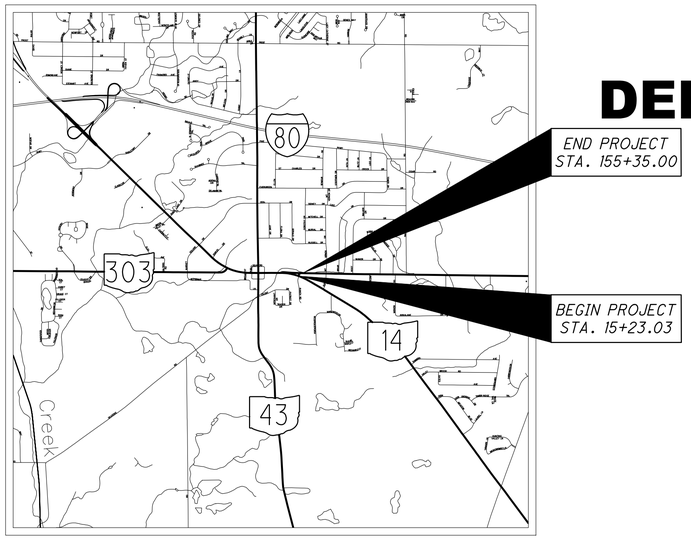
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION



LOCATION MAP

LATITUDE: N 41°14'20" LONGITUDE: W 81°20'25"

N

POR-SR 303-2.72 PART 3

CITY OF STREETSBORO
PORTAGE COUNTY

PART 1 POR 14/VAR-1.74/VAR
PART 2 POR 14/43 3.80/18.16

FEDERAL PROJECT NUMBER

E250143

RAILROAD INVOLVEMENT

NONE

PROJECT DESCRIPTION

INSTALL NEW SIGNAL AT SR 14/SR 303/RANCH RD INTERSECTION AND CLOSE THE WESTBOUND SLIP LANE FROM SR 303 TO SR 14, IN THE CITY OF STREETSBORO, PORTAGE COUNTY, OHIO.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA:	0.90 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	0.25 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA:	1.15 ACRES

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

DESIGN DESIGNATION

	SR 303	SR 14
CURRENT ADT (2025)	9,786	20,400
DESIGN YEAR ADT (2046)	12,000	20,500
DESIGN HOURLY VOLUME (2046)	1,400	2,300
DIRECTIONAL DISTRIBUTION	62.6%	55.6%
TRUCKS (24 HOUR B&C)	5%	8%
DESIGN SPEED	25 MPH	35 MPH
LEGAL SPEED	25 MPH	35 MPH
DESIGN FUNCTIONAL CLASSIFICATION:	05 MAJOR COLLECTOR (URBAN)	03 PRINCIPAL ARTERIAL - OTHER (URBAN)
NHS PROJECT	YES	YES

DESIGN EXCEPTIONS

NONE REQUIRED

ADA DESIGN WAIVERS

NONE REQUIRED

INDEX OF SHEETS:

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2023 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 NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY EXCEPT FOR THE SIDE ROAD AS DESCRIBED ON SHEET 14 AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

STANDARD CONSTRUCTION DRAWINGS					SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS
		SEE PART 1			SEE PART 1	SEE PART 1

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:

GPD GROUP®
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.
520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax: 330.572.2101
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ENGINEER'S SEAL:

STATE OF OHIO
MATTHEW GLASS
E- 73756
REGISTERED
PROFESSIONAL ENGINEER

Digitally signed by Matthew Glass
Date: 2026.01.05 13:47:47-05'00'

Arthur G. Noirot Jr., P.E.
District 04 Deputy Director

Pamela Boratyn
Director, Department of Transportation

TITLE SHEET

DESIGN AGENCY
GPD GROUP®
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DESIGNER HEB
REVIEWER ESB 9/19/25
PROJECT ID 105213
SHEET P.1 TOTAL 65

POR-SR 303-2.72 PART 3

2025/10/20
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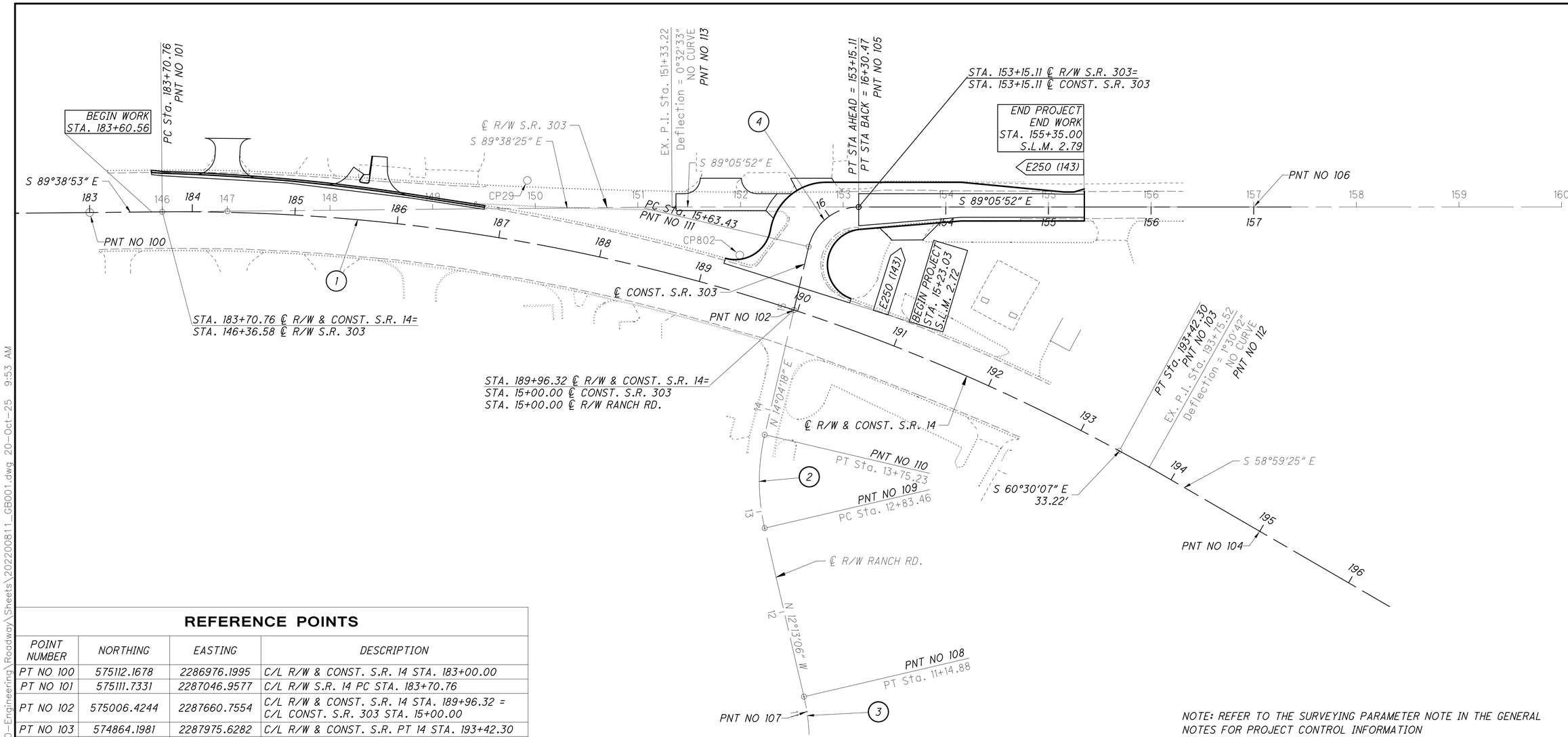

NOTE: REFER TO THE SURVEYING PARAMETER NOTE IN THE GENERAL NOTES FOR PROJECT CONTROL INFORMATION

REFERENCE POINTS

POINT NUMBER	NORTHING	EASTING	DESCRIPTION
PT NO 100	575112.1678	2286976.1995	C/L R/W & CONST. S.R. 14 STA. 183+00.00
PT NO 101	575111.7331	2287046.9577	C/L R/W S.R. 14 PC STA. 183+70.76
PT NO 102	575006.4244	2287660.7554	C/L R/W & CONST. S.R. 14 STA. 189+96.32 = C/L CONST. S.R. 303 STA. 15+00.00
PT NO 103	574864.1981	2287975.6282	C/L R/W & CONST. S.R. PT 14 STA. 193+42.30
PT NO 104	574783.7083	2288111.2353	C/L R/W & CONST. S.R. 14 STA. 195+00.00
PT NO 105	575105.7507	2287725.4551	C/L CONST. S.R. 303 PT STA. 16+30.47 BACK / STA. 153+15.11 AHEAD = C/L R/W S.R. 303 STA. 153+15.11
PT NO 106	575099.6901	2288110.2976	C/L R/W & CONST. S.R. 303 STA. 157+00.00
PT NO 107	574615.0016	2287667.2220	C/L R/W RANCH RD. STA. 11+00.00
PT NO 108	574629.6446	2287664.6170	C/L R/W RANCH RD. PT STA. 11+14.88
PT NO 109	574794.4059	2287628.9389	C/L R/W RANCH RD. PC STA. 12+83.46
PT NO 110	574885.3608	2287630.4100	C/L R/W RANCH RD. PT STA. 13+75.23
PT NO 111	575067.9136	2287676.1682	C/L CONST. S.R. 303 PC STA. 15+63.43
PT NO 112	574847.8384'	2288004.5461'	C/L R/W & CONST. S.R. 14 PI STA. 193+75.52
PT NO 113	575108.6147'	2287543.5896'	C/L R/W S.R. 303 PI STA. 151+33.22

BENCHMARKS AND CONTROL POINTS

POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP3	575093.2432	2285676.5290	1132.971	3/4x30 Rebar ALUM CAP
CP4	575039.3230	286187.1140	1130.292	3/4x30 Rebar ALUM CAP
CP25	575629.5290	286283.7770	1136.576	5/8x30 Rebar GPD CAP
CP29	575136.6722	2287403.0760	1146.648	3/4x30 Rebar ALUM CAP
CP802	575060.7331	2287608.9670	1151.103	5/8 REBAR 30L WITH RED GPD CAP
CP813	575163.5470	286655.1350	1134.764	5/8 REBAR 30L WITH RED GPD CAP
CP814	575208.9690	286304.8830	1131.130	5/8 REBAR 30L WITH RED GPD CAP

(1) ℄ R/W & CONST. S.R. 14
P.I.= Sta. 188+67.28
D = 29° 08' 46"
Dc = 3° 00' 00"
R = 1909.860
T = 496.52'
L = 971.54'
E = 63.49
C = 961.09
C. B. = S 75° 04' 30" E
P.C.= Sta. 183+70.76
P.T.= Sta. 193+42.30

(2) ℄ R/W RANCH RD.
P.I.= Sta. 13+30.16
D = 26° 17' 24"
Dc = 28° 38' 52"
R = 200.000
T = 46.71'
L = 91.77'
E = 5.38
C = 90.97
C. B. = N 0° 55' 36" E
P.C.= Sta. 12+83.46
P.T.= Sta. 13+75.23

(3) ℄ R/W RANCH RD.
P.I.= Sta. 10+96.17
D = 10° 45' 00"
Dc = 28° 38' 52"
R = 200.000
T = 18.82'
L = 37.52'
E = 0.88
C = 37.47
C. B. = N 6° 50' 36" W
P.C.= Sta. 10+77.35
P.T.= Sta. 11+14.88

(4) ℄ CONST. S.R. 303
P.I.= Sta. 16+03.08
D = 76° 49' 50"
Dc = 114° 35' 30"
R = 50.000
T = 39.65'
L = 67.05'
E = 13.81
C = 62.14
C. B. = N 52° 29' 13" E
P.C.= Sta. 15+63.43
P.T.= Sta. 16+30.47 Back/
153+15.11 Ahead.

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED
CHECKED

SCHEMATIC PLAN

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PART 3

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EXISTING LEGEND

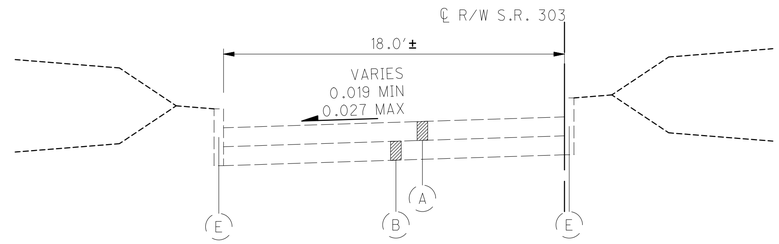
(A) EXIST. ASPHALT CONCRETE (T=±9")

(B) EXIST. AGGREGATE BASE (IF PRESENT)

(C) EXIST. AGGREGATE SHOULDER

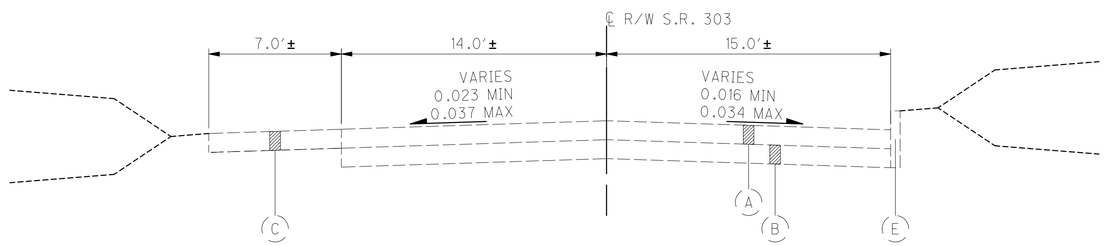
(D) EXIST. CURB AND GUTTER

(E) EXIST. CURB



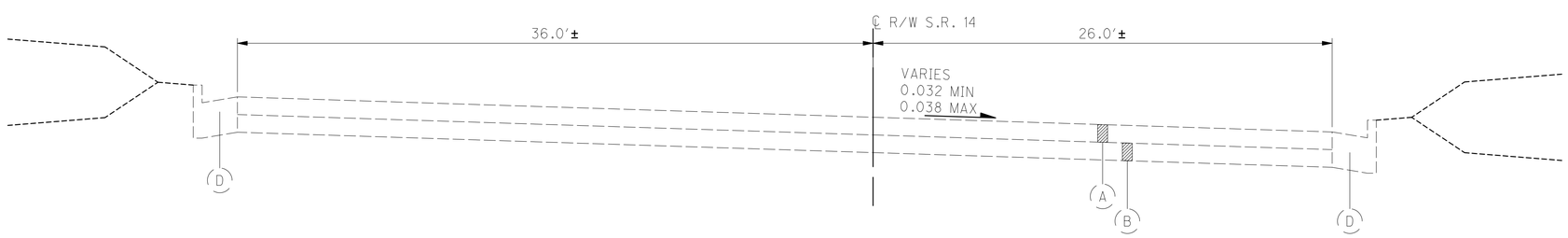
S.R. 14 SLIP LANE - EXISTING TYPICAL SECTION

STATION LIMITS:
STA. 146+26.37 TO STA. 152+47.84



S.R. 303 - EXISTING TYPICAL SECTION

STATION LIMITS:
STA. 152+47.84 TO STA. 155+35.00



S.R. 14 - EXISTING TYPICAL SECTION

STATION LIMITS:
STA. 183+17.36 TO STA. 192+49.24

CALCULATED

CHECKED

EXISTING TYPICAL SECTIONS

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FOR EXISTING LEGEND, SEE SHEET 3

WIDTH TABLE

WIDTH "A"

STATION FROM	STATION TO	WIDTH (FT) FROM	WIDTH (FT) TO
153+15.11	154+15.11	11.00′	11.00′
154+15.11	155+15.11	11.00′	2.00′
155+15.11	155+25.00	2.00′	2.00′
155+25.00	155+35.00	2.00′	4.00′

WIDTH "B"

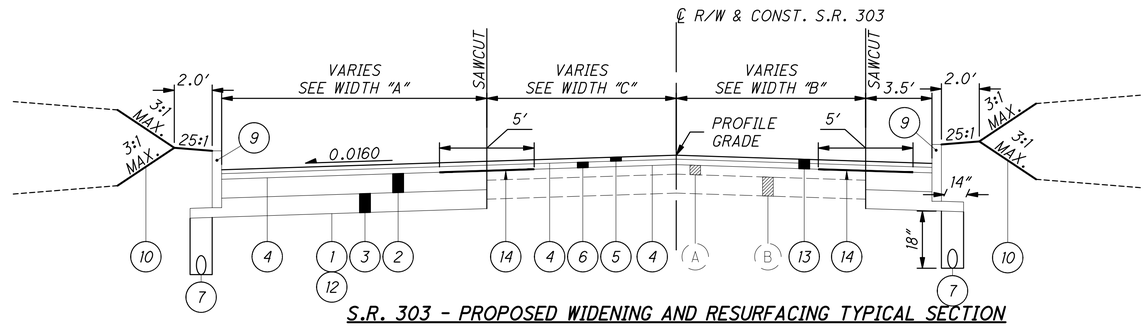
STATION FROM	STATION TO	WIDTH (FT) FROM	WIDTH (FT) TO
153+15.11	154+14.97	18.24′	10.00′
154+14.97	155+35.00	10.00′	10.00′

WIDTH "C"

STATION FROM	STATION TO	WIDTH (FT) FROM	WIDTH (FT) TO
153+15.11	154+95.93	13.00′	13.00′
154+95.93	155+15.02	13.00′	12.50′
155+15.02	155+35.00	12.50′	12.50′

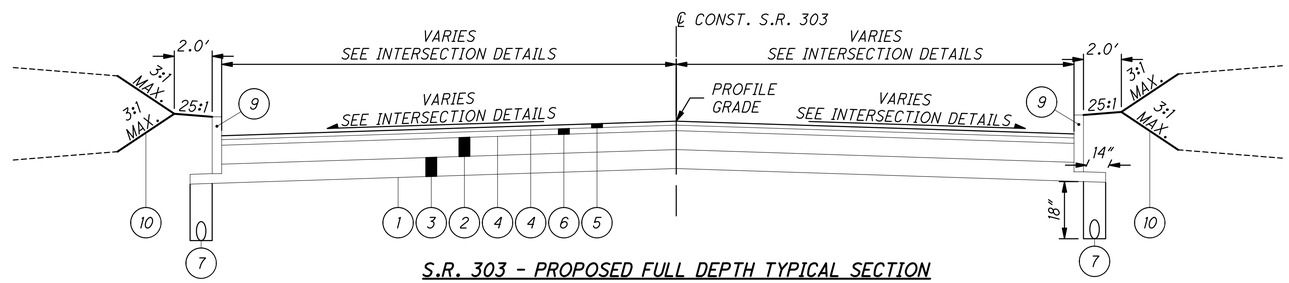
WIDTH "D"

STATION FROM	STATION TO	WIDTH (FT) FROM	WIDTH (FT) TO
183+60.56	183+70.61	36.42′	35.19′
183+70.61	184+90.90	35.19′	30.79′
184+90.90	186+11.46	30.79′	26.31′
186+11.46	186+81.79	26.31′	25.00′



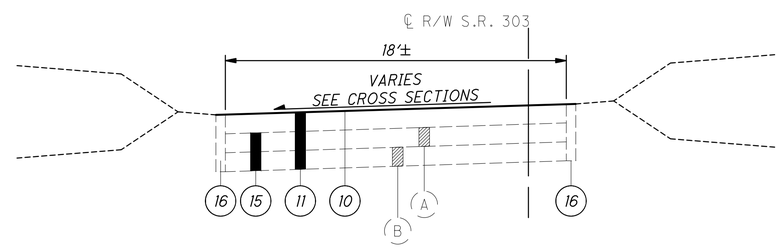
S.R. 303 - PROPOSED WIDENING AND RESURFACING TYPICAL SECTION

STATION LIMITS:
STA. 153+15.11 TO STA. 155+35.00 = 219.89 LF



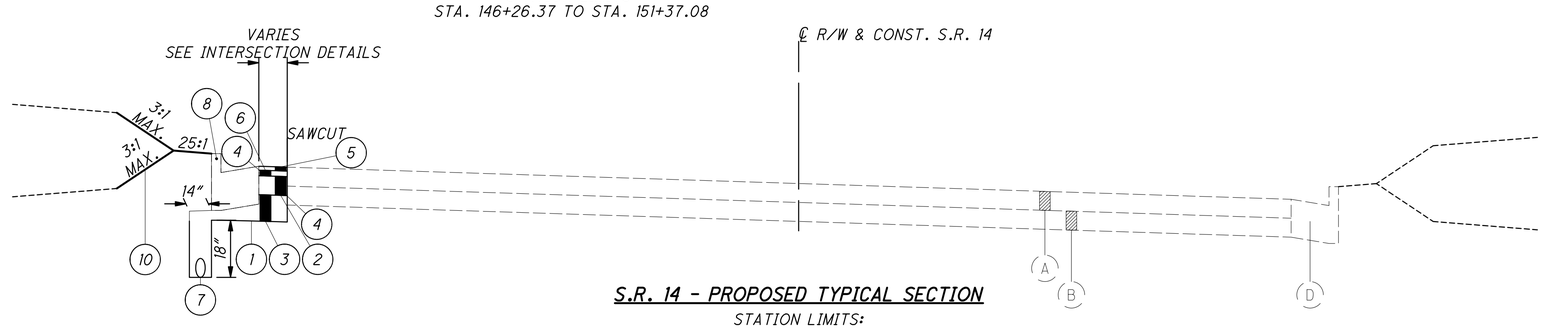
S.R. 303 - PROPOSED FULL DEPTH TYPICAL SECTION

STATION LIMITS:
STA. 15+23.03 TO STA. 16+30.47 = 107.44 LF



S.R. 14 SLIP LANE - PROPOSED TYPICAL SECTION

STATION LIMITS:
STA. 146+26.37 TO STA. 151+37.08



S.R. 14 - PROPOSED TYPICAL SECTION

STATION LIMITS:
STA. 183+60.56 TO STA. 186+81.79 = 326.28 LF

PROPOSED LEGEND

1. ITEM 204 - SUBGRADE COMPACTION
2. ITEM 301 - 6″ ASPHALT CONCRETE BASE, PG64-22, (449)
3. ITEM 304 - 6″ AGGREGATE BASE
4. ITEM 407 - NON-TRACKING TACK COAT (SEE CMS TABLE)
5. ITEM 441 - 1 1/4″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22
6. ITEM 441 - 1 3/4″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449)
7. ITEM 605 - 6″ BASE PIPE UNDERDRAINS
8. ITEM 609 - COMBINATION CURB AND GUTTER, TYPE 2, AS PER PLAN
9. ITEM 609 - CURB, TYPE 6
10. ITEM 659 - SEEDING AND MULCHING, AS PER PLAN
11. ITEM 204 - EMBANKMENT
12. ITEM 204 - PROOF ROLLING
13. ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE (3″ THICK)
14. ITEM SPECIAL - PAVEMENT OVERLAY FABRIC COMPOSITE
15. ITEM 202 - PAVEMENT REMOVED
16. ITEM 202 - CURB REMOVED

CALCULATED
CHECKED

PROPOSED TYPICAL SECTIONS

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GENERAL

UTILITIES

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

AT&T
208 PORTAGE TRAIL, FLOOR 3
CUYAHOGA FALLS, OH 44221
PHONE: 330-631-7485
ATTN: STEVE HYLTON
SH1513@ATT.COM

ENBRIDGE GAS OHIO
320 SPRINGSIDE DR., SUITE 320
AKRON, OH 44333
PHONE: 330-620-9127
ATTN: ADAM KEARNS
ADAM.J.KEARNS@DOMINIONENERGY.COM

CHARTER SPECTRUM
5520 WHIPPLE AVE NW
NORTH CANTON, OH 44270
PHONE: 330-494-9200
ATTN: RON ICKES

CITY OF STREETSBORO WATER DEPARTMENT
2094 SR 303
STREETSBORO, OH 44241
PHONE: 330-626-4942 EXT. 6104
ATTN: TOMMY WEIDELE
TWEIDELE@CITYOFSTREETSBORO.COM

KNOX ENERGY CO-OP
4100 HOLIDAY ST. NW, SUITE 201
CANTON, OH 44718
PHONE: 330-498-9130 EXT. 376
ATTN: CHRIS WILKIN
CWILKIN@UTILITYPIPELINELTD.COM

BRIGHTSPEED
4000 CHESTER AVE.
CLEVELAND, OH 44103
PHONE: 216-903-6284
EMAIL: RELOCATIONS@BRIGHTSPEED.COM
ATTN: ANTHONY WILLIAMS
ANTHONY.WILLIAMS1@BRIGHTSPEED.COM

MCI-WORLDCOM
120 RAVINE ST.
AKRON, OH 44303
PHONE: 330-253-8267
ATTN: NATHAN EMERSON
NATHAN.EMERSON@VERIZON.COM

OHIO EDISON
4238 NEWCOMER RD.
STOW, OH 44224
PHONE: 330-388-5821
ATTN: CHRISTOPHER BAUGHMAN
CBAUGHMAN@FIRSTENERGYCORP.COM

PORTAGE COUNTY WATER RESOURCES
8116 INFIRMARY RD.
RAVENNA, OH 44266
PHONE: 330-298-3036
ATTN: JOE ANDRASSY
JANDRASSY@PORTAGECO.COM

LUMEN
400 CHESTER AVE
CLEVELAND, OH 44103
PHONE: 216-906-6284
ATTN: DOUG HOLLOWAY
DOUG.HOLLOWAY@LUMEN.COM

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONS ON ODOT PROJECTS. SEE SHEET 2 FOR A TABLE CONTAINING PRIMARY PROJECT CONTROL INFORMATION.

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

PRIMARY CONTROL
POSITIONING METHOD: ODOT VRS
MONUMENT TYPE: 5/8" x 30" REBAR WITH RED "GPD" CAP

VERTICAL POSITIONING
ORTHOMETRIC HEIGHT DATUM: NAVD88
GEOID: 12B

HORIZONTAL POSITIONING
REFERENCE FRAME: NAD83 (2011)
ELLIPSOID: GRS80
MAP PROJECTION: LAMBERT CONFORMAL CONIC
COORDINATE SYSTEM: OHIO STATE PLANE, NORTH ZONE 3401
COMBINED SCALE FACTOR: 1.00010593
METHOD OF OBTAINING SCALE FACTOR: OPUS SOLUTION
ORIGIN OF COORDINATE SYSTEM: 0,0

USE THE POSITIONING METHOD AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH CMS 623 - CONSTRUCTION LAYOUT STAKES AND SURVEY MONUMENTS.

UNITS ARE IN U.S. SURVEY FEET.

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

ROUNDING

THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLIES TO ALL CROSS-SECTIONS, EVEN THOUGH OTHERWISE SHOWN.

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 7:00 PM AND 7:00 AM. 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.

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.

ITEM SPECIAL - SURVEY CONTROL VERIFICATION

THE CONTRACTOR SHALL PERFORM THIS WORK TO VERIFY THE PROVIDED SURVEY CONTROL. THE CONTRACTOR WILL PERFORM THE VERIFICATION USING ONE OF THE TWO METHODS BELOW DEPENDENT UPON THE CONTRACTOR'S CHOSEN MEANS OF SURVEY CONTROL TO BE USED ON THE PROJECT. THE WORK SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF AN OHIO LICENSED SURVEYOR.

1) IF USING GPS DEVICES TO ESTABLISH AND OR PROVIDE SUPPLEMENTAL HORIZONTAL AND VERTICAL SURVEY CONTROL

a. LOCATE VERTICAL CONTROL POINTS PROVIDED IN THE PLANS AND PERFORM A DIFFERENTIAL LEVEL CIRCUIT.
b. PERFORM A SITE CALIBRATION UTILIZING THE AVAILABLE HORIZONTAL AND VERTICAL CONTROL POINTS PROVIDED IN THE PLAN.
c. PROVIDE A REPORT, SIGNED BY AN OHIO LICENSED SURVEYOR, TO THE PROJECT ENGINEER COMPARING THE OBSERVED DATA TO THE PLAN DATA ALONG WITH A NARRATIVE DETAILING ANY DISCREPANCIES FOUND.

2) IF USING CONVENTIONAL SURVEY INSTRUMENTATION TO ESTABLISH AND OR PROVIDE SUPPLEMENTAL HORIZONTAL AND VERTICAL SURVEY CONTROL

a. LOCATE VERTICAL CONTROL POINTS PROVIDED IN THE PLANS AND PERFORM A DIFFERENTIAL LEVEL CIRCUIT.
b. LOCATE AND OBSERVE ANGLE AND DISTANCE TO ALL AVAILABLE HORIZONTAL CONTROL POINTS PROVIDED IN THE PLAN
c. PROVIDE A REPORT, SIGNED BY AN OHIO LICENSED SURVEYOR, TO THE PROJECT ENGINEER COMPARING THE OBSERVED DATA TO THE PLAN DATA ALONG WITH A NARRATIVE DETAILING ANY DISCREPANCIES FOUND.

ALL MATERIALS, LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID ITEM.

ITEM SPECIAL - AS-BUILT CONSTRUCTION PLANS

PRIOR TO FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL FURNISH THE DEPARTMENT FORMAL AS-BUILT CONSTRUCTION PLANS. THE FORMAL AS-BUILT CONSTRUCTION PLANS SHALL INCLUDE ALL RED-LINED CHANGES. RED-LINE CHANGE SHALL BE DENOTED UTILIZING CLOUDING IN MICROSTATION (OR OTHER CAD SOFTWARE) OR CLOUDING IN PDF EDITING SOFTWARE. THE AS-BUILT CONSTRUCTION PLANS SHALL HAVE A SIGNED VERIFICATION ON THE TITLE SHEET FROM THE CONTRACTOR INDICATING THAT ALL RED-LINED AND FIELD CHANGES HAVE BEEN INCORPORATED INTO AS-BUILT CONSTRUCTION PLANS.

THE CONTRACTOR'S VERIFICATION STATEMENT INDICATES ALL KNOWN FIELD MODIFICATIONS MADE HAVE BEEN INCLUDED IN THE FORMAL AS-BUILT CONSTRUCTION PLANS. THE CONTRACTOR'S VERIFICATION STATEMENT SHALL BE SIGNED BY THE CONTRACTOR'S PROJECT MANAGER (OR ACCEPTABLE REPRESENTATIVE).

IN ADDITION TO THE INFORMATION SHOWN ON THE CONSTRUCTION PLANS, THE AS BUILT CONSTRUCTION PLANS SHALL SHOW THE FOLLOWING:

1. ALL DEVIATIONS FROM THE ORIGINAL APPROVED CONSTRUCTION PLANS WHICH RESULT IN A CHANGE OF LOCATION, MATERIAL, TYPE OR SIZE OF
2. ANY UTILITIES, PIPES, WELLHEADS, ABANDONED PAVEMENTS, FOUNDATIONS OR OTHER MAJOR OBSTRUCTIONS DISCOVERED AND REMAINING IN PLACE WHICH ARE NOT SHOWN, OR DO NOT CONFORM TO LOCATIONS OR DEPTHS SHOWN IN THE PLANS. UNDERGROUND FEATURES SHALL BE SHOWN AND LABELED ON THE AS-BUILT CONSTRUCTION PLANS IN TERMS OF STATION, OFFSET AND ELEVATION.
3. THE FINAL OPTION AND SPECIFICATION NUMBER SELECTED FOR THOSE ITEMS WHICH ALLOW SEVERAL MATERIAL OPTIONS UNDER THE SPECIFICATION (E.G., CONDUIT).
4. CHANGES TO THE PAY ITEMS AND FINAL QUANTITIES AS PAID SHALL BE SHOWN ON THE GENERAL SUMMARY AND SUBSUMMARIES.
5. ADDITIONAL PLAN SHEETS MAY BE NEEDED IF NECESSARY TO SHOW WORK NOT INCLUDED IN THE CONSTRUCTION PLANS. IF ADDITIONAL PLAN SHEETS ARE NEEDED, THEY ARE REQUIRED TO BE PREPARED IN CONFORMANCE WITH THE LOCATION AND DESIGN MANUAL, VOLUME 3, SECTION 1200 - PLAN PREPARATION.

NOTATION SHALL ALSO BE MADE OF LOCATIONS AND THE EXTENT OF USE OF MATERIALS, OTHER THAN SOIL, FOR EMBANKMENT CONSTRUCTION (ROCK, BROKEN CONCRETE WITHOUT REINFORCING STEEL, ETC.).

THE PLAN INDEX SHALL SHOW THE PLAN SHEETS WHICH HAVE CHANGES APPEARING ON THEM.

TWO COPIES OF THE AS-BUILT CONSTRUCTION PLANS SHALL BE DELIVERED TO THE PROJECT ENGINEER FOR APPROVAL UPON COMPLETION OF THE PHYSICAL WORK BUT PRIOR TO THE REQUEST FOR FINAL PAYMENT. AFTER THE DEPARTMENT HAS APPROVED THE AS-BUILT CONSTRUCTION PLANS, THE ASSOCIATED ELECTRONIC FILES SHALL BE DELIVERED TO THE DISTRICT CAPITAL PROGRAMS ADMINISTRATOR. ACCEPTANCE OF THESE PLANS AND DELIVERY OF THE ASSOCIATED ELECTRONIC FILES IS REQUIRED PRIOR TO THE WORK BEING ACCEPTED AND THE FINAL ESTIMATE APPROVED.

PAYMENT FOR ALL THE ABOVE SHALL BE LUMP SUM UPON PROPER EXECUTION OF ALL WORK OF THIS ITEM AS DETERMINED BY THE PROJECT ENGINEER.

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ROADWAY

CLEARING AND GRUBBING
ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECT, A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

ITEM 203 - ROADWAY, MISC.: PRE-CONSTRUCTION VIDEO
THE CONTRACTOR SHALL SUBMIT A DVD RECORDING OF THE CONSTRUCTION LIMITS TO THE COUNTY PRIOR TO ANY WORK PERFORMED. THE RECORDING SHALL TAKE SPECIAL NOTE OF ALL SURFACE FEATURES INCLUDING BUT NOT LIMITED TO: DRIVEWAYS, TREES, FENCES, LANDSCAPING FEATURES, DECORATIVE LIGHTING, AND PLANTERS. THE RECORDING WILL BE USED TO ASSIST THE ENGINEER IN THE CASE THAT PROPERTY OWNERS CLAIM DAMAGE HAS BEEN DONE TO THE PROPERTY BY THE CONTRACTOR DURING CONSTRUCTION. AREAS THAT HAVE BEEN DAMAGED DUE TO CONTRACTOR NEGLIGENCE SHALL BE RESTORED TO IT'S ORIGINAL CONDITION BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE COUNTY OR TO THE PROPERTY OWNER.

