 17, P. 996

**CCC** 10' ELECTRIC EASEMENT COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY D.B. 306, P. 32

**DDD** 20' ELECTRIC EASEMENT COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY D.B. 305, P. 30

**EEE** 20' ELECTRIC EASEMENT COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY D.B. 305, P. 31

**FFF** ELECTRIC EASEMENT (BLANKET IN NATURE) DELAWARE RURAL ELECTRIC COOPERATIVE, INC. D.B. 304, P. 368

**GGG** EASEMENT FOR HIGHWAY PURPOSES STATE OF OHIO PARCEL NO. 10, 1.83 AC. (DEED) D.B. 301, P. 431

**HHH** ELECTRIC EASEMENT (BLANKET IN NATURE) DELAWARE RURAL ELECTRIC COOPERATIVE, INC. D.B. 304, P. 368

**III** UTILITY & INGRESS/EGRESS EASEMENT THE CITY OF DELAWARE O.R. 406, P. 2401

**JJJ** ELECTRIC EASEMENT (BLANKET IN NATURE) DELAWARE RURAL ELECTRIC COOPERATIVE, INC. D.B. 304, P. 368

**KKK** ELECTRIC EASEMENT (BLANKET IN NATURE) DELAWARE RURAL ELECTRIC COOPERATIVE, INC. D.B. 304, P. 368

**LLL** 16.5' TELEPHONE EASEMENT THE OHIO BELL TELEPHONE COMPANY D.B. 607, P. 465

**MMM** 33' Pipeline right-of-way easement Sinclair Refining Company D.B. 208, P. 253, assigned To Sinclair PipeLine Company D.B. 235, P. 456 AND Assigned To Aco Pipeline Company D.B. 543, P. 746.

**NNN** 16.5' EASEMENT THE OHIO BELL TELEPHONE COMPANY LEASE VOL. 10, PAGE 202A.

**OOO** EASEMENT FOR ROAD PURPOSES BOARD OF COUNTY COMMISSIONERS OF DELAWARE COUNTY, OHIO O.R. 184, P. 2518

**PPP** EASEMENT P.C. 1, S. 644

**QQQ** 10' EASEMENT P.C. 1, S. 644

**RRR** 5' EASEMENT P.C. 1, S. 644

**SSS** 20' DRAINAGE EASEMENT P.B. 20, P. 63

**TTT** EASEMENT P.C. 2, S. 478

**UUU** 20' GAS PIPELINE EASEMENT COLUMBIA GAS OF OHIO, INC. D.B. 437, P. 715

**VVV** EASEMENT FOR HIGHWAY PURPOSES STATE OF OHIO PARCEL NO. 3-A, 0.04 AC. (DEED) D.B. 302, P. 109

**WWW** 10' ELECTRIC/COMMUNICATIONS EASEMENT (5' EITHER SIDE OF  $\phi$  ELECTRIC LINES/FACILITIES) CONSOLIDATED ELECTRIC COOPERATIVE, INC. O.R. 962, P. 900

**XXX** 10' DRAINAGE EASEMENT MIKHAN PROPERTIES LLC O.R. 778, P. 1569

**YYY** 15' DRAINAGE EASEMENT MAYS PROPERTIES LLC O.R. 778, P. 1572

**ZZZ** 20' GAS PIPELINE EASEMENT COLUMBIA GAS OF OHIO, INC. D.B. 437, P. 715

**AB** EASEMENT FOR HIGHWAY PURPOSES STATE OF OHIO PARCEL NO. 4-A, 1.20 AC. (DEED) D.B. 302, P. 482

**AC** 6' GAS PIPELINE EASEMENT SUBURBAN NATURAL GAS COMPANY O.R. 840, P. 753

**AD** 10' PIPELINE EASEMENT DEL-MAR PIPELINE COMPANY LLC O.R. 648, P. 2389

**AE** PIPELINE EASEMENT ACO PIPE LINE COMPANY O.R. 628, P. 291

**AF** 10' ELECTRIC EASEMENT (ALONG  $\phi$  OF UNDERGROUND ELECTRIC ASINSTALLED, APPROXIMATE LOCATION SHOWN) COLUMBUS SOUTHERN POWER COMPANY O.R. 51, P. 1863

**AG** 20' ELECTRIC EASEMENT COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY D.B. 305, P. 33

**AH** 60' ACCESS EASEMENT O.R. 628, P. 282

**AI** COMMUNICATION EASEMENT OHIO BELL TELEPHONE COMPANY O.R. 661, P. 626

**AJ** 20' GAS PIPELINE EASEMENT COLUMBIA GAS OF OHIO, INC. D.B. 437, P. 715

**AK** EASEMENT FOR HIGHWAY PURPOSES STATE OF OHIO PARCEL NO. 10, 1.83 AC. (DEED) D.B. 301, P. 431

**AL** 20' ELECTRIC EASEMENT COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY D.B. 305, P. 31

**AM** INGRESS/EGRESS EASEMENT O.R. 908, P. 1080

**AN** ELECTRIC EASEMENT (BLANKET IN NATURE) DELAWARE RURAL ELECTRIC COOPERATIVE, INC. D.B. 304, P. 368

**AO** 50' INGRESS/EGRESS EASEMENT WITH SHARED DRIVE D.B. 583, P. 6

**AP** 20' WATERLINE EASEMENT COUNTY OF DELAWARE, OHIO D.B. 470, P. 705

**AQ** 20' WATERLINE EASEMENT COUNTY OF DELAWARE, OHIO D.B. 470, P. 572

**AR** 20' WATERLINE EASEMENT COUNTY OF DELAWARE, OHIO D.B. 470, P. 93

**AS** ELECTRIC EASEMENT CONSOLIDATED ELECTRIC COOPERATIVE, INC. O.R. 1833, P. 385

|                            |             |                    |
|----------------------------|-------------|--------------------|
| BLM                        | 8/10/21     | ADDED EASEMENT AS  |
| <b>REV. BY</b>             | <b>DATE</b> | <b>DESCRIPTION</b> |
| DATE COMPLETED: 11/11/2020 |             |                    |

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**TOTAL NUMBER OF :**  
 38 OWNERSHIPS 0 TOTAL TAKES  
 68 PARCELS 4 OWNERSHIPS W/ STRUCTURES INVOLVED

NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE  
 NET TAKE = GROSS TAKE - PRO IN TAKE

**GRANTEE:**  
 ALL RIGHT OF WAY ACQUIRED IN THE NAME  
 OF THE STATE OF OHIO DEPARTMENT OF  
 TRANSPORTATION UNLESS OTHERWISE SHOWN.

**ALL AREAS IN ACRES**

| PARCEL NO. | OWNER                                                                                                      | SHEET NO.       | OWNERS RECORD |      | AUDITOR'S      |             | TOTAL P.R.O. | GROSS TAKE | P.R.O. IN TAKE | NET TAKE | STRUC-TURE | NET RESIDUE |        | TYPE FUND | REMARKS                                                                                                                                                                                                                                                                                            | AS ACQUIRED |      |
|------------|------------------------------------------------------------------------------------------------------------|-----------------|---------------|------|----------------|-------------|--------------|------------|----------------|----------|------------|-------------|--------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------|
|            |                                                                                                            |                 | O.R.          | PAGE | PARCEL NUMBER  | RECORD AREA |              |            |                |          |            | LEFT        | RIGHT  |           |                                                                                                                                                                                                                                                                                                    | BOOK        | PAGE |
| 1-WDV      | MEEKER RENTALS LLC,<br>AN OHIO LIMITED LIABILITY COMPANY                                                   | 11-14           | 1658          | 187  | 51944224002000 | 0.477       | 0.000        | 0.007      | 0.000          | 0.007    |            | 0.470       |        |           | 8 FEET OF BRICKWALK TO BE REMOVED (TBR)                                                                                                                                                                                                                                                            |             |      |
| 1-T1       |                                                                                                            | 11-14           |               |      |                |             | 0.000        | 0.037      | 0.000          | 0.037    |            |             |        |           | TO CONSTRUCT WALK, WALL AND GRADING                                                                                                                                                                                                                                                                |             |      |
| 1-T2       |                                                                                                            | 31-32           |               |      |                |             | 0.000        | 0.021      | 0.000          | 0.021    |            |             |        |           | TO COMPLETE GRADING, 10' OF HAND RAIL & *1' OF HAND RAIL TBR                                                                                                                                                                                                                                       |             |      |
| 1-T3       |                                                                                                            | 31-34           |               |      |                |             | 0.000        | 0.028      | 0.000          | 0.028    |            |             |        |           | 6 LANDSCAPE TIMBERS & 5 SHRUBS TBR<br>TO COMPLETE GRADING, 1 TREE & 1 SHRUB TBR<br>60 FEET OF WIRE FENCE & *10 FEET OF WIRE FENCE TBR                                                                                                                                                              |             |      |
| 2-WDV      | THE STATE OF OHIO                                                                                          | 11-14           | D.B. 303      | 107  | 51944303003000 | 1.000       | 0.073        | 0.077      | 0.073          | 0.004    |            |             |        |           |                                                                                                                                                                                                                                                                                                    |             |      |
|            |                                                                                                            |                 | D.B. 182      | 316  | 51944303002000 | 10.000      | 0.179        | 0.245      | 0.179          | 0.066    |            |             |        |           |                                                                                                                                                                                                                                                                                                    |             |      |
|            | TOTAL                                                                                                      |                 |               |      |                | 11.000      | 0.252        | 0.322      | 0.252          | 0.070    |            |             | 10.678 |           |                                                                                                                                                                                                                                                                                                    |             |      |
| 2-T        |                                                                                                            | 11-14           |               |      | 51944303003000 | 1.000       | 0.073        | 0.006      | 0.000          | 0.006    |            |             |        |           | TO COMPLETE GRADING                                                                                                                                                                                                                                                                                |             |      |
|            | TOTAL                                                                                                      |                 |               |      | 51944303002000 | 10.000      | 0.179        | 0.053      | 0.000          | 0.053    |            |             |        |           | 1 TREE TBR                                                                                                                                                                                                                                                                                         |             |      |
| 3-WDV      | THE STATE OF OHIO, DEPARTMENT OF<br>TRANSPORTATION                                                         | 13-14           | 520           | 944  | 51944303001001 | 1.650       | 0.000        | 0.036      | 0.000          | 0.036    |            |             | 1.614  |           | ☐ - 0.008 AC.                                                                                                                                                                                                                                                                                      |             |      |
| 3-T        |                                                                                                            | 13-14           |               |      |                | 1.650       | 0.000        | 0.049      | 0.000          | 0.049    |            |             |        |           | TO COMPLETE GRADING, SIGN TBR BY MOU AGREEMENT<br>☐ - 0.007 AC.                                                                                                                                                                                                                                    |             |      |
| 4-WDV      | THE CITY OF DELAWARE, OHIO                                                                                 | 13-14           | D.B. 169      | 176  | 51944224001000 | 0.265 (c)   | 0.000        | 0.265      | 0.000          | 0.265    |            |             | 0.000  |           |                                                                                                                                                                                                                                                                                                    |             |      |
|            |                                                                                                            |                 | D.B. 329      | 64   |                |             |              |            |                |          |            |             |        |           |                                                                                                                                                                                                                                                                                                    |             |      |
| 5-WDV      | STOP-N-GO STORAGE OF DELAWARE LLC,<br>AN OHIO LIMITED LIABILITY COMPANY                                    | 13-14           | 1358          | 251  | 51944303001003 | 11.138      | 0.000        | 0.046      | 0.000          | 0.046    | S (I)      |             | 11.092 |           | PRIVATE SIGN & 9 SHRUBS TBR<br>☐ - 0.004 AC. & ☐ - 0.008 AC.                                                                                                                                                                                                                                       |             |      |
| 5-T        |                                                                                                            | 13-14           |               |      |                |             | 0.000        | 0.028      | 0.000          | 0.028    |            |             |        |           | TO COMPLETE GRADING, ☐ - 0.010 AC. & ☐ - 0.002 AC.<br>2 TREES TBR                                                                                                                                                                                                                                  |             |      |
| 6-SHVI     | NORFOLK AND WESTERN RAILWAY COMPANY,<br>A VIRGINIA CORPORATION                                             | 15-16, 39       | D.B. 314      | 308  | 51944214901000 | 11.714 (c)  | 0.246        | 0.218      | 0.000          | 0.218    |            |             | 11.250 |           | TO CONSTRUCT AND MAINTAIN WALK                                                                                                                                                                                                                                                                     |             |      |
| 6-SHV2     | (N.K.A. NORFOLK SOUTHERN<br>RAILWAY COMPANY)                                                               | 13-16, 39       |               |      | 51944314901000 | 18.286 (c)  | 0.397        | 0.339      | 0.000          | 0.339    |            |             | 17.550 |           | TO CONSTRUCT AND MAINTAIN WALK<br>130' OF FENCE & 134' OF WALL TBR                                                                                                                                                                                                                                 |             |      |
| 6-T1       |                                                                                                            | 15-16,<br>39-44 |               |      | 51944214901000 | 11.714 (c)  | 0.246        | 8.331      | 0.000          | 8.331    |            |             |        |           | TO CONSTRUCT BRIDGES, GRADING AND SITE ACCESS<br>*310' OF FENCE ENCROACHES ONTO PARCEL 6 FROM<br>THE ADJOINING OWNER, NOT TO BE REMOVED AS PART<br>OF THIS PROJECT, SEE PAGE 43 FOR MORE DETAILS.<br>SEE PARCEL 7 REMARKS REGARDING ADDITIONAL ITEMS<br>THAT ENCROACH ONTO PARCEL 6 FROM PARCEL 7. |             |      |
|            | TOTAL                                                                                                      |                 |               |      | 51944212901001 | 12.614 (c)  | 0.246        | 9.231      | 0.000          | 9.231    |            |             |        |           |                                                                                                                                                                                                                                                                                                    |             |      |
| 6-T2       |                                                                                                            | 13-16<br>36-39  | D.B. 177      | 596  | 51944314901000 | 18.286 (c)  | 0.397        | 5.120      | 0.000          | 5.120    |            |             |        |           | TO CONSTRUCT BRIDGES, GRADING AND SITE ACCESS                                                                                                                                                                                                                                                      |             |      |
| 7-WDV      | SUN-DEL PARK LLC,<br>AN OHIO LIMITED LIABILITY COMPANY                                                     | 15-18           | 1210          | 1848 | 51944302009000 | 5.210       | 0.339        | 0.536      | 0.339          | 0.197    | YES        |             | 4.674  |           | ☒ - 0.013 AC., 2-1 STY FRM RES, FLAG POLE & 2 CONC PAD TBR<br>12 TREES, 5 SHRUBS, 1 EVERGREEN & 258' CONC. WALK TBR                                                                                                                                                                                |             |      |
| 7-T        |                                                                                                            | 15-18,<br>38-39 |               |      |                |             | 0.339        | 0.623      | 0.000          | 0.623    | YES        |             |        |           | TO COMP. GRADING, 1 MOBILE HOME & 1 BLDR TBR, ☒ - 0.002 AC.<br>2 SHEDS, 11 LANDSCAPE TIMBERS & 55' POSTS AND CHAIN TBR<br>4 BOLLARDS, ASPH DRIVE, *1 MOBILE HOME & *5 SHEDS TBR<br>*10' CONC WALK, *WOOD RAMP & *ASPH. DRIVE TBR (SEE NOTE "A")                                                    |             |      |
| 8-WDV      | TRI TOWNSHIP BOARD OF FIRE DISTRICT<br>TRUSTEES, DELAWARE COUNTY, OHIO                                     | 15-16, 35,      | 1753          | 2747 | 51944210011000 | 1.123 (c)   | 0.102        | 0.820      | 0.102          | 0.718    | YES        |             | 0.303  |           | 2 BLDG., 1 SHED, RADIO TOWER, POLE & FLAG POLE TBR<br>CONC. DRIVE, ASPHALT PARKING LOT & 8 BOLLARDS TBR                                                                                                                                                                                            |             |      |
| 8-E        |                                                                                                            | 15-16, 35       |               |      |                |             | 0.102        | 0.303      | 0.000          | 0.303    | YES        |             |        |           | EXCESS LAND                                                                                                                                                                                                                                                                                        |             |      |
| 8-T        |                                                                                                            | 15-16, 35       |               |      |                |             | 0.102        | 0.063      | 0.000          | 0.063    |            |             |        |           | TO DEMOLISH BUILDING, COMPLETE GRADING                                                                                                                                                                                                                                                             |             |      |
| 9-T        | 501 BOWTOWN RD., LLC,<br>AN OHIO LIMITED LIABILITY COMPANY                                                 | 15-16, 35       | 1075          | 2241 | 51944210012000 | 0.472       | 0.000        | 0.004      | 0.000          | 0.004    |            |             |        |           | TO COMPLETE GRADING                                                                                                                                                                                                                                                                                |             |      |
| 9A-T       | 501 BOWTOWN RD., LLC,<br>AN OHIO LIMITED LIABILITY COMPANY                                                 | 35, 40-41       | 1853          | 1967 | 51944210013000 | 5.000       | 0.000        | 0.603      | 0.000          | 0.603    |            |             |        |           | TO COMPLETE GRADING, ☒ - 0.015 AC. & ☒ - 0.273 AC.<br>13 TREES TBR                                                                                                                                                                                                                                 |             |      |
| 10-T       | DENNIS M. KELLY (1/3 INT.)<br>CHARLES R. KELLY (1/3 INT.)<br>CHARLES R. KELLY & DENNIS M. KELLY (1/3 INT.) | 17-18           | 938           | 1754 | 51944210015000 | 0.799       | 0.088        | 0.002      | 0.000          | 0.002    |            |             |        |           | TO COMPLETE GRADING<br>*4 BRICK COLUMNS TBR                                                                                                                                                                                                                                                        |             |      |

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FEDERAL PROJECT NO. E180 (007)  
 PID NO. 103626  
 STATE JOB NO. 467814  
 R/W DESIGNER BLM  
 R/W REVIEWER JMM  
**SUMMARY OF ADDITIONAL RIGHT OF WAY (PARCELS 1-10)**  
**DEL-36-11.03**

TYPES OF TITLE LEGEND:  
 WD = WARRANTY DEED  
 SH = STANDARD HIGHWAY EASEMENT  
 T = TEMPORARY EASEMENT  
 V = ACQUIRED IN THE NAME OF  
 THE CITY OF DELAWARE  
 E = EXCESS LAND

NOTE: ALL TEMPORARY PARCELS TO  
 BE OF 36 MONTH DURATION.

\* DENOTES RIGHT OF WAY ENCROACHMENT

☒ = ESMT OVERLAP, SEE PG 7 FOR EASEMENT DESCRIPTIONS  
 (c) = CALCULATED AREA

NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY  
 EASEMENTS TO BE USED FOR STORAGE OF  
 MATERIAL OR EQUIPMENT BY THE CONTRACTOR  
 UNLESS NOTED OTHERWISE.

NOTE "A" : IN ADDITION TO WHAT HAS BEEN CALLED  
 OUT IN THE REMARKS COLUMN ABOVE FOR PARCEL 7  
 IT APPEARS THAT PARCEL 7 HAS 5 MOBILE HOMES,  
 3 SHEDS AND ONE SET OF WOODEN STAIRS THAT  
 ENCROACH ONTO PARCEL 6. THESE 9 ITEMS ARE  
 NOT TO BE REMOVED AS PART OF THIS PROJECT.

| REV. BY                            | DATE    | DESCRIPTION                       |
|------------------------------------|---------|-----------------------------------|
| BLM                                | 9/3/21  | ADDED PARCEL 8-E                  |
| BLM                                | 6/3/21  | ADDED TEMPORARY EASEMENT OVERLAPS |
| BLM                                | 5/27/21 | REVISED PARCEL 3-WDV AND 3-T      |
| BLM                                | 5/5/21  | UPDATED 9A OWNER                  |
| BLM                                | 5/5/21  | REVISED PARCEL 5-WDV AND 5-T      |
| FIELD REVIEW BY BRANDON KING       |         | DATE: 11/10/2020                  |
| OWNERSHIP VERIFIED BY BRANDON KING |         | DATE: 11/6/2020                   |
| DATE COMPLETED: 11/11/2020         |         |                                   |

8 / 44  
 608  
 644

**TOTAL NUMBER OF :**  
 38 OWNERSHIPS 0 TOTAL TAKES  
 68 PARCELS 4 OWNERSHIPS W/ STRUCTURES INVOLVED

NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE  
 NET TAKE = GROSS TAKE - PRO IN TAKE  
**ALL AREAS IN ACRES**

**GRANTEE:**  
 ALL RIGHT OF WAY ACQUIRED IN THE NAME  
 OF THE STATE OF OHIO DEPARTMENT OF  
 TRANSPORTATION UNLESS OTHERWISE SHOWN.

| PARCEL NO. | OWNER                                                                                                      | SHEET NO.       | OWNERS RECORD |      | AUDITOR'S      |             | TOTAL P.R.O. | GROSS TAKE | P.R.O. IN TAKE | NET TAKE | STRUC-TURE | NET RESIDUE |        | TYPE FUND | REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                | AS ACQUIRED |      |
|------------|------------------------------------------------------------------------------------------------------------|-----------------|---------------|------|----------------|-------------|--------------|------------|----------------|----------|------------|-------------|--------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------|
|            |                                                                                                            |                 | O.R.          | PAGE | PARCEL NUMBER  | RECORD AREA |              |            |                |          |            | LEFT        | RIGHT  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | BOOK        | PAGE |
| 1-WDV      | MEEKER RENTALS LLC,<br>AN OHIO LIMITED LIABILITY COMPANY                                                   | 11-14           | 1658          | 187  | 51944224002000 | 0.477       | 0.000        | 0.007      | 0.000          | 0.007    |            | 0.470       |        |           | 8 FEET OF BRICKWALK TO BE REMOVED (TBR)                                                                                                                                                                                                                                                                                                                                                                                                                                |             |      |
| 1-T1       |                                                                                                            | 11-14           |               |      |                |             | 0.000        | 0.037      | 0.000          | 0.037    |            |             |        |           | TO CONSTRUCT WALK, WALL AND GRADING                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |      |
| 1-T2       |                                                                                                            | 31-32           |               |      |                |             | 0.000        | 0.021      | 0.000          | 0.021    |            |             |        |           | TO COMPLETE GRADING, 10' OF HAND RAIL & *1' OF HAND RAIL TBR                                                                                                                                                                                                                                                                                                                                                                                                           |             |      |
| 1-T3       |                                                                                                            | 31-34           |               |      |                |             | 0.000        | 0.028      | 0.000          | 0.028    |            |             |        |           | 6 LANDSCAPE TIMBERS & 5 SHRUBS TBR<br>TO COMPLETE GRADING, 1 TREE & 1 SHRUB TBR<br>60 FEET OF WIRE FENCE & *10 FEET OF WIRE FENCE TBR                                                                                                                                                                                                                                                                                                                                  |             |      |
| 2-WDV      | THE STATE OF OHIO                                                                                          | 11-14           | D.B. 303      | 107  | 51944303003000 | 1.000       | 0.073        | 0.077      | 0.073          | 0.004    |            |             |        |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |             |      |
|            |                                                                                                            |                 | D.B. 182      | 316  | 51944303002000 | 10.000      | 0.179        | 0.245      | 0.179          | 0.066    |            |             |        |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |             |      |
|            | TOTAL                                                                                                      |                 |               |      |                | 11.000      | 0.252        | 0.322      | 0.252          | 0.070    |            |             | 10.678 |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |             |      |
| 2-T        |                                                                                                            | 11-14           |               |      | 51944303003000 | 1.000       | 0.073        | 0.006      | 0.000          | 0.006    |            |             |        |           | TO COMPLETE GRADING                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |      |
|            | TOTAL                                                                                                      |                 |               |      | 51944303002000 | 10.000      | 0.179        | 0.053      | 0.000          | 0.053    |            |             |        |           | 1 TREE TBR                                                                                                                                                                                                                                                                                                                                                                                                                                                             |             |      |
| 3-WDV      | THE STATE OF OHIO, DEPARTMENT OF<br>TRANSPORTATION                                                         | 13-14           | 520           | 944  | 51944303001001 | 1.650       | 0.000        | 0.036      | 0.000          | 0.036    |            |             |        |           | ⓑ - 0.008 AC.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |             |      |
| 3-T        |                                                                                                            | 13-14           |               |      |                | 1.650       | 0.000        | 0.049      | 0.000          | 0.049    |            |             |        |           | TO COMPLETE GRADING, SIGN TBR BY MOU AGREEMENT<br>ⓑ - 0.007 AC.                                                                                                                                                                                                                                                                                                                                                                                                        |             |      |
| 4-WDV      | THE CITY OF DELAWARE, OHIO                                                                                 | 13-14           | D.B. 169      | 176  | 51944224001000 | 0.265 (c)   | 0.000        | 0.265      | 0.000          | 0.265    |            |             |        |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |             |      |
|            |                                                                                                            |                 | D.B. 329      | 64   |                |             |              |            |                |          |            |             |        |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |             |      |
| 5-WDV      | STOP-N-GO STORAGE OF DELAWARE LLC,<br>AN OHIO LIMITED LIABILITY COMPANY                                    | 13-14           | 1358          | 251  | 51944303001003 | 11.138      | 0.000        | 0.046      | 0.000          | 0.046    | S (I)      |             | 11.092 |           | PRIVATE SIGN & 9 SHRUBS TBR<br>ⓐ - 0.004 AC. & ⓓ - 0.008 AC.                                                                                                                                                                                                                                                                                                                                                                                                           |             |      |
| 5-T        |                                                                                                            | 13-14           |               |      |                |             | 0.000        | 0.028      | 0.000          | 0.028    |            |             |        |           | TO COMPLETE GRADING, ⓓ - 0.010 AC. & ⓐ - 0.002 AC.<br>2 TREES TBR                                                                                                                                                                                                                                                                                                                                                                                                      |             |      |
| 6-SHVI     | NORFOLK AND WESTERN RAILWAY COMPANY,<br>A VIRGINIA CORPORATION                                             | 15-16, 39       | D.B. 314      | 308  | 51944214901000 | 11.714 (c)  | 0.246        | 0.218      | 0.000          | 0.218    |            |             | 11.250 |           | TO CONSTRUCT AND MAINTAIN WALK                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |      |
| 6-SHV2     | (N.K.A. NORFOLK SOUTHERN<br>RAILWAY COMPANY)                                                               | 13-16, 39       |               |      | 51944314901000 | 18.286 (c)  | 0.397        | 0.339      | 0.000          | 0.339    |            |             | 17.550 |           | TO CONSTRUCT AND MAINTAIN WALK<br>130' OF FENCE & 134' OF WALL TBR                                                                                                                                                                                                                                                                                                                                                                                                     |             |      |
| 6-T1       |                                                                                                            | 15-16,<br>39-44 |               |      | 51944214901000 | 11.714 (c)  | 0.246        | 8.331      | 0.000          | 8.331    |            |             |        |           | TO CONSTRUCT BRIDGES, GRADING AND SITE ACCESS<br>*310' OF FENCE ENCROACHES ONTO PARCEL 6 FROM<br>THE ADJOINING OWNER, NOT TO BE REMOVED AS PART<br>OF THIS PROJECT, SEE PAGE 43 FOR MORE DETAILS.<br>SEE PARCEL 7 REMARKS REGARDING ADDITIONAL ITEMS<br>THAT ENCROACH ONTO PARCEL 6 FROM PARCEL 7.                                                                                                                                                                     |             |      |
|            | TOTAL                                                                                                      |                 |               |      | 51944212901001 | 0.900 (c)   | 0.000        | 0.900      | 0.000          | 0.900    |            |             |        |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |             |      |
|            |                                                                                                            |                 |               |      |                | 12.614 (c)  | 0.246        | 9.231      | 0.000          | 9.231    |            |             |        |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |             |      |
| 6-T2       |                                                                                                            | 13-16<br>36-39  | D.B. 177      | 596  | 51944314901000 | 18.286 (c)  | 0.397        | 5.120      | 0.000          | 5.120    |            |             |        |           | TO CONSTRUCT BRIDGES, GRADING AND SITE ACCESS                                                                                                                                                                                                                                                                                                                                                                                                                          |             |      |
| 7-WDV      | SUN-DEL PARK LLC,<br>AN OHIO LIMITED LIABILITY COMPANY                                                     | 15-18           | 1210          | 1848 | 51944302009000 | 5.210       | 0.339        | 0.536      | 0.339          | 0.197    | YES        |             | 4.674  |           | ⓐ - 0.013 AC., 2-1 STY FRM RES, FLAG POLE & 2 CONC PAD TBR<br>12 TREES, 5 SHRUBS, 1 EVERGREEN & 258' CONC. WALK TBR<br>TO COMP. GRADING, 1 MOBILE HOME & 1 BLDR TBR, ⓐ - 0.002 AC.<br>2 SHEDS, 11 LANDSCAPE TIMBERS & 55' POSTS AND CHAIN TBR<br>4 BOLLARDS, *1 MOBILE HOME & * 5 SHEDS TBR<br>*10' CONC WALK, *WOOD RAMP & *ASPH. DRIVE TBR (SEE NOTE "A")<br>2 BLDG., 1 SHED, RADIO TOWER, POLE & FLAG POLE TBR<br>CONC. DRIVE, ASPHALT PARKING LOT & 8 BOLLARDS TBR |             |      |
| 7-T        |                                                                                                            | 15-18,<br>38-39 |               |      |                |             | 0.339        | 0.623      | 0.000          | 0.623    | YES        |             |        |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |             |      |
| 8-WDV      | TRI TOWNSHIP BOARD OF FIRE DISTRICT<br>TRUSTEES, DELAWARE COUNTY, OHIO                                     | 15-16, 35,      | 1753          | 2747 | 51944210011000 | 1.123 (c)   | 0.102        | 0.820      | 0.102          | 0.718    | YES        |             | 0.303  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |             |      |
|            |                                                                                                            |                 | 1753          | 2748 |                |             |              |            |                |          |            |             |        |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |             |      |
|            |                                                                                                            |                 | 1753          | 2749 |                |             |              |            |                |          |            |             |        |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |             |      |
| 8-E        |                                                                                                            | 15-16, 35       |               |      |                |             | 0.102        | 0.303      | 0.000          | 0.303    | YES        |             |        |           | EXCESS LAND                                                                                                                                                                                                                                                                                                                                                                                                                                                            |             |      |
| 8-T        |                                                                                                            | 15-16, 35       |               |      |                |             | 0.102        | 0.063      | 0.000          | 0.063    |            |             |        |           | TO DEMOLISH BUILDING, COMPLETE GRADING                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |      |
| 9-T        | 501 BOWTOWN RD., LLC,<br>AN OHIO LIMITED LIABILITY COMPANY                                                 | 15-16, 35       | 1075          | 2241 | 51944210012000 | 0.472       | 0.000        | 0.004      | 0.000          | 0.004    |            |             |        |           | TO COMPLETE GRADING                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |      |
| 9A-T       | 501 BOWTOWN RD., LLC,<br>AN OHIO LIMITED LIABILITY COMPANY                                                 | 35, 40-41       | 1853          | 1967 | 51944210013000 | 5.000       | 0.000        | 0.603      | 0.000          | 0.603    |            |             |        |           | TO COMPLETE GRADING, ⓓ - 0.015 AC. & ⓓ - 0.273 AC.<br>13 TREES TBR                                                                                                                                                                                                                                                                                                                                                                                                     |             |      |
| 10-T       | DENNIS M. KELLY (1/3 INT.)<br>CHARLES R. KELLY (1/3 INT.)<br>CHARLES R. KELLY & DENNIS M. KELLY (1/3 INT.) | 17-18           | 938           | 1754 | 51944210015000 | 0.799       | 0.088        | 0.002      | 0.000          | 0.002    |            |             |        |           | TO COMPLETE GRADING<br>*4 BRICK COLUMNS TBR                                                                                                                                                                                                                                                                                                                                                                                                                            |             |      |

FEDERAL PROJECT NO. E180 (007)  
 PID NO. 103626  
 STATE JOB NO. 467814  
 R/W DESIGNER BLM  
 R/W REVIEWER JMM  
**SUMMARY OF ADDITIONAL RIGHT OF WAY (PARCELS 1-10)**  
**DEL-36-11.03**

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TYPES OF TITLE LEGEND:  
 WD = WARRANTY DEED  
 SH = STANDARD HIGHWAY EASEMENT  
 T = TEMPORARY EASEMENT  
 V = ACQUIRED IN THE NAME OF THE CITY OF DELAWARE  
 E = EXCESS LAND

NOTE: ALL TEMPORARY PARCELS TO BE OF 36 MONTH DURATION.

\* DENOTES RIGHT OF WAY ENCROACHMENT

ⓐ = ESMT OVERLAP, SEE PG 7 FOR EASEMENT DESCRIPTIONS  
 (c) = CALCULATED AREA

NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

NOTE "A" : IN ADDITION TO WHAT HAS BEEN CALLED OUT IN THE REMARKS COLUMN ABOVE FOR PARCEL 7 IT APPEARS THAT PARCEL 7 HAS 5 MOBILE HOMES, 3 SHEDS AND ONE SET OF WOODEN STAIRS THAT ENCROACH ONTO PARCEL 6. THESE 9 ITEMS ARE NOT TO BE REMOVED AS PART OF THIS PROJECT.

| REV. BY                                            | DATE    | DESCRIPTION                              |
|----------------------------------------------------|---------|------------------------------------------|
| BLM                                                | 4/25/22 | REVISED ASPH. DRIVE DISP. FOR PARCEL 7-T |
| BLM                                                | 9/3/21  | ADDED PARCEL 8-E                         |
| BLM                                                | 6/3/21  | ADDED TEMPORARY EASEMENT OVERLAPS        |
| BLM                                                | 5/27/21 | REVISED PARCEL 3-WDV AND 3-T             |
| BLM                                                | 5/5/21  | UPDATED 9A OWNER                         |
| BLM                                                | 5/5/21  | REVISED PARCEL 5-WDV AND 5-T             |
| FIELD REVIEW BY BRANDON KING DATE: 11/10/2020      |         |                                          |
| OWNERSHIP VERIFIED BY BRANDON KING DATE: 11/6/2020 |         |                                          |
| DATE COMPLETED: 11/11/2020                         |         |                                          |

8 / 44  
 609  
 644

NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE  
 NET TAKE = GROSS TAKE - PRO IN TAKE  
 ALL AREAS IN ACRES

**GRANTEE:**  
 ALL RIGHT OF WAY ACQUIRED IN THE NAME  
 OF THE STATE OF OHIO DEPARTMENT OF  
 TRANSPORTATION UNLESS OTHERWISE SHOWN.

| PARCEL NO. | OWNER                                                                                                                   | SHEET NO. | OWNERS RECORD                     |                                     | AUDITOR'S                        |                 | TOTAL P.R.O.   | GROSS TAKE     | P.R.O. IN TAKE | NET TAKE       | STRUC-TURE | NET RESIDUE |       | TYPE FUND | REMARKS                                                                                   | AS ACQUIRED |      |
|------------|-------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------------|-------------------------------------|----------------------------------|-----------------|----------------|----------------|----------------|----------------|------------|-------------|-------|-----------|-------------------------------------------------------------------------------------------|-------------|------|
|            |                                                                                                                         |           | O.R.                              | PAGE                                | PARCEL NUMBER                    | RECORD AREA     |                |                |                |                |            | LEFT        | RIGHT |           |                                                                                           | BOOK        | PAGE |
| 26-WDV     | CODY NOBLE AND MIA NOBLE                                                                                                | 31-32     | 1863                              | 726                                 | 51944216014000                   | 0.28650         | 0.000          | 0.010          | 0.000          | 0.010          |            | 0.2765      |       |           |                                                                                           |             |      |
| 26-T       |                                                                                                                         | 31-32     |                                   |                                     |                                  |                 | 0.000          | 0.015          | 0.000          | 0.015          |            |             |       |           | TO COMPLETE GRADING<br>1 EVERGREEN & LANDSCAPE AREA TO BE REMOVED (TBR)                   |             |      |
| 27-WDV     | ELAINE M. RATHSACK                                                                                                      | 31-34     | D.B. 563<br>D.B. 563              | 546<br>548                          | 51944211105000                   | 0.25490         | 0.000          | 0.010          | 0.000          | 0.010          |            | 0.2449      |       |           |                                                                                           |             |      |
| 27-T       |                                                                                                                         | 31-34     |                                   |                                     |                                  |                 | 0.000          | 0.012          | 0.000          | 0.012          |            |             |       |           | TO COMPLETE GRADING                                                                       |             |      |
| 28-WDV     | DEREK THOMAS HARTSCHUH                                                                                                  | 33-34     | 1815                              | 846                                 | 51944211106000                   | 0.25490         | 0.000          | 0.007          | 0.000          | 0.007          |            | 0.2479      |       |           | HANDRAIL TBR                                                                              |             |      |
| 28-T       |                                                                                                                         | 33-34     |                                   |                                     |                                  |                 | 0.000          | 0.007          | 0.000          | 0.007          |            |             |       |           | TO COMPLETE GRADING                                                                       |             |      |
| 29-WDV     | CHRISTINE M. GRAVES                                                                                                     | 33-34     | 769                               | 190                                 | 51944211107000                   | 0.25490         | 0.000          | 0.003          | 0.000          | 0.003          |            | 0.2519      |       |           |                                                                                           |             |      |
| 29-T       |                                                                                                                         | 33-34     |                                   |                                     |                                  |                 | 0.000          | 0.010          | 0.000          | 0.010          |            |             |       |           | TO COMPLETE GRADING                                                                       |             |      |
| 30-WDV     | CUTMAN LAND COMPANY, LTD.,<br>AN OHIO LIMITED LIABILITY COMPANY                                                         | 33-34, 39 | 1516                              | 768                                 | 51944211097000                   | 5.264           | 0.000          | 0.002          | 0.000          | 0.002          |            | 5.262       |       |           |                                                                                           |             |      |
| 30-T       |                                                                                                                         | 33-34, 39 |                                   |                                     |                                  |                 | 0.000          | 0.078          | 0.000          | 0.078          |            |             |       |           | TO CONSTRUCT DRIVES AND COMPLETE GRADING<br>2 TREES TBR                                   |             |      |
| 31-T       | MIKHAN PROPERTIES, LLC                                                                                                  | 27-30     | 755                               | 1330                                | 51944401004000                   | 2.597           | 0.762          | 0.004          | 0.000          | 0.004          |            |             |       |           | TO COMPLETE GRADING, [AD] - 0.004 AC., [AD] - 0.001 AC.<br>*5 TREES TBR. [ZZ] - 0.004 AC. |             |      |
| 32         | B. HARRIS ANGELL AND<br>MARLINDA H. ANGELL                                                                              | 29-30     | D.B. 408<br>1007                  | 407<br>2379                         | 51944402001000                   | 0.980           | 0.146          |                |                |                |            |             |       |           |                                                                                           |             |      |
| 33-T       | HODA MOSTAFA                                                                                                            | 29-30     | 1534                              | 182                                 | 51944401004001                   | 1.488 (c)       | 0.808          | 0.041          | 0.000          | 0.041          |            |             |       |           | TO COMPLETE GRADING                                                                       |             |      |
| 34-T       | TIMOTHY E. KELLY (1/6 INT.)<br>PATRICK J. KELLY (1/6 INT.)<br>CHARLES R. KELLY (1/3 INT.)<br>DENNIS M. KELLY (1/3 INT.) | 41-43     | 488<br>938<br>959<br>1391<br>1391 | 467<br>1754<br>2339<br>1826<br>1831 | 51944210014000<br>51944210010000 | 13.680<br>1.500 | 0.000<br>0.000 | 0.118<br>0.306 | 0.000<br>0.000 | 0.118<br>0.306 |            |             |       |           | TO COMPLETE GRADING;<br>9 TREES TBR<br>[AP] - 0.387 AC.                                   |             |      |
|            | TOTAL                                                                                                                   |           |                                   |                                     |                                  | 15.180          | 0.000          | 0.424          | 0.000          | 0.424          |            |             |       |           |                                                                                           |             |      |
| 35         | COLE'S INVESTMENT PROPERTIES, LLC                                                                                       |           | 486                               | 1316                                | 51944302006000<br>51944302006001 | 1.000<br>0.030  | 0.000<br>0.000 |                |                |                |            |             |       |           |                                                                                           |             |      |
| 36         | CITY OF DELAWARE,<br>A MUNICIPAL CORPORATION                                                                            |           | D.B. 405<br>D.B. 405              | 97<br>101                           | 51944302004000<br>51944302005000 | 0.060<br>0.170  | 0.000<br>0.000 |                |                |                |            |             |       |           |                                                                                           |             |      |
| 37-T       | LF INVESTMENTS, LLC,<br>AN OHIO LIMITED LIABILITY COMPANY                                                               | 31-32     | 1181                              | 1019                                | 51944223020000                   | 0.231           | 0.000          | 0.009          | 0.000          | 0.009          |            |             |       |           | TO CONSTRUCT DRIVE AND COMPLETE GRADING                                                   |             |      |
| 38-T       | JERAMY L. MILLER AND AMBER D. MILLER                                                                                    | 31-32     | 762                               | 2209                                | 51944223002000                   | 0.117           | 0.000          | 0.009          | 0.000          | 0.009          |            |             |       |           | TO CONSTRUCT DRIVE AND COMPLETE GRADING                                                   |             |      |
| 39-T       | TIMOTHY R. CARR AND SANDRA L. CARR                                                                                      | 31-32     | D.B. 562<br>D.B. 546              | 509<br>76                           | 51944223003000<br>51944223004000 | 0.118<br>0.149  | 0.000<br>0.000 | 0.006<br>0.001 | 0.000<br>0.000 | 0.006<br>0.001 |            |             |       |           | TO COMPLETE GRADING<br>*2 BRICK COLUMNS TBR<br>*50' OF WOODEN FENCE AND *GATE TBR         |             |      |
|            | TOTAL                                                                                                                   |           |                                   |                                     |                                  | 0.267           | 0.000          | 0.007          | 0.000          | 0.007          |            |             |       |           |                                                                                           |             |      |
| 40-WDV     | RICKY L. MARTIN AND JOY L. MARTIN                                                                                       | 31-32     | 438                               | 851                                 | 51944217011000                   | 0.2091          | 0.000          | 0.005          | 0.000          | 0.005          |            | 0.2041      |       |           | *16' OF WOODEN FENCE TBR                                                                  |             |      |
| 41-WDV     | MEEKER RENTALS LLC,<br>AN OHIO LIMITED LIABILITY COMPANY                                                                | 11,12     | 1926                              | 2594                                | LOT 1350, P.B. 2, P. 220         | 0.031 (c)       | 0.000          | 0.002          | 0.000          | 0.002          |            | 0.029       |       |           |                                                                                           |             |      |
| 41-T1      |                                                                                                                         | 11,12     |                                   |                                     | LOT 1350, P.B. 2, P. 220         | 0.031 (c)       | 0.000          | 0.001          | 0.000          | 0.001          |            |             |       |           | TO COMPLETE GRADING                                                                       |             |      |
| 41-T2      |                                                                                                                         | 12,31,32  |                                   |                                     | LOT 1727, P.B. 2, P. 220         | 0.031 (c)       | 0.000          | 0.003          | 0.000          | 0.003          |            |             |       |           | TO COMPLETE GRADING                                                                       |             |      |

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TYPES OF TITLE LEGEND:  
 WD = WARRANTY DEED  
 SH = STANDARD HIGHWAY EASEMENT  
 T = TEMPORARY EASEMENT  
 V = ACQUIRED IN THE NAME OF  
 THE CITY OF DELAWARE

NOTE: ALL TEMPORARY PARCELS TO  
 BE OF 36 MONTH DURATION.

\* DENOTES RIGHT OF WAY ENCROACHMENT

[XX] = ESMT OVERLAP, SEE PG 7 FOR EASEMENT DESCRIPTIONS  
 (c) = CALCULATED AREA

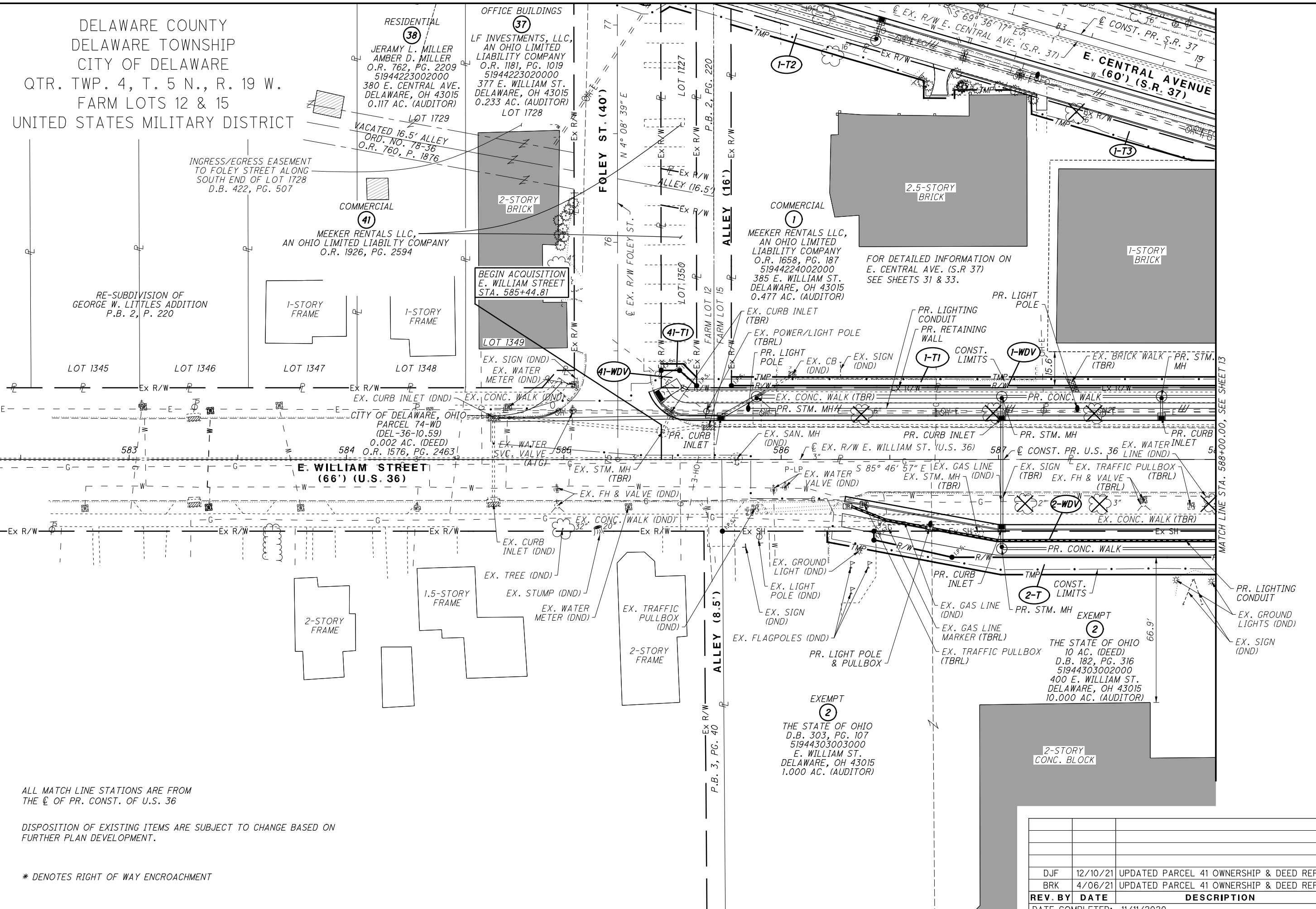
NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY  
 EASEMENTS TO BE USED FOR STORAGE OF  
 MATERIAL OR EQUIPMENT BY THE CONTRACTOR  
 UNLESS NOTED OTHERWISE.

| REV. BY                            | DATE     | DESCRIPTION                             |
|------------------------------------|----------|-----------------------------------------|
| DJF                                | 12/10/21 | UPDATED PARCEL 41 OWNERSHIP & DEED REF. |
| BLM                                | 6/3/21   | ADDED TEMPORARY EASEMENT OVERLAPS       |
| BLM                                | 5/27/21  | UPDATED PARCEL 26 OWNERSHIP & DEED REF. |
| BRK                                | 4/06/21  | UPDATED PARCEL 28 OWNERSHIP & DEED REF. |
| BRK                                | 4/06/21  | UPDATED PARCEL 41 OWNERSHIP & DEED REF. |
| FIELD REVIEW BY BRANDON KING       |          | DATE: 11/10/2020                        |
| OWNERSHIP VERIFIED BY BRANDON KING |          | DATE: 11/6/2020                         |
| DATE COMPLETED: 11/11/2020         |          |                                         |

FEDERAL PROJECT NO. E180 (007)  
 PID NO. 103626  
 STATE JOB NO. 467814  
 R/W DESIGNER BLM  
 R/W REVIEWER JMM  
**SUMMARY OF ADDITIONAL  
 RIGHT OF WAY (PARCELS 26-41)**  
**DEL-36-11.03**

DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOTS 12 & 15  
UNITED STATES MILITARY DISTRICT

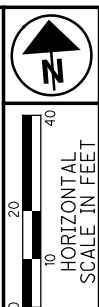
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ALL MATCH LINE STATIONS ARE FROM THE  $\varnothing$  OF PR. CONST. OF U.S. 36

DISPOSITION OF EXISTING ITEMS ARE SUBJECT TO CHANGE BASED ON FURTHER PLAN DEVELOPMENT.

\* DENOTES RIGHT OF WAY ENCROACHMENT



PID NO. 103626

R/W DESIGNER BLM R/W REVIEWER JMM

R/W TOPO SHEET - U.S. 36  
STA. 583+00.00 TO STA. 588+00.00

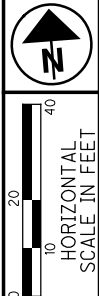
DEL-36-11.03

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| REV. BY                    | DATE     | DESCRIPTION                             |
|----------------------------|----------|-----------------------------------------|
| DJF                        | 12/10/21 | UPDATED PARCEL 41 OWNERSHIP & DEED REF. |
| BRK                        | 4/06/21  | UPDATED PARCEL 41 OWNERSHIP & DEED REF. |
| DATE COMPLETED: 11/11/2020 |          |                                         |

DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 12 & 15  
UNITED STATES MILITARY DISTRICT

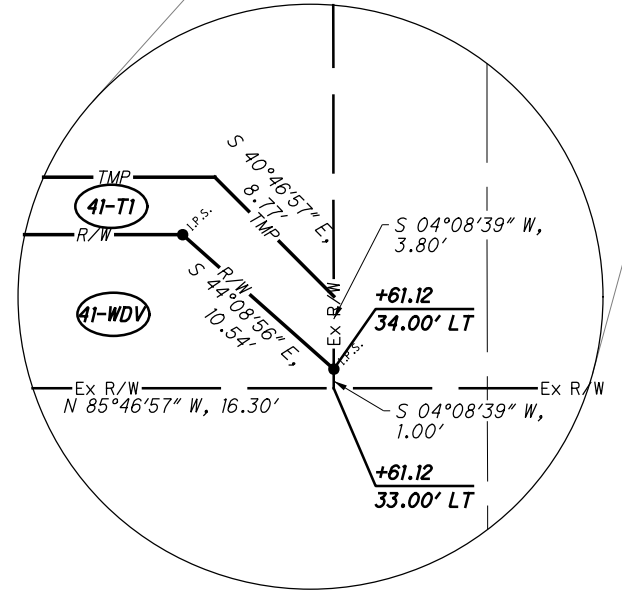
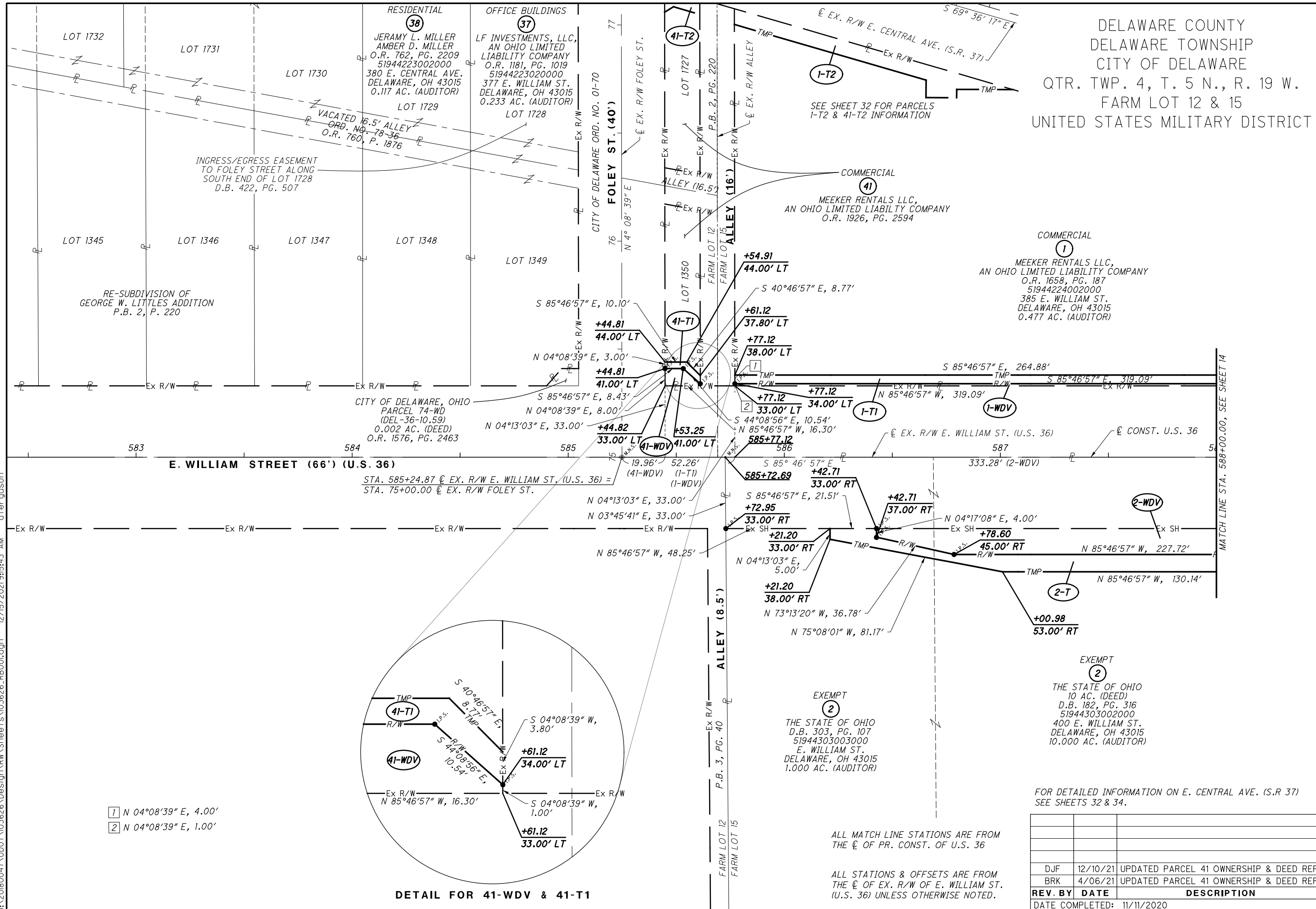


PID NO. **103626**  
R/W DESIGNER BLM  
R/W REVIEWER JMM

R/W BOUNDARY SHEET - U.S. 36  
STA. 583+00.00 TO STA. 588+00.00

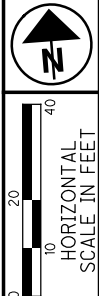
DEL-36-11.03

12/44  
612  
644



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DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 15  
UNITED STATES MILITARY DISTRICT

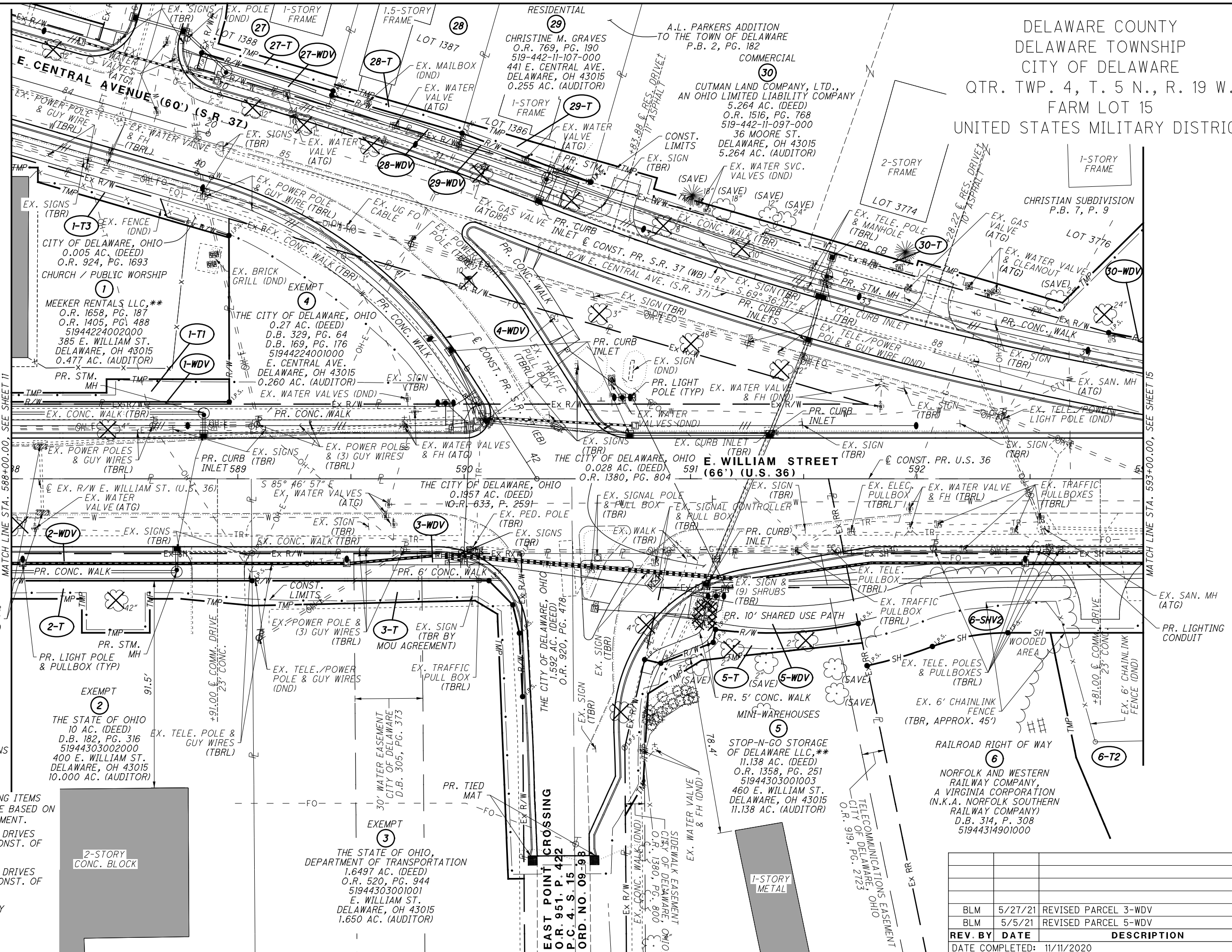


PID NO. 103626  
R/W DESIGNER BLM  
R/W REVIEWER JMM

R/W TOPO SHEET - U.S. 36  
STA. 588+00.00 TO STA. 593+00.00

DEL-36-11.03

13/44  
613  
644



MATCH LINE STA. 588+00.00. SEE SHEET 11

MATCH LINE STA. 593+00.00. SEE SHEET 15

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ALL MATCH LINE STATIONS ARE FROM THE C. OF PR. CONST. OF U.S. 36

DISPOSITION OF EXISTING ITEMS ARE SUBJECT TO CHANGE BASED ON FURTHER PLAN DEVELOPMENT.  
PARTIAL STATIONS FOR DRIVES ARE FROM THE PR. C. CONST. OF U.S. 36

† PARTIAL STATIONS FOR DRIVES ARE FROM THE PR. C. CONST. OF S.R. 37

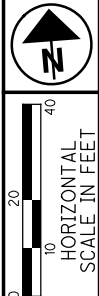
\* DENOTES RIGHT OF WAY ENCROACHMENT  
\*\* AN OHIO LIMITED LIABILITY COMPANY

2-STORY CONC. BLOCK

THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION  
1.6497 AC. (DEED)  
O.R. 520, PG. 944  
51944303001001  
E. WILLIAM ST.  
DELAWARE, OH 43015  
1.650 AC. (AUDITOR)

1-STORY METAL

| REV. BY                    | DATE    | DESCRIPTION          |
|----------------------------|---------|----------------------|
| BLM                        | 5/27/21 | REVISED PARCEL 3-WDV |
| BLM                        | 5/5/21  | REVISED PARCEL 5-WDV |
| DATE COMPLETED: 11/11/2020 |         |                      |



DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 15  
UNITED STATES MILITARY DISTRICT

PID NO. 103626

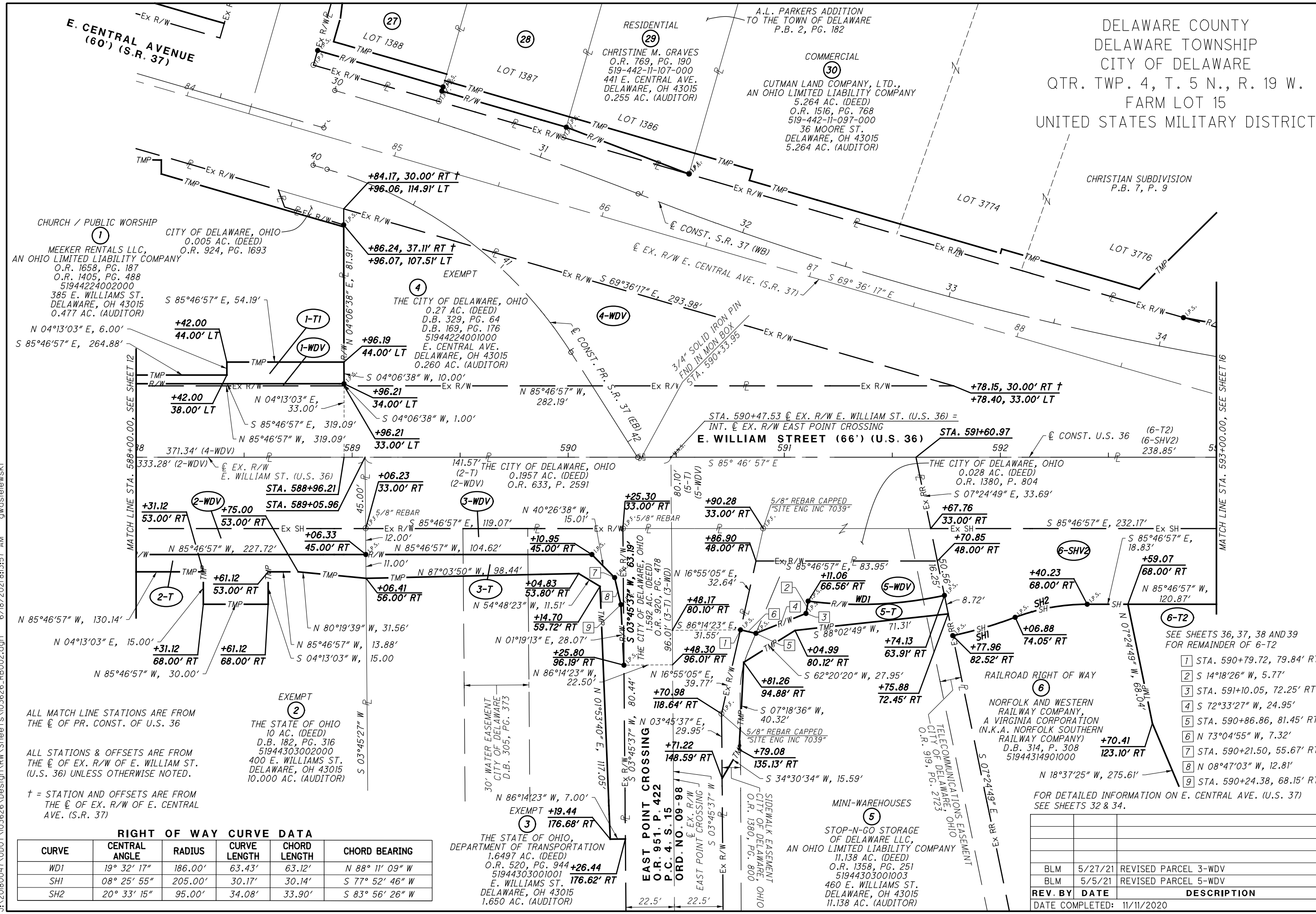
R/W DESIGNER BLM R/W REVIEWER JMM

R/W BOUNDARY SHEET - U.S. 36  
STA. 588+00.00 TO STA. 593+00.00

DEL-36-11.03

14 / 44

614  
644



ALL MATCH LINE STATIONS ARE FROM THE  $\hat{c}$  OF PR. CONST. OF U.S. 36

ALL STATIONS & OFFSETS ARE FROM THE  $\hat{c}$  OF EX. R/W OF E. WILLIAM ST. (U.S. 36) UNLESS OTHERWISE NOTED.