PAYMENT FOR THIS WORK SHALL BE MADE AT THE LUMP SUM PRICE FOR ITEM 203 - ROADWAY, MISC.: PRE-CONSTRUCTION VIDEO, WHICH PRICE SHALL CONSTITUTE FULL COMPENSATION FOR ALL LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY:

ITEM 203 - ROADWAY, MISC.: PRE-CONSTRUCTION VIDEO LS

REVIEW OF CURB RAMPS
PRIOR TO THE START OF WORK, PERFORM AN INSPECTION WITH REPRESENTATIVES OF THE DEPARTMENT AND CONTRACTOR OF ALL CURB RAMPS INCLUDED IN THE PROJECT LIMITS. PRIOR TO THE INSPECTION, THE CONTRACTOR SHALL MARK THE WORK LIMITS OF ALL CURB RAMPS AND ASSOCIATED WORK TO IDENTIFY ANY CONDITIONS THE CONTRACTOR CANNOT BRING INTO ADA COMPLIANCE PER BP-7.1. THE DEPARTMENT SHALL HAVE TEN (10) BUSINESS DAYS TO RESOLVE ANY SUCH ANTICIPATED NON-COMPLIANCE WITH AN ADA WAIVER, QUANTITY CHANGE OR DESIGN REVISION PRIOR TO THE START OF WORK.

IMMEDIATELY FOLLOWING INSTALLATION OF FORMWORK FOR CURB RAMP CONCRETE PLACEMENT AND PRIOR TO PLACEMENT OF CONCRETE, THE CONTRACTOR SHALL VERIFY ADA COMPLIANCE BASED UPON MEASUREMENT OF THE FORMS. THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED OF ANY NON-COMPLIANT ADA CONDITIONS MEASURED BY THE CONTRACTOR WITHIN THE WORK LIMITS. THE ENGINEER SHALL HAVE THREE (3) BUSINESS DAYS TO RESOLVE ANY SUCH NON-COMPLIANCE WITH A CORRECTIVE FORM LAYOUT, ADA WAIVER, QUANTITY CHANGE OR DESIGN CHANGE PRIOR TO THE PLACEMENT OF CONCRETE.

THE CONTRACTOR IS RESPONSIBLE TO CORRECT ANY ADA NON-COMPLIANCE FOR ALL ISSUES NOT REPORTED TO THE ENGINEER IN THE INITIAL INSPECTION AND/OR THE FORM INSTALLATION MEASUREMENT. MODIFICATION OF FORMS INTO A COMPLIANT CONFIGURATION AND/OR REMOVAL AND RECONSTRUCTION OF FINISHED WORK SHALL BE AT THE EXPENSE OF THE CONTRACTOR.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE IS INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 608 CURB RAMP ITEMS.

ITEM 608 - CURB RAMP, AS PER PLAN
UNLESS OTHERWISE DIRECTED BY THE ENGINEER, INSTALLATION OF THE CURB RAMPS / DETECTABLE WARNINGS WILL BE PERFORMED PRIOR TO MAINLINE RESURFACING.

IN ADDITION TO THE CMS REQUIREMENTS OF ITEM 608 CURB RAMP, THIS ITEM SHALL INCLUDE THE RESTORATION OF THE ADJACENT AREAS DISTURBED FOR THE INSTALLATION OF CURB RAMPS AND IMMEDIATELY ADJACENT CONCRETE WALK. RESTORATION SHALL INCLUDE PLACEMENT OF ITEM 659 TOPSOIL, ITEM 659 COMMERCIAL FERTILIZER, ITEM 659 SEEDING AND MULCHING, AND ITEM 659 WATER, ALL PER CMS.

PAYMENT FOR ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO PERFORM THE WORK DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PID PRICE FOR ITEM 608 - CURB RAMP, AS PER PLAN.

ITEM 609 - COMBINATION CURB AND GUTTER, TYPE 2, AS PER PLAN
ALL REQUIREMENTS OF ODOT CMS 609 SHALL APPLY EXCEPT AS MODIFIED HEREIN:

GUTTER PLATE SHALL HAVE A 18" WIDTH, NOT INCLUDING CURB, FOR A TOTAL WIDTH OF 24" FROM FACE OF GUTTER TO BACK OF CURB.

ALL MATERIALS, LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK SHALL BE INCLUDED IN THIS ITEM.

EROSION CONTROL

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

ITEM 659, SOIL ANALYSIS TEST	2 EACH
ITEM 659, TOPSOIL	139 CY
ITEM 659, COMMERCIAL FERTILIZER	0.17 TON
ITEM 659, LIME	0.26 ACRE
ITEM 659, WATER	7 MGAL

APPLY SEEDING AND MULCHING 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.

LAWN AREAS DISTURBED AS A RESULT OF THE PROJECT SHALL BE RESTORED BY THE CONTRACTOR. THIS INCLUDES THE PLACEMENT OF FILL AND TOPSOIL REQUIRED IN AREAS OF DRIVE APRON REMOVAL. ALL DISTURBED LAWN AREAS SHALL RECEIVE A MINIMUM OF 4" TOPSOIL. TOPSOIL, SEEDING, AND MULCH SHALL CONFORM WITH THE REQUIREMENTS OF ODOT ITEM 659 EXCEPT THE SEED MIX SHALL BE: SEED MIXTURE AT 8 LBS PER 1,000 SF: 30.80% KENTUCKY BLUEGRASS, 14.75% FORTITUTE CREEPING RED FESCUE, 9.85% BROOKLAWN KENTUCKY BLUE, 9.85% PROTEGE GLR PERENNIAL RYEGRASS, 9.85% AMAZING GS PERENNIAL RYEGRASS, 9.85% HOMERUN PERENNIAL RYEGRASS, 9.85% FIESTA 5 PERENNIAL RYEGRASS. THE CITY REQUIRES HYDROSEEDING (NO STRAW MULCH).

PAYMENT FOR THIS WORK SHALL BE INCLUDED AND CONSIDERED INCIDENTAL TO THE ITEM 659 - SEEDING AND MULCHING, AS PER PLAN PAY ITEM.

SEE SHEET 22 FOR SEEDING AND MULCHING QUANTITY.

ENVIRONMENTAL / REMEDIATION

ENDANGERED BAT HABITAT REMOVAL
THIS PROJECT IS LOCATED WITHIN THE KNOWN HABITAT RANGES OF THE FEDERALLY LISTED AND PROTECTED INDIANA BAT, AND NORTHERN LONG-EARED BAT. NO TREES SHALL BE REMOVED UNDER THIS PROJECT FROM APRIL 1 THROUGH SEPTEMBER 30. ALL NECESSARY TREE REMOVAL SHALL OCCUR FROM OCTOBER 1 THROUGH MARCH 31. THIS REQUIREMENT IS NECESSARY TO AVOID AND MINIMIZE IMPACTS TO THESE SPECIES AS REQUIRED BY THE ENDANGERED SPECIES ACT (ESA). FOR THE PURPOSES OF THIS NOTE, A TREE IS DEFINED AS: A LIVE, DYING, OR DEAD WOODY PLANT, WITH A TRUNK 3 INCHES OR GREATER IN DIAMETER AT A HEIGHT OF 4.5 FEET ABOVE THE GROUND SURFACE, AND WITH A MINIMUM HEIGHT OF 13 FEET.

DRAINAGE

CROSSING 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, 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, NOTIFY THE ENGINEER 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, NOTIFY THE ENGINEER 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 IS INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEM.

REVIEW OF DRAINAGE FACILITIES
PRIOR TO THE START OF WORK AND AGAIN BEFORE FINAL ACCEPTANCE, PERFORM AN INSPECTION WITH REPRESENTATIVES OF THE DEPARTMENT, CONTRACTOR AND LOCALS OF ALL EXISTING DRAINAGE FACILITIES THAT ARE TO REMAIN IN SERVICE WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCES IS DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION ARE MAINTAINED BY THE DEPARTMENT.

CONFIRM ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE-MENTIONED PARTIES ARE MAINTAINED AND LEFT IN A CONDITION COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. THE CONTRACTOR IS RESPONSIBLE TO CORRECT ANY CHANGE IN THE CONDITION RESULTING FROM THEIR OPERATIONS AS DIRECTED AND APPROVED BY THE ENGINEER.

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

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 A SLOPE. 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 ABOVE:

ITEM 611 - 6" CONDUIT, TYPE F	10 FT
ITEM 605 - 6" UNCLASSIFIED PIPE UNDERDRAINS	25 FT

DRAINAGE DISCHARGE CONTINUANCE
FURNISH A DRAINAGE DISCHARGE CONTINUANCE FOR ANY DRAINAGE DISCHARGE DISTURBED BY THE WORK AND NOT SHOWN IN THE PLANS. THE LOCATION, TYPE (CONDUIT OR SWALE), SIZE AND GRADE OF THE DRAINAGE DISCHARGE CONTINUANCE WILL BE AGREED TO BY THE ENGINEER.

FURNISH AN INSPECTION WELL AT THE RIGHT OF WAY LINE IN PER STANDARD CONSTRUCTION DRAWING DM-3.1 FOR EACH DRAINAGE DISCHARGE THAT OUTLETS THROUGH A CURB OPENING OR INTO A STORM SEWER OR DRAINAGE STRUCTURE. THE COST IS INCLUDED IN ITEM 611, INSPECTION WELL.

FURNISH A WELL GRADED TRANSITION BETWEEN THE DITCH AND THE SWALE WHEN OUTLETTING A SWALE TO A DITCH. THE COST FOR THE GRADED TRANSITION IS INCLUDED IN ITEM 203, EMBANKMENT, AS PER PLAN.

FURNISH AN EROSION CONTROL PAD AS SHOWN IN STANDARD CONSTRUCTION DRAWING DM-1.1 WHEN OUTLETTING A CONDUIT TO A DITCH. THE COST FOR THE EROSION CONTROL PAD IS INCLUDED IN ITEM 611, CONDUIT, MISC TYPE _ FOR DRAINAGE DISCHARGE CONTINUANCE.

FURNISH A DRILLED HOLE OR A CURB SECTION WHEN OUTLETTING A CONDUIT THROUGH A CURB OPENING. THE COST OF DRILLING OR FURNISHING THE CURB SECTION WITH HOLE IS INCLUDED IN ITEM 611, CONDUIT, MISC TYPE _ FOR DRAINAGE DISCHARGE CONTINUANCE.

FURNISH A DRILLED CORE HOLE WHEN OUTLETTING INTO A STORM SEWER OR DRAINAGE STRUCTURE. THE COST OF THE DRILLED CORE HOLE IS INCLUDED IN ITEM 611, CONDUIT, MISC TYPE _ FOR DRAINAGE DISCHARGE CONTINUANCE.

DOCUMENTATION
PROVIDE WRITTEN DOCUMENTATION TO THE ENGINEER AND TO THE DISTRICT R/W PERMIT OFFICE. THE DOCUMENTATION INCLUDES THE CONSTRUCTION PROJECT NUMBER, PID, COUNTY, ROUTE, SECTION, LATITUDE AND LONGITUDE OF THE DRAINAGE DISCHARGE AT THE R/W, THE NAME OF PROPERTY OWNER WITH ADDRESS, THE DATE THE DRAINAGE DISCHARGE WAS LOCATED, THE DATE THE DRAINAGE DISCHARGE CONTINUANCE WAS FURNISHED, A DETAILED DESCRIPTION OF THE WORK AND PICTURES OF THE DRAINAGE DISCHARGE CONTINUANCE (IN PDF OR JPEG FORMAT). THE DOCUMENTATION IS INCLUDED IN ITEM 611, CONDUIT, MISC TYPE _ FOR DRAINAGE DISCHARGE CONTINUANCE OR ITEM 203, EMBANKMENT, AS PER PLAN

DRAINAGE DISCHARGE CONTINUANCE REMOVAL
THE ENGINEER MAY REQUIRE THE NEWLY INSTALLED DRAINAGE DISCHARGE CONTINUANCE TO BE REMOVED.

REMOVE THE NEWLY INSTALLED CONDUIT AND ANY EXISTING CONDUIT TO THE RIGHT OF WAY LINE. FOR CONDUIT THAT OUTLETS THROUGH THE CURB, RESTORE THE CURB BY FILLING THE HOLE WITH CLASS QC 1 CONCRETE OR REPLACE THE CURB SECTION. FOR CONDUIT THAT OUTLETS TO A STORM SEWER OR DRAINAGE STRUCTURE LEAVE 6 INCHES PROTRUDING OUTSIDE OF THE CONDUIT. PLUG THE PROTRUDING CONDUIT WITH EITHER A MANUFACTURED CAP OR CLASS QC 1 CONCRETE. FOR CONDUIT THAT OUTLETS TO THE DITCH REMOVE THE EROSION CONTROL PAD. RESTORE ALL AREAS AS REQUIRED. PLUG THE EXISTING CONDUIT REGARDLESS OF SIZE AT THE RIGHT OF WAY LINE WITH CLASS QC 1 CONCRETE AND RESTORE ALL AREAS AS REQUIRED. ALL COSTS ARE INCLUDED IN ITEM 202, REMOVAL MISC.: CONDUIT.

DAM THE SWALE THAT OUTLETS TO THE DITCH AT THE R/W AS DIRECTED BY THE ENGINEER. ALL COSTS ARE INCLUDED IN ITEM 203, EMBANKMENT AS PER PLAN

REMOVE THE INSPECTION WELL AND RESTORE ALL AREAS AS REQUIRED. THE COST IS INCLUDED IN ITEM 202, REMOVAL MISC.: INSPECTION WELL.

CONDUIT MATERIAL TYPES
THE FOLLOWING CONDUIT MATERIAL TYPES ARE PERMITTED: 707.33, 707.41 NON-PERFORATED, 707.42, 707.43, 707.45, 707.46, 707.47, AND 707.51.

PAY ITEMS
EACH OF THE PAY ITEMS LISTED BELOW FOR CONDUIT MISCELLANEOUS TYPES B, C, E AND F FOR DRAINAGE DISCHARGE CONTINUANCE INCLUDE CONDUIT SIZES 2 INCH TO 10 INCH. THERE IS NO COST DIFFERENTIATION FOR SIZE IN THESE PAY ITEMS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER IN MAKING THE ABOVE DRAINAGE DISCHARGE CONTINUANCE:

ITEM 611 - INSPECTION WELL	1 EACH
ITEM 611 - CONDUIT, MISC.: TYPE C FOR DRAINAGE DISCHARGE CONTINUANCE	5 FT
ITEM 611 - CONDUIT, MISC.: TYPE E FOR DRAINAGE DISCHARGE CONTINUANCE	5 FT
ITEM 611 - CONDUIT, MISC.: TYPE F FOR DRAINAGE DISCHARGE CONTINUANCE	5 FT
ITEM 202 - REMOVAL MISC.: CONDUIT	5 FT
ITEM 202 - REMOVAL MISC.: INSPECTION WELL	1 EACH
ITEM 203 - EMBANKMENT, AS PER PLAN	50 CY

PAVEMENT

UNSTABLE OR UNSUITABLE SOILS FOR PAVEMENT STABILIZATION
THE FOLLOWING ITEMS AND QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER TO ADDRESS UNSTABLE OR UNSUITABLE SOILS ENCOUNTERED IN THE AREAS OF PAVEMENT CONSTRUCTION:

ITEM 204 - EXCAVATION OF SUBGRADE	25 CY
ITEM 204 - GRANULAR MATERIAL, TYPE B	25 CY
ITEM 204 - GEOTEXTILE FABRIC	74 SY

CALCULATED HEB
CHECKED DEN

GENERAL NOTES

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PART 3

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PAVEMENT (CONT.)

ITEM SPECIAL - PAVEMENT OVERLAY FABRIC COMPOSITE

DESCRIPTION. THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING PAVEMENT OVERLAY FABRIC COMPOSITE AS SHOWN ON THE PLANS AND AT LOCATIONS DESIGNATED BY THE ENGINEER. THIS FABRIC COMPOSITE MAY BE PLACED ON A MILLED SURFACE.

MATERIALS. PAVEMENT OVERLAY FABRIC COMPOSITE SHALL BE CONSTRUCTED OF LONG CHAIN SYNTHETIC POLYMERS COMPOSED OF AT LEAST 85 PERCENT OF POLYOLEPHINES, POLYESTERS, AND POLYAMIDES BY WEIGHT, SHALL BE RESISTANT TO CHEMICAL ATTACK, MILDEW, ROT, AND ATTACHED TO A FIBERGLASS GRID. COMPOSITE SHALL MEET THE FOLLOWING PHYSICAL REQUIREMENTS:

PROPERTY	SPECIFICATION	TEST METHOD
PAVING FABRIC:	GLASSGRID CG200 OR APPROVED EQUAL	
GRAB TENSILE STRENGTH, LBS.	90 MIN.	ASTM D 1682
GRAB ELONGATION, PERCENT	50 MIN.	ASTM D 1682
ASPHALT RETENTION GAL./SY.	0.20 MIN.	AASHTO M-288
COMPOSITE ULTIMATE TENSILE STRENGTH (LBS/FT)	MD 6720 MIN. XD 13440 MIN.	ASTM D 6637
MAXIMUM ELONGATION	LESS THAN 3%	ASTM D 6637
PERCENT OPEN AREA	>50	TEX-621-J "TESTING GEOGRIDS"
MELTING POINT MIN (DEGREES F)	1000	ASTM C338
LOSS ON IGNITION %	>15	TEX-621-J "TESTING GEOGRIDS"
MASS/UNIT AREA	16.0 OZ./SY MIN.	ASTM D 5261-92

THE COMPOSITE FABRIC SHALL NOT BE EXPOSED TO ULTRAVIOLET RADIATION FOR MORE THAN 7 DAYS. THE FABRIC SHALL BE AT LEAST 60 INCHES BUT NO MORE THAN 150 INCHES IN WIDTH AND FURNISHED IN ROLLS OF APPROXIMATELY 104 YARDS IN LENGTH. THE FABRIC CAN BE CUT TO A 30 INCH WIDTH IF A 30 INCH WIDTH IS SPECIFIED IN THE PLAN. THE ASPHALT SEALANT SHALL BE PG64-22 MEETING THE REQUIREMENTS OF 702.01. CERTIFICATION SHALL BE FURNISHED IN ACCORDANCE WITH 101.061 BEFORE THE FABRIC IS PLACED. THE ENGINEER MAY REQUIRE SAMPLING FOR TESTING PURPOSES AS DIRECTED BY THE LABORATORY.

EQUIPMENT. THE CONTRACTOR SHALL PROVIDE EQUIPMENT FOR HEATING AND APPLYING BITUMINOUS MATERIAL. HEATING EQUIPMENT AND DISTRIBUTORS SHALL MEET THE REQUIREMENTS OF 407. THE MECHANICAL LAYDOWN EQUIPMENT SHALL BE MOUNTED ON A FOUR-WHEELED VEHICLE THAT IS CAPABLE OF DRIVING OVER THE FABRIC WHILE IT IS BEING INSTALLED TO CONTROL THE TENSION ON THE MATERIAL. THE LAYDOWN MACHINE SHALL BE EQUIPPED WITH CLUTCHES TO ADJUST THE ROLL TENSION AND BROOMS TO SMOOTH OUT WRINKLES DURING INSTALLATION. MANUAL LAYDOWN MAY ONLY BE USED IN AREAS INACCESSIBLE TO THE LAYDOWN MACHINE.

CONSTRUCTION DETAILS

1. SURFACE PREPARATION: THE CRACKS AND ENTIRE ROAD SURFACE TO BE TREATED, AND AT LEAST ONE ADDITIONAL FOOT ON EACH SIDE, SHALL BE CLEANED BY SWEEPING, BLOWING, OR OTHER METHODS UNTIL ALL DUST, MUD, CLAY LUMPS, VEGETATION, AND FOREIGN MATERIAL ARE REMOVED ENTIRELY FROM THE PAVEMENT BEFORE THE BITUMINOUS MATERIAL IS APPLIED. CARE SHALL BE EXERCISED TO PREVENT MATERIAL SO REMOVED FROM BECOMING MIXED WITH THE NEW SURFACE. LARGE CRACKS AND POTHOLES SHOULD BE FILLED.

2. APPLICATION OF ASPHALT SEALANT: THE APPLICATION OF THE ASPHALT SEALANT SHALL CONFORM TO THE APPLICABLE PORTIONS OF 407. THE ASPHALT SEALANT SHALL BE UNIFORMLY SPRAYED OVER THE AREA TO BE COVERED BY FABRIC AT A RATE OF 0.25 TO 0.30 GALLON PER SQUARE YARD.

THE QUANTITY APPLIED WILL VARY WITH THE SURFACE CONDITION OF THE EXISTING PAVEMENT (DEGREE OF POROSITY, FOR EXAMPLE). THE FABRIC ALONE, UNDER HEAT OF THE OVERLAY, WILL ABSORB AT LEAST 0.20 GALLON PER SQUARE YARD. WITHIN INTERSECTIONS OR OTHER ZONES WHERE VEHICLE BRAKING IS COMMON PLACE, THE APPLICATION SHALL BE REDUCED 20 PERCENT. THE SEALANT SHALL BE APPLIED TO AN AREA TWO TO SIX INCHES WIDER THAN THE WIDTHS OF THE FABRIC BEING PLACED, BUT RESTRICTED TO THE AREA OF IMMEDIATE FABRIC LAYDOWN. APPLICATION SHALL BE BY DISTRIBUTOR WITH HAND SPRAYING ALLOWED ONLY WHERE THE DISTRIBUTOR CANNOT BE USED. ASPHALT SPILLS SHALL BE CLEANED FROM THE ROAD SURFACE TO AVOID FLUSHING AND POSSIBLE MOVEMENT AT THESE ASPHALT RICH AREAS.

THE ASPHALT CEMENT USED AS A SEALANT SHALL HAVE DISTRIBUTOR TANK TEMPERATURE BETWEEN 300 DEGREES AND 350 DEGREES F. APPLICATION TEMPERATURE IS NOT CRITICAL AFTER THE ASPHALT IS SPRAYED ON THE PAVEMENT. IF THE FABRIC IS TO BE OVER-SPRAYED, DISTRIBUTOR TANK TEMPERATURES SHOULD NOT EXCEED 350 DEGREES F TO AVOID DAMAGE TO THE FABRIC.

3. COMPOSITE FABRIC PLACEMENT: THE COMPOSITE FABRIC SHALL BE PLACED ON THE ASPHALT SEALANT AS SOON AS PRACTICAL AND BEFORE THE TACKINESS OF THE SEALANT IS LOST. THE COMPOSITE SHALL BE PLACED AS SMOOTHLY AS POSSIBLE TO AVOID WRINKLES. IT SHALL BE UNROLLED SO THAT THE SOFT SIDE IS UNWOUND INTO THE SEALANT AND THE GRID SIDE UP, THUS PROVIDING OPTIMUM BOND BETWEEN FABRIC AND PAVEMENT DURING THE CONSTRUCTION PROCESS. WRINKLES SEVERE ENOUGH TO CAUSE "FOLDS" SHALL BE SLIT AND LAID FLAT. SMALL WRINKLES, WHICH FLATTEN UNDER COMPACTION ARE NOT DETRIMENTAL TO PERFORMANCE. THE COMPOSITE SHALL BE BROOMED OR SQUEEGEED TO REMOVE AIR BUBBLES AND MAKE COMPLETE CONTACT WITH THE ROAD SURFACE AS RECOMMENDED BY THE FABRIC MANUFACTURER. THE FABRIC SHALL BE LAID STRAIGHT, WITHIN THE SEALANT AREA. MODERATE CURVES CAN BE NEGOTIATED BY STRETCHING THE FABRIC ON THE OUTSIDE OF THE CURVE BY ADJUSTING THE DRAG ON THE BRAKES OF THE LAYDOWN EQUIPMENT. TRANSVERSE JOINTS SHALL BE "SHINGLED" IN THE DIRECTION OF PAVING.

LONGITUDINAL JOINTS SHALL BE MADE BY OVERLAPPING THE FABRIC ONE TO TWO INCHES. TRANSVERSE JOINTS SHALL BE MADE BY OVERLAPPING THE FABRIC MINIMUM OF FOUR INCHES. ADDITIONAL SEALANT (ABOUT 0.20 GAL. PER SQ. YD.) SHALL BE ADDED TO THE JOINTS AS REQUIRED. THE ADDITIONAL SEALANT FOR TRANSVERSE JOINTS MAY BE APPLIED BY HAND SPRAYING OR WITH MOP AND BUCKET IF EXTREME CARE IS TAKEN TO NOT EXCEED THE SPECIFIED RATE.

TO ENHANCE THE BOND OF THE FABRIC WITH THE EXISTING PAVEMENT AND TO SMOOTH OUT ANY WRINKLES FOR FOLDS IN THE FABRIC, THE CONTRACTOR MAY BE REQUIRED TO PNEUMATICALLY ROLL THE FABRIC AFTER IT IS PLACED.

4. TREATMENT OF THE APPLIED COMPOSITE PRIOR TO PLACEMENT OF ASPHALT CONCRETE: TACK COAT THE FABRIC PRIOR TO PLACEMENT OF THE ASPHALT CONCRETE OVERLAY. TACK COAT SHALL BE APPLIED AT A RATE OF 0.02 TO 0.05 GALLON PER SQUARE YARD. PLACEMENT OF THE ASPHALT CONCRETE OVERLAY SHALL CLOSELY FOLLOW FABRIC LAYDOWN. IN THE EVENT THAT THE SEALANT BLEEDS THROUGH THE FABRIC BEFORE THE ASPHALT CONCRETE IS PLACED, IT MAY BE NECESSARY TO BLOT THE SEALANT BY SPREADING SAND OR ASPHALT CONCRETE OVER THE AFFECTED THIS WILL PREVENT ANY TENDENCY FOR CONSTRUCTION EQUIPMENT TO PICK UP THE FABRIC WHEN DRIVING OVER IT.

TURNING OF THE PAVER AND OTHER VEHICLES SHALL BE GRADUAL TO AVOID MOVEMENT OR DAMAGE TO THE COMPOSITE. UNESSENTIAL TRAFFIC ON COMPOSITE SHOULD BE ELIMINATED. IF IT IS NECESSARY TO OPEN THE ROAD TO TRAFFIC AFTER FABRIC PLACEMENT, BUT PRIOR TO PAVING, IT IS ADVISABLE TO SPREAD A SMALL AMOUNT OF SAND OVER THE MEMBRANE TO PREVENT TIRES FROM STICKING TO THE SEALANT OR PULLING UP THE COMPOSITE. THIS PRACTICE IS TO BE AVOIDED IF POSSIBLE TO PREVENT DAMAGE TO THE MEMBRANE. QUICK STOPS AND SHARP TURNS MAY DAMAGE THE MATERIAL. IF RAIN PRIOR TO THE OVERLAY SHOULD CAUSE A BLISTERED APPEARANCE AND SOME BOND LOSS THROUGHOUT THE MEMBRANE, IT SHOULD BE CORRECTED BY PNEUMATIC ROLLING UNTIL ADHESION IS RESTORED.

5. ASPHALT CONCRETE: THE ASPHALT CONCRETE OVERLAY SHALL CONFORM TO 401 SPECIFICATION WITH A MINIMUM THICKNESS OF 1.5". A TWO COURSE OVERLAY IS PREFERRED.

METHOD OF MEASUREMENT. THE ACCEPTED FABRIC COMPOSITE PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AND AS DIRECTED WILL BE MEASURED BY THE SQUARE YARD OF ROADWAY, RAMPS, AND TURNOUTS COVERED BY THE COMPOSITE FABRIC. LAPS IN COMPOSITE FABRIC WILL NOT BE MEASURED. BLOTTING THE SEALANT, SPREADING SAND OR ASPHALT CONCRETE OVER THE MEMBRANE TO PREVENT TIRES FROM STICKING TO THE SEALANT OR PULLING UP THE FABRIC, ROLLING TO RESTORE BOND, OR APPLICATION OF A TACK COAT WILL NOT BE MEASURED FOR DIRECT PAYMENT BUT SHALL BE CONSIDERED A NECESSARY PART OF THE CONSTRUCTION INVOLVED AND THE COST THEREFORE SHALL BE INCLUDED IN OTHER APPROPRIATE CONTRACT UNIT PRICES.

BASIS OF PAYMENT. THE ACCEPTED QUANTITIES OF PAVEMENT OVERLAY FABRIC COMPOSITE WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL LABOR, MATERIALS (INCLUDING ASPHALT SEALANT AND OVERLAP), TOOLS, EQUIPMENT AND INCIDENTALS FOR DOING ALL THE WORK INVOLVED IN FURNISHING AND PLACING THE COMPOSITE COMPLETE IN PLACE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

ITEM	UNIT	DESCRIPTION
SPECIAL	SQUARE YARD	PAVEMENT OVERLAY FABRIC COMPOSITE

SANITARY SEWER

ITEM 611 - MANHOLE ADJUSTED TO GRADE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS 611.10.D FOR MANHOLES, 623.05 FOR MONUMENT ASSEMBLY, OR 638.18 FOR VALVE BOXES, THE CONTRACTOR WILL MAKE A CLEAN CIRCULAR CUT AROUND THE CASTING (48" DIAMETER FOR STORM AND SANITARY MANHOLE CASTINGS, 24"-28" FOR VALVE BOXES AND MONUMENT ASSEMBLIES, AND 2' IN DIAMETER LARGER THAN THE CASTING DIAMETER FOR ANY CASTINGS THAT ARE LARGER THAN STANDARD MANHOLES SUCH AS TELECOMMUNICATION MANHOLE CASTINGS) AND REMOVE AND DISCARD THE EXISTING CASTING. INSTALL A NEW CASTING TO GRADE (ACCORDING TO TOLERANCES AS SHOWN ON STANDARD CONSTRUCTION DRAWING BP-3.1) AFTER THE PAVEMENT SURFACE COURSE HAS BEEN REPLACED.

CMS 499 CLASS QCMS CONCRETE (DYE THE CONCRETE SUCH THAT ITS COLOR CLOSELY MATCHES THE COLOR OF THE SURROUNDING PAVEMENT) WILL BE USED FOR BACKFILLING THE FULL PAVEMENT SECTION AND THE JOINT BETWEEN THE ASPHALT AND CONCRETE WILL BE SEALED WITH CMS 702.01 PG BINDER. EPOXY COATED REBAR SHALL BE PLACED IN THE CONCRETE AT 6" MAXIMUM ON CENTER AND A MINIMUM OF 3.5" CLEARANCE FROM THE TOP, BOTTOM AND SIDES. THE CONCRETE WILL BE VIBRATED SUFFICIENTLY TO ELIMINATE AIR POCKETS UNDER THE FRAME.

PAYMENT WILL INCLUDE REMOVAL OF THE EXISTING MATERIAL, INSTALLATION AND FURNISHING OF A NEW CASTING, AND ALL LABOR AND MATERIALS REQUIRED TO COMPLETE THIS ITEM OF WORK AS DESCRIBED.

CALCULATED
CHECKED

GENERAL NOTES

POR-SR 303-2.72
PART 3

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NOTIFICATIONS AND CONTACTS

THE CONTRACTOR SHALL NOTIFY THE FOLLOWING ENTITIES IN WRITING AND VIA TELEPHONE AT LEAST EIGHTEEN (18) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION ACTIVITIES. INCLUDED IN THE NOTIFICATION SHALL BE THE PROJECTED DATES AND TIME FRAMES OF ANY ROAD CLOSURES.

1. OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 4
   2088 SOUTH ARLINGTON ROAD
   AKRON, OHIO 44306
   (330) 786-2208

2. CITY OF STREETSBORO POLICE DEPARTMENT
   2080 STATE ROUTE 303
   STREETSBORO, OHIO 44241
   (330) 626-4976

3. CITY STREETSBORO FIRE DEPARTMENT
   9184 STATE ROUTE 43
   STREETSBORO, OHIO 44241
   (330) 626-4664

4. STREETSBORO CITY SCHOOLS
   9000 KIRBY LANE
   STREETSBORO, OHIO 44241
   (330) 626-4900

5. CITY OF STREETSBORO ENGINEERING DEPARTMENT
   9184 STATE ROUTE 43 (CITY HALL)
   STREETSBORO, OHIO 44241
   (330) 626-4942 EXT. 4106

SHOULD THE PROJECTED DATES AND TIME FRAMES OF THE START AND END OF THE ROAD CLOSURES CHANGE THROUGHOUT THE DURATION OF THE PROJECT, THE AGENCIES LISTED ABOVE MUST BE NOTIFIED IMMEDIATELY OF SUCH CHANGES.

SEQUENCE OF CONSTRUCTION

PHASE 1

THE CONTRACTOR SHALL SHIFT THE TWO WESTBOUND LANES ON SR 14 INTO THE DEDICATED LEFT TURN LANES AND TWO-WAY LEFT TURN LANES PER ODOT SCD MT-102.20. SR 303 TRAFFIC SHALL BE DETOURED AS SHOWN ON SHEET 14.

THE CONTRACTOR SHALL PERFORM ALL ROADWAY IMPROVEMENTS AND REMOVE THE EXISTING SLIP LANE ON SR 303. THE SIGNAL EQUIPMENT ON THE NORTH SIDE OF THE INTERSECTION SHALL BE INSTALLED IN THIS PHASE.

SR 303 SHALL REMAIN CLOSED UNTIL THE PROPOSED SIGNAL SYSTEM IS INSTALLED AND FUNCTIONAL AT THE SR 303 / SR 14 INTERSECTION.

PHASE 2

THE CONTRACTOR SHALL PERFORM ALL SIGNAL AND CURB RAMP WORK ON THE SOUTH SIDE OF SR 14.

WHEN IT IS NECESSARY TO CLOSE A LANE DURING THE CONSTRUCTION OF THE SIGNAL WORK AND CURB RAMP WORK ON THE SOUTH SIDE OF SR 14, THE CONTRACTOR SHALL UTILIZE DAILY LANE CLOSURES AND MAINTAIN TRAFFIC IN ACCORDANCE WITH MT-95.31.