† = STATION AND OFFSETS ARE FROM THE  $\hat{c}$  OF EX. R/W OF E. CENTRAL AVE. (S.R. 37)

**RIGHT OF WAY CURVE DATA**

| CURVE | CENTRAL ANGLE | RADIUS  | CURVE LENGTH | CHORD LENGTH | CHORD BEARING   |
|-------|---------------|---------|--------------|--------------|-----------------|
| WD1   | 19° 32' 17"   | 186.00' | 63.43'       | 63.12'       | N 88° 11' 09" W |
| SH1   | 08° 25' 55"   | 205.00' | 30.17'       | 30.14'       | S 77° 52' 46" W |
| SH2   | 20° 33' 15"   | 95.00'  | 34.08'       | 33.90'       | S 83° 56' 26" W |

SEE SHEETS 36, 37, 38 AND 39 FOR REMAINDER OF 6-T2

- 1 STA. 590+79.72, 79.84' RT
- 2 S 14°18'26" W, 5.77'
- 3 STA. 591+10.05, 72.25' RT
- 4 S 72°33'27" W, 24.95'
- 5 STA. 590+86.86, 81.45' RT
- 6 N 73°04'55" W, 7.32'
- 7 STA. 590+21.50, 55.67' RT
- 8 N 08°47'03" W, 12.81'
- 9 STA. 590+24.38, 68.15' RT

FOR DETAILED INFORMATION ON E. CENTRAL AVE. (U.S. 37) SEE SHEETS 32 & 34.

| REV. BY                    | DATE    | DESCRIPTION          |
|----------------------------|---------|----------------------|
| BLM                        | 5/27/21 | REVISED PARCEL 3-WDV |
| BLM                        | 5/5/21  | REVISED PARCEL 5-WDV |
| DATE COMPLETED: 11/11/2020 |         |                      |

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DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 15  
UNITED STATES MILITARY DISTRICT

SEE SHEETS 39 & 44 FOR REMAINDER OF 6-T1

EXEMPT  
TRI TOWNSHIP BOARD OF  
FIRE DISTRICT TRUSTEES,  
DELAWARE COUNTY, OHIO  
1.11 AC. (DEED)  
O.R. 1753, PG. 2747  
O.R. 1753, PG. 2748  
O.R. 1753, PG. 2749  
51944210011000  
495 SUNBURY RD.  
DELAWARE, OH 43015  
1.110 AC. (AUDITOR)

NORFOLK AND WESTERN  
RAILWAY COMPANY,  
A VIRGINIA CORPORATION  
(N.K.A. NORFOLK SOUTHERN  
RAILWAY COMPANY)  
D.B. 314, P. 308  
51944214901000

KELLY SUBDIVISION  
P.B. 7, P. 15

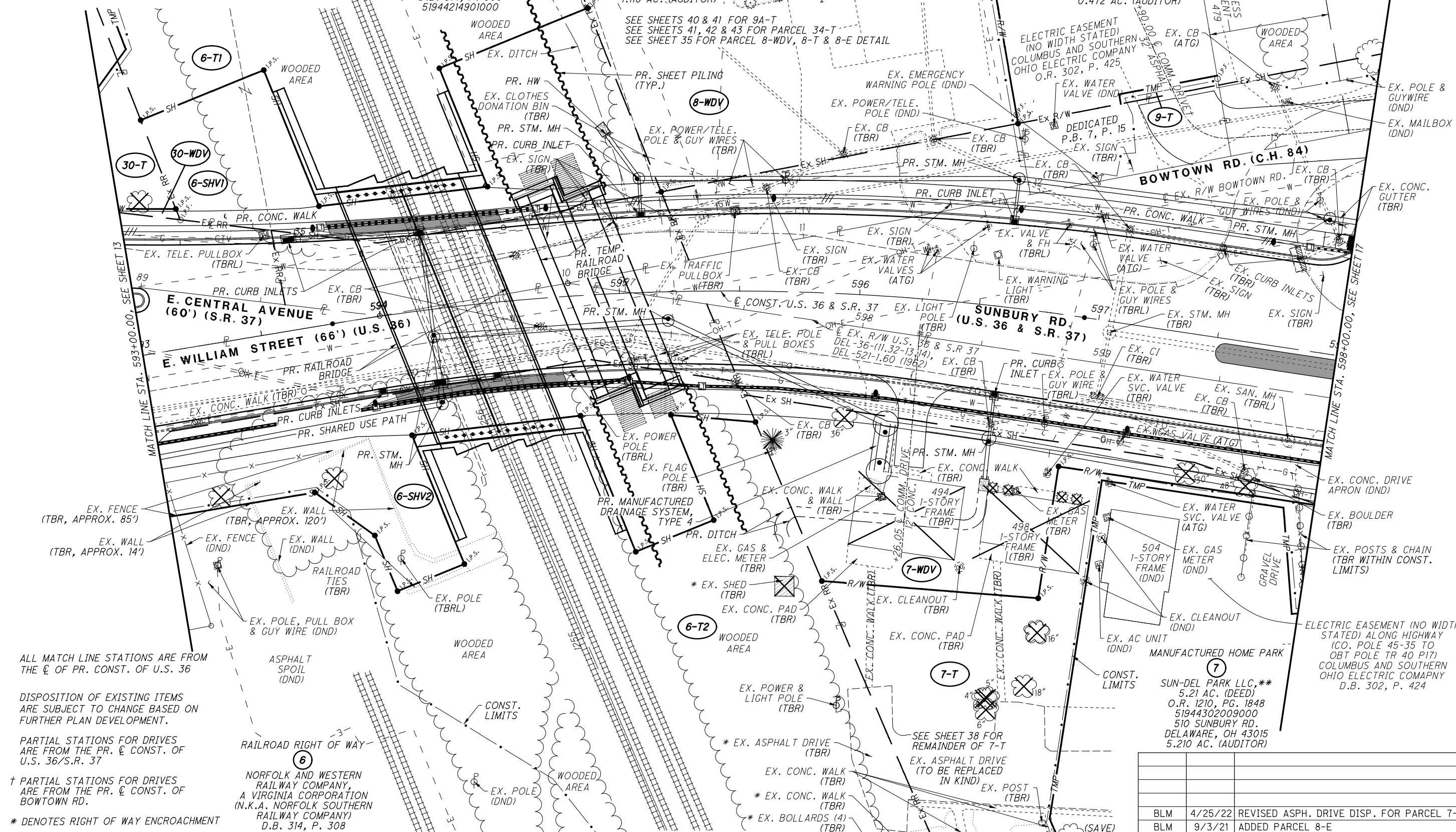
RESIDENTIAL  
CHARLES R. KELLEY (1/3 INTEREST)  
DENNIS M. KELLEY (1/3 INTEREST)  
CHARLES R. KELLEY & DENNIS M. KELLEY (1/3 INTEREST)  
0.799 AC. (DEED)  
O.R. 938, P. 1754  
O.R. 959, P. 2339  
O.R. 1391, P. 1823  
51944210015000  
511 BOWTOWN RD.  
DELAWARE, OH 43015  
0.799 AC. (AUDITOR)

501 BOWTOWN RD., LLC,\*\*  
O.R. 1075, PG. 2241  
51944210012000  
501 BOWTOWN RD.  
DELAWARE, OH 43015  
0.472 AC. (AUDITOR)

ELECTRIC EASEMENT  
(NO WIDTH STATED)  
COLUMBUS AND SOUTHERN  
OHIO ELECTRIC COMPANY  
O.R. 302, P. 425

DEDICATED  
P.B. 7, P. 15

SEE SHEETS 40 & 41 FOR 9A-T  
SEE SHEETS 41, 42 & 43 FOR PARCEL 34-T  
SEE SHEET 35 FOR PARCEL 8-WDV, 8-T & 8-E DETAIL



ALL MATCH LINE STATIONS ARE FROM  
THE  $\bar{C}$  OF PR. CONST. OF U.S. 36

DISPOSITION OF EXISTING ITEMS  
ARE SUBJECT TO CHANGE BASED ON  
FURTHER PLAN DEVELOPMENT.

PARTIAL STATIONS FOR DRIVES  
ARE FROM THE PR.  $\bar{C}$  CONST. OF  
U.S. 36/S.R. 37

† PARTIAL STATIONS FOR DRIVES  
ARE FROM THE PR.  $\bar{C}$  CONST. OF  
BOWTOWN RD.

\* DENOTES RIGHT OF WAY ENCROACHMENT

\*\* AN OHIO LIMITED LIABILITY COMPANY

NORFOLK AND WESTERN  
RAILWAY COMPANY,  
A VIRGINIA CORPORATION  
(N.K.A. NORFOLK SOUTHERN  
RAILWAY COMPANY)  
D.B. 314, P. 308  
51944314901000

SEE SHEETS 36, 37, 38 & 39 FOR  
REMAINDER OF PARCEL 6-T2

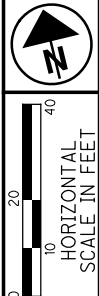
SEE SHEET 38 FOR  
REMAINDER OF 7-T

DATE COMPLETED: 11/11/2020

| REV. BY | DATE    | DESCRIPTION                              |
|---------|---------|------------------------------------------|
| BLM     | 4/25/22 | REVISED ASPH. DRIVE DISP. FOR PARCEL 7-T |
| BLM     | 9/3/21  | ADDED PARCEL 8-E                         |

  
 PID NO. **103626**  
 R/W DESIGNER BLM R/W REVIEWER JMM  
**R/W TOPO SHEET - U.S. 36**  
**STA. 593+00.00 TO STA. 598+00.00**  
**DEL-36-11.03**  
 15 / 44  
 615  
 644

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DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 15  
UNITED STATES MILITARY DISTRICT

PID NO.  
**103626**

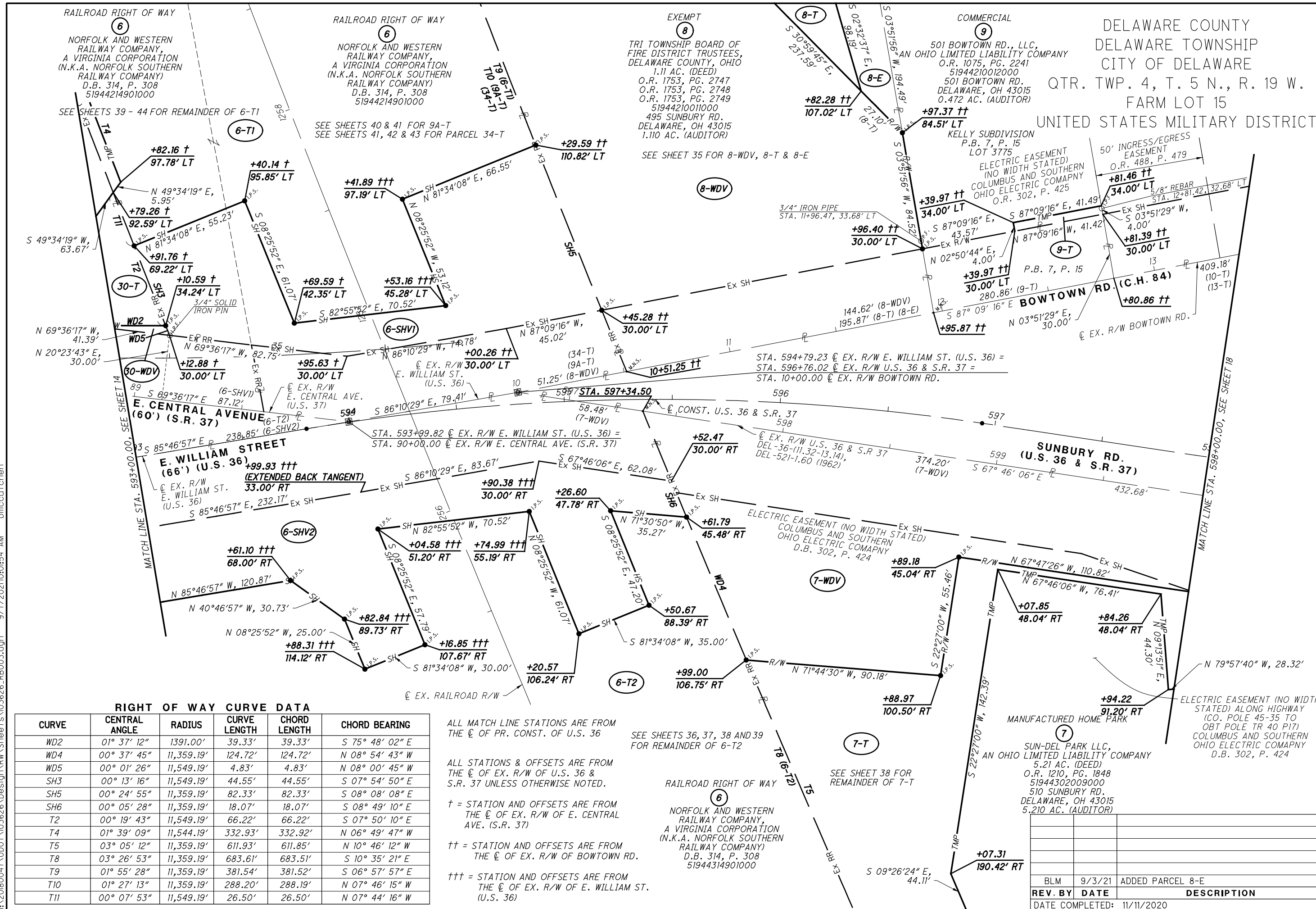
R/W DESIGNER  
BLM  
R/W REVIEWER  
JMM

R/W BOUNDARY SHEET - U.S. 36  
STA. 593+00.00 TO STA. 598+00.00

DEL-36-11.30

16 / 44

616  
644



**RIGHT OF WAY CURVE DATA**

| CURVE | CENTRAL ANGLE | RADIUS     | CURVE LENGTH | CHORD LENGTH | CHORD BEARING   |
|-------|---------------|------------|--------------|--------------|-----------------|
| WD2   | 01° 37' 12"   | 1391.00'   | 39.33'       | 39.33'       | S 75° 48' 02" E |
| WD4   | 00° 37' 45"   | 11,359.19' | 124.72'      | 124.72'      | N 08° 54' 43" W |
| WD5   | 00° 01' 26"   | 11,549.19' | 4.83'        | 4.83'        | N 08° 00' 45" W |
| SH3   | 00° 13' 16"   | 11,549.19' | 44.55'       | 44.55'       | S 07° 54' 50" E |
| SH5   | 00° 24' 55"   | 11,359.19' | 82.33'       | 82.33'       | S 08° 08' 08" E |
| SH6   | 00° 05' 28"   | 11,359.19' | 18.07'       | 18.07'       | S 08° 49' 10" E |
| T2    | 00° 19' 43"   | 11,549.19' | 66.22'       | 66.22'       | S 07° 50' 10" E |
| T4    | 01° 39' 09"   | 11,544.19' | 332.93'      | 332.92'      | N 06° 49' 47" W |
| T5    | 03° 05' 12"   | 11,359.19' | 611.93'      | 611.85'      | N 10° 46' 12" W |
| T8    | 03° 26' 53"   | 11,359.19' | 683.61'      | 683.51'      | S 10° 35' 21" E |
| T9    | 01° 55' 28"   | 11,359.19' | 381.54'      | 381.52'      | S 06° 57' 57" E |
| T10   | 01° 27' 13"   | 11,359.19' | 288.20'      | 288.19'      | N 07° 46' 15" W |
| T11   | 00° 07' 53"   | 11,549.19' | 26.50'       | 26.50'       | N 07° 44' 16" W |

ALL MATCH LINE STATIONS ARE FROM THE  $\odot$  OF PR. CONST. OF U.S. 36

ALL STATIONS & OFFSETS ARE FROM THE  $\odot$  OF EX. R/W OF U.S. 36 & S.R. 37 UNLESS OTHERWISE NOTED.

† = STATION AND OFFSETS ARE FROM THE  $\odot$  OF EX. R/W OF E. CENTRAL AVE. (S.R. 37)

†† = STATION AND OFFSETS ARE FROM THE  $\odot$  OF EX. R/W OF BOWTOWN RD.

††† = STATION AND OFFSETS ARE FROM THE  $\odot$  OF EX. R/W OF E. WILLIAM ST. (U.S. 36)

SEE SHEETS 36, 37, 38 AND 39 FOR REMAINDER OF 6-T2

RAILROAD RIGHT OF WAY

NORFOLK AND WESTERN RAILWAY COMPANY, A VIRGINIA CORPORATION (N.K.A. NORFOLK SOUTHERN RAILWAY COMPANY) D.B. 314, P. 308 51944314901000

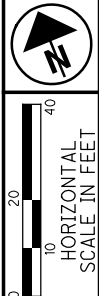
SEE SHEET 38 FOR REMAINDER OF 7-T

SUN-DEL PARK LLC, AN OHIO LIMITED LIABILITY COMPANY 5.21 AC. (DEED) O.R. 1210, PG. 1848 5194302009000 510 SUNBURY RD. DELAWARE, OH 43015 5.210 AC. (AUDITOR)

| REV. BY                    | DATE   | DESCRIPTION      |
|----------------------------|--------|------------------|
| BLM                        | 9/3/21 | ADDED PARCEL 8-E |
| DATE COMPLETED: 11/11/2020 |        |                  |

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DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 15  
E UNITED STATES MILITARY DISTRICT



PID NO. 103626

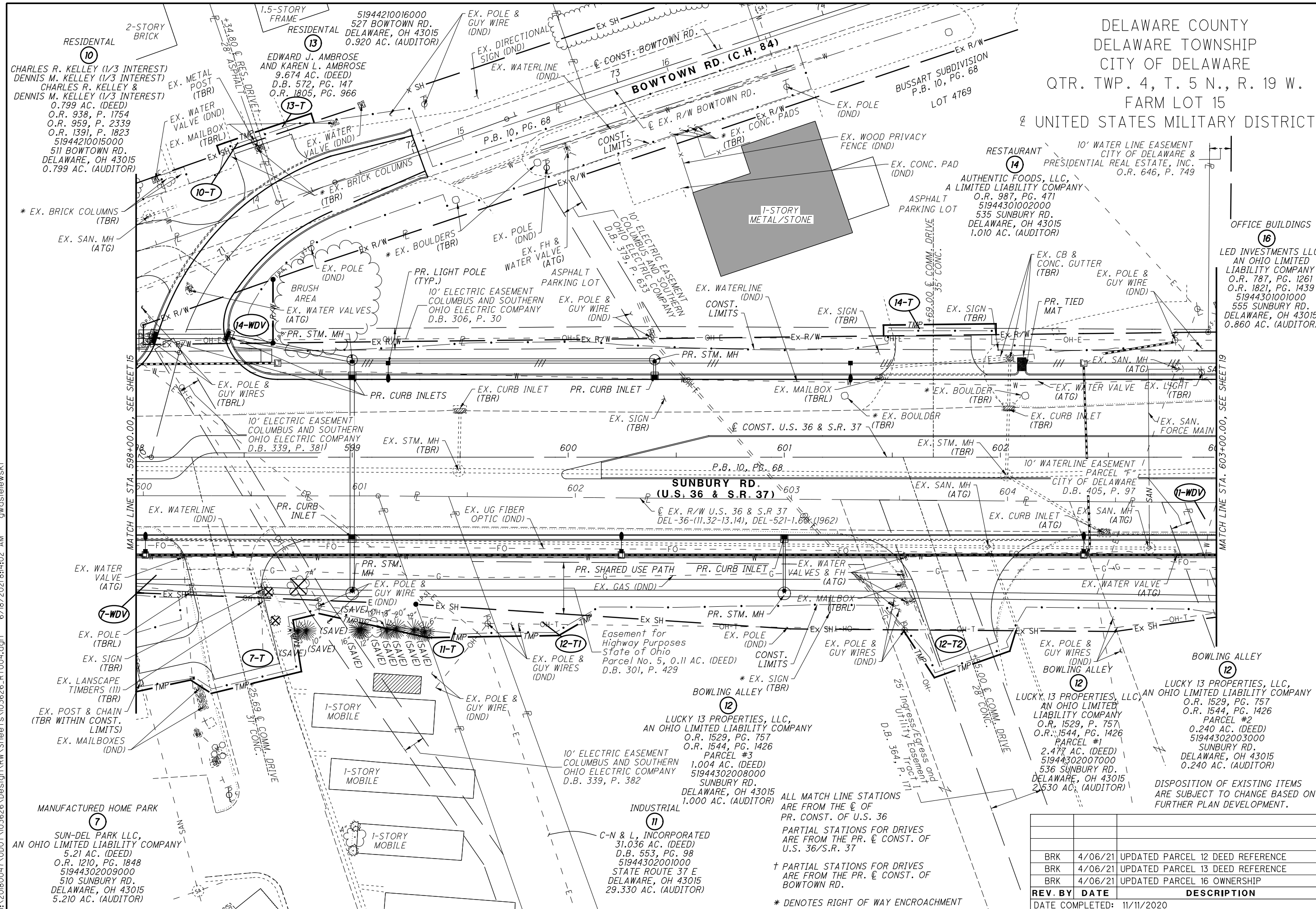
R/W DESIGNER BLM  
R/W REVIEWER JMM

R/W TOPO SHEET - U.S. 36  
STA. 598+00.00 TO STA. 603+00.00

DEL-36-11.03

17 / 44

617  
644



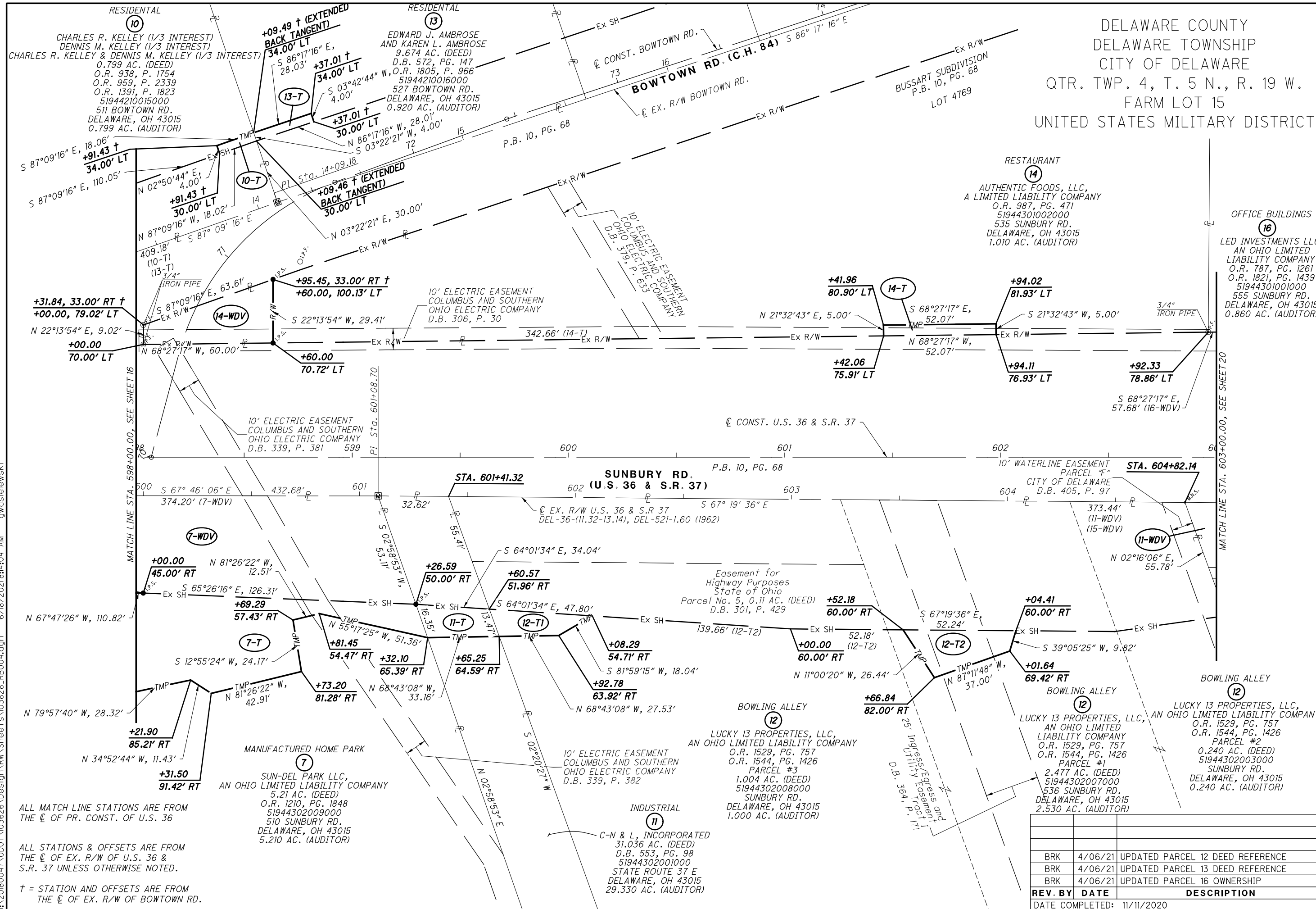
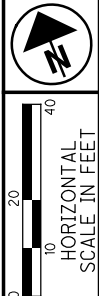
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ALL MATCH LINE STATIONS ARE FROM THE  $\varnothing$  OF PR. CONST. OF U.S. 36  
PARTIAL STATIONS FOR DRIVES ARE FROM THE PR.  $\varnothing$  CONST. OF U.S. 36/S.R. 37  
† PARTIAL STATIONS FOR DRIVES ARE FROM THE PR.  $\varnothing$  CONST. OF BOWTOWN RD.  
\* DENOTES RIGHT OF WAY ENCROACHMENT

DISPOSITION OF EXISTING ITEMS ARE SUBJECT TO CHANGE BASED ON FURTHER PLAN DEVELOPMENT.

| REV. BY         | DATE    | DESCRIPTION                      |
|-----------------|---------|----------------------------------|
| BRK             | 4/06/21 | UPDATED PARCEL 12 DEED REFERENCE |
| BRK             | 4/06/21 | UPDATED PARCEL 13 DEED REFERENCE |
| BRK             | 4/06/21 | UPDATED PARCEL 16 OWNERSHIP      |
| DATE COMPLETED: |         | 11/11/2020                       |

DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 15  
UNITED STATES MILITARY DISTRICT



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ALL MATCH LINE STATIONS ARE FROM THE  $\phi$  OF PR. CONST. OF U.S. 36

ALL STATIONS & OFFSETS ARE FROM THE  $\phi$  OF EX. R/W OF U.S. 36 & S.R. 37 UNLESS OTHERWISE NOTED.

† = STATION AND OFFSETS ARE FROM THE  $\phi$  OF EX. R/W OF BOWTOWN RD.

| REV. BY                    | DATE    | DESCRIPTION                      |
|----------------------------|---------|----------------------------------|
| BRK                        | 4/06/21 | UPDATED PARCEL 12 DEED REFERENCE |
| BRK                        | 4/06/21 | UPDATED PARCEL 13 DEED REFERENCE |
| BRK                        | 4/06/21 | UPDATED PARCEL 16 OWNERSHIP      |
| DATE COMPLETED: 11/11/2020 |         |                                  |

R/W BOUNDARY SHEET - U.S. 36  
STA. 598+00.00 TO STA. 603+00.00

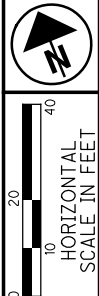
DEL-36-11.03

PID NO. 103626

R/W DESIGNER BLM  
R/W REVIEWER JMM

18 / 44

618  
644



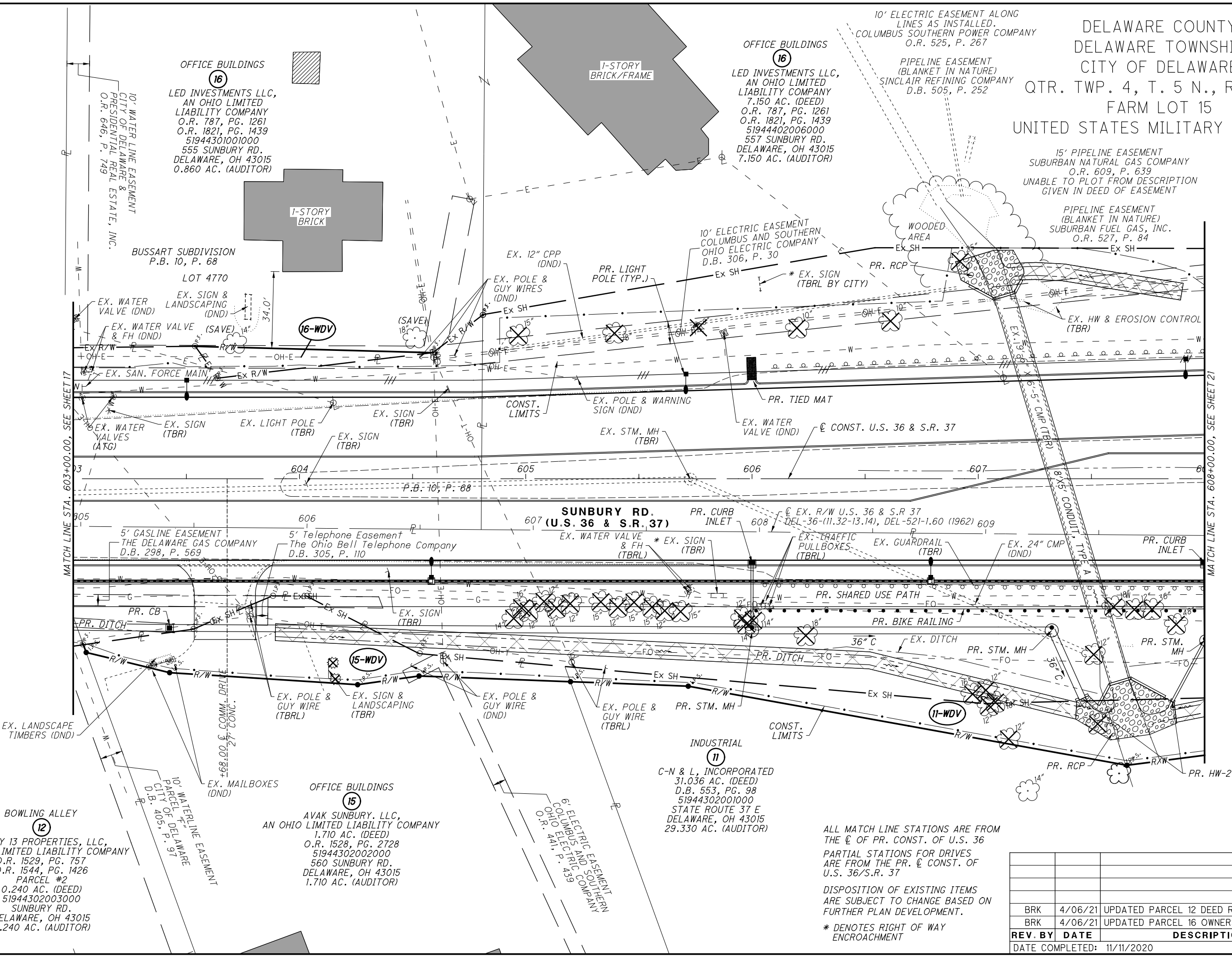
DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 15  
UNITED STATES MILITARY DISTRICT

PID NO. 103626  
R/W DESIGNER BLM  
R/W REVIEWER JMM

R/W TOPO SHEET - U.S. 36  
STA. 603+00.00 TO STA. 608+00.00

DEL-36-11.03

19/44  
619  
644

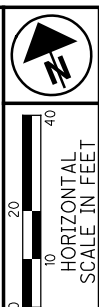


ALL MATCH LINE STATIONS ARE FROM THE  $\bar{C}$  OF PR. CONST. OF U.S. 36  
PARTIAL STATIONS FOR DRIVES ARE FROM THE PR.  $\bar{C}$  CONST. OF U.S. 36/S.R. 37  
DISPOSITION OF EXISTING ITEMS ARE SUBJECT TO CHANGE BASED ON FURTHER PLAN DEVELOPMENT.  
\* DENOTES RIGHT OF WAY ENCROACHMENT

| REV. BY                    | DATE    | DESCRIPTION                      |
|----------------------------|---------|----------------------------------|
| BRK                        | 4/06/21 | UPDATED PARCEL 12 DEED REFERENCE |
| BRK                        | 4/06/21 | UPDATED PARCEL 16 OWNERSHIP      |
| DATE COMPLETED: 11/11/2020 |         |                                  |

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DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 15  
UNITED STATES MILITARY DISTRICT



PID NO. **103626**  
R/W DESIGNER BLM  
R/W REVIEWER JMM

R/W BOUNDARY SHEET - U.S. 36  
STA. 603+00.00 TO STA. 608+00.00

DEL-36-11.03

20/44  
620  
644

15' PIPELINE EASEMENT  
SUBURBAN NATURAL GAS COMPANY  
O.R. 609, P. 639  
UNABLE TO PLOT FROM DESCRIPTION  
GIVEN IN DEED OF EASEMENT

PIPELINE EASEMENT  
(BLANKET IN NATURE)  
SUBURBAN FUEL GAS, INC.  
O.R. 527, P. 84

PIPELINE EASEMENT  
(BLANKET IN NATURE)  
SINCLAIR REFINING COMPANY  
P.B. 505, P. 252

10' ELECTRIC EASEMENT  
(ALONG LINE AS INSTALLED)  
COLUMBUS SOUTHERN POWER COMPANY  
O.R. 525, P. 267

OFFICE BUILDINGS  
**16**  
LED INVESTMENTS LLC,  
AN OHIO LIMITED LIABILITY COMPANY  
7.150 AC. (DEED)  
O.R. 787, PG. 1261  
O.R. 1821, PG. 1439  
51944402006000  
557 SUNBURY RD.  
DELAWARE, OH 43015  
7.150 AC. (AUDITOR)

OFFICE BUILDINGS  
**16**  
LED INVESTMENTS LLC,  
AN OHIO LIMITED LIABILITY COMPANY  
O.R. 787, PG. 1261  
O.R. 1821, PG. 1439  
51944301001000  
555 SUNBURY RD.  
DELAWARE, OH 43015  
0.860 AC. (AUDITOR)

BUSSART SUBDIVISION  
P.B. 10, P. 68  
LOT 4770

10' WATERLINE EASEMENT  
CITY OF DELAWARE &  
PRESIDENTIAL REAL ESTATE, INC.  
O.R. 646, P. 749

10' ELECTRIC EASEMENT  
COLUMBUS AND SOUTHERN  
OHIO ELECTRIC COMPANY  
D.B. 306, P. 30

MATCH LINE STA. 603+00.00, SEE SHEET 18

MATCH LINE STA. 608+00.00, SEE SHEET 22

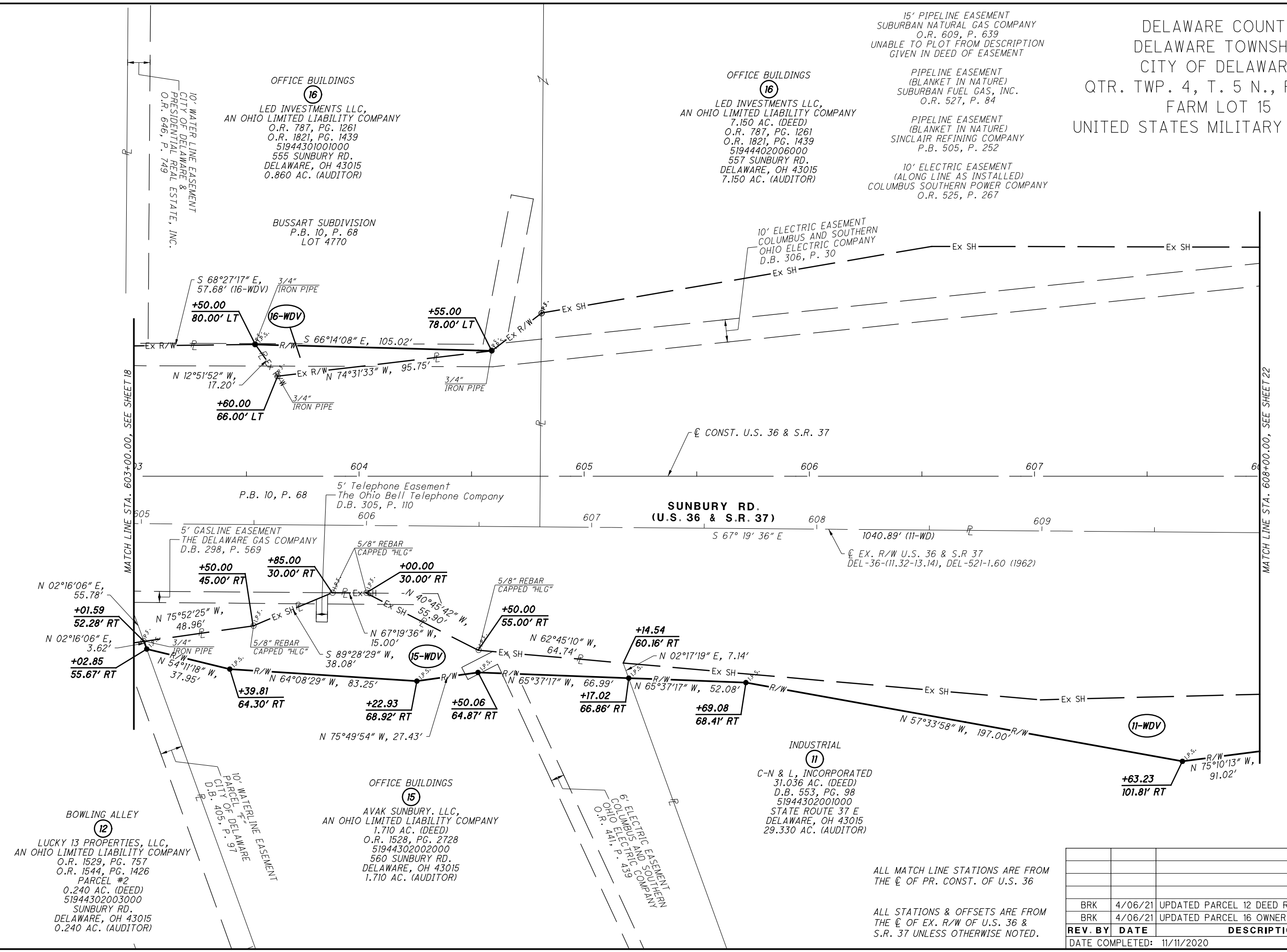
SUNBURY RD.  
(U.S. 36 & S.R. 37)

P.B. 10, P. 68  
5' Telephone Easement  
The Ohio Bell Telephone Company  
D.B. 305, P. 110

5' GASLINE EASEMENT  
THE DELAWARE GAS COMPANY  
D.B. 298, P. 569

1040.89' (11-WD)  
EX. R/W U.S. 36 & S.R. 37  
DEL-36-(11.32-13.14), DEL-521-1.60 (1962)

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BOWLING ALLEY  
**12**  
LUCKY 13 PROPERTIES, LLC,  
AN OHIO LIMITED LIABILITY COMPANY  
O.R. 1529, PG. 757  
O.R. 1544, PG. 1426  
PARCEL #2  
0.240 AC. (DEED)  
51944302003000  
SUNBURY RD.  
DELAWARE, OH 43015  
0.240 AC. (AUDITOR)

OFFICE BUILDINGS  
**15**  
AVAK SUNBURY, LLC,  
AN OHIO LIMITED LIABILITY COMPANY  
1.710 AC. (DEED)  
O.R. 1528, PG. 2728  
51944302002000  
560 SUNBURY RD.  
DELAWARE, OH 43015  
1.710 AC. (AUDITOR)

INDUSTRIAL  
**11**  
C-N & L, INCORPORATED  
31.036 AC. (DEED)  
D.B. 553, PG. 98  
51944302001000  
STATE ROUTE 37 E  
DELAWARE, OH 43015  
29.330 AC. (AUDITOR)

ALL MATCH LINE STATIONS ARE FROM  
THE  $\bar{C}$  OF PR. CONST. OF U.S. 36

ALL STATIONS & OFFSETS ARE FROM  
THE  $\bar{C}$  OF EX. R/W OF U.S. 36 &  
S.R. 37 UNLESS OTHERWISE NOTED.

| REV. BY                    | DATE    | DESCRIPTION                      |
|----------------------------|---------|----------------------------------|
| BRK                        | 4/06/21 | UPDATED PARCEL 12 DEED REFERENCE |
| BRK                        | 4/06/21 | UPDATED PARCEL 16 OWNERSHIP      |
| DATE COMPLETED: 11/11/2020 |         |                                  |

10' ELECTRIC EASEMENT ALONG LINES AS INSTALLED.  
COLUMBUS SOUTHERN POWER COMPANY  
O.R. 525, P. 267

PIPELINE EASEMENT (BLANKET IN NATURE)  
SINCLAIR REFINING COMPANY  
D.B. 505, P. 252

DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 15  
UNITED STATES MILITARY DISTRICT

1-STORY BRICK

OFFICE BUILDINGS

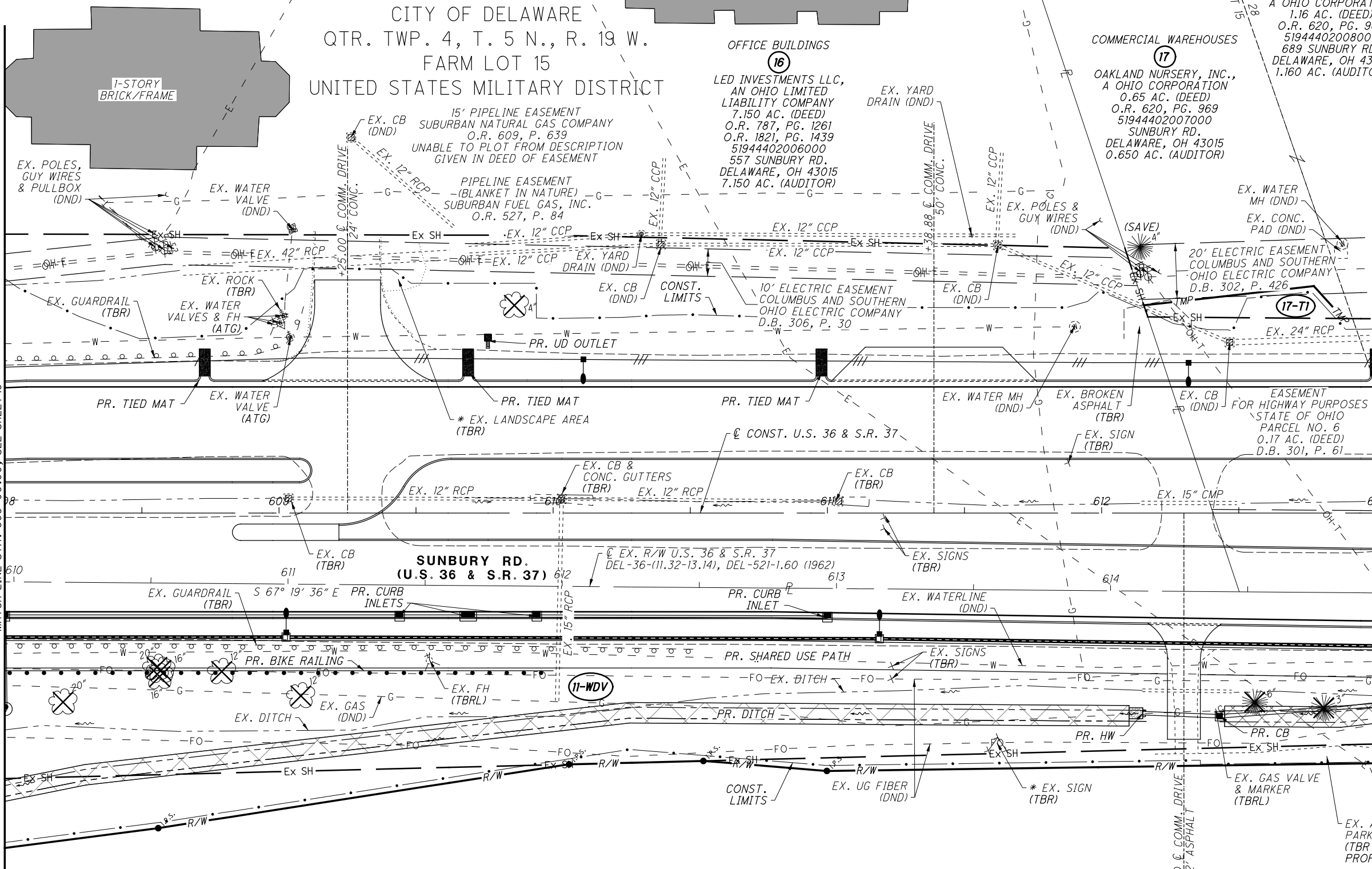
LED INVESTMENTS LLC,  
AN OHIO LIMITED LIABILITY COMPANY  
7.150 AC. (DEED)  
O.R. 787, PG. 1261  
O.R. 1821, PG. 1439  
51944402006000  
557 SUNBURY RD.  
DELAWARE, OH 43015  
7.150 AC. (AUDITOR)

COMMERCIAL WAREHOUSES

OAKLAND NURSERY, INC.,  
A OHIO CORPORATION  
0.65 AC. (DEED)  
O.R. 620, PG. 969  
51944402007000  
SUNBURY RD.  
DELAWARE, OH 43015  
0.650 AC. (AUDITOR)

COMMERCIAL WAREHOUSES

OAKLAND NURSERY, INC.,  
A OHIO CORPORATION  
1.16 AC. (DEED)  
O.R. 620, PG. 969  
51944402008000  
689 SUNBURY RD.  
DELAWARE, OH 43015  
1.160 AC. (AUDITOR)



MATCH LINE STA. 608+00.00, SEE SHEET 19

MATCH LINE STA. 613+00.00, SEE SHEET 23


ALL MATCH LINE STATIONS ARE FROM THE  $\phi$  OF PR. CONST. OF U.S. 36

DISPOSITION OF EXISTING ITEMS ARE SUBJECT TO CHANGE BASED ON FURTHER PLAN DEVELOPMENT.

PARTIAL STATIONS FOR DRIVES ARE FROM THE PR.  $\phi$  CONST. OF U.S. 36/S.R. 37

\* DENOTES RIGHT OF WAY ENROACHMENT

INDUSTRIAL  
C-N & L, INCORPORATED  
31.036 AC. (DEED)  
D.B. 553, PG. 98  
51944302001000  
STATE ROUTE 37 E  
DELAWARE, OH 43015  
29.330 AC. (AUDITOR)

  
  
 HORIZONTAL SCALE IN FEET  
 PID NO. **103626**  
 R/W DESIGNER BLM  
 R/W REVIEWER JMM  
**R/W TOPO SHEET - U.S. 36**  
**STA. 608+00.00 TO STA. 613+00.00**  
**DEL-36-11.03**  
 21 / 44  

| REV. BY | DATE    | DESCRIPTION                 |
|---------|---------|-----------------------------|
| BRK     | 4/06/21 | UPDATED PARCEL 16 OWNERSHIP |
| 621     |         |                             |
| 644     |         |                             |

 DATE COMPLETED: 11/11/2020

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DELAWARE COUNTY  
 DELAWARE TOWNSHIP  
 CITY OF DELAWARE  
 QTR. TWP. 4, T. 5 N., R. 19 W.  
 FARM LOTS 15 & 28  
 UNITED STATES MILITARY DISTRICT

10' ELECTRIC EASEMENT ALONG  
 LINES AS INSTALLED.  
 COLUMBUS SOUTHERN POWER COMPANY  
 O.R. 525, P. 267

PIPELINE EASEMENT  
 (BLANKET IN NATURE)  
 SINCLAIR REFINING COMPANY  
 D.B. 505, P. 252

15' PIPELINE EASEMENT  
 SUBURBAN NATURAL GAS COMPANY  
 O.R. 609, P. 639  
 UNABLE TO PLOT FROM DESCRIPTION  
 GIVEN IN DEED OF EASEMENT

PIPELINE EASEMENT  
 (BLANKET IN NATURE)  
 SUBURBAN FUEL GAS, INC.  
 O.R. 527, P. 84

OFFICE BUILDINGS

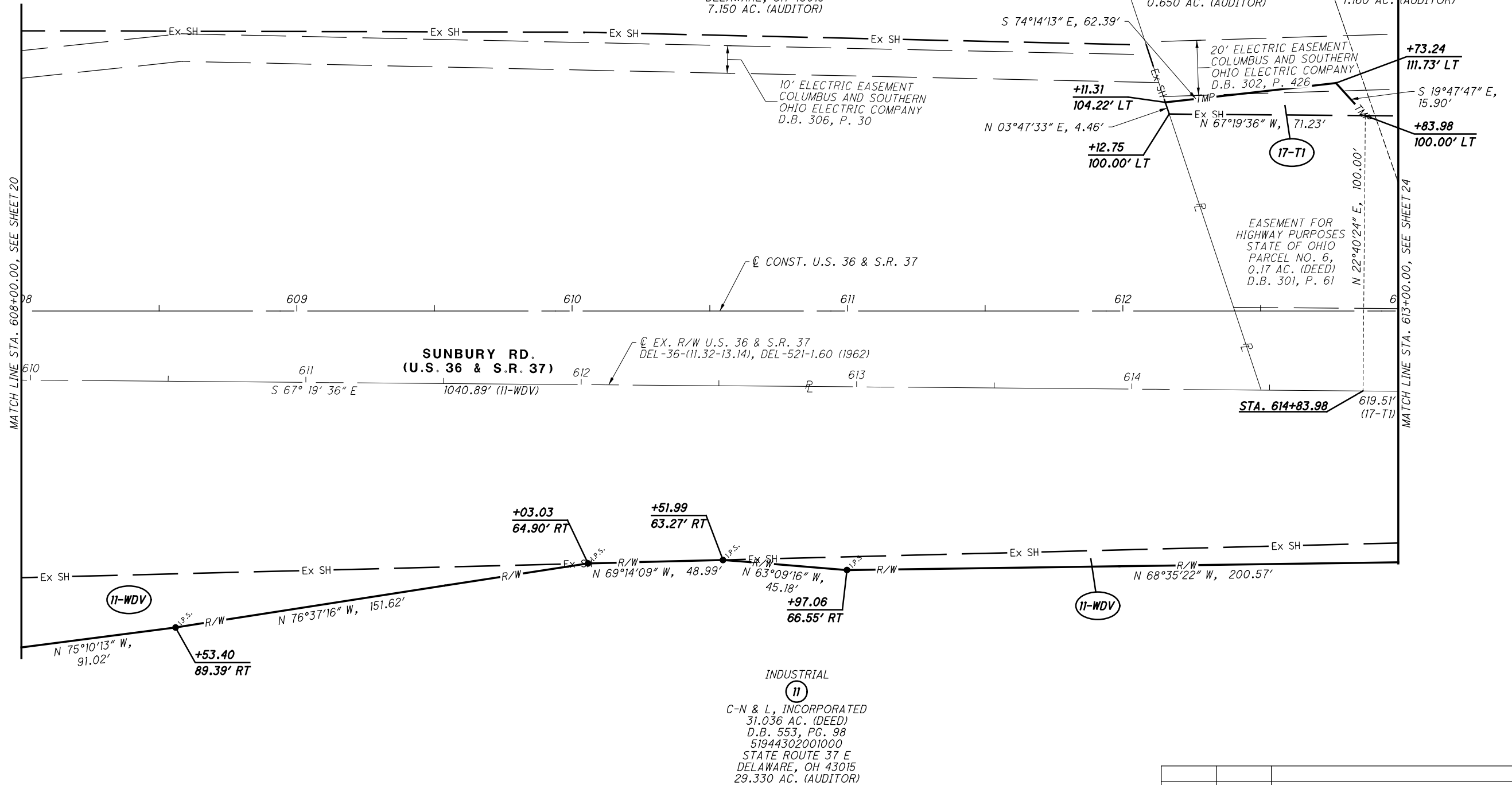
16  
 LED INVESTMENTS LLC,  
 AN OHIO LIMITED LIABILITY COMPANY  
 7.150 AC. (DEED)  
 O.R. 787, PG. 1261  
 O.R. 1821, P. 1439  
 51944402006000  
 557 SUNBURY RD.  
 DELAWARE, OH 43015  
 7.150 AC. (AUDITOR)

COMMERCIAL WAREHOUSES

17  
 OAKLAND NURSERY, INC.,  
 A OHIO CORPORATION  
 0.65 AC. (DEED)  
 O.R. 620, PG. 969  
 51944402007000  
 SUNBURY RD.  
 DELAWARE, OH 43015  
 0.650 AC. (AUDITOR)

COMMERCIAL WAREHOUSES

17  
 OAKLAND NURSERY, INC.,  
 A OHIO CORPORATION  
 1.16 AC. (DEED)  
 O.R. 620, PG. 969  
 51944402008000  
 689 SUNBURY RD.  
 DELAWARE, OH 43015  
 1.160 AC. (AUDITOR)



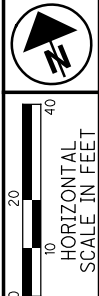
INDUSTRIAL

11  
 C-N & L, INCORPORATED  
 31.036 AC. (DEED)  
 D.B. 553, PG. 98  
 51944302001000  
 STATE ROUTE 37 E  
 DELAWARE, OH 43015  
 29.330 AC. (AUDITOR)

ALL MATCH LINE STATIONS ARE FROM  
 THE  $\bar{C}$  OF PR. CONST. OF U.S. 36

ALL STATIONS & OFFSETS ARE FROM  
 THE  $\bar{C}$  OF EX. R/W OF U.S. 36 &  
 S.R. 37 UNLESS OTHERWISE NOTED.

| REV. BY                    | DATE    | DESCRIPTION                 |
|----------------------------|---------|-----------------------------|
| BRK                        | 4/06/21 | UPDATED PARCEL 16 OWNERSHIP |
| DATE COMPLETED: 11/11/2020 |         |                             |



PID NO. **103626**

R/W DESIGNER BLM  
 R/W REVIEWER JMM

R / W BOUNDARY SHEET - U.S. 36  
 STA. 608+00.00 TO STA. 613+00.00

DEL-36-11.03

22 / 44

622  
 644

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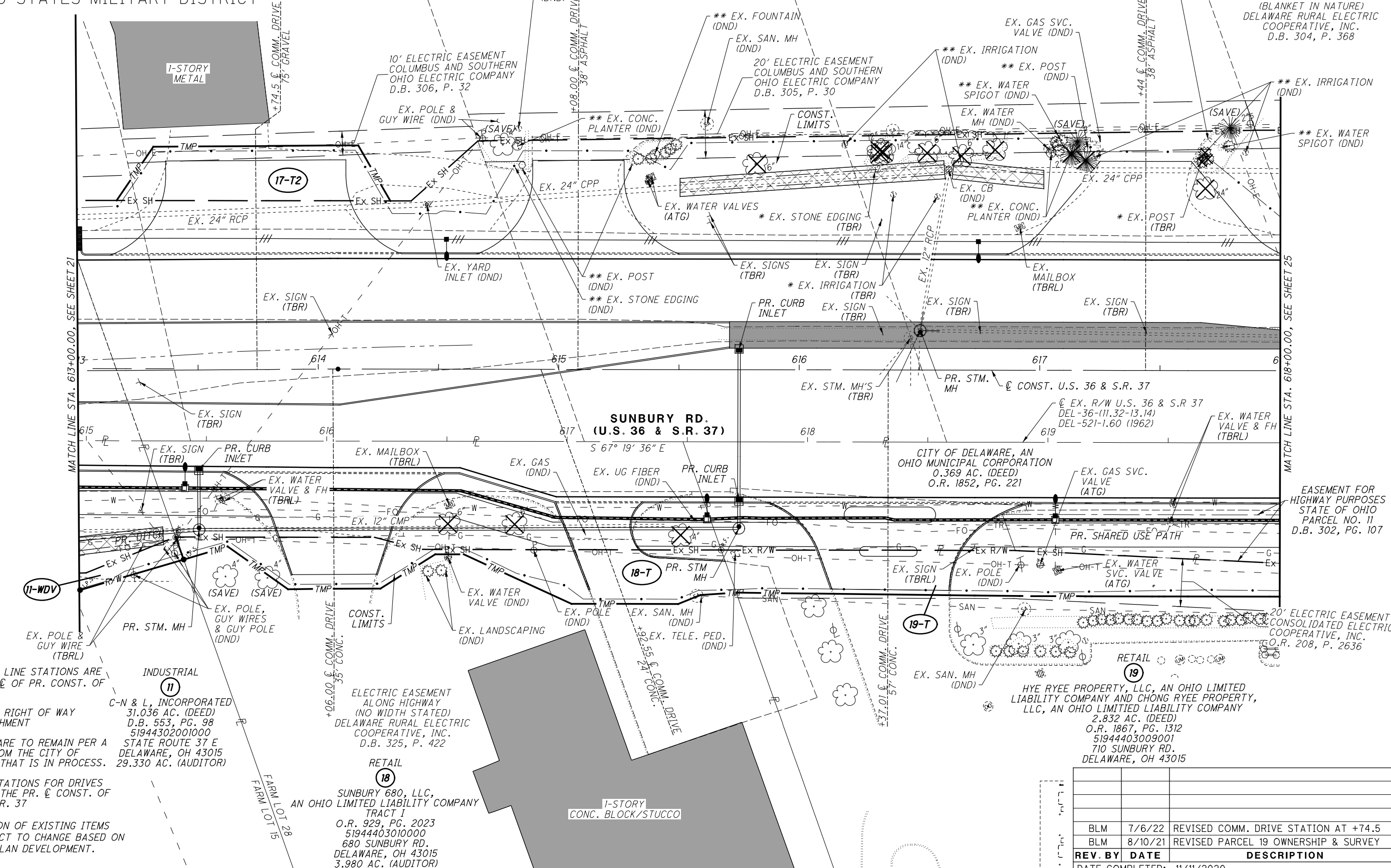
DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 15 & 28  
UNITED STATES MILITARY DISTRICT

COMMERCIAL WAREHOUSES  
17  
OAKLAND NURSERY, INC.,  
A OHIO CORPORATION  
1.16 AC. (DEED)  
O.R. 620, PG. 969  
51944402008000  
689 SUNBURY RD.  
DELAWARE, OH 43015  
1.160 AC. (AUDITOR)

COMMERCIAL LAWN & GARDEN SALES  
17  
OAKLAND NURSERY, INC.,  
A OHIO CORPORATION  
1.113 AC. (DEED)  
D.B. 581, PG. 567  
51944402009000  
SUNBURY RD.  
DELAWARE, OH 43015  
1.110 AC. (AUDITOR)

COMMERCIAL LAWN & GARDEN SALES  
17  
OAKLAND NURSERY, INC.,  
A OHIO CORPORATION  
1.362 AC. (DEED)  
D.B. 548, PG. 356  
51944402010000  
STATE ROUTE 37 E  
DELAWARE, OH 43015  
1.360 AC. (AUDITOR)

COMMERCIAL LAWN & GARDEN SALES  
17  
OAKLAND NURSERY, INC.,  
A OHIO CORPORATION  
2.307 AC. (DEED)  
D.B. 548, PG. 356  
51944402011000  
25 KILBOURNE RD.  
DELAWARE, OH 43015  
2.310 AC. (AUDITOR)  
ELECTRIC EASEMENT  
(BLANKET IN NATURE)  
DELAWARE RURAL ELECTRIC  
COOPERATIVE, INC.  
D.B. 304, P. 368



ALL MATCH LINE STATIONS ARE FROM THE C OF PR. CONST. OF U.S. 36

\* DENOTES RIGHT OF WAY ENCROACHMENT

\*\* ITEMS ARE TO REMAIN PER A PERMIT FROM THE CITY OF DELAWARE THAT IS IN PROCESS.