PHASE 1 AND PHASE 2 MAY BE CONSTRUCTED CONCURRENTLY ONLY AT THE APPROVAL OF THE ENGINEER.

PHASE 3

THE CONTRACTOR SHALL PLACE FINAL PAVEMENT MARKINGS ON SR 14 WHILE MAINTAINING TRAFFIC IN ACCORDANCE WITH MT-99.20.

WORK HOUR DESCRIPTIONS

1. OFF-PEAK HOURS ARE DEFINED AS ANY PERIOD OTHER THAN 6:00-8:00 AM AND 3:00-6:00 PM (MONDAY THRU FRIDAY) AND LEGAL HOLIDAYS.

2. NIGHTTIME HOURS ARE DEFINED AS BETWEEN 8:00 PM AND 6:00 AM.

3. WEEKEND HOURS ARE DEFINED AS BETWEEN 8:00 PM FRIDAY-6:00 AM MONDAY.

MAINTENANCE OF TRAFFIC COORDINATION AND SEQUENCE RESTRICTIONS:

THIS PROJECT PACKAGE IS COMPOSED OF MULTIPLE PARTS. REFER TO THE INDIVIDUAL PLAN PARTS FOR SPECIFIC DETAILS REGARDING WORK LIMITS, PROJECT DETAILS, AND THE MOT PHASING REGARDING EACH PART OF THE PROJECT PACKAGE. A SUMMARY OF THE INDIVIDUAL PROJECT PARTS AND RESTRICTIONS ARE LISTED BELOW:

- PART 1 WILL PERFORM CURB RAMP IMPROVEMENTS AND RESURFACE PORTIONS OF SR 14 AND SR 43. PART 1 WILL ALSO INCLUDE MINOR WORK AT THE POR-14-2.10 STRUCTURE. PLEASE NOTE THAT WORK AT THE POR-14-2.10 STRUCTURE MAY BE PERFORMED INDEPENDENTLY OF WORK AT PART 2 AND PART 3 LOCATIONS.

- PART 2 WILL RECONSTRUCT THE SR 14/SR 43 INTERSECTION TO REPLACE THE EXISTING ASPHALT PAVEMENT WITH CONCRETE PAVEMENT.

- PART 3 WILL REMOVE THE SLIP LANE AT THE SR 303/SR 14 INTERSECTION AND MODIFY THE SR 303/SR 14/RANCH ROAD INTERSECTION. THE SR 303/SR 14 INTERSECTION SHALL BE CLOSED AT THE BEGINNING OF PART 2 WORK AND SHALL REMAIN CLOSED UNTIL THE COMPLETION OF PART 2 AND PART 3.

- PART 1 RESURFACING BETWEEN MARKET SQUARE DRIVE AND THE EAST END OF THE PROJECT SHALL BE PERFORMED AFTER PART 2 COMPLETION.

- PART 1 RESURFACING OF SR43 BETWEEN MARKET SQUARE DRIVE AND SEASONS ROAD SHALL BE PERFORMED AFTER PART 2 COMPLETION.

DETOUR NOTIFICATION

THE CONTRACTOR SHALL ADVISE THE PROJECT ENGINEER, AND THE CITY OF STREETSBORO ENGINEER (330)-628-4942, EIGHTEEN (18) DAYS IN ADVANCE OF WHEN THE DETOUR ROUTE SHOULD BE IN EFFECT. ALL WORK ZONE DEVICES REQUIRED SHALL BE FURNISHED, ERECTED, MAINTAINED, AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR.

PAYMENT FOR ALL WORK ASSOCIATED WITH THE DETOUR SHALL BE INCLUDED UNDER THE LUMP SUM ITEM FOR ITEM 614 - DETOUR SIGNING.

ITEM 614 - MAINTAINING TRAFFIC

THIS ITEM SHALL CONSIST OF MAINTENANCE OF TRAFFIC ON EXISTING ROADWAYS IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, CURRENT EDITION, LATEST REVISION, THE SPECIFICATIONS AND THE FOLLOWING:

1. A MINIMUM OF TWO TWELVE (12) FOOT LANE FOR SR 14 TRAFFIC SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT AND THE COMPLETED PAVEMENT.

2. THE CONTRACTOR SHALL INFORM THE OHIO DEPARTMENT OF TRANSPORTATION (330) 786-2208, EIGHTEEN (18) DAYS PRIOR TO THE BEGINNING OF WORK.

3. LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE 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 ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

4. LANE RESTRICTIONS OR LANE REDUCTIONS SHALL NOT BE PERMITTED AFTER NORMAL WORKING HOURS. NORMAL WORKING HOURS SHALL BE THOSE HOURS DURING WHICH THE CONTRACTOR HAS A FULL COMPLEMENT OF EMPLOYEES AND EQUIPMENT ACTIVELY REMOVING AND/OR PLACING PAVEMENT MATERIALS.

5. ALL FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT OPERATIONS SHALL BE COMPLETED THE SAME DAY THE EXCAVATION IS MADE. IF THE CONTRACTOR CANNOT COMPLETE THIS WORK, THE EXCAVATION SHALL BE BACKFILLED OR PROTECTED AS PER STANDARD CONSTRUCTION DRAWING MT-101.90.

6. TRUCK MOUNTED ATTENUATORS [TMA'S] SHALL BE USED AS SHOWN IN THE STANDARD CONSTRUCTION DRAWINGS.

7. FOR ROUTES NOT ON THE PERMITTED LANE CLOSURE CHART, ONLY DURING OFF-PEAK PERIODS (I.E. ANY PERIOD OTHER THAN 6-8AM AND 3-6PM) SHALL THE CONTRACTOR INSTALL AND SUBSEQUENTLY RESET ALL TRAFFIC CONTROL NECESSARY FOR THE WORK ZONE FOR EACH CONSTRUCTION PHASE.

8. IN ADDITION TO THE REQUIREMENTS OF 614.11 WORK ZONE PAVEMENT MARKINGS, AT THE END OF EACH DAY OF WORK, THE CONTRACTOR SHALL REPLACE (WITH WORK ZONE MARKINGS) AL LANE, CENTER, STOP OR CHANNELIZING LINES THAT WERE REMOVED OR COVERED DURING THE PAVEMENT REMOVAL OR PLACEMENT OPERATIONS. QUANTITIES FOR SUCH PLACEMENT ARE CARRIED AS PART OF THE ITEMS LISTED UNDER 614 WORK ZONE MARKINGS.

9. PRIOR TO OPENING TO TRAFFIC EACH LANE SHALL BE IN A SAFE, PASSABLE CONDITION. ALL TRANSVERSE JOINTS SHALL EXTEND ACROSS THE FULL LANE AND SHOULD WIDTH AND EACH LANE SHALL BE FREE FROM UNEVEN LONGITUDINAL JOINTS. THE CONTRACTOR SHALL PROVIDE ASPHALT WEDGES FOR TRANSVERSE JOINTS WHEREVER THERE ARE PAVEMENT ELEVATIONS DIFFERENCES.

10. IF IT IS NECESSARY TO STOP ALL TRAFFIC FOR THE ERECTION OF A MAST ARM, THE WORK SHALL BE SO ARRANGED THAT THE STOPPAGE IS LESS THAN TEN (10) MINUTES IN ANY ONE (1) THIRTY (30) MINUTE PERIOD. NO STOPPAGE OF TRAFFIC SHALL OCCUR FOR THE ERECTION OF SIGNAL SUPPORTS, CUTTING AND INSTALLING LOOP DETECTOR WIRE, OR HANGING SIGNAL HEADS, WITHOUT A LAW ENFORCEMENT OFFICER WITH A PATROL CAR AT THE SITE FOR ASSISTANCE IN CONTROLLING TRAFFIC. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE SERVICES AND SCHEDULING OF SAID LAW ENFORCEMENT OFFICER WITH PATROL CAR.

    THE STOPPAGE OF TRAFFIC CAN ONLY OCCUR DURING THE FOLLOWING TIME PERIODS AS APPROVED BY THE ENGINEER:

    12:00 MIDNIGHT - 6:00 AM
    9:00 AM - 3:00 PM
    8:00 PM - 12:00 MIDNIGHT

MAINTAINING TRAFFIC

11. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN TRAFFIC DURING CONSTRUCTION TO THE GREATEST EXTENT POSSIBLE. PROVISIONS SHALL BE MADE TO CREATE SAFE WALKING PATHS DURING CONSTRUCTION AND TO PROTECT NEW EQUIPMENT AS DIRECTED BY THE ENGINEER. PEDESTRIAN DETOUR METHODS, LIGHTING, SIGNAGE, CHANNELIZATION, TEMPORARY WALKWAYS, ETC., SHALL BE IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING MT-110.10 "PEDESTRIAN DETOUR METHODS". ALL PEDESTRIAN DETOURS SHALL OCCUR AT EXISTING CROSS WALK LOCATIONS.

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, CURRENT EDITION, LATEST REVISION. 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.

TIME LIMITATION, CURB RAMP

THE MAXIMUM ALLOWABLE TIME FOR THE CONTRACTOR TO HAVE AN INDIVIDUAL CURB RAMP AND ASSOCIATED SIDEWALK LEADING INTO THE CURB RAMP OUT OF SERVICE FOR THE REMOVAL AND REPLACEMENT SHALL BE 14 CONSECUTIVE CALENDAR DAYS (THE TIME PERIOD INCLUDES ALL WORK LISTED IN THE BASIS OF PAYMENT PER CMS 608.09, INCLUDING ALL REMOVAL, REPLACEMENT, AND BACKFILL ASSOCIATED WITH THE CURB RAMPS, AND CURING TIME PERIOD).

AT THE CONCLUSION OF CONSTRUCTING OF THE CURB RAMP AND PRIOR TO OPENING TO PEDESTRIAN TRAFFIC THE CONTRACTOR SHALL ENSURE THAT THE REQUIREMENTS OF STANDARD CONSTRUCTION DRAWING BP-7.1 ARE MET. THE CONTRACTOR SHALL USE ASPHALT AS A WEDGE, OR SUBMIT ANOTHER METHOD APPROVED BY THE ENGINEER, TO ENSURE THE TRANSITION FROM THE CURB RAMP TO THE ROADWAY ARE PER STANDARD CONSTRUCTION DRAWING BP-7.1. ALL COSTS TO PERFORM THIS WORK SHALL BE INCIDENTAL TO THE ASSOCIATED PAY ITEMS FOR THE INSTALLATION OF THE CURB RAMP.

SHOULD THE CONTRACTOR FAIL TO MEET THIS REQUIREMENT, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE IN THE AMOUNT OF $1000 PER DAY PER AFFECTED RAMP THAT THE AFFECTED CURB RAMP REMAINS OUT OF SERVICE BEYOND 14 CONSECUTIVE CALENDAR DAYS.

ESTIMATED QUANTITIES

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN PROVIDED TO RESTRIPE THE PROJECT AREA TO THE PROPOSED CONDITION AT THE END OF PHASE 3. REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE CONSIDERED INCIDENTAL TO AND INCLUDED IN THE PAY ITEM FOR THE QUANTITIES LISTED BELOW:

ITEM 614 - WORK ZONE LANE LINE, CLASS I, 4"	0.29	MILE
ITEM 614 - WORK ZONE CENTER LINE, CLASS I	0.12	MILE
ITEM 614 - WORK ZONE CHANNELIZING LINE, CLASS I, 8"	508	FT
ITEM 614 - WORK ZONE STOP LINE, CLASS I	135	FT
ITEM 614 - WORK ZONE ARROW, CLASS I	9	EACH

CALCULATED A.K.F
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MAINTENANCE OF TRAFFIC NOTES

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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). 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 DRIVEABLE PAVEMENT, DETOUR ROUTES, IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

NOTIFICATION OF TRAFFIC RESTRICTIONS 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 CLOSURE

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

TRAFFIC CONTROL INSPECTOR

THE CONTRACTOR SHALL DESIGNATE AN INDIVIDUAL OTHER THAN THE SUPERINTENDENT AND SUBJECT TO THE APPROVAL OF THE ENGINEER, TO CONTINUOUSLY INSPECT ALL TRAFFIC CONTROL DEVICES WHENEVER CONSTRUCTION WORK IS BEING PERFORMED WITHIN THE WORK LIMITS OF THE PROJECT. THE DESIGNATED INDIVIDUAL SHALL ALSO INSPECT ALL TRAFFIC DEVICES AT THE BEGINNING AND AT THE END OF EACH WORK DAY. THE DESIGNATED INDIVIDUAL OR A QUALIFIED REPRESENTATIVE SHALL ALSO BE AVAILABLE ON AN AROUND THE CLOCK BASIS TO REPAIR AND/OR REPLACE DAMAGED OR MISSING TRAFFIC CONTROL DEVICES. THESE INDIVIDUALS SHALL BE EQUIPPED WITH CELLULAR PHONES AND THEIR NAMES AND PHONE NUMBERS SHALL BE GIVEN TO THE PROJECT ENGINEER AT THE PRE-CONSTRUCTION MEETING. THE DESIGNATED INDIVIDUAL MAY HAVE OTHER CONSTRUCTION RELATED DUTIES AS LONG AS IMMEDIATE ATTENTION IS GIVEN TO TRAFFIC CONTROL. PAYMENT FOR THE SERVICES OF THE TRAFFIC CONTROL INSPECTOR SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC.

ITEM 614 - MAINTAINING TRAFFIC (NOTICE OF CLOSURE SIGN)

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 CITY OF STREETSBORO, PORTABLE CHANGEABLE MESSAGE SIGNS MAY BE USED IN LIEU OF THE STANDARD FLAT SHEET SIGN FOR CLOSURE DURATIONS OF LESS THAN 1 WEEK.

THE SIGNS SHALL BE ERECTED ON THE RIGHT-HAND SIDE OF THE ROAD 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.

NOTICE OF CLOSURE SIGN TIME TABLE

ITEM	DURATION OF CLOSURE	SIGN DISPLAYED TO PUBLIC
ROAD CLOSURE	≥ 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 DISTRICT RATHER THAN THE GENERAL SWITCHBOARD NUMBER.

TIME LIMITATION, TRAFFIC ON A MILLED SURFACE

THE MAXIMUM ALLOWABLE TIME FOR TRAFFIC TO BE PLACED ON A MILLED SURFACE SHALL BE 7 CONSECUTIVE CALENDAR DAYS. SHOULD THE CONTRACTOR FAIL TO MEET THIS REQUIREMENT, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE IN THE AMOUNT OF $2,000 PER CALENDAR DAY THAT THE ABOVE CONDITION IS VIOLATED.

ACCESS TO PROPERTIES

ACCESS SHALL BE MAINTAINED TO ALL RESIDENTIAL AND COMMERCIAL PROPERTIES EXCEPT WHEN A DRIVEWAY MUST BE CLOSED FOR CONSTRUCTION. ALL RESIDENTS AND PROPERTY OWNERS SHALL BE PROVIDED WRITTEN NOTIFICATION BY THE CONTRACTOR A MINIMUM OF 72 HOURS PRIOR TO THE CLOSURE. THE NOTICE SHALL LIST THE TIME THE CLOSURE WILL BE IN EFFECT AND SHALL LIST 24-HOUR EMERGENCY PHONE NUMBERS OF THE CONTRACTOR RESPONSIBLE FOR THE CLOSURE. THE TIMES SHALL BE COORDINATED WITH EACH RESIDENT AND PROPERTY OWNER. INDIVIDUAL DRIVE CLOSURES SHALL BE KEPT TO THE MINIMUM TIME NEEDED FOR CONSTRUCTION ACTIVITIES. EVERY EFFORT MUST BE MADE TO ACCOMMODATE THE RESIDENT OR OWNER'S NEED FOR ACCESS. ACCESS MAY BE MAINTAINED WITH THE USE OF ASPHALT, AGGREGATE, OR STEEL PLATES.

WHERE A DRIVEWAY IS WIDE ENOUGH, THE CONTRACTOR SHALL CONSTRUCT THE DRIVEWAY PART-WIDTH WHILE MAINTAINING TWO-WAY TRAFFIC. WHERE A PROPERTY HAS MORE THAN ONE DRIVEWAY, DRIVES SHALL BE CONSTRUCTED ONE AT A TIME.

ALL LABOR AND MATERIALS REQUIRED FOR THE WORK DESCRIBED ABOVE SHALL BE CONSIDERED INCIDENTAL TO AND INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 - MAINTAINING TRAFFIC.

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 SHALL NOT BE PERMITTED AT PROJECT COST NOR TIME COMPENSATION. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF C&MS 614 AND THE OMUTCD, 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 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 AND/OR IN CONTRARY TO OTHER TRAFFIC CONTROL DEVICES 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 SHIFT DURATION SHALL NOT BE LESS THAN THE LEO'S MINIMUM SHOW-UP TIME REQUIRED BY THEIR LAW ENFORCEMENT AGENCY. 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 16 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.

ASPHALT PAVING LIMITATION

THE CONTRACTOR SHALL NOT ANTICIPATE OR SCHEDULE PLACING ASPHALT (ASPHALT SURFACE COURSE, ASPHALT INTERMEDIATE COURSE, ASPHALT BASE, ETC.) BETWEEN NOVEMBER 1 AND APRIL 1 WHEN SUBMITTING THEIR INITIAL BAR CHART PROGRESS SCHEDULE TO THE DISTRICT CONSTRUCTION ENGINEER (DCE) AS SPECIFIED IN CMS SECTION 108.02A. THIS LIMITATION SHALL ALSO INCLUDE INITIAL BASE LINE SCHEDULES AND ALL UPDATES IF A CPM SCHEDULE IS REQUIRED.

CALCULATED DLS CHECKED AKF

MAINTENANCE OF TRAFFIC NOTES

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DUST CONTROL

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

ITEM 616, WATER 10 MGAL

ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A PORTABLE 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 DISTANCE 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 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.

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

THE CONTRACTOR SHALL IMPLEMENT A SYSTEM WHEREBY CHANGEABLE MESSAGES WILL BE IMPLEMENTED WITHIN 4 HOURS FOLLOWING TELEPHONE NOTIFICATION FROM THE PROJECT ENGINEER TO A DESIGNATED PHONE.

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE 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 AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DEACTIVATED OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK.

ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN

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 DISTRICT TRAFFIC ENGINEER, OR EQUIVALENT, 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 DEPARTMENT TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC. THE ENTIRE COST TO CONTROL TRAFFIC, ACCRUED BY THE DEPARTMENT 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.

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 AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK.

ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN 6 SIGN MONTH

ASSUMING 1 PCMS SIGNS FOR 6 MONTHS

CALCULATED DLS
CHECKED AKF

MAINTENANCE OF TRAFFIC NOTES

POR-SR 303-2.72
PART 3

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REF NO.	SHEET NO.	LOCATION	STATION FROM	STATION TO	SIDE	614 WORK ZONE LANE LINE, CLASS I, 4" MILE	614 WORK ZONE CENTER LINE, CLASS I MILE	614 WORK ZONE EDGE LINE, CLASS I, 4" (WHITE) MILE	614 WORK ZONE CHANNELIZING LINE, CLASS I, 8" FT	614 WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I (YELLOW) FT
		PHASE 1								
EW	16	SR 14	186+75	188+00	LT			125		
LL	16	SR 14	186+75	188+00	LT	125				
CDS	16	SR 14	186+75	188+00	RT		125			
EW	17	SR 14	188+00	192+00	LT			400		
LL	17	SR 14	188+00	192+00	LT	400				
CDS	17	SR 14	188+00	192+00	RT		400			
EW	18	SR 14	192+00	194+37	LT			237		
LL	18	SR 14	192+00	193+00	LT	100				
CH	18	SR 14	193+00	194+37	LT				137	
CDS	18	SR 14	192+00	194+37	RT/LT		237			
TY	18	SR 14	193+00	194+37	RT/LT					53
CDS	18	SR 14	193+00	194+37	RT		137			
TOTAL						625	899	762	137	53
TOTAL MILES						0.12	0.18	0.15		
TOTALS CARRIED TO GENERAL SUMMARY						0.12	0.18	0.15	137	53

CALCULATED DLS
CHECKED AKF

MAINTENANCE OF TRAFFIC SUBSUMMARY

POR-SR 303-2.72
PART 3

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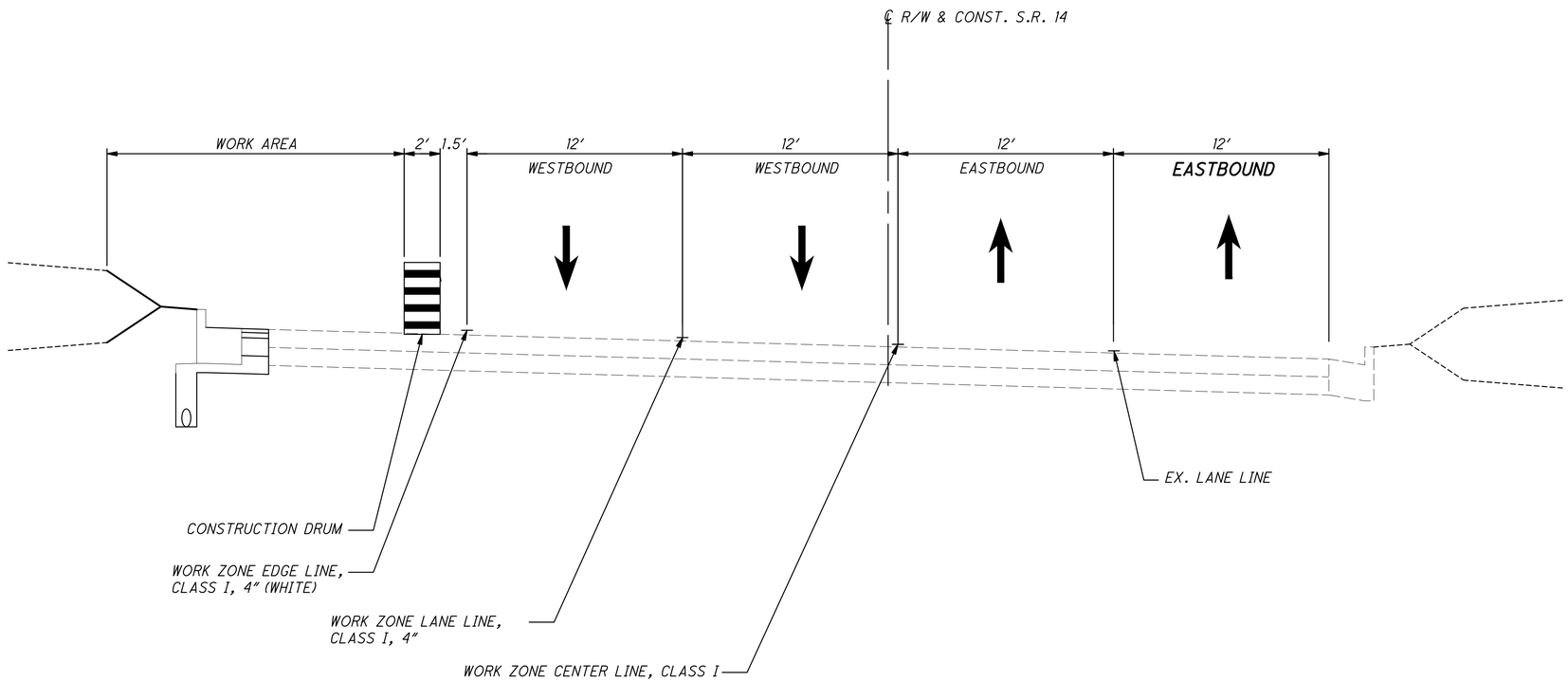

MAINTENANCE OF TRAFFIC TYPICAL SECTION - S.R. 14 - PHASE 1

STA. 186+75 TO STA. 193+00

CALCULATED DLS
CHECKED AKF

MAINTENANCE OF TRAFFIC TYPICAL SECTIONS

POR-SR 303-2.72 PART 3

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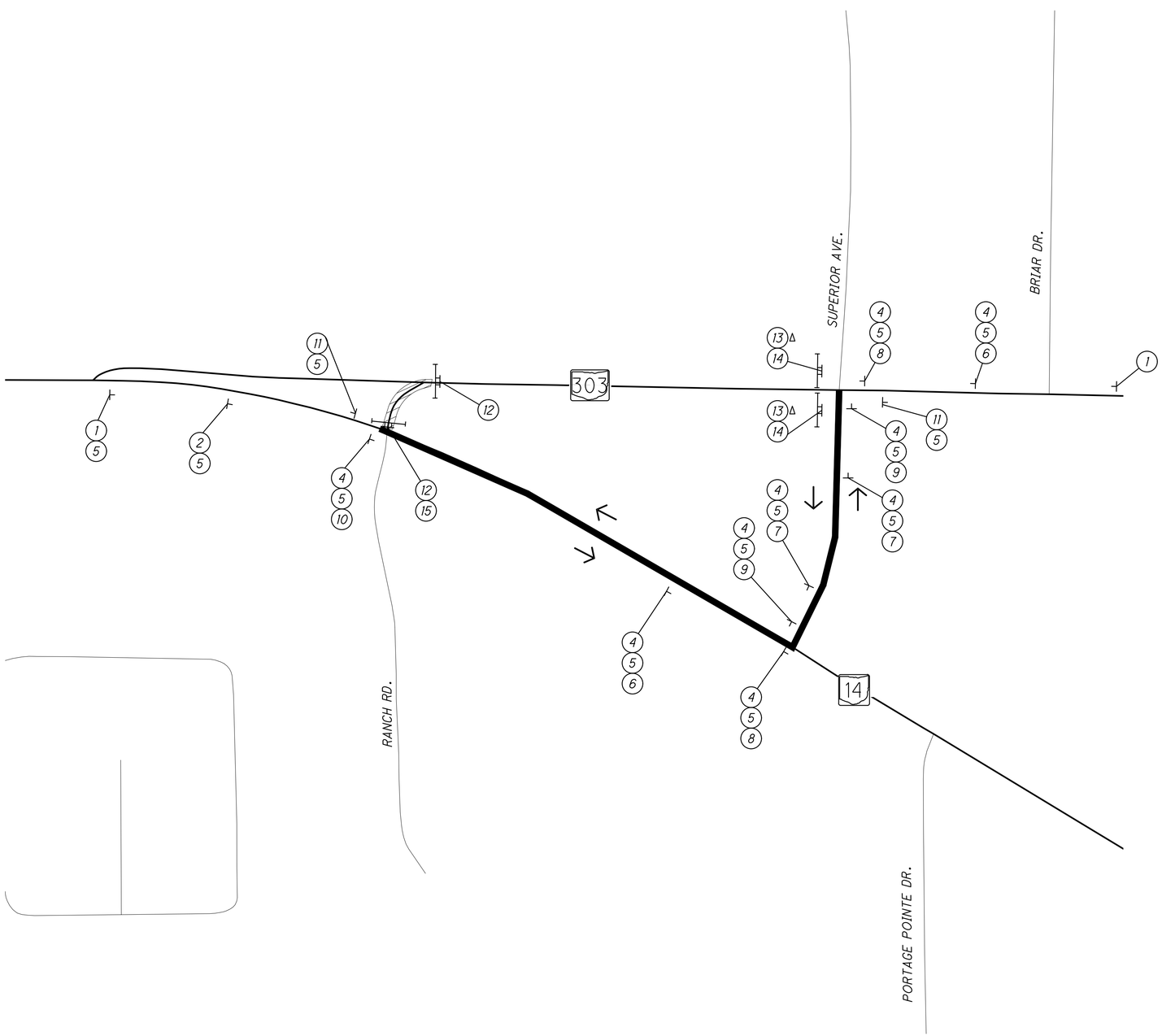

TYPE 'A' WARNING LIGHT
W20-1-36
(1)

TYPE 'A' WARNING LIGHT
W20-2-36
(2)

W20-3-36
(3)

M4-8-24
(4)

M1-5-30-3
(5)

M5-1L-21
(6)

M5-1R-21
(7)

M6-1L-21
(8)

M6-1R-21
(9)

M6-3-21
(10)

M4-8a-24
(11)

R11-2-48
MOUNTED ON
TYPE 3 BARRICADE
(12)

R11-3a-60
MOUNTED ON
TYPE 3 BARRICADE
(13)

M4-10L-48
(14)

M4-10R-48
(15)

Δ BARRICADE SHALL BE
PLACED ADJACENT TO ROAD.

DETOUR LEGEND	
⊢	SIGN
⊢⊣	TYPE 3 BARRICADE
	WORK AREA
	DETOUR ROUTE
→	TRAFFIC FLOW

N

CALCULATED DLS
CHECKED AKF

DETOUR PLAN - SR 303

POR-SR 303-2.72
PART 3

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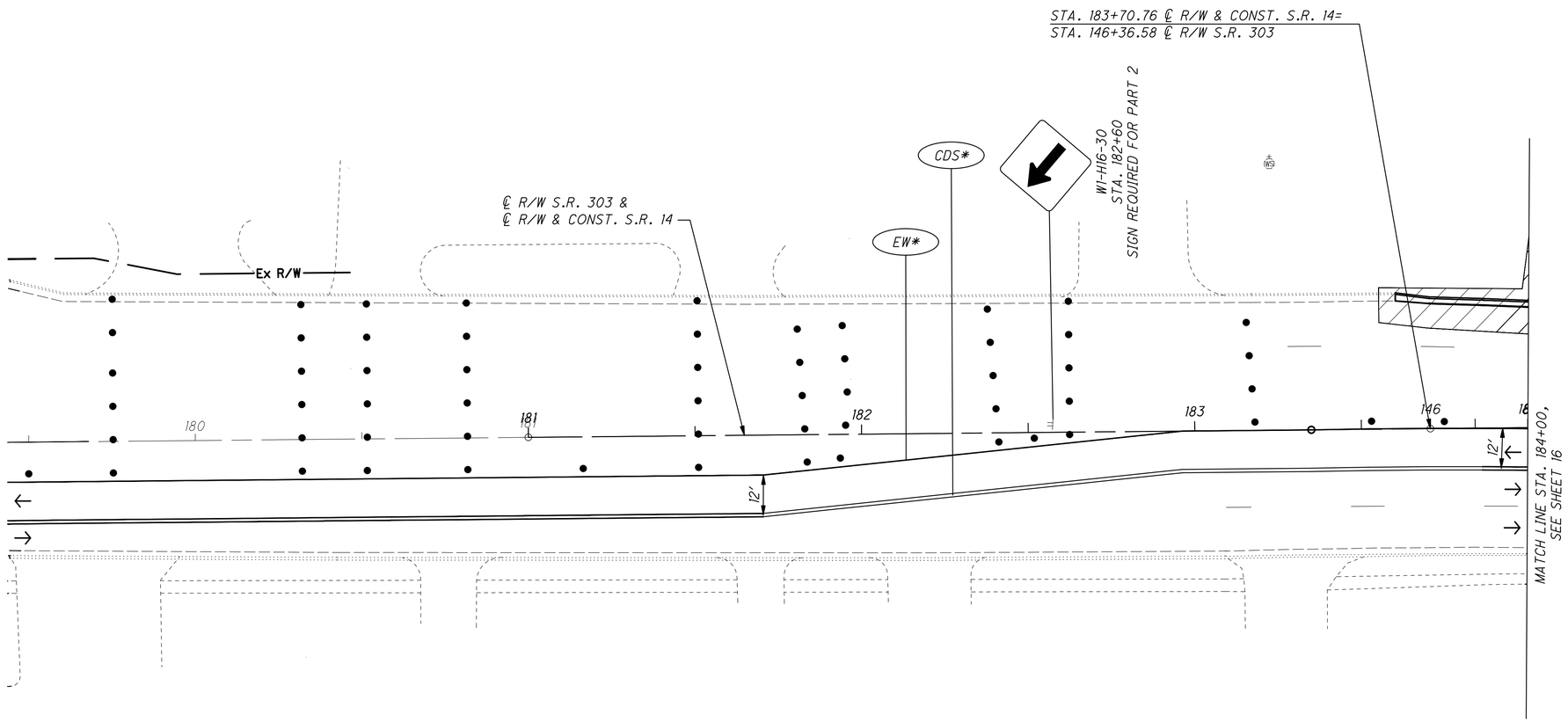

LEGEND	
→	TRAFFIC FLOW
▨	WORK AREA
•	CONSTRUCTION DRUM SPACED AT 35' C/C UNLESS NOTED OTHERWISE (10' ON AT INTERSECTION)
◇	MAINTENANCE OF TRAFFIC SIGN
CDS	WORK ZONE CENTER LINE
CH	WORK ZONE CHANNELIZING LINE
EW	WORK ZONE EDGE LINE, WHITE
LL	WORK ZONE LANE LINE
TY	WORK ZONE TRANSVERSE/DIAGONAL LINE, YELLOW
XX*	PAVEMENT MARKINGS TO BE INSTALLED IN PART 2 (105213)

NOTES:

1. THE CONTRACTOR SHALL COVER CONFLICTING SIGNING AND COVER OR REMOVE CONFLICTING PAVEMENT MARKINGS PRIOR TO CONSTRUCTION.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED DLS
CHECKED AKF

MAINTENANCE OF TRAFFIC PLAN - PHASE 1
BEGIN TO STA. 184+00

POR-SR 303-2.72
PART 3

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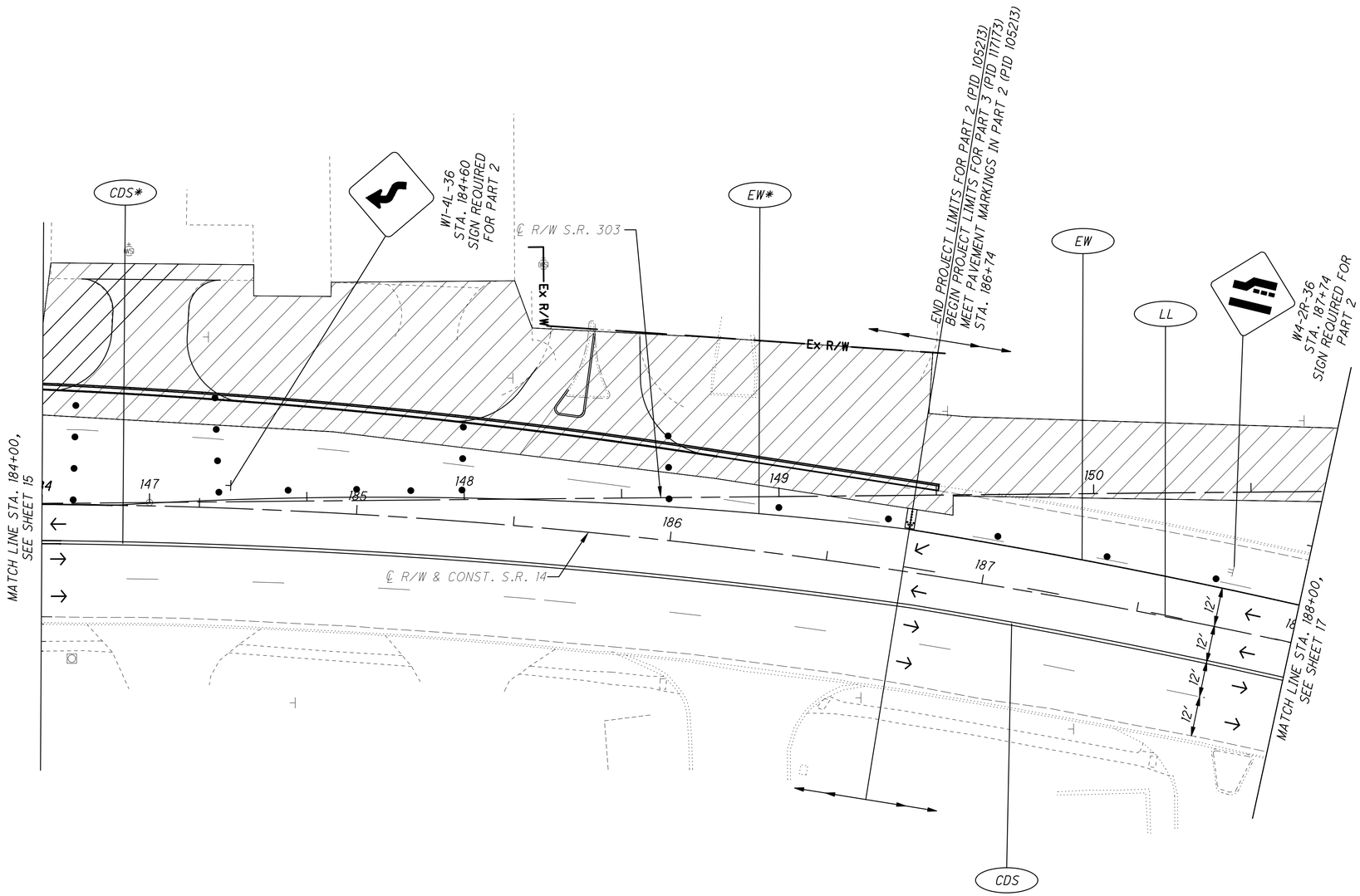

NOTES:

1. THE CONTRACTOR SHALL COVER CONFLICTING SIGNING AND COVER OR REMOVE CONFLICTING PAVEMENT MARKINGS PRIOR TO CONSTRUCTION.

2. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 15.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED DLS
CHECKED AKF

MAINTENANCE OF TRAFFIC PLAN - PHASE 1
STA. 184+00 TO STA. 188+00

POR-SR 303-2.72
PART 3

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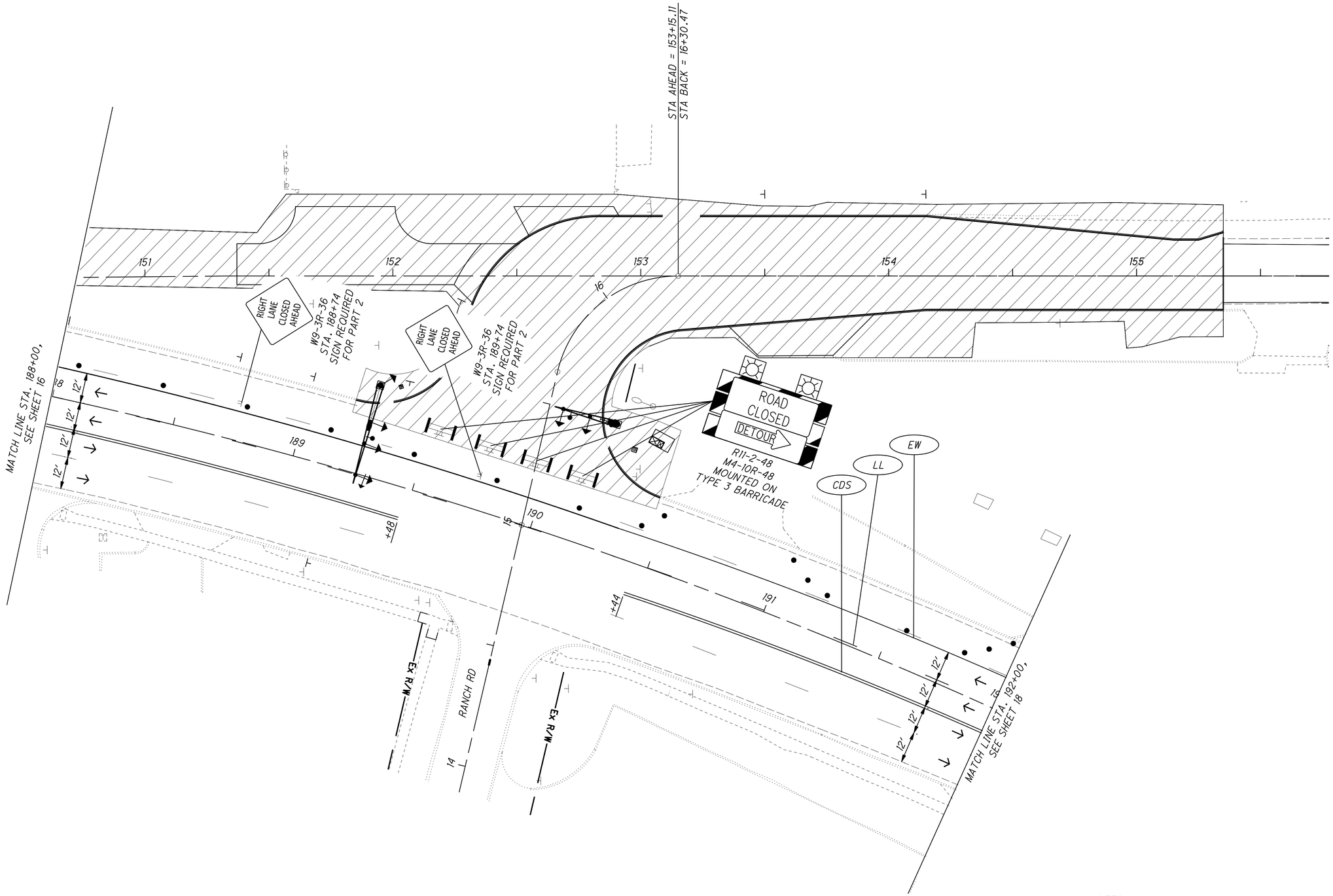

NOTES:

1. THE CONTRACTOR SHALL COVER CONFLICTING SIGNING AND COVER OR REMOVE CONFLICTING PAVEMENT MARKINGS PRIOR TO CONSTRUCTION.

2. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 15.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED D.L.S.
CHECKED AKF

MAINTENANCE OF TRAFFIC PLAN - PHASE 1
STA. 188+00 TO STA. 192+00

POR-SR 303-2.72
PART 3

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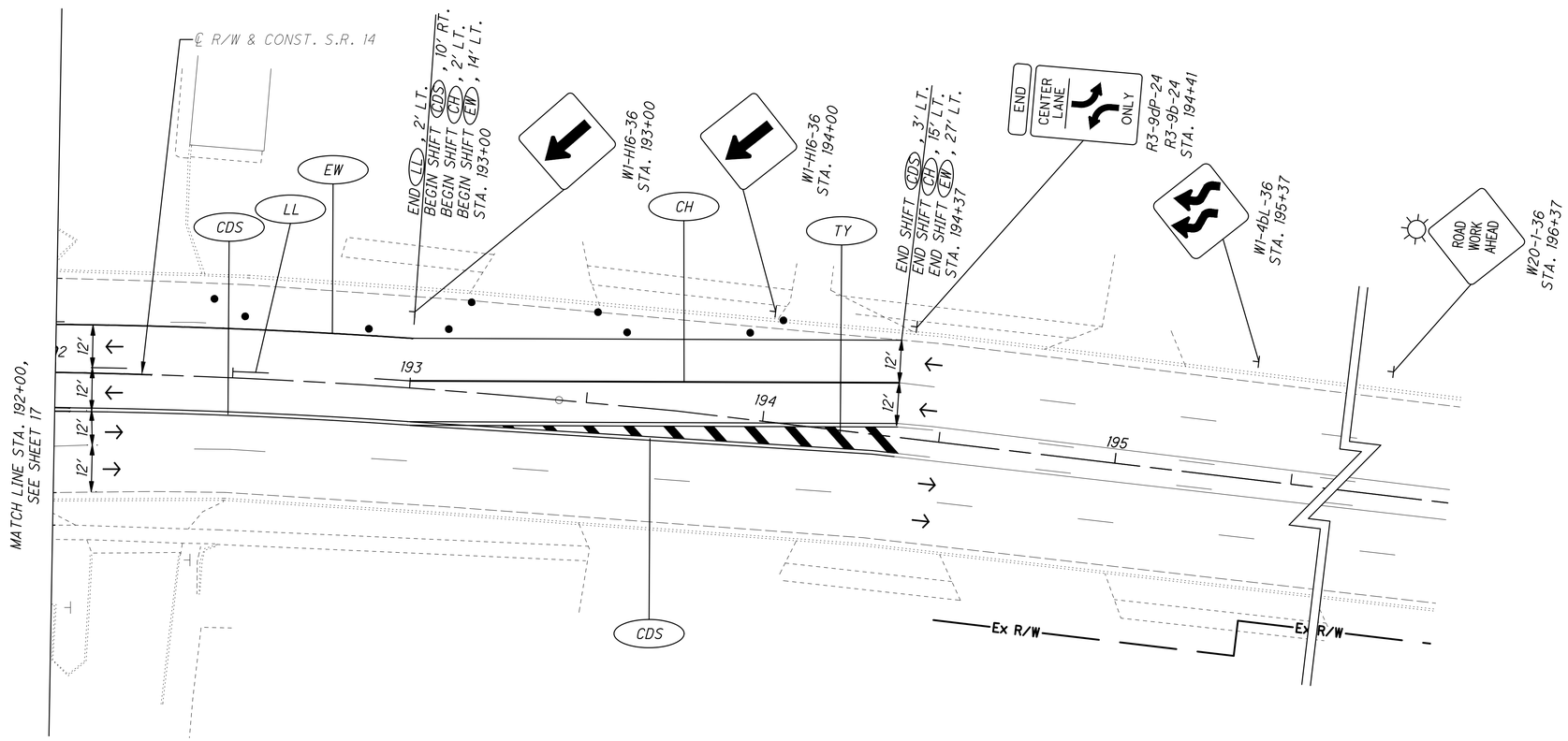

NOTES:

1. THE CONTRACTOR SHALL COVER CONFLICTING SIGNING AND COVER OR REMOVE CONFLICTING PAVEMENT MARKINGS PRIOR TO CONSTRUCTION.

2. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 15.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED D.L.S
CHECKED AKF

MAINTENANCE OF TRAFFIC PLAN - PHASE 1
STA. 192+00 TO END

POR-SR 303-2.72
PART 3

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SHEET NUM. 5	6	7		22	23	24	25						PART. 04/CMQ/STRE	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
																		ROADWAY	
	LS												LS	201	11000	LS		CLEARING AND GRUBBING	
					1,751								1,751	202	23000	1,751	SY	PAVEMENT REMOVED	
				209		313							522	202	23000	522	SY	PAVEMENT REMOVED (DRIVEWAYS)	
				337									337	202	30000	337	SF	WALK REMOVED	
						94							94	202	30800	94	SY	TRAFFIC ISLAND REMOVED	
				830									830	202	32000	830	FT	CURB REMOVED	
				611									611	202	32500	611	FT	CURB AND GUTTER REMOVED	
		1											1	202	98100	1	EACH	REMOVAL MISC.: INSPECTION WELL	7
		5											5	202	98200	5	FT	REMOVAL MISC.: CONDUIT	7
				377									377	203	10000	377	CY	EXCAVATION	
				336									336	203	20000	336	CY	EMBANKMENT	
		50											50	203	20001	50	CY	EMBANKMENT, AS PER PLAN	7
	LS												LS	203	98500	LS		ROADWAY, MISC.: PRE-CONSTRUCTION VIDEO	6
					1,472								1,472	204	10000	1,472	SY	SUBGRADE COMPACTION	
		25											25	204	13000	25	CY	EXCAVATION OF SUBGRADE	
		25											25	204	30010	25	CY	GRANULAR MATERIAL, TYPE B	
					1								1	204	45000	1	HOUR	PROOF ROLLING	
		74											74	204	50000	74	SY	GEOTEXTILE FABRIC	
				173									173	608	10000	173	SF	4" CONCRETE WALK	
				131									131	608	52001	131	SF	CURB RAMP, AS PER PLAN	6
					245								245	SPECIAL	69012060	245	SY	PAVEMENT OVERLAY FABRIC COMPOSITE	8
LS													LS	SPECIAL	69091000	LS		AS-BUILT CONSTRUCTION PLANS	5
LS													LS	SPECIAL	69098400	LS		SURVEY CONTROL VERIFICATION	5
																		EROSION CONTROL	
	2												2	659	00100	2	EACH	SOIL ANALYSIS TEST	
	139												139	659	00300	139	CY	TOPSOIL	
				1,248									1,248	659	10001	1,248	SY	SEEDING AND MULCHING, AS PER PLAN	6
	0.17												0.17	659	20000	0.17	TON	COMMERCIAL FERTILIZER	
	0.26												0.26	659	31000	0.26	ACRE	LIME	
	7												7	659	35000	7	MGAL	WATER	
							LS						LS	832	15000	LS		STORM WATER POLLUTION PREVENTION PLAN	
							LS						LS	832	15002	LS		STORM WATER POLLUTION PREVENTION INSPECTIONS	
							LS						LS	832	15010	LS		STORM WATER POLLUTION PREVENTION INSPECTION SOFTWARE	
							12,500						12,500	832	30000	12,500	EACH	EROSION CONTROL	
																		DRAINAGE	
		25											25	605	13300	25	FT	6" UNCLASSIFIED PIPE UNDERDRAINS	
					1,030								1,030	605	14000	1,030	FT	6" BASE PIPE UNDERDRAINS	
		10											10	611	01500	10	FT	6" CONDUIT, TYPE F	
		5											5	611	97400	5	FT	CONDUIT, MISC.: TYPE C FOR DRAINAGE DISCHARGE CONTINUANCE	7
		5											5	611	97400	5	FT	CONDUIT, MISC.: TYPE E FOR DRAINAGE DISCHARGE CONTINUANCE	7
		5											5	611	97400	5	FT	CONDUIT, MISC.: TYPE F FOR DRAINAGE DISCHARGE CONTINUANCE	7
		1											1	611	99720	1	EACH	INSPECTION WELL	
																		PAVEMENT	
					607								607	254	01000	607	SY	PAVEMENT PLANING, ASPHALT CONCRETE (T=3")	
					205								205	301	56000	205	CY	ASPHALT CONCRETE BASE, PG64-22, (449)	
					235	66							301	304	20000	301	CY	AGGREGATE BASE	
					221								221	407	20000	221	GAL	NON-TRACKING TACK COAT	
					64								64	441	70000	64	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22	
					90								90	441	70300	90	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449)	
						591							591	452	12050	591	SY	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC MS	
					327								327	609	12001	327	FT	COMBINATION CURB AND GUTTER, TYPE 2, AS PER PLAN	6
					703								703	609	26000	703	FT	CURB, TYPE 6	
						10							10	609	50000	10	SY	4" CONCRETE TRAFFIC ISLAND	

CALCULATED | CHECKED

GENERAL SUMMARY

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SHEET NUM. 22	23	24			47	48	49		53	56		64	PART. 04/CMQ/STRE	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
																		SANITARY SEWER	
2													2	611	99655	2	EACH	MANHOLE ADJUSTED TO GRADE, AS PER PLAN, (SANITARY)	8
																		LIGHTING	
												3	3	625	00450	3	EACH	CONNECTION, FUSED PULL APART	
												3	3	625	00460	3	EACH	CONNECTION, UNFUSED PULL APART	
												1,242	1,242	625	23302	1,242	FT	NO. 6 AWG 2400 VOLT DISTRIBUTION CABLE	
												378	378	625	23400	378	FT	NO. 10 AWG POLE AND BRACKET CABLE	
												55	55	625	25408	55	FT	CONDUIT, 2", 725.051	
												102	102	625	25504	102	FT	CONDUIT, 3", 725.051	
												156	156	625	25906	156	FT	CONDUIT, JACKED OR DRILLED, 725.051, 3"	
												3	3	625	26253	3	EACH	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN, IES-III-M, 17,000-19,000 LUMENS	63
												157	157	625	29000	157	FT	TRENCH	
												4	4	625	30700	4	EACH	PULL BOX, 725.08, 18"	
												157	157	625	36010	157	FT	UNDERGROUND WARNING/MARKING TAPE	
																		TRAFFIC CONTROL	
							24						24	630	02100	24	FT	GROUND MOUNTED SUPPORT, NO. 2 POST	
						27.4	159.6						187	630	03100	187	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
							6						6	630	79101	6	EACH	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN	46
							5						5	630	79500	5	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	
						14.7	196.4						211.1	630	80100	211.1	SF	SIGN, FLAT SHEET	
						27							27	630	84900	27	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
						18							18	630	86002	18	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
						2							2	630	87500	2	EACH	REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL	
					0.29								0.29	644	00204	0.29	MILE	LANE LINE, 6"	
					0.28								0.28	644	00300	0.28	MILE	CENTER LINE	
					508								508	644	00404	508	FT	CHANNELIZING LINE, 12"	
					135								135	644	00500	135	FT	STOP LINE	
					56								56	644	00631	56	FT	CROSSWALK LINE, 24", AS PER PLAN	46
					27								27	644	00700	27	FT	TRANSVERSE/DIAGONAL LINE	
					45								45	644	00720	45	FT	CHEVRON MARKING	
					9								9	644	01300	9	EACH	LANE ARROW	
																		TRAFFIC SIGNALS	
										3			3	625	18201	3	EACH	BRACKET ARM, 15', AS PER PLAN	54
										36			36	625	25400	36	FT	CONDUIT, 2", 725.04	
										60			60	625	25500	60	FT	CONDUIT, 3", 725.04	
										18			18	625	25600	18	FT	CONDUIT, 4", 725.04	
										149			149	625	25902	149	FT	CONDUIT, JACKED OR DRILLED, 725.04, 4"	
										203			203	625	29000	203	FT	TRENCH	
										2			2	625	30700	2	EACH	PULL BOX, 725.08, 18"	
										2			2	625	30706	2	EACH	PULL BOX, 725.08, 24"	
										8			8	625	32000	8	EACH	GROUND ROD	
										203			203	625	36010	203	FT	UNDERGROUND WARNING/MARKING TAPE	
										1			1	625	76000	1	EACH	ARC FLASH CALCULATIONS AND LABEL, TRAFFIC SIGNAL CABINET	53
										9			9	632	05006	9	EACH	VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE	
										3			3	632	05086	3	EACH	VEHICULAR SIGNAL HEAD, (LED), 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE	
										2			2	632	20731	2	EACH	PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN, AS PER PLAN	54
										12			12	632	25000	12	EACH	COVERING OF VEHICULAR SIGNAL HEAD	
										2			2	632	25010	2	EACH	COVERING OF PEDESTRIAN SIGNAL HEAD	
										2			2	632	26001	2	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN	54
										705			705	632	40500	705	FT	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	
										785			785	632	40700	785	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	
										4			4	632	64011	4	EACH	SIGNAL SUPPORT FOUNDATION, AS PER PLAN	53
										2			2	632	64020	2	EACH	PEDESTAL FOUNDATION	
									1				1	632	64950	1	EACH	TEST HOLE PERFORMED	
										1,020			1,020	632	65200	1,020	FT	LOOP DETECTOR LEAD-IN CABLE	
										230			230	632	69200	230	FT	POWER CABLE, 2 CONDUCTOR, NO. 4 AWG	
										1			1	632	70001	1	EACH	POWER SERVICE, AS PER PLAN	54

CALCULATED

CHECKED

GENERAL SUMMARY

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PART 3

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SHEET NUM. 9	10	11	12				55	56				PART. 04/CMQ/STRE	ALT (X)	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
																		TRAFFIC SIGNALS (CONT.)	
								1				1		632	72111	1	EACH	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 4, AS PER PLAN	54
								1				1		632	79111	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 4, AS PER PLAN	54
								2				2		632	79131	2	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 12, AS PER PLAN	54
								2				2		632	89901	2	EACH	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN	54
								1				1		633	65511	1	EACH	CABINET, TYPE TS-2, AS PER PLAN	54
								1				1		633	67101	1	EACH	CABINET FOUNDATION, AS PER PLAN	54
								1				1		633	67201	1	EACH	CONTROLLER WORK PAD, AS PER PLAN	54
								1				1		633	75001	1	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN	54
								1				1		809	60001	1	EACH	CCTV IP-CAMERA SYSTEM, PTZ, AS PER PLAN	55
								1				1		809	65990	1	EACH	ITS DEVICE, MISC.: LAYER 2 ETHERNET SWITCH	55
								1				1		809	69123	1	EACH	ATC CONTROLLER, AS PER PLAN	54
								1				1		809	69201	1	EACH	EMERGENCY VEHICLE PREEMPTION, AS PER PLAN	55
								1				1		809	69211	1	EACH	PREEMPT RECEIVING UNIT, AS PER PLAN	55
								64				64		809	69220	64	FT	PREEMPT DETECTOR CABLE	
								1				1		809	69231	1	EACH	PREEMPT PHASE SELECTOR, AS PER PLAN	55
								4				4		809	69241	4	EACH	PREEMPT CONFIRMATION LIGHT, AS PER PLAN	55
																		TRAFFIC SIGNALS ALTERNATES	
								1				1	X	809	65990	1	EACH	ITS DEVICE, MISC.: HIGH-SPEED ETHERNET RADIO (ALTERNATE 1)	55
							1					1	X	809	65990	1	EACH	ITS DEVICE, MISC.: HIGH-SPEED ETHERNET RADIO (ALTERNATE 2)	55
								1				1	X	816	30001	1	EACH	VIDEO DETECTION SYSTEM, AS PER PLAN (ALTERNATE 1)	55
							1					1	X	816	30001	1	EACH	VIDEO DETECTION SYSTEM, AS PER PLAN (ALTERNATE 2)	55
																		MAINTENANCE OF TRAFFIC	
	16											16		614	11110	16	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
LS												LS		614	12420	LS		DETOUR SIGNING	
		6										6		614	18601	6	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	11
			0.12									0.12		614	20000	0.12	MILE	WORK ZONE LANE LINE, CLASS I, 4"	
			0.18									0.18		614	21000	0.18	MILE	WORK ZONE CENTER LINE, CLASS I	
			0.15									0.15		614	22000	0.15	MILE	WORK ZONE EDGE LINE, CLASS I, 4"	
			137									137		614	23000	137	FT	WORK ZONE CHANNELIZING LINE, CLASS I, 8"	
			53									53		614	25000	53	FT	WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I	
		10										10		616	10000	10	MGAL	WATER	
																		INCIDENTALS	
LS												LS		614	11000	LS		MAINTAINING TRAFFIC	
												12		619	16010	12	MNTH	FIELD OFFICE, TYPE B	
												LS		623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
												LS		624	10000	LS		MOBILIZATION	

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CHECKED

GENERAL SUMMARY

POR-SR 303-2.72
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REF NO.	SHEET NO.	STATION TO STATION			202 PAVEMENT REMOVED (DRIVEWAYS) SY	202 WALK REMOVED SF	202 CURB REMOVED FT	202 CURB AND GUTTER REMOVED FT	608 4" CONCRETE WALK SF	608 CURB RAMP, AS PER PLAN SF	611 MANHOLE ADJUSTED TO GRADE, AS PER PLAN, (SANITARY) EACH	203 EXCAVATION CY	203 EMBANKMENT CY	659 SEEDING AND MULCHING, AS PER PLAN SY
R-1	27	147+66.86	TO	148+05.78	89									
R-2	27	148+27.99	TO	149+44.32	120									
R-3	27-28	149+52.05	TO	152+98.80			348							
R-4	27-28	149+42.46	TO	152+45.69			307							
R-5	29	186+73.21	TO	186+81.79				24						
R-6	29	183+60.56	TO	186+80.00				327						
R-7	26	15+31.71	TO	15+78.79				90						
R-8	26	15+21.32	TO	16+29.96				107						
R-9	26	153+15.13	TO	154+72.90			159							
R-10	26	154+72.89	TO	155+35.00				63						
CR-1	26	189+83.85				87	8			87				
CR-2	26	190+23.23				44	8			44				
SW-1	26	190+31.58	TO	190+75.73		206			173					
SJ-1	29	146+54.21									1			
SJ-2	26	153+12.24									1			
		C/L CONST. S.R. 303												
	30	15+23.03	TO	15+50.00								44	0	13
	31	16+00.00	TO	153+50.00								140	8	64
	32	154+00.00	TO	155+00.00								115	13	237
	33	155+35.00										23	5	76
		C/L R/W. S.R. 303												
	34	149+00.00	TO	150+00.00								14	85	214
	35	150+50.00	TO	151+50.00								0	115	298
	36	152+00.00	TO	153+00.00								0	0	0
		C/L R/W. & CONST. S.R. 14												
	37	183+50.00	TO	184+00.00								9	2	17
	38	184+50.00	TO	185+50.00								18	32	145
	39	186+00.00	TO	186+81.83								14	76	184
	40	187+00.00	TO	187+50.00								0	0	0
TOTALS CARRIED TO GENERAL SUMMARY					209	337	830	611	173	131	2	377	336	1248

CALCULATED

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SUBSUMMARY

POR-SR 303-2.72
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STATION RANGE			SIDE	DISTANCE (D)	AVERAGE WIDTH (W)	SURFACE AREA (A) A=DxW/9	CADD GENERATED AREA	202 PAVEMENT REMOVED	204 SUBGRADE COMPACTION	204 PROOF ROLLING	254 PAVEMENT PLANING, ASPHALT CONCRETE (T = 3")	301 ASPHALT CONCRETE BASE, PG64-22, (449) (T = 6")	304 AGGREGATE BASE (T = 6")	304 AGGREGATE BASE (T = 3")	407 NON-TRACKING TACK COAT (0.085 GAL/SY)	407 NON-TRACKING TACK COAT (0.055 GAL/SY)	441 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22, (T= 1-1/4")	441 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449), (T= 1-3/4")		605 6" BASE PIPE UNDERDRAINS		609 COMBINATION CURB AND GUTTER, TYPE 2, AS PER PLAN	609 CURB, TYPE 6		SPECIAL PAVEMENT OVERLAY FABRIC COMPOSITE
				FT	FT	SQ YD	SQ YD	SY	SY	HOUR	SY	CY	CY	CY	GAL	GAL	CY	CY		FT		FT	FT		SY
C/L CONST. SR 303																									
FULL DEPTH																									
15+23.03	TO	STA. EQ. BK 16+30.47	LT	107.44			583.17	448.71	583.17	0.30		97.20	97.20			64.15	20.25	28.35		167.90			167.90		
STA. EQ. AH 153+15.11	TO	154+15.11	LT	100.00	11.00	122.22		33.36	122.23	0.06		20.37	20.37			13.44	4.24	5.94		100.00			100.00		
154+15.11	TO	154+95.93	LT	80.82	7.16	64.31		22.79	64.31	0.03		10.72	10.72			7.07	2.23	3.13		81.19			81.19		
154+95.93	TO	155+15.02	LT	19.09	2.67	5.65		5.26	5.66			0.94	0.94			0.62	0.20	0.27		19.17			19.17		
155+15.02	TO	155+15.11	LT	0.09	2.01	0.02		0.02	0.03			0.01	0.01			0.01	0.01	0.01		0.10			0.10		
155+15.11	TO	155+25.00	LT	9.89	2.00	2.20		2.92	2.20			0.37	0.37			0.24	0.08	0.11		9.89			9.89		
155+25.00	TO	155+35.00	LT	10.00	3.50	3.89		2.88	3.89			0.65	0.65			0.43	0.14	0.19		10.41			10.41		
15+23.03	TO	16+30.47	RT	107.44			263.66	212.35	263.66	0.13		43.94	43.94			29.00	9.15	12.82		93.31			93.31		
153+15.11	TO	153+16.70	RT	1.59			0.63	0.58	0.63			0.11	0.11			0.07	0.02	0.03		1.60			1.60		
153+16.70	TO	154+14.97	RT	98.27	3.51	38.35		27.22	38.35			6.39	6.39			4.22	1.33	1.86		98.60			98.60		
154+14.97	TO	154+15.11	RT	0.14	3.51	0.05		0.06	0.06			0.01	0.01			0.01	0.01	0.01		0.14			0.14		
154+15.11	TO	155+35.00	RT	119.89	3.50	46.62		33.51	46.63			7.77	7.77			5.13	1.62	2.27		119.89			119.89		
BASE EXT																									
15+23.03	TO	16+30.47	LT	107.44	1.67		31.06		31.06	0.02				2.59											
153+15.11	TO	154+15.11	LT	100.00	1.67	18.52			18.52					1.54											
154+15.11	TO	154+95.93	LT	80.82	1.67	14.97			14.97					1.25											
154+95.93	TO	155+15.02	LT	19.09	1.67	3.54			3.54					0.29											
155+15.02	TO	155+15.11	LT	0.09	1.67	0.02			0.02					0.01											
155+15.11	TO	155+25.00	LT	9.89	1.67	1.83			1.84					0.15											
155+25.00	TO	155+35.00	LT	10.00	1.67	1.85			1.86					0.15											
15+23.03	TO	16+30.47	RT	107.44	1.67		17.31		17.31	0.01				1.44											
153+15.11	TO	153+16.70	RT	1.59	1.67		0.30		0.30					0.03											
153+16.70	TO	154+14.97	RT	98.27	1.67	18.20			18.20					1.52											
154+14.97	TO	154+15.11	RT	0.14	1.67	0.03			0.03					0.00											
154+15.11	TO	155+35.00	RT	119.89	1.67	22.20			22.21					1.85											
RESURFACING																									
153+15.11	TO	154+95.93	LT	180.82	13.00	261.18					261.19				22.20	14.37	9.07	12.70							100.46
154+95.93	TO	155+15.02	LT	19.09	12.75	27.04					27.05				2.30	1.49	0.94	1.31							10.61
155+15.02	TO	155+35.00	LT	19.98	12.50	27.75					27.75				2.36	1.53	0.96	1.35							11.10
153+15.11	TO	154+14.97	RT	99.86	14.12	156.66					156.66				13.32	8.62	5.44	7.62							55.48
154+14.97	TO	155+35.00	RT	120.03	10.00	133.37					133.37				11.34	7.34	4.63	6.48							66.69
C/L R/W & CONST. SR 14																									
FULL DEPTH																									
183+60.56	TO	186+11.46	LT	250.90			79.99	236.70	79.99			13.33	13.33			8.80	2.78	3.89		255.64		255.64			
186+11.46	TO	186+81.79	LT	70.33	2.00	15.63		140.94	15.63			2.60	2.60			1.72	0.54	0.76		71.28		71.28			
BASE EXT																									
183+60.56	TO	186+11.46	LT	250.90			90.19		90.19				15.03												
186+11.46	TO	186+81.79	LT	70.33	3.17	24.75			24.75				4.12												
| R/W & CONST. SR 303																									
149+51.18	TO	152+38.18	LT/RT	287.00				582.74																	
							SUBTOTALS	1750.04	1471.24	0.55	606.02	204.41	223.56	10.83	51.51	168.24	63.64	89.09		1029.12		326.92	702.20		244.34
							TOTALS CARRIED TO GENERAL SUMMARY	1751	1472	1	607	205	224	11	52	169	64	90		1030		327	703		245

CALCULATED

CHECKED

PAVEMENT CALCULATIONS

POR-SR 303-2.72
PART 3

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REF NO.	SHEET NO.	STATION	ALIGNMENT	SIDE	USAGE	TYPE	EXISTING APRON MATERIAL	EXISTING DRIVE MATERIAL	PROPOSED APRON MATERIAL	PROPOSED DRIVE MATERIAL	APRON LENGTH "L1"	DRIVEWAY LENGTH "L2"	WIDTH "W1"	WIDTH "W2"	AREA 1 (CADD GENERATED AREA)	AREA 2 (CADD GENERATED AREA)	PAVEMENT REMOVED (DRIVEWAYS)	TRAFFIC ISLAND REMOVED		AGGREGATE BASE (T=4")	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC MS		4" CONCRETE TRAFFIC ISLAND		
																	202	202		304	452		609		
															SF	SF	SY	SY		CY	SY		SY		
DV-1	43	15+84.01	SR 303	LT	COMM		CONC	CONC	CONC	CONC	11.83	60.68	30.26	40.21	2226.76	235.86	61.60			30.41	273.63				
DV-2	43	16+08.30	SR 303	LT	COMM		CONC		CONC		5.24		37.20	40.24	233.17		27.56			2.88	25.91				
DV-3	43	153+62.53	SR 303	RT	COMM		CONC		CONC		13.78		59.58	30.11	610.18		70.47			7.54	67.80				
DV-4	44	185+76.55	SR 14	LT	COMM		CONC		CONC		31.35		82.64	15.09	1027.93		51.50	93.81		12.70	114.22		9.75		
DV-5	44	184+35.27	SR 14	LT	COMM		CONC		CONC		34.76		56.45	44.05	980.72		101.83			12.11	108.97				
TOTALS CARRIED TO GENERAL SUMMARY																	313	94		66	591		10		

CALCULATED

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DRIVEWAY CALCULATIONS

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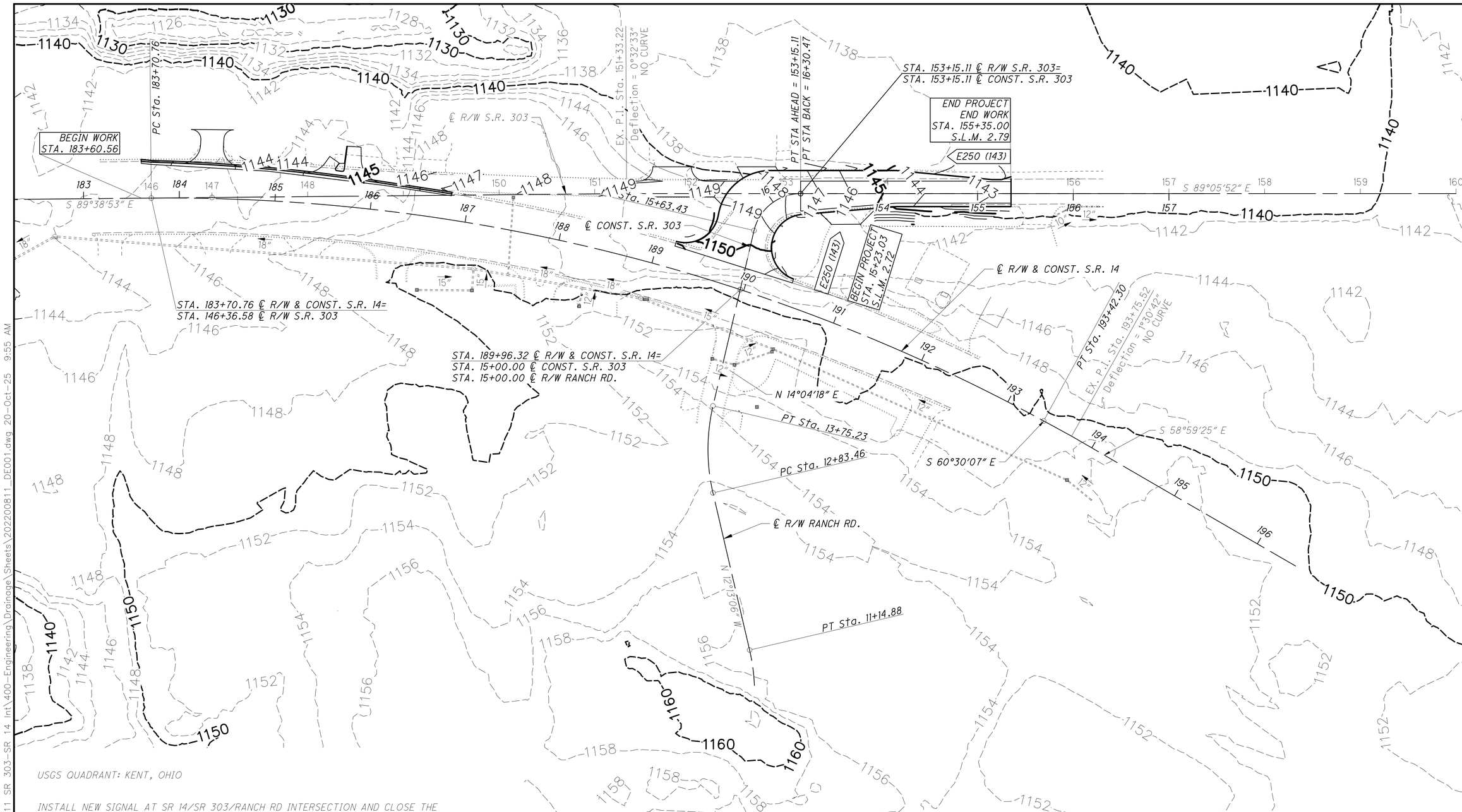

USGS QUADRANT: KENT, OHIO

INSTALL NEW SIGNAL AT SR 14/SR 303/RANCH RD INTERSECTION AND CLOSE THE WESTBOUND SLIP LANE FROM SR 303 TO SR 14, IN THE CITY OF STREETSBORO, PORTAGE COUNTY, OHIO.