PARTIAL STATIONS FOR DRIVES ARE FROM THE PR. C OF CONST. OF U.S. 36/S.R. 37

DISPOSITION OF EXISTING ITEMS ARE SUBJECT TO CHANGE BASED ON FURTHER PLAN DEVELOPMENT.

INDUSTRIAL  
11  
C-N & L, INCORPORATED  
31.036 AC. (DEED)  
D.B. 553, PG. 98  
51944302001000  
STATE ROUTE 37 E  
DELAWARE, OH 43015  
29.330 AC. (AUDITOR)

ELECTRIC EASEMENT ALONG HIGHWAY (NO WIDTH STATED)  
DELAWARE RURAL ELECTRIC COOPERATIVE, INC.  
D.B. 325, P. 422

RETAIL  
18  
SUNBURY 680, LLC,  
AN OHIO LIMITED LIABILITY COMPANY  
TRACT I  
O.R. 929, PG. 2023  
51944403010000  
680 SUNBURY RD.  
DELAWARE, OH 43015  
3.980 AC. (AUDITOR)

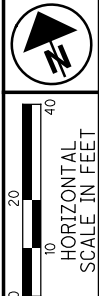
RETAIL  
19  
HYE RYEE PROPERTY, LLC, AN OHIO LIMITED LIABILITY COMPANY AND CHONG RYEE PROPERTY, LLC, AN OHIO LIMITED LIABILITY COMPANY  
2.832 AC. (DEED)  
O.R. 1867, PG. 1312  
51944403009001  
710 SUNBURY RD.  
DELAWARE, OH 43015

| REV. BY         | DATE    | DESCRIPTION                          |
|-----------------|---------|--------------------------------------|
| BLM             | 7/6/22  | REVISED COMM. DRIVE STATION AT +74.5 |
| BLM             | 8/10/21 | REVISED PARCEL 19 OWNERSHIP & SURVEY |
| DATE COMPLETED: |         | 11/11/2020                           |

  
  
 HORIZONTAL SCALE IN FEET  
 PID NO. **103626**  
 R/W DESIGNER BLM  
 R/W REVIEWER JMM  
**R/W TOPO SHEET - U.S. 36**  
**STA. 613+00.00 TO STA. 618+00.00**  
**DEL-36-11.03**  
 23/44  
 623  
 644

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DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOTS 15 & 28  
UNITED STATES MILITARY DISTRICT



PID NO. **103626**  
R/W DESIGNER BLM  
R/W REVIEWER JMM

R/W BOUNDARY SHEET - U.S. 36  
STA. 613+00.00 TO STA. 618+00.00

DEL-36-11.03

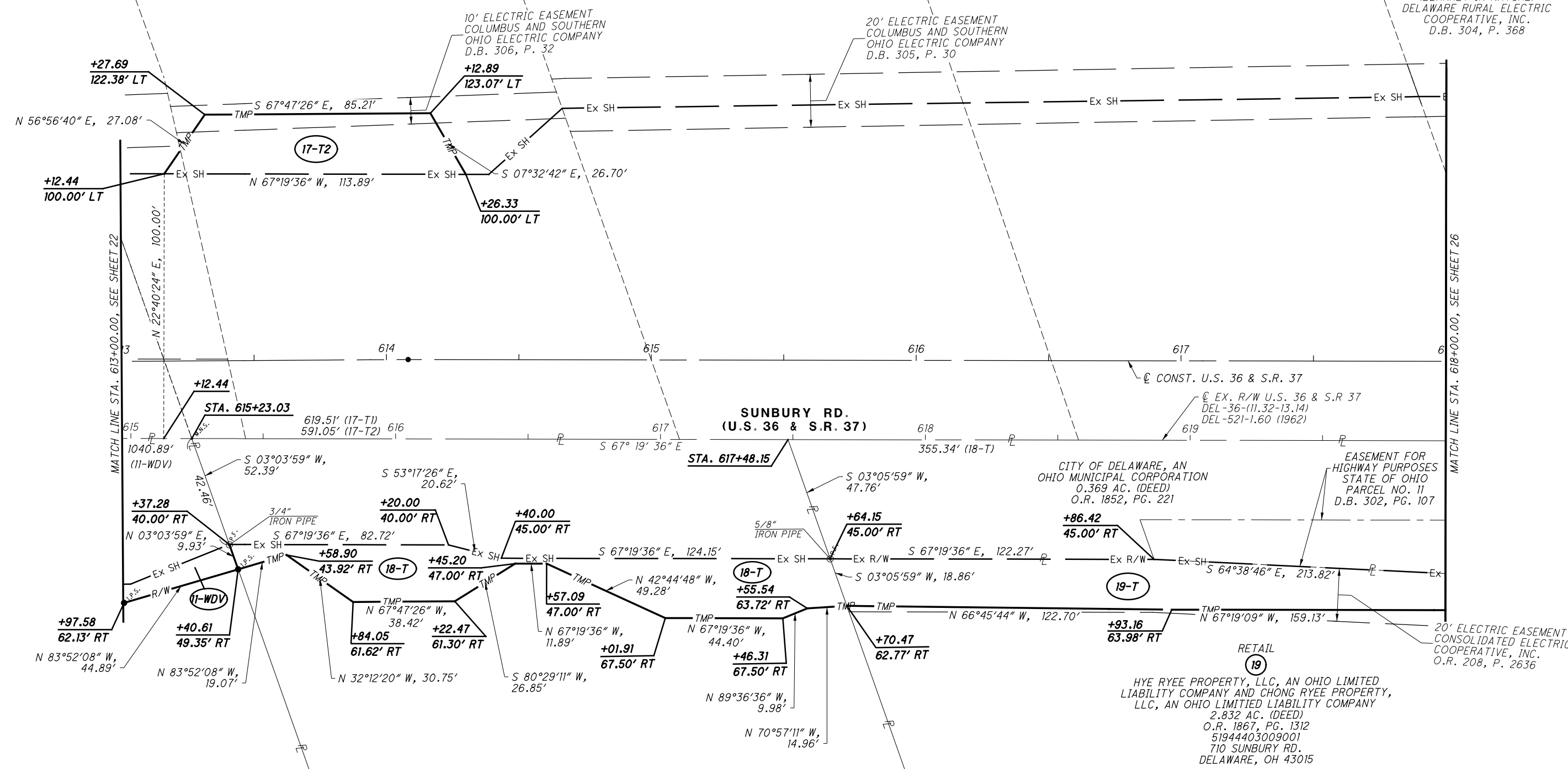
24/44  
624  
644

COMMERCIAL WAREHOUSES  
**17**  
OAKLAND NURSERY, INC.,  
A OHIO CORPORATION  
1.16 AC. (DEED)  
O.R. 620, PG. 969  
51944402008000  
689 SUNBURY RD.  
DELAWARE, OH 43015  
1.160 AC. (AUDITOR)

COMMERCIAL LAWN & GARDEN SALES  
**17**  
OAKLAND NURSERY, INC.,  
A OHIO CORPORATION  
1.113 AC. (DEED)  
D.B. 581, PG. 567  
51944402009000  
SUNBURY RD.  
DELAWARE, OH 43015  
1.110 AC. (AUDITOR)

COMMERCIAL LAWN & GARDEN SALES  
**17**  
OAKLAND NURSERY, INC.,  
A OHIO CORPORATION  
1.362 AC. (DEED)  
D.B. 548, PG. 356  
51944402010000  
STATE ROUTE 37 E  
DELAWARE, OH 43015  
1.360 AC. (AUDITOR)

ELECTRIC EASEMENT  
(BLANKET IN NATURE)  
DELAWARE RURAL ELECTRIC  
COOPERATIVE, INC.  
D.B. 304, P. 368



INDUSTRIAL  
**11**  
C-N & L, INCORPORATED  
31.036 AC. (DEED)  
D.B. 553, PG. 98  
51944302001000  
STATE ROUTE 37 E  
DELAWARE, OH 43015  
29.330 AC. (AUDITOR)

RETAIL  
**18**  
SUNBURY 680, LLC,  
AN OHIO LIMITED LIABILITY COMPANY  
TRACT I  
O.R. 929, PG. 2023  
51944403010000  
680 SUNBURY RD.  
DELAWARE, OH 43015  
3.980 AC. (AUDITOR)

RETAIL  
**19**  
HYE RYEE PROPERTY, LLC, AN OHIO LIMITED  
LIABILITY COMPANY AND CHONG RYEE PROPERTY,  
LLC, AN OHIO LIMITED LIABILITY COMPANY  
2.832 AC. (DEED)  
O.R. 1867, PG. 1312  
51944403009001  
710 SUNBURY RD.  
DELAWARE, OH 43015

ELECTRIC EASEMENT  
ALONG HIGHWAY  
(NO WIDTH STATED)  
DELAWARE RURAL ELECTRIC  
COOPERATIVE, INC.  
D.B. 325, P. 422

ALL MATCH LINE STATIONS ARE FROM  
THE  $\odot$  OF PR. CONST. OF U.S. 36

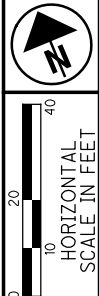
ALL STATIONS & OFFSETS ARE FROM  
THE  $\odot$  OF EX. R/W OF U.S. 36 &  
S.R. 37 UNLESS OTHERWISE NOTED.

| REV. BY                    | DATE    | DESCRIPTION                 |
|----------------------------|---------|-----------------------------|
| BLM                        | 8/10/21 | REVISED PARCEL 19 OWNERSHIP |
| DATE COMPLETED: 11/11/2020 |         |                             |

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SEE SHEETS 27 FOR REMAINDER OF PARCELS 21-WDV & 21-T

DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 28  
UNITED STATES MILITARY DISTRICT



PID NO. 103626

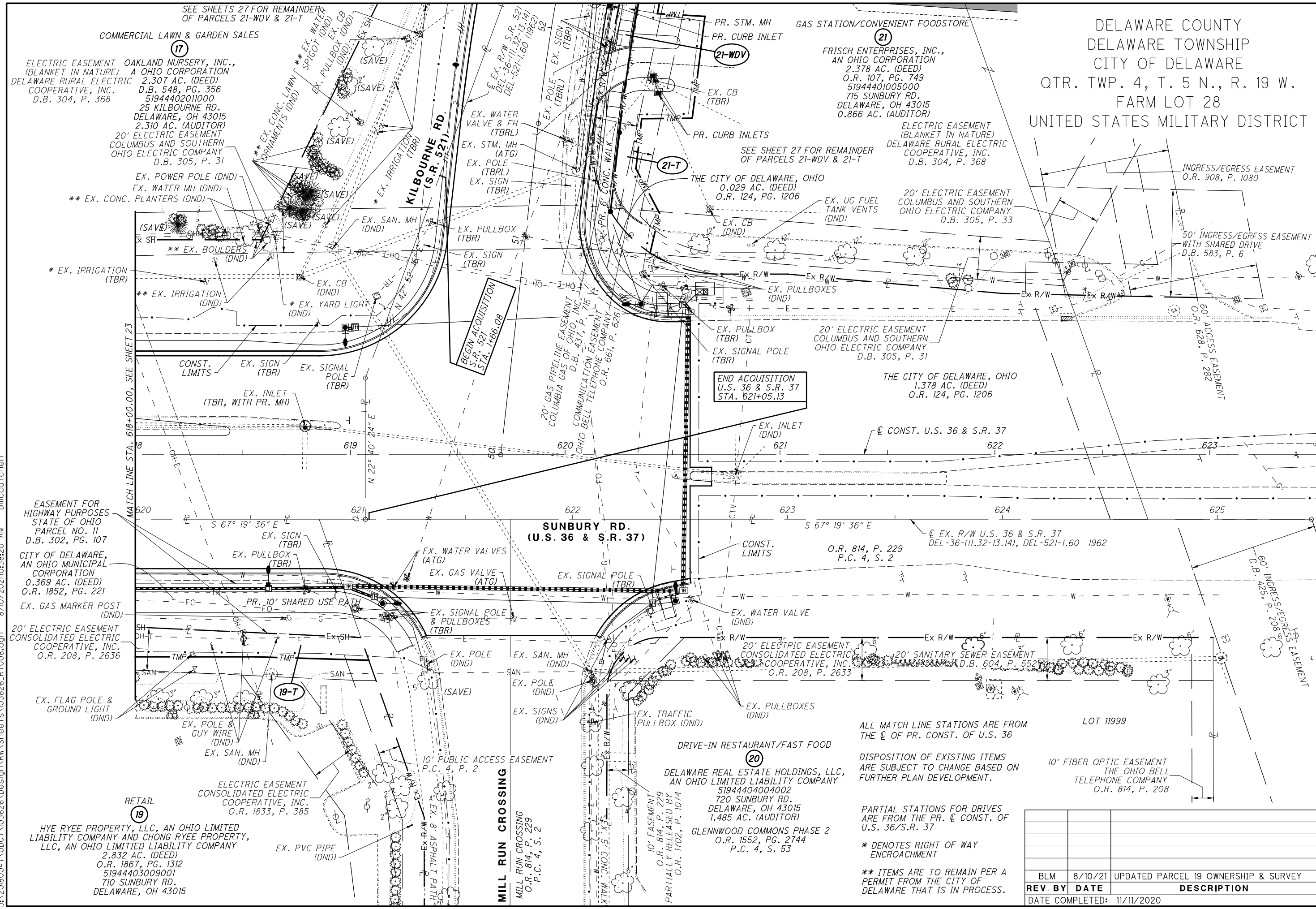
R/W DESIGNER BLM  
R/W REVIEWER JMM

R/W TOPO SHEET - U.S. 36  
STA. 618+00.00 TO STA. 623+00.00

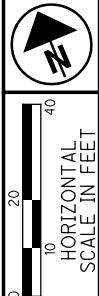
DEL-36-11.03

25 / 44

|                |             |                                      |
|----------------|-------------|--------------------------------------|
| BLM            | 8/10/21     | UPDATED PARCEL 19 OWNERSHIP & SURVEY |
| <b>REV. BY</b> | <b>DATE</b> | <b>DESCRIPTION</b>                   |
|                |             |                                      |



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DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 28  
UNITED STATES MILITARY DISTRICT

PID NO. 103626

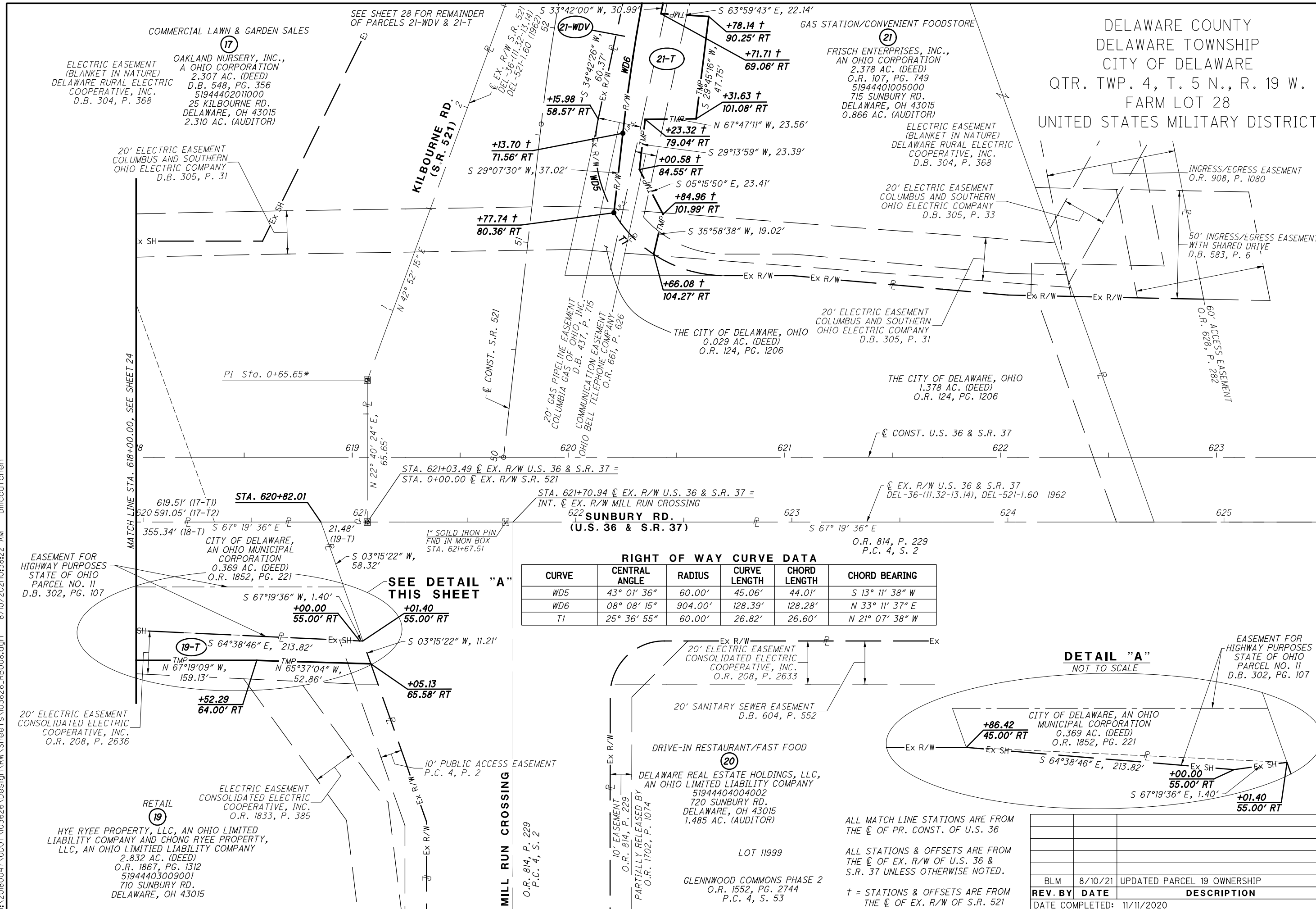
R/W DESIGNER BLM R/W REVIEWER JMM

R/W BOUNDARY SHEET - U.S. 36  
STA. 618+00.00 TO STA. 623+00.00

DEL-36-11.03

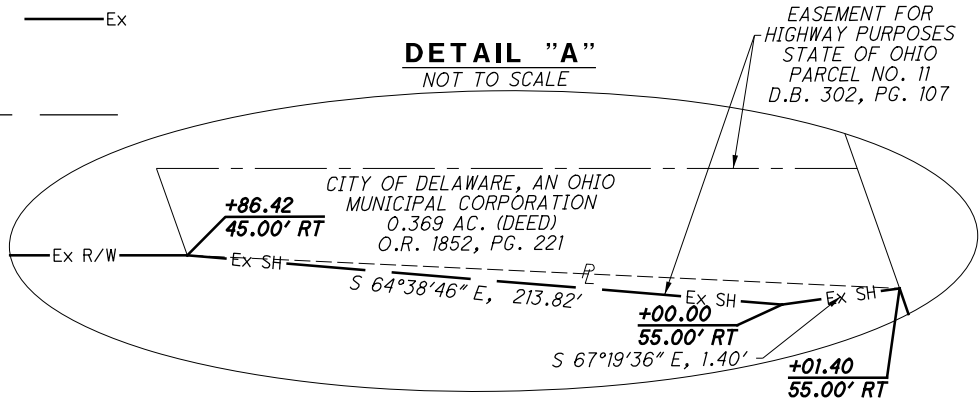
26/44

626  
644



**RIGHT OF WAY CURVE DATA**

| CURVE | CENTRAL ANGLE | RADIUS  | CURVE LENGTH | CHORD LENGTH | CHORD BEARING   |
|-------|---------------|---------|--------------|--------------|-----------------|
| WD5   | 43° 01' 36"   | 60.00'  | 45.06'       | 44.01'       | S 13° 11' 38" W |
| WD6   | 08° 08' 15"   | 904.00' | 128.39'      | 128.28'      | N 33° 11' 37" E |
| T1    | 25° 36' 55"   | 60.00'  | 26.82'       | 26.60'       | N 21° 07' 38" W |



ALL MATCH LINE STATIONS ARE FROM THE  $\odot$  OF PR. CONST. OF U.S. 36

ALL STATIONS & OFFSETS ARE FROM THE  $\odot$  OF EX. R/W OF U.S. 36 & S.R. 37 UNLESS OTHERWISE NOTED.

† = STATIONS & OFFSETS ARE FROM THE  $\odot$  OF EX. R/W OF S.R. 521

| REV. BY                    | DATE    | DESCRIPTION                 |
|----------------------------|---------|-----------------------------|
| BLM                        | 8/10/21 | UPDATED PARCEL 19 OWNERSHIP |
| DATE COMPLETED: 11/11/2020 |         |                             |

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10  
20  
30  
40  
HORIZONTAL  
SCALE IN FEET

PID NO.  
**103626**

R/W DESIGNER  
BLM  
R/W REVIEWER  
JMM

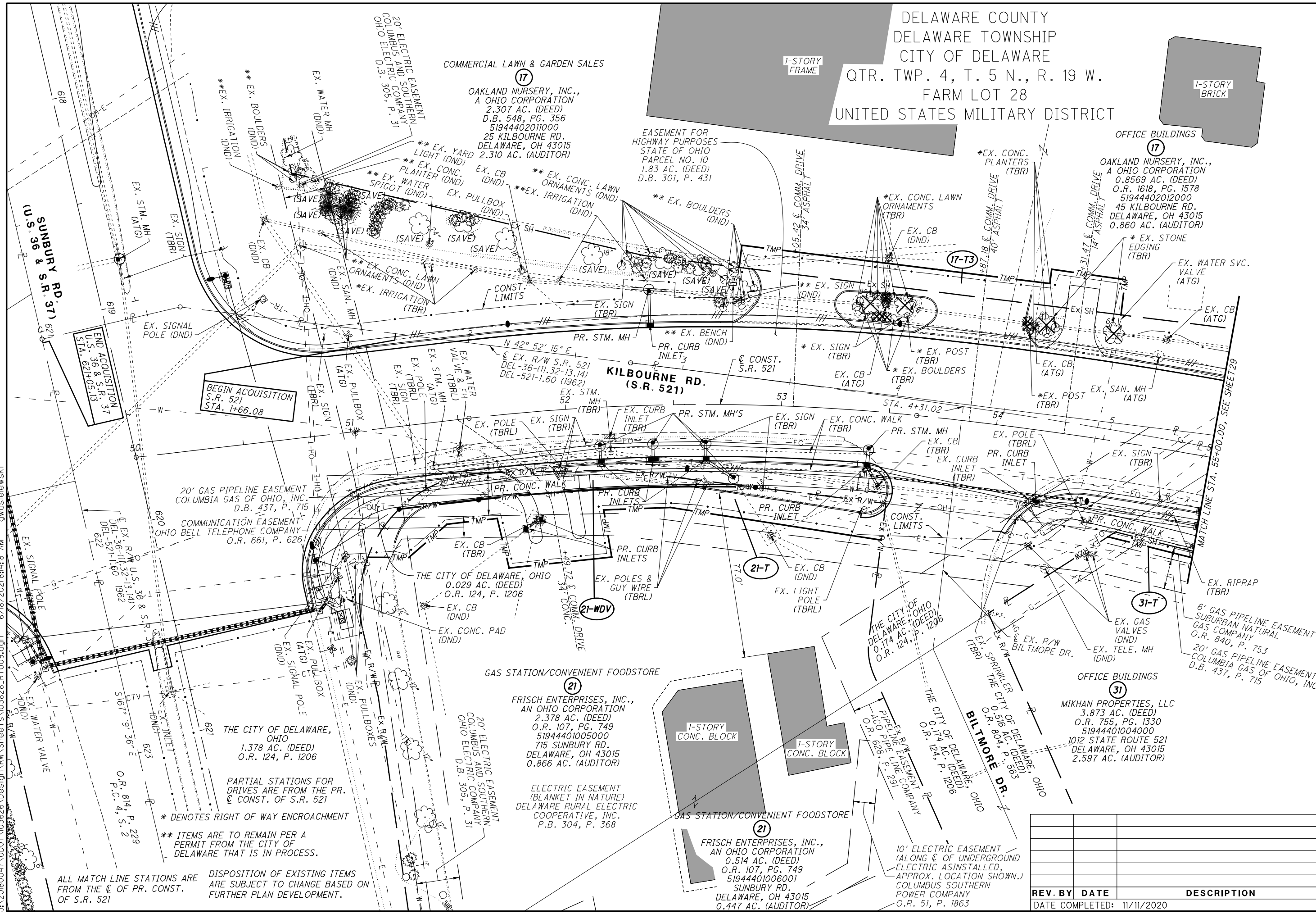
R/W TOPO SHEET - S.R. 521  
STA. 50+00.00 TO STA. 55+00.00

DEL-36-11.03

27 / 44

627  
644

DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 28  
UNITED STATES MILITARY DISTRICT



COMMERCIAL LAWN & GARDEN SALES  
17  
OAKLAND NURSERY, INC.,  
A OHIO CORPORATION  
2.307 AC. (DEED)  
D.B. 548, PG. 356  
51944402011000  
25 KILBOURNE RD.  
DELAWARE, OH 43015  
2.310 AC. (AUDITOR)

EASEMENT FOR  
HIGHWAY PURPOSES  
STATE OF OHIO  
PARCEL NO. 10  
1.83 AC. (DEED)  
D.B. 301, P. 431

OFFICE BUILDINGS  
17  
OAKLAND NURSERY, INC.,  
A OHIO CORPORATION  
0.8569 AC. (DEED)  
O.R. 1618, PG. 1578  
51944402012000  
45 KILBOURNE RD.  
DELAWARE, OH 43015  
0.860 AC. (AUDITOR)

KILBOURNE RD.  
(S.R. 521)

GAS STATION/CONVENIENT FOODSTORE  
21  
FRISCH ENTERPRISES, INC.,  
AN OHIO CORPORATION  
2.378 AC. (DEED)  
O.R. 107, PG. 749  
51944401005000  
715 SUNBURY RD.  
DELAWARE, OH 43015  
0.866 AC. (AUDITOR)

1-STORY  
CONC. BLOCK

1-STORY  
CONC. BLOCK

GAS STATION/CONVENIENT FOODSTORE  
21  
FRISCH ENTERPRISES, INC.,  
AN OHIO CORPORATION  
0.514 AC. (DEED)  
O.R. 107, PG. 749  
51944401006001  
SUNBURY RD.  
DELAWARE, OH 43015  
0.447 AC. (AUDITOR)

OFFICE BUILDINGS  
31  
MIKHAN PROPERTIES, LLC  
3.873 AC. (DEED)  
O.R. 755, PG. 1330  
51944401004000  
1012 STATE ROUTE 521  
DELAWARE, OH 43015  
2.597 AC. (AUDITOR)

BEGIN ACQUISITION  
S.R. 521  
STA. 1+66.08

END ACQUISITION  
U.S. 36 & S.R. 37  
STA. 621+05.13

20' GAS PIPELINE EASEMENT  
COLUMBIA GAS OF OHIO, INC.  
D.B. 437, P. 715  
COMMUNICATION EASEMENT  
OHIO BELL TELEPHONE COMPANY  
O.R. 661, P. 626

THE CITY OF DELAWARE,  
OHIO  
1.378 AC. (DEED)  
O.R. 124, P. 1206

PARTIAL STATIONS FOR  
DRIVES ARE FROM THE PR.  
OF CONST. OF S.R. 521

\* DENOTES RIGHT OF WAY ENCROACHMENT  
\*\* ITEMS ARE TO REMAIN PER A  
PERMIT FROM THE CITY OF  
DELAWARE THAT IS IN PROCESS.

ALL MATCH LINE STATIONS ARE  
FROM THE  $\frac{1}{2}$  OF PR. CONST.  
OF S.R. 521  
DISPOSITION OF EXISTING ITEMS  
ARE SUBJECT TO CHANGE BASED ON  
FURTHER PLAN DEVELOPMENT.

| REV. BY | DATE | DESCRIPTION |
|---------|------|-------------|
|         |      |             |
|         |      |             |
|         |      |             |

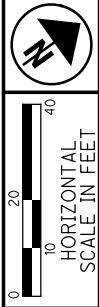
DATE COMPLETED: 11/11/2020

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**CURVE DATA X521-1**  
 P.I. Sta. 6+79.32  
 $\Delta = 16^\circ 08' 15''$  (RT)  
 $D_c = 4^\circ 00' 00''$   
 $R = 1,432.39'$   
 $L_s = 400.00'$   
 $\theta_s = 8^\circ 00' 00''$   
 $LT = 266.94'$   
 $ST = 133.58'$   
 $x = 399.22'$   
 $y = 18.59'$   
 $k = 199.87'$   
 $p = 4.65'$   
 $\Delta c = 0^\circ 08' 15''$  (RT)  
 $L_c = 3.44'$   
 $T_s = 403.59'$   
 $E_s = 19.02'$   
 $C = 3.44'$   
 $C1 = C2 = 399.65'$   
 C.B. 1 = N 45°32'14" E  
 C.B. = N 50°56'23" E  
 C.B. 2 = S 56°20'32" W

DELAWARE COUNTY  
 DELAWARE TOWNSHIP  
 CITY OF DELAWARE  
 QTR. TWP. 4, T. 5 N., R. 19 W.  
 FARM LOT 28  
 UNITED STATES MILITARY DISTRICT

OFFICE BUILDINGS  
 (17)  
 OAKLAND NURSERY, INC.,  
 A OHIO CORPORATION  
 0.8569 AC. (DEED)  
 O.R. 1618, PG. 1578  
 51944402012000  
 45 KILBOURNE RD.  
 DELAWARE, OH 43015  
 0.860 AC. (AUDITOR)



PID NO. 103626

R/W DESIGNER BLM  
 R/W REVIEWER JMM

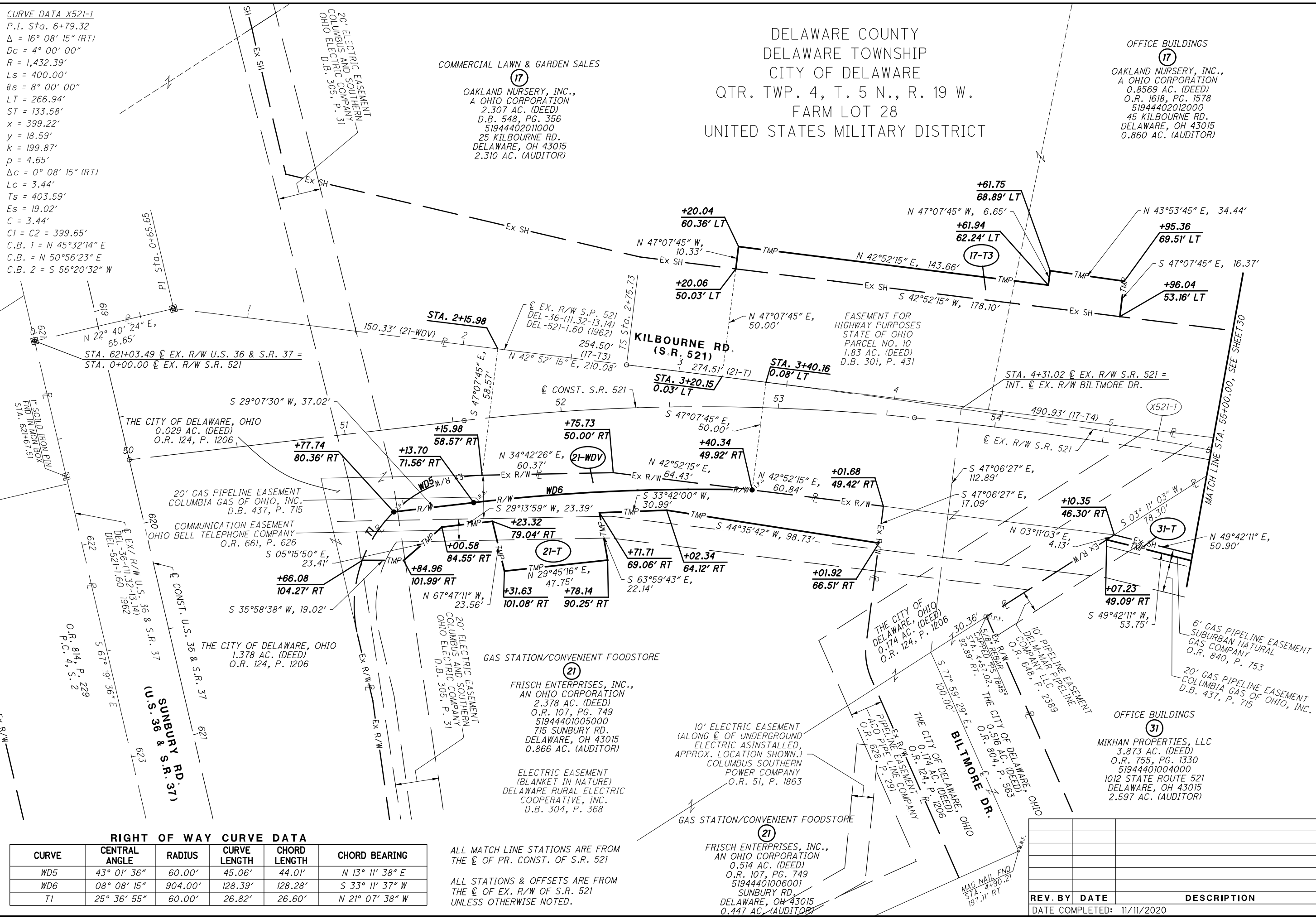
R/W BOUNDARY SHEET - S.R. 521

STA. 50+00.00 TO STA. 55+00.00

DEL-36-11.03

28/44

(628)  
 644



**RIGHT OF WAY CURVE DATA**

| CURVE | CENTRAL ANGLE | RADIUS  | CURVE LENGTH | CHORD LENGTH | CHORD BEARING   |
|-------|---------------|---------|--------------|--------------|-----------------|
| WD5   | 43° 01' 36"   | 60.00'  | 45.06'       | 44.01'       | N 13° 11' 38" E |
| WD6   | 08° 08' 15"   | 904.00' | 128.39'      | 128.28'      | S 33° 11' 37" W |
| T1    | 25° 36' 55"   | 60.00'  | 26.82'       | 26.60'       | N 21° 07' 38" W |

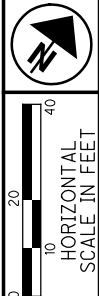
ALL MATCH LINE STATIONS ARE FROM THE  $\odot$  OF PR. CONST. OF S.R. 521  
 ALL STATIONS & OFFSETS ARE FROM THE  $\odot$  OF EX. R/W OF S.R. 521 UNLESS OTHERWISE NOTED.

| REV. BY | DATE | DESCRIPTION |
|---------|------|-------------|
|         |      |             |

DATE COMPLETED: 11/11/2020

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DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 28  
UNITED STATES MILITARY DISTRICT



PID NO. 103626  
R/W DESIGNER BLM  
R/W REVIEWER JMM

R/W TOPO SHEET - S.R. 521  
STA. 55+00.00 TO STA. 60+00.00

DEL-36-11.03

29/44

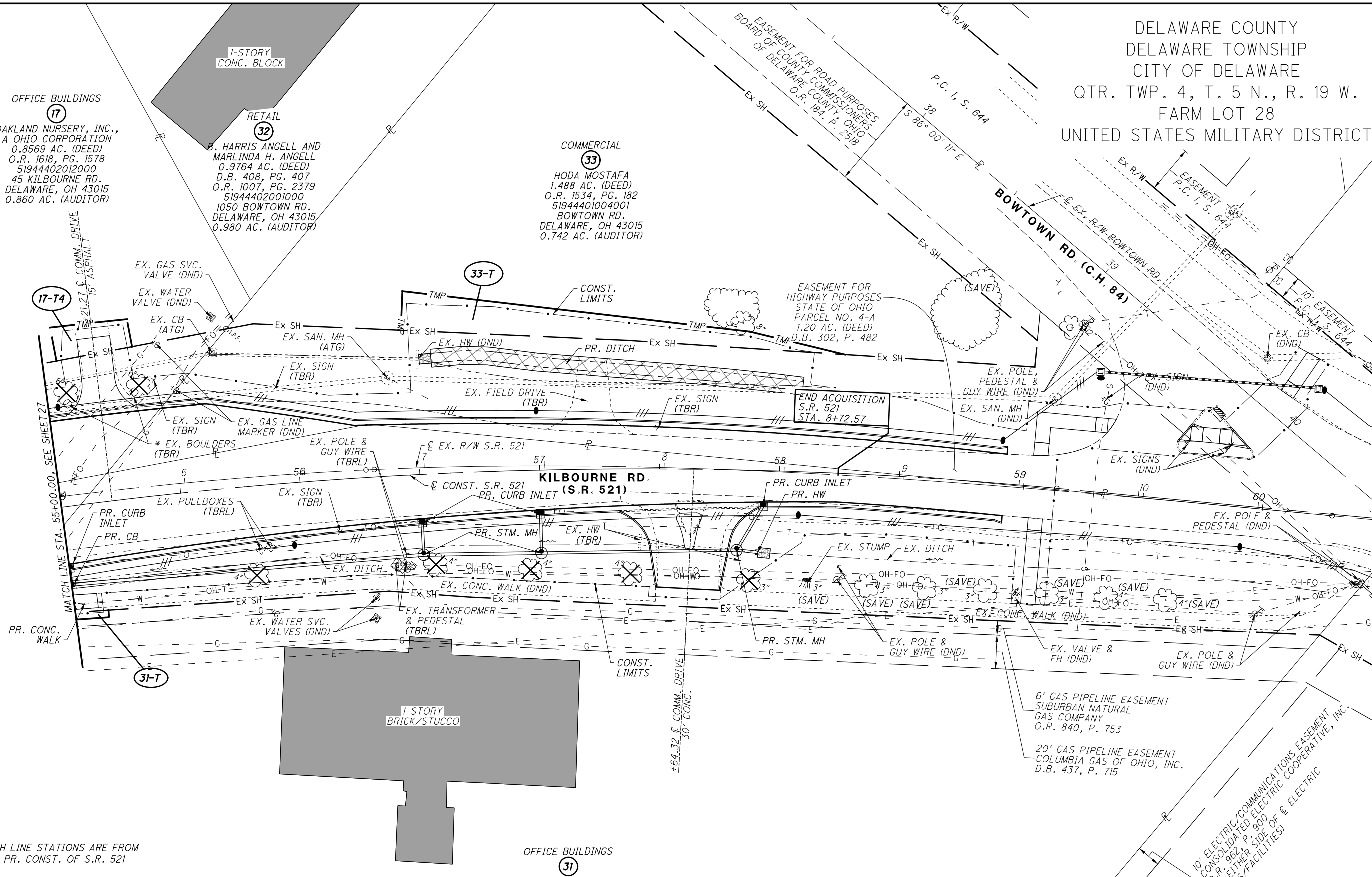
629  
644

OFFICE BUILDINGS  
17  
OAKLAND NURSERY, INC.,  
A OHIO CORPORATION  
0.8569 AC. (DEED)  
O.R. 1618, PG. 1578  
51944402012000  
45 KILBOURNE RD.  
DELAWARE, OH 43015  
0.860 AC. (AUDITOR)

RETAIL  
32  
B. HARRIS ANGELL AND  
MARLINDA H. ANGELL  
0.9764 AC. (DEED)  
D.B. 408, PG. 407  
O.R. 1007, PG. 2379  
51944402001000  
1050 BOWTOWN RD.  
DELAWARE, OH 43015  
0.980 AC. (AUDITOR)

COMMERCIAL  
33  
HODA MOSTAFA  
1.488 AC. (DEED)  
O.R. 1534, PG. 182  
51944401004001  
BOWTOWN RD.  
DELAWARE, OH 43015  
0.742 AC. (AUDITOR)

OFFICE BUILDINGS  
31  
MIKHAN PROPERTIES, LLC  
3.873 AC. (DEED)  
O.R. 755, PG. 1330  
51944401004000  
1012 STATE ROUTE 521  
DELAWARE, OH 43015  
2.597 AC. (AUDITOR)



ALL MATCH LINE STATIONS ARE FROM  
THE  $\phi$  OF PR. CONST. OF S.R. 521

PARTIAL STATIONS FOR DRIVES ARE FROM  
THE PR.  $\phi$  CONST. OF S.R. 521

\* DENOTES RIGHT OF WAY ENCROACHMENT

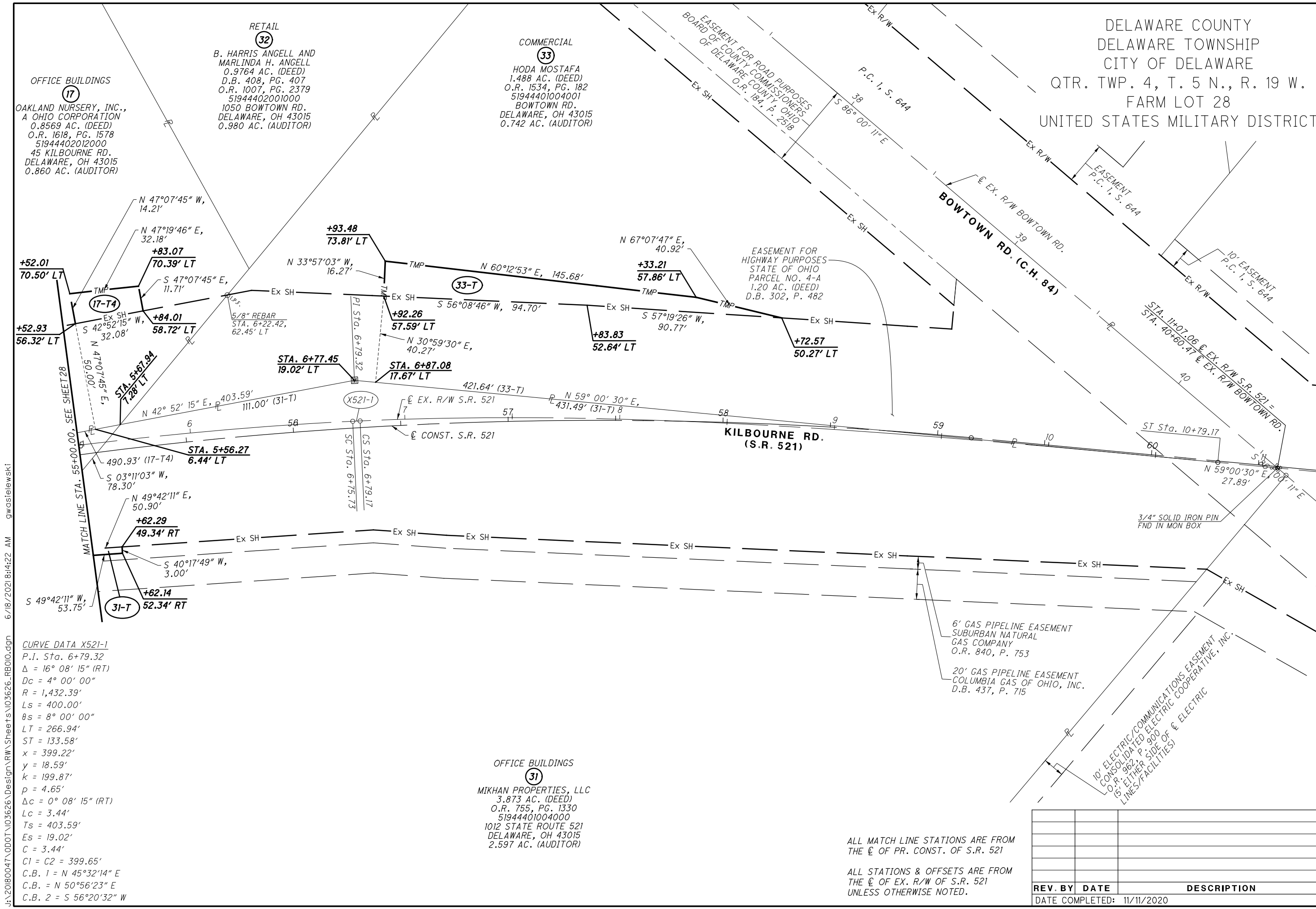
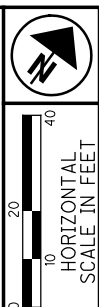
DISPOSITION OF EXISTING ITEMS  
ARE SUBJECT TO CHANGE BASED ON  
FURTHER PLAN DEVELOPMENT.

| REV. BY | DATE | DESCRIPTION |
|---------|------|-------------|
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DATE COMPLETED: 11/11/2020

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DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 28  
UNITED STATES MILITARY DISTRICT



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**CURVE DATA X521-1**  
 P.I. Sta. 6+79.32  
 $\Delta = 16^\circ 08' 15''$  (RT)  
 $Dc = 4^\circ 00' 00''$   
 $R = 1,432.39'$   
 $Ls = 400.00'$   
 $\theta s = 8^\circ 00' 00''$   
 $LT = 266.94'$   
 $ST = 133.58'$   
 $x = 399.22'$   
 $y = 18.59'$   
 $k = 199.87'$   
 $p = 4.65'$   
 $\Delta c = 0^\circ 08' 15''$  (RT)  
 $Lc = 3.44'$   
 $Ts = 403.59'$   
 $Es = 19.02'$   
 $C = 3.44'$   
 $C1 = C2 = 399.65'$   
 $C.B. 1 = N 45^\circ 32' 14'' E$   
 $C.B. = N 50^\circ 56' 23'' E$   
 $C.B. 2 = S 56^\circ 20' 32'' W$

**OFFICE BUILDINGS**  
**(17)**  
 OAKLAND NURSERY, INC.,  
 A OHIO CORPORATION  
 0.8569 AC. (DEED)  
 O.R. 1618, PG. 1578  
 51944402012000  
 45 KILBOURNE RD.  
 DELAWARE, OH 43015  
 0.860 AC. (AUDITOR)

**RETAIL**  
**(32)**  
 B. HARRIS ANGELL AND  
 MARLINDA H. ANGELL  
 0.9764 AC. (DEED)  
 D.B. 408, PG. 407  
 O.R. 1007, PG. 2379  
 51944402001000  
 1050 BOWTOWN RD.  
 DELAWARE, OH 43015  
 0.980 AC. (AUDITOR)

**COMMERCIAL**  
**(33)**  
 HODA MOSTAFA  
 1.488 AC. (DEED)  
 O.R. 1534, PG. 182  
 51944401004001  
 BOWTOWN RD.  
 DELAWARE, OH 43015  
 0.742 AC. (AUDITOR)

**OFFICE BUILDINGS**  
**(31)**  
 MIKHAN PROPERTIES, LLC  
 3.873 AC. (DEED)  
 O.R. 755, PG. 1330  
 51944401004000  
 1012 STATE ROUTE 521  
 DELAWARE, OH 43015  
 2.597 AC. (AUDITOR)

ALL MATCH LINE STATIONS ARE FROM  
 THE  $\phi$  OF PR. CONST. OF S.R. 521  
  
 ALL STATIONS & OFFSETS ARE FROM  
 THE  $\phi$  OF EX. R/W OF S.R. 521  
 UNLESS OTHERWISE NOTED.

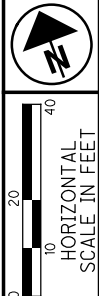
| REV. BY | DATE | DESCRIPTION |
|---------|------|-------------|
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|         |      |             |
|         |      |             |

DATE COMPLETED: 11/11/2020

**DEL-36-11.03**  
**R/W BOUNDARY SHEET - S.R. 521**  
**STA. 55+00.00 TO STA. 60+00.00**  
 PID NO. **103626**  
 R/W DESIGNER: JMM  
 BLM: JMM  
 R/W REVIEWER: JMM  
 30/44  
**(630)**  
**(644)**



DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOTS 11, 12, 15 & 16  
UNITED STATES MILITARY DISTRICT



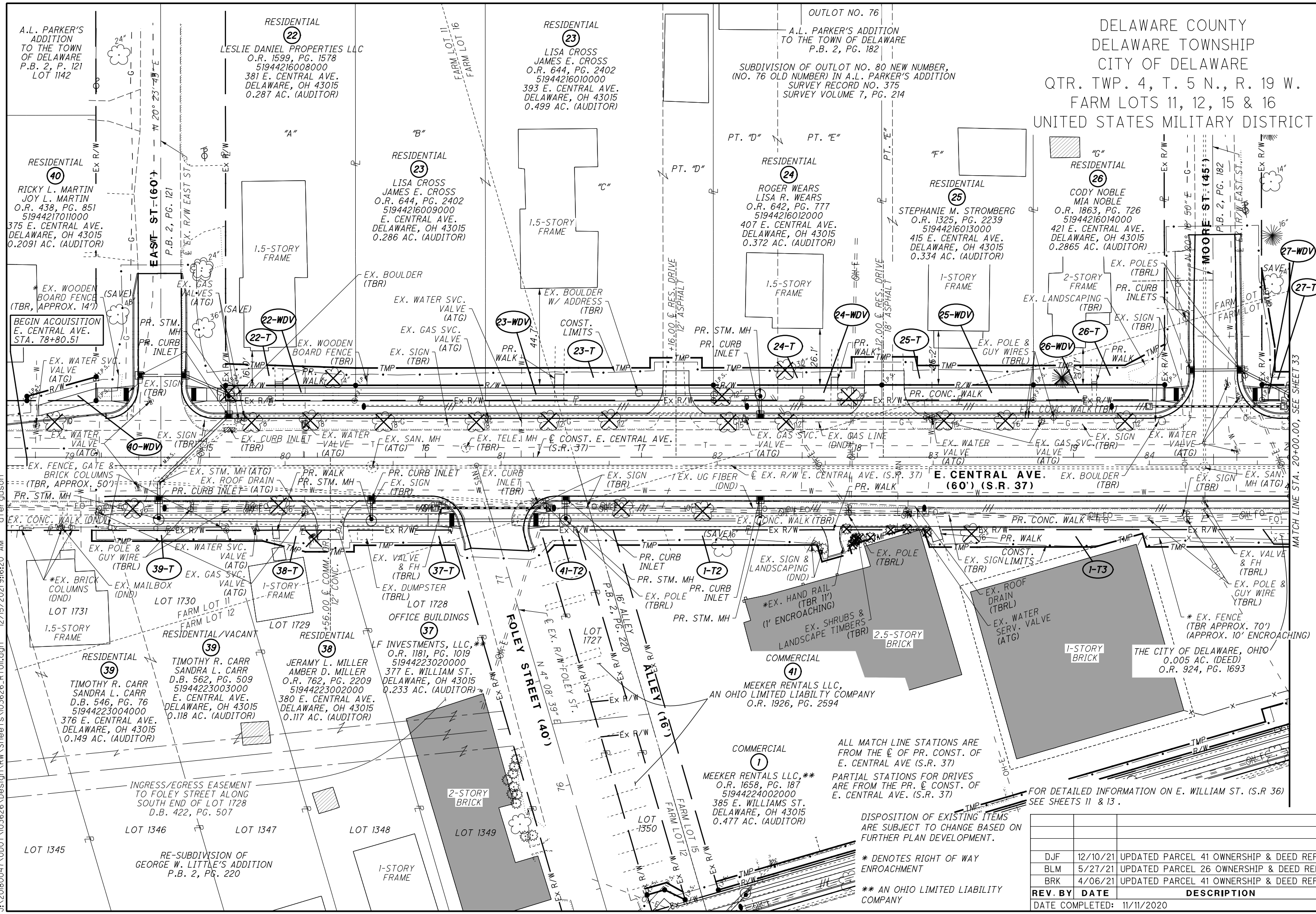
PID NO. 103626

R/W DESIGNER BLM  
R/W REVIEWER JMM

R/W TOPO SHEET - S.R. 37  
STA. 15+00.00 TO STA 20+00.00

DEL-36-11.03

31/44  
631/644



ALL MATCH LINE STATIONS ARE FROM THE  $\odot$  OF PR. CONST. OF E. CENTRAL AVE (S.R. 37)  
PARTIAL STATIONS FOR DRIVES ARE FROM THE PR.  $\odot$  CONST. OF E. CENTRAL AVE. (S.R. 37)

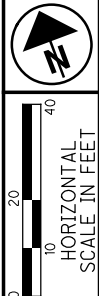
DISPOSITION OF EXISTING ITEMS ARE SUBJECT TO CHANGE BASED ON FURTHER PLAN DEVELOPMENT.  
\* DENOTES RIGHT OF WAY ENCROACHMENT  
\*\* AN OHIO LIMITED LIABILITY COMPANY

FOR DETAILED INFORMATION ON E. WILLIAM ST. (S.R. 36) SEE SHEETS 11 & 13.

| REV. BY                    | DATE     | DESCRIPTION                             |
|----------------------------|----------|-----------------------------------------|
| DJF                        | 12/10/21 | UPDATED PARCEL 41 OWNERSHIP & DEED REF. |
| BLM                        | 5/27/21  | UPDATED PARCEL 26 OWNERSHIP & DEED REF. |
| BRK                        | 4/06/21  | UPDATED PARCEL 41 OWNERSHIP & DEED REF. |
| DATE COMPLETED: 11/11/2020 |          |                                         |

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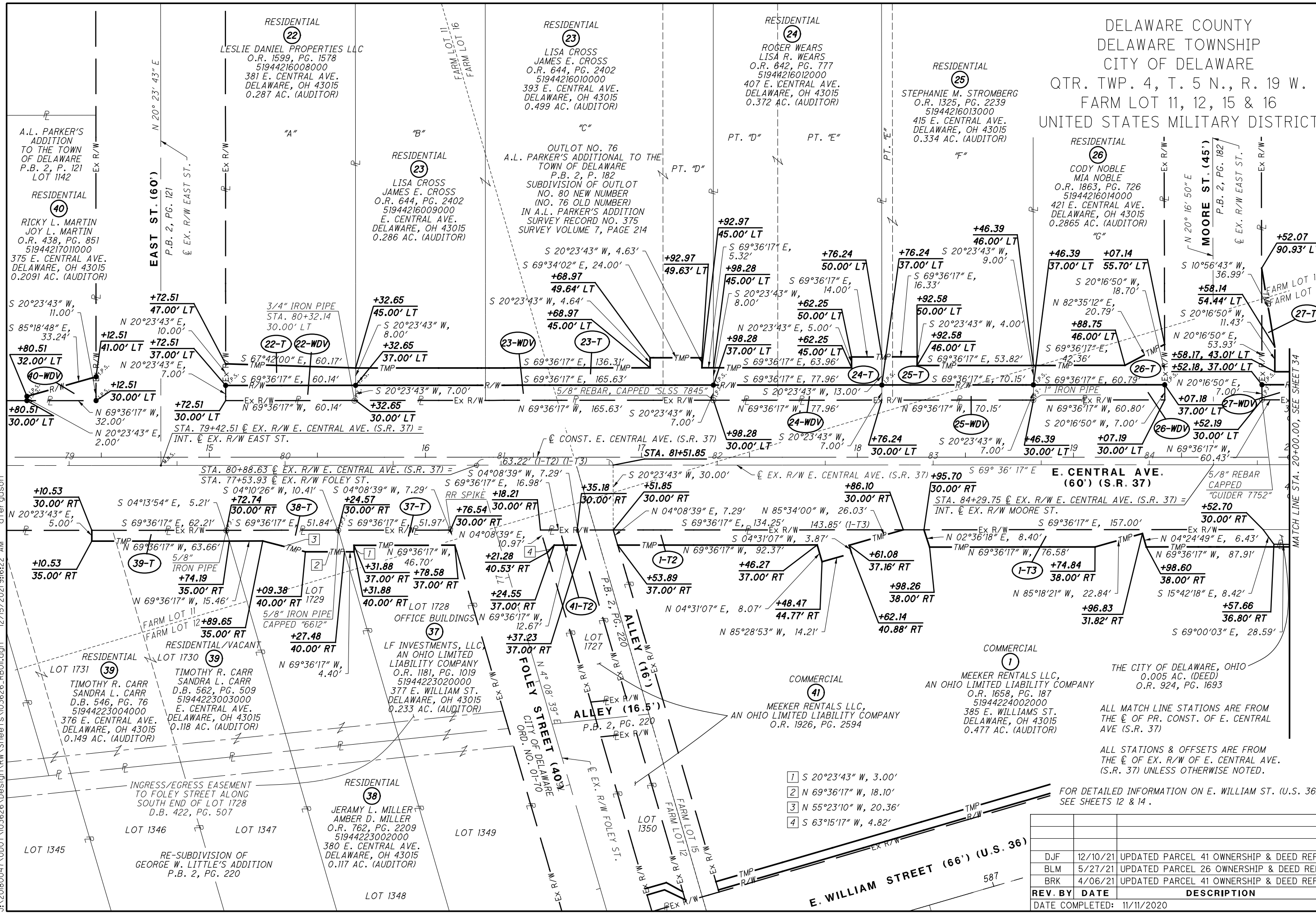
DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 11, 12, 15 & 16  
UNITED STATES MILITARY DISTRICT



PID NO. 103626  
R/W DESIGNER BLM  
R/W REVIEWER JMM

R/W BOUNDARY SHEET - S.R. 37  
STA. 15+00.00 TO STA. 20+00.00

DEL-36-11.03



- 1 S 20°23'43" W, 3.00'
- 2 N 69°36'17" W, 18.10'
- 3 N 55°23'10" W, 20.36'
- 4 S 63°15'17" W, 4.82'

FOR DETAILED INFORMATION ON E. WILLIAM ST. (U.S. 36) SEE SHEETS 12 & 14.

| REV. BY                    | DATE     | DESCRIPTION                             |
|----------------------------|----------|-----------------------------------------|
| DJF                        | 12/10/21 | UPDATED PARCEL 41 OWNERSHIP & DEED REF. |
| BLM                        | 5/27/21  | UPDATED PARCEL 26 OWNERSHIP & DEED REF. |
| BRK                        | 4/06/21  | UPDATED PARCEL 41 OWNERSHIP & DEED REF. |
| DATE COMPLETED: 11/11/2020 |          |                                         |

32 / 44  
632  
644

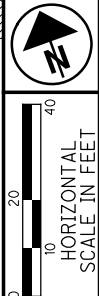
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DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOTS 15 & 16  
UNITED STATES MILITARY DISTRICT

† PARTIAL STATIONS FOR DRIVES ARE FROM THE P.R. & CONST. OF U.S. 36  
PARTIAL STATIONS FOR DRIVES ARE FROM THE P.R. & CONST. OF S.R. 37 (WB)  
ALL MATCH LINE STATIONS ARE FROM THE & OF P.R. CONST. OF E. CENTRAL AVE (S.R. 37)

\* DENOTES RIGHT OF WAY ENCROACHMENT  
DISPOSITION OF EXISTING ITEMS ARE SUBJECT TO CHANGE BASED ON FURTHER PLAN DEVELOPMENT.

SEE SHEET 35 FOR PARCEL 8 DETAIL



PID NO. 103626  
R/W DESIGNER BLM  
R/W REVIEWER JMM

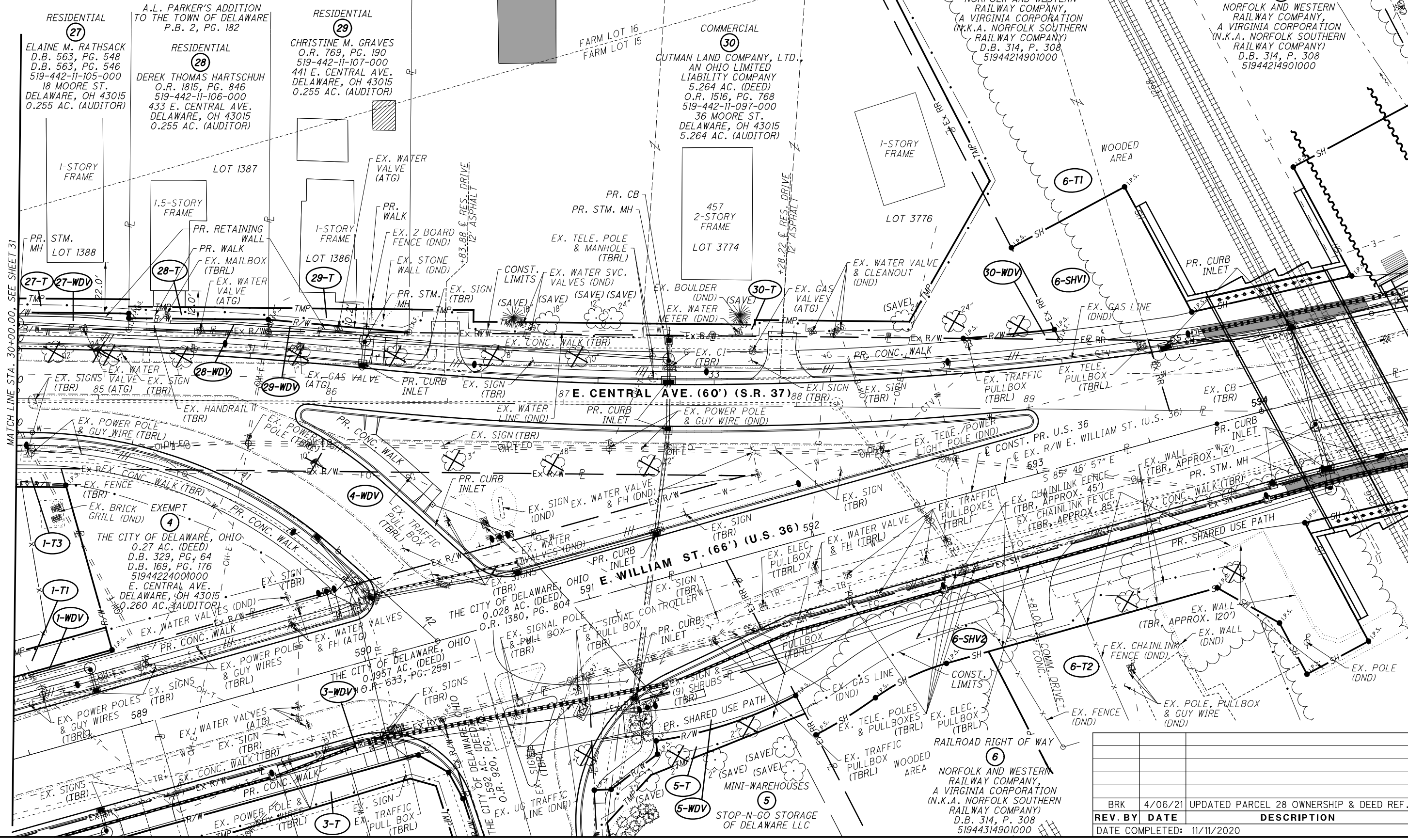
RIGHT OF WAY TOPO - S.R. 37  
STA. 30+00.00 TO STA. 35+84.74

DEL-36-11.03

33 / 44

| REV. BY | DATE    | DESCRIPTION                             |
|---------|---------|-----------------------------------------|
| BRK     | 4/06/21 | UPDATED PARCEL 28 OWNERSHIP & DEED REF. |
| 633     |         |                                         |
| 644     |         |                                         |

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RESIDENTIAL (27)  
ELAINE M. RATHSACK  
D.B. 563, PG. 548  
D.B. 563, PG. 546  
519-442-11-105-000  
18 MOORE ST.  
DELAWARE, OH 43015  
0.255 AC. (AUDITOR)

A.L. PARKER'S ADDITION TO THE TOWN OF DELAWARE P.B. 2, PG. 182  
RESIDENTIAL (28)  
DEREK THOMAS HARTSCHUH  
O.R. 1815, PG. 846  
519-442-11-106-000  
433 E. CENTRAL AVE.  
DELAWARE, OH 43015  
0.255 AC. (AUDITOR)

RESIDENTIAL (29)  
CHRISTINE M. GRAVES  
O.R. 769, PG. 190  
519-442-11-107-000  
441 E. CENTRAL AVE.  
DELAWARE, OH 43015  
0.255 AC. (AUDITOR)

COMMERCIAL (30)  
CUTMAN LAND COMPANY, LTD.  
AN OHIO LIMITED LIABILITY COMPANY  
5.264 AC. (DEED)  
O.R. 1516, PG. 768  
519-442-11-097-000  
36 MOORE ST.  
DELAWARE, OH 43015  
5.264 AC. (AUDITOR)

RAILROAD RIGHT OF WAY (6)  
NORFOLK AND WESTERN RAILWAY COMPANY,  
(A VIRGINIA CORPORATION  
(N.K.A. NORFOLK SOUTHERN RAILWAY COMPANY)  
D.B. 314, P. 308  
51944214901000

RAILROAD RIGHT OF WAY (6)  
NORFOLK AND WESTERN RAILWAY COMPANY,  
(A VIRGINIA CORPORATION  
(N.K.A. NORFOLK SOUTHERN RAILWAY COMPANY)  
D.B. 314, P. 308  
51944214901000

1-STORY FRAME

1.5-STORY FRAME

1-STORY FRAME

457 2-STORY FRAME

1-STORY FRAME

PR. STM. MH LOT 1388

PR. RETAINING WALL

PR. WALK

PR. CB  
PR. STM. MH

WOODED AREA

27-T 27-WDV

28-T

29-T

30-T

30-WDV

6-SHVI

EX. SIGNS (TBR)

EX. WATER VALVE (ATG)

EX. GAS VALVE (ATG)

EX. TELE. POLE & MANHOLE (TBRL)

EX. BOULDER (DND)

EX. GAS VALVE (ATG)

EX. WATER VALVE & CLEANOUT (DND)

EX. GAS LINE (DND)

EX. POWER POLE & GUY WIRE (TBR)

EX. HANDRAIL (TBR)

EX. CONC. WALK (TBR)

EX. WATER VALVE (DND)

EX. POWER POLE & GUY WIRE (DND)

EX. TELE. / POWER LIGHT POLE (DND)

EX. TRAFFIC PULLBOX (TBRL)

EX. TELE. PULLBOX (TBRL)

EX. BRICK GRILL (DND)

EX. CONC. WALK (TBR)

EX. CONC. WALK (TBR)

EX. SIGN (DND)

EX. SIGN (TBR)

EX. SIGN (TBR)

EX. TRAFFIC PULLBOXES (TBRL)

EX. CHAINLINK FENCE (TBR, APPROX. 45')

1-T3

1-T1

1-WDV

4-WDV

592

591

6-SHV2

6-T2

EX. WATER VALVES (DND)

EX. CONC. WALK (TBR)

EX. CONC. WALK (TBR)

EX. SIGN (TBR)

EX. CONC. WALK (TBR)

EX. CONC. WALK (TBR)

EX. CONC. WALK (TBR)

EX. CONC. WALK (TBR)

EX. POWER POLES & GUY WIRES (TBR)

EX. WATER VALVES (ATG)

EX. SIGN (TBR)

EX. CONC. WALK (TBR)

EX. CONC. WALK (TBR)

EX. CONC. WALK (TBR)

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EX. CONC. WALK (TBR)

EX. SIGNS (TBR)

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EX. CONC. WALK (TBR)

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EX. CONC. WALK (TBR)

EX. POWER POLE & GUY WIRES (TBR)

EX. CONC. WALK (TBR)

EX. CONC. WALK (TBR)

EX. CONC. WALK (TBR)

EX. CONC. WALK (TBR)

EX. CONC. WALK (TBR)

EX. CONC. WALK (TBR)

EX. CONC. WALK (TBR)

EX. SIGNS (TBR)

EX. CONC. WALK (TBR)

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EX. CONC. WALK (TBR)

EX. CONC. WALK (TBR)

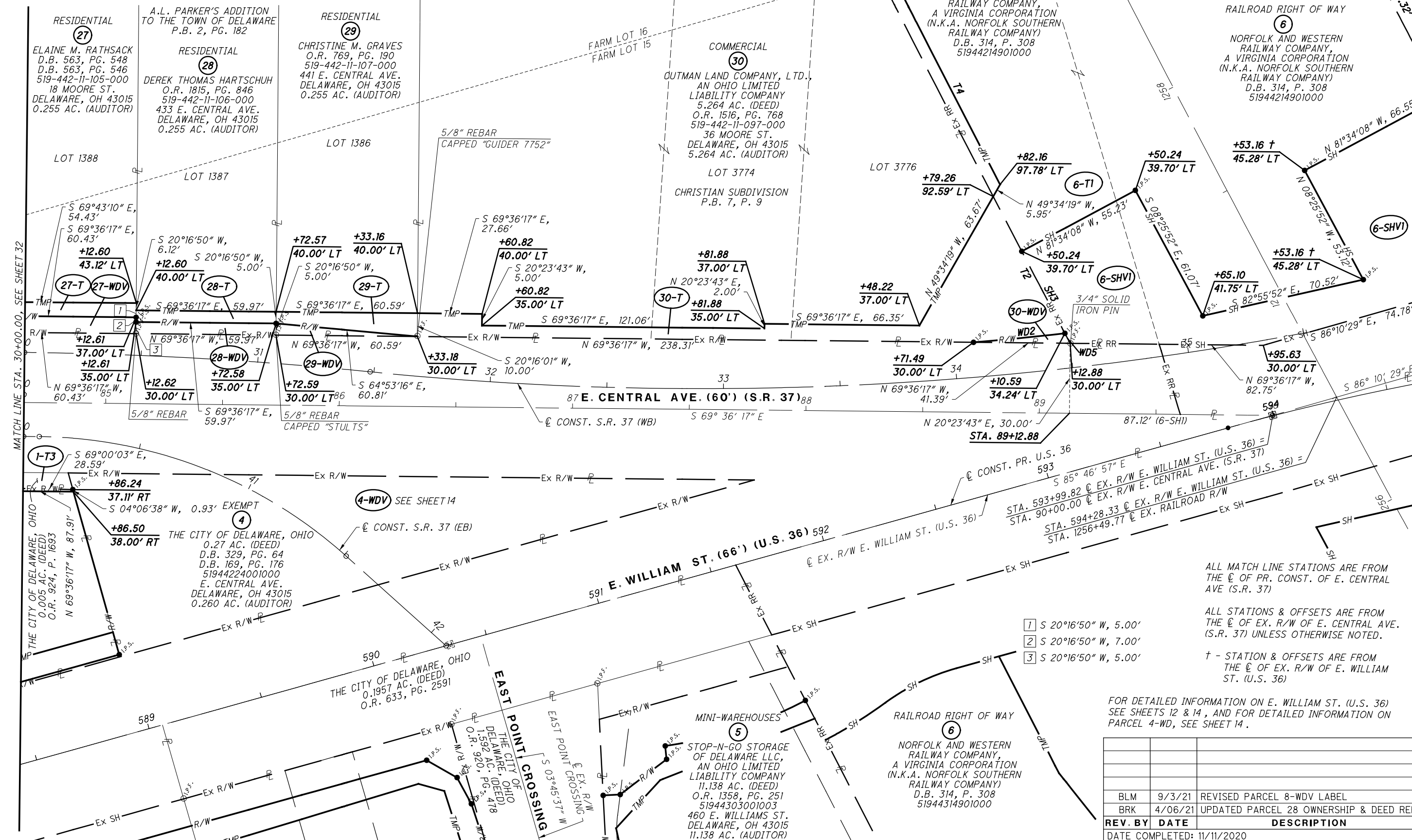
EX. CONC. WALK (TBR)

EX. CONC. WALK (TBR)

EX. CONC. WALK (TBR)

DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOTS 15 & 16  
UNITED STATES MILITARY DISTRICT

| RIGHT OF WAY CURVE DATA |               |            |              |              |                 |
|-------------------------|---------------|------------|--------------|--------------|-----------------|
| CURVE                   | CENTRAL ANGLE | RADIUS     | CURVE LENGTH | CHORD LENGTH | CHORD BEARING   |
| WD2                     | 01° 37' 12"   | 1,391.00'  | 39.33'       | 39.33'       | S 75° 48' 02" E |
| WD5                     | 00° 01' 26"   | 11,549.19' | 4.83'        | 4.83'        | N 08° 00' 45" W |
| SH3                     | 00° 13' 16"   | 11,549.19' | 44.55'       | 44.55'       | S 07° 54' 50" E |
| T4                      | 01° 39' 09"   | 11,544.19' | 332.93'      | 332.92'      | N 06° 49' 47" W |
| T2                      | 00° 19' 43"   | 11,549.19' | 66.22'       | 66.22'       | S 07° 50' 10" E |



- 1 S 20°16'50" W, 5.00'
- 2 S 20°16'50" W, 7.00'
- 3 S 20°16'50" W, 5.00'


ALL MATCH LINE STATIONS ARE FROM THE  $\odot$  OF PR. CONST. OF E. CENTRAL AVE (S.R. 37)

ALL STATIONS & OFFSETS ARE FROM THE  $\odot$  OF EX. R/W OF E. CENTRAL AVE. (S.R. 37) UNLESS OTHERWISE NOTED.

† - STATION & OFFSETS ARE FROM THE  $\odot$  OF EX. R/W OF E. WILLIAM ST. (U.S. 36)

FOR DETAILED INFORMATION ON E. WILLIAM ST. (U.S. 36) SEE SHEETS 12 & 14, AND FOR DETAILED INFORMATION ON PARCEL 4-WD, SEE SHEET 14.

| REV. BY                    | DATE    | DESCRIPTION                             |
|----------------------------|---------|-----------------------------------------|
| BLM                        | 9/3/21  | REVISED PARCEL 8-WDV LABEL              |
| BRK                        | 4/06/21 | UPDATED PARCEL 28 OWNERSHIP & DEED REF. |
| DATE COMPLETED: 11/11/2020 |         |                                         |



HORIZONTAL SCALE IN FEET  
1" = 40'

PID NO. **103626**

R/W DESIGNER BLM  
R/W REVIEWER JMM

**R/W BOUNDARY SHEET - S.R. 37**  
**STA. 30+00.00 TO STA. 35+84.74**

**DEL-36-11.03**

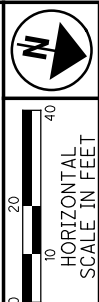
34 / 44

634  
644

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STA. 594+79.23 @ EX. R/W E. WILLIAM ST. (U.S. 36) =  
 STA. 596+76.02 @ EX. R/W U.S. 36 & S.R. 37 =  
 STA. 10+00.00 @ EX. R/W BOWTOWN RD.

DELAWARE COUNTY  
 DELAWARE TOWNSHIP  
 CITY OF DELAWARE  
 QTR. TWP. 4, T. 5 N., R. 19 W.  
 FARM LOTS 15 & 16  
 UNITED STATES MILITARY DISTRICT



PID NO. 103626

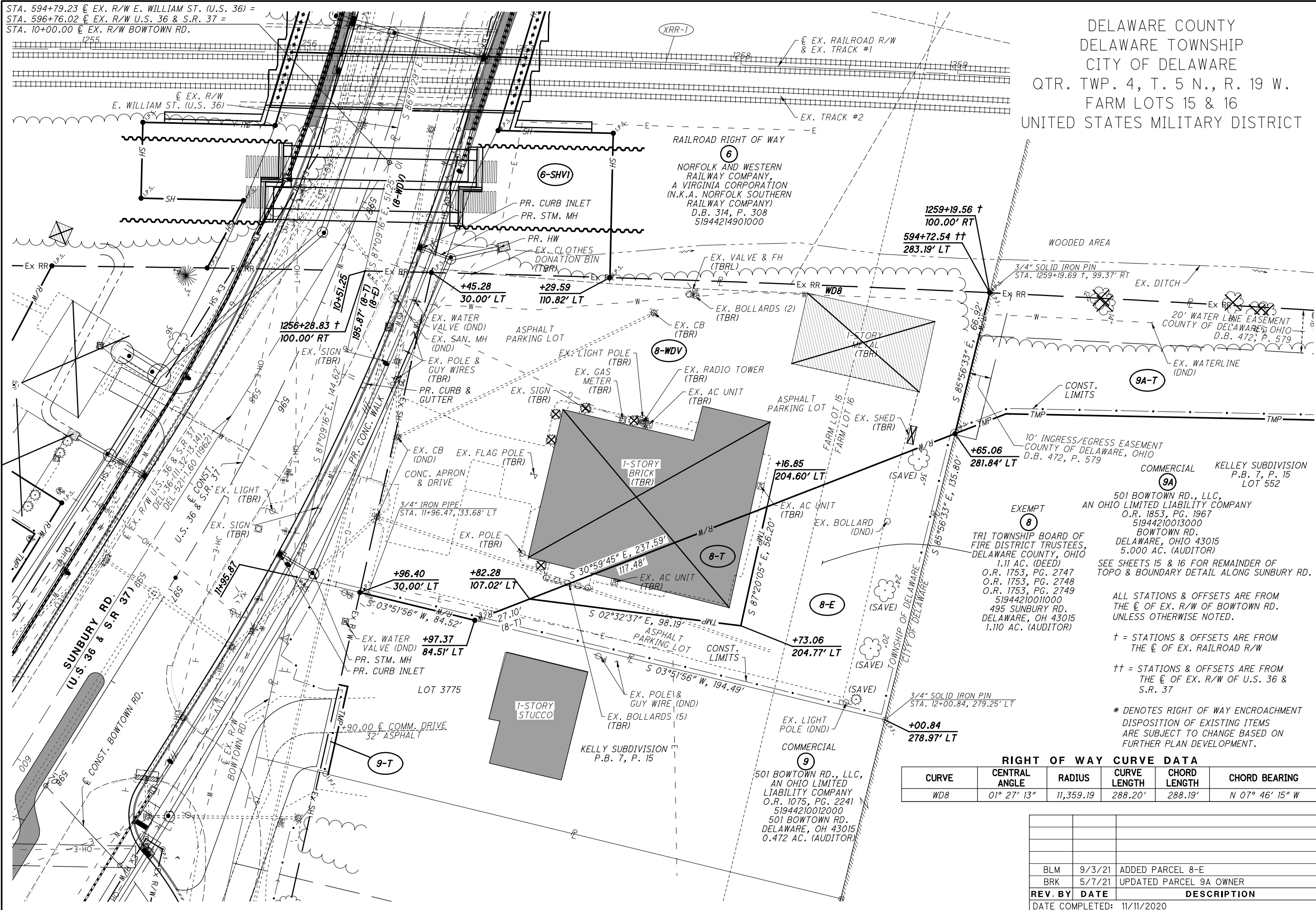
R/W DESIGNER BLM  
 R/W REVIEWER JMM

R/W DETAIL SHEET  
 PARCEL 8

DEL-36-11.03

35/44

635  
644



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COMMERCIAL KELLY SUBDIVISION  
 P.B. 7, P. 15  
 LOT 552  
 501 BOWTOWN RD., LLC,  
 AN OHIO LIMITED LIABILITY COMPANY  
 O.R. 1853, PG. 1967  
 51944210013000  
 BOWTOWN RD.  
 DELAWARE, OHIO 43015  
 5.000 AC. (AUDITOR)  
 SEE SHEETS 15 & 16 FOR REMAINDER OF  
 TOPO & BOUNDARY DETAIL ALONG SUNBURY RD.

EXEMPT  
 8  
 TRI TOWNSHIP BOARD OF  
 FIRE DISTRICT TRUSTEES,  
 DELAWARE COUNTY, OHIO  
 1.11 AC. (DEED)  
 O.R. 1753, PG. 2747  
 O.R. 1753, PG. 2748  
 O.R. 1753, PG. 2749  
 51944210011000  
 495 SUNBURY RD.  
 DELAWARE, OH 43015  
 1.110 AC. (AUDITOR)

ALL STATIONS & OFFSETS ARE FROM  
 THE @ OF EX. R/W OF BOWTOWN RD.  
 UNLESS OTHERWISE NOTED.

† = STATIONS & OFFSETS ARE FROM  
 THE @ OF EX. RAILROAD R/W

†† = STATIONS & OFFSETS ARE FROM  
 THE @ OF EX. R/W OF U.S. 36 &  
 S.R. 37

\* DENOTES RIGHT OF WAY ENCROACHMENT  
 DISPOSITION OF EXISTING ITEMS  
 ARE SUBJECT TO CHANGE BASED ON  
 FURTHER PLAN DEVELOPMENT.

RIGHT OF WAY CURVE DATA

| CURVE | CENTRAL ANGLE | RADIUS    | CURVE LENGTH | CHORD LENGTH | CHORD BEARING   |
|-------|---------------|-----------|--------------|--------------|-----------------|
| WD8   | 01° 27' 13"   | 11,359.19 | 288.20'      | 288.19'      | N 07° 46' 15" W |

| REV. BY                    | DATE   | DESCRIPTION             |
|----------------------------|--------|-------------------------|
| BLM                        | 9/3/21 | ADDED PARCEL 8-E        |
| BRK                        | 5/7/21 | UPDATED PARCEL 9A OWNER |
| DATE COMPLETED: 11/11/2020 |        |                         |

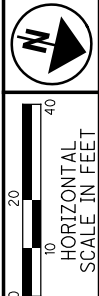
# NORFOLK SOUTHERN RAILROAD

DELAWARE COUNTY  
 DELAWARE TOWNSHIP  
 CITY OF DELAWARE  
 QTR. TWP. 4, T. 5 N., R. 19 W.  
 FARM LOTS 14 & 15  
 UNITED STATES MILITARY DISTRICT

NOTE THE RAILROAD STATIONING IS FROM THE FOLLOWING RAILROAD VALUATION MAP:  
 CONNECTING RAILWAY  
 FORMERLY  
 RIGHT OF WAY AND TRACK MAP  
 TOLEDO, COLUMBUS & OHIO RIVER R.R.  
 OPERATED BY THE  
 PENNSYLVANIA RAILROAD COMPANY  
 TOLEDO DIVISION SANDUSKY BRANCH  
 STATION 1223+00 TO STATION 1277+50  
 WITH DRAWING SHEET NUMBER V.18.0/189  
 AND  
 STATION 1277+50 TO STATION 1332+00  
 WITH DRAWING SHEET NUMBER V.18.0/191

5' ELECTRIC EASEMENT  
 COLUMBUS AND SOUTHERN  
 OHIO ELECTRIC COMPANY  
 D.B. 411, P. 198

EXEMPT  
 CITY OF DELAWARE  
 51944303001000  
 440 E. WILLIAMS ST.  
 DELAWARE, OH 43015  
 14.047 AC. (AUDITOR)



PID NO. **103626**  
 R/W DESIGNER BLM  
 R/W REVIEWER JMM

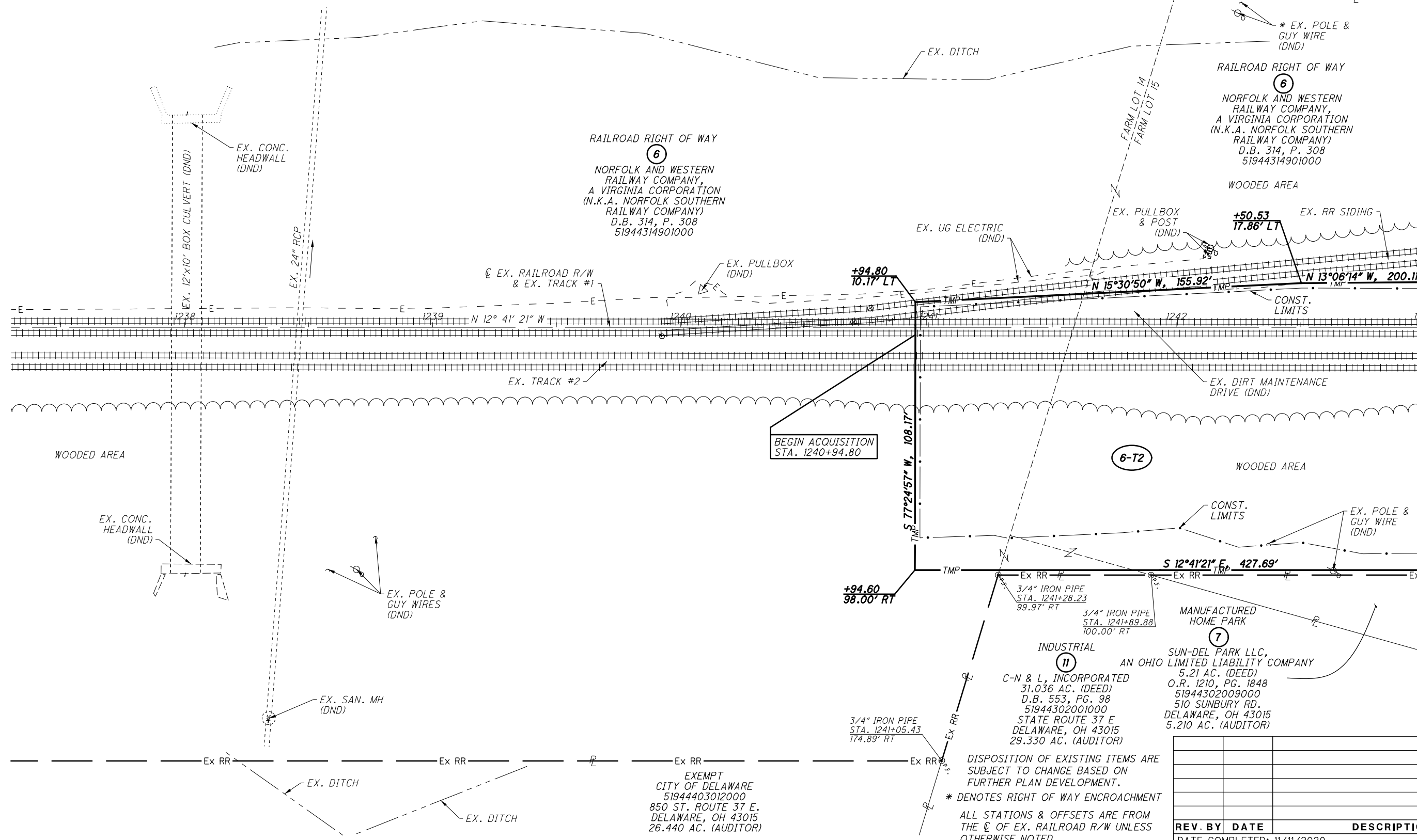
## RAILROAD PLAT

DEL -36 -11.03

36/44  
 636  
 644

RAILROAD RIGHT OF WAY  
 ⑥  
 NORFOLK AND WESTERN  
 RAILWAY COMPANY,  
 A VIRGINIA CORPORATION  
 (N.K.A. NORFOLK SOUTHERN  
 RAILWAY COMPANY)  
 D.B. 314, P. 308  
 51944314901000

RAILROAD RIGHT OF WAY  
 ⑥  
 NORFOLK AND WESTERN  
 RAILWAY COMPANY,  
 A VIRGINIA CORPORATION  
 (N.K.A. NORFOLK SOUTHERN  
 RAILWAY COMPANY)  
 D.B. 314, P. 308  
 51944314901000



BEGIN ACQUISITION  
 STA. 1240+94.80

6-T2

INDUSTRIAL  
 ⑪  
 C-N & L, INCORPORATED  
 31.036 AC. (DEED)  
 D.B. 553, PG. 98  
 51944302001000  
 STATE ROUTE 37 E  
 DELAWARE, OH 43015  
 29.330 AC. (AUDITOR)

MANUFACTURED HOME PARK  
 ⑦  
 SUN-DEL PARK LLC,  
 LIMITED LIABILITY COMPANY  
 5.21 AC. (DEED)  
 O.R. 1210, PG. 1848  
 51944302009000  
 510 SUNBURY RD.  
 DELAWARE, OH 43015  
 5.210 AC. (AUDITOR)

EXEMPT  
 CITY OF DELAWARE  
 51944403012000  
 850 ST. ROUTE 37 E.  
 DELAWARE, OH 43015  
 26.440 AC. (AUDITOR)

DISPOSITION OF EXISTING ITEMS ARE SUBJECT TO CHANGE BASED ON FURTHER PLAN DEVELOPMENT.  
 \* DENOTES RIGHT OF WAY ENCROACHMENT  
 ALL STATIONS & OFFSETS ARE FROM THE C OF EX. RAILROAD R/W UNLESS OTHERWISE NOTED.

| REV. BY | DATE | DESCRIPTION |
|---------|------|-------------|
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|         |      |             |
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|         |      |             |

DATE COMPLETED: 11/11/2020

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# NORFOLK SOUTHERN RAILROAD

DELAWARE COUNTY  
 DELAWARE TOWNSHIP  
 CITY OF DELAWARE  
 QTR. TWP. 4, T. 5 N., R. 19 W.  
 FARM LOT 15  
 UNITED STATES MILITARY DISTRICT

NOTE THE RAILROAD STATIONING IS FROM THE FOLLOWING RAILROAD VALUATION MAP: CONNECTING RAILWAY FORMERLY RIGHT OF WAY AND TRACK MAP TOLEDO, COLUMBUS & OHIO RIVER R.R. OPERATED BY THE PENNSYLVANIA RAILROAD COMPANY TOLEDO DIVISION SANDUSKY BRANCH STATION 1223+00 TO STATION 1277+50 WITH DRAWING SHEET NUMBER V.18.0/189 AND STATION 1277+50 TO STATION 1332+00 WITH DRAWING SHEET NUMBER V.18.0/191



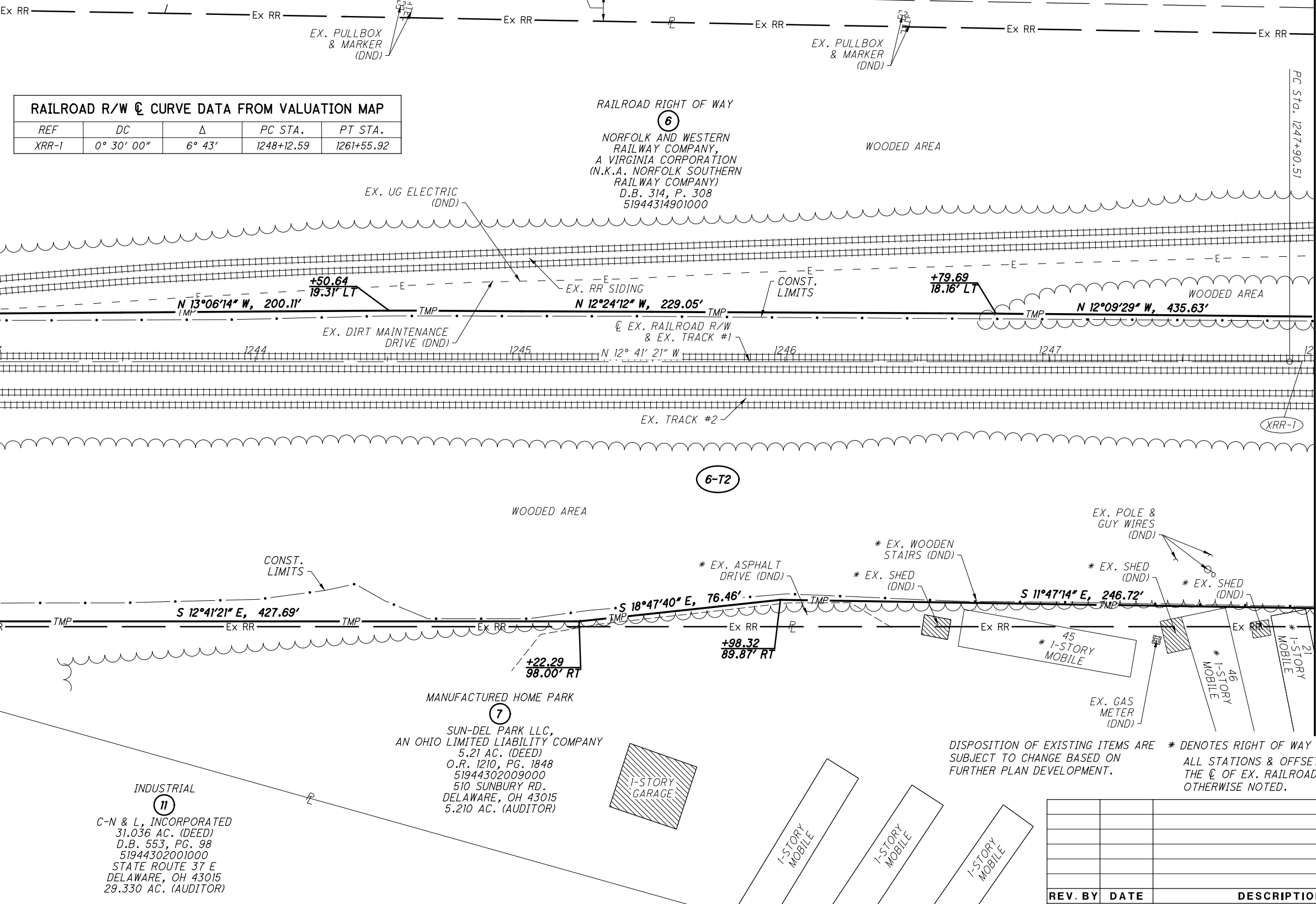
PID NO. **103626**  
 R/W DESIGNER BLM  
 R/W REVIEWER JMM

## RAILROAD PLAT

DEL - 36 - 11.03

37 / 44

637  
644

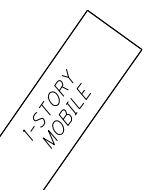
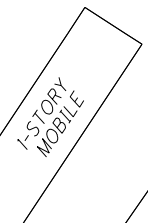
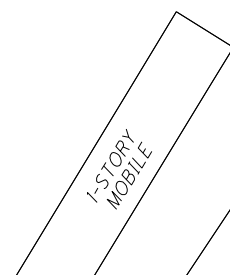


| RAILROAD R/W CURVE DATA FROM VALUATION MAP |            |        |            |            |
|--------------------------------------------|------------|--------|------------|------------|
| REF                                        | DC         | Δ      | PC STA.    | PT STA.    |
| XRR-1                                      | 0° 30' 00" | 6° 43' | 1248+12.59 | 1261+55.92 |

CURVE DATA XRR-1  
 P.I. Sta. 1254+59.83  
 Δ = 6° 41' 08" (RT)  
 Dc = 0° 30' 00"  
 R = 11,459.19'  
 T = 669.32'  
 L = 1,337.12'  
 E = 19.53'  
 C = 1,336.37'  
 C.B. = N 9° 20' 47" W

INDUSTRIAL  
**11**  
 C-N & L, INCORPORATED  
 31.036 AC. (DEED)  
 D.B. 553, PG. 98  
 51944302001000  
 STATE ROUTE 37 E  
 DELAWARE, OH 43015  
 29.330 AC. (AUDITOR)

MANUFACTURED HOME PARK  
**7**  
 SUN-DEL PARK LLC,  
 AN OHIO LIMITED LIABILITY COMPANY  
 5.21 AC. (DEED)  
 O.R. 1210, PG. 1848  
 51944302009000  
 510 SUNBURY RD.  
 DELAWARE, OH 43015  
 5.210 AC. (AUDITOR)



DISPOSITION OF EXISTING ITEMS ARE SUBJECT TO CHANGE BASED ON FURTHER PLAN DEVELOPMENT. \* DENOTES RIGHT OF WAY ENCROACHMENT ALL STATIONS & OFFSETS ARE FROM THE C OF EX. RAILROAD R/W UNLESS OTHERWISE NOTED.

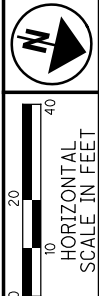
| REV. BY | DATE | DESCRIPTION |
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DATE COMPLETED: 11/11/2020

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# NORFOLK SOUTHERN RAILROAD

DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOT 15  
UNITED STATES MILITARY DISTRICT



PID NO. **103626**  
R/W DESIGNER BLM  
R/W REVIEWER JMM

## RAILROAD PLAT

DEL-36-11.03

38/44  
638  
644

ALL STATIONS & OFFSETS ARE FROM THE C OF EX. RAILROAD R/W UNLESS OTHERWISE NOTED.

\* DENOTES RIGHT OF WAY ENCROACHMENT  
DISPOSITION OF EXISTING ITEMS ARE SUBJECT TO CHANGE BASED ON FURTHER PLAN DEVELOPMENT.

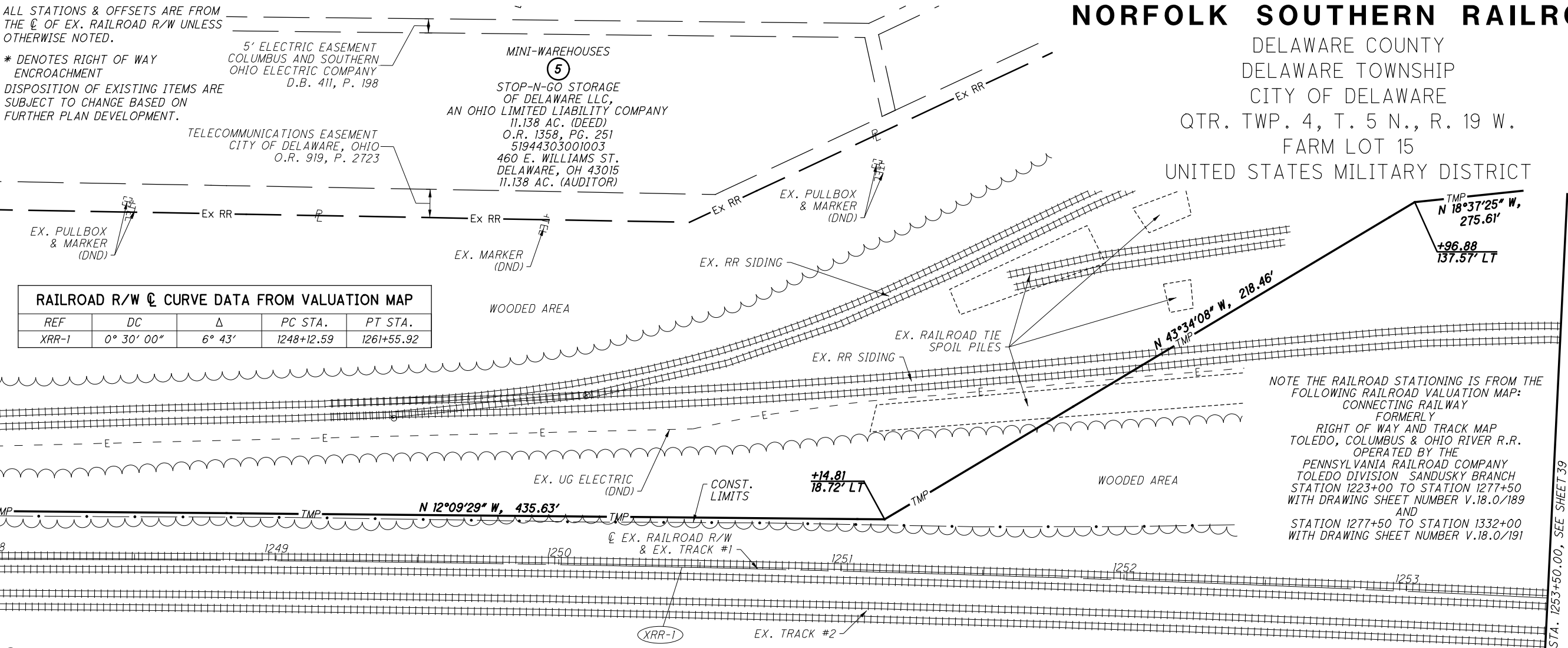
5' ELECTRIC EASEMENT  
COLUMBUS AND SOUTHERN  
OHIO ELECTRIC COMPANY  
D.B. 411, P. 198

MINI-WAREHOUSES  
5  
STOP-N-GO STORAGE  
OF DELAWARE LLC,  
AN OHIO LIMITED LIABILITY COMPANY  
11.138 AC. (DEED)  
O.R. 1358, PG. 251  
51944303001003  
460 E. WILLIAMS ST.  
DELAWARE, OH 43015  
11.138 AC. (AUDITOR)

TELECOMMUNICATIONS EASEMENT  
CITY OF DELAWARE, OHIO  
O.R. 919, P. 2723

RAILROAD R/W C CURVE DATA FROM VALUATION MAP

| REF   | DC         | Δ      | PC STA.    | PT STA.    |
|-------|------------|--------|------------|------------|
| XRR-1 | 0° 30' 00" | 6° 43' | 1248+12.59 | 1261+55.92 |

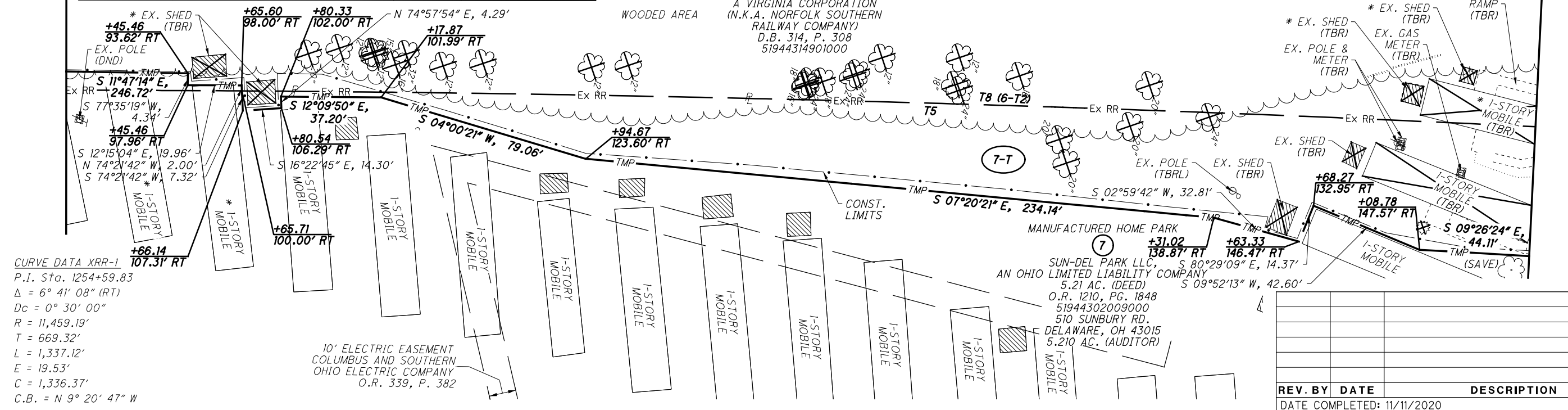


NOTE THE RAILROAD STATIONING IS FROM THE FOLLOWING RAILROAD VALUATION MAP:  
CONNECTING RAILWAY  
FORMERLY  
RIGHT OF WAY AND TRACK MAP  
TOLEDO, COLUMBUS & OHIO RIVER R.R.  
OPERATED BY THE  
PENNSYLVANIA RAILROAD COMPANY  
TOLEDO DIVISION SANDUSKY BRANCH  
STATION 1223+00 TO STATION 1277+50  
WITH DRAWING SHEET NUMBER V.18.0/189  
AND  
STATION 1277+50 TO STATION 1332+00  
WITH DRAWING SHEET NUMBER V.18.0/191

RIGHT OF WAY CURVE DATA

| CURVE | CENTRAL ANGLE | RADIUS    | CURVE LENGTH | CHORD LENGTH | CHORD BEARING   |
|-------|---------------|-----------|--------------|--------------|-----------------|
| T5    | 03° 05' 12"   | 11,359.19 | 611.93'      | 611.85'      | N 10° 46' 12" E |
| T8    | 03° 26' 53"   | 11,359.19 | 683.61'      | 683.51'      | S 10° 35' 21" E |

RAILROAD RIGHT OF WAY  
6  
NORFOLK AND WESTERN  
RAILWAY COMPANY,  
A VIRGINIA CORPORATION  
(N.K.A. NORFOLK SOUTHERN  
RAILWAY COMPANY)  
D.B. 314, P. 308  
51944314901000



CURVE DATA XRR-1  
P.I. Sta. 1254+59.83  
Δ = 6° 41' 08" (RT)  
Dc = 0° 30' 00"  
R = 11,459.19'  
T = 669.32'  
L = 1,337.12'  
E = 19.53'  
C = 1,336.37'  
C.B. = N 9° 20' 47" W

10' ELECTRIC EASEMENT  
COLUMBUS AND SOUTHERN  
OHIO ELECTRIC COMPANY  
O.R. 339, P. 382

| REV. BY | DATE | DESCRIPTION |
|---------|------|-------------|
|         |      |             |
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DATE COMPLETED: 11/11/2020

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MATCH LINE STA. 1248+00.00, SEE SHEET 37

MATCH LINE STA. 1253+50.00, SEE SHEET 39



| RIGHT OF WAY CURVE DATA |               |            |              |              |                 |
|-------------------------|---------------|------------|--------------|--------------|-----------------|
| CURVE                   | CENTRAL ANGLE | RADIUS     | CURVE LENGTH | CHORD LENGTH | CHORD BEARING   |
| SH1                     | 08° 25' 55"   | 205.00'    | 30.17'       | 30.14'       | S 77° 52' 46" W |
| SH2                     | 20° 33' 15"   | 95.00'     | 34.08'       | 33.90'       | S 83° 56' 26" W |
| SH3                     | 00° 13' 16"   | 11,549.19' | 44.55'       | 44.55'       | N 07° 54' 50" W |
| SH5                     | 00° 24' 55"   | 11,359.19' | 82.33'       | 82.33'       | S 08° 08' 08" E |
| SH6                     | 00° 05' 28"   | 11,359.19' | 18.07'       | 18.07'       | S 08° 49' 10" E |
| T4                      | 01° 39' 09"   | 11,544.19' | 332.93'      | 332.92'      | N 06° 49' 47" W |
| T8                      | 03° 26' 53"   | 11,359.19' | 683.61'      | 683.51'      | S 10° 35' 21" E |
| T9                      | 01° 55' 28"   | 11,359.19' | 381.54'      | 381.52'      | S 06° 57' 57" E |
| T10                     | 01° 27' 13"   | 11,359.19' | 288.20'      | 288.19'      | N 07° 46' 15" W |
| T11                     | 00° 07' 53"   | 11,549.19' | 26.50'       | 26.50'       | N 07° 44' 16" W |

SEE SHEETS 13, 15 & 33 FOR TOPO DETAILS WITHIN THE R/W OF U.S. 36 AND S.R. 37

DISPOSITION OF EXISTING ITEMS ARE SUBJECT TO CHANGE BASED ON FURTHER PLAN DEVELOPMENT.

NOTE THE RAILROAD STATIONING IS FROM THE FOLLOWING RAILROAD VALUATION MAP: CONNECTING RAILWAY FORMERLY RIGHT OF WAY AND TRACK MAP TOLEDO, COLUMBUS & OHIO RIVER R.R. OPERATED BY THE PENNSYLVANIA RAILROAD COMPANY TOLEDO DIVISION SANDUSKY BRANCH STATION 1223+00 TO STATION 1277+50 WITH DRAWING SHEET NUMBER V.18.0/189 AND STATION 1277+50 TO STATION 1332+00 WITH DRAWING SHEET NUMBER V.18.0/191

| RAILROAD R/W CURVE DATA FROM VALUATION MAP |            |        |            |            |
|--------------------------------------------|------------|--------|------------|------------|
| REF                                        | DC         | Δ      | PC STA.    | PT STA.    |
| XRR-1                                      | 0° 30' 00" | 6° 43' | 1248+12.59 | 1261+55.92 |

ALL STATIONS & OFFSETS ARE FROM THE C OF EX. RAILROAD R/W UNLESS OTHERWISE NOTED.

† = STATION AND OFFSETS ARE FROM THE C OF EX. R/W OF U.S. 36 & S.R. 37

†† = STATION AND OFFSETS ARE FROM THE C OF EX. R/W OF E. WILLIAM ST. (U.S. 36)

††† = STATION AND OFFSETS ARE FROM THE C OF EX. R/W OF E. CENTRAL AVE. (S.R. 37)

†††† = STATION AND OFFSETS ARE FROM THE C OF EX. R/W OF BOWTOWN RD.