LONGITUDE: 81° 20' 25"*
LATITUDE: 41° 14' 20"*

* LATITUDE AND LONGITUDE TO THE APPROXIMATE CENTER OF THE PROJECT.

ITEM 832 - STORM WATER POLLUTION PREVENTION PLAN	LS
ITEM 832 - STORM WATER POLLUTION PREVENTION INSPECTIONS	LS
ITEM 832 - STORM WATER POLLUTION PREVENTION INSPECTION SOFTWARE	LS
ITEM 832 - EROSION CONTROL	12,500 EACH

QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

LEGEND

- Catch Basin, CB-2-2B
- PAVEMENT INLET 2A
- Catch Basin, CB-3
- Manhole

PROJECT DATA

Total Area of Project (Right of Way)	0.95 Ac.	Runoff Coefficient For Pre-Construction Site	0.77
Project Earth disturbed Area	0.90 Ac.	Runoff Coefficient For Post-Construction Site	0.71
Estimated Contractor Earth Disturbed Area	0.25 Ac.	Post Construction BMP: N/A	
Notice of Intent Earth Disturbed Area	1.15 Ac.		
Impervious Area For Pre-Construction	0.63 Ac.	Immediate Receiving Waters_____Tinkers Creek	
Impervious Area For Post-Construction	0.51 Ac.	Subsequent Receiving Waters_____Cuyahoga River	

PROJECT SITE PLAN

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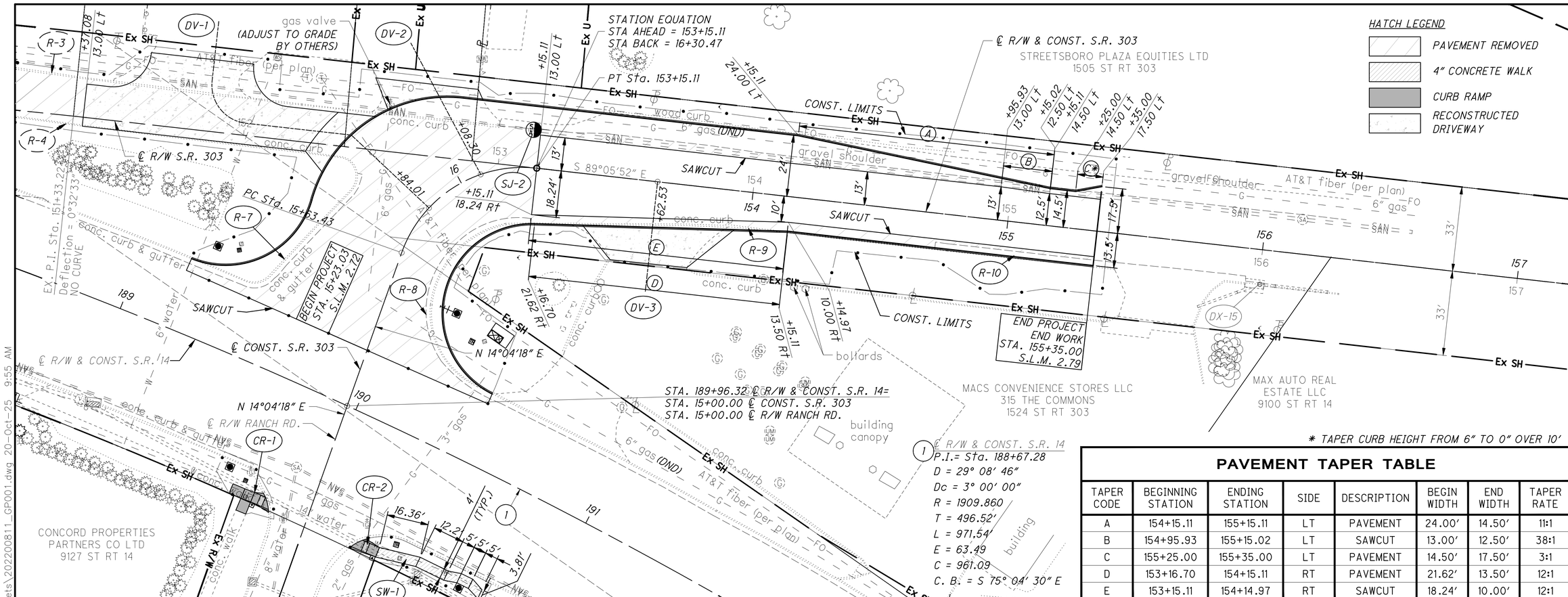
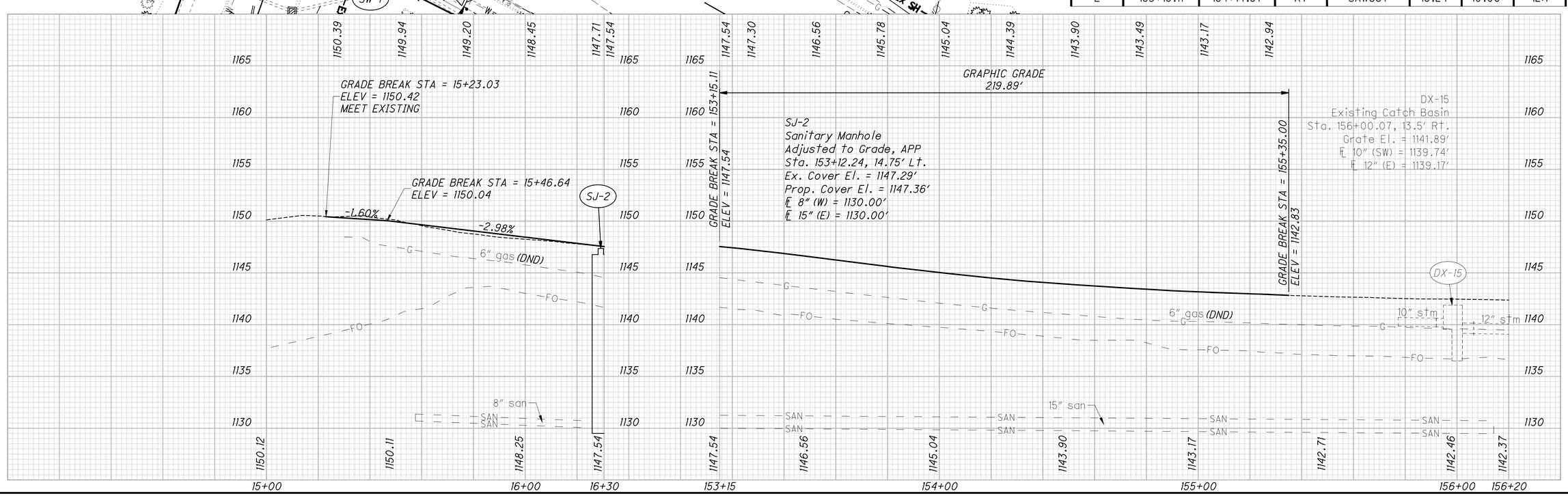


℄ R/W & CONST. S.R. 14
P.I.= Sta. 188+67.28
D = 29° 08' 46"
Dc = 3° 00' 00"
R = 1909.860
T = 496.52'
L = 971.54'
E = 63.49
C = 961.09
C. B. = S 75° 04' 30" E

✱ TAPER CURB HEIGHT FROM 6" TO 0" OVER 10'

PAVEMENT TAPER TABLE

TAPER CODE	BEGINNING STATION	ENDING STATION	SIDE	DESCRIPTION	BEGIN WIDTH	END WIDTH	TAPER RATE
A	154+15.11	155+15.11	LT	PAVEMENT	24.00'	14.50'	11:1
B	154+95.93	155+15.02	LT	SAWCUT	13.00'	12.50'	38:1
C	155+25.00	155+35.00	LT	PAVEMENT	14.50'	17.50'	3:1
D	153+16.70	154+15.11	RT	PAVEMENT	21.62'	13.50'	12:1
E	153+15.11	154+14.97	RT	SAWCUT	18.24'	10.00'	12:1



PLAN AND PROFILE - S.R. 303
BEGIN PROJECT TO END PROJECT

POR-SR 303-2.72
PART 3

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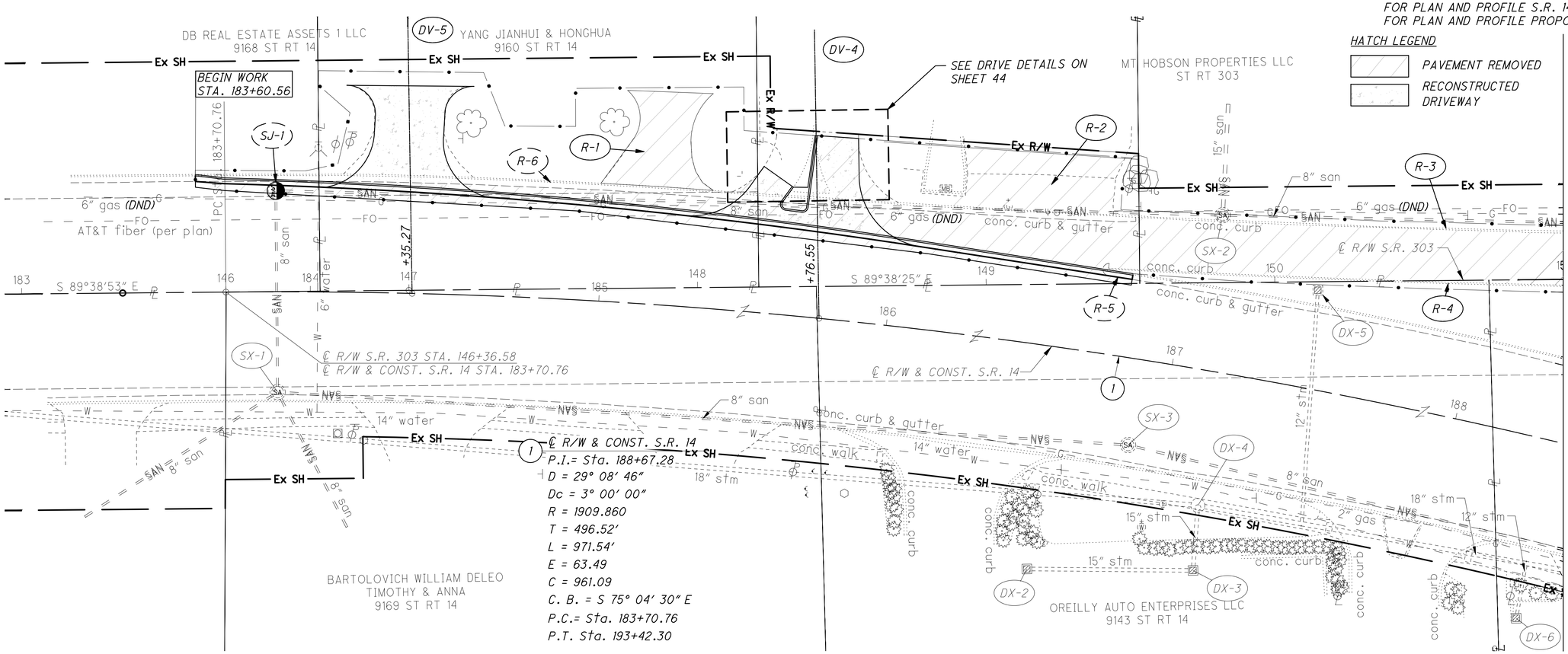
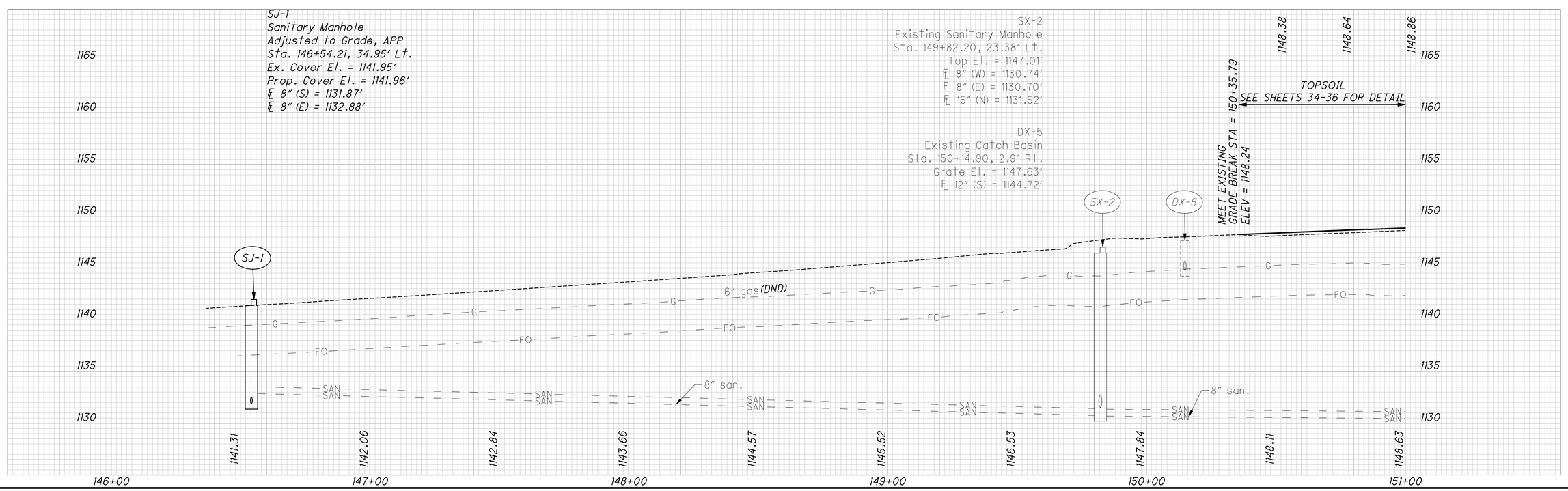
FOR PLAN AND PROFILE S.R. 14, SEE SHEET 29
FOR PLAN AND PROFILE PROPOSED S.R. 303, SEE SHEET 26

HATCH LEGEND
PAVEMENT REMOVED
RECONSTRUCTED DRIVEWAY





HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED
CHECKED

PLAN AND PROFILE - SLIP LANE
BEGIN WORK TO STA. 151+00.00

POR-SR 303-2.72
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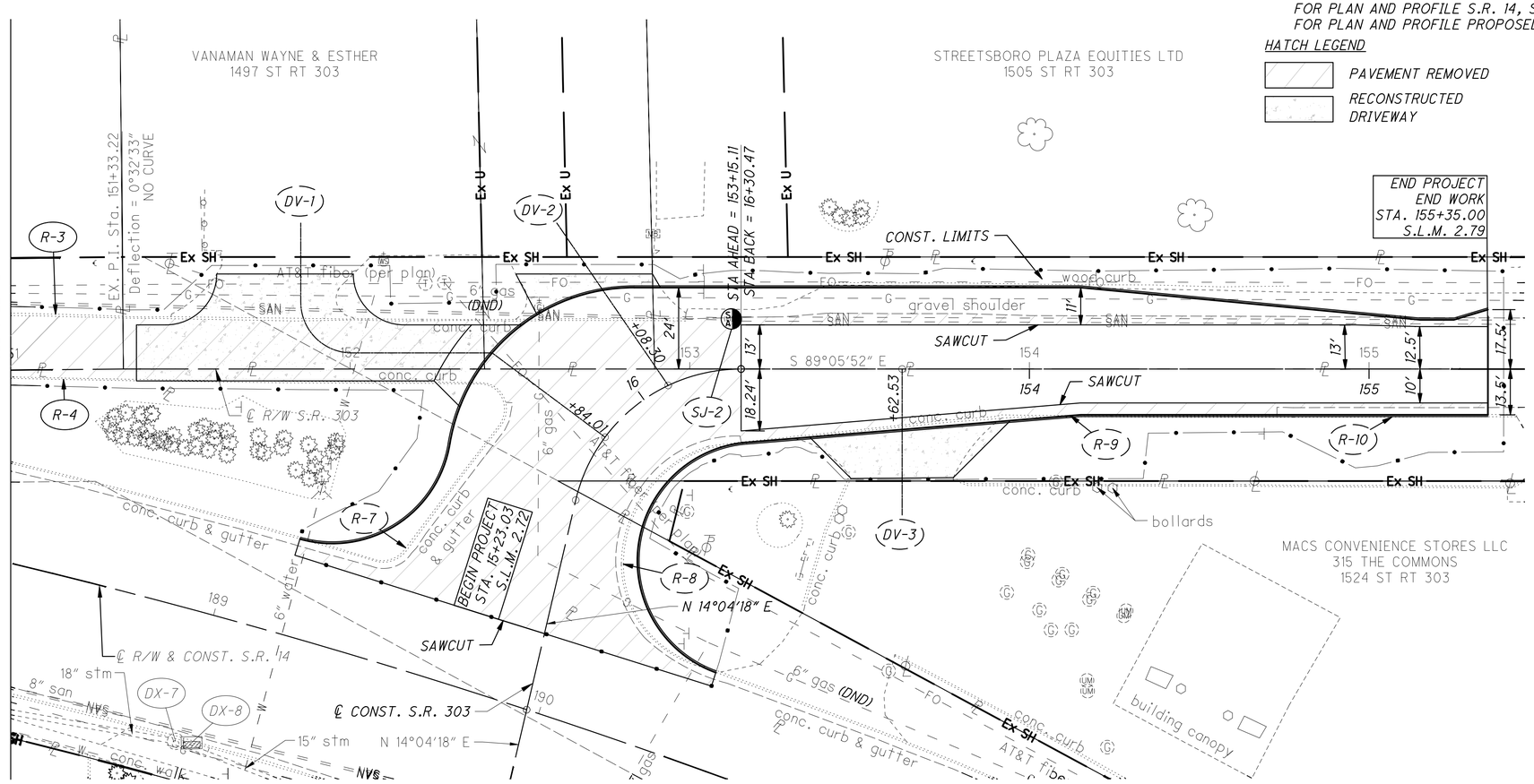
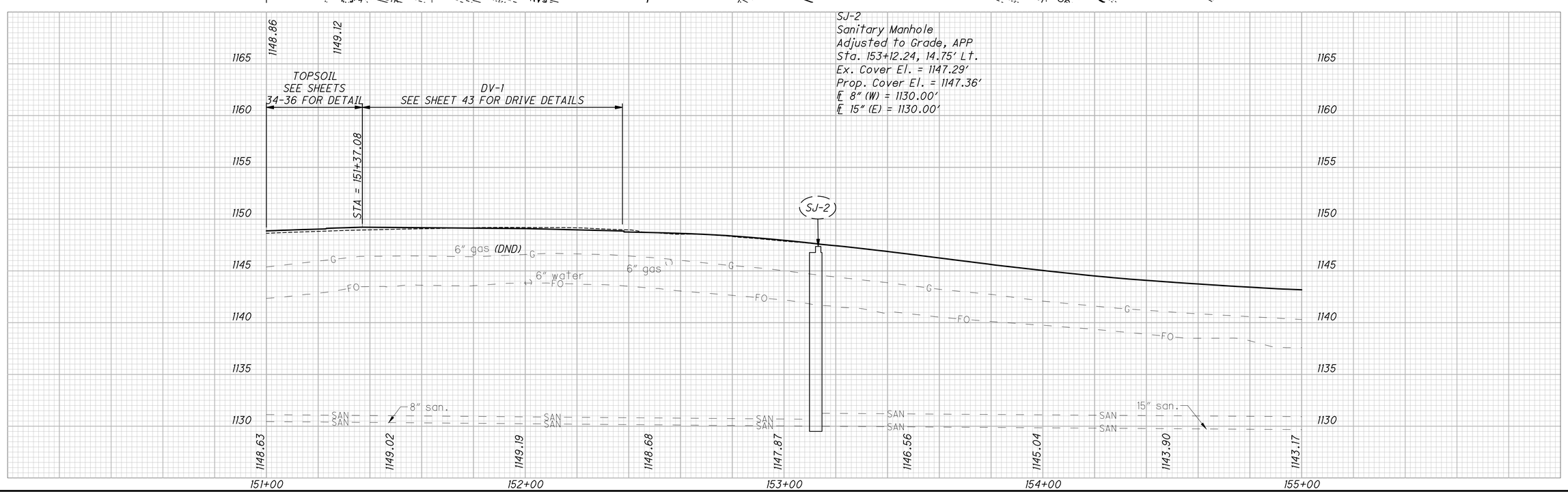
FOR PLAN AND PROFILE S.R. 14, SEE SHEET 29
FOR PLAN AND PROFILE PROPOSED S.R. 303, SEE SHEET 26

HATCH LEGEND

PAVEMENT REMOVED

RECONSTRUCTED DRIVEWAY





HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED

CHECKED

PLAN AND PROFILE - SLIP LANE
STA. 151+00.00 TO STA. 155+00.00

POR-SR 303-2.72
PART 3

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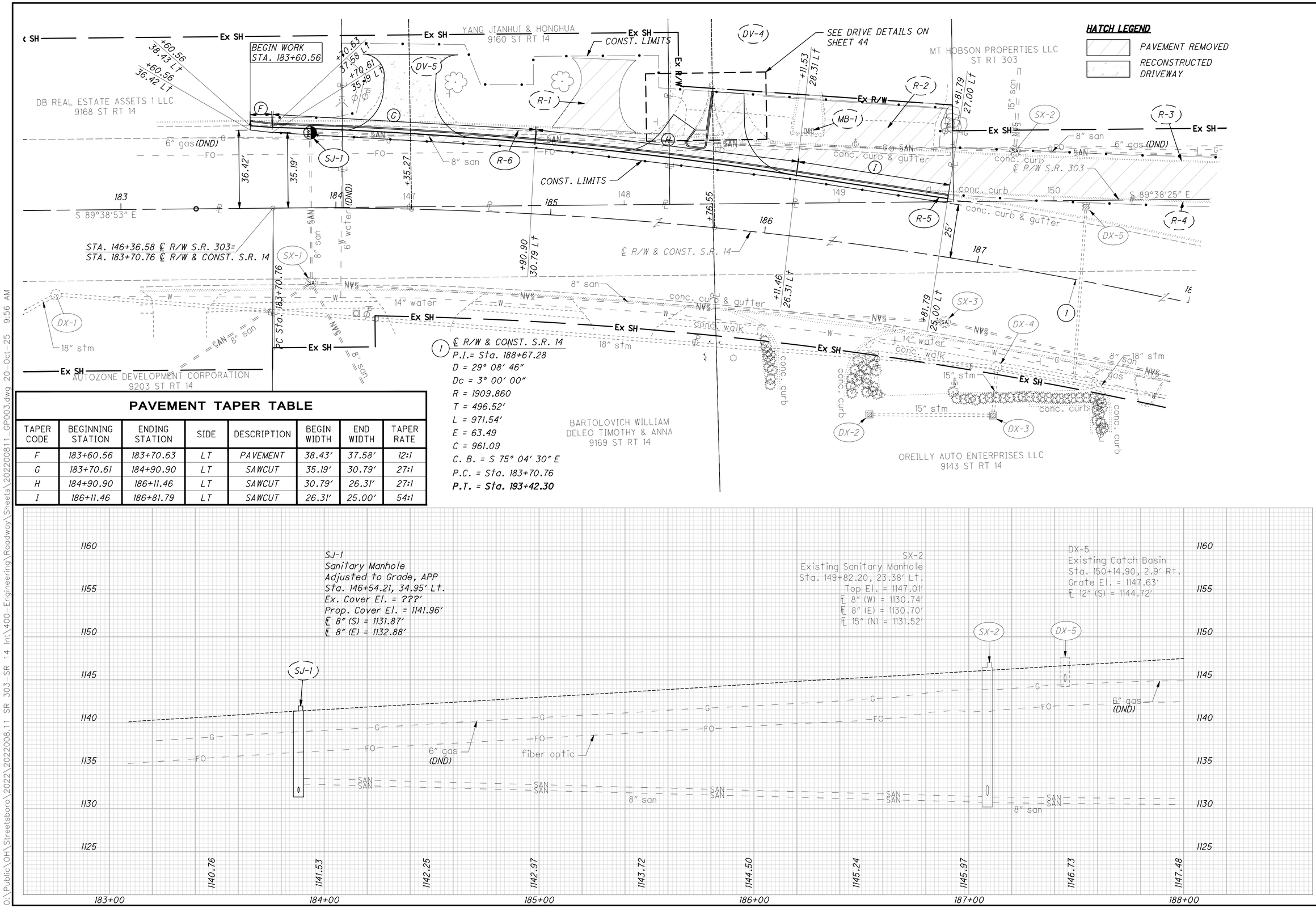


PAVEMENT TAPER TABLE

TAPER CODE	BEGINNING STATION	ENDING STATION	SIDE	DESCRIPTION	BEGIN WIDTH	END WIDTH	TAPER RATE
F	183+60.56	183+70.63	LT	PAVEMENT	38.43'	37.58'	12:1
G	183+70.61	184+90.90	LT	SAWCUT	35.19'	30.79'	27:1
H	184+90.90	186+11.46	LT	SAWCUT	30.79'	26.31'	27:1
I	186+11.46	186+81.79	LT	SAWCUT	26.31'	25.00'	54:1

HORIZONTAL SCALE IN FEET 0 10 20 40

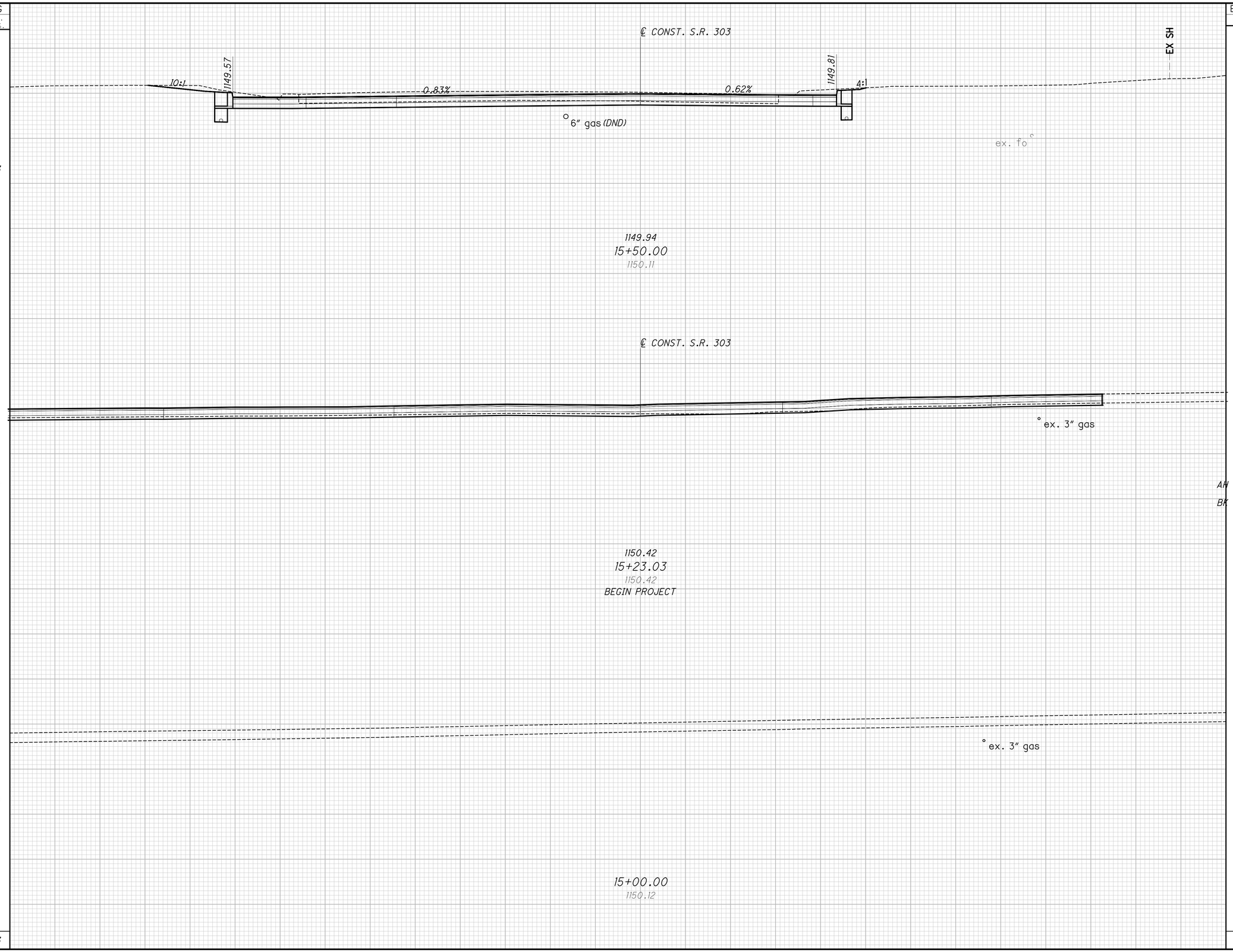
CALCULATED

CHECKED

PLAN AND PROFILE - S.R. 14
BEGIN WORK TO STA. 188+00.00

POR-SR 303-2.72
PART 3

O:\Public\OH\Streetsboro\2022\2022008.11 SR 303-SR 14 Int\400-Engineering\Roadway\Sheets\20220811_GP003.dwg 20-Oct-25 9:56 AM



SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
9	13	62	0	44	0
0	0	AH 27 BK 0	0 0	0	0
0	0	0	0	0	0
	13			44	0