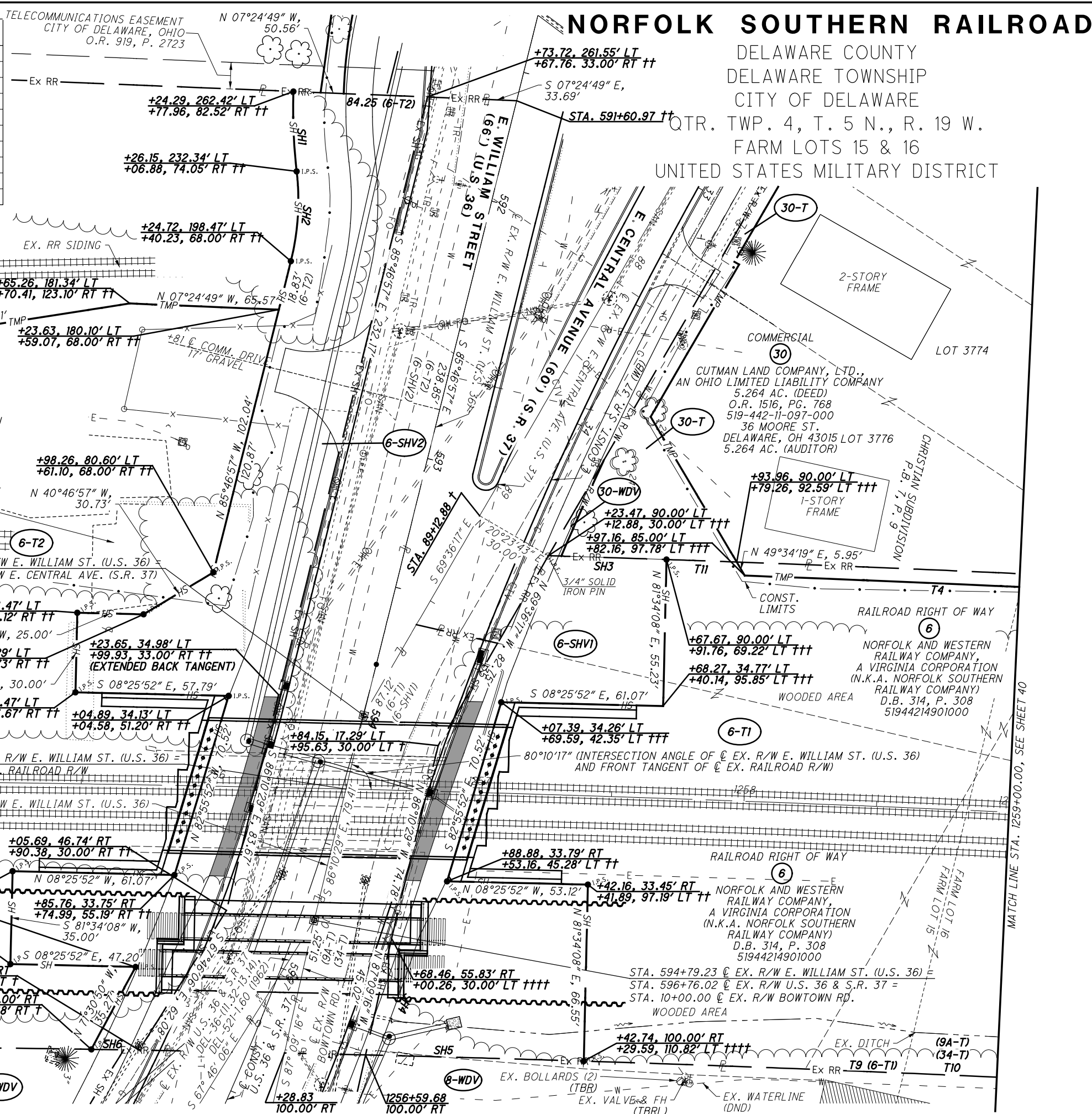
\* DENOTES RIGHT OF WAY ENCROACHMENT

MATCH LINE STA. 1253+50.00, SEE SHEET 38

CURVE DATA XRR-1  
 P.I. Sta. 1254+59.83  
 Δ = 6° 41' 08" (RT)  
 Dc = 0° 30' 00"  
 R = 11,459.19'  
 T = 669.32'  
 L = 1,337.12'  
 E = 19.53'  
 C = 1,336.37'  
 C.B. = N 9° 20' 47" W

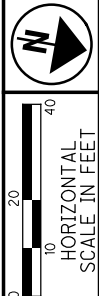
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DATE COMPLETED: 11/11/2020



# NORFOLK SOUTHERN RAILROAD

DELAWARE COUNTY  
 DELAWARE TOWNSHIP  
 CITY OF DELAWARE  
 QTR. TWP. 4, T. 5 N., R. 19 W.  
 FARM LOTS 15 & 16  
 UNITED STATES MILITARY DISTRICT



PID NO. **103626**

R/W DESIGNER: BLM  
 R/W REVIEWER: JMM

## RAILROAD PLAT

DEL-36-11.03

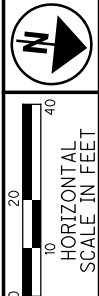
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# NORFOLK SOUTHERN RAILROAD

DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOTS 15 & 16  
UNITED STATES MILITARY DISTRICT

**CURVE DATA XRR-1**  
P.I. Sta. 1254+59.83  
 $\Delta = 6^\circ 41' 08''$  (RT)  
 $Dc = 0^\circ 30' 00''$   
 $R = 11,459.19'$   
 $T = 669.32'$   
 $L = 1,337.12'$   
 $E = 19.53'$   
 $C = 1,336.37'$   
C.B. =  $N 9^\circ 20' 47''$  W

NOTE THE RAILROAD STATIONING IS FROM THE FOLLOWING RAILROAD VALUATION MAP:  
CONNECTING RAILWAY  
FORMERLY  
RIGHT OF WAY AND TRACK MAP  
TOLEDO, COLUMBUS & OHIO RIVER R.R.  
OPERATED BY THE  
PENNSYLVANIA RAILROAD COMPANY  
TOLEDO DIVISION SANDUSKY BRANCH  
STATION 1223+00 TO STATION 1277+50  
WITH DRAWING SHEET NUMBER V.18.0/189  
AND  
STATION 1277+50 TO STATION 1332+00  
WITH DRAWING SHEET NUMBER V.18.0/191



PID NO. **103626**  
R/W DESIGNER BLM  
R/W REVIEWER JMM

**RAILROAD PLAT**

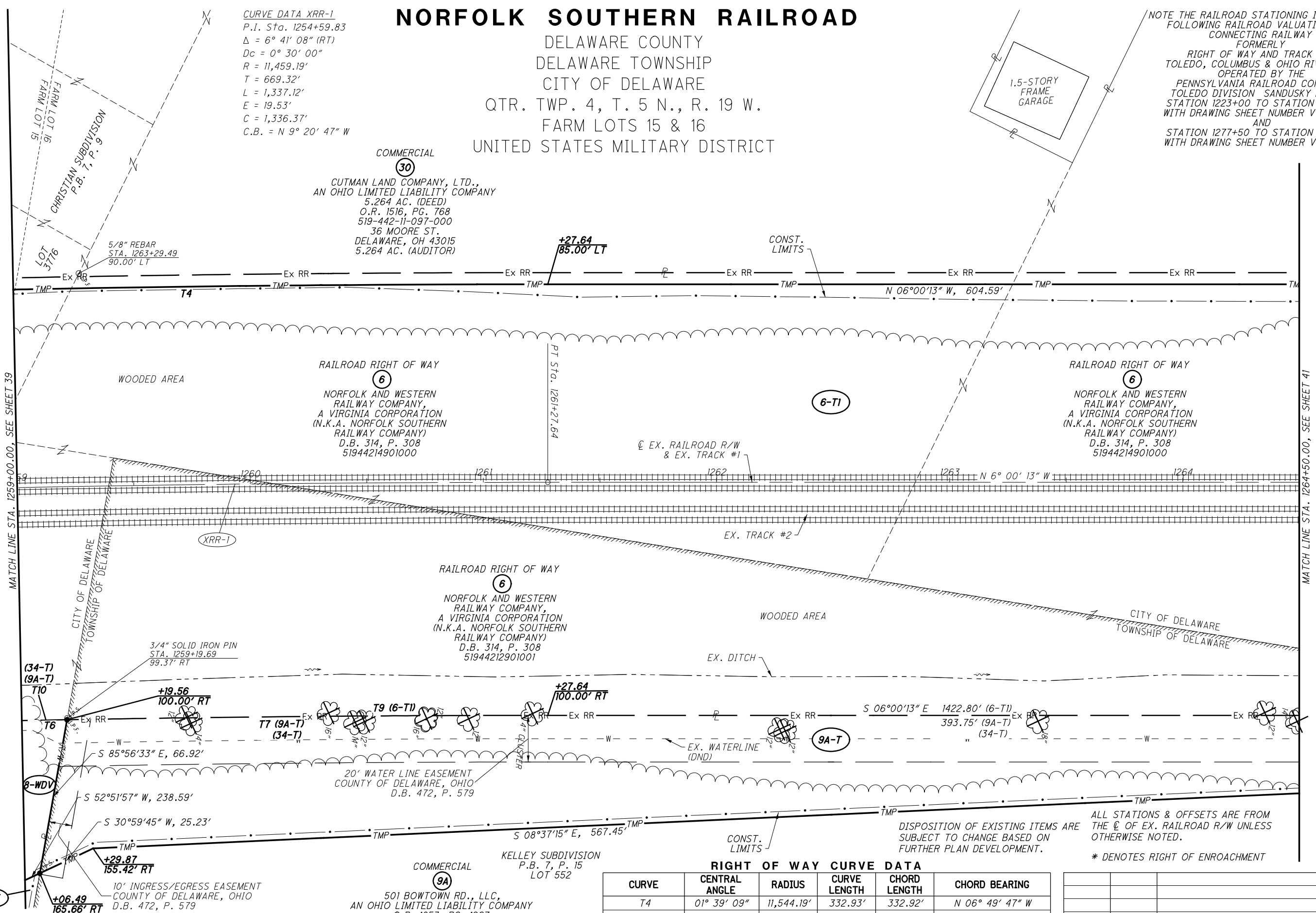
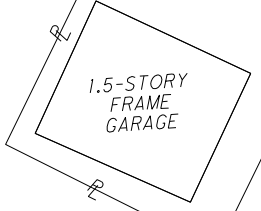
DEL - 36 - 11.03  
40/44  
640  
644

COMMERCIAL  
**30**  
CUTMAN LAND COMPANY, LTD.,  
AN OHIO LIMITED LIABILITY COMPANY  
5.264 AC. (DEED)  
O.R. 1516, PG. 768  
519-442-11-097-000  
36 MOORE ST.  
DELAWARE, OH 43015  
5.264 AC. (AUDITOR)

RAILROAD RIGHT OF WAY  
**6**  
NORFOLK AND WESTERN  
RAILWAY COMPANY,  
A VIRGINIA CORPORATION  
(N.K.A. NORFOLK SOUTHERN  
RAILWAY COMPANY)  
D.B. 314, P. 308  
51944214901000

RAILROAD RIGHT OF WAY  
**6**  
NORFOLK AND WESTERN  
RAILWAY COMPANY,  
A VIRGINIA CORPORATION  
(N.K.A. NORFOLK SOUTHERN  
RAILWAY COMPANY)  
D.B. 314, P. 308  
51944212901001

COMMERCIAL  
**9A**  
501 BOWTOWN RD., LLC,  
AN OHIO LIMITED LIABILITY COMPANY  
O.R. 1853, PG. 1967  
51944210013000  
BOWTOWN RD.  
DELAWARE, OHIO 43015  
5.000 AC. (AUDITOR)



**RAILROAD R/W CURVE DATA FROM VALUATION MAP**

| REF   | DC                 | $\Delta$      | PC STA.    | PT STA.    |
|-------|--------------------|---------------|------------|------------|
| XRR-1 | $0^\circ 30' 00''$ | $6^\circ 43'$ | 1248+12.59 | 1261+55.92 |

**RIGHT OF WAY CURVE DATA**

| CURVE | CENTRAL ANGLE       | RADIUS     | CURVE LENGTH | CHORD LENGTH | CHORD BEARING           |
|-------|---------------------|------------|--------------|--------------|-------------------------|
| T4    | $01^\circ 39' 09''$ | 11,544.19' | 332.93'      | 332.92'      | $N 06^\circ 49' 47''$ W |
| T6    | $01^\circ 16' 22''$ | 11,359.19' | 252.33'      | 252.32'      | $N 07^\circ 40' 49''$ W |
| T7    | $01^\circ 02' 25''$ | 11,359.19' | 206.26'      | 206.26'      | $N 06^\circ 31' 25''$ W |
| T9    | $01^\circ 55' 28''$ | 11,359.19' | 381.54'      | 381.52'      | $S 06^\circ 57' 57''$ E |
| T10   | $01^\circ 27' 13''$ | 11,359.19' | 288.20'      | 288.19'      | $N 07^\circ 46' 15''$ W |

ALL STATIONS & OFFSETS ARE FROM THE  $\text{\textcircled{C}}$  OF EX. RAILROAD R/W UNLESS OTHERWISE NOTED.  
\* DENOTES RIGHT OF ENROACHMENT

| REV. BY                    | DATE   | DESCRIPTION             |
|----------------------------|--------|-------------------------|
| BLM                        | 9/3/21 | ADDED PARCEL 8-E        |
| BRK                        | 5/6/21 | UPDATED PARCEL 9A OWNER |
| DATE COMPLETED: 11/11/2020 |        |                         |

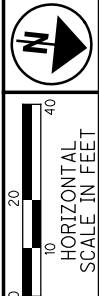
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# NORFOLK SOUTHERN RAILROAD

DELAWARE COUNTY  
 DELAWARE TOWNSHIP  
 CITY OF DELAWARE  
 QTR. TWP. 4, T. 5 N., R. 19 W.  
 FARM LOT 16  
 UNITED STATES MILITARY DISTRICT

COMMERCIAL  
 (30)  
 CUTMAN LAND COMPANY, LTD.,  
 AN OHIO LIMITED LIABILITY COMPANY  
 5.264 AC. (DEED)  
 O.R. 1516, PG. 768  
 519-442-11-097-000  
 36 MOORE ST.  
 DELAWARE, OH 43015  
 5.264 AC. (AUDITOR)

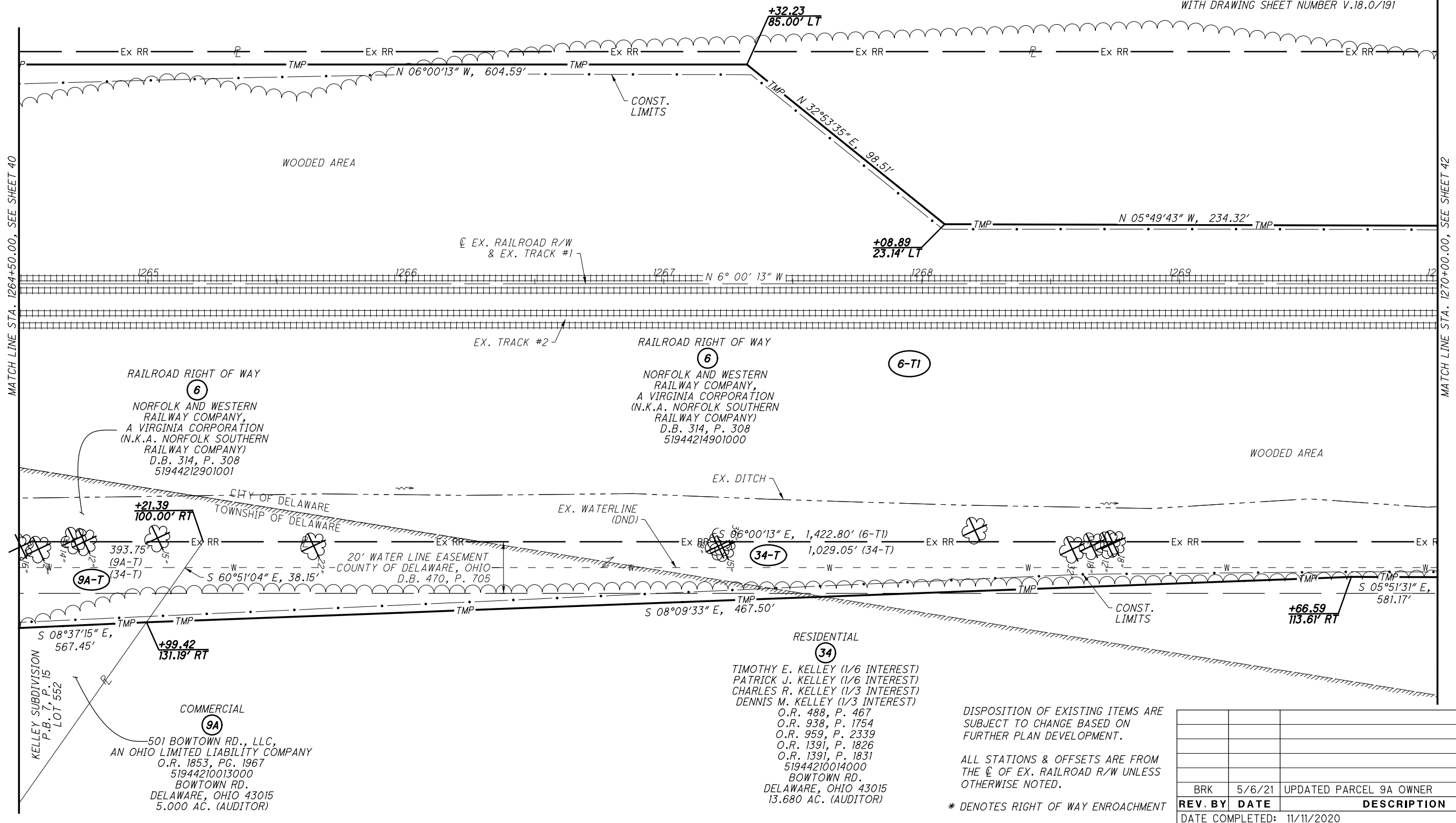
NOTE THE RAILROAD STATIONING IS FROM THE  
 FOLLOWING RAILROAD VALUATION MAP:  
 CONNECTING RAILWAY  
 FORMERLY  
 RIGHT OF WAY AND TRACK MAP  
 TOLEDO, COLUMBUS & OHIO RIVER R.R.  
 OPERATED BY THE  
 PENNSYLVANIA RAILROAD COMPANY  
 TOLEDO DIVISION SANDUSKY BRANCH  
 STATION 1223+00 TO STATION 1277+50  
 WITH DRAWING SHEET NUMBER V.18.0/189  
 AND  
 STATION 1277+50 TO STATION 1332+00  
 WITH DRAWING SHEET NUMBER V.18.0/191



PID NO. **103626**  
 R/W DESIGNER BLM  
 R/W REVIEWER JMM

**RAILROAD PLAT**

**DEL - 36 - 11.03**  
 41 / 44  
 (641)  
 (644)



DISPOSITION OF EXISTING ITEMS ARE  
 SUBJECT TO CHANGE BASED ON  
 FURTHER PLAN DEVELOPMENT.

ALL STATIONS & OFFSETS ARE FROM  
 THE C OF EX. RAILROAD R/W UNLESS  
 OTHERWISE NOTED.

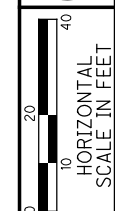
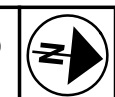
\* DENOTES RIGHT OF WAY ENROACHMENT

| REV. BY                    | DATE   | DESCRIPTION             |
|----------------------------|--------|-------------------------|
| BRK                        | 5/6/21 | UPDATED PARCEL 9A OWNER |
| DATE COMPLETED: 11/11/2020 |        |                         |

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# NORFOLK SOUTHERN RAILROAD

DELAWARE COUNTY  
 DELAWARE TOWNSHIP  
 CITY OF DELAWARE  
 QTR. TWP. 4, T. 5 N., R. 19 W.  
 FARM LOT 16  
 UNITED STATES MILITARY DISTRICT



PID NO.  
**103626**

R/W DESIGNER  
 BLM  
 R/W REVIEWER  
 JMM

## RAILROAD PLAT

DEL - 36 - 11.03

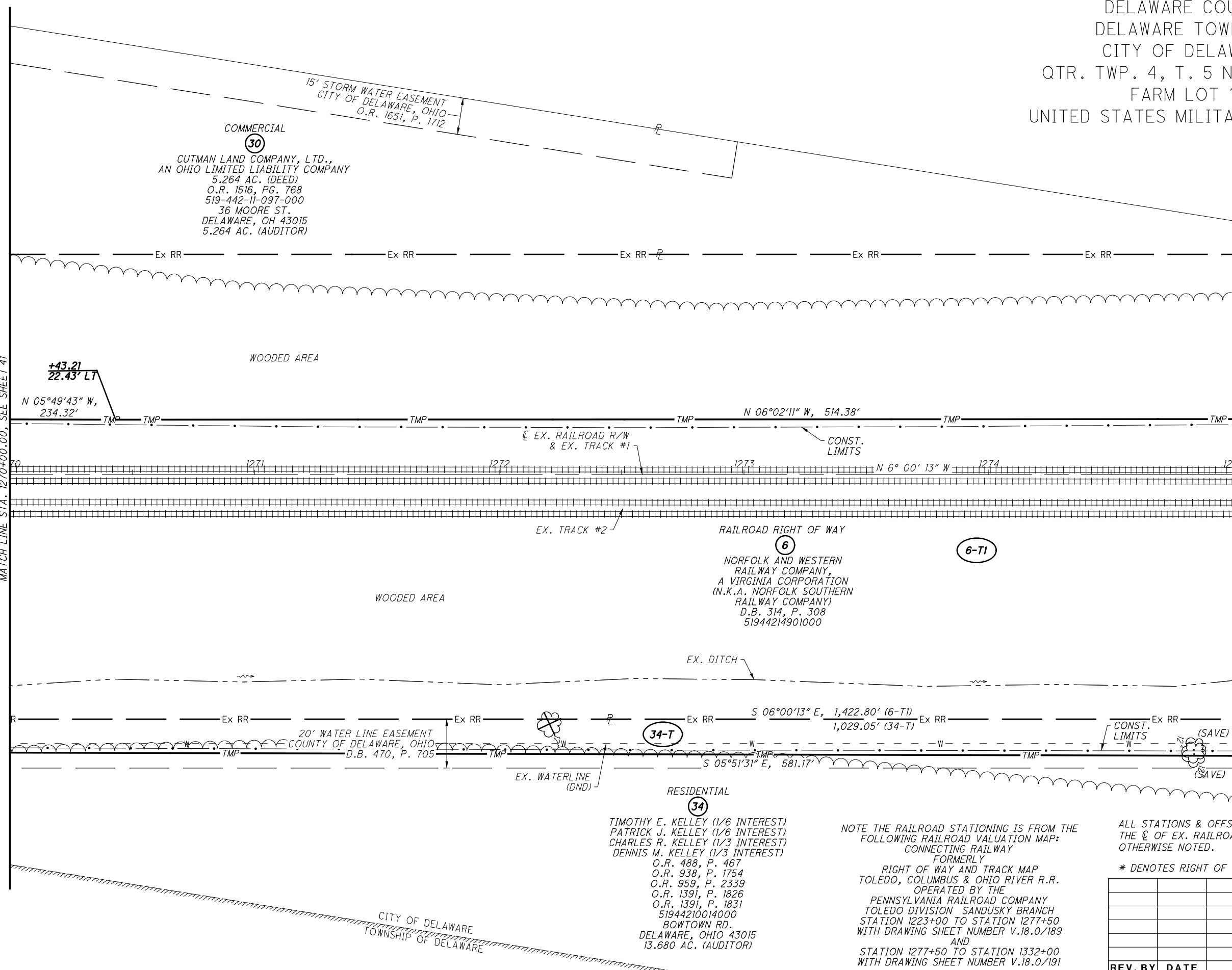
42 / 44

642  
 644

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MATCH LINE STA. 1270+00.00, SEE SHEET 41

MATCH LINE STA. 1275+00.00, SEE SHEET 43



**30**  
 COMMERCIAL  
 CUTMAN LAND COMPANY, LTD.,  
 AN OHIO LIMITED LIABILITY COMPANY  
 5.264 AC. (DEED)  
 O.R. 1516, PG. 768  
 519-442-11-097-000  
 36 MOORE ST.  
 DELAWARE, OH 43015  
 5.264 AC. (AUDITOR)

+43.21  
 22.43' LT  
 N 05°49'43" W,  
 234.32'

**6**  
 RAILROAD RIGHT OF WAY  
 NORFOLK AND WESTERN  
 RAILWAY COMPANY,  
 A VIRGINIA CORPORATION  
 (N.K.A. NORFOLK SOUTHERN  
 RAILWAY COMPANY)  
 D.B. 314, P. 308  
 51944214901000

**34**  
 RESIDENTIAL  
 TIMOTHY E. KELLEY (1/6 INTEREST)  
 PATRICK J. KELLEY (1/6 INTEREST)  
 CHARLES R. KELLEY (1/3 INTEREST)  
 DENNIS M. KELLEY (1/3 INTEREST)  
 O.R. 488, P. 467  
 O.R. 938, P. 1754  
 O.R. 959, P. 2339  
 O.R. 1391, P. 1826  
 O.R. 1391, P. 1831  
 51944210014000  
 BOWTOWN RD.  
 DELAWARE, OHIO 43015  
 13.680 AC. (AUDITOR)

NOTE THE RAILROAD STATIONING IS FROM THE  
 FOLLOWING RAILROAD VALUATION MAP:  
 CONNECTING RAILWAY  
 FORMERLY  
 RIGHT OF WAY AND TRACK MAP  
 TOLEDO, COLUMBUS & OHIO RIVER R.R.  
 OPERATED BY THE  
 PENNSYLVANIA RAILROAD COMPANY  
 TOLEDO DIVISION SANDUSKY BRANCH  
 STATION 1223+00 TO STATION 1277+50  
 WITH DRAWING SHEET NUMBER V.18.0/189  
 AND  
 STATION 1277+50 TO STATION 1332+00  
 WITH DRAWING SHEET NUMBER V.18.0/191

ALL STATIONS & OFFSETS ARE FROM  
 THE  $\oslash$  OF EX. RAILROAD R/W UNLESS  
 OTHERWISE NOTED.

\* DENOTES RIGHT OF WAY ENROACHMENT

DISPOSITION OF EXISTING ITEMS ARE  
 SUBJECT TO CHANGE BASED ON  
 FURTHER PLAN DEVELOPMENT.

| REV. BY | DATE | DESCRIPTION |
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DATE COMPLETED: 11/11/2020

# NORFOLK SOUTHERN RAILROAD

DELAWARE COUNTY  
DELAWARE TOWNSHIP  
CITY OF DELAWARE  
QTR. TWP. 4, T. 5 N., R. 19 W.  
FARM LOTS 16 & 17  
UNITED STATES MILITARY DISTRICT



PID NO. **103626**

R/W DESIGNER BLM R/W REVIEWER JMM

**RAILROAD PLAT**

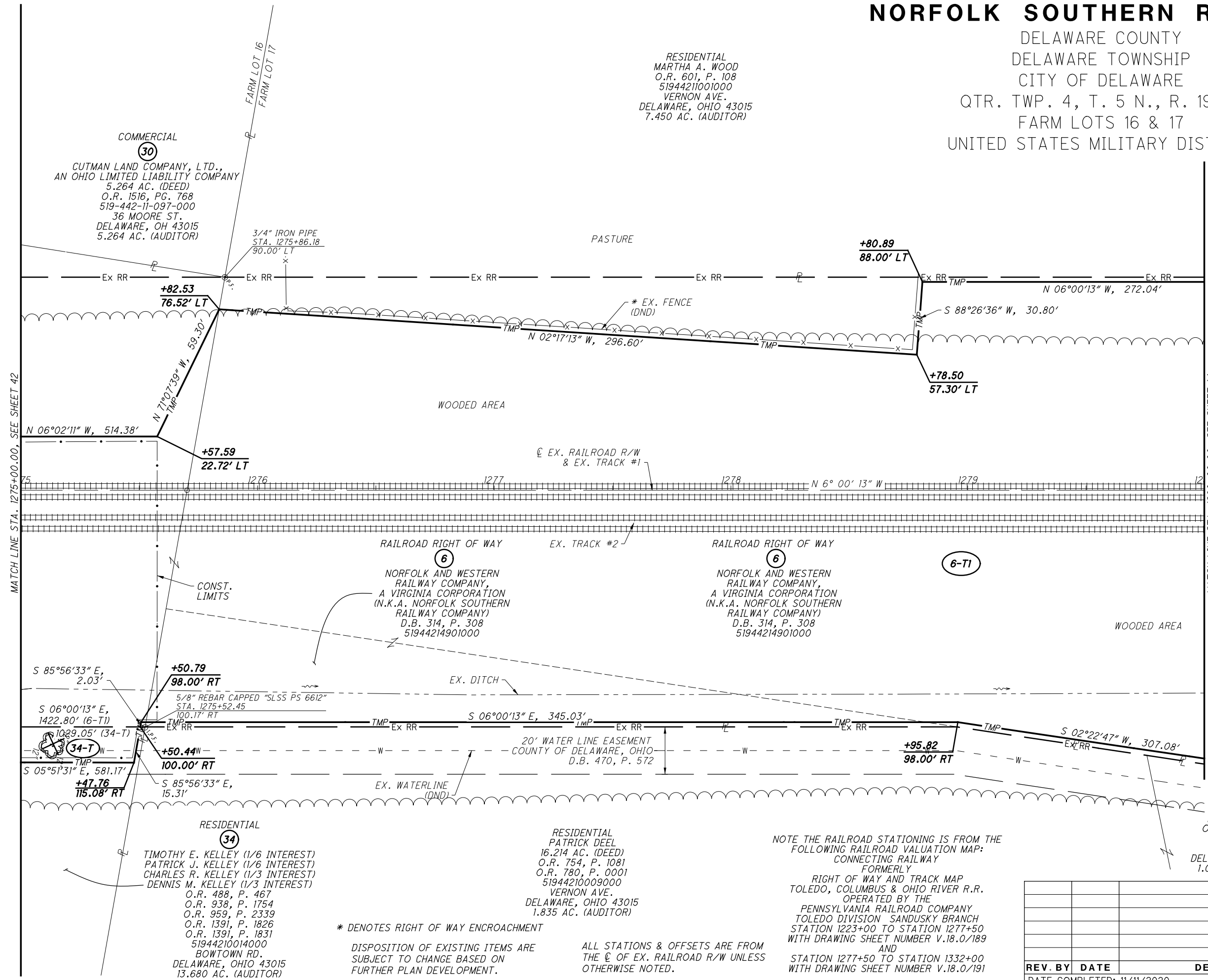
**DEL-36-11.03**

43/44

643  
644

RESIDENTIAL  
MARTHA A. WOOD  
O.R. 601, P. 108  
51944211001000  
VERNON AVE.  
DELAWARE, OHIO 43015  
7.450 AC. (AUDITOR)

COMMERCIAL  
**(30)**  
CUTMAN LAND COMPANY, LTD.,  
AN OHIO LIMITED LIABILITY COMPANY  
5.264 AC. (DEED)  
O.R. 1516, PG. 768  
519-442-11-097-000  
36 MOORE ST.  
DELAWARE, OH 43015  
5.264 AC. (AUDITOR)



MATCH LINE STA. 1275+00.00, SEE SHEET 42

MATCH LINE STA. 1280+00.00, SEE SHEET 44

\* DENOTES RIGHT OF WAY ENCROACHMENT

DISPOSITION OF EXISTING ITEMS ARE SUBJECT TO CHANGE BASED ON FURTHER PLAN DEVELOPMENT.

ALL STATIONS & OFFSETS ARE FROM THE C OF EX. RAILROAD R/W UNLESS OTHERWISE NOTED.

NOTE THE RAILROAD STATIONING IS FROM THE FOLLOWING RAILROAD VALUATION MAP: CONNECTING RAILWAY FORMERLY RIGHT OF WAY AND TRACK MAP TOLEDO, COLUMBUS & OHIO RIVER R.R. OPERATED BY THE PENNSYLVANIA RAILROAD COMPANY TOLEDO DIVISION SANDUSKY BRANCH STATION 1223+00 TO STATION 1277+50 WITH DRAWING SHEET NUMBER V.18.0/189 AND STATION 1277+50 TO STATION 1332+00 WITH DRAWING SHEET NUMBER V.18.0/191

| REV. BY | DATE | DESCRIPTION |
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DATE COMPLETED: 11/11/2020

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# NORFOLK SOUTHERN RAILROAD

DELAWARE COUNTY  
 DELAWARE TOWNSHIP  
 CITY OF DELAWARE  
 QTR. TWP. 4, T. 5 N., R. 19 W.  
 FARM LOT 17  
 UNITED STATES MILITARY DISTRICT



PID NO.  
**103626**

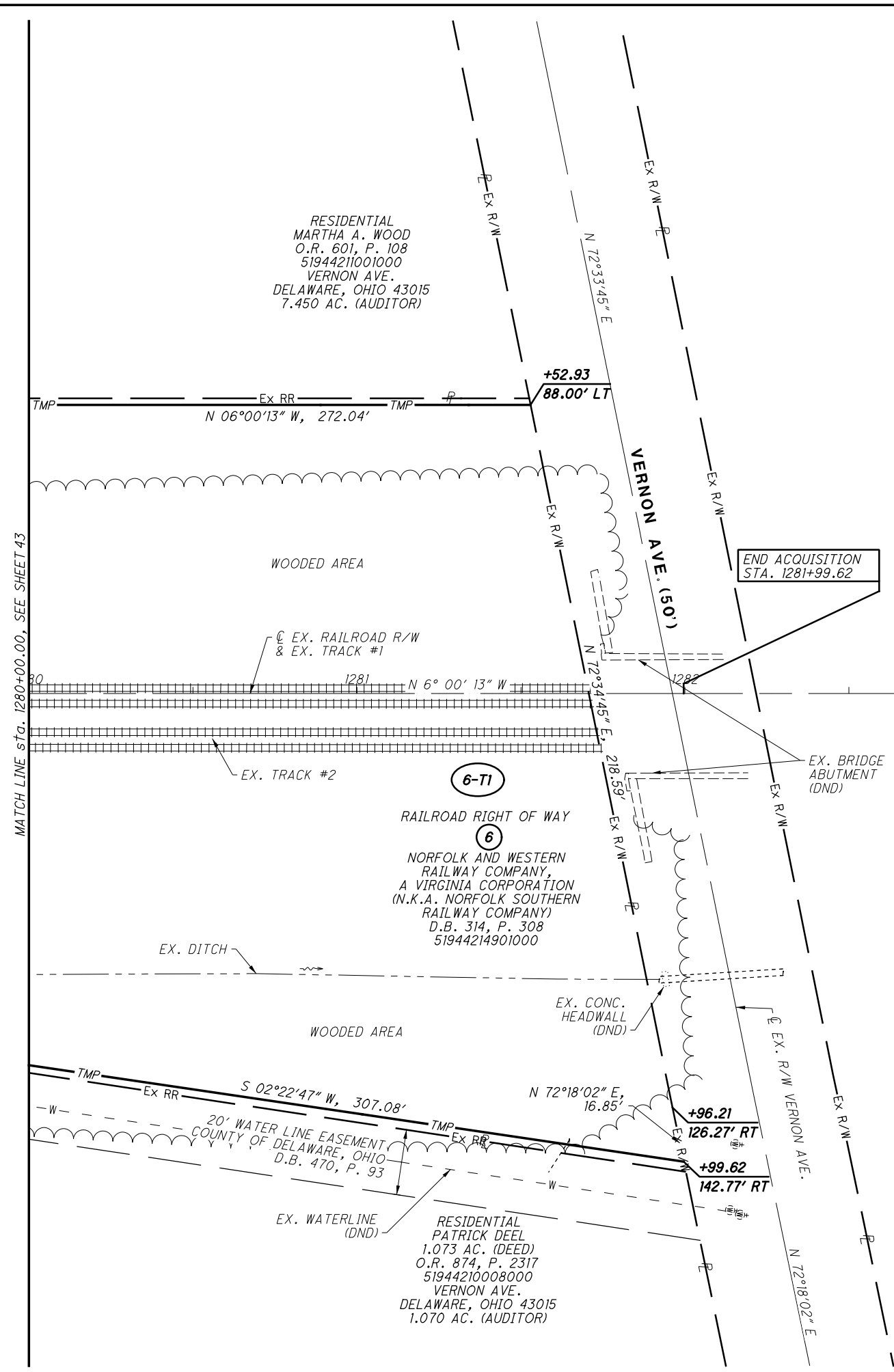
R/W DESIGNER  
 BLM  
 R/W REVIEWER  
 JMM

## RAILROAD PLAT

DEL - 36 - 11.03

44 / 44

644  
 644



END ACQUISITION  
 STA. 1281+99.62

6-71  
 6  
 RAILROAD RIGHT OF WAY  
 NORFOLK AND WESTERN  
 RAILWAY COMPANY,  
 A VIRGINIA CORPORATION  
 (N.K.A. NORFOLK SOUTHERN  
 RAILWAY COMPANY)  
 D.B. 314, P. 308  
 51944214901000

RESIDENTIAL  
 PATRICK DEEL  
 1.073 AC. (DEED)  
 O.R. 874, P. 2317  
 51944210008000  
 VERNON AVE.  
 DELAWARE, OHIO 43015  
 1.070 AC. (AUDITOR)

NOTE THE RAILROAD STATIONING IS FROM THE FOLLOWING RAILROAD VALUATION MAP: CONNECTING RAILWAY FORMERLY RIGHT OF WAY AND TRACK MAP TOLEDO, COLUMBUS & OHIO RIVER R.R. OPERATED BY THE PENNSYLVANIA RAILROAD COMPANY TOLEDO DIVISION SANDUSKY BRANCH STATION 1223+00 TO STATION 1277+50 WITH DRAWING SHEET NUMBER V.18.0/189 AND STATION 1277+50 TO STATION 1332+00 WITH DRAWING SHEET NUMBER V.18.0/191

DISPOSITION OF EXISTING ITEMS ARE SUBJECT TO CHANGE BASED ON FURTHER PLAN DEVELOPMENT.

ALL STATIONS & OFFSETS ARE FROM THE C OF EX. RAILROAD R/W UNLESS OTHERWISE NOTED.

\* DENOTES RIGHT OF WAY ENROACHMENT

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**PROJECT DESCRIPTION**

THE DEL-36-11.03 PROJECT CONSISTS OF IMPROVEMENTS TO BE MADE TO US HIGHWAY 36 (US-36) AND STATE ROUTE 37 (SR-37) BETWEEN CHANNING STREET AND STATE ROUTE 521 (SR-521) IN DELAWARE, OHIO. THESE IMPROVEMENTS INCLUDE THE REPLACEMENT OF THE EXISTING NORFOLK-SOUTHERN RAILWAY (NS) BRIDGE OVER US-36 TO ACCOMMODATE THE PROPOSED WIDENING OF THE ROADWAY.

**HISTORIC RECORDS**

A SEARCH OF THE AVAILABLE RECORDS ON ODOT'S TRANSPORTATION INFORMATION MAPPING SYSTEM (TIMS) REVEALED TWO PREVIOUS GEOTECHNICAL EXPLORATION PROGRAMS PERFORMED WITHIN THE CURRENT PROJECT LIMITS. THESE PROGRAMS WERE PERFORMED IN SUPPORT OF THE DEL-36-11.30 PROJECT IN 1961, AND THE DEL-36-10.46 PROJECT IN 1985. EIGHT TEST BORINGS WERE DRILLED WITHIN THE PROJECT LIMITS AS PART OF THE DEL-36-11.30 PROJECT, WHILE SIX BORINGS WERE DRILLED WITHIN THE CURRENT PROJECT LIMITS AS PART OF THE DEL-36-10.46 PROJECT. THE BORINGS PERFORMED AS PART OF THE 1961 STUDY WERE EXTENDED TO A DEPTH OF 10 FEET, WHEREAS THE BORINGS PERFORMED AS PART OF THE 1985 STUDY RANGED FROM 12 TO 20 FEET IN DEPTH. THE HISTORIC BORINGS PREDOMINANTLY ENCOUNTERED FINE-GRAINED SANDY SILT (A-4A), SILTY CLAY (A-6A) AND SILT AND CLAY (A-6B) MATERIALS, WITH OCCASIONAL INTERVALS OF CLAY (A-7-6) OR GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT (A-2-4).

**GEOLOGY**

DELAWARE COUNTY IS LOCATED WITHIN THE CENTRAL OHIO CLAYEY TILL PLAINS REGION, DESCRIBED BY THE OHIO DEPARTMENT OF NATURAL RESOURCES, DIVISION OF GEOLOGICAL SURVEY AS A SURFACE OF CLAYEY TILL DEFINED BY GLACIAL MORAINES WITH INTERVENING FLAT-LYING GROUND MORAINES AND INTERMORAINAL LAKE BASINS THAT RANGE IN AREA FROM A FEW TO 200 SQUARE MILES. THIS REGION ALSO INCLUDES FEW LARGE STREAMS, AND LIMITED SAND AND GRAVEL OUTWASH. SOILS IN THE CENTRAL OHIO CLAYEY TILL PLAINS REGION ARE IDENTIFIED AS CLAYEY, LIME-RICH WISCONSINAN-AGE TILLS DERIVED FROM A NORTHEASTERN SOURCE AND LACUSTRINE SOILS OVER LOWER PALEOZOIC-AGE CARBONATE ROCKS ACROSS MUCH OF THE REGION, WITH SHALES PRESENT IN THE EAST. THE BEDROCK MAPPED BELOW THE PROJECT SITE IS THE UPPER DEVONIAN-AGE OHIO SHALE (DOH), WHICH PREDOMINANTLY CONSISTS OF SHALE AND SILTSTONE WITH SOME SANDSTONE. THE OHIO SHALE IS DESCRIBED LOCALLY AS BROWNISH-BLACK TO GREENISH-GRAY AND BROWN, CARBONACEOUS TO CLAYEY, LAMINATED TO THIN-BEDDED, FISSILE PARTINGS WITH OCCASIONAL CARBONATE AND/OR SIDERITE CONCRETIONS. THE OHIO SHALE IS UNDERLAIN BY THIN TO MASSIVE BEDDED, FOSSILIFEROUS, DEVONIAN-AGED COLUMBUS AND DELAWARE LIMESTONES, THE UPPER SURFACE OF WHICH IS RUBBLY WITH OCCASIONAL INTERVALS OF THICK RED CLAY.

**RECONNAISSANCE**

A VISUAL RECONNAISSANCE OF THE PROJECT SITE WAS PERFORMED BY AN HDR GEOTECHNICAL ENGINEER BETWEEN MARCH 5 AND MARCH 7, 2018, AND FROM APRIL 16 TO APRIL 27, 2018 DURING THE EXPLORATION PROGRAM TO REVIEW THE CONDITION OF THE EXISTING ROADWAYS AND RAILROAD EMBANKMENT AND TO NOTE THE EXISTING SITE FEATURES.

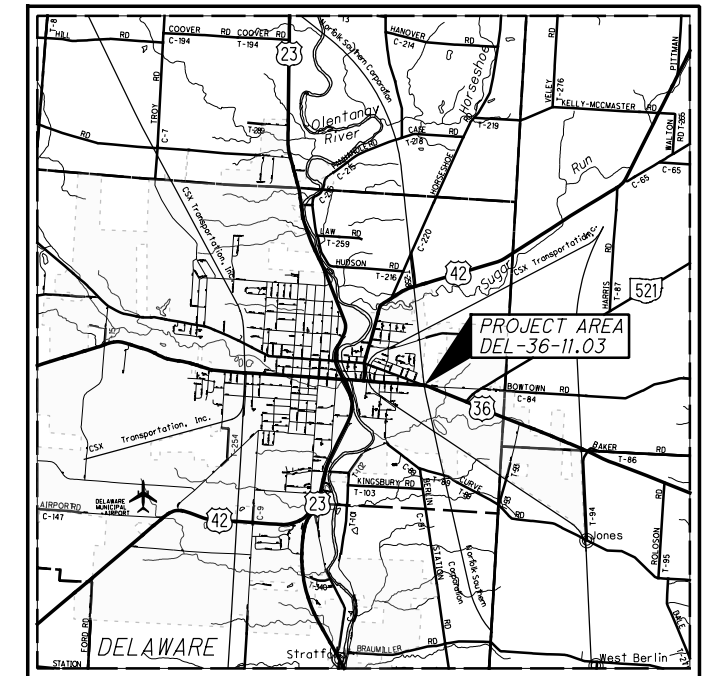
AS THE PROJECT CONSISTS PRIMARILY OF A ROADWAY WIDENING PROJECT IN A MODERATELY URBAN SETTING, THE EXISTING TERRAIN GENERALLY CONSISTS OF PAVED ROADWAYS AND SURFACES WITHIN THE MAINLY RESIDENTIAL NEIGHBORHOOD LOCATED TO THE WEST OF THE RAILROAD TRACKS, WITH SURFACE RUNOFF CAPTURED AND DRAINED IN THIS AREA BY CURBS AND GUTTERS. COMMERCIAL AND MULTI-RESIDENTIAL PROPERTIES WERE NOTED TO THE EAST OF THE RAILROAD TRACKS, WITH DRAINAGE DITCHES OBSERVED ON BOTH SIDES OF US-36 IN THIS AREA AS THE BUILDING STRUCTURES ARE SET FURTHER BACK FROM THE ROADWAY. ALONG US-36, CENTRAL AVENUE, AND E. WILLIAMS STREET, THE ASPHALT PAVEMENT WAS VISUALLY NOTED TO BE IN GOOD CONDITION WITH OCCASIONAL TRANSVERSE CRACKING AND/OR PATCHWORK FROM PRIOR PAVEMENT REPAIRS OBSERVED.

THE NS RAILWAY TRACKS ARE ELEVATED ABOVE THE SURROUNDING AREA WITHIN THE PROJECT LIMITS, ON AN EMBANKMENT THAT RUNS ROUGHLY PERPENDICULAR TO US-36. MUCH OF THE EMBANKMENT SIDE SLOPES WERE COVERED WITH SMALL TREES AND/OR HEAVY BRUSH AT THE TIME OF THE SITE RECONNAISSANCE, WITH NO EVIDENCE OF SLOPE INSTABILITY OBSERVED. NORTH OF US-36, STANDING WATER AND SATURATED SURFICIAL SOILS WERE NOTED ACROSS MUCH OF THE FLAT, GRASSY AREAS LOCATED NEAR THE TOE OF BOTH THE EAST- AND WEST-FACING EMBANKMENT SLOPES ON MULTIPLE DAYS, PARTICULARLY NEAR BORINGS B-001-0-18 AND B-002-0-18. TO THE SOUTH OF US-36, MULTIPLE DEBRIS PILES CONSISTING OF SOIL, ASPHALT AND RAILROAD TIES WERE NOTED IN THE RAILROAD YARD TO THE WEST OF THE TRACKS.

| INDEX OF SHEETS            |                 |               |                     |          |                |
|----------------------------|-----------------|---------------|---------------------|----------|----------------|
| LOCATION FROM STA. TO STA. | PLAN VIEW SHEET | PROFILE SHEET | CROSS-SECTION SHEET | CUT MAX. | FILL EMB. MAX. |
| US 36                      |                 |               |                     |          |                |
| 581+00 594+00              | 25              | 25            |                     | <1 FT    | 0 FT           |
| 594+00 607+00              | 26              | 26            |                     | 1 FT     | <1 FT          |
| 607+00 620+00              | 27              | 27            |                     | <1 FT    | 1 FT           |
| SR 37                      |                 |               |                     |          |                |
| 0+00 13+00                 | 28              | 28            |                     | 0 FT     | 0 FT           |
| 13+00 35+00                | 29              | 29            |                     | 0 FT     | <1 FT          |
| NSRR (TRACK 1)             |                 |               |                     |          |                |
| 5249+50 5254+50            | 30              | 31            |                     | 0 FT     | 0 FT           |
| 5254+50 5258+50            | 32              | 33            |                     | 0 FT     | 0 FT           |
| 5258+50 5263+50            | 34              | 34            |                     | 0 FT     | 0 FT           |

**LEGEND**

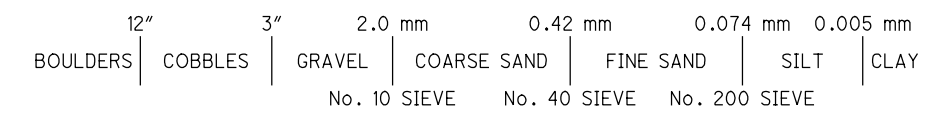
| DESCRIPTION                                                                                                             | ODOT CLASS                                                                                                                                                                          | CLASSIFIED MECH./VISUAL |    |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----|
| GRAVEL/STONE FRAGMENTS                                                                                                  | A-1-A                                                                                                                                                                               | 5                       | 1  |
| GRAVEL/STONE FRAGMENTS W/SAND                                                                                           | A-1-B                                                                                                                                                                               | 5                       | 4  |
| GRAVEL/STONE FRAGMENTS W/ SAND & SILT                                                                                   | A-2-4                                                                                                                                                                               | 4                       | 4  |
| GRAVEL/STONE FRAGMENTS W/ SAND, SILT & CLAY                                                                             | A-2-6                                                                                                                                                                               | 1                       | 1  |
| SANDY SILT                                                                                                              | A-4A                                                                                                                                                                                | 17                      | 19 |
| SILT                                                                                                                    | A-4B                                                                                                                                                                                | 2                       | 2  |
| SILT & CLAY                                                                                                             | A-6A                                                                                                                                                                                | 26                      | 29 |
| SILTY CLAY                                                                                                              | A-6B                                                                                                                                                                                | 14                      | 11 |
| ELASTIC CLAY                                                                                                            | A-7-5                                                                                                                                                                               | 1                       | 1  |
| CLAY                                                                                                                    | A-7-6                                                                                                                                                                               | 23                      | 27 |
|                                                                                                                         | TOTAL                                                                                                                                                                               | 98                      | 99 |
| SHALE                                                                                                                   | VISUAL                                                                                                                                                                              |                         |    |
| PAVEMENT OR BASE = X = APPROXIMATE THICKNESS                                                                            | VISUAL                                                                                                                                                                              |                         |    |
| SOD AND TOPSOIL = X = APPROXIMATE THICKNESS                                                                             | VISUAL                                                                                                                                                                              |                         |    |
| BORING LOCATION - PLAN VIEW.                                                                                            |                                                                                                                                                                                     |                         |    |
| HISTORIC BORING LOCATION - PLAN VIEW - DEL-36-10.46 (1985).                                                             |                                                                                                                                                                                     |                         |    |
| HISTORIC BORING LOCATION - PLAN VIEW - DEL-36-11.10 (1961).                                                             |                                                                                                                                                                                     |                         |    |
| DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY. |                                                                                                                                                                                     |                         |    |
| AUGER BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.                         |                                                                                                                                                                                     |                         |    |
| <i>WC</i>                                                                                                               | INDICATES WATER CONTENT IN PERCENT.                                                                                                                                                 |                         |    |
| <i>N<sub>60</sub></i>                                                                                                   | INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.                                                                                                 |                         |    |
| <i>X/Y/Z</i>                                                                                                            | NUMBER OF BLOWS FOR STANDARD PENETRATION TEST (SPT):<br>X= NUMBER OF BLOWS FOR FIRST 6 INCHES.<br>Y= NUMBER OF BLOWS FOR SECOND 6 INCHES.<br>Z= NUMBER OF BLOWS FOR THIRD 6 INCHES. |                         |    |
| <i>X/Y/D</i>                                                                                                            | NUMBER OF BLOWS FOR STANDARD PENETRATION TEST (SPT):<br>X= NUMBER OF BLOWS FOR FIRST 6 INCHES.<br>Y/D = NUMBER OF BLOWS (UNCORRECTED) FOR D" OF PENETRATION AT REFUSAL              |                         |    |
| INDICATES STATIC WATER ELEVATION.                                                                                       |                                                                                                                                                                                     |                         |    |
| INDICATES FREE WATER ELEVATION.                                                                                         |                                                                                                                                                                                     |                         |    |
| INDICATES A PLASTIC MATERIAL WITH A MOISTURE CONTENT EQUAL TO OR GREATER THAN THE LIQUID LIMIT MINUS 3.                 |                                                                                                                                                                                     |                         |    |
| INDICATES A NON-PLASTIC MATERIAL WITH A MOISTURE CONTENT GREATER THAN 25 % OR GREATER THAN 19 % WITH A WET APPEARANCE.  |                                                                                                                                                                                     |                         |    |
| <i>SS</i>                                                                                                               | INDICATES A SPLIT SPOON SAMPLE.                                                                                                                                                     |                         |    |
| <i>ST</i>                                                                                                               | INDICATES SHELBY TUBE SAMPLE                                                                                                                                                        |                         |    |
| <i>NP</i>                                                                                                               | INDICATES A NON-PLASTIC SAMPLE.                                                                                                                                                     |                         |    |
| <i>TR</i>                                                                                                               | INDICATES TOP OF ROCK                                                                                                                                                               |                         |    |
| <i>Qu</i>                                                                                                               | INDICATES ROCK COMPRESSION TEST, ASTM D7012, METHOD C, RESULTS<br>INDICATES SOIL UNCONFINED COMPRESSION TEST, 'SATM D2166, RESULTS                                                  |                         |    |



LOCATION MAP  
SCALE IN MILES



**PARTICLE SIZE DEFINITIONS**



RECON. - SPR 03/05/2018 - 03/07/2018  
04/16/2018 - 04/27/2018

DRILLING - NEAS 03/05/2018 - 03/07/2018  
04/16/2018 - 04/27/2018

DRAWN - CLW 08/01/2019 - 09/18/2019

REVIEWED - DMV 09/18/2019

**LEGEND**

| HISTORIC BORING DESCRIPTION           | ODOT CLASS | CLASSIFIED MECH./VISUAL |   |
|---------------------------------------|------------|-------------------------|---|
| GRAVEL/STONE FRAGMENTS                | A-1-A      | 1                       | 0 |
| GRAVEL/STONE FRAGMENTS W/ SAND & SILT | A-2-4      | 2                       | 0 |
| SANDY SILT                            | A-4A       | 13                      | 1 |
| SILT & CLAY                           | A-6A       | 18                      | 1 |
| SILTY CLAY                            | A-6B       | 6                       | 0 |
| CLAY                                  | A-7-6      | 1                       | 0 |
|                                       | TOTAL      | 41                      | 2 |

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SUBSURFACE EXPLORATION

THE GEOTECHNICAL EXPLORATION PROGRAM WAS CONDUCTED IN TWO SEPARATE PHASES. THE BORINGS IN THE INITIAL PHASE WERE DRILLED ALONG THE ROADWAY ALIGNMENTS BETWEEN MARCH 5 AND MARCH 7, 2018. THE BORINGS IN THE SECOND PHASE WERE DRILLED ALONG THE RAILROAD ALIGNMENT BETWEEN APRIL 16 AND 27, 2018. THE EXPLORATION PROGRAM CONSISTED OF 29 BORINGS, WITH 19 BORINGS USED TO EVALUATE THE SUBGRADE FOR THE PROPOSED ROADWAY IMPROVEMENTS AND THE REMAINING 10 BORINGS USED TO EVALUATE THE PROPOSED RAILROAD BRIDGE, TEMPORARY STRUCTURES, AND EMBANKMENTS REQUIRED FOR THE SHOOFLY. THE TEST BORINGS WERE DRILLED BY NEAS UNDER THE GENERAL SUPERVISION OF AN HDR GEOTECHNICAL ENGINEER, USING A CME 55 TRUCK-MOUNTED DRILL RIG WITH A DRILL ROD ENERGY RATIO OF 78.2% (CALIBRATED NOVEMBER 21, 2017) FOR THE ROADWAY SUBGRADE BORINGS, AND A CME 55 TRACK-MOUNTED DRILL RIG WITH A DRILL ROD ENERGY RATIO OF 85.4% (CALIBRATED NOVEMBER 21, 2017) FOR THE RAILROAD BRIDGE BORINGS. THE BORINGS WERE ADVANCED USING 3.25 INCH-INTERNAL DIAMETER HOLLOW STEM AUGERS. THE BORINGS WERE DRILLED IN GENERAL ACCORDANCE WITH THE "SPECIFICATIONS FOR GEOTECHNICAL EXPLORATION" (ODOT REVISED JULY 2017) WITH CONTINUOUS SAMPLING OF THE SOILS PERFORMED WITHIN THE UPPER 6 FEET OF THE PROPOSED SUBGRADE AND AT 2.5-FOOT INTERVALS THEREAFTER UNTIL EITHER REACHING THE BORING TERMINATION DEPTH OR SPLIT SPOON REFUSAL ON THE UNDERLYING BEDROCK. SAMPLING OF THE SOIL OVERBURDEN WITHIN THE STRUCTURAL AND EMBANKMENT BORINGS WAS ACCOMPLISHED IN ACCORDANCE WITH THE "STANDARD TEST METHOD FOR PENETRATION TEST AND SPLIT-BARREL SAMPLING OF SOILS" (ASTM D 1586). UNDISTURBED SOIL SAMPLES WERE ALSO COLLECTED FROM BORINGS B-001-0-18, B-002-0-18, B-005-0-18, B-006-0-18, B-007-0-18, B-009-0-18, AND B-010-0-18 IN ACCORDANCE WITH THE "STANDARD PRACTICE FOR THIN-WALLED TUBE SAMPLING OF SOILS FOR GEOTECHNICAL PURPOSES" (ASTM D 1587).

SAMPLING OF THE UNDERLYING BEDROCK WAS PERFORMED AT BORINGS B-003-0-18 THROUGH B-008-0-18 IN ACCORDANCE WITH THE "STANDARD PRACTICE FOR ROCK CORE DRILLING AND SAMPLING OF ROCK FOR SITE INVESTIGATION" (ASTM D 2113) USING AN NQ2-SIZE DOUBLE TUBE-SWIVEL BARREL WITH A DIAMOND BIT.

EXPLORATION FINDINGS

THE GENERALIZED SOIL PROFILE AS ENCOUNTERED IN THE BORINGS CONSISTS OF A LAYER OF TOPSOIL, PAVEMENT AND/OR EXISTING FILL MATERIAL OVER GLACIAL TILL AND RESIDUUM, UNDERLAIN BY SHALE BEDROCK. AS THE PROJECT CONSISTS OF SHALLOW SUBGRADE BORINGS AND DEEPER STRUCTURAL AND EMBANKMENT BORINGS, THE FOLLOWING FINDINGS HAVE BEEN DIVIDED INTO SEPARATE DISCUSSIONS REGARDING THE ENCOUNTERED SUBSURFACE CONDITIONS FOR THE PROPOSED ROADWAY IMPROVEMENTS AND THE PROPOSED NS RAILROAD BRIDGE STRUCTURE.

SUBGRADE BORINGS

THE SOILS ENCOUNTERED WITHIN THE US-36 AND SR 37 SUBGRADE BORINGS (BORINGS B-008-0-18 AND B-011-0-18 THROUGH B-029-0-18) GENERALLY CONSIST OF AN ASPHALT CONCRETE AND AGGREGATE BASE LAYER AT THE SURFACE, UNDERLAIN BY LOCALIZED POCKETS OF EMBANKMENT OR URBAN FILL OVER LOW TO HIGH PLASTICITY COHESIVE GLACIAL TILL. PAVEMENT THICKNESSES RANGED FROM ABOUT 6 TO 12 INCHES OF ASPHALT UNDERLAIN BY ABOUT 5 TO 13 INCHES OF AGGREGATE BASE.

EXISTING EMBANKMENT FILL WAS ENCOUNTERED IMMEDIATELY BENEATH THE SURFACE IN BORING B-008-0-18, WHILE URBAN FILL MATERIAL WAS ENCOUNTERED BENEATH THE EXISTING PAVEMENT IN BORINGS B-020-0-18 TO B-022-0-18, AND B-024-0-18 THROUGH B-029-00-18. APPROXIMATELY 1.5 FEET OF EMBANKMENT FILL WAS ENCOUNTERED IN BORING B-008-0-18 AND CONSISTS OF MEDIUM DENSE GRANULAR SOILS, CLASSIFYING AS STONE FRAGMENTS WITH SAND AND SILT (A-2-4). THE URBAN FILL CONSISTS OF BOTH MEDIUM STIFF TO VERY STIFF COHESIVE AND MEDIUM DENSE TO DENSE COHESIONLESS MATERIALS THAT CLASSIFY AS STONE FRAGMENTS WITH SAND AND SILT (A-2-4), STONE FRAGMENTS WITH SAND (A-1-B), SILT AND CLAY (A-6A), SILTY CLAY (A-6B), AND CLAY (A-7-6) SOILS. THE THICKNESS OF THE COHESIONLESS URBAN FILL RANGES FROM 0.7 TO 2.4 FEET, WHILE THE THICKNESS OF THE COHESIVE URBAN FILL RANGES FROM 0.7 TO 6.3 FEET.

GLACIAL TILL WAS ENCOUNTERED BENEATH THE PAVEMENT OR THE EMBANKMENT/URBAN FILL IN EACH OF THE BORINGS EXCEPT BORINGS B-024-0-18, B-025-0-18, AND B-029-0-18, WHICH WERE TERMINATED WITHIN THE FILL MATERIAL. THE GLACIAL TILL TENDS TO TRANSITION WITH DEPTH FROM MEDIUM STIFF TO VERY STIFF, MODERATE TO HIGH PLASTICITY SILTY CLAY (A-6B) AND CLAY (A-7-6) TO STIFF TO HARD, LOW PLASTICITY SILT AND CLAY (A-6A) AND SANDY SILT (A-4A). THE THICKNESS OF THE UPPER, HIGH PLASTICITY GLACIAL TILL RANGES FROM APPROXIMATELY 1.5 FEET TO AT LEAST 6.3 FEET. THE LOW PLASTICITY GLACIAL TILL RANGES FROM ABOUT 1 TO AT LEAST 6.4 FEET IN THICKNESS, WITH THE EXCEPTION OF B-008-0-18 WHICH FULLY PENETRATED THROUGH THE FILL MATERIAL AND ENCOUNTERED APPROXIMATELY 11 FEET OF LOW PLASTICITY GLACIAL TILL BENEATH THE UPPER HIGH PLASTICITY CLAY.

NS RAILROAD BRIDGE

THE SOILS ENCOUNTERED IN THE BORINGS PERFORMED FOR THE NS RAILROAD BRIDGE (BORINGS B-001-0-18 THROUGH B-010-0-18) GENERALLY CONSIST OF A SURFACE LAYER OF TOPSOIL AND/OR EMBANKMENT FILL, UNDERLAIN BY A THICK LAYER OF LOW TO HIGH PLASTICITY COHESIVE GLACIAL TILL OVER PRIMARILY COHESIONLESS RESIDUAL SOILS TRANSITIONING TO SHALE BEDROCK. TOPSOIL WAS ENCOUNTERED AT THE SURFACE OF BORINGS B-001-0-18, B-002-0-18, B-003-0-18, B-005-0-18, AND B-006-0-18 AND RANGED IN THICKNESS FROM 1 INCH TO 8 INCHES. TOPSOIL VEGETATION WAS GENERALLY NOT PRESENT SOUTH OF US-36 WITHIN THE LIMITS OF THE NS RAILWAY MAINTENANCE YARD (BORINGS B-008-0-18, B-010-0-18) OR THE EXISTING EMBANKMENT (B-009-0-18).

EXISTING EMBANKMENT FILL WAS ENCOUNTERED IMMEDIATELY BENEATH THE SURFACE IN BORINGS B-007-0-18 THROUGH B-010-0-18 AND BENEATH A LAYER OF TOPSOIL IN BORING B-006-0-18. THE EMBANKMENT FILL CONSISTS OF BOTH MEDIUM STIFF TO STIFF COHESIVE AND LOOSE TO MEDIUM DENSE GRANULAR MATERIALS THAT CLASSIFY AS SILT AND CLAY (A-6A), SILTY CLAY (A-6B), STONE FRAGMENTS WITH SAND AND SILT (A-2-4), AND STONE FRAGMENTS WITH SAND (A-1-B). COHESIVE FILL WAS ONLY PRESENT IN TWO OF THE BORINGS: BORING B-006-0-18, WHERE 2.1 FEET OF COHESIVE FILL WAS ENCOUNTERED NEAR THE TOE OF THE EXISTING EMBANKMENT, AND BORING B-009-0-18, WHERE 22 FEET OF COHESIVE FILL WAS ENCOUNTERED AS THIS BORING WAS DRILLED THROUGH THE EXISTING EMBANKMENT. COHESIONLESS FILL WAS ENCOUNTERED IN THE REMAINING THREE BORINGS (B-007-0-18, B-008-0-18, AND B-010-0-18) WITH THICKNESSES RANGING FROM 1.5 FEET TO 5 FEET.

EXPLORATION FINDINGS (CONTINUED)

THE GLACIAL TILL UNDERLYING THE FILL TENDS TO TRANSITION WITH DEPTH FROM STIFF CONSISTENCY, MODERATELY HIGH TO HIGH PLASTICITY SILTY CLAY (A-6B) AND CLAY (A-7-6) TO STIFF TO HARD CONSISTENCY, LOW PLASTICITY SILT AND CLAY (A-6A), SANDY SILT (A-4A), AND SILT (A-4B). THIS TRANSITION GENERALLY OCCURS BETWEEN ELEVATIONS 920 AND 930 AND UNDERGOES A GRADUAL COLOR CHANGE OF LIGHT BROWN AND ORANGE-BROWN TO A DARKER BROWN AND DARK GRAY. THE THICKNESS OF THE UPPER GLACIAL TILL RANGED FROM APPROXIMATELY 3 FEET TO 12 FEET WITH AN AVERAGE OF 7 FEET, WHILE THE LOWER TILL GENERALLY RANGED FROM APPROXIMATELY 5 FEET TO 16 FEET WITH AN AVERAGE OF 11 FEET. WITH THE EXCEPTION OF BORING B-009-0-18, DRILLED NEAR THE CREST OF THE EXISTING EMBANKMENT AND TERMINATED 3.5 FEET INTO THE GLACIAL TILL, BOTH THE UPPER AND LOWER GLACIAL TILL LAYERS WERE PRESENT IN EACH OF THE EMBANKMENT AND STRUCTURE BORINGS.

FOR THOSE BORINGS THAT FULLY PENETRATED THROUGH THE GLACIAL TILL, DENSE TO VERY DENSE RELATIVE DENSITY RESIDUAL SOILS (RESIDUUM) WERE ENCOUNTERED BENEATH THE GLACIAL TILL IN EACH OF THE BORINGS WITH THE EXCEPTION OF BORING B-010-0-18. THE RESIDUUM WAS PREDOMINATELY GRANULAR IN COMPOSITION BASED ON VARIOUS CLASSIFICATIONS OF STONE FRAGMENTS (A-1-A, A-1-B, A-2-4, A-2-6), WITH OCCASIONAL ISOLATED SEAMS OF COHESIVE SILT AND CLAY (A-6A) ALSO ENCOUNTERED TO A LESSER EXTENT. ALTHOUGH THE ISOLATED SEAMS CLASSIFIED AS A COHESIVE SOIL, 46% OR GREATER OF THE SOIL CONSISTED OF SAND AND GRAVEL SIZED PARTICLES. THIS RESIDUUM LAYER RANGED IN THICKNESS FROM 1.5 FEET TO 8 FEET. THE RESIDUAL SOILS OCCASIONALLY EXHIBITED RELIC ROCK STRUCTURE WITH SHALE FRAGMENTS; HOWEVER, THE TRANSITION TO WEATHERED BEDROCK WAS GRADUAL.

SHALE BEDROCK WAS ENCOUNTERED IMMEDIATELY BENEATH THE RESIDUUM AT DEPTHS RANGING FROM 21 FEET TO 29 FEET (EL. 905.9 TO EL. 913.5) BELOW THE EXISTING GROUND SURFACE. THE BEDROCK ELEVATION GENERALLY INCREASES FROM SOUTH TO NORTH ALONG THE RAILROAD ALIGNMENT WITH THE DEEPEST BEDROCK (EL. 905.9) ENCOUNTERED AT BORING B-010-018. THE BEDROCK WAS CORED APPROXIMATELY 25 FEET IN EACH OF THE STRUCTURE BORINGS, AND IN GENERAL, THREE DISTINCT AND CONSISTENT LAYERS WERE NOTED WITHIN THE OHIO SHALE ACROSS THIS DEPTH. THE FIRST LAYER WAS AN UPPER DARK BROWN TO BLACK CARBONACEOUS SHALE, FOLLOWED BY A WEAKER INTERBEDDED LIGHT GRAY SHALE WITH AN ENCOUNTERED THICKNESS OF 7 TO 10 FEET, AND THEN A LOWER DARK BROWN TO BLACK CARBONACEOUS SHALE LAYER EXTENDING BEYOND THE TERMINATION DEPTH OF THE BORINGS. THE UPPER AND LOWER DARK SHALE LAYERS WERE, ON AVERAGE, SIX TIMES GREATER IN UNIAXIAL COMPRESSIVE STRENGTH THAN THE LIGHTER GRAY SHALE INTERBEDDED BETWEEN THE TWO. AVERAGE RQD VALUES IN EACH SHALE LAYER ALSO EXHIBITED AN INCREASING TREND WITH DEPTH. AN AVERAGE RQD OF 22% WAS COMPUTED IN THE UPPER DARK SHALE LAYER, 39% IN THE WEAKER INTERBEDDED LIGHT GRAY SHALE, AND 66% IN THE LOWER DARK SHALE.

GROUNDWATER WAS ENCOUNTERED DURING DRILLING AT DEPTHS RANGING FROM 11.5 TO 24 FEET BELOW THE EXISTING GROUND SURFACE IN BORINGS B-001-0-18 THROUGH B-006-0-18, AND B-008-0-18 THROUGH B-010-0-19. AS BEDROCK WAS NOT CORED IN EMBANKMENT BORINGS B-001-0-18, B-002-0-18, B-009-0-18, AND B-010-0-18, GROUNDWATER WAS ALSO MEASURED UPON COMPLETION OF THE DRILLING. ONLY BORING B-002-0-18 NOTED A RISE IN GROUNDWATER LEVEL AFTER DRILLING, WITH AN APPROXIMATE RISE TO A DEPTH OF 5.1 FEET BELOW EXISTING GRADE. THE REMAINDER OF THE EMBANKMENT BORINGS WERE EITHER DRY AT COMPLETION OR INDICATED NO CHANGE IN GROUNDWATER LEVEL. HOWEVER, IT IS IMPORTANT TO NOTE THAT GROUNDWATER LEVELS MAY VARY THROUGH OUT THE YEAR DEPENDING ON PRECIPITATION AND OTHER SEASONAL VARIATIONS.

SPECIFICATIONS

THE GEOTECHNICAL EXPLORATION WAS PERFORMED IN GENERAL ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING "SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS", DATED JULY 2017.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL INFORMATION THAT CAN BE CONVENIENTLY SHOWN FROM THE GEOTECHNICAL EXPLORATION HAS BEEN SO REPORTED. ADDITIONAL EXPLORATIONS MAY HAVE BEEN PERFORMED TO STUDY SPECIFIC ASPECTS OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED AT THE CITY OF DELAWARE PUBLIC WORKS OFFICE LOCATED AT 440 E. WILLIAM STREET OR AT THE OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 6 OFFICE LOCATED AT 400 E. WILLIAM STREET, DELAWARE, OHIO 43015.

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DRAWN CLW CHECKED DMV

SOIL PROFILE

DEL - 36 - 11.03

2 / 35





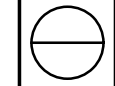






SUMMARY OF SOIL TEST DATA  
NORFOLK SOUTHERN RAIL ROAD

| EXPLOR. ID             | FROM - TO     | SAMPLE ID | N60      | % REC | HP t <sub>sf</sub> | % GR | % CS | % FS | % SILT                                  | % CLAY | LL | PL | PI | % WC | ODOT CLASS (GI) | ppm SO4 |
|------------------------|---------------|-----------|----------|-------|--------------------|------|------|------|-----------------------------------------|--------|----|----|----|------|-----------------|---------|
| B-009-0-18             | 00.00 - 01.50 | SS-1      | 10       | 17    | -                  | 8    | 10   | 13   | 33                                      | 36     | 34 | 18 | 16 | 19   | A-6b (9)        | -       |
| STA. 5254+82 , 20' LT. | 02.50 - 04.00 | SS-2      | 9        | 11    | -                  | -    | -    | -    | SAME AS SS-1                            | -      | -  | -  | -  | 16   | A-6b (VISUAL)   | -       |
| LATITUDE = 40.297279   | 05.00 - 06.50 | SS-3      | 7        | 78    | 2.50               | 3    | 7    | 13   | 38                                      | 39     | 34 | 18 | 16 | 21   | A-6b (10)       | -       |
| LONGITUDE = -83.046939 | 07.50 - 09.00 | SS-4      | 6        | 67    | 1.50               | -    | -    | -    | SAME AS SS-3                            | -      | -  | -  | -  | 19   | A-6a (VISUAL)   | -       |
|                        | 09.00 - 11.00 | ST-5      | ST       | 79    | 2.00               | 4    | 9    | 15   | 37                                      | 35     | 30 | 19 | 11 | 20   | A-6a (8)        | -       |
|                        | 11.00 - 12.50 | SS-6      | 9        | 72    | 1.50               | -    | -    | -    | SAME AS SS-5                            | -      | -  | -  | -  | 19   | A-6a (VISUAL)   | -       |
|                        | 12.50 - 14.00 | SS-7      | 7        | 72    | 1.00               | -    | -    | -    | SAME AS SS-5                            | -      | -  | -  | -  | 20   | A-6a (VISUAL)   | -       |
|                        | 15.00 - 16.50 | SS-8      | 11       | 67    | 1.50               | -    | -    | -    | SAME AS SS-5                            | -      | -  | -  | -  | 16   | A-6a (VISUAL)   | -       |
|                        | 17.50 - 19.00 | SS-9      | 7        | 83    | 2.00               | -    | -    | -    | SAME AS SS-5                            | -      | -  | -  | -  | 17   | A-6a (VISUAL)   | -       |
|                        | 20.00 - 21.50 | SS-10     | 11       | 89    | 2.25               | -    | -    | -    | SAME AS SS-5                            | -      | -  | -  | -  | 17   | A-6a (VISUAL)   | -       |
|                        | 22.00 - 24.00 | ST-11     | ST       | 100   | 3.50               | 0    | 3    | 7    | 41                                      | 49     | 38 | 21 | 17 | 24   | A-6b (11)       | -       |
|                        | 24.00 - 25.50 | SS-12     | 23       | 78    | 3.50               | -    | -    | -    | SAME AS SS-11                           | -      | -  | -  | -  | 17   | A-6b (VISUAL)   | -       |
| B-010-0-18             | 00.00 - 01.50 | SS-1      | 17       | 72    | -                  | -    | -    | -    | SAME AS SS-2                            | -      | -  | -  | -  | 23   | A-1-b (VISUAL)  | -       |
| STA. 5254+34 , 75' LT. | 02.50 - 04.00 | SS-2      | 17       | 56    | -                  | 41   | 23   | 20   | 11                                      | 5      | NP | NP | NP | 10   | A-1-b (0)       | -       |
| LATITUDE = 40.296309   | 05.00 - 06.50 | SS-3      | 7        | 67    | 1.00               | 1    | 2    | 7    | 41                                      | 49     | 46 | 24 | 22 | 29   | A-7-6 (14)      | -       |
| LONGITUDE = -83.046903 | 07.50 - 08.20 | SS-4A     | 9        | 72    | 1.50               | -    | -    | -    | SAME AS SS-3                            | -      | -  | -  | -  | -    | A-7-6 (VISUAL)  | -       |
|                        | 08.20 - 09.00 | SS-4B     | -        | -     | 2.50               | -    | -    | -    | SAME AS ST-5                            | -      | -  | -  | -  | 23   | A-7-6 (VISUAL)  | -       |
|                        | 09.50 - 11.50 | ST-5      | ST       | 75    | 2.50               | 16   | 3    | 8    | 30                                      | 43     | 47 | 22 | 25 | 23   | A-7-6 (15)      | -       |
|                        | 11.50 - 13.00 | SS-6      | 21       | 100   | 4.50               | -    | -    | -    | SAME AS ST-5                            | -      | -  | -  | -  | 16   | A-7-6 (VISUAL)  | -       |
|                        | 13.00 - 14.50 | SS-7      | 16       | 100   | 4.50               | -    | -    | -    | SAME AS ST-5                            | -      | -  | -  | -  | 18   | A-7-6 (VISUAL)  | -       |
|                        | 15.00 - 16.50 | SS-8      | 16       | 94    | 4.00               | 1    | 3    | 9    | 56                                      | 31     | 25 | 17 | 8  | 18   | A-4b (8)        | -       |
|                        | 17.50 - 18.20 | SS-9A     | 9        | 100   | 3.50               | -    | -    | -    | SAME AS SS-8                            | -      | -  | -  | -  | 14   | A-4b (VISUAL)   | -       |
|                        | 18.20 - 19.00 | SS-9B     | -        | -     | 1.00               | -    | -    | -    | SAME AS SS-10                           | -      | -  | -  | -  | -    | A-4a (VISUAL)   | -       |
|                        | 20.00 - 21.50 | SS-10     | 16       | 72    | 1.25               | 25   | 14   | 14   | 27                                      | 20     | 26 | 17 | 9  | 13   | A-4a (2)        | -       |
|                        | 25.00 - 26.50 | SS-11     | 23       | 100   | 2.50               | 19   | 22   | 18   | 25                                      | 16     | 26 | 17 | 9  | 11   | A-4a (1)        | -       |
|                        | 29.00 - 29.83 | SS-12     | 12/50/4" | 100   | -                  | -    | -    | -    | SHALE, GRAY, MODERATELY WEATHERED, WEAK | -      | -  | -  | -  | 11   | Rock (VISUAL)   | -       |
|                        | 30.50 - 31.17 | SS-13     | 50/50/2" | 100   | -                  | -    | -    | -    | SAME AS SS-12                           | -      | -  | -  | -  | 13   | Rock (VISUAL)   | -       |



5710 Westbourne Avenue  
Columbus, OH 43213  
614-892-0162

**Unconfined Compressive Strength of Cohesive Soil: ASTM 2166**

(Project: DEL-36-11.03, Boring Location: B-002-0-18, ST-3, Depth: 5.4 - 5.9 ft)  
Tested Date: 4/27/2018

**Specimen Properties**

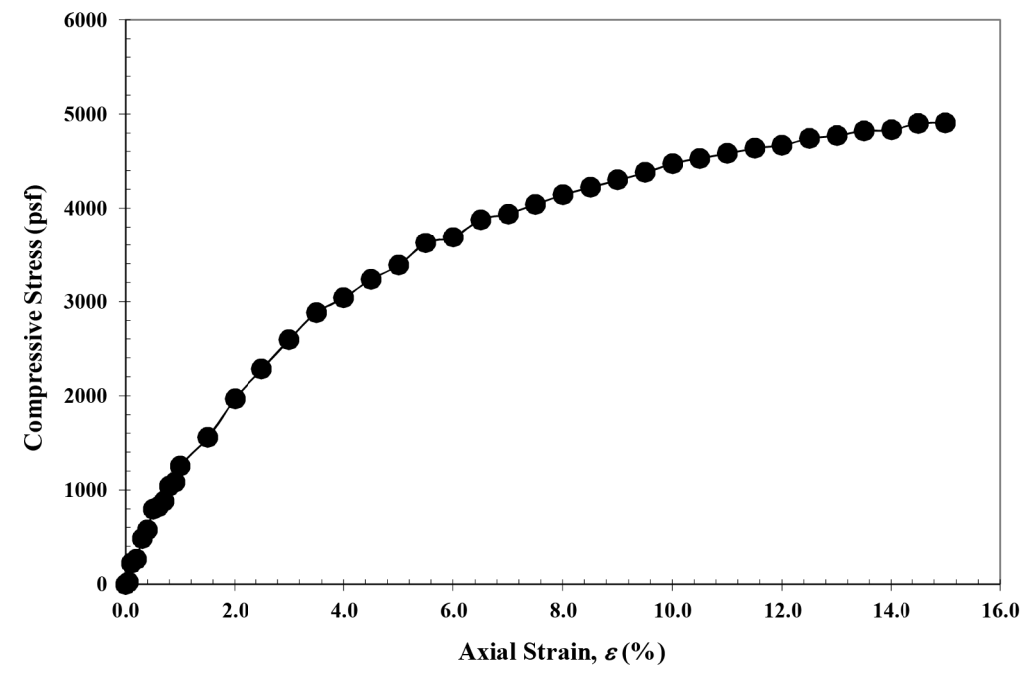
|                                                    |       |
|----------------------------------------------------|-------|
| Average Dia., $D_{avg}$ (in):                      | 2.87  |
| Average Height $H_{avg}$ (in):                     | 5.74  |
| Area, $A$ (in <sup>2</sup> ):                      | 6.46  |
| Volume, $V$ (in <sup>3</sup> ):                    | 37.05 |
| Wet Mass of Specimen (lb):                         | 2.7   |
| Moisture Content (%):                              | 23.5  |
| Dry Mass of Specimen (lb):                         | 2.2   |
| Wet Unit Weight, $\gamma$ (lb/ft <sup>3</sup> ):   | 127.9 |
| Dry Unit Weight, $\gamma_d$ (lb/ft <sup>3</sup> ): | 103.6 |

**Final Specimen Figure**



**Results**

Unconfined Compressive Strength (psf): **4909**  
Strain (%): **15.0**



**Notes:** Very stiff, brownish dark gray, CLAY, some silt, little sand, trace gravel, damp.



5710 Westbourne Avenue  
Columbus, OH 43213  
614-892-0162

**Unconfined Compressive Strength of Cohesive Soil: ASTM 2166**

(Project: DEL-36-11.03, Boring Location: B-005-0-18, ST-8, Depth: 15.4 - 16.0 ft)  
Tested Date: 5/14/2018

**Specimen Properties**

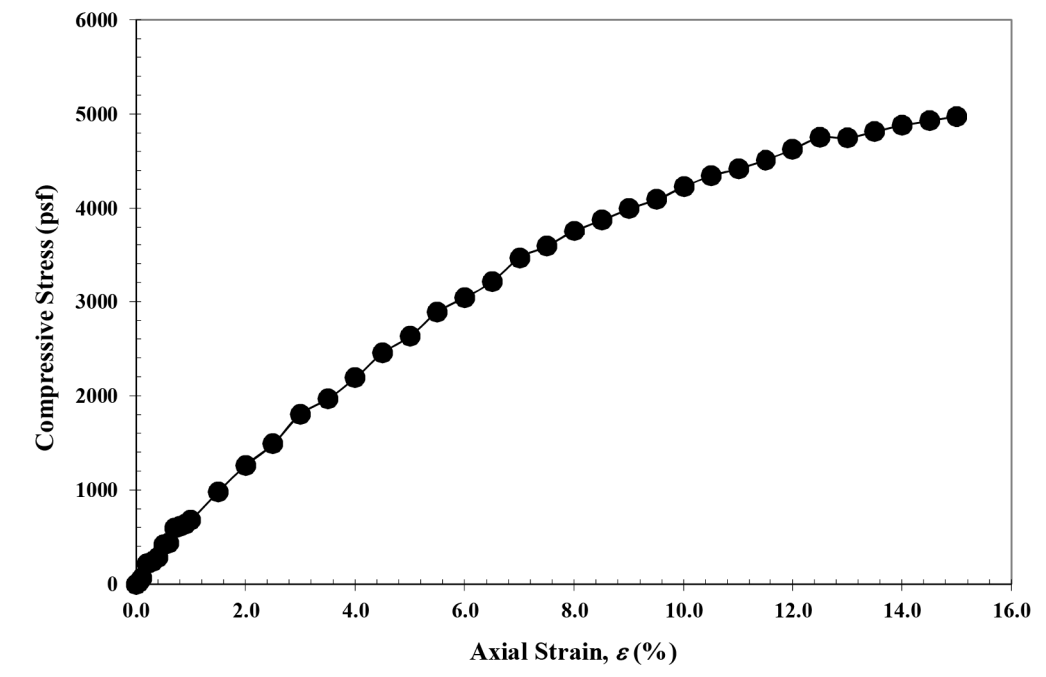
|                                                    |       |
|----------------------------------------------------|-------|
| Average Dia., $D_{avg}$ (in):                      | 2.88  |
| Average Height $H_{avg}$ (in):                     | 5.75  |
| Area, $A$ (in <sup>2</sup> ):                      | 6.50  |
| Volume, $V$ (in <sup>3</sup> ):                    | 37.33 |
| Wet Mass of Specimen (lb):                         | 2.7   |
| Moisture Content (%):                              | 14.1  |
| Dry Mass of Specimen (lb):                         | 2.4   |
| Wet Unit Weight, $\gamma$ (lb/ft <sup>3</sup> ):   | 126.9 |
| Dry Unit Weight, $\gamma_d$ (lb/ft <sup>3</sup> ): | 111.2 |

**Final Specimen Figure**



**Results**

Unconfined Compressive Strength (psf): **4975**  
Strain (%): **15.0**



**Notes:** Very stiff, dark brown, SANDY SILT, some clay, trace gravel, damp.

**Unconfined Compressive Strength of Cohesive Soil: ASTM 2166**

(Project: DEL-36-11.03, Boring Location: B-006-0-18, ST-3, Depth: 5.2 - 5.7 ft)

Tested Date: 4/27/2018

**Specimen Properties**

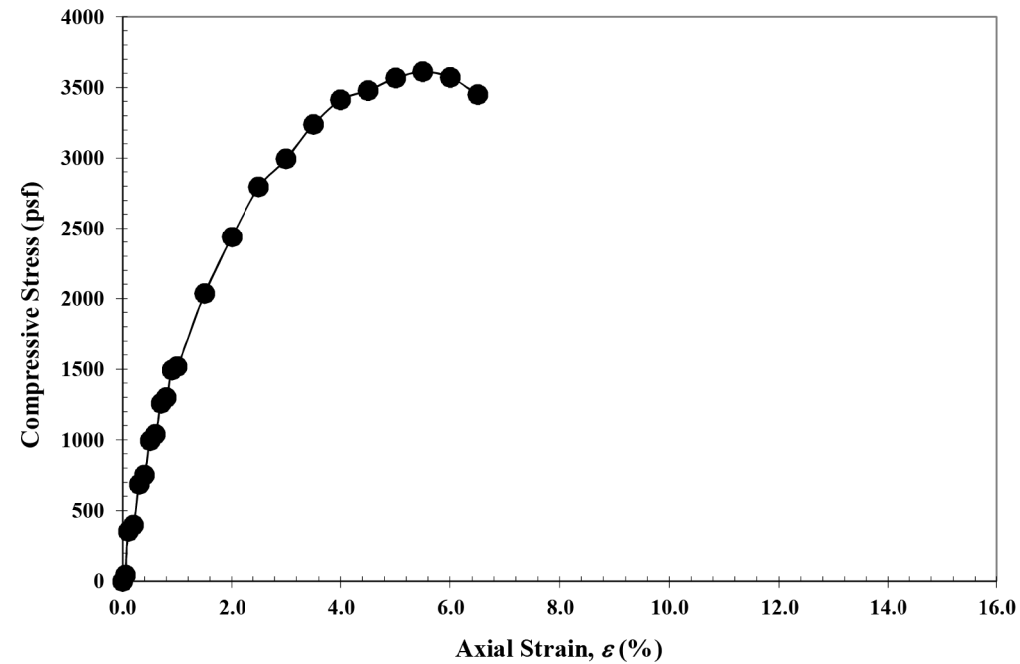
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|----------------------------------------------------|-------|
| Average Dia., $D_{avg}$ (in):                      | 2.87  |
| Average Height $H_{avg}$ (in):                     | 5.74  |
| Area, $A$ (in <sup>2</sup> ):                      | 6.48  |
| Volume, $V$ (in <sup>3</sup> ):                    | 37.22 |
| Wet Mass of Specimen (lb):                         | 2.8   |
| Moisture Content (%):                              | 22.9  |
| Dry Mass of Specimen (lb):                         | 2.2   |
| Wet Unit Weight, $\gamma$ (lb/ft <sup>3</sup> ):   | 128.1 |
| Dry Unit Weight, $\gamma_d$ (lb/ft <sup>3</sup> ): | 104.2 |

**Final Specimen Figure**



**Results**

Unconfined Compressive Strength (psf): **3612**  
Strain (%): **5.5**



**Notes:** Stiff, brown mottled with orangish brown and gray, CLAY, "and" silt, little sand, trace gravel, moist.

**Unconfined Compressive Strength of Cohesive Soil: ASTM 2166**

(Project: DEL-36-11.03, Boring Location: B-006-0-18, ST-6, Depth: 13.4 - 13.9 ft)

Tested Date: 4/27/2018

**Specimen Properties**

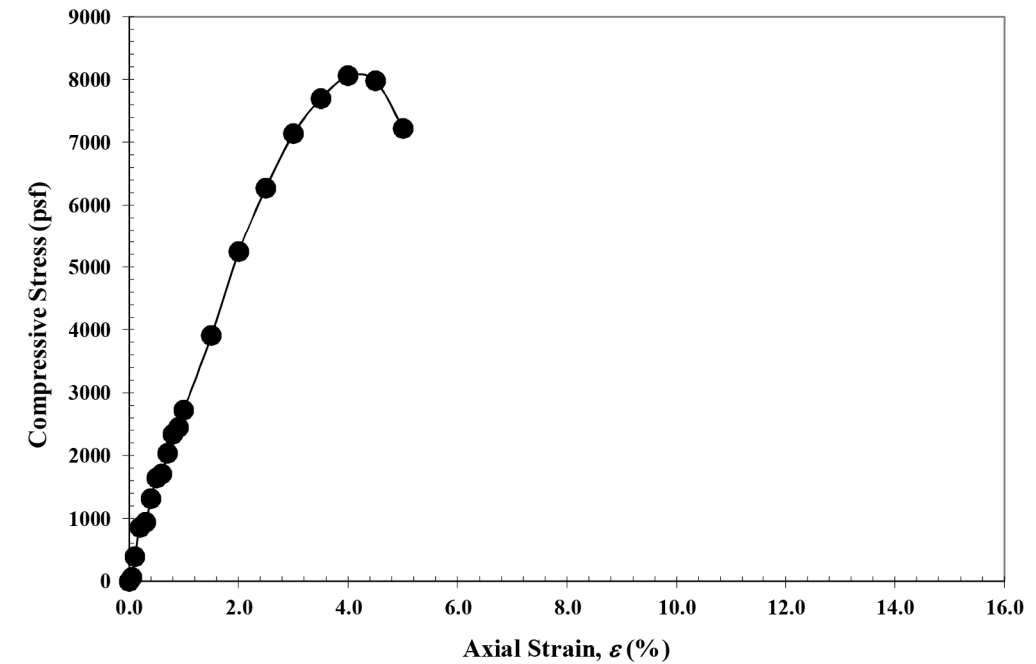
|                                                    |       |
|----------------------------------------------------|-------|
| Average Dia., $D_{avg}$ (in):                      | 2.88  |
| Average Height $H_{avg}$ (in):                     | 5.73  |
| Area, $A$ (in <sup>2</sup> ):                      | 6.53  |
| Volume, $V$ (in <sup>3</sup> ):                    | 37.43 |
| Wet Mass of Specimen (lb):                         | 2.9   |
| Moisture Content (%):                              | 12.7  |
| Dry Mass of Specimen (lb):                         | 2.6   |
| Wet Unit Weight, $\gamma$ (lb/ft <sup>3</sup> ):   | 134.3 |
| Dry Unit Weight, $\gamma_d$ (lb/ft <sup>3</sup> ): | 119.2 |

**Final Specimen Figure**



**Results**

Unconfined Compressive Strength (psf): **8061**  
Strain (%): **4.0**



**Notes:** Hard, brownish gray, SANDY SILT, some clay, little gravel, damp.



**Unconfined Compressive Strength of Cohesive Soil: ASTM 2166**

(Project: DEL-36-11.03, Boring Location: B-007-0-18, ST-6, Depth: 13.5 - 14.0 ft)

Tested Date: 4/26/2018

**Specimen Properties**

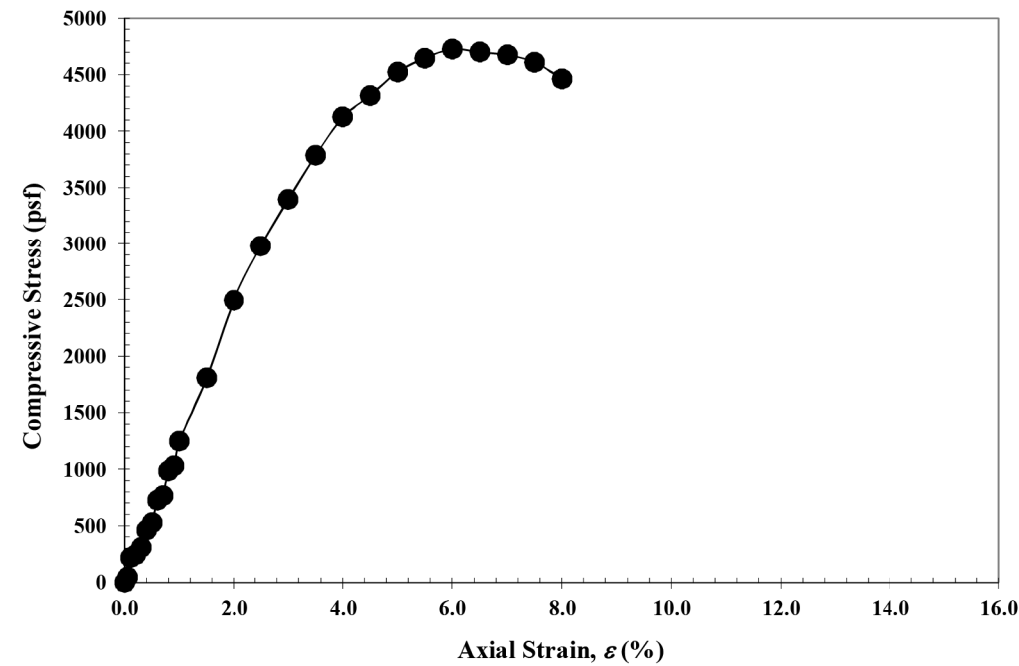
|                                                    |       |
|----------------------------------------------------|-------|
| Average Dia., $D_{avg}$ (in):                      | 2.88  |
| Average Height $H_{avg}$ (in):                     | 5.75  |
| Area, $A$ (in <sup>2</sup> ):                      | 6.50  |
| Volume, $V$ (in <sup>3</sup> ):                    | 37.34 |
| Wet Mass of Specimen (lb):                         | 2.9   |
| Moisture Content (%):                              | 13.9  |
| Dry Mass of Specimen (lb):                         | 2.6   |
| Wet Unit Weight, $\gamma$ (lb/ft <sup>3</sup> ):   | 136.1 |
| Dry Unit Weight, $\gamma_d$ (lb/ft <sup>3</sup> ): | 119.5 |

**Final Specimen Figure**



**Results**

Unconfined Compressive Strength (psf): 4728  
Strain (%): 6.0



**Notes:** Very stiff, brownish gray, SANDY SILT, some clay, trace gravel, damp.

**Unconfined Compressive Strength of Cohesive Soil: ASTM 2166**

(Project: DEL-36-11.03, Boring Location: B-009-0-18, ST-5, Depth: 9.5 - 10.0 ft)

Tested Date: 4/25/2018

**Specimen Properties**

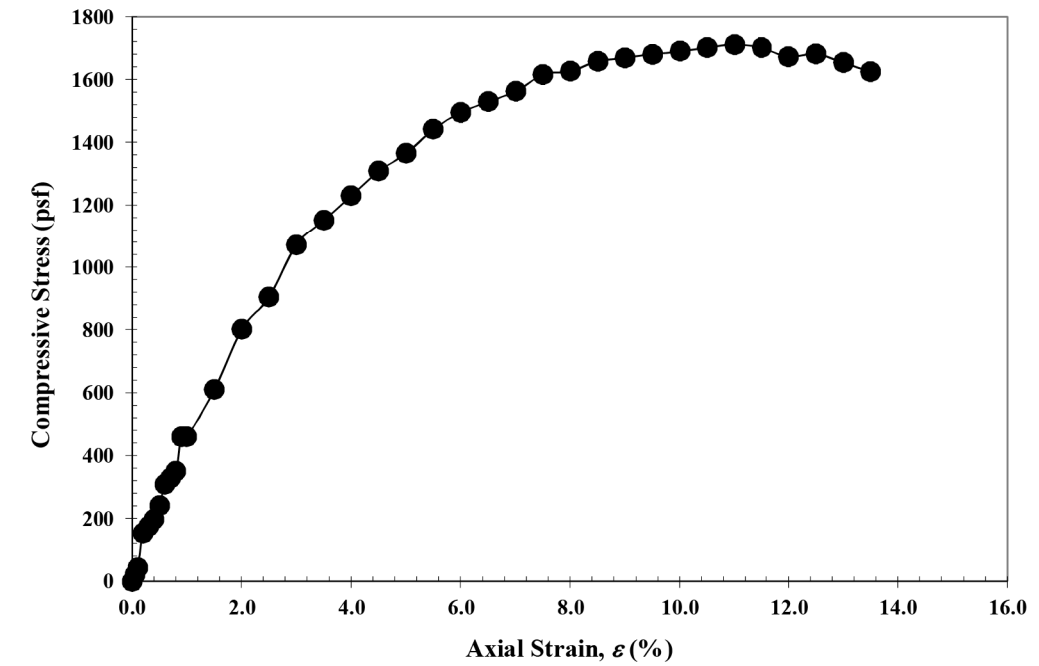
|                                                    |       |
|----------------------------------------------------|-------|
| Average Dia., $D_{avg}$ (in):                      | 2.88  |
| Average Height $H_{avg}$ (in):                     | 5.73  |
| Area, $A$ (in <sup>2</sup> ):                      | 6.51  |
| Volume, $V$ (in <sup>3</sup> ):                    | 37.32 |
| Wet Mass of Specimen (lb):                         | 2.8   |
| Moisture Content (%):                              | 18.7  |
| Dry Mass of Specimen (lb):                         | 2.4   |
| Wet Unit Weight, $\gamma$ (lb/ft <sup>3</sup> ):   | 129.8 |
| Dry Unit Weight, $\gamma_d$ (lb/ft <sup>3</sup> ): | 109.4 |

**Final Specimen Figure**



**Results**

Unconfined Compressive Strength (psf): 1712  
Strain (%): 11.0



**Notes:** Medium stiff, brown, SILT AND CLAY, some sand, trace gravel, moist.





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**Unconfined Compressive Strength of Cohesive Soil (ASTM D2166)**

(Project: DEL-36-11.03, Boring Location: B-010-0-18, ST-5, Depth: 10.0 - 10.5 ft)

Tested Date: 4/17/2018

**Specimen Properties**

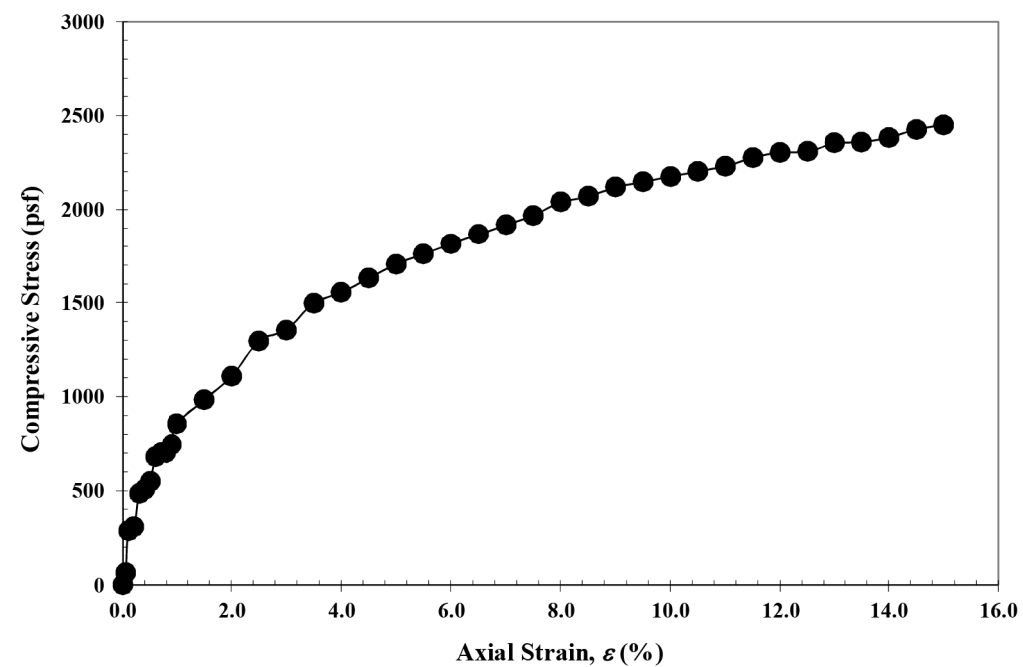
|                                                    |       |
|----------------------------------------------------|-------|
| Average Dia., $D_{avg}$ (in):                      | 2.87  |
| Average Height $H_{avg}$ (in):                     | 5.72  |
| Area, $A$ (in <sup>2</sup> ):                      | 6.49  |
| Volume, $V$ (in <sup>3</sup> ):                    | 37.14 |
| Wet Mass of Specimen (lb):                         | 2.8   |
| Moisture Content (%):                              | 26.1  |
| Dry Mass of Specimen (lb):                         | 2.2   |
| Wet Unit Weight, $\gamma$ (lb/ft <sup>3</sup> ):   | 128.1 |
| Dry Unit Weight, $\gamma_d$ (lb/ft <sup>3</sup> ): | 101.6 |

**Final Specimen Figure**

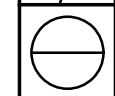


**Results**

|                                        |             |
|----------------------------------------|-------------|
| Unconfined Compressive Strength (psf): | <b>2452</b> |
| Strain (%):                            | <b>15.0</b> |



**Notes:** Upon completion of compression, two pieces of gravel larger than 1.5" were observed in the top 1.5" of the specimen (sized 1.875 x 1.25 x 0.875" and 1.625 x 1.25 x 0.75" respectively). Stiff, brown mottled with gray, CLAY, some silt, little gravel, little sand, damp



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**Consolidated-Undrained Triaxial Compression Test (AASHTO T 297 / ASTM D4767)**

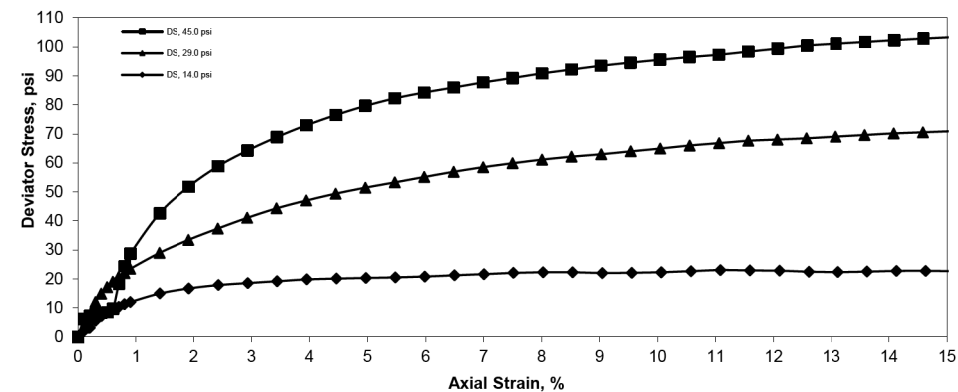
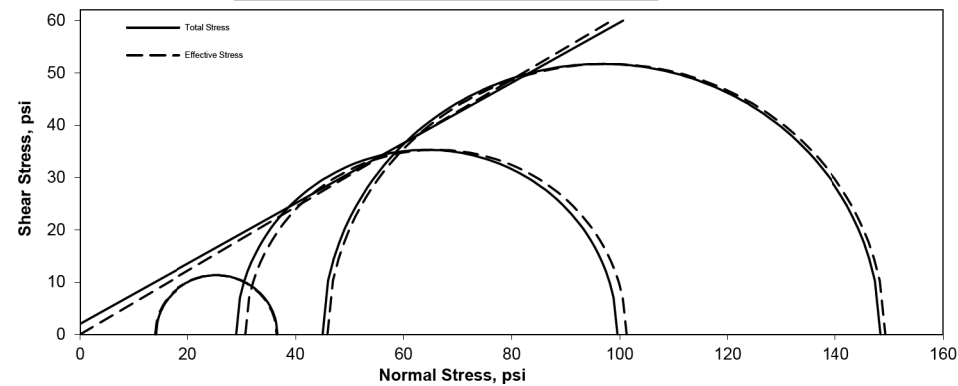
Project: DEL-36-11.03 (The POINT) Project ID: 103626  
 Sample ID: B-001-0-18 / ST-5@10.0-12.0' Page: 1/2  
 Description: Very soft to very stiff, brown, SANDY SILT, "and" clay, trace gravel, damp.

| Sample No. | Height (in) | Diameter (in) | Moisture (%) | Bulk Density (pcf) | Dry Density (pcf) | Void Ratio |
|------------|-------------|---------------|--------------|--------------------|-------------------|------------|
| 1          | 5.74        | 2.87          | 29.1%        | 126.4              | 97.9              | 0.702      |
| 2          | 5.74        | 2.87          | 18.5%        | 138.2              | 116.7             | 0.428      |
| 3          | 5.75        | 2.86          | 12.0%        | 140.3              | 125.2             | 0.330      |

Liquid Limit: 26 Plastic Limit: 16

Failure Criterion: Maximum Deviator Stress

|                | Total | Effective |
|----------------|-------|-----------|
| C, psi         | 2.04  | 0.03      |
| $\phi$ , deg   | 29.94 | 31.32     |
| Tan ( $\phi$ ) | 0.58  | 0.61      |



Assumed Specific Gravity  $G_s = 2.67$



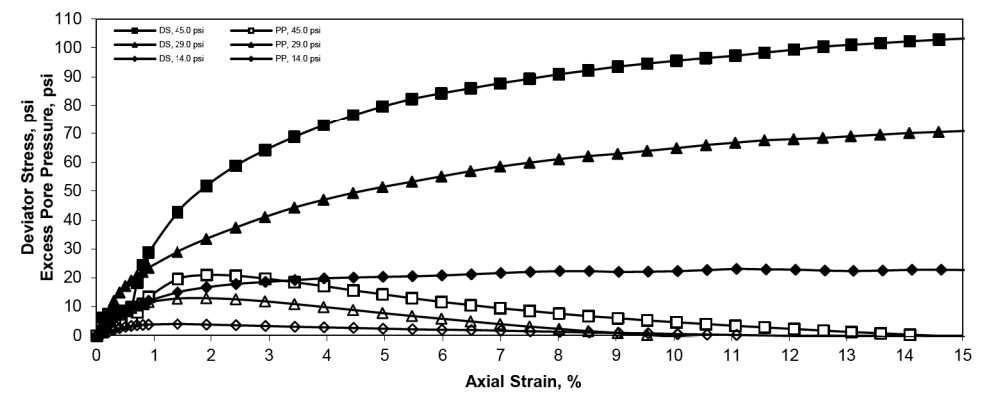
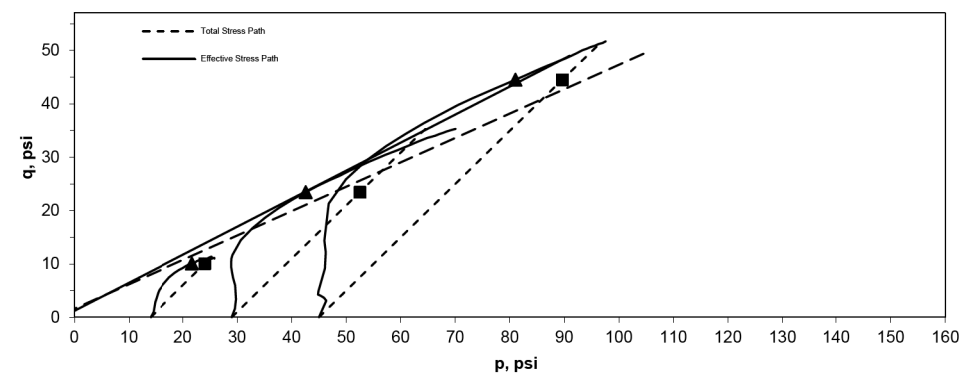
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**Consolidated-Undrained Triaxial Compression Test (AASHTO T 297 / ASTM D4767)**

Project: DEL-36-11.03 (The POINT) Project ID: 103626  
 Sample ID: B-001-0-18 / ST-5@10.0-12.0' Page: 2/2  
 Description: Very soft to very stiff, brown, SANDY SILT, "and" clay, trace gravel, damp.

Failure Criterion: Maximum Effective Principal Stress Ratio

|                | Total | Effective |
|----------------|-------|-----------|
| c, psi         | 1.76  | 1.36      |
| $\phi$ , deg   | 27.19 | 31.68     |
| Tan ( $\phi$ ) | 0.51  | 0.62      |



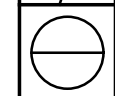
Note: The 14 psi specimen (@10.1-10.6') is much softer than the other two specimens, appears to have more clay and organics, and has a significantly higher moisture content (approximately two times higher). Full classification testing was performed on the 29 psi specimen (@10.6-11.1').

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LAB TEST DATA

DEL-36-11.03





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**Consolidated-Undrained Triaxial Compression Test (AASHTO T 297 / ASTM D4767)**

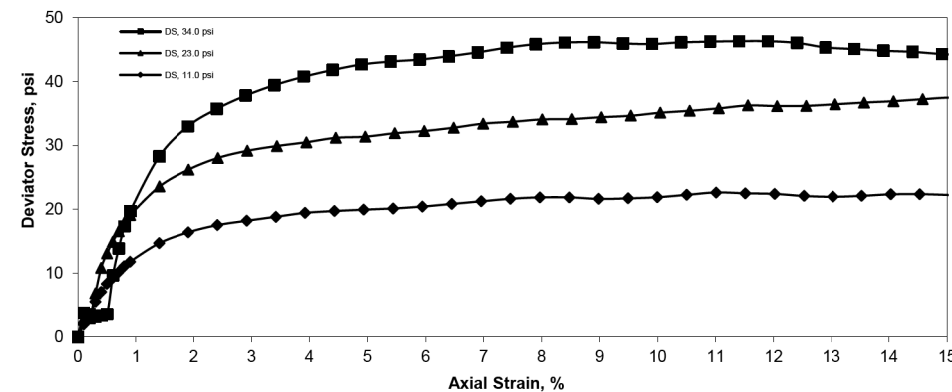
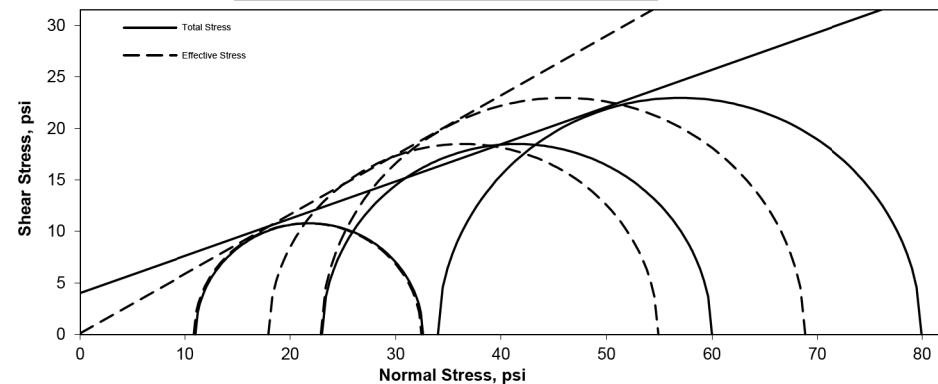
Project: DEL-36-11.03 (The POINT) Project ID: 103626  
Sample ID: B-009-0-18 / ST-11@22.0-24.0' Page: 1/2  
Description: Stiff to very stiff, gray mottled with brown, SILTY CLAY, little sand, trace gravel, moist.

| Sample No. | Height (in) | Diameter (in) | Moisture (%) | Bulk Density (pcf) | Dry Density (pcf) | Void Ratio |
|------------|-------------|---------------|--------------|--------------------|-------------------|------------|
| 1          | 5.74        | 2.88          | 23.9%        | 125.4              | 101.2             | 0.646      |
| 2          | 5.74        | 2.90          | 24.1%        | 125.4              | 101.0             | 0.649      |
| 3          | 5.74        | 2.87          | 22.8%        | 128.5              | 104.7             | 0.591      |

Liquid Limit: 38 Plastic Limit: 21

Failure Criterion: Maximum Deviator Stress

|                | Total | Effective |
|----------------|-------|-----------|
| C, psi         | 4.02  | 0.12      |
| $\phi$ , deg   | 19.86 | 30.02     |
| Tan ( $\phi$ ) | 0.36  | 0.58      |



Assumed Specific Gravity  $G_s = 2.67$



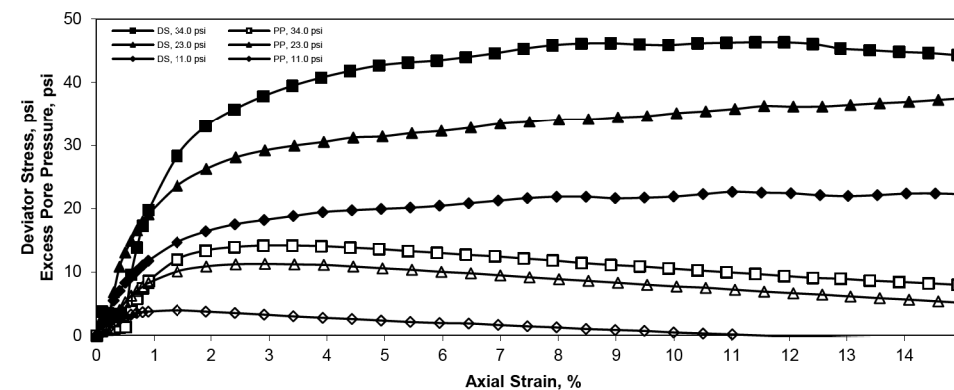
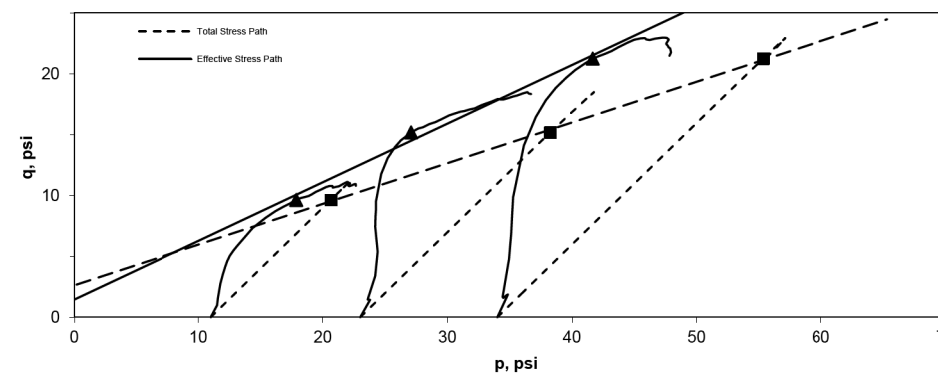
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Columbus, OH 43213  
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**Consolidated-Undrained Triaxial Compression Test (AASHTO T 297 / ASTM D4767)**

Project: DEL-36-11.03 (The POINT) Project ID: 103626  
Sample ID: B-009-0-18 / ST-11@22.0-24.0' Page: 2/2  
Description: Stiff to very stiff, gray mottled with brown, SILTY CLAY, little sand, trace gravel, moist.

Failure Criterion: Maximum Effective Principal Stress Ratio

|                | Total | Effective |
|----------------|-------|-----------|
| c, psi         | 2.77  | 1.61      |
| $\phi$ , deg   | 19.54 | 28.80     |
| Tan ( $\phi$ ) | 0.35  | 0.55      |

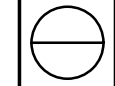


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LAB TEST DATA

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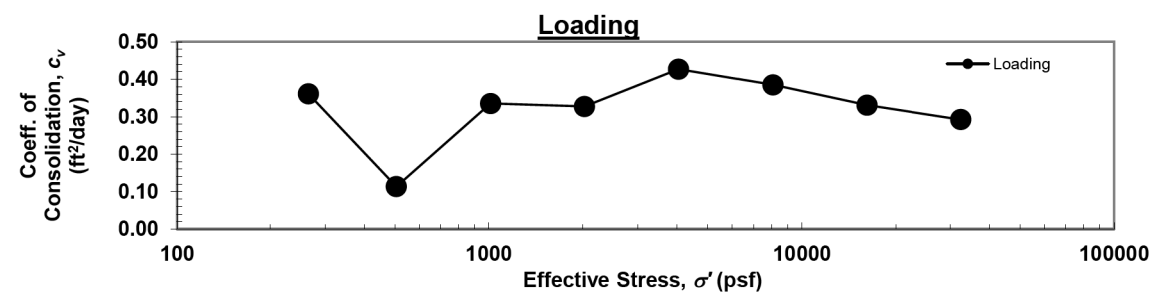
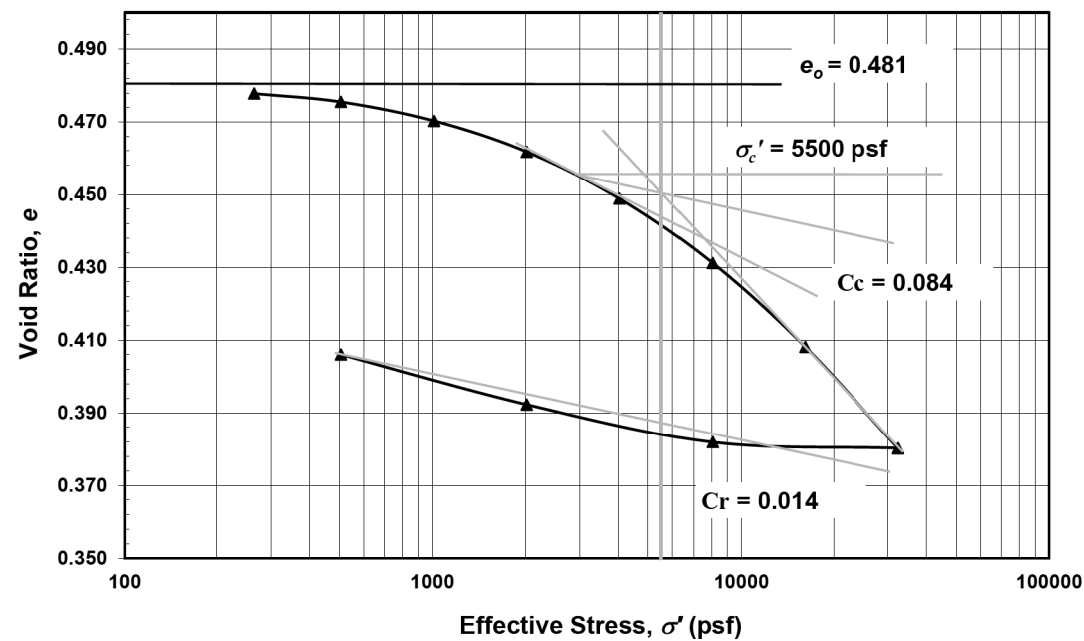
### Consolidation Test

Project Name: DEL-36-11.03 Prepared by: LR  
Source: B-005-0-18 ST-8 (14.9' - 15.0') Checked by: ZM  
Description: Very stiff, dark brown, SANDY SILT, some clay, trace gravel, damp. Date: 6/15/2018

Test Specification: ASTM D 2435  
Initial Void Ratio: 0.481 Initial Bulk Unit Weight (lb/ft<sup>3</sup>): 133  
In-situ Vertical Effective Stress: 2000 Dry Unit Weight (lb/ft<sup>3</sup>): 114

**Compression and Swelling Index**  
Compression Index ( $C_c$ ): 0.084 Preconsolidation Pressure ( $\sigma_c'$ ): 5500  
Recompression Index ( $C_r$ ): 0.014 Over-Consolidation Ratio (OCR): 2.8

#### Consolidation Curve



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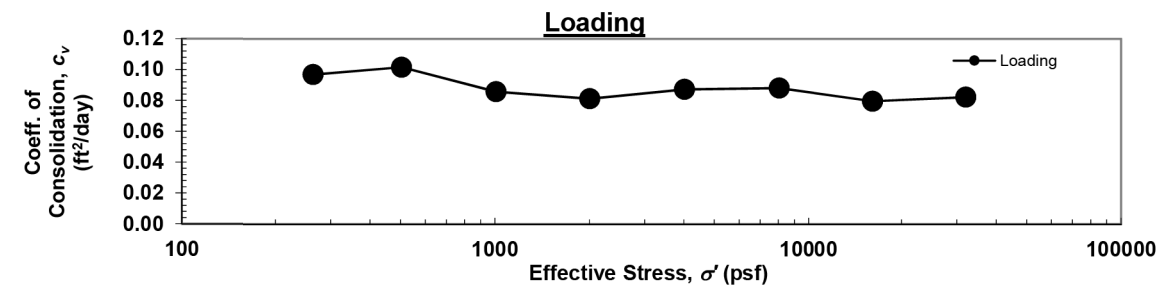
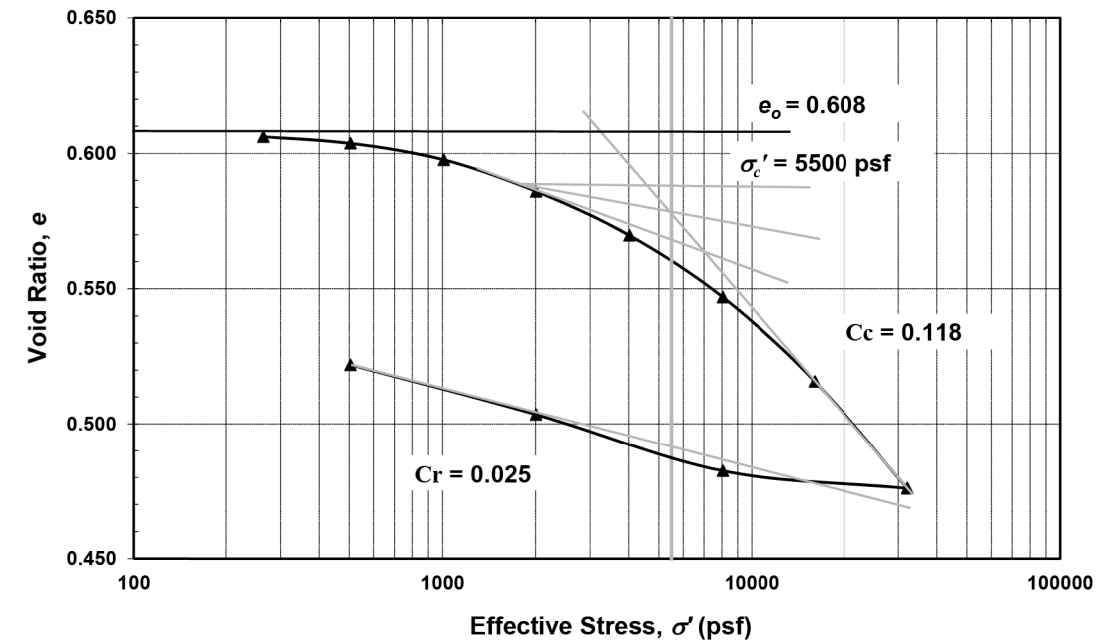
### Consolidation Test

Project Name: DEL-36-11.03 Prepared by: LR  
Source: B-006-0-18 ST-3 (5.8' - 5.9') Checked by: ZM  
Description: Stiff, brown mottled with orangish brown and gray, CLAY, "and" silt, little sand, trace gravel, moist Date: 5/29/2018

Test Specification: ASTM D 2435  
Initial Void Ratio: 0.608 Initial Bulk Unit Weight (lb/ft<sup>3</sup>): 128  
In-situ Vertical Effective Stress: 750 Dry Unit Weight (lb/ft<sup>3</sup>): 105

**Compression and Swelling Index**  
Compression Index ( $C_c$ ): 0.118 Preconsolidation Pressure ( $\sigma_c'$ ): 5500  
Recompression Index ( $C_r$ ): 0.025 Over-Consolidation Ratio (OCR): 7.3

#### Consolidation Curve



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LAB TEST DATA

DEL-36-11.03





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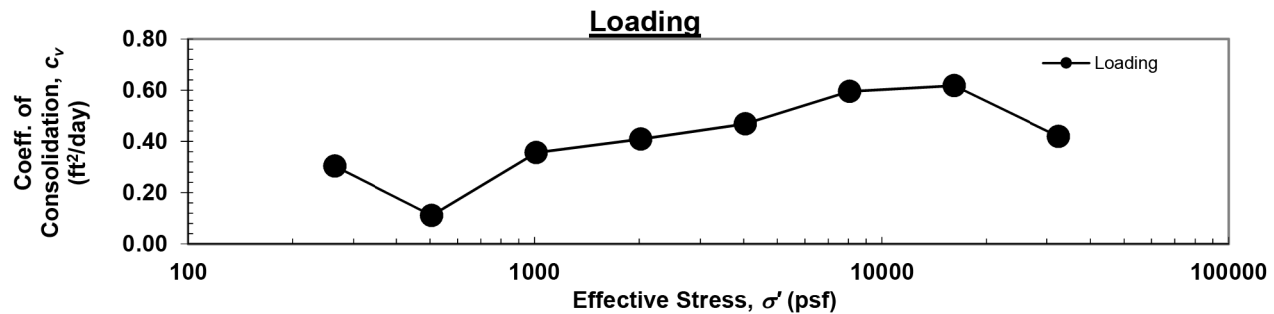
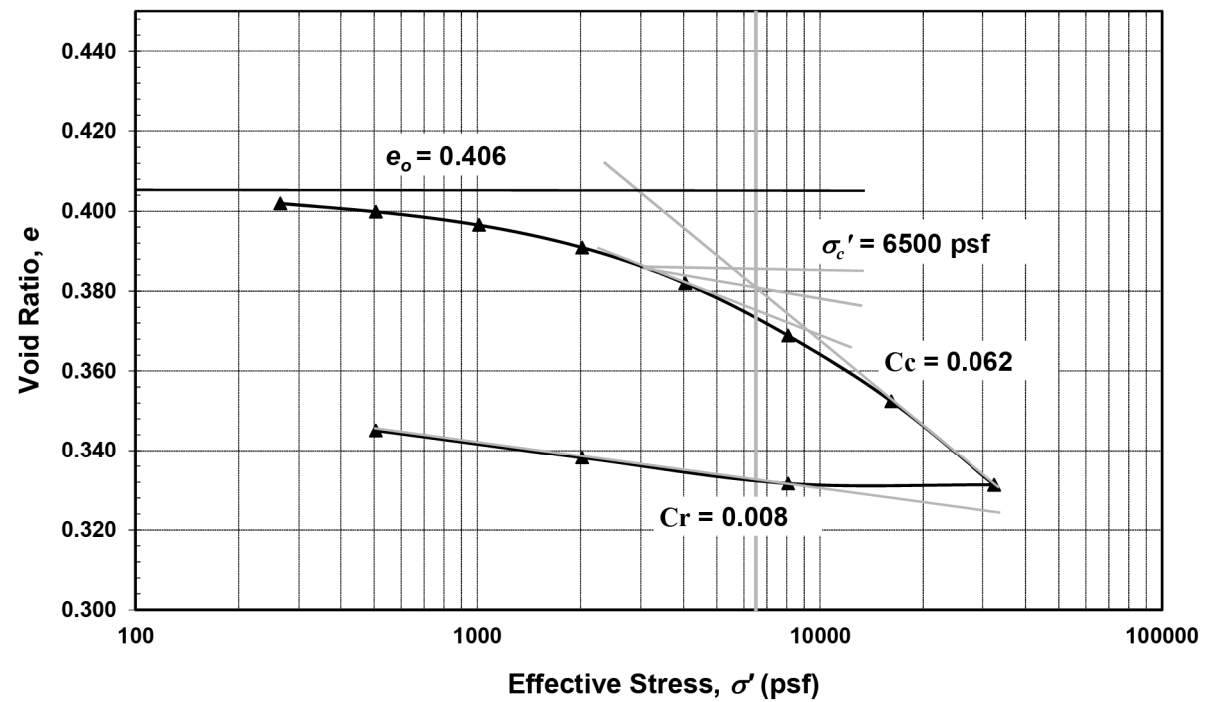
### Consolidation Test

Project Name: DEL-36-11.03 Prepared by: LR  
Source: B-007-0-18 ST-6 (14.1' - 14.2') Checked by: ZM  
Description: Very stiff, brownish gray, SANDY SILT, some clay, trace gravel, damp. Date: 5/29/2018