CALCULATED

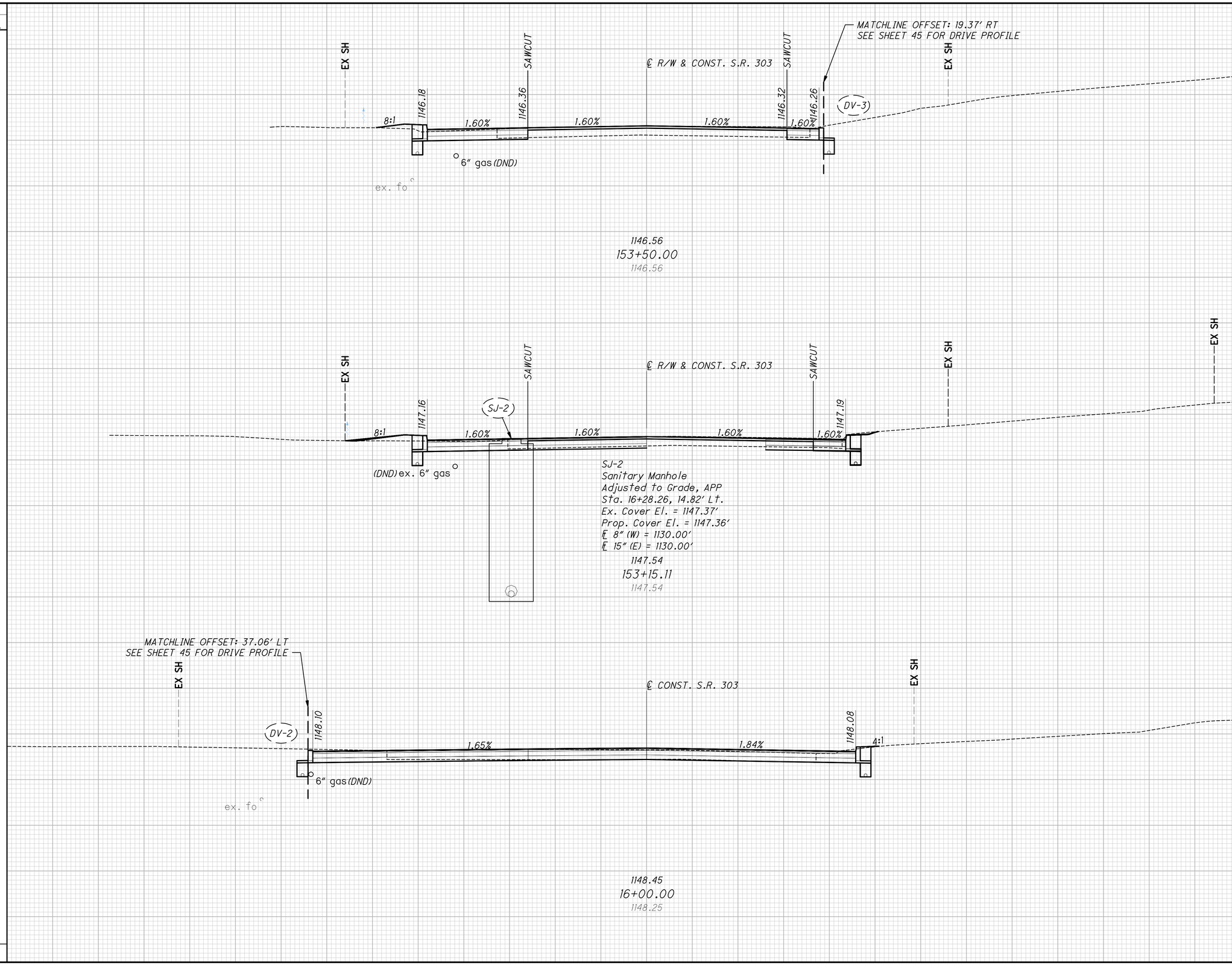
CHECKED

CROSS SECTIONS - S.R. 303
STA. 15+50.00 TO STA. 15+00.00

POR-SR 303-2.72
PART 3

Q:\Public\OH\Streetsboro\2022\2022008.11 SR 303-SR 14 Int\400-Engineering\Roadway\Sheets\20220811_XS001.dwg 20-Oct-25 9:56 AM

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
3	21	17	2	27	4
8	15	25	4	30	3
1	28	28	1	83	1
	64			140	8



CALCULATED

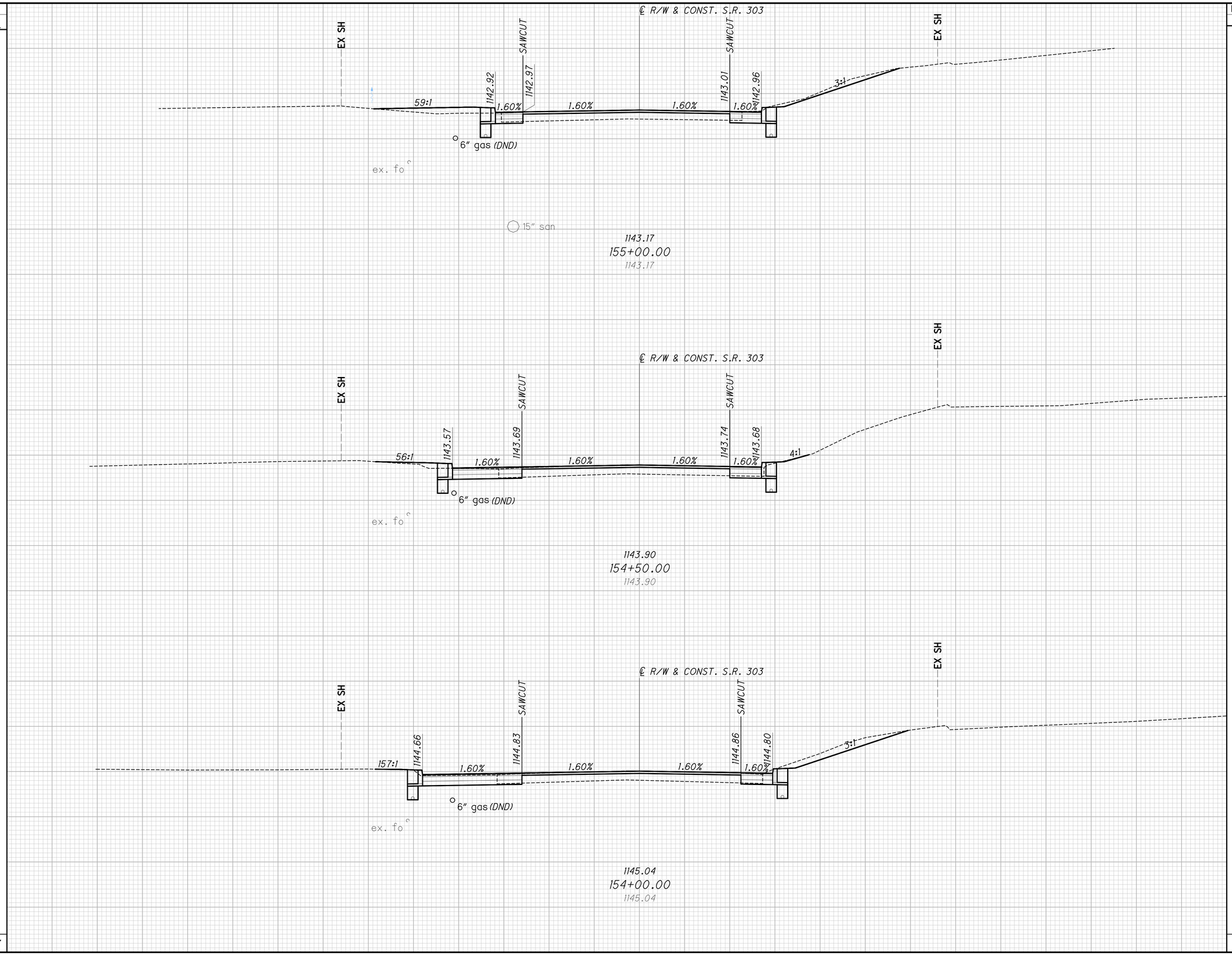
CHECKED

CROSS SECTIONS - S.R. 303
STA. 16+00.00 TO STA. 153+50.00

POR-SR 303-2.72
PART 3

O:\Public\OH\Streetsboro\2022\2022008.11 SR 303-SR 14 Int\400-Engineering\Roadway\Sheets\20220811_XS001.dwg 20-Oct-25 9:56 AM

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
26	103	18	6	31	7
11	78	15	2	41	3
17	56	29	1	43	3
	237			115	13



CALCULATED

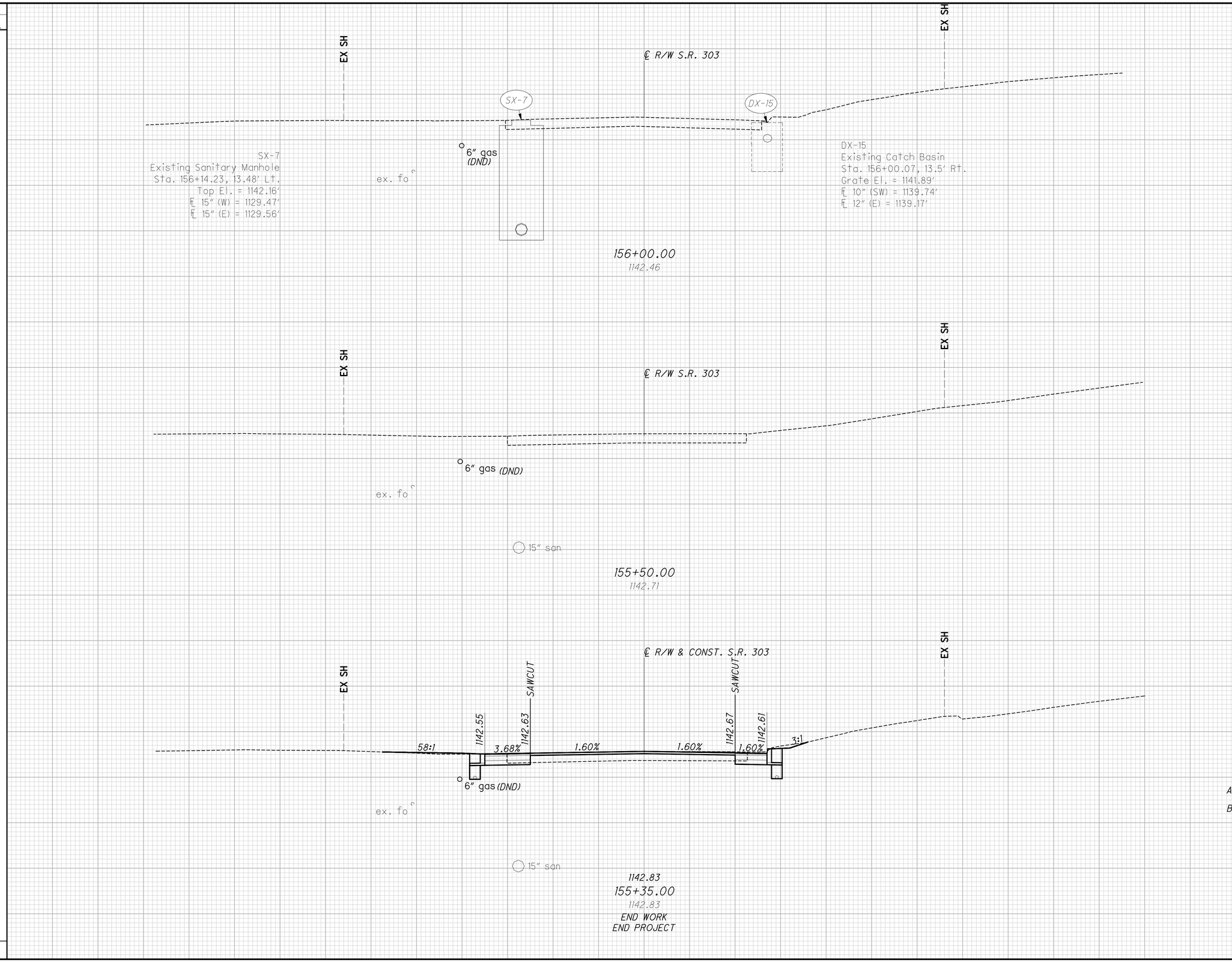
CHECKED

CROSS SECTIONS - S.R. 303
STA. 154+00.00 TO STA. 155+00.00

POR-SR 303-2.72
PART 3

O:\Public\OH\Streetsboro\2022\2022008.11 SR 303-SR 14 Int\400-Engineering\Roadway\Sheets\202200811_XS001.dwg 20-Oct-25 9:56 AM

SEEDING	
END WIDTH	SQ. YDS.
0	0
0	0
13	76
	76



END AREA		VOLUME	
CUT	FILL	CUT	FILL
AH 0	0		
BK 17	1		
		23	5
		23	5

CALCULATED

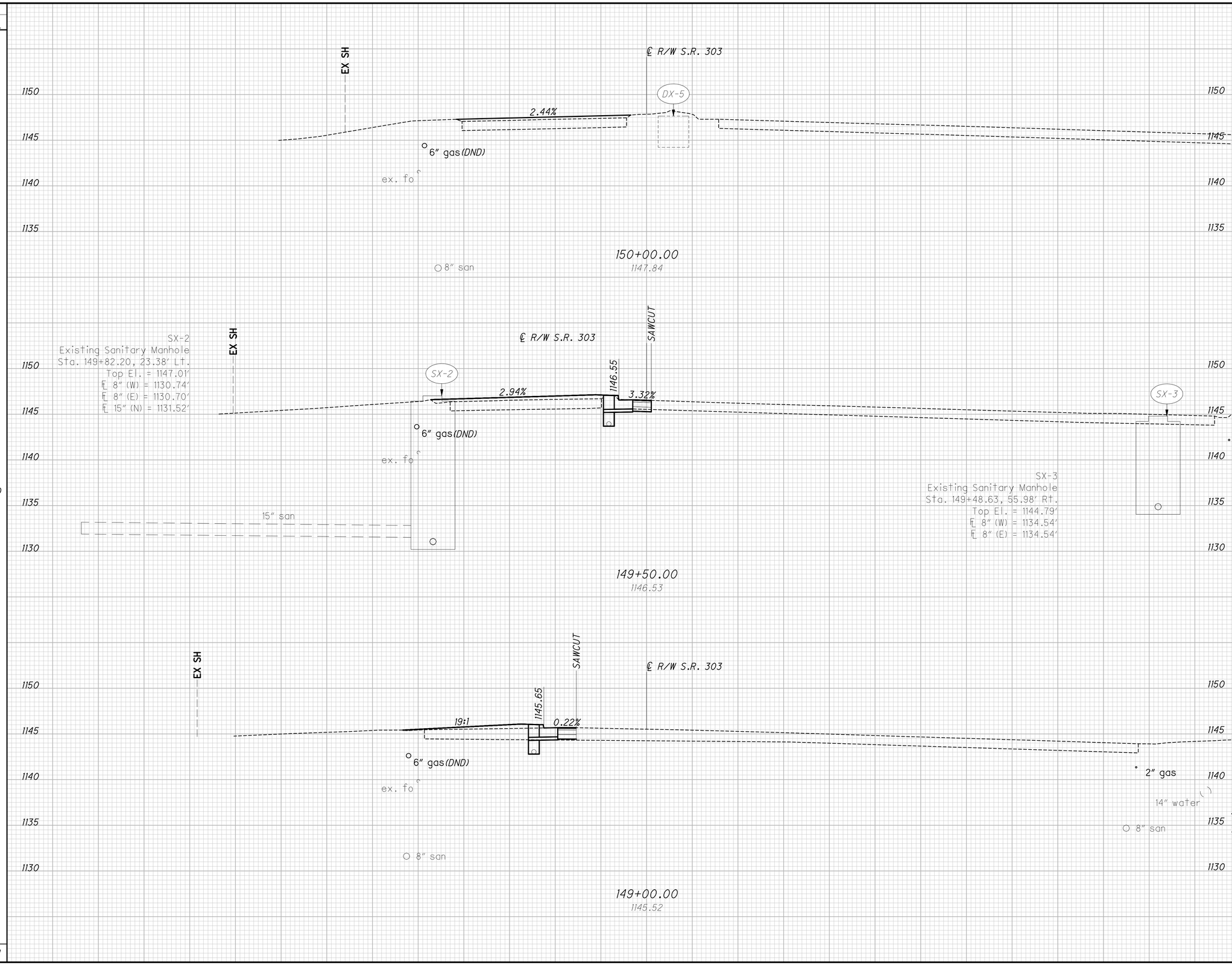
CHECKED

CROSS SECTIONS - S.R. 303
END PROJECT TO STA. 156+00.00

POR-SR 303-2.72
PART 3

O:\Public\OH\Streetsboro\2022\2022008.11 SR 303-SR 14 Int\400-Engineering\Roadway\Sheets\202200811_XS001.dwg 20-Oct-25 9:56 AM

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
20	114	0	23		
				6	45
21	100	7	26		
				8	40
15	0	AH 2 BK 0	17 0		
				0	0
	214			14	85



CROSS SECTIONS - SLIP LANE
STA. 149+00.00 TO STA. 150+00.00

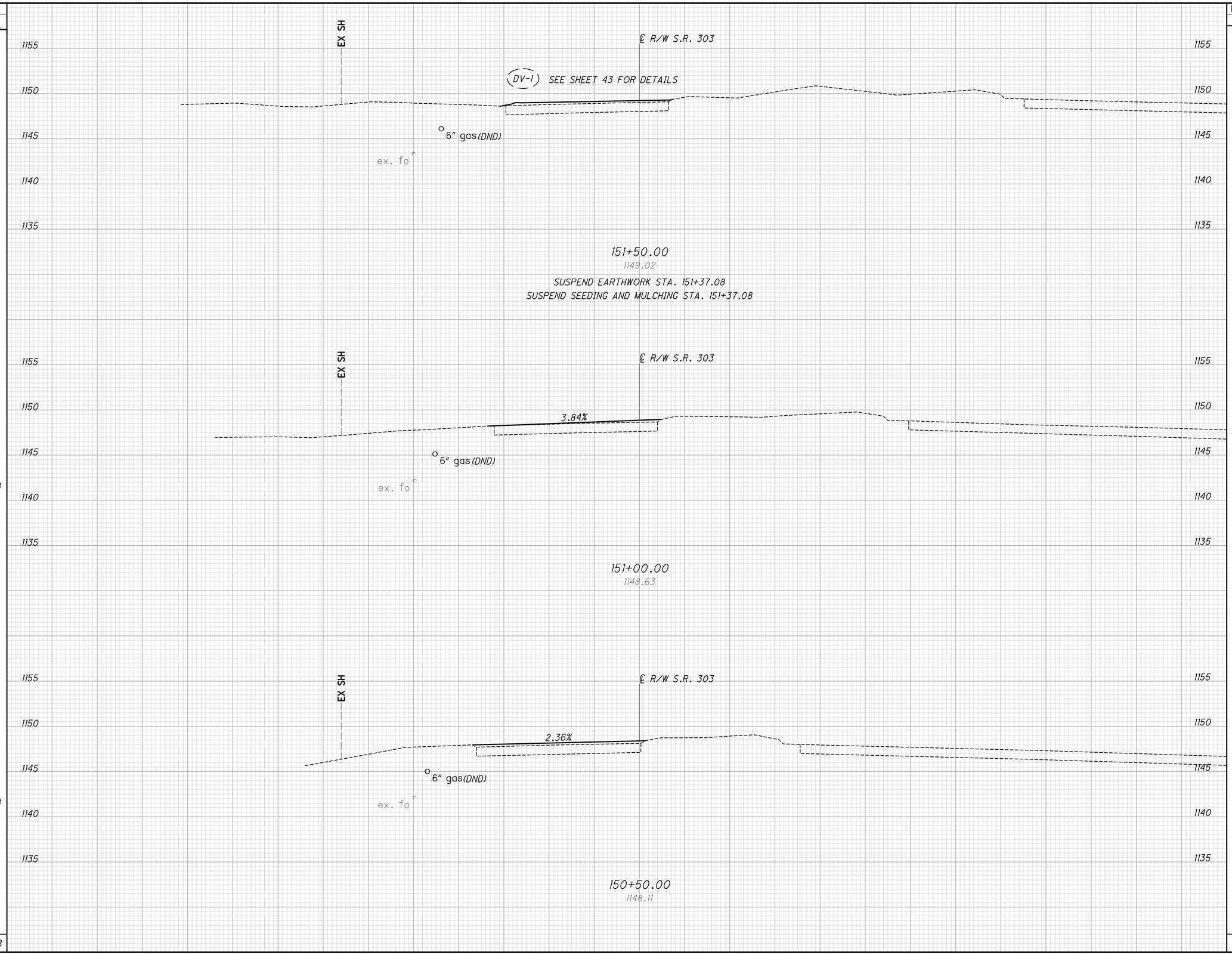
CALCULATED

CHECKED

POR-SR 303-2.72
PART 3

Q:\Public\OH\Streetsboro\2022\2022008.11 SR 303-SR 14 Int\400-Engineering\Roadway\Sheets\20220811_XS003.dwg 20-Oct-25 9:57 AM

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
20	82	0	22		
				0	30
20	108	0	22		
				0	42
19	108	0	23		
				0	43
	298			0	115



CALCULATED

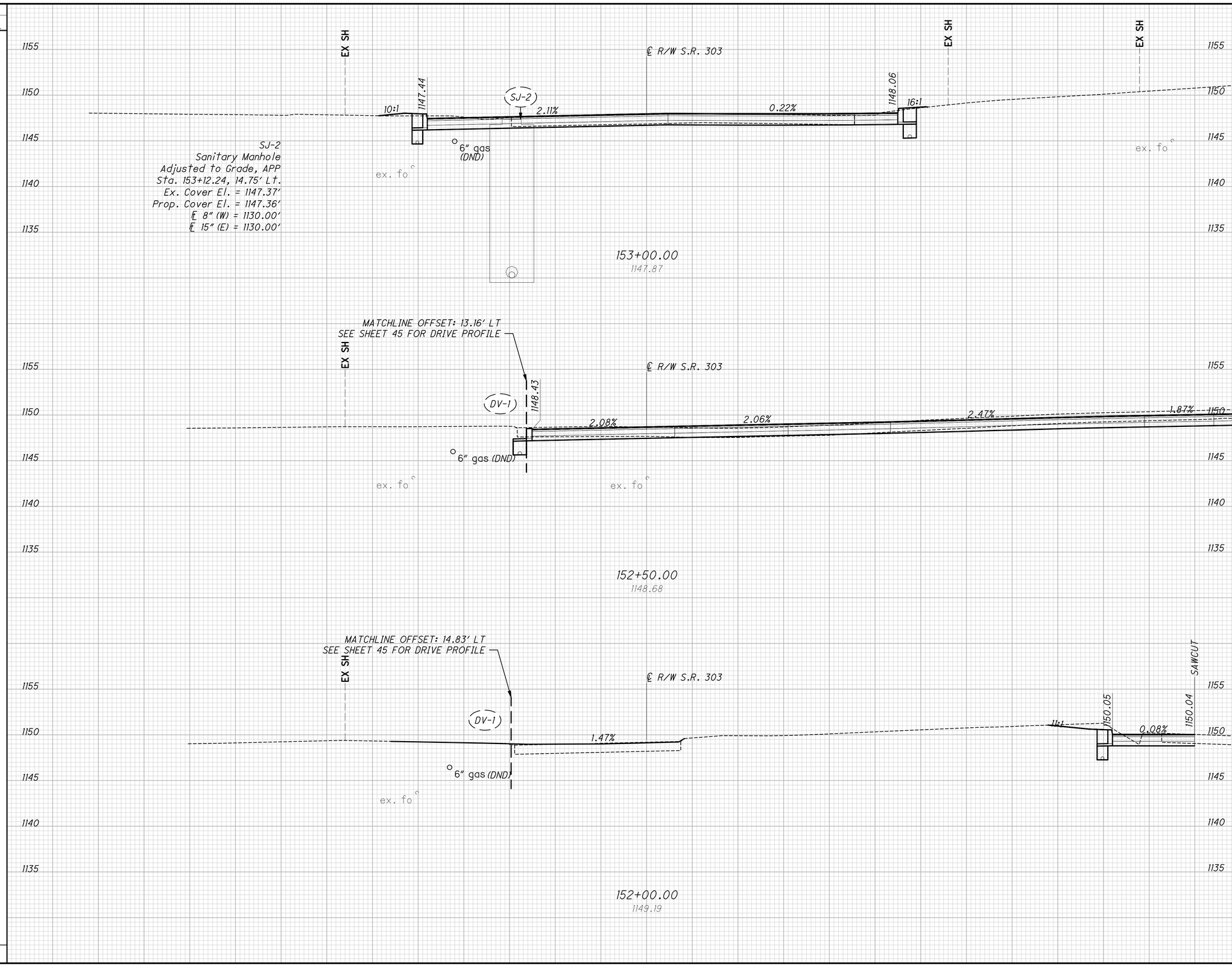
CHECKED

CROSS SECTIONS - SLIP LANE
STA. 150+50.00 TO STA. 151+50.00

POR-SR 303-2.72
PART 3

Q:\Public\OH\Streetsboro\2022\2022008.11 SR 303-SR 14 Int\400-Engineering\Roadway\Sheets\20220811_XS003.dwg 20-Oct-25 9:57 AM

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
	0			0	0



CALCULATED

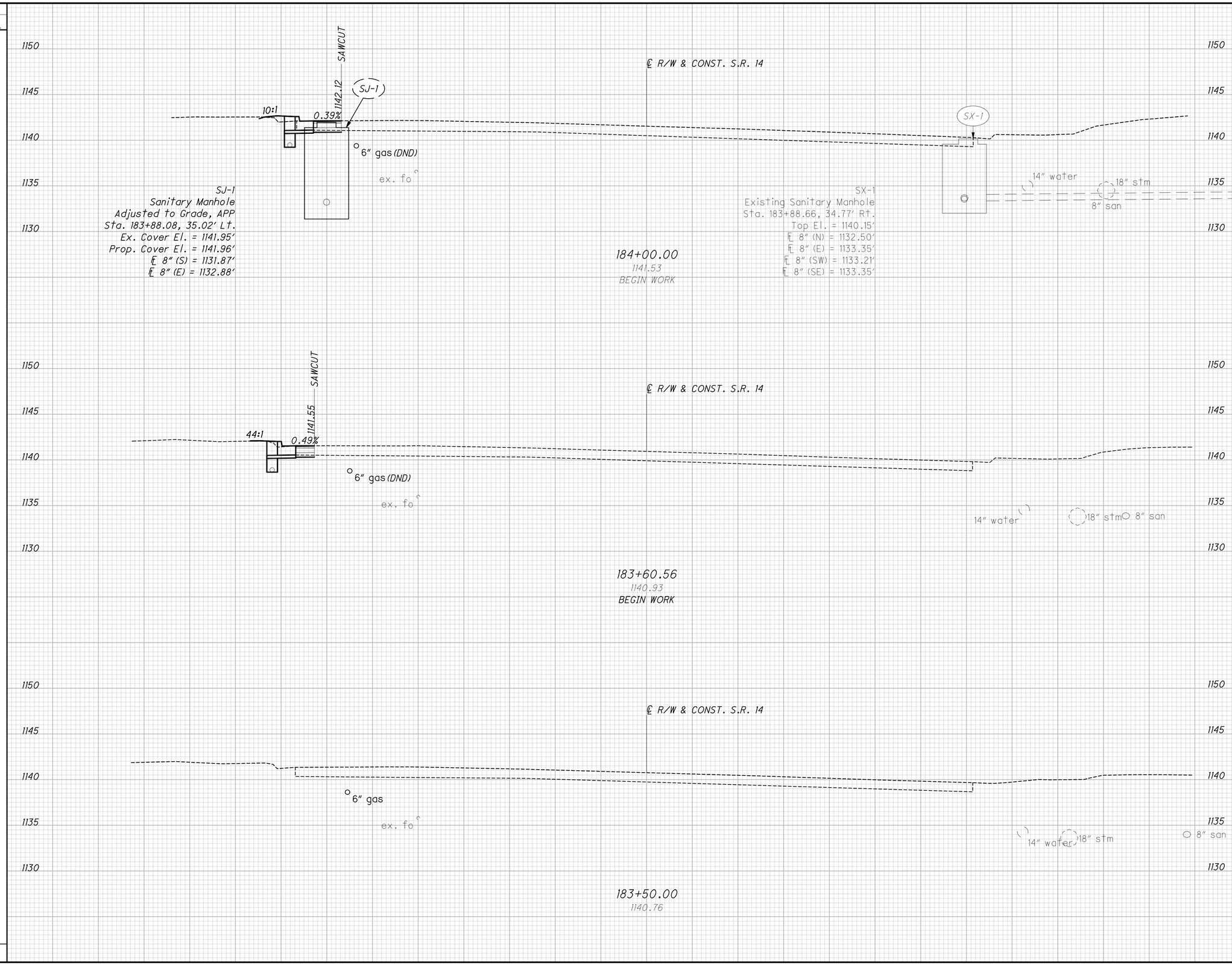
CHECKED

CROSS SECTIONS - SLIP LANE
STA. 152+00.00 TO STA. 153+00.00

POR-SR 303-2.72
PART 3

Q:\Public\OH\Streetsboro\2022\2022008.11 SR 303-SR 14 Int\400-Engineering\Roadway\Sheets\20220811_XS003.dwg 20-Oct-25 9:57 AM

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
4	15	4	2	8	2
3	2	AH 7 BK 0	1 0	1	0
0	0	0	0	0	0
	17			9	2



CALCULATED

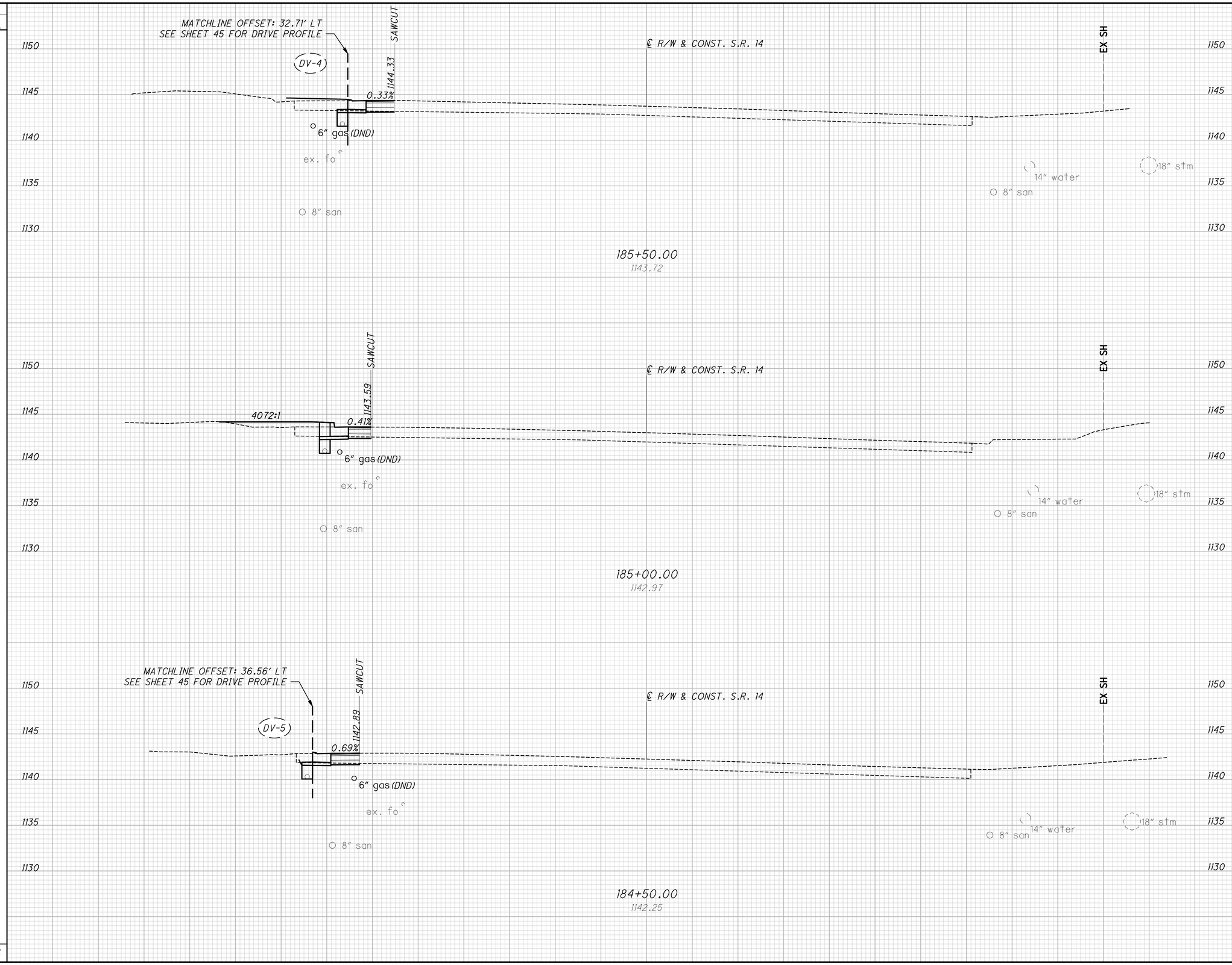
CHECKED

CROSS SECTIONS - S.R. 14
STA. 183+50.00 TO STA. 184+00.0

POR-SR 303-2.72
PART 3

Q:\Public\OH\Streetsboro\2022\2022008.11 SR 303-SR 14 Int\400-Engineering\Roadway\Sheets\20220811_XS002.dwg 20-Oct-25 9:57 AM

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
2	39	3	2		
				6	6
12	64	4	4		
				6	14
11	42	3	11		
				6	12
	145			18	32



CALCULATED

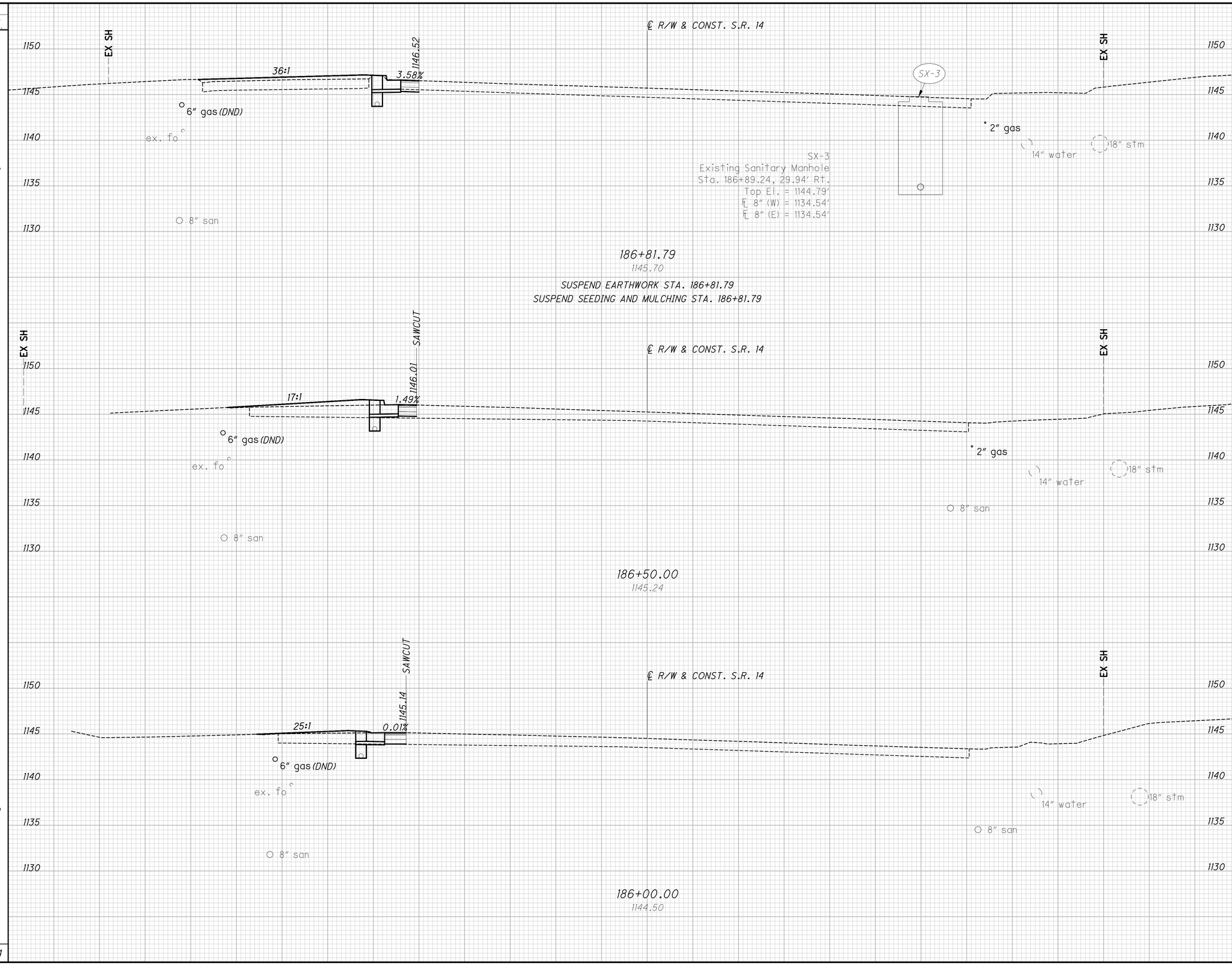
CHECKED

CROSS SECTIONS - S.R. 14
STA. 184+50.00 TO STA. 185+50.00

POR-SR 303-2.72
PART 3

O:\Public\OH\Streetsboro\2022\2022008.11 SR 303-SR 14 Int\400-Engineering\Roadway\Sheets\20220811_XS002.dwg 20-Oct-25 9:57 AM

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
19	64	7	26	5	29
17	81	2	23	4	33
12	39	2	13	5	14
	184			14	76



CALCULATED

CHECKED

CROSS SECTIONS - S.R. 14
STA. 186+00.00 TO STA. 186+81.79

POR-SR 303-2.72
PART 3

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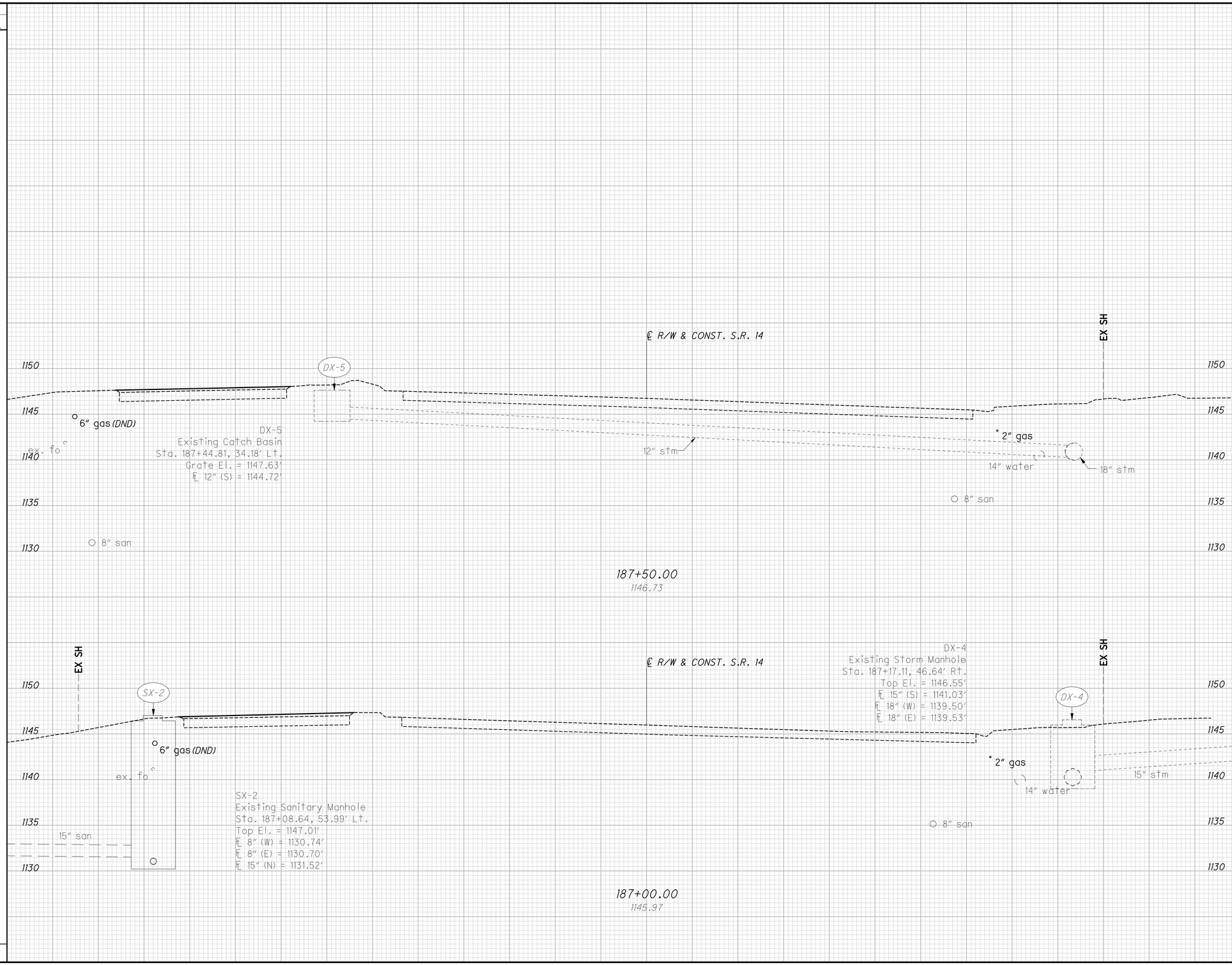
SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
0	0	0	0	0	0
0	0	0	0	0	0
	0			0	0



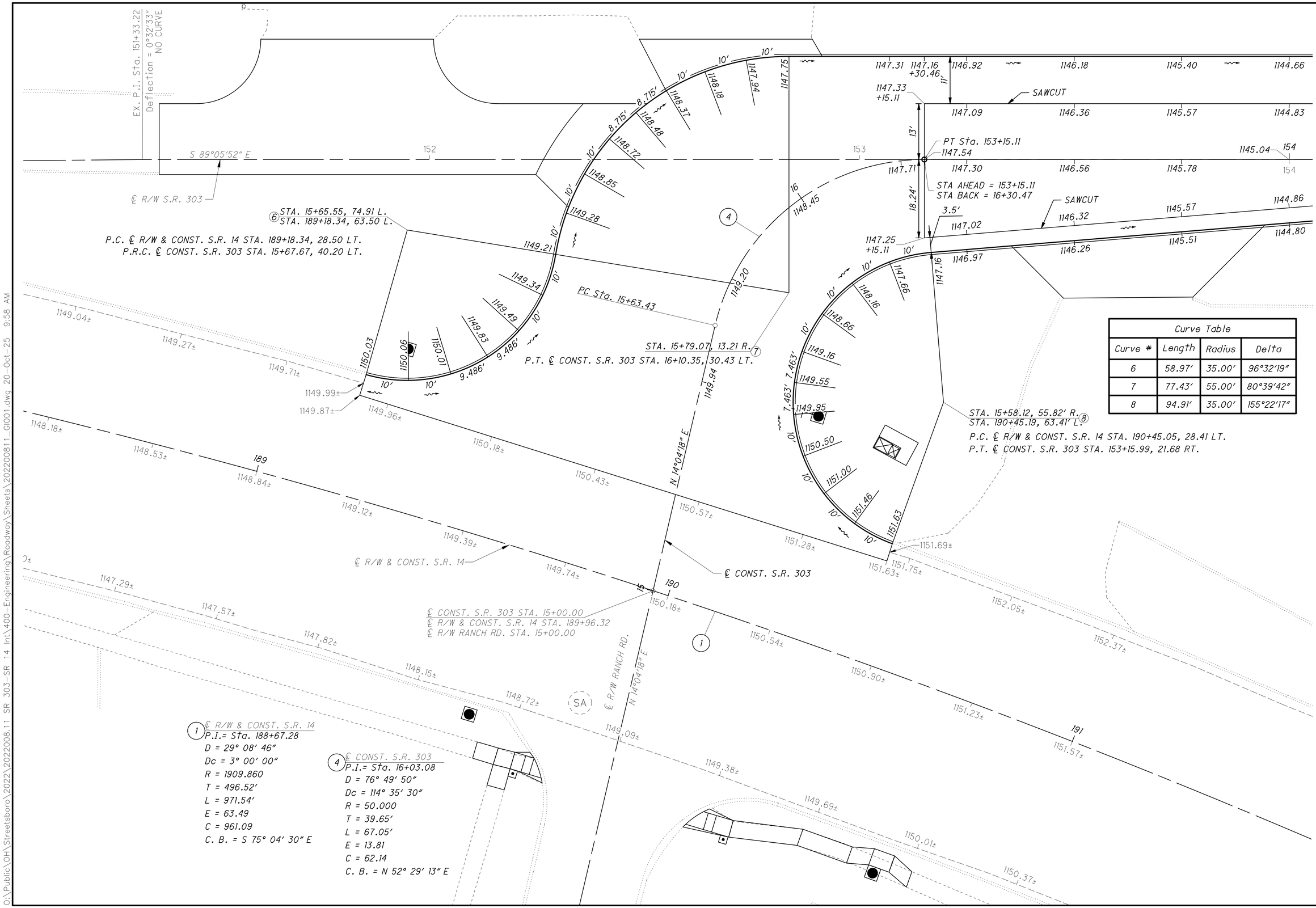
CALCULATED

CHECKED

CROSS SECTIONS - S.R. 14
STA. 187+00.00 TO STA. 187+50.00

POR-SR 303-2.72
PART 3

O:\Public\OH\Streetsboro\2022\2022008.11 SR 303-SR 14 Int\400-Engineering\Roadway\Sheets\202200811_XS002.dwg 20-Oct-25 9:57 AM



Curve Table			
Curve #	Length	Radius	Delta
6	58.97'	35.00'	96°32'19"
7	77.43'	55.00'	80°39'42"
8	94.91'	35.00'	155°22'17"

HORIZONTAL SCALE IN FEET 0 5 10 20

CALCULATED

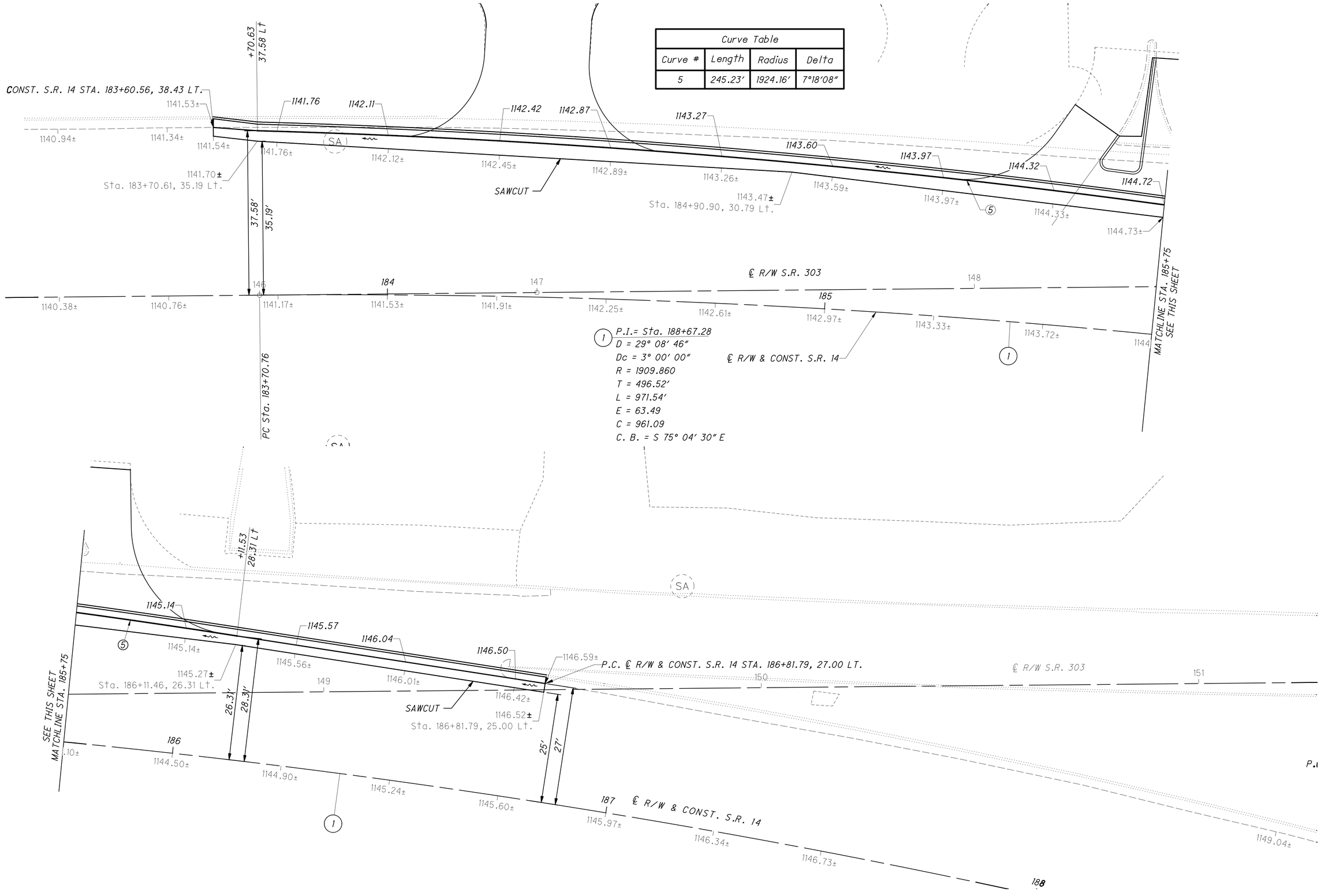
CHECKED

INTERSECTION DETAIL
S.R. 14 AND PROPOSED S.R. 303

POR-SR 303-2.72
PART 3

O:\Public\OH\Streetsboro\2022\2022008.11 SR 303-SR 14 Int\400-Engineering\Roadway\Sheets\20220811_GI001.dwg 20-Oct-25 9:58 AM

Curve Table			
Curve #	Length	Radius	Delta
5	245.23′	1924.16′	7°18′08″



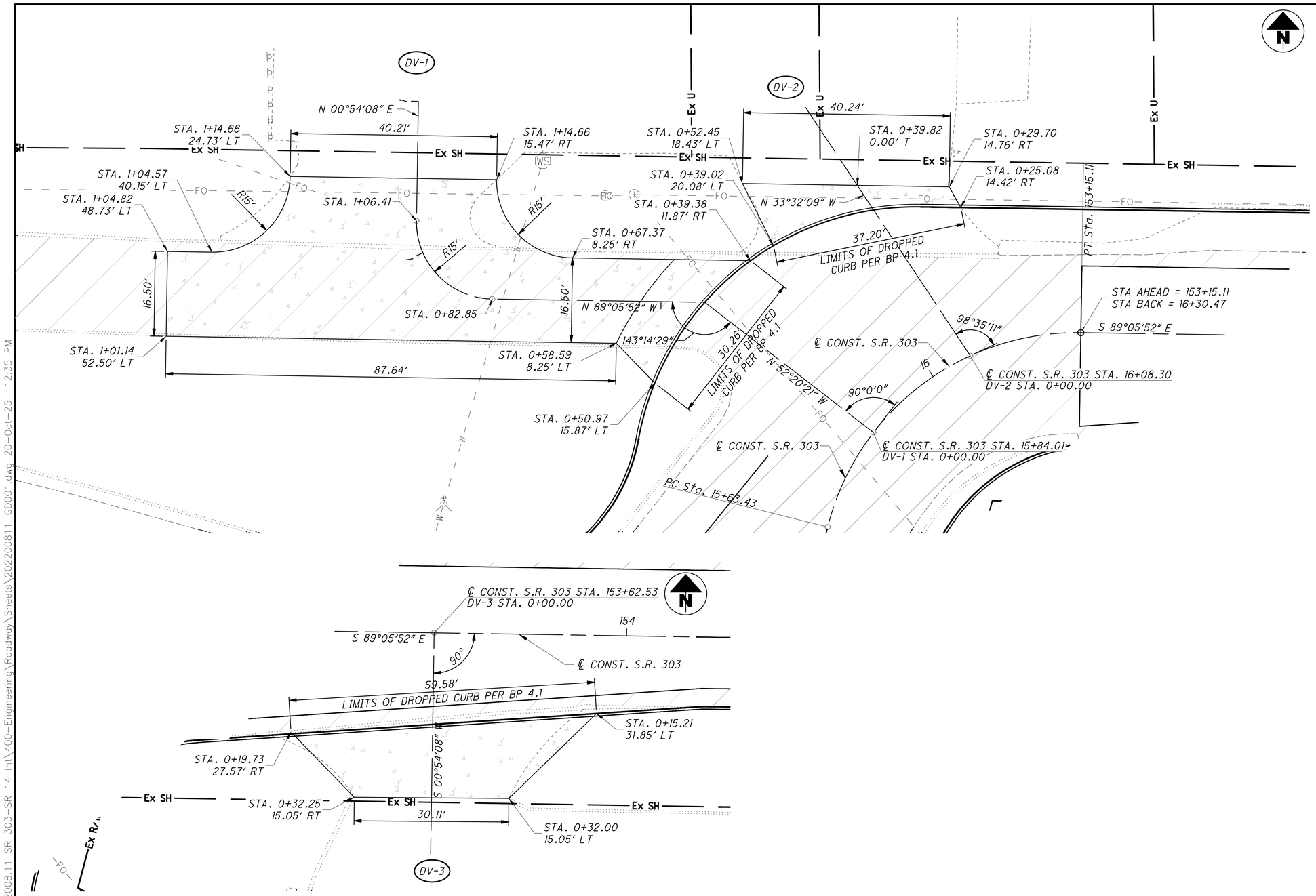
HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED
CHECKED

INTERSECTION DETAIL
S.R. 14 AND EXISTING S.R. 303

POR-SR 303-2.72
PART 3

Q:\Public\OH\Streetsboro\2022\2022008.11 SR 303-SR 14 Int\400-Engineering\Roadway\Sheets\20220811_GI001.dwg 20-Oct-25 9:58 AM



* FOR DRIVE PROFILES, SEE SHEET 45

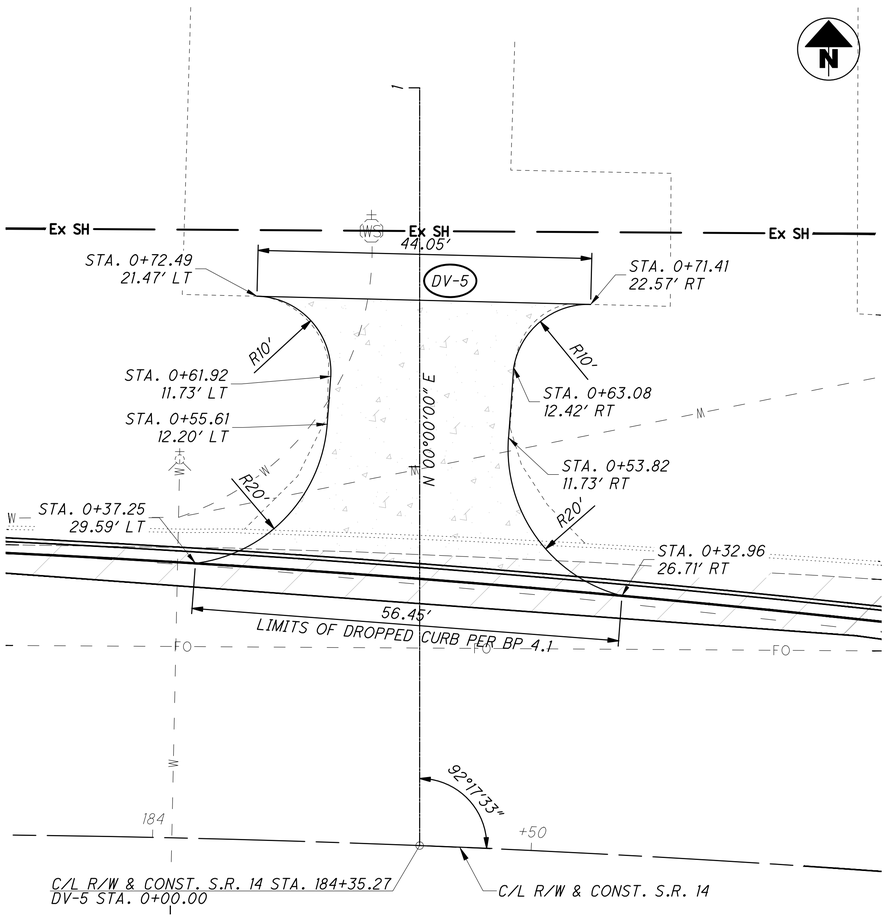
EXISTING MATERIALS	USAGE	INSIDE LIMITS OF APRON (AREA 1)
CONCRETE	COMMERCIAL	8" ITEM 452 NON-REINFORCED CONCRETE PAVEMENT, CLASS QC MS 4" ITEM 304 AGGREGATE BASE

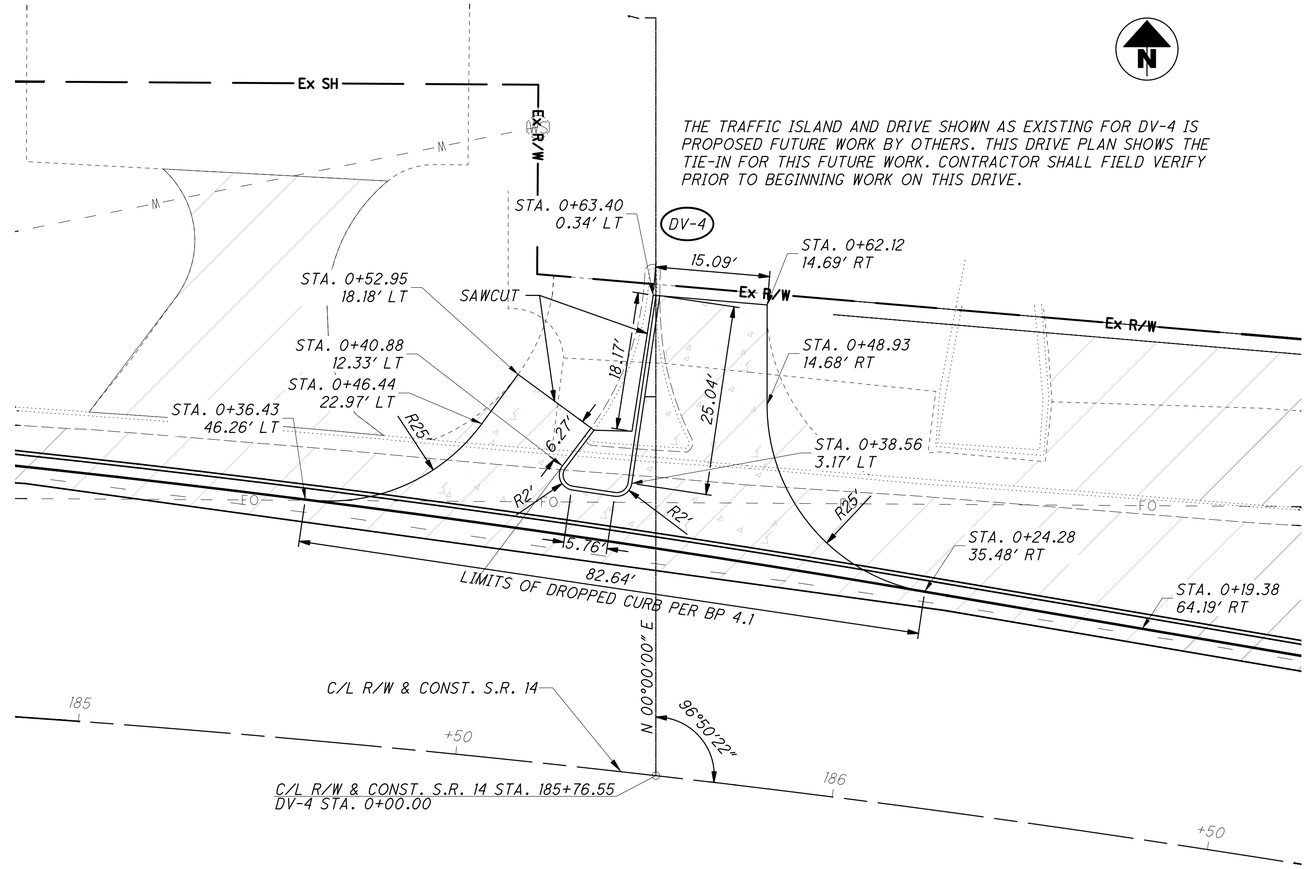
CALCULATED
CHECKED

DRIVE DETAILS

POR-SR 303-2.72
PART 3

O:\Public\OH\Streetsboro\2022\2022008.11 SR 303-SR 14 Int\400-Engineering\Roadway\Sheets\20220811_GD001.dwg 20-Oct-25 12:35 PM





* FOR DRIVE PROFILES, SEE SHEET 45

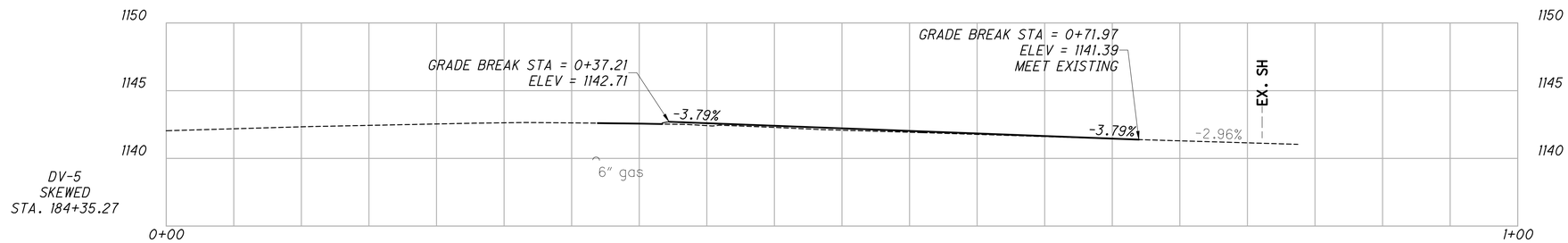
EXISTING MATERIALS	USAGE	INSIDE LIMITS OF APRON (AREA 1)
CONCRETE	COMMERCIAL	8" ITEM 452 NON-REINFORCED CONCRETE PAVEMENT, CLASS QC MS 4" ITEM 304 AGGREGATE BASE

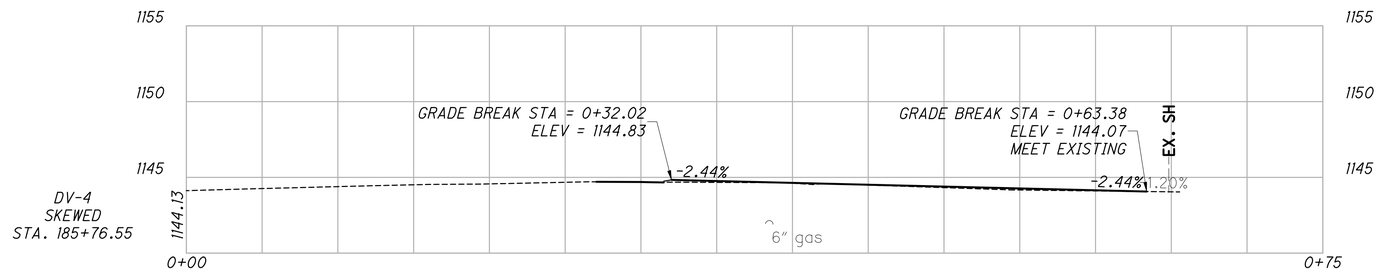
CALCULATED
CHECKED

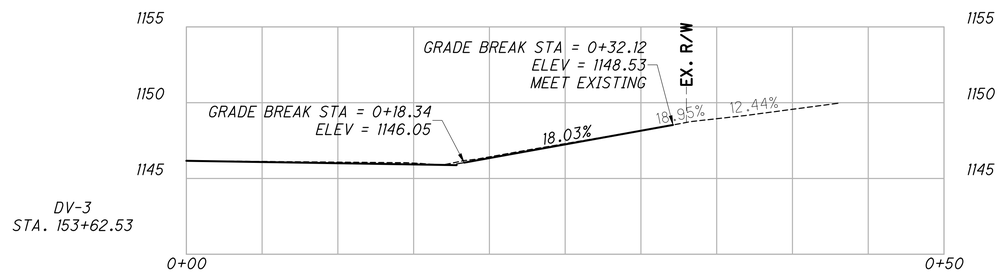
DRIVE DETAILS

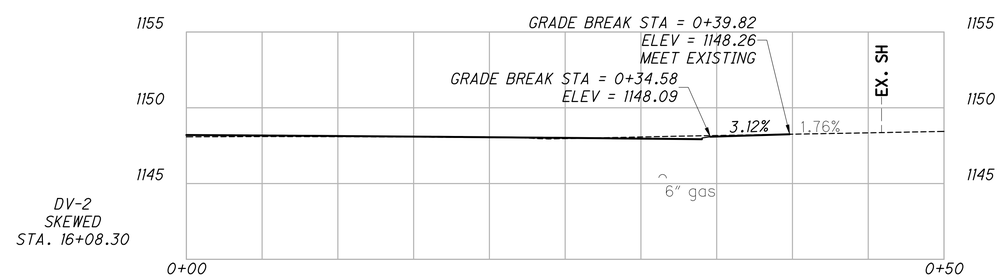
POR-SR 303-2.72
PART 3

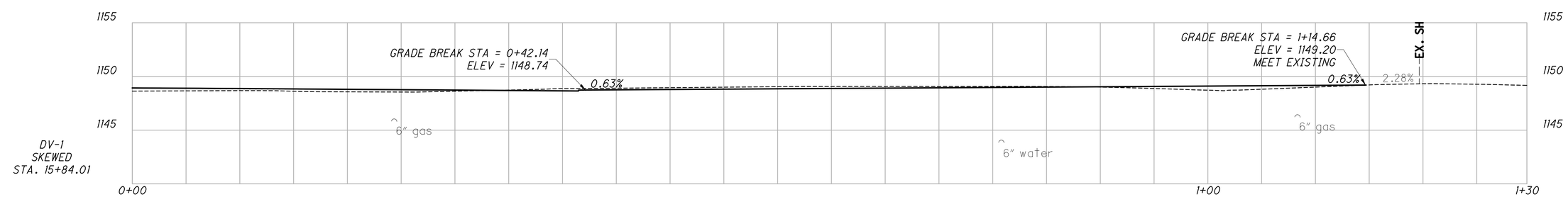
O:\Public\OH\Streetsboro\2022\2022008.11 SR 303-SR 14 Int\400-Engineering\Roadway\Sheets\20220811_GD001.dwg 20-Oct-25 12:35 PM











CALCULATED
CHECKED

DRIVE PROFILES

POR-SR 303-2.72
PART 3

Q:\Public\OH\Streetsboro\2022\2022008.11 SR 303-SR 14 Int\400-Engineering\Roadway\Sheets\20220811_GD002.dwg 20-Oct-25 12:36 PM

TRAFFIC CONTROL LEGEND	
◇	PROPOSED SIGN
◇	EXISTING SIGN TO REMAIN
◇	EXISTING SIGN TO BE REMOVED
⊢	SIGN SUPPORT
R-#	EXISTING SIGN TO BE REMOVED
S-#	PROPOSED SIGN
CDS	CENTER LINE, DOUBLE SOLID
CSB	CENTER LINE, SOLID/BROKEN
LL	LANE LINE, 6"
CH	CHANNELIZING LINE, 12"
SL	STOP LINE
CV	CHEVRON MARKING
LA	LANE ARROW
CW	CROSSWALK LINE, 24"
TY	TRANSVERSE/DIAGONAL LINE, YELLOW

ITEM 630 - SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN

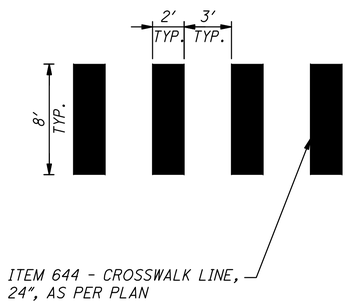
FLAT SHEET SIGNS SHALL BE RIGIDLY ATTACHED TO TRAFFIC SIGNAL MAST ARMS WITH THE SIGN CENTERED VERTICALLY WITH THE ARM, USING THE SIGN BRACKET DETAIL ON STANDARD CONSTRUCTION DRAWING TC-16.22, OR ANOTHER METHOD OF RIGID ATTACHMENT AS APPROVED BY THE ENGINEER, THE CONTRACTOR SHALL ENSURE THAT THE SIGN FACE IS MOUNTED PERPENDICULAR (90 DEGREES) TO THE DIRECTION OF TRAFFIC

PAYMENT FOR ITEM - SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH, PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS EQUIPMENT, AND ALL PARTS NECESSARY TO ATTACH ONE SIGN.

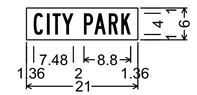
ITEM 644 - CROSSWALK LINE, 24", AS PER PLAN

THE CONTRACTOR SHALL INSTALL THE CROSSWALK LINES PER THE DETAIL BELOW.

PAYMENT FOR THIS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 644 - CROSSWALK LINE, 24", AS PER PLAN.