Test Specification: ASTM D 2435  
Initial Void Ratio: 0.406 Initial Bulk Unit Weight (lb/ft<sup>3</sup>): 136  
In-situ Vertical Effective Stress: 1900 Dry Unit Weight (lb/ft<sup>3</sup>): 120

**Compression and Swelling Index**  
Compression Index ( $C_c$ ): 0.062 Preconsolidation Pressure ( $\sigma_c'$ ): 6500  
Recompression Index ( $C_r$ ): 0.008 Over-Consolidation Ratio ( $OCR$ ): 3.4

#### Consolidation Curve



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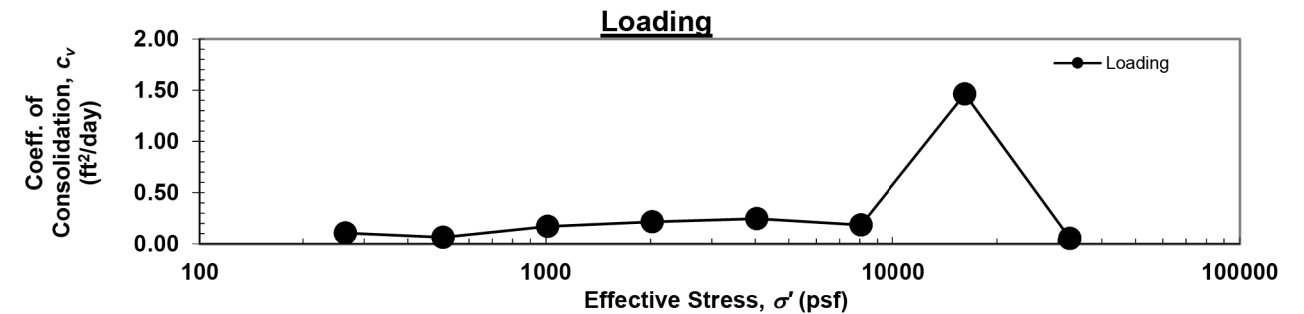
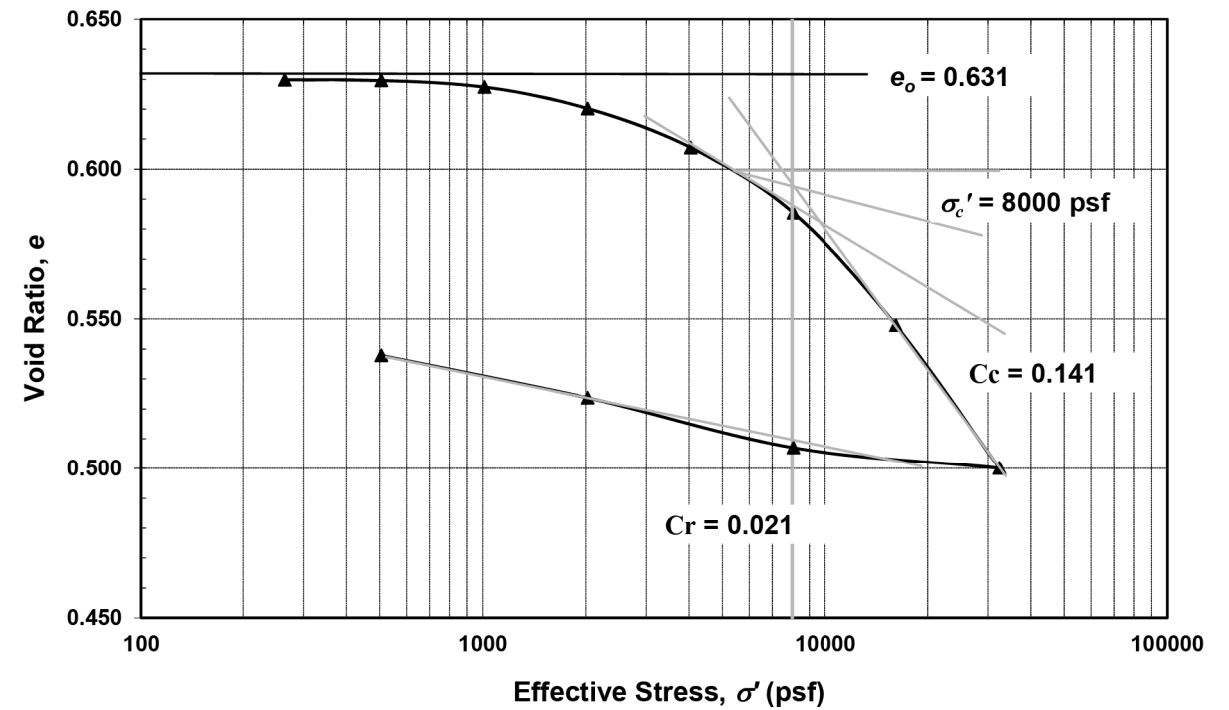
### Consolidation Test

Project Name: DEL-36-11.03 (The Point) Prepared by: LR  
Source: B-009-0-18 ST-11 (23.3' - 23.4') Checked by: ZM  
Description: Stiff to very stiff, gray mottled with brown, SILTY CLAY, little sand, trace gravel, moist. Date: 5/29/2018

Test Specification: ASTM D 2435  
Initial Void Ratio: 0.631 Initial Bulk Unit Weight (lb/ft<sup>3</sup>): 125  
In-situ Vertical Effective Stress: 2900 Dry Unit Weight (lb/ft<sup>3</sup>): 103

**Compression and Swelling Index**  
Compression Index ( $C_c$ ): 0.141 Preconsolidation Pressure ( $\sigma_c'$ ): 8000  
Recompression Index ( $C_r$ ): 0.021 Over-Consolidation Ratio ( $OCR$ ): 2.8

#### Consolidation Curve



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LAB TEST DATA

DEL-36-11.03





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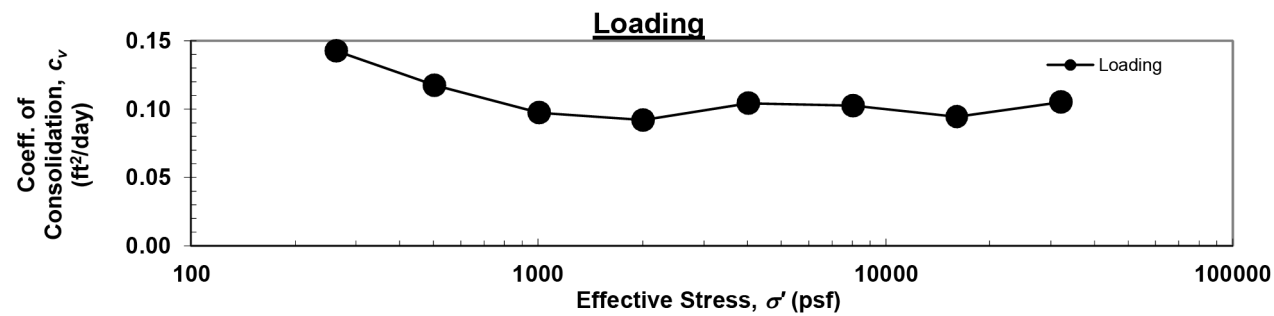
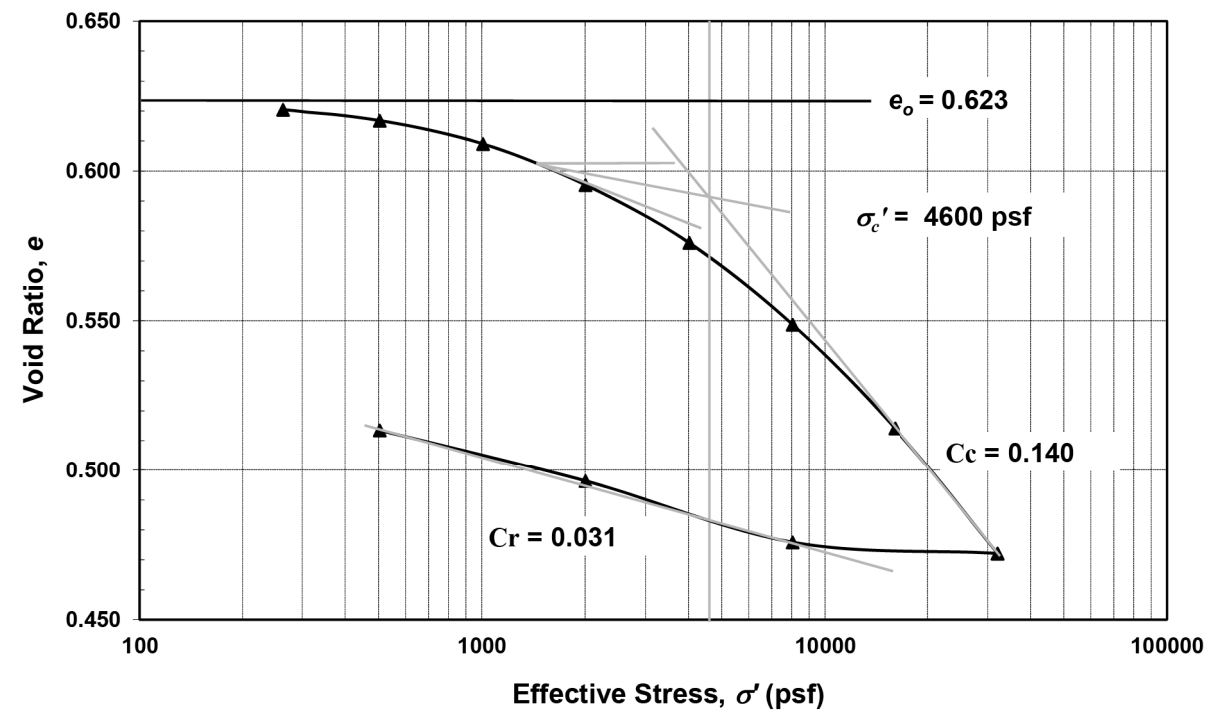
### Consolidation Test

Project Name: DEL-36-11.03 Prepared by: LR  
 Source: B-010-0-18 ST-5 (10.6' - 10.7') Checked by: MH  
 Description: Stiff, brown mottled with gray, CLAY, some silt, little gravel, little sand, damp Date: 5/14/2018

Test Specification: ASTM D 2435  
 Initial Void Ratio: 0.623 Initial Bulk Unit Weight (lb/ft<sup>3</sup>): 127  
 In-situ Vertical Effective Stress: 1300 psf Dry Unit Weight (lb/ft<sup>3</sup>): 104

**Compression and Swelling Index**  
 Compression Index ( $C_c$ ): 0.140 Preconsolidation Pressure ( $\sigma_c'$ ): 4600 psf  
 Recompression Index ( $C_r$ ): 0.031 Over-Consolidation Ratio ( $OCR$ ): 3.5

#### Consolidation Curve



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SOIL PROFILE  
LAB TEST DATA

DEL-36-11.03



**Unconfined Compressive Strength of Rock Core (ASTM D7012 Method D)**

(Project: DEL-36-11.03, Boring Location: B-003-0-18, NQ-3, Depth: 33.4 - 33.8 ft)  
Tested Date: 5/10/2018

**Specimen Properties**

|                                                    |       |
|----------------------------------------------------|-------|
| Average Dia., $D_{avg}$ (in):                      | 1.98  |
| Average Height, $H_{avg}$ (in):                    | 4.39  |
| Length to Diameter Ratio:                          | 2.21  |
| Area, $A$ (in <sup>2</sup> ):                      | 3.09  |
| Volume, $V$ (in <sup>3</sup> ):                    | 13.58 |
| Wet Mass of Specimen (lb):                         | 1.2   |
| Moisture Content (%):                              | 2.6   |
| Dry Mass of Specimen (lb):                         | 1.1   |
| Wet Unit Weight, $\gamma$ (lb/ft <sup>3</sup> ):   | 148.7 |
| Dry Unit Weight, $\gamma_d$ (lb/ft <sup>3</sup> ): | 145.0 |

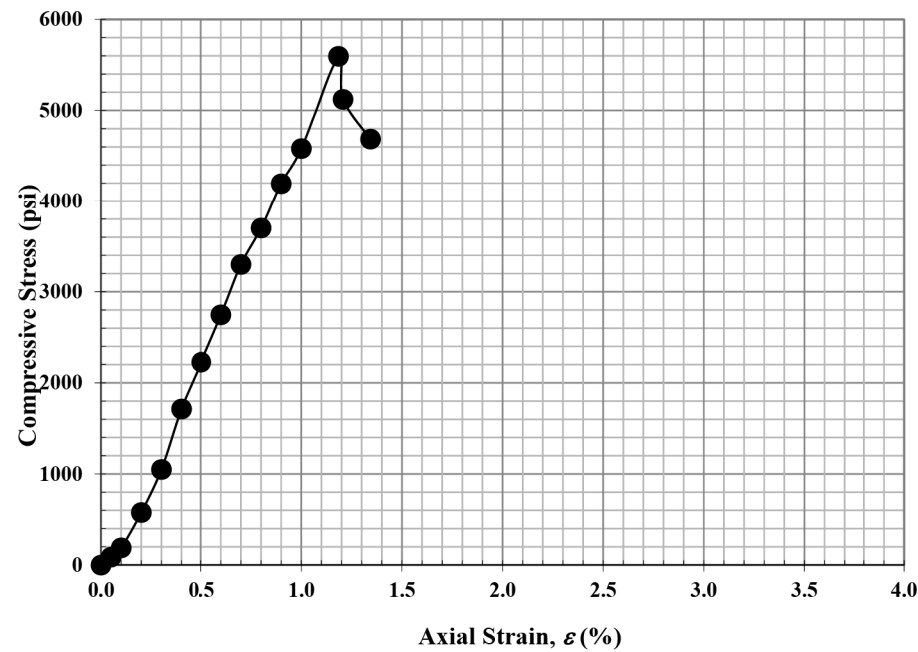
**Final Specimen Figure**



**39** (MPa)

**Results**

|                                        |              |
|----------------------------------------|--------------|
| Unconfined Compressive Strength (psi): | <b>5595</b>  |
| Strain (%):                            | <b>1.2</b>   |
| Elastic Modulus (Gpa):                 | <b>3.446</b> |



**Notes:** SHALE, black, slightly weathered, moderately strong, thinly laminated, fissile.

Sample trimming procedure does not conform to ASTM D4543 and the results reported may differ from the results obtained from a test specimen that meets the requirements of Practice D4543.

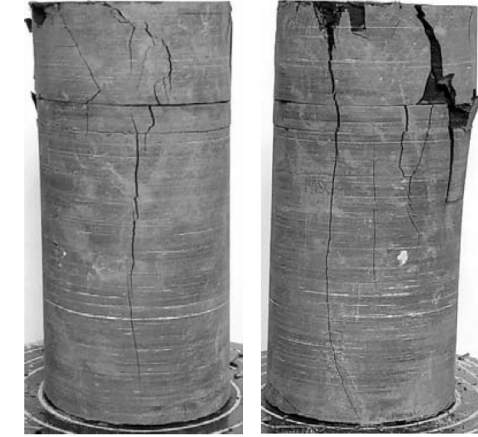
**Unconfined Compressive Strength of Rock Core (ASTM D7012 Method D)**

(Project: DEL-36-11.03, Boring Location: B-004-0-18, NQ-2, Depth: 32.0 - 32.4 ft)  
Tested Date: 5/10/2018

**Specimen Properties**

|                                                    |       |
|----------------------------------------------------|-------|
| Average Dia., $D_{avg}$ (in):                      | 1.98  |
| Average Height, $H_{avg}$ (in):                    | 4.39  |
| Length to Diameter Ratio:                          | 2.22  |
| Area, $A$ (in <sup>2</sup> ):                      | 3.09  |
| Volume, $V$ (in <sup>3</sup> ):                    | 13.58 |
| Wet Mass of Specimen (lb):                         | 1.2   |
| Moisture Content (%):                              | 2.8   |
| Dry Mass of Specimen (lb):                         | 1.1   |
| Wet Unit Weight, $\gamma$ (lb/ft <sup>3</sup> ):   | 146.9 |
| Dry Unit Weight, $\gamma_d$ (lb/ft <sup>3</sup> ): | 142.9 |

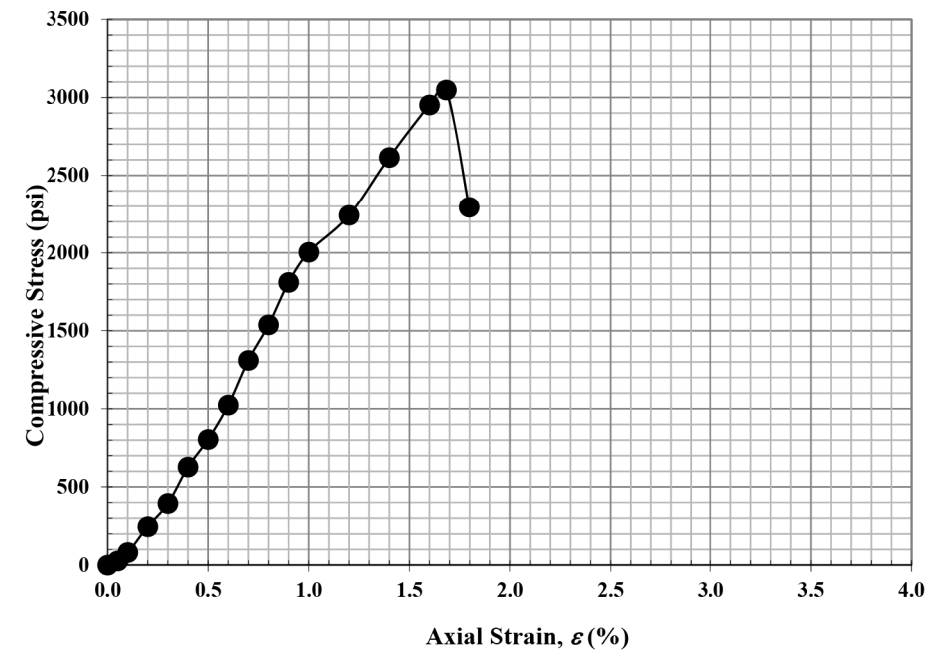
**Final Specimen Figure**



**21** (MPa)

**Results**

|                                        |              |
|----------------------------------------|--------------|
| Unconfined Compressive Strength (psi): | <b>3048</b>  |
| Strain (%):                            | <b>1.7</b>   |
| Elastic Modulus (Gpa):                 | <b>1.342</b> |



**Notes:** SHALE, dark gray to black, slightly weathered, slightly strong, thinly laminated, fissile.

Sample trimming procedure does not conform to ASTM D4543 and the results reported may differ from the results obtained from a test specimen that meets the requirements of Practice D4543.



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**Unconfined Compressive Strength of Rock Core (ASTM D7012 Method D)**

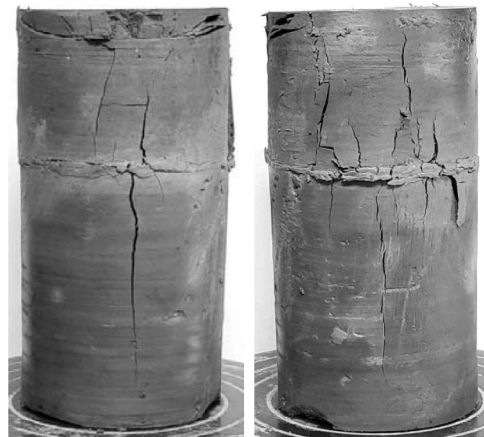
(Project: DEL-36-11.03, Boring Location: B-005-0-18, NQ-4, Depth: 37.0 - 37.3 ft)

Tested Date: 5/10/2018

**Specimen Properties**

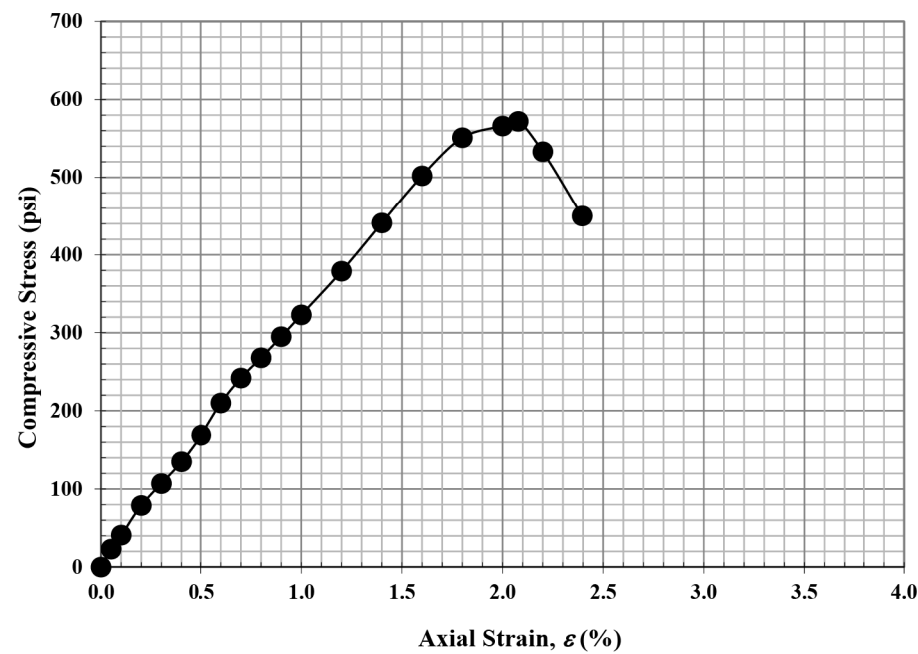
|                                                    |       |
|----------------------------------------------------|-------|
| Average Dia., $D_{avg}$ (in):                      | 1.97  |
| Average Height, $H_{avg}$ (in):                    | 4.09  |
| Length to Diameter Ratio:                          | 2.07  |
| Area, $A$ (in <sup>2</sup> ):                      | 3.06  |
| Volume, $V$ (in <sup>3</sup> ):                    | 12.53 |
| Wet Mass of Specimen (lb):                         | 1.2   |
| Moisture Content (%):                              | 4.8   |
| Dry Mass of Specimen (lb):                         | 1.1   |
| Wet Unit Weight, $\gamma$ (lb/ft <sup>3</sup> ):   | 159.6 |
| Dry Unit Weight, $\gamma_d$ (lb/ft <sup>3</sup> ): | 152.3 |

**Final Specimen Figure**



**Results**

|                                        |              |
|----------------------------------------|--------------|
| Unconfined Compressive Strength (psi): | <b>572</b>   |
| Strain (%):                            | <b>2.1</b>   |
| Elastic Modulus (Gpa):                 | <b>0.205</b> |



**Notes:** SHALE, gray, slightly to moderately weathered, very weak, laminated, fissile.

Sample trimming procedure does not conform to ASTM D4543 and the results reported may differ from the results obtained from a test specimen that meets the requirements of Practice D4543.

**Unconfined Compressive Strength of Rock Core (ASTM D7012 Method C)**

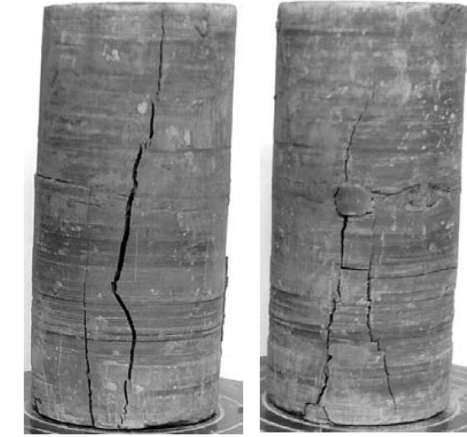
(Project: DEL-36-11.03, Boring Location: B-006-0-18, NQ-4, Depth: 39.1 - 39.5 ft)

Tested Date: 4/27/2018

**Specimen Properties**

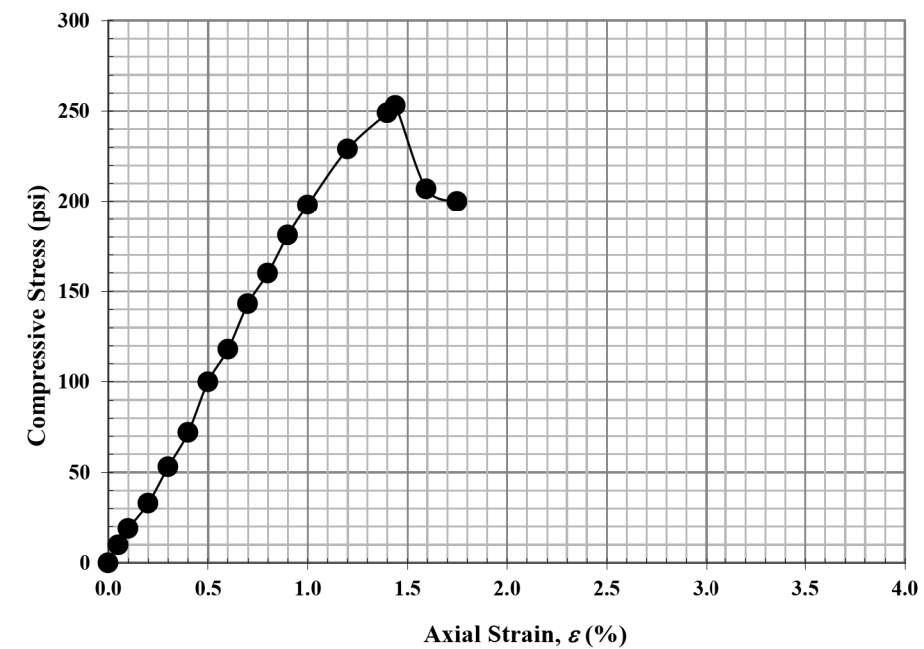
|                                                    |       |
|----------------------------------------------------|-------|
| Average Dia., $D_{avg}$ (in):                      | 1.98  |
| Average Height, $H_{avg}$ (in):                    | 4.52  |
| Length to Diameter Ratio:                          | 2.28  |
| Area, $A$ (in <sup>2</sup> ):                      | 3.08  |
| Volume, $V$ (in <sup>3</sup> ):                    | 13.90 |
| Wet Mass of Specimen (lb):                         | 1.3   |
| Moisture Content (%):                              | 6.0   |
| Dry Mass of Specimen (lb):                         | 1.2   |
| Wet Unit Weight, $\gamma$ (lb/ft <sup>3</sup> ):   | 155.4 |
| Dry Unit Weight, $\gamma_d$ (lb/ft <sup>3</sup> ): | 146.7 |

**Final Specimen Figure**



**Results**

|                                        |              |
|----------------------------------------|--------------|
| Unconfined Compressive Strength (psi): | <b>253</b>   |
| Strain (%):                            | <b>1.4</b>   |
| Elastic Modulus (Gpa):                 | <b>0.139</b> |



**Notes:** SHALE, gray, slightly weathered, very weak, laminated, fissile, pyritic.

Sample trimming procedure does not conform to ASTM D4543 and the results reported may differ from the results obtained from a test specimen that meets the requirements of Practice D4543.



**Unconfined Compressive Strength of Rock Core (ASTM D7012 Method C)**

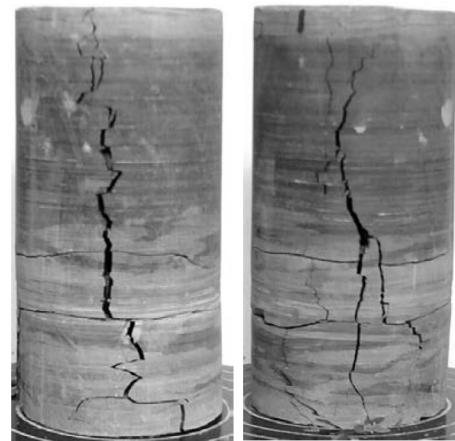
(Project: DEL-36-11.03, Boring Location: B-007-0-18, NQ-3, Depth: 34.7 - 35.0 ft)

Tested Date: 4/26/2018

**Specimen Properties**

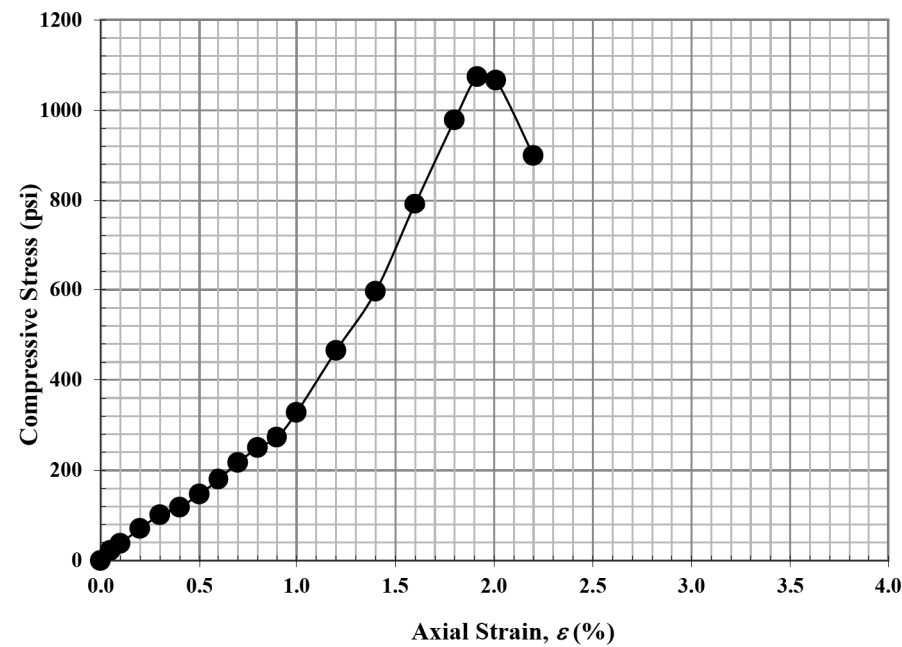
|                                                    |       |
|----------------------------------------------------|-------|
| Average Dia., $D_{avg}$ (in):                      | 1.98  |
| Average Height, $H_{avg}$ (in):                    | 4.23  |
| Length to Diameter Ratio:                          | 2.13  |
| Area, $A$ (in <sup>2</sup> ):                      | 3.09  |
| Volume, $V$ (in <sup>3</sup> ):                    | 13.05 |
| Wet Mass of Specimen (lb):                         | 1.1   |
| Moisture Content (%):                              | 3.4   |
| Dry Mass of Specimen (lb):                         | 1.1   |
| Wet Unit Weight, $\gamma$ (lb/ft <sup>3</sup> ):   | 151.8 |
| Dry Unit Weight, $\gamma_d$ (lb/ft <sup>3</sup> ): | 146.8 |

**Final Specimen Figure**



**Results**

|                                        |              |
|----------------------------------------|--------------|
| Unconfined Compressive Strength (psi): | <b>1074</b>  |
| Strain (%):                            | <b>1.9</b>   |
| Elastic Modulus (Gpa):                 | <b>0.561</b> |



**Notes:** SHALE, black and gray, slightly weathered, weak, thinly laminated, fissile.

Sample trimming procedure does not conform to ASTM D4543 and the results reported may differ from the results obtained from a test specimen that meets the requirements of Practice D4543.

**Unconfined Compressive Strength of Rock Core (ASTM D7012 Method C)**

(Project: DEL-36-11.03, Boring Location: B-008-0-18, NQ-4, Depth: 35.0 - 35.4 ft)

Tested Date: 4/26/2018

**Specimen Properties**

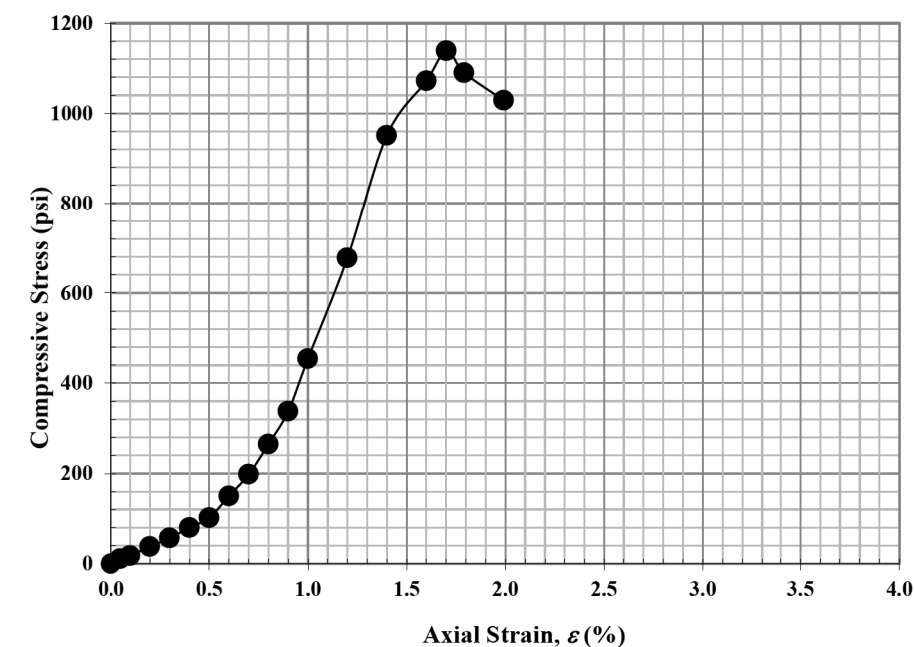
|                                                    |       |
|----------------------------------------------------|-------|
| Average Dia., $D_{avg}$ (in):                      | 1.98  |
| Average Height, $H_{avg}$ (in):                    | 4.47  |
| Length to Diameter Ratio:                          | 2.26  |
| Area, $A$ (in <sup>2</sup> ):                      | 3.08  |
| Volume, $V$ (in <sup>3</sup> ):                    | 13.75 |
| Wet Mass of Specimen (lb):                         | 1.2   |
| Moisture Content (%):                              | 3.2   |
| Dry Mass of Specimen (lb):                         | 1.1   |
| Wet Unit Weight, $\gamma$ (lb/ft <sup>3</sup> ):   | 147.5 |
| Dry Unit Weight, $\gamma_d$ (lb/ft <sup>3</sup> ): | 142.9 |

**Final Specimen Figure**



**Results**

|                                        |              |
|----------------------------------------|--------------|
| Unconfined Compressive Strength (psi): | <b>1139</b>  |
| Strain (%):                            | <b>1.7</b>   |
| Elastic Modulus (Gpa):                 | <b>0.797</b> |



**Notes:** SHALE, black, slightly weathered, weak, thinly laminated, fissile.

Sample trimming procedure does not conform to ASTM D4543 and the results reported may differ from the results obtained from a test specimen that meets the requirements of Practice D4543.



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| PROJECT: DEL-36-11.03<br>TYPE: RETAINING WALL                                                                                                                                                                                                                       |  | DRILLING FIRM / OPERATOR: NEAS / J. HODGES<br>SAMPLING FIRM / LOGGER: HDR / J. BUDNER |  | DRILL RIG: CME 55 TRACK RIG<br>HAMMER: CME AUTOMATIC |  | STATION / OFFSET: 5258+99.98' RT.<br>ALIGNMENT: NS RAILROAD |  |                |  |            |  |                                                                                                                                                                                                              |  |                                                                                                                                                                                      |  | EXPLORATION ID<br>B-003-0-18                                                                                                                                 |  |                                                                                                                                      |  |                                                                                                              |  |                                                                                      |  |                                                              |  |                                     |  |             |  |            |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|------------------------------------------------------|--|-------------------------------------------------------------|--|----------------|--|------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------|--|--------------------------------------------------------------|--|-------------------------------------|--|-------------|--|------------|--|
| PID: 103626 SFN:                                                                                                                                                                                                                                                    |  | DRILLING METHOD: 3.25" HSA / NQ                                                       |  | CALIBRATION DATE: 11/21/17                           |  | ELEVATION: 934.2 (MSL) EOB: 50.1 ft.                        |  | GRADATION (%): |  | ATTERBERG: |  | ODOT CLASS (G)                                                                                                                                                                                               |  | PAGE<br>1 OF 1                                                                                                                                                                       |  |                                                                                                                                                              |  |                                                                                                                                      |  |                                                                                                              |  |                                                                                      |  |                                                              |  |                                     |  |             |  |            |  |
| START: 4/24/18 END: 4/25/18                                                                                                                                                                                                                                         |  | SAMPLING METHOD: SPT / NQ                                                             |  | ENERGY RATIO (%): 85.4                               |  | REC SAMPLE ID                                               |  | GR             |  | FS         |  | SI                                                                                                                                                                                                           |  | CL                                                                                                                                                                                   |  | LL                                                                                                                                                           |  | PL                                                                                                                                   |  | PI                                                                                                           |  | WC                                                                                   |  | HOLE SEALED                                                  |  |                                     |  |             |  |            |  |
| MATERIAL DESCRIPTION AND NOTES                                                                                                                                                                                                                                      |  | ELEV.                                                                                 |  | DEPTHS                                               |  | SPT/ RQD                                                    |  | REC (%)        |  | HP (tsf)   |  | GR <th colspan="2">FS <th colspan="2">SI <th colspan="2">CL <th colspan="2">LL <th colspan="2">PL <th colspan="2">PI <th colspan="2">WC <th colspan="2">HOLE SEALED</th> </th></th></th></th></th></th></th> |  | FS <th colspan="2">SI <th colspan="2">CL <th colspan="2">LL <th colspan="2">PL <th colspan="2">PI <th colspan="2">WC <th colspan="2">HOLE SEALED</th> </th></th></th></th></th></th> |  | SI <th colspan="2">CL <th colspan="2">LL <th colspan="2">PL <th colspan="2">PI <th colspan="2">WC <th colspan="2">HOLE SEALED</th> </th></th></th></th></th> |  | CL <th colspan="2">LL <th colspan="2">PL <th colspan="2">PI <th colspan="2">WC <th colspan="2">HOLE SEALED</th> </th></th></th></th> |  | LL <th colspan="2">PL <th colspan="2">PI <th colspan="2">WC <th colspan="2">HOLE SEALED</th> </th></th></th> |  | PL <th colspan="2">PI <th colspan="2">WC <th colspan="2">HOLE SEALED</th> </th></th> |  | PI <th colspan="2">WC <th colspan="2">HOLE SEALED</th> </th> |  | WC <th colspan="2">HOLE SEALED</th> |  | HOLE SEALED |  |            |  |
| TOPSOIL (7 INCHES)<br>STIFF, MOTTLED ORANGE-BROWN TO BROWN, ELASTIC CLAY, "AND" SILT LITTLE SAND, TRACE STONE FRAGMENTS, MOIST (TILL)                                                                                                                               |  | 933.6                                                                                 |  | 1                                                    |  | 1                                                           |  | 67             |  | SS-1       |  | 4                                                                                                                                                                                                            |  | 4                                                                                                                                                                                    |  | 9                                                                                                                                                            |  | 52                                                                                                                                   |  | 31                                                                                                           |  | 51                                                                                   |  | 33                                                           |  | 18                                  |  | 37          |  | A-7-5 (13) |  |
| STIFF TO VERY STIFF, MOTTLED GRAY, ORANGE-BROWN AND BROWN, SILT AND CLAY, SOME SAND, TRACE STONE FRAGMENTS, DAMP (TILL)                                                                                                                                             |  | 929.7                                                                                 |  | 2                                                    |  | 2                                                           |  | 100            |  | SS-2       |  | -                                                                                                                                                                                                            |  | -                                                                                                                                                                                    |  | -                                                                                                                                                            |  | -                                                                                                                                    |  | -                                                                                                            |  | -                                                                                    |  | -                                                            |  | -                                   |  | 21          |  | A-7-5 (V)  |  |
| VERY STIFF, GRAY, SANDY SILT, SOME CLAY, TRACE TO LITTLE GRAVEL, DAMP (TILL)                                                                                                                                                                                        |  | 923.5                                                                                 |  | 3                                                    |  | 3                                                           |  | 100            |  | SS-3       |  | 4                                                                                                                                                                                                            |  | 7                                                                                                                                                                                    |  | 13                                                                                                                                                           |  | 38                                                                                                                                   |  | 38                                                                                                           |  | 31                                                                                   |  | 19                                                           |  | 12                                  |  | 16          |  | A-6a (9)   |  |
| @ 15.5' - 17.0' : cobbles suspected as difficult drilling                                                                                                                                                                                                           |  | 917.2                                                                                 |  | 4                                                    |  | 4                                                           |  | -              |  | -          |  | -                                                                                                                                                                                                            |  | -                                                                                                                                                                                    |  | -                                                                                                                                                            |  | -                                                                                                                                    |  | -                                                                                                            |  | -                                                                                    |  | -                                                            |  | -                                   |  | -           |  | -          |  |
| DENSE, GRAY-BROWN, STONE FRAGMENTS WITH SAND, LITTLE SILT, TRACE CLAY, DAMP (RESIDUUM)                                                                                                                                                                              |  | 914.7                                                                                 |  | 5                                                    |  | 5                                                           |  | 100            |  | SS-4       |  | -                                                                                                                                                                                                            |  | -                                                                                                                                                                                    |  | -                                                                                                                                                            |  | -                                                                                                                                    |  | -                                                                                                            |  | -                                                                                    |  | -                                                            |  | -                                   |  | -           |  | -          |  |
| VERY STIFF, GRAY, SILT AND CLAY, SOME SAND, SOME STONE FRAGMENTS, DAMP (RESIDUUM)                                                                                                                                                                                   |  | 912.7                                                                                 |  | 6                                                    |  | 6                                                           |  | 80             |  | SS-5A      |  | -                                                                                                                                                                                                            |  | -                                                                                                                                                                                    |  | -                                                                                                                                                            |  | -                                                                                                                                    |  | -                                                                                                            |  | -                                                                                    |  | -                                                            |  | -                                   |  | -           |  | -          |  |
| VERY DENSE, BLACK, STONE FRAGMENTS, SOME SAND, TRACE SILT, TRACE CLAY, MOIST (RESIDUUM)                                                                                                                                                                             |  | 909.2                                                                                 |  | 7                                                    |  | 7                                                           |  | 73             |  | SS-5B      |  | -                                                                                                                                                                                                            |  | -                                                                                                                                                                                    |  | -                                                                                                                                                            |  | -                                                                                                                                    |  | -                                                                                                            |  | -                                                                                    |  | -                                                            |  | -                                   |  | -           |  | -          |  |
| SHALE, DARK BROWN WITH LIGHT GRAY ZONES, UNWEATHERED TO SLIGHTLY WEATHERED, MODERATELY STRONG, VERY FINE GRAINED, LAMINATED CARBONACEOUS, BEDDING DISCONTINUITIES, HIGHLY FRACTURED WITH TIGHT AND NARROW SLICKENSIDED TO SLIGHTLY ROUGH JOINTS; RQD 18%, REC 100%. |  | 897.7                                                                                 |  | 8                                                    |  | 8                                                           |  | 100            |  | NQ-1       |  | -                                                                                                                                                                                                            |  | -                                                                                                                                                                                    |  | -                                                                                                                                                            |  | -                                                                                                                                    |  | -                                                                                                            |  | -                                                                                    |  | -                                                            |  | -                                   |  | -           |  | -          |  |
| SHALE, LIGHT GRAY, MODERATELY TO SLIGHTLY WEATHERED, WEAK, VERY FINE GRAINED, LAMINATED, BEDDING DISCONTINUITIES, FRACTURED WITH TIGHT AND NARROW SLIGHTLY ROUGH TO SLICKENSIDED JOINTS; RQD 34%, REC 100%.                                                         |  | 889.7                                                                                 |  | 9                                                    |  | 9                                                           |  | 100            |  | NQ-2       |  | -                                                                                                                                                                                                            |  | -                                                                                                                                                                                    |  | -                                                                                                                                                            |  | -                                                                                                                                    |  | -                                                                                                            |  | -                                                                                    |  | -                                                            |  | -                                   |  | -           |  | -          |  |
| SHALE, DARK BROWN WITH LIGHT GRAY ZONES, UNWEATHERED, WEAK TO SLIGHTLY STRONG, VERY FINE GRAINED, LAMINATED, CARBONACEOUS, PYRITIC, BEDDING DISCONTINUITIES, MODERATELY FRACTURED WITH TIGHT SLICKENSIDED TO SLIGHTLY ROUGH JOINTS; RQD 77%, REC 100%.              |  | 884.1                                                                                 |  | 10                                                   |  | 10                                                          |  | 100            |  | NQ-3       |  | -                                                                                                                                                                                                            |  | -                                                                                                                                                                                    |  | -                                                                                                                                                            |  | -                                                                                                                                    |  | -                                                                                                            |  | -                                                                                    |  | -                                                            |  | -                                   |  | -           |  | -          |  |

NOTES: NONE  
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH 50 LB. QUICK GROUT, MIXED 30 GAL. WATER

PROJECT: DEL-36-11.03  
 TYPE: RETAINING WALL  
 PID: 103626 SFN:  
 START: 4/25/18 END: 4/26/18  
 DRILLING FIRM / OPERATOR: NEAS / J. HODGES  
 SAMPLING FIRM / LOGGER: HDR / J. BUDNER  
 DRILLING METHOD: 3.25" HSA / NQ  
 SAMPLING METHOD: SPT / NQ

**MATERIAL DESCRIPTION AND NOTES**

STIFF TO HARD, MOTTLED GRAY, ORANGE-BROWN AND BROWN, CLAY, AND SILT, LITTLE SAND, TRACE STONE FRAGMENTS, MOIST (TILL)

STIFF, DARK BROWN, SANDY SILT, SOME CLAY, LITTLE STONE FRAGMENTS, DAMP (TILL)

MEDIUM DENSE, DARK GRAY, STONE FRAGMENTS WITH SAND AND SILT, LITTLE CLAY, DAMP (RESIDUUM)

SHALE, DARK GRAY, HIGHLY WEATHERED, WEAK.

SHALE, DARK BROWN WITH LIGHT GRAY LAYERS, UNWEATHERED TO SLIGHTLY WEATHERED, WEAK TO SLIGHTLY STRONG, VERY FINE GRAINED, LAMINATED, CARBONACEOUS, DISCONTINUOUS BEDDING, HIGHLY FRACTURED WITH SLICKENSIDED TO SLIGHTLY ROUGH JOINTS; RQD 13%, REC 100%.

@ 32.0' : Qu = 3048 psi

SHALE, LIGHT GRAY, MODERATELY WEATHERED, WEAK, VERY FINE GRAINED, LAMINATED, DISCONTINUOUS BEDDING, MODERATELY FRACTURED WITH TIGHT AND NARROW, SLIGHTLY ROUGH TO SLICKENSIDED JOINTS; RQD 29%, REC 100%.

@ 40.2' - 45.2' : occasional clay seam

SHALE, DARK BROWN WITH LIGHT GRAY LAYERS, UNWEATHERED, SLIGHTLY STRONG, VERY FINE GRAINED, LAMINATED, CARBONACEOUS, PYRITIC, DISCONTINUOUS BEDDING, MODERATELY FRACTURED WITH SLIGHTLY ROUGH JOINTS; RQD 76%, REC 100%.

ELEV. 934.6

ELEV. 922.6

ELEV. 917.6

ELEV. 911.6

ELEV. 909.4

ELEV. 899.6

ELEV. 889.8

ELEV. 884.4

| SPT / RQD |       | REC SAMPLE (%)  |         | HP (tsf)         |      | GRADATION (%) |    | ATTERBERG |    | ODOT CLASS (G) |    |    |
|-----------|-------|-----------------|---------|------------------|------|---------------|----|-----------|----|----------------|----|----|
| SPT       | RQD   | N <sub>60</sub> | REC (%) | HP (tsf)         | GR   | CS            | FS | SI        | CL | LL             | PL | WC |
| 1         | 2     | 7               | 20      | SS-1             | -    | -             | -  | -         | -  | -              | -  | 34 |
| 2         | 3     |                 |         |                  |      |               |    |           |    |                |    |    |
| 3         | 1     | 11              | 73      | SS-2             | 1.75 | 3             | 5  | 10        | 36 | 46             | 23 | 25 |
| 4         | 3     |                 |         |                  |      |               |    |           |    |                |    |    |
| 5         | 3     | 19              | 100     | SS-3             | 4.25 | -             | -  | -         | -  | -              | -  | 17 |
| 6         | 5     |                 |         |                  |      |               |    |           |    |                |    |    |
| 7         | 8     |                 |         |                  |      |               |    |           |    |                |    |    |
| 8         | 3     | 17              | 100     | SS-4             | 3.25 | -             | -  | -         | -  | -              | -  | 18 |
| 9         | 5     |                 |         |                  |      |               |    |           |    |                |    |    |
| 10        | 7     |                 |         |                  |      |               |    |           |    |                |    |    |
| 11        | 3     | 19              | 100     | SS-5             | 4.00 | -             | -  | -         | -  | -              | -  | 15 |
| 12        | 5     |                 |         |                  |      |               |    |           |    |                |    |    |
| 13        | 2     | 11              | 100     | SS-6             | 1.50 | 12            | 13 | 16        | 34 | 25             | 18 | 9  |
| 14        | 3     |                 |         |                  |      |               |    |           |    |                |    |    |
| 15        | 2     | 13              | 100     | SS-7             | 2.00 | -             | -  | -         | -  | -              | -  | 15 |
| 16        | 3     |                 |         |                  |      |               |    |           |    |                |    |    |
| 17        | 6     |                 |         |                  |      |               |    |           |    |                |    |    |
| 18        | 1     | 11              | 100     | SS-8             | -    | -             | -  | -         | -  | -              | -  | 14 |
| 19        | 3     |                 |         |                  |      |               |    |           |    |                |    |    |
| 20        | 5     |                 |         |                  |      |               |    |           |    |                |    |    |
| 21        | 1     | 19              | 100     | SS-9             | -    | 35            | 24 | 14        | 16 | 11             | 30 | 21 |
| 22        | 5     |                 |         |                  |      |               |    |           |    |                |    |    |
| 23        | 8     |                 |         |                  |      |               |    |           |    |                |    |    |
| 24        | 5     |                 |         |                  |      |               |    |           |    |                |    |    |
| 25        | 50/4" | -               | 100     | SS-10A<br>SS-10B | -    | -             | -  | -         | -  | -              | -  | 14 |
| 26        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 27        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 28        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 29        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 30        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 31        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 32        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 33        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 34        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 35        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 36        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 37        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 38        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 39        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 40        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 41        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 42        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 43        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 44        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 45        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 46        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 47        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 48        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 49        |       |                 |         |                  |      |               |    |           |    |                |    |    |
| 50        |       |                 |         |                  |      |               |    |           |    |                |    |    |

NOTES: NONE  
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH 50 LB. QUICK GROUT, MIXED 30 GAL. WATER

| PROJECT: DEL-36-11.03                                                                                                                                                                                                                                             |  | DRILLING FIRM / OPERATOR: NEAS / J. HODGES |  | DRILL RIG: CME 55 TRACK RIG |  | STATION / OFFSET: 5256+75.77' RT.    |  | EXPLORATION ID |  |             |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------|--|-----------------------------|--|--------------------------------------|--|----------------|--|-------------|--|
| TYPE: BRIDGE                                                                                                                                                                                                                                                      |  | SAMPLING FIRM / LOGGER: HDR / J. BUDNER    |  | HAMMER: CME AUTOMATIC       |  | ALIGNMENT: NS RAILROAD               |  | B-005-0-18     |  |             |  |
| PID: 103626 SFN:                                                                                                                                                                                                                                                  |  | DRILLING METHOD: 3.25" HSA / NQ            |  | CALIBRATION DATE: 11/21/17  |  | ELEVATION: 933.8 (MSL) EOB: 50.4 ft. |  | PAGE           |  |             |  |
| START: 4/26/18 END: 4/27/18                                                                                                                                                                                                                                       |  | SAMPLING METHOD: SPT/ST/NQ                 |  | ENERGY RATIO (%): 85.4      |  | LAT / LONG:                          |  | 1 OF 1         |  |             |  |
| MATERIAL DESCRIPTION AND NOTES                                                                                                                                                                                                                                    |  | ELEV.                                      |  | REC SAMPLE ID               |  | GRADATION (%)                        |  | ATTERBERG      |  | HOLE SEALED |  |
|                                                                                                                                                                                                                                                                   |  | DEPTH                                      |  | SPT/ RQD                    |  | GR CS FS SI CL                       |  | LL PL PI       |  | WC          |  |
|                                                                                                                                                                                                                                                                   |  | 933.8                                      |  | 1 2 2                       |  | -                                    |  | -              |  | 23          |  |
| TOPSOIL (6 INCHES)                                                                                                                                                                                                                                                |  | 933.3                                      |  | 1 2                         |  | -                                    |  | -              |  | A-7-6 (V)   |  |
| STIFF, MOTTLED ORANGE-BROWN AND BROWN, CLAY, "AND" SILT, LITTLE SAND, TRACE STONE FRAGMENTS, MOIST (TILL)                                                                                                                                                         |  |                                            |  | 1 3 5                       |  | 1 3 7 41 48 50 22 28                 |  | 26             |  | A-7-6 (17)  |  |
| STIFF, MOTTLED ORANGE-BROWN AND BROWN, SILTY CLAY, LITTLE SAND, TRACE STONE FRAGMENTS, MOIST (TILL)                                                                                                                                                               |  | 929.3                                      |  | 2 3 5                       |  | 1 5 12 37 45 40 21 19                |  | 22             |  | A-6b (12)   |  |
| VERY STIFF TO HARD, BROWN TO DARK GRAY, SANDY SILT, SOME LITTLE CLAY, LITTLE/SOME STONE FRAGMENTS, DAMP (TILL)                                                                                                                                                    |  | 926.3                                      |  | 2 5 10                      |  | -                                    |  | -              |  | 16          |  |
| @ 15.4' : Qu = 4975 psf                                                                                                                                                                                                                                           |  |                                            |  | 4 9 10                      |  | -                                    |  | -              |  | 15          |  |
| (GLACIAL ERRATIC - Diorite Boulder)                                                                                                                                                                                                                               |  | 915.9                                      |  | 10 15 17                    |  | -                                    |  | -              |  | 13          |  |
| VERY DENSE, DARK GRAY, STONE FRAGMENTS, SOME SAND, TRACE SILT, TRACE CLAY, DAMP (RESIDUUM)                                                                                                                                                                        |  | 915.1                                      |  | 2 3 4                       |  | -                                    |  | -              |  | 14          |  |
| @ 22.5' : Wet                                                                                                                                                                                                                                                     |  |                                            |  | 18 50/5"                    |  | -                                    |  | -              |  | 1           |  |
| SHALE, DARK GRAY, MODERATELY WEATHERED, WEAK TO SLIGHTLY STRONG, CARBONACEOUS.                                                                                                                                                                                    |  | 910.8                                      |  | 18 50/2"                    |  | 65 17 8 6 4                          |  | NP NP NP 26    |  | A-1-a (0)   |  |
| SHALE, DARK BROWN WITH GRAY LAYERS, SLIGHTLY WEATHERED, WEAK TO SLIGHTLY STRONG, VERY FINE GRAINED, LAMINATED, CARBONACEOUS, SLIGHTLY PYRITIC, DISCONTINUOUS BEDDING, HIGHLY FRACTURED TO FRACTURED WITH SLICKENSIDED TO SLIGHTLY ROUGH JOINTS; RQD 5%, REC 100%. |  | 908.4                                      |  | 25 50/5"                    |  | -                                    |  | -              |  | 24          |  |
| SHALE, LIGHT GRAY, HIGHLY TO MODERATELY WEATHERED, VERY WEAK TO WEAK, VERY FINE GRAINED, LAMINATED, ARGILLACEOUS, DISCONTINUOUS BEDDING, FRACTURED WITH TIGHT AND NARROW, SLIGHTLY ROUGH TO SLICKENSIDED JOINTS; RQD 24%, REC 99%.                                |  | 900.2                                      |  | 0                           |  | -                                    |  | -              |  | CORE        |  |
| @ 37.0' : Qu = 572 psi                                                                                                                                                                                                                                            |  |                                            |  | 22                          |  | -                                    |  | -              |  | CORE        |  |
| SHALE, DARK BROWN WITH GRAY LAYERS; UNWEATHERED TO SLIGHTLY WEATHERED, SLIGHTLY STRONG, VERY FINE GRAINED, LAMINATED, PYRITIC, DISCONTINUOUS BEDDING, MODERATELY FRACTURED WITH TIGHT AND NARROW, SLIGHTLY ROUGH JOINTS; RQD 43%, REC 100%.                       |  | 890.1                                      |  | 34                          |  | -                                    |  | -              |  | CORE        |  |
|                                                                                                                                                                                                                                                                   |  | 883.4                                      |  | 44                          |  | -                                    |  | -              |  | CORE        |  |

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH 50 LB. QUICK GROUT, MIXED 30 GAL. WATER

| PROJECT: DEL-36-11.03                                                                                                                                                                                              |  | DRILLING FIRM / OPERATOR: NEAS / J. HODGES |  | STATION / OFFSET: 5255+62.90' RT.    |  | EXPLORATION ID    |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------|--|--------------------------------------|--|-------------------|--|
| TYPE: BRIDGE                                                                                                                                                                                                       |  | SAMPLING FIRM / LOGGER: HDR / S. REED      |  | ALIGNMENT: NS RAILROAD               |  | B-006-0-18        |  |
| PID: 103626 SFN:                                                                                                                                                                                                   |  | DRILLING METHOD: 3.25" HSA / NQ            |  | ELEVATION: 934.5 (MSL) EOB: 46.2 ft. |  | PAGE              |  |
| START: 4/17/18 END: 4/18/18                                                                                                                                                                                        |  | SAMPLING METHOD: SPT/ST/NQ                 |  | LAT / LONG: 40.297544, -83.046598    |  | 1 OF 1            |  |
| MATERIAL DESCRIPTION AND NOTES                                                                                                                                                                                     |  | ELEV.                                      |  | SPT/ RQD                             |  | HOLE SEALED       |  |
|                                                                                                                                                                                                                    |  | 934.5                                      |  | 1 2 3                                |  | ODOT CLASS (G) WC |  |
| TOPSOIL (5 INCHES)                                                                                                                                                                                                 |  | 934.1                                      |  | 4                                    |  | A-6b (10)         |  |
| MEDIUM STIFF TO STIFF, TAN AND GRAY, SILTY CLAY, LITTLE SAND, TRACE STONE FRAGMENTS, DAMP (FILL)                                                                                                                   |  | 932.0                                      |  | 3 4 4                                |  | A-7-6 (V)         |  |
| MEDIUM STIFF TO STIFF, MOTTLED ORANGE-BROWN AND GRAY, CLAY, "AND" SILT, LITTLE SAND, TRACE STONE FRAGMENTS, MOIST (TILL)                                                                                           |  | 926.9                                      |  | 3 3 6                                |  | A-7-6 (13)        |  |
| @ 5.2' : Qu = 3612 psf                                                                                                                                                                                             |  |                                            |  | 5 8 11                               |  | A-4b (V)          |  |
| VERY STIFF TO HARD, BROWN, TRACE GRAY, SILT, SOME CLAY, LITTLE SAND, TRACE GRAVEL, DAMP (TILL)                                                                                                                     |  | 922.0                                      |  | 5 8 11                               |  | A-4b (8)          |  |
| VERY STIFF TO HARD, GRAY, SANDY SILT, SOME CLAY, LITTLE STONE FRAGMENTS, DAMP (TILL)                                                                                                                               |  |                                            |  | 4 8 10                               |  | A-6a (1)          |  |
| @ 13.4' : Qu = 8061 psf                                                                                                                                                                                            |  |                                            |  | 9 10 50/3'                           |  | A-6a (V)          |  |
| HARD, GRAY, SILT AND CLAY, "AND" STONE FRAGMENTS, SOME SAND, DAMP (RESIDUUM)                                                                                                                                       |  | 917.0                                      |  | 7                                    |  | CORE              |  |
| SHALE, DARK GRAY AND DARK BROWN, SLIGHTLY WEATHERED, MODERATELY STRONG TO STRONG, VERY FINE GRAINED, LAMINATED, CARBONACEOUS, FRACTURED TO SLIGHTLY FRACTURED WITH SLIGHTLY ROUGH BEDDING JOINTS; RQD 35%, REC 94% |  | 913.5                                      |  | 7                                    |  | CORE              |  |
| @ 29.0' : 1-inch clay seam                                                                                                                                                                                         |  |                                            |  | 60                                   |  | CORE              |  |
| @ 29.2' : 1-inch clay seam                                                                                                                                                                                         |  |                                            |  | 33                                   |  | CORE              |  |
| @ 31.4' : 1-inch clay seam                                                                                                                                                                                         |  |                                            |  | 72                                   |  | CORE              |  |
| @ 31.6' : 2-inch clay seam                                                                                                                                                                                         |  |                                            |  | 41                                   |  | CORE              |  |
| SHALE, LIGHT GRAY, UNWEATHERED, VERY WEAK TO WEAK, VERY FINE GRAINED, THIN TO THICK BEDDED, INTACT WITH ROUGH BEDDING JOINT SURFACES; RQD 58%, REC 100%                                                            |  | 898.9                                      |  | 41                                   |  | CORE              |  |
| @ 39.1' : Qu = 253 psi                                                                                                                                                                                             |  |                                            |  | 42                                   |  | CORE              |  |
| SHALE, DARK BROWN, UNWEATHERED, WEAK TO SLIGHTLY STRONG, VERY FINE GRAINED, THICK BEDDED, INTACT WITH ROUGH BEDDING JOINT SURFACES; RQD 44%, REC 100%                                                              |  | 892.0                                      |  | 41                                   |  | CORE              |  |
|                                                                                                                                                                                                                    |  | 888.3                                      |  | 46                                   |  | CORE              |  |

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 5 LB. BENTONITE PELLETS; BACKFILLED WITH 40 LB. QUICK GROUT; MIXED 35 GAL. WATER

| PROJECT: DEL-36-11.03                                                                                                                                                                                         |  | DRILLING FIRM / OPERATOR: NEAS / J. HODGES |  | DRILL RIG: CME 55 TRACK RIG |  | STATION / OFFSET: 5257+09.51' L.T.   |  | EXPLORATION ID        |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------|--|-----------------------------|--|--------------------------------------|--|-----------------------|--|
| TYPE: BRIDGE                                                                                                                                                                                                  |  | SAMPLING FIRM / LOGGER: HDR / S. REED      |  | HAMMER: CME AUTOMATIC       |  | ALIGNMENT: NS RAILROAD               |  | B-007-0-18            |  |
| PID: 103626 SFN:                                                                                                                                                                                              |  | DRILLING METHOD: 3.25" HSA / NQ            |  | CALIBRATION DATE: 11/21/17  |  | ELEVATION: 935.2 (MSL) EOB: 50.0 ft. |  | PAGE                  |  |
| START: 4/19/18 END: 4/20/18                                                                                                                                                                                   |  | SAMPLING METHOD: SPT/ST/NQ                 |  | ENERGY RATIO (%): 85.4      |  | LAT / LONG: 40.297881, -83.047178    |  | 1 OF 1                |  |
| MATERIAL DESCRIPTION AND NOTES                                                                                                                                                                                |  | ELEV.                                      |  | SPT/ RQD                    |  | GRADATION (%)                        |  | HOLE SEaled           |  |
|                                                                                                                                                                                                               |  | 935.2                                      |  | 1 2 2                       |  | GR CS FS SI CL LL PL PI WC           |  | ODOT CLASS (G) SEaled |  |
| LOOSE, GRAY AND BLACK, STONE FRAGMENTS WITH SAND AND SILT, LITTLE CLAY, WET (FILL)                                                                                                                            |  | 932.3                                      |  | 2 2 4                       |  | 22 32 14 19 13 NP NP NP 27           |  | A-2-4 (0)             |  |
| STIFF TO VERY STIFF, ORANGE-BROWN, TRACE GRAY, CLAY, "AND" SILT, LITTLE SAND, TRACE STONE FRAGMENTS, MOIST (TILL)                                                                                             |  | 928.2                                      |  | 4 7 8                       |  | - - - - - - - - - -                  |  | 45 A-2-4 (V)          |  |
| HARD, BROWN, TRACE GRAY, SILT AND CLAY, SOME SAND, TRACE STONE FRAGMENTS, DAMP (TILL)                                                                                                                         |  | 923.2                                      |  | 4 5 6                       |  | 1 4 8 36 51 43 21 22 25              |  | A-7-6 (13)            |  |
| STIFF TO VERY STIFF, GRAY, TRACE OLIVE, SANDY SILT, SOME CLAY, LITTLE STONE FRAGMENTS, DAMP (TILL)                                                                                                            |  | 915.2                                      |  | 2 5 8                       |  | - - - - - - - - - -                  |  | 14 A-7-6 (V)          |  |
| @ 13.5 : Qu = 4728 psf                                                                                                                                                                                        |  | 912.7                                      |  | 2 4 5                       |  | 7 8 12 38 35 29 18 11                |  | A-6a (8)              |  |
| HARD, GRAY, SILT AND CLAY, SOME SAND, LITTLE STONE FRAGMENTS, DAMP (TILL)                                                                                                                                     |  | 911.2                                      |  | 8 15 13                     |  | 10 17 17 32 24 28 18 10              |  | 15 A-4a (4)           |  |
| DENSE, GRAY, STONE FRAGMENTS WITH SAND, SILT, AND CLAY, DAMP (RESIDUUM)                                                                                                                                       |  | 898.5                                      |  | 3 4 32                      |  | - - - - - - - - - -                  |  | 12 A-2-6 (V)          |  |
| SHALE BLACK WITH OCCASIONAL GRAY SEAMS. UNWEATHERED, WEAK TO SLIGHTLY STRONG, VERY FINE GRAINED, THIN TO THICK BEDDED, CARBONACEOUS, FRACTURED WITH SLIGHTLY ROUGH BEDDING DISCONTINUITIES; ROD 32%, REC 95%. |  | TR                                         |  | 13                          |  | - - - - - - - - - -                  |  | CORE                  |  |
| @ 28.7' - 29.1' : vertical fracture                                                                                                                                                                           |  |                                            |  | 0                           |  | - - - - - - - - - -                  |  | CORE                  |  |
| @ 31.0' : 1-inch thick clay seam                                                                                                                                                                              |  |                                            |  | 62                          |  | - - - - - - - - - -                  |  | CORE                  |  |
| @ 32.8' - 32.9' : vertical fracture                                                                                                                                                                           |  |                                            |  | 65                          |  | - - - - - - - - - -                  |  | CORE                  |  |
| @ 34.7' : Qu = 1074 psi                                                                                                                                                                                       |  |                                            |  | 33                          |  | - - - - - - - - - -                  |  | CORE                  |  |
| @ 35.9' - 36.3' : vertical fracture                                                                                                                                                                           |  |                                            |  | 93                          |  | - - - - - - - - - -                  |  | CORE                  |  |
| SHALE LIGHT GRAY, UNWEATHERED, SLIGHTLY TO MODERATELY STRONG, MEDIUM BEDDED, CALCAREOUS, OCCASIONAL THIN BLACK CARBONACEOUS SEAMS, INTACT, SLIGHTLY ROUGH BEDDING DISCONTINUITIES; ROD 44%, REC 100%.         |  | 889.9                                      |  | 0                           |  | - - - - - - - - - -                  |  | CORE                  |  |
| @ 44.9' - 45' : vertical fracture                                                                                                                                                                             |  |                                            |  | 62                          |  | - - - - - - - - - -                  |  | CORE                  |  |
| SHALE BLACK, UNWEATHERED, SLIGHTLY STRONG, VERY FINE GRAINED, THICK BEDDED, CARBONACEOUS, INTACT, SLIGHTLY ROUGH BEDDING DISCONTINUITIES; ROD 95%, REC 100%.                                                  |  | 885.2                                      |  | 93                          |  | - - - - - - - - - -                  |  | CORE                  |  |
|                                                                                                                                                                                                               |  | EOB                                        |  | 50                          |  | - - - - - - - - - -                  |  |                       |  |

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 50 LB. BENTONITE CHIPS; BACKFILLED WITH 50 LB. QUICK GROUT; MIXED 40 GAL. WATER

| PROJECT: DEL-36-11.03<br>TYPE: BRIDGE                                                                                                                                                               |  | DRILLING FIRM / OPERATOR: NEAS / J. HODGES |        | DRILL RIG: CME 55 TRACK RIG |                 | STATION / OFFSET: 5255+31.80' LT.    |          | EXPLORATION ID |    |    |    |           |    |    |             |    |                |      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------|--------|-----------------------------|-----------------|--------------------------------------|----------|----------------|----|----|----|-----------|----|----|-------------|----|----------------|------|
| PID: 103626 SFN:                                                                                                                                                                                    |  | SAMPLING FIRM / LOGGER: HDR / S. REED      |        | HAMMER: CME AUTOMATIC       |                 | ALIGNMENT: NS RAILROAD               |          | B-008-0-18     |    |    |    |           |    |    |             |    |                |      |
| START: 4/16/18 END: 4/17/18                                                                                                                                                                         |  | DRILLING METHOD: 3.25" HSA / NQ            |        | CALIBRATION DATE: 11/21/17  |                 | ELEVATION: 933.6 (MSL) EOB: 48.5 ft. |          | PAGE           |    |    |    |           |    |    |             |    |                |      |
| SAMPLING METHOD:                                                                                                                                                                                    |  | SPT / NQ                                   |        | ENERGY RATIO (%): 85.4      |                 | LAT / LONG:                          |          | 1 OF 1         |    |    |    |           |    |    |             |    |                |      |
| MATERIAL DESCRIPTION AND NOTES                                                                                                                                                                      |  | ELEV.                                      | DEPTHS | SPT / RQD                   | N <sub>60</sub> | REC SAMPLE (%)                       | HP (tsf) | GRADATION (%)  |    |    |    | ATTERBERG |    |    | HOLE SEaled |    |                |      |
|                                                                                                                                                                                                     |  |                                            |        |                             |                 |                                      |          | GR             | CS | FS | SI | CL        | LL | PL | PI          | WC | OOOT CLASS (G) |      |
| MEDIUM DENSE, LIGHT TO DARK BROWN, STONE FRAGMENTS WITH SAND AND SILT, LITTLE CLAY, WET (FILL)                                                                                                      |  | 933.6                                      | 1      | 2                           | 14              | 72                                   | SS-1     | 42             | 21 | 12 | 15 | 10        | 36 | 27 | 9           | 21 | A-2-4 (0)      |      |
| STIFF TO VERY STIFF, BROWN AND GRAY, SILTY CLAY, LITTLE SAND, TRACE STONE FRAGMENTS, MOIST (TILL)                                                                                                   |  | 932.1                                      | 2      | 3                           | 10              | 67                                   | SS-2     | 3              | 6  | 9  | 43 | 39        | 37 | 21 | 16          | 24 | A-6s (10)      |      |
| STIFF TO VERY STIFF, MOTTLED ORANGE-BROWN AND GRAY, CLAY, SOME SILT, LITTLE STONE FRAGMENTS, MOIST (TILL)                                                                                           |  | 930.6                                      | 3      | 4                           | 13              | 61                                   | SS-3     | 0              | 3  | 7  | 32 | 58        | 58 | 24 | 34          | 30 | A-7-6 (20)     |      |
|                                                                                                                                                                                                     |  |                                            | 4      | 3                           |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 5      | 4                           | 14              | 83                                   | SS-4     | -              | -  | -  | -  | -         | -  | -  | -           | 20 | A-7-6 (V)      |      |
|                                                                                                                                                                                                     |  | 927.6                                      | 6      | 6                           |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
| VERY STIFF TO HARD, BROWN, TRACE GRAY, SILT AND CLAY, LITTLE SAND, TRACE GRAVEL, DAMP (TILL)                                                                                                        |  |                                            | 7      | 9                           | 28              | 89                                   | SS-5     | 6              | 7  | 12 | 37 | 38        | 31 | 19 | 12          | 18 | A-6a (9)       |      |
|                                                                                                                                                                                                     |  |                                            | 8      | 2                           | 10              | 78                                   | SS-6     | -              | -  | -  | -  | -         | -  | -  | -           | 20 | A-6a (V)       |      |
|                                                                                                                                                                                                     |  |                                            | 9      | 5                           |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 10     | 2                           | 14              | 100                                  | SS-7     | -              | -  | -  | -  | -         | -  | -  | -           | 17 | A-6a (V)       |      |
|                                                                                                                                                                                                     |  |                                            | 11     | 4                           |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 12     | 6                           |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 13     | 2                           | 34              | 39                                   | SS-8     | -              | -  | -  | -  | -         | -  | -  | -           | 26 | A-6a (V)       |      |
|                                                                                                                                                                                                     |  |                                            | 14     | 10                          |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 15     | 2                           | 13              | 100                                  | SS-9     | -              | -  | -  | -  | -         | -  | -  | -           | 14 | A-6a (V)       |      |
|                                                                                                                                                                                                     |  |                                            | 16     | 3                           |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  | 916.6                                      | 17     | 6                           |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
| MEDIUM DENSE, GRAY, STONE FRAGMENTS WITH SAND, SILT, AND CLAY, DAMP (RESIDUUM)                                                                                                                      |  |                                            | 18     | 4                           | 24              | 72                                   | SS-10    | -              | 32 | 22 | 12 | 16        | 18 | 32 | 21          | 11 | A-2-6 (0)      |      |
|                                                                                                                                                                                                     |  |                                            | 19     | 9                           |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  | 914.1                                      | 20     | 2                           | 17              | 56                                   | SS-11    | -              | 54 | 25 | 9  | 8         | 4  | NP | NP          | 14 | A-1-a (0)      |      |
| MEDIUM DENSE, DARK BROWN, STONE FRAGMENTS SOME SAND, TRACE SILT, TRACE CLAY, WET (RESIDUUM)                                                                                                         |  |                                            | 21     | 4                           |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 22     | 8                           |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  | 910.6                                      | 23     | 50/3"                       | -               | 100                                  | SS-12    | -              | -  | -  | -  | -         | -  | -  | -           | 16 | Rock (V)       |      |
| SHALE, BLACK, SLIGHTLY WEATHERED, WEAK, VERY FINE GRAINED, LAMINATED, CARBONACEOUS, INTACT TO SLIGHTLY FRACTURED WITH SLIGHTLY ROUGH BEDDING JOINTS; RQD 20%, REC 100%.                             |  |                                            | 24     | 0                           | 100             | NQ-1                                 |          |                |    |    |    |           |    |    |             |    | CORE           |      |
|                                                                                                                                                                                                     |  |                                            | 25     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 26     | 13                          |                 |                                      |          |                |    |    |    |           |    |    |             |    | CORE           |      |
|                                                                                                                                                                                                     |  |                                            | 27     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 28     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 29     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 30     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 31     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 32     | 33                          |                 |                                      |          |                |    |    |    |           |    |    |             |    | CORE           |      |
|                                                                                                                                                                                                     |  |                                            | 33     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 34     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 35     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  | 898.2                                      | 36     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
| SHALE, LIGHT GRAY, UNWEATHERED, WEAK TO SLIGHTLY STRONG, VERY FINE GRAINED, MEDIUM TO THICK BEDDED, CALCAREOUS, SLIGHTLY TO MODERATELY FRACTURED, SLIGHTLY ROUGH BEDDING JOINTS; RQD 52%, REC 100%. |  |                                            | 37     | 43                          |                 |                                      |          |                |    |    |    |           |    |    |             |    |                | CORE |
|                                                                                                                                                                                                     |  |                                            | 38     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 39     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 40     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 41     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 42     | 55                          |                 |                                      |          |                |    |    |    |           |    |    |             |    |                | CORE |
|                                                                                                                                                                                                     |  |                                            | 43     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 44     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  | 889.2                                      | 45     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
| SHALE, DARK BROWN AND GRAY, UNWEATHERED, SLIGHTLY TO MODERATELY STRONG, VERY FINE GRAINED, THICK BEDDED, CALCAREOUS, SLIGHTLY FRACTURED TO INTACT, SLIGHTLY ROUGH BEDDING JOINTS; RQD 63%, REC 98%. |  |                                            | 46     | 63                          |                 |                                      |          |                |    |    |    |           |    |    |             |    |                | CORE |
|                                                                                                                                                                                                     |  |                                            | 47     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  |                                            | 48     |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |
|                                                                                                                                                                                                     |  | 885.1                                      | EOB    |                             |                 |                                      |          |                |    |    |    |           |    |    |             |    |                |      |

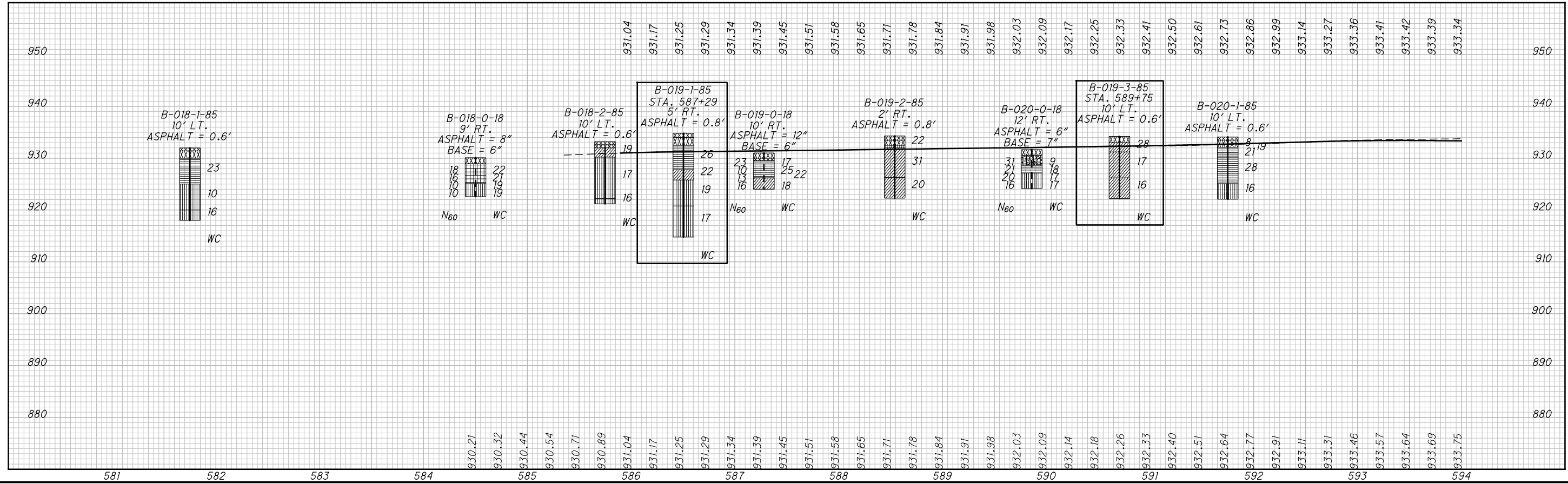
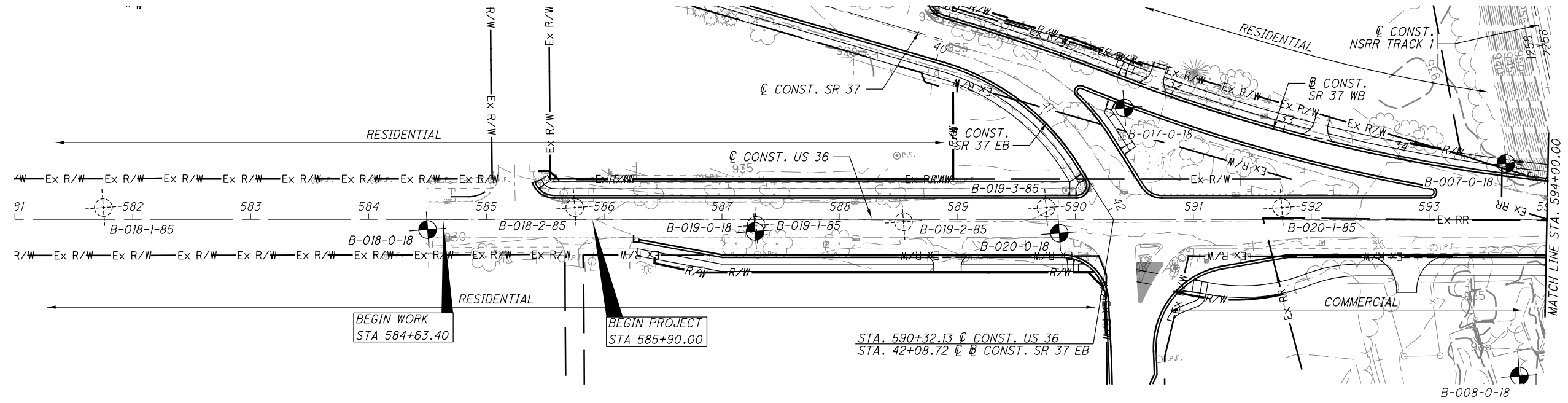
@ 35.0' : Qu = 1139 psi  
 SHALE, LIGHT GRAY, UNWEATHERED, WEAK TO SLIGHTLY STRONG, VERY FINE GRAINED, MEDIUM TO THICK BEDDED, CALCAREOUS, SLIGHTLY TO MODERATELY FRACTURED, SLIGHTLY ROUGH BEDDING JOINTS; RQD 52%, REC 100%.  
 @ 35.9' - 36.1' : vertical fracture

@ 40.0' - 44.4' : occasional weak fissile seams

@ 44.1' - 44.2' : vertical fracture  
 SHALE, DARK BROWN AND GRAY, UNWEATHERED, SLIGHTLY TO MODERATELY STRONG, VERY FINE GRAINED, THICK BEDDED, CALCAREOUS, SLIGHTLY FRACTURED TO INTACT, SLIGHTLY ROUGH BEDDING JOINTS; RQD 63%, REC 98%.  
 @ 46.3' - 46.7' : high angle fracture

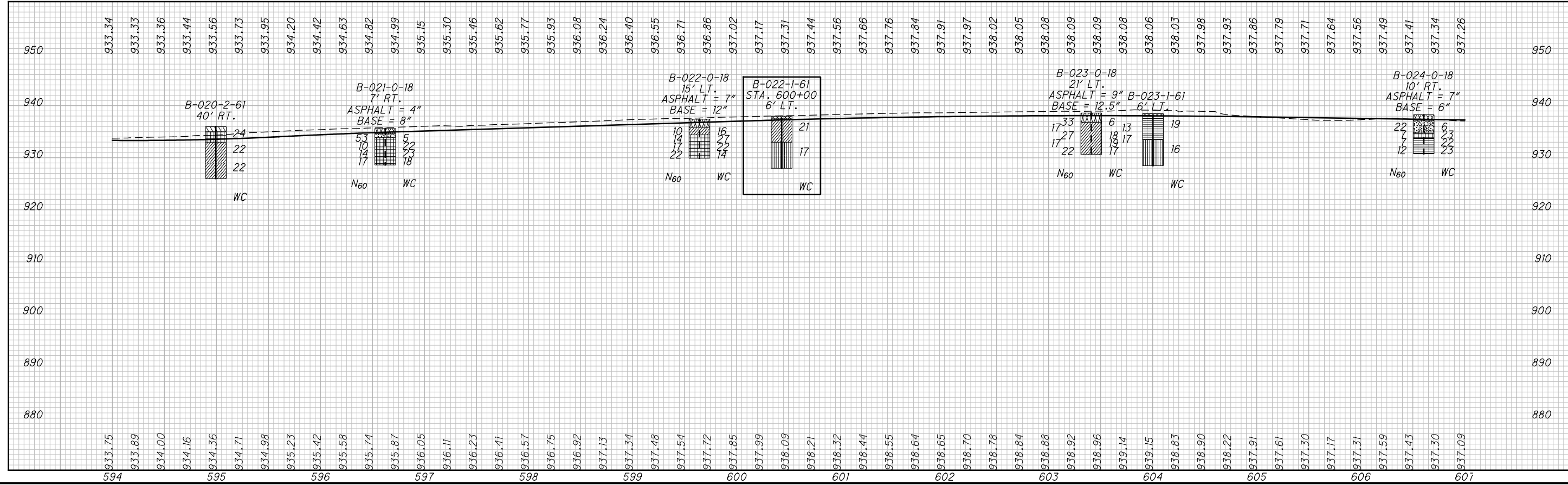
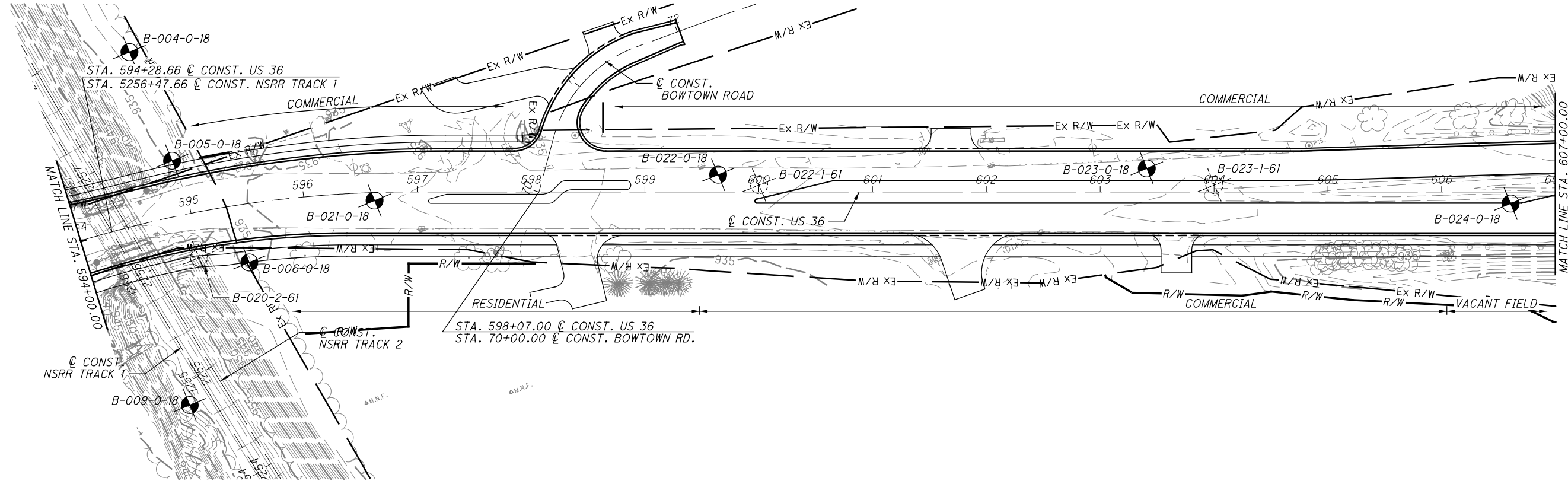
NOTES: NONE  
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH 40 LB. QUICK GROUT, MIXED 35 GAL. WATER

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DRAWN CLW  
CHECKED DMV  
**SOIL PROFILE - US 36**  
**STA. 581+00.00 TO STA. 594+00.00**

**DEL-36-11.03**



DRAWN: CLW  
CHECKED: DMV

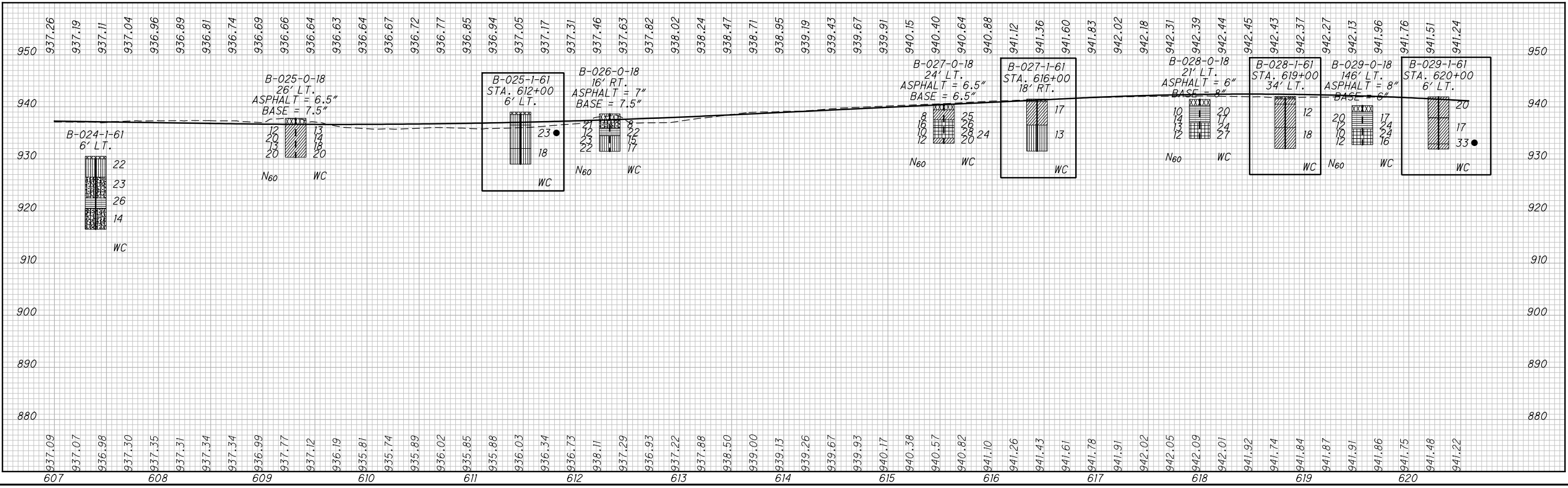
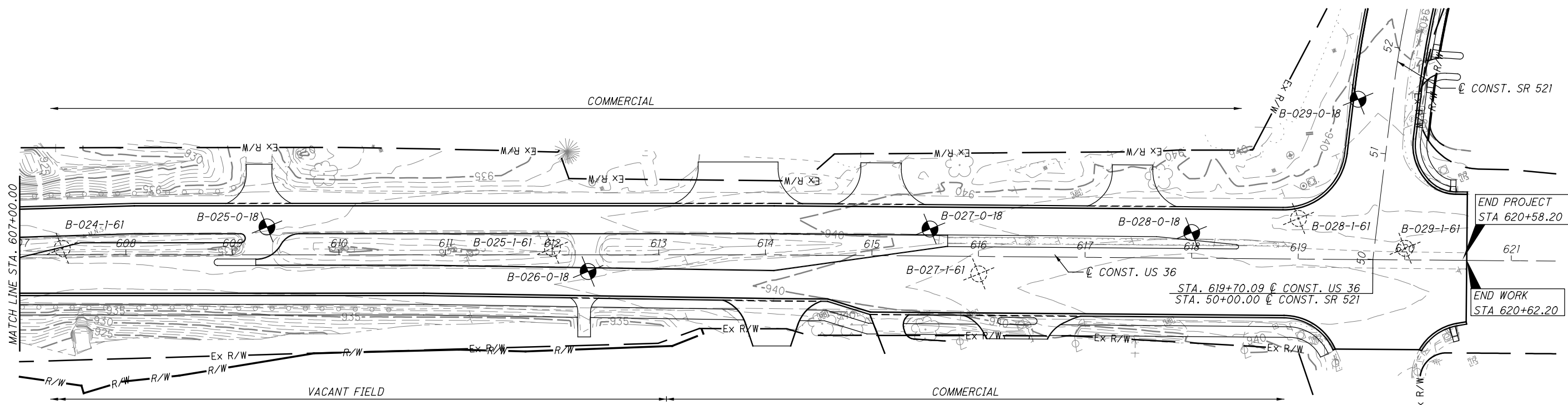
SOIL PROFILE - US 36  
STA. 589+00.00 TO STA. 607+00.00

DEL-36-11.03





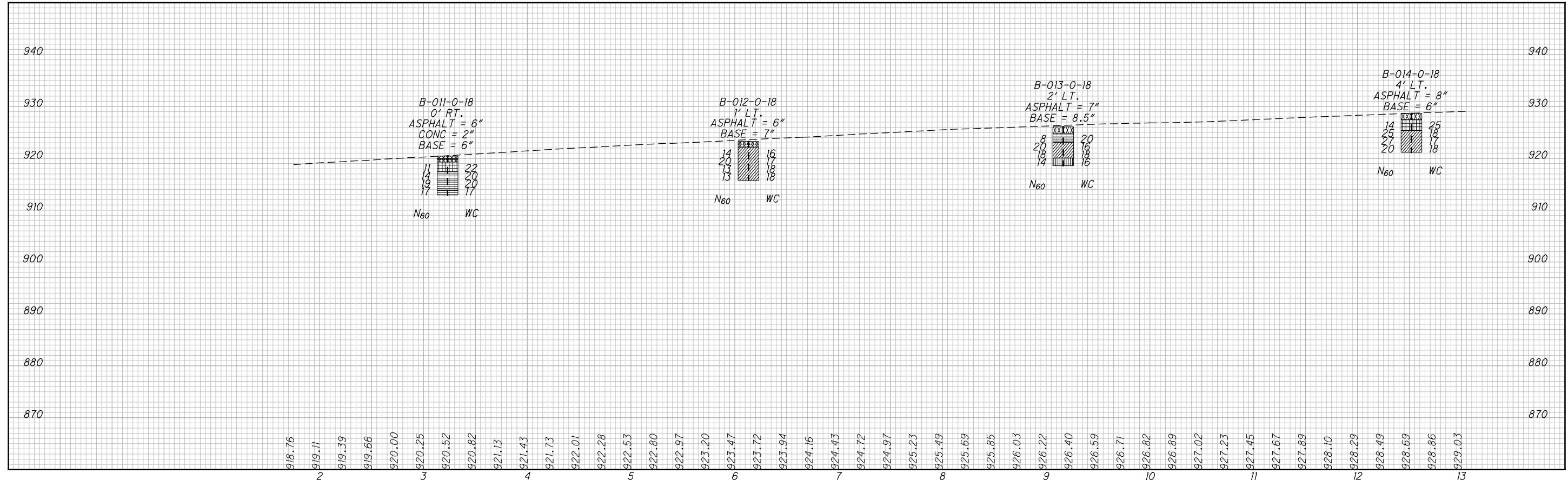
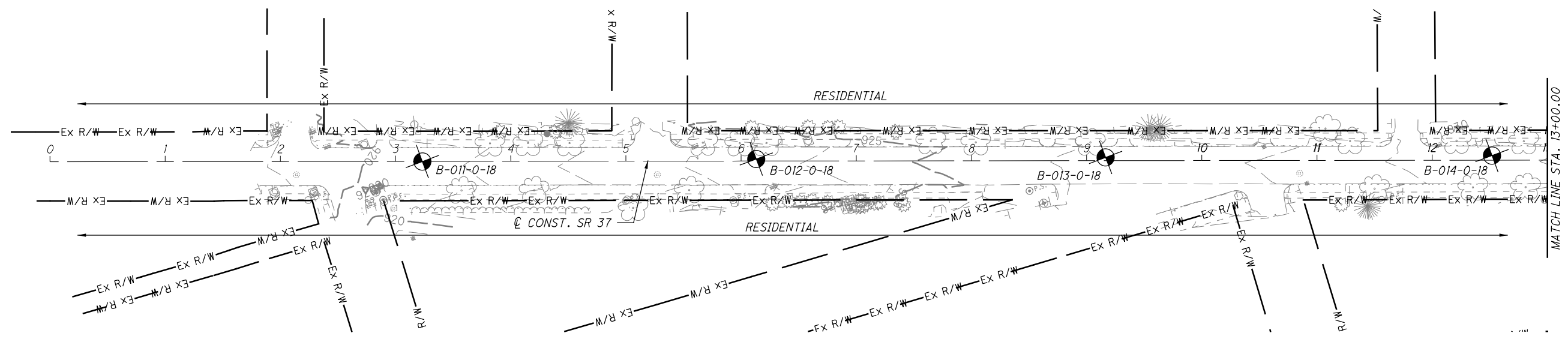
c:\pwworking\east01\dl132007\103626\_IP003.dgn 6/16/2020 11:23:58 AM CWAHLBRI



DRAWN CLW  
 CHECKED DMV  
 SOIL PROFILE - US 36  
 STA. 607+00.00 TO STA. 620+50.00

DEL-36-11.03

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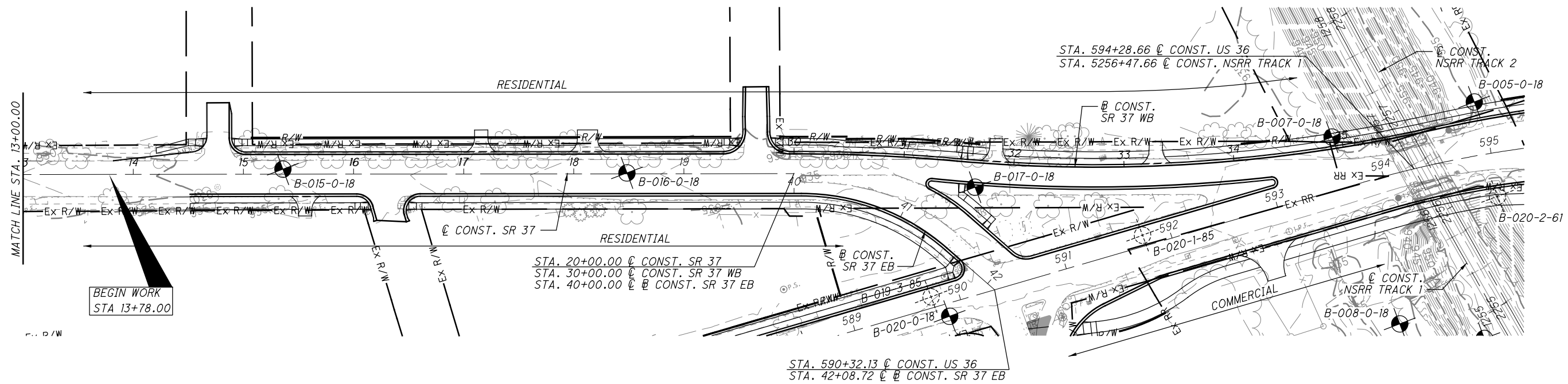
DRAWN: CLW  
CHECKED: DMV

SOIL PROFILE - SR 37  
STA. 0+00.00 TO 13+00.00

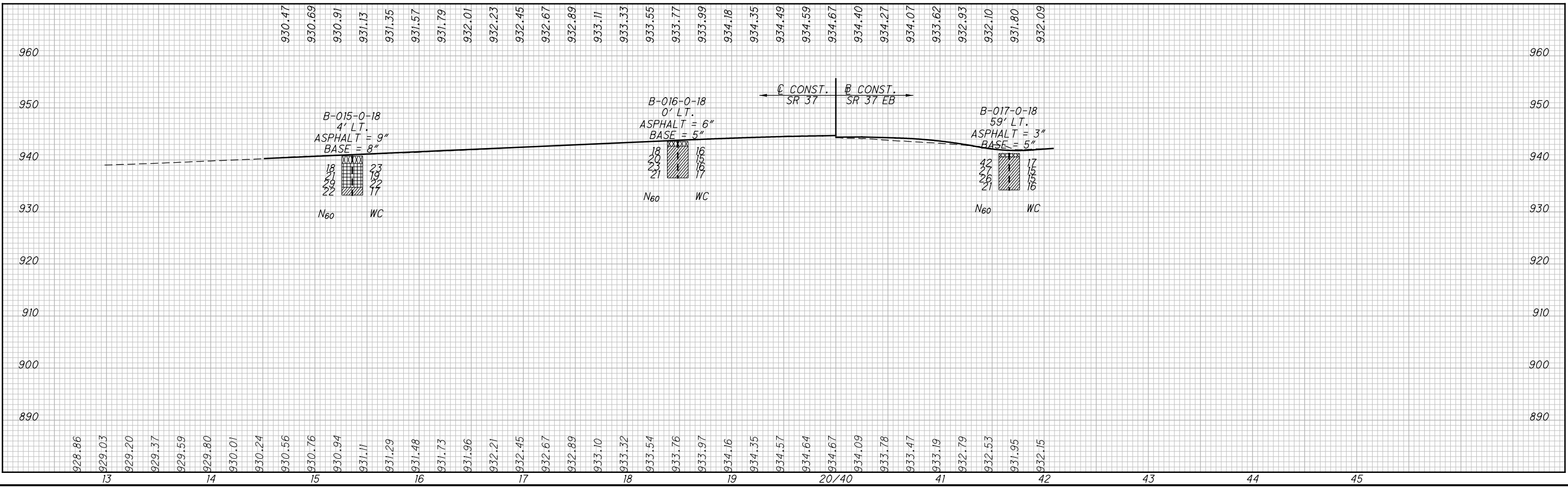
DEL-36-11.03



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BEGIN WORK  
STA 13+78.00



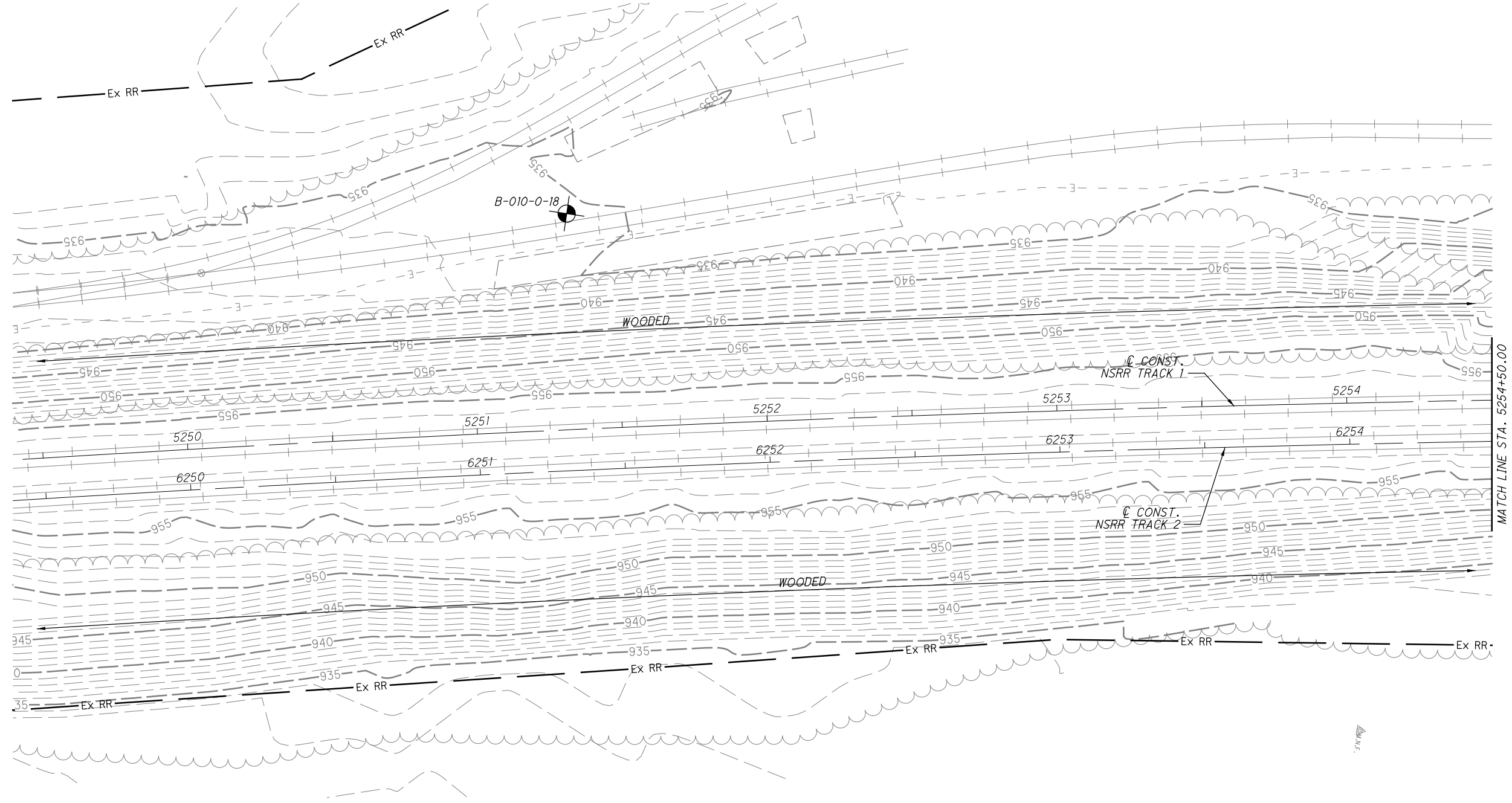
DRAWN  
CLW  
CHECKED  
DMV

SOIL PROFILE - SR 37  
STA. 13+00.00 TO 36+00.00

DEL-36-11.03



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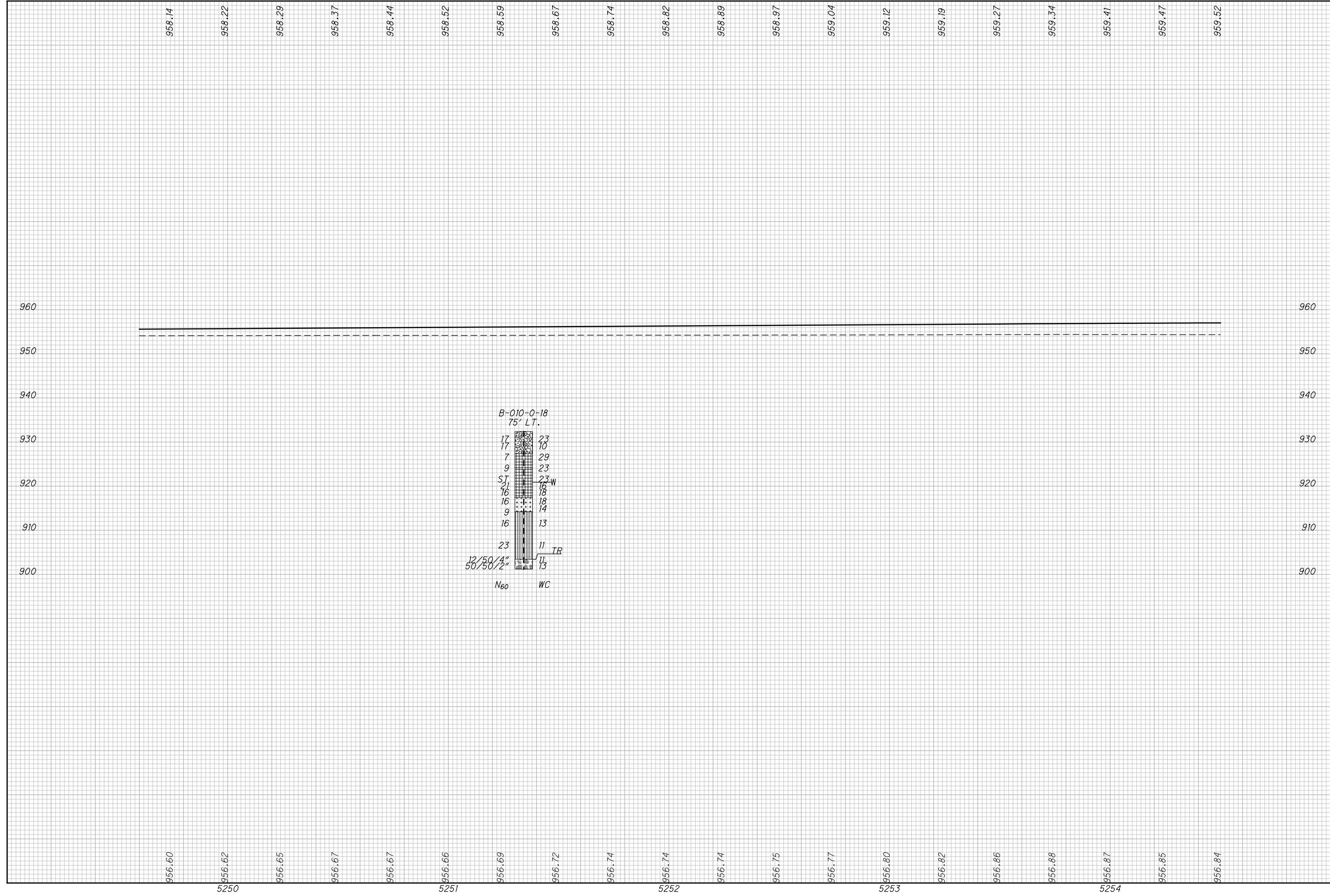
  
 HORIZONTAL SCALE IN FEET

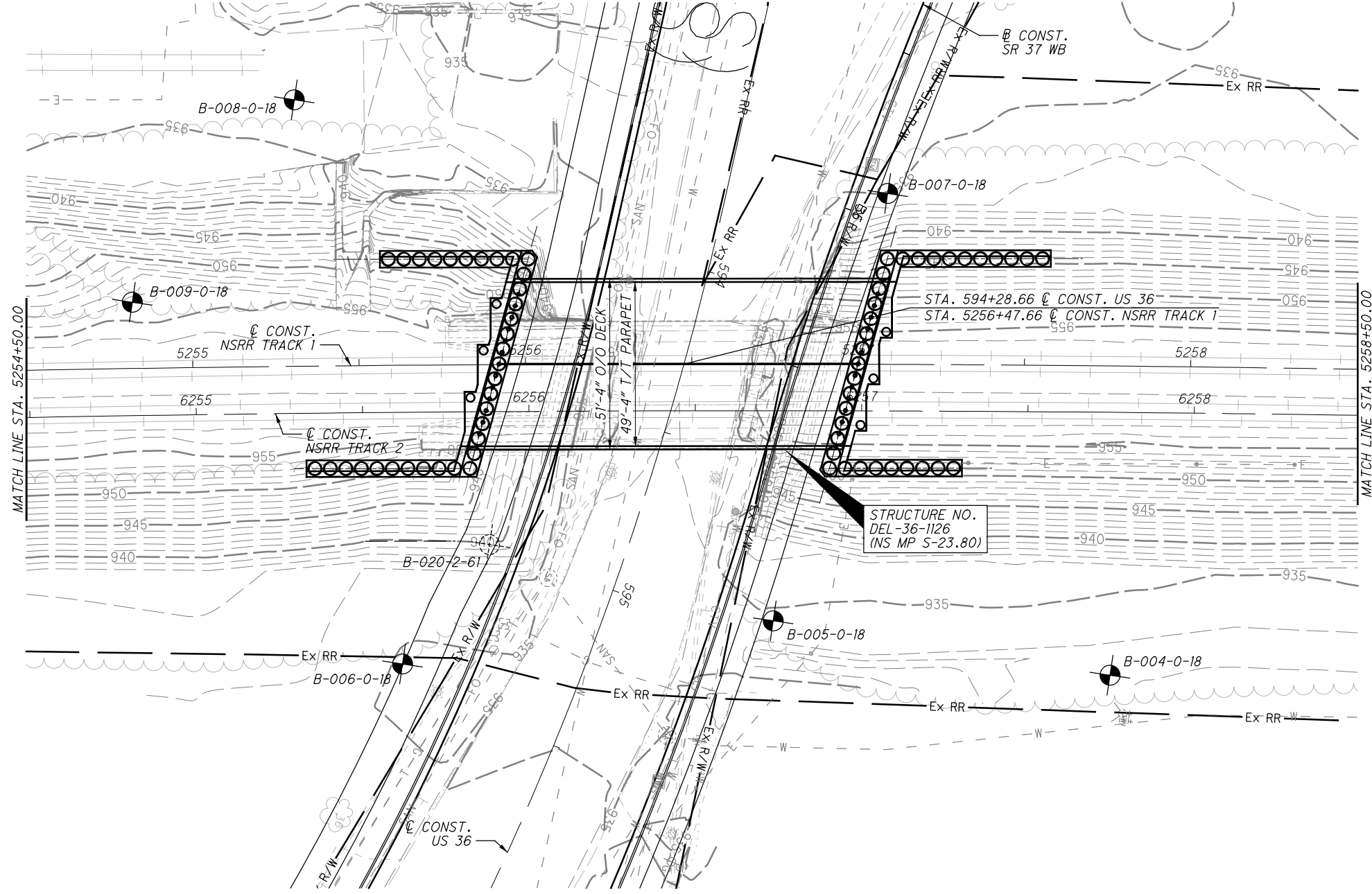
|         |     |
|---------|-----|
| DRAWN   | CLW |
| CHECKED | DMV |

**SOIL PROFILE - NSRR TRACK 1**  
**STA. 5249+50.00 TO STA. 5254+50.00**

**DEL-36-11.03**





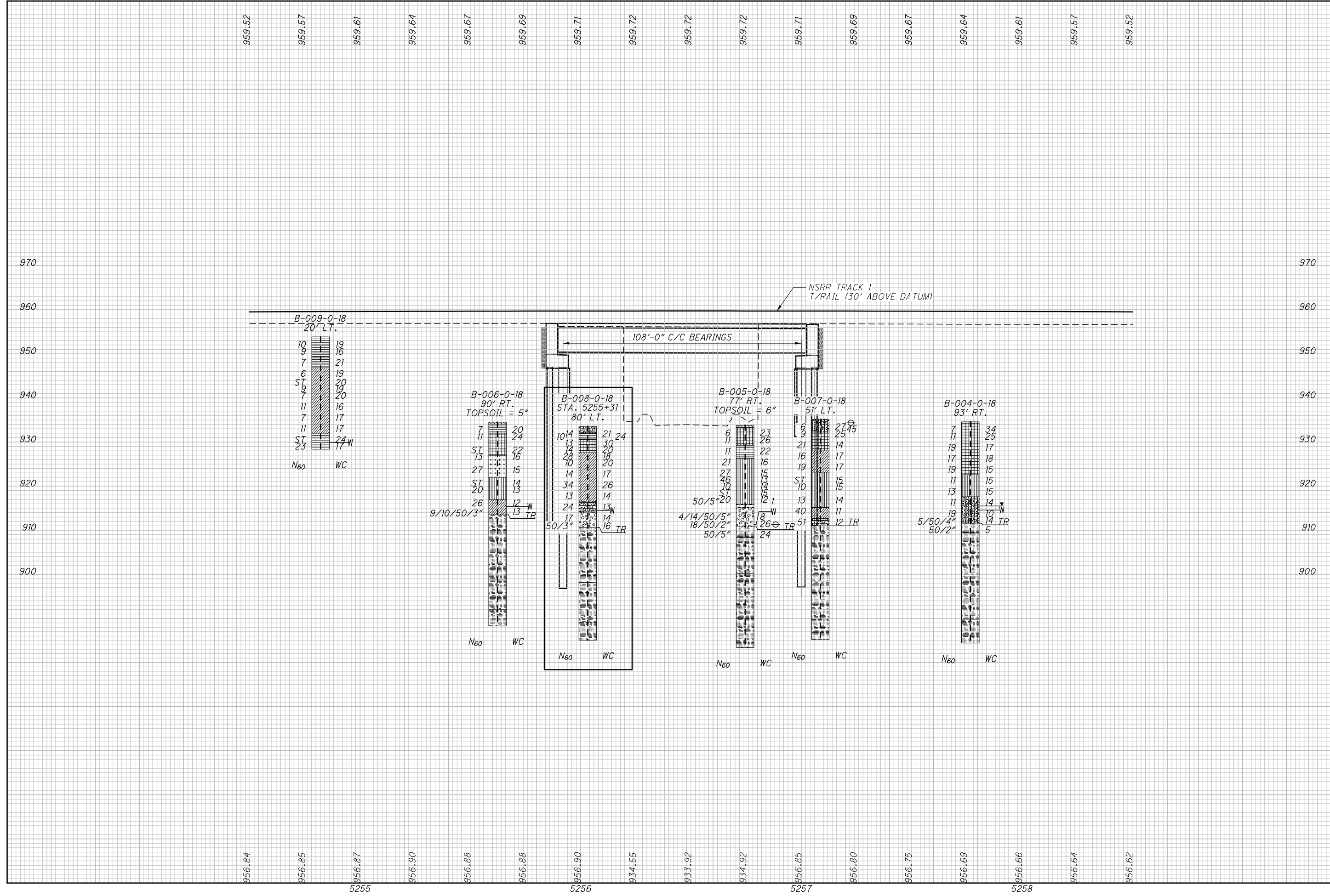


DRAWN: CLW  
 CHECKED: DMV  
 1" = 40'  
 HORIZONTAL SCALE IN FEET

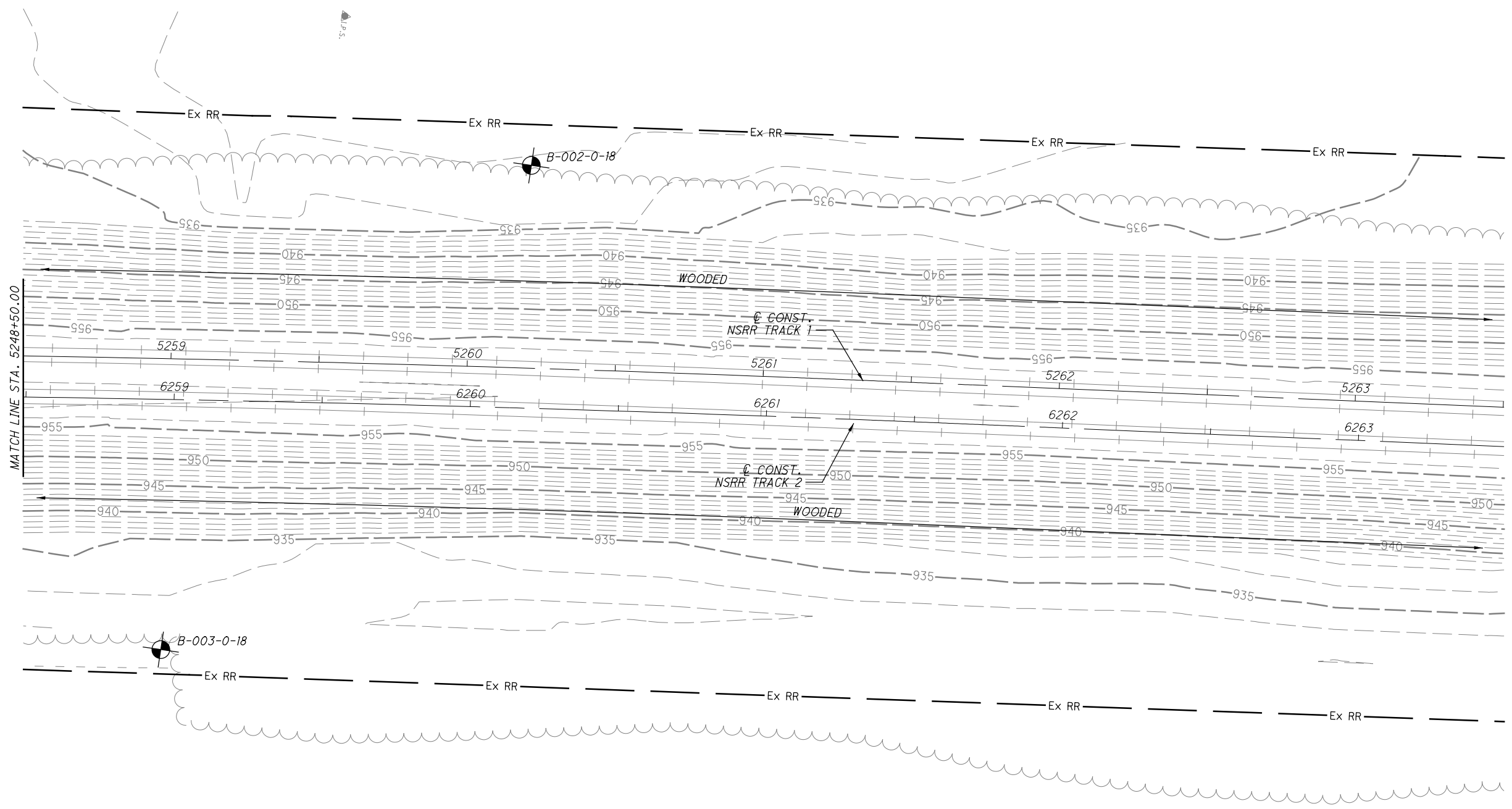
**STRUCTURE FOUNDATION EXPLORATION**  
**BRIDGE NO. DEL-36-1126 (NS MP S-23.80)**

**DEL-36-11.03**





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MATCH LINE STA. 5248+50.00

Ex RR

Ex RR

Ex RR

Ex RR

Ex RR

Ex RR

WOODED

CONST. NSRR TRACK 1

CONST. NSRR TRACK 2

WOODED

Ex RR

Ex RR

Ex RR

Ex RR

Ex RR

B-002-0-18

B-003-0-18

B-001-0-18

0 20 40  
HORIZONTAL SCALE IN FEET

DRAWN CLW  
CHECKED DMV

**SOIL PROFILE - NSRR TRACK 1**  
**STA. 5258+50.00 TO STA. 5263+50.00**

**DEL-36-11.03**