CROSSWALK DETAIL

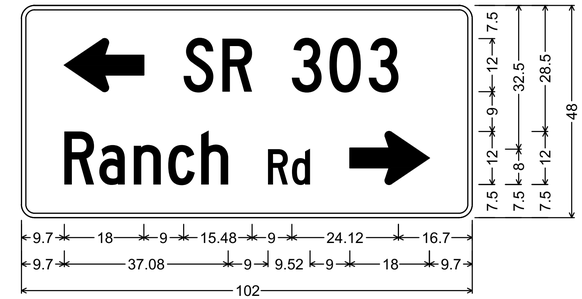


No border, White on Green;
"CITY", B 2K;
"PARK", B 2K;
Table of widths and spaces

1.36	C 1.72	0.76	I 0.52	0.56	T 1.52	0.24	Y 2.16	
	2.00	P 1.72	0.24	A 2.16	0.56	R 1.72	0.64	K 1.76	1.36

SIGNCAD DETAILS
N.T.S.

ALL DIMENSIONS ARE INCHES.

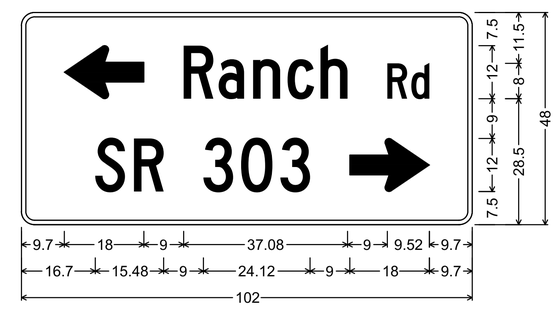


3.00" Radius, 1.00" Border, White on Green;
Standard Arrow Custom 18.00" X 12.00" 180°; "SR", C 2K;
"303", C 2K; "Ranch", C 2K; "Rd", C 2K;
Standard Arrow Custom 18.00" X 12.00" 0°;
Table of widths and spaces

9.70	⇦ 18.00	9.00	S 6.72	2.04	R 6.72					
	9.00	3 6.72	1.80	0 7.08	1.80	3 6.72	16.70			
9.70	R 6.72	1.20	a 5.76	2.04	n 6.12	1.68	c 6.00	1.44	h 6.12	
	9.00	R 4.48	0.96	d 4.08	9.00	⇨ 18.00	9.70			

SIGNCAD DETAILS
N.T.S.

ALL DIMENSIONS ARE INCHES.



3.00" Radius, 1.00" Border, White on Green;
Standard Arrow Custom 18.00" X 12.00" 180°;
"Ranch", C 2K; "Rd", C 2K; "SR", C 2K; "303", C 2K;
Standard Arrow Custom 18.00" X 12.00" 0°;
Table of widths and spaces

9.70	⇦ 18.00									
	9.00	R 6.72	1.20	a 5.76	2.04	n 6.12	1.68	c 6.00	1.44	h 6.12
	9.00	R 4.48	0.96	d 4.08	9.70					
16.70	S 6.72	2.04	R 6.72	9.00	3 6.72	1.80	0 7.08	1.80	3 6.72	
	9.00	⇨ 18.00	9.70							

SIGNCAD DETAILS
N.T.S.

ALL DIMENSIONS ARE INCHES.

CALCULATED DLS
CHECKED AKF

TRAFFIC CONTROL NOTES AND DETAILS

POR-SR 303-2.72
PART 3

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REF NO.	SHEET NO.	LOCATION	STATION TO STATION			SIDE	644 LANE LINE, 6"	644 CENTER LINE, DOUBLE SOLID	644 CENTER LINE, SOLID/BROKEN	644 CHANNELIZING LINE, 12"	644 STOP LINE	644 CROSSWALK LINE, 24", AS PER PLAN	644 TRANSVERSE/DIAGONAL LINE, YELLOW	644 CHEVRON MARKING	644 LANE ARROW
							MILE	MILE	MILE	FT	FT	FT	FT	FT	EACH
				TO											
LL	50	SR 14	186+75		188+00	LT	125								
CSB	50	SR 14	186+75		187+13	LT			38						
CDS	50	SR 14	187+13		188+00	LT		87							
LA	50	SR 14	186+75			RT									2
CSB	50	SR 14	186+75		187+13	RT			38						
CDS	50	SR 14	187+13		187+63	RT/LT		50							
CH	50	SR 14	187+73		188+00	RT				27					
LL	50	SR 14	186+75		188+00	RT	125								
LL	51	SR 14	188+00		192+00	LT	400								
CDS	51	SR 14	188+00		192+00	LT/RT		400							
CDS	51	SR 14	191+75		192+00	RT		25							
CH	51	SR 14	188+00		189+17	RT				117					
LA	51	SR 14	188+43			RT									1
LA	51	SR 14	189+09			RT									1
SL	51	SR 14	189+19			RT/LT					37				
SL	51	SR 14	190+49			LT/RT					37				
CH	51	SR 14	190+51		191+65	LT				114					
LA	51	SR 14	190+59			RT									1
LA	51	SR 14	191+25			RT									1
TY	51	SR 14	191+75		192+00	RT							8		
LL	51	SR 14	188+00		192+00	RT	400								
CW	51	RANCH RD	14+56			RT/LT						56			
SL	51	RANCH RD	14+43			RT					15				
SL	51	SR 303	15+50			LT					30				
SL	51	SR 303	15+66			LT					16				
LA	51	SR 303	15+60			LT									1
CH	51	SR 303	15+52		154+05	LT				196					
CV	51	SR 303	15+52		16+06	LT								45	
CH	51	SR 303	15+52		16+06	LT				54					
CDS	51	SR 303	15+68		155+35	CEN			359						
LA	51	SR 303	153+26			LT									1
LA	51	SR 303	153+92			LT									1
LL	52	SR 14	192+00		194+37	LT	237								
CDS	52	SR 14	192+00		192+25	RT/LT		25							
CSB	52	SR 14	192+25		194+37	LT			212						
CDS	52	SR 14	192+00		192+25	RT		25							
CSB	52	SR 14	192+25		194+37	RT			212						
TY	52	SR 14	192+00		192+25	RT							19		
LL	52	SR 14	192+00		194+37	RT	237								
TOTALS THIS SHEET							1524	1471		508	135	56	27	45	9
TOTAL MILES							0.29	0.28							
TOTALS CARRIED TO GENERAL SUMMARY							0.29	0.28		508	135	56	27	45	9

CALCULATED DLS
CHECKED AKF

PAVEMENT MARKING SUBSUMMARY

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PART 3

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REF NO.	SHEET NO.	LOCATION	STATION	SIDE	CODE	SIZE (INCHES)	630 GROUND MOUNTED SUPPORT, NO. 2 POST FT	630 GROUND MOUNTED SUPPORT, NO. 3 POST FT	630 SIGN, FLAT SHEET SF	630 SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN EACH	630 SIGN SUPPORT ASSEMBLY, POLE MOUNTED EACH	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL EACH	630 REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL EACH
R-1	50	SR 303		LT	M3-4							1	1	
					M1-5-2							1		
					M3-4							1	1	
					M1-5-3							1		
R-2	50	SR 303		LT	R1-1							1	1	
R-3	50	SR 303		LT	M2-1							1	1	
					M1-5-2							1		
R-4	50	SR 303		RT	M1-5-3									1
					M5-1L									1
R-5	50	SR 303		RT	R2-1							1	1	
S-1	50	SR 14	184+10	RT	M1-5-30-3	30 X 24		13.9	5.0					
					M5-1L-21	21 X 15			2.2					
S-2	50	SR 14	186+68	RT	R2-1-30	30 X 36		13.5	7.5					
R-6	51	SR 14		LT	M2-1							1	1	
					M1-5-2							1		
R-7	51	SR 14		LT	M2-1							1	1	
					M1-5-2							1		
R-8	51	SR 303		RT	R1-1							1	1	
R-9	51	SR 303		RT	R3-H8bd							1	1	
R-10	51	SR 303		LT	M2-H7							1	2	
R-11	51	SR 303		RT	M3-2							1	1	
					M1-5-3							1		
R-12	51	SR 14		LT	M2-H7							1	2	
R-13	51	SR 303		RT	R2-1							1	1	
R-14	51	SR 14		RT	M1-5-3							1	1	
					M6-1L							1		
					SPECIAL							1		
R-15	51	SR 14		RT	M3-2							1	1	
					M1-5-2							1		
					M6-1L							1		
R-16	51	RANCH RD		RT	D3-1							1	1	
					R1-1							1		
TOTALS CARRIED TO GENERAL SUMMARY								27.4	14.7			27	18	2

CALCULATED DLS
CHECKED AKF

SIGNING SUBSUMMARY SHEET 1 OF 2

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REF NO.	SHEET NO.	LOCATION	STATION	SIDE	CODE	SIZE (INCHES)	630 GROUND MOUNTED SUPPORT, NO. 2 POST	630 GROUND MOUNTED SUPPORT, NO. 3 POST	630 SIGN, FLAT SHEET	630 SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN	630 SIGN SUPPORT ASSEMBLY, POLE MOUNTED	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	630 REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL
							FT	FT	SF	EACH	EACH	EACH	EACH	EACH
S-3	51	SR 14	188+00	LT	M3-4-24	24 X 12		13.6	2.0					
					M1-5-24-2	24 X 24			4.0					
					M3-4-24	24 X 12		13.6	2.0					
					M1-5-30-3	30 X 24			5.0					
S-4	51	SR 14	189+00	LT	M2-1-21	21 X 15		13.9	2.2					
					M1-5-24-2	24 X 24			4.0					
S-5	51	SR 303	153+00	LT	M2-1-21	21 X 15		13.9	2.2					
					M1-5-24-2	24 X 24			4.0					
S-6	51	SR 303	153+50	LT	M3-4-24	24 X 12		15.0	2.0					
					M1-5-30-3	30 X 24			5.0					
					M6-1R-21	21 X 15			2.2					
S-7	51	SR 303	154+15	LT	R3-H8bj-36	36 X 30		13.0	7.5					
S-8	51	SR 303	15+88	RT	M3-2-24	24 X 12		13.6	2.0					
					M1-5-30-3	30 X 24			5.0					
S-9	51	SR 14	190+35	LT	M2-H7-66	66 X 24		12.5/12.5	11.0					
S-10	51	SR 303	154+68	RT	R2-1-24	24 X 30		13.0	5.0					
S-11	51	SP-2			M1-5-30-3	30 X 24			5.0		1			
					M6-1L-21	21 X 15			2.2		1			
					SPECIAL	21 X 6			0.9		1			
S-12	51	SP-2			D3-1-60	60 X 24			10.0	1				
S-13	51	SP-3			D3-1-60	60 X 24			10.0	1				
S-14	51	SP-1			SPECIAL	102 X 48			34.0	1				
S-15	51	SP-4			SPECIAL	102 X 48			34.0	1				
S-16	51	SP-1			R10-12-30	30 X 36			7.5	1				
S-17	51	SP-4			R10-12-30	30 X 36			7.5	1				
S-18	51	SR 14	189+55	RT	M2-H7-66	66 X 24		12.5/12.5	11.0					
S-19	51	SP-1			R9-3-18	18 X 18			2.3		1			
S-20	51	SP-3			R9-3-18	18 X 18			2.3		1			
S-21	51	SR 14	189+27	RT	R9-3-18	18 X 18	12.0		2.3					
S-22	51	SR 14	190+42	RT	R9-3-18	18 X 18	12.0		2.3					
TOTALS CARRIED TO GENERAL SUMMARY							24.0	159.6	196.4	6	5			

CALCULATED DLS
CHECKED AKF

SIGNING SUBSUMMARY SHEET 2 OF 2

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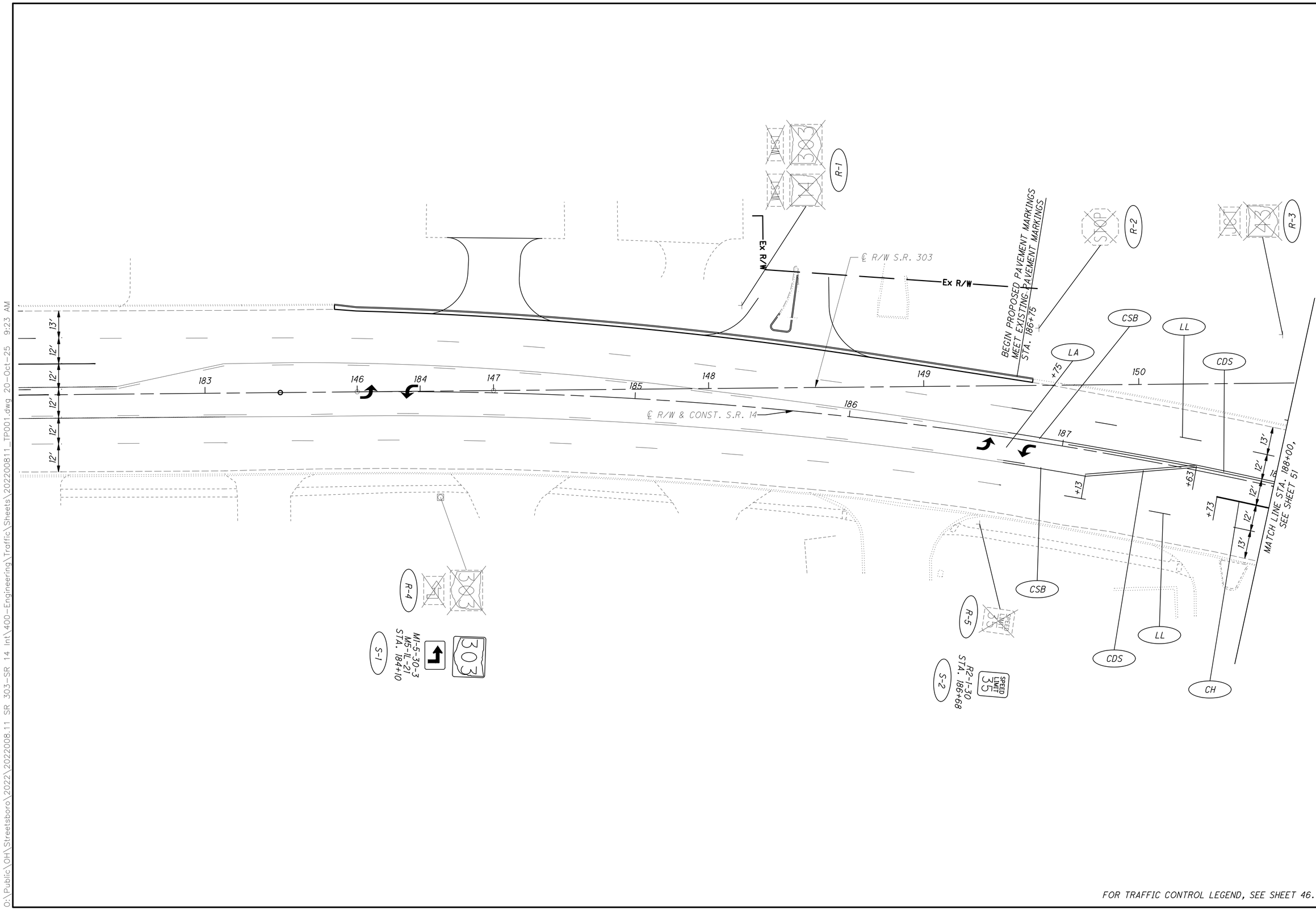

FOR TRAFFIC CONTROL LEGEND, SEE SHEET 46.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED DLS
CHECKED AKF

TRAFFIC CONTROL PLAN
BEGIN TO STA. 188+00

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PART 3

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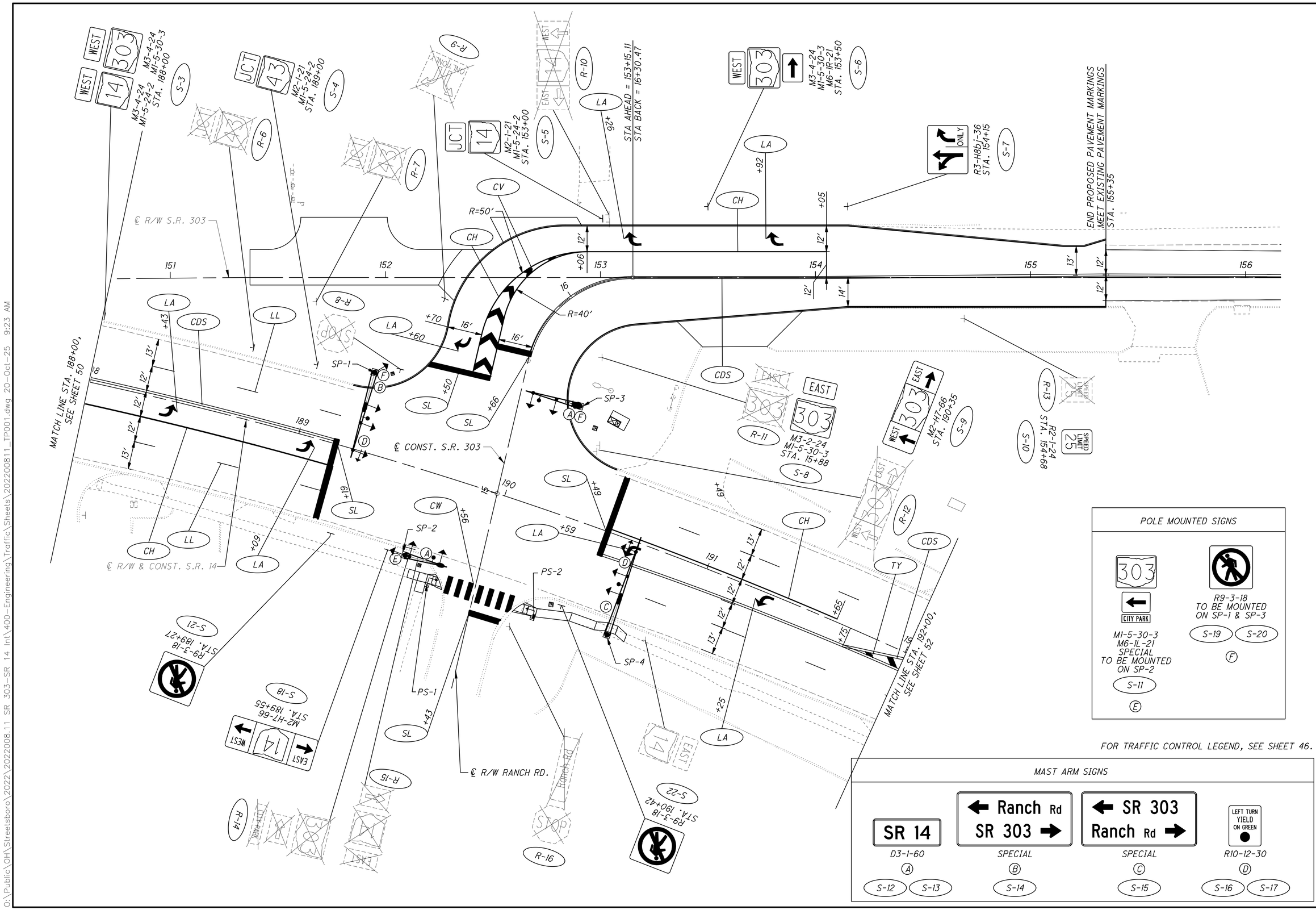

POLE MOUNTED SIGNS

FOR TRAFFIC CONTROL LEGEND, SEE SHEET 46.

MAST ARM SIGNS

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED DLS
CHECKED AKF

TRAFFIC CONTROL PLAN
STA. 188+00 TO STA. 192+00

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PART 3

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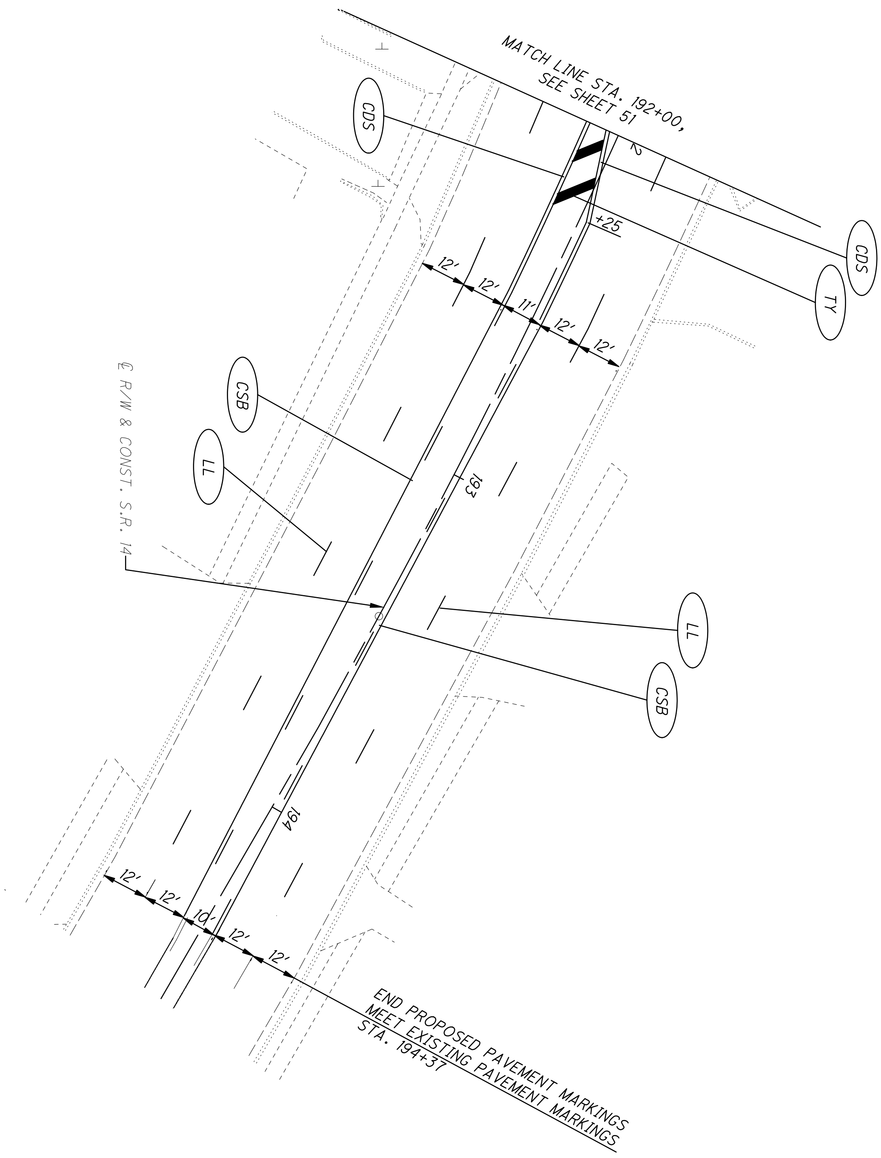

FOR TRAFFIC CONTROL LEGEND, SEE SHEET 46.

52 / 65	POR-SR 303-2.72 PART 3	TRAFFIC CONTROL PLAN STA. 192+00 TO END	CALCULATED DLS CHECKED AKF	0 10 20 40 HORIZONTAL SCALE IN FEET

NOTIFICATION

THE CONTRACTOR SHALL GIVE THE CITY OF STREETSBORO, (330) 626-4942, 10 WORKING DAYS NOTICE PRIOR TO THE NEW SIGNAL BEING PLACED IN OPERATION.

THE SIGNAL INSTALLATION SHALL BE INSPECTED BY CITY OF STREETSBORO PERSONNEL. ALL DEFICIENCIES SHALL BE CORRECTED BY THE CONTRACTOR AND APPROVED BY THE CITY OF STREETSBORO.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 180 DAYS FOLLOWING COMPLETION OF THE 10-DAY PERFORMANCE TEST. IN THE EVENT OF UNSATISFACTORY OPERATION, THE CONTRACTOR SHALL CORRECT FAULTY INSTALLATIONS, MAKE REPAIRS AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY.

EQUIPMENT, MATERIAL AND LABOR COSTS INCURRED IN CORRECTING AN UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR.

THE GUARANTEE SHALL COVER THE FOLLOWING ITEMS OF THE TRAFFIC CONTROL SYSTEM: CONTROLLER, CABINET, UNINTERRUPTIBLE POWER SUPPLY, VEHICLE DETECTION EQUIPMENT, LED LAMP UNITS, NETWORK AND COMMUNICATION EQUIPMENT.

CUSTOMARY MANUFACTURER'S GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE CITY OF STREETSBORO 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.

SIGNAL ACTIVATION

PRIOR TO ACTIVATING THE NEW TRAFFIC SIGNAL TO STOP-AND-GO MODE, ALL ITEMS IN THE PROPOSED SIGNAL PLAN SHALL BE FULLY COMPLETED, (I.E., VEHICLE DETECTION, PEDESTRIAN SIGNAL HEADS, ETC.). IF THERE ARE CONSTRUCTABILITY ISSUES (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 AND CITY OF STREETSBORO. THE PROJECT ENGINEER AND THE CITY OF STREETSBORO WILL THEN REVIEW, APPROVE OR REJECT PROPOSALS TO ACTIVATE THE TRAFFIC SIGNAL PRIOR TO COMPLETION. THE SIGNAL ACTIVATION SHALL MEET ODOT STANDARD CONSTRUCTION DRAWING MT-120.00.

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND CITY OF STREETSBORO AT LEAST 10 WORKING DAYS PRIOR TO SCHEDULING THE FINAL INSPECTION OF THE SIGNAL INSTALLATION. FINAL INSPECTION IS NOT CONSIDERED COMPLETE UNTIL 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 DESIGNATED PERSONNEL PRIOR TO FINAL ACCEPTANCE. THE CITY OF STREETSBORO SHALL ONLY ASSUME DAY TO DAY MAINTENANCE OF THE TRAFFIC SIGNAL AFTER FINAL WRITTEN ACCEPTANCE HAS BEEN ISSUED.

WORK INSPECTION

THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER AND CITY OF STREETSBORO WITH 72-HOUR NOTICE OF ANY SIGNAL WORK TO BE PERFORMED AT THE INTERSECTION SITE(S) SO THAT INSPECTION SERVICES CAN BE SUPPLIED.

GROUNDING AND BONDING

THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS) AND THE TC SERIES OF STANDARD CONSTRUCTION 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 OR 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 (CONT.)

   B. IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLECIRCUIT 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. THE GREEN CONDUCTOR IN SIGNAL CABLES (CONDUCTOR #4) SHALL NOT BE USED TO SUPPLY POWER TO A SIGNAL INDICATION. IT WILL BE CONNECTED TO THE SIGNAL BODY AS AN EQUIPMENT GROUND IN ALUMINUM HEADS AND IT WILL BE UNUSED IN PLASTIC HEADS. UNUSED CONDUCTORS SHALL BE GROUNDED IN THE CABINET. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:

COND. NO.	COLOR	VEHICLE SIGNAL	PEDESTRIAN SIGNAL
1	BLACK	GREEN BALL	#1 WALK
2	WHITE	AC NEUTRAL	AC NEUTRAL
3	RED	RED BALL	#1 DW/FDW
4	GREEN	EQUIPMENT GROUND	EQUIPMENT GROUND
5	ORANGE	YELLOW BALL	#2 DW/FDW
6	BLUE	GREEN ARROW	#2 WALK
7	WHITE/BLACK STRIPE	YELLOW ARROW	NOT USED

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.

ITEM 625 - ARC FLASH CALCULATIONS AND LABEL, TRAFFIC SIGNAL CABINET

THIS ITEM SHALL INCLUDE PROVIDING ARC FLASH HAZARD CALCULATIONS AND LABELS PER SUPPLEMENTAL SPECIFICATION 825. LABELS SHALL BE APPLIED TO THE OUTSIDE OF EACH CONTROLLER CABINET. LABELS SHALL BE PROVIDED BY THE CONTRACTOR.

LOCATIONS OF ARC FLASH HAZARD LABELS ARE:

STA. POR-SR 303-2.72 (190+35.7, 49.2' LT.)- SIGNAL CONTROLLER

PAYMENT WILL BE MADE AT THE UNIT PRICE BID FOR EACH ITEM 625 - ARC FLASH CALCULATIONS AND LABEL FOR EACH SET OF CALCULATIONS ACCEPTED AND LABEL INSTALLED, INCLUDING ALL LABOR, MATERIALS, AND INCIDENTALS NECESSARY.

ITEM 632 - TEST HOLE PERFORMED

IT IS ANTICIPATED THAT THE CONTRACTOR WILL ENCOUNTER UNDERGROUND UTILITIES WHILE EXCAVATING FOR SIGNAL SUPPORT FOUNDATIONS OR SIMILAR FOUNDATIONS. AFTER ACCURATELY IDENTIFYING THE PROPOSED LOCATION OF THE FOUNDATION, AS SHOWN IN THE PLANS AND AFTER MODIFYING THAT LOCATION, IF NECESSARY, BASED ON THE FIELD MARKING OF UNDERGROUND UTILITY LOCATION, THE CONTRACTOR DISCOVERS A UTILITY CONFLICT DURING THE EXCAVATION OPERATION, THE CONTRACTOR WILL BE COMPENSATED FOR EACH PARTIAL FOUNDATION EXCAVATION ACCORDING TO THE BID PRICE.

BEFORE THE CONTRACTOR BEGINS THE EXCAVATION AT THE MODIFIED LOCATION, THE CONTRACTOR SHALL VERIFY THAT THERE WILL BE NO OVERHEAD UTILITY CONFLICTS RESULTING FROM THE NEW SIGNAL SUPPORT LOCATION. NEW SUPPORT LOCATIONS ARE TO BE APPROVED BY THE ENGINEER.

THE WORK WILL INCLUDE BACKFILLING, COMPACTING, AND RESTORATION OF THE EXCAVATION TO THE SITE'S ORIGINAL CONDITION.

EXCAVATIONS SHALL NOT BE LEFT OPEN OVERNIGHT.

PAYMENT FOR THIS ITEM SHALL BE AT THE UNIT PRICE BID PER EACH ITEM 632 - TEST HOLE PERFORMED TO BE USED AT THE DIRECTION OF THE ENGINEER. A QUANTITY OF 1 HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 632 - SIGNAL SUPPORT FOUNDATION, AS PER PLAN

PRIOR TO ORDERING THE SIGNAL SUPPORTS, THE CONTRACTOR SHALL CONTACT OUPS TO HAVE ALL THE UTILITIES LOCATED IN THE FIELD. THEN, THE CONTRACTOR SHALL MEET THE PROJECT ENGINEER TO LOCATE THE PROPOSED SUPPORT LOCATIONS TO ENSURE THERE ARE NO CONFLICTS WITH UTILITIES. IF THERE ARE ISSUES, THE PROJECT ENGINEER SHALL PROVIDE GUIDANCE AS TO THE RELOCATION OF THE SUPPORTS.

DUE TO THE FURTHER POSSIBILITY OF CONFLICT WITH EXISTING OR PROPOSED UNDERGROUND OBSTRUCTIONS (INCLUDING THE POSSIBILITY OF UNRECORDED OBSTRUCTIONS) WHICH COULD AFFECT THE LOCATION OF THE FOUNDATION FOR THIS ITEM, AND CONSEQUENTLY, THE DESIGN OF THE SUPPORT AND/OR ARMS, THE CONTRACTOR SHALL NOT PLACE FINAL ORDERS FOR THE ITEM UNTIL THE FOUNDATIONS HAVE BEEN INSTALLED, AT FINAL GRADE, AND THE CONTRACTOR HAS RECEIVED, FROM ENGINEER, WRITTEN NOTICE TO PROCEED WITH THE ORDERS FOR THE ITEM.

AT THE FOUNDATION LOCATIONS, PROVIDE HYDRO-DEMOLITION OR OTHER NONDESTRUCTIVE MEANS TO ENSURE THE PROPOSED FOUNDATION LOCATIONS ARE CLEAR OF UNDERGROUND OBSTRUCTIONS. IF ANY FOUNDATION LOCATIONS MUST BE ADJUSTED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE CITY OF BEACHWOOD, WHO WILL DETERMINE THE REVISED LOCATION AND IF NEEDED, THE SUPPORT DESIGN. THE CONTRACTOR WILL NOT BE RESPONSIBLE FOR DETERMINING THE REVISED DESIGN. THE ENGINEER WILL INFORM THE CONTRACTOR OF ANY CHANGES NECESSARY AND AUTHORIZE THE CONTRACTOR TO ORDER THE SUPPORT.

THE CONTRACTOR SHALL, WHEN DEVELOPING THE PROGRESS SCHEDULE, AND THOSE OF SUBCONTRACTORS, ENSURE THAT THE FOUNDATIONS ARE INSTALLED AT THE EARLIEST TIME AS IS FEASIBLE AND PRACTICAL, AND SHALL INCLUDE SUFFICIENT TIME IN THE PROGRESS SCHEDULE FOR ORDERING, MANUFACTURING, DELIVERY, AND INSTALLATION OF THE SUPPORT ITEMS AFTER THE FOUNDATIONS ARE IN PLACE.

NO PAYMENTS FOR DELIVERED MATERIALS FOR THE FOUNDATION OR SUPPORT ITEMS SHALL BE MADE UNTIL THE FOUNDATIONS ARE IN PLACE, AND IF CHANGES IN THE DESIGN OF THIS ITEM ARE REQUIRED, NO PAYMENT SHALL BE MADE FOR THE ITEMS MANUFACTURED TO THE ORIGINAL DESIGN.

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE AND WILL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS NECESSARY FOR EACH SUPPORT FURNISHED, IN PLACE, COMPLETE AND ACCEPTED.

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ITEM 632 - COVERING OF VEHICULAR SIGNAL HEAD

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 - PEDESTRIAN SIGNAL HEAD (LED), COUNTDOWN, TYPE D2, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF C&MS 632 AND 732 THE FOLLOWING SHALL APPLY:

1. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF BLACK POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATIONS.
2. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
3. PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.
4. THE PEDESTRIAN SIGNAL HEAD SHALL BE OF THE LED COUNTDOWN TYPE.
5. NEW ATTACHMENT HARDWARE AND FITTINGS SHALL BE USED. BRACKETS USED TO MOUNT THE PEDESTRIAN SIGNAL HEADS SHALL BE BOLTED. ALUMINUM OR STAINLESS STEEL BANDING IS NOT PERMITTED. ALL MOUNTING HARDWARE AND ANY EXPOSED SURFACES SHALL BE BLACK IN COLOR.
6. THE LIGHT EMITTING DIODE (LED) MODULES SHALL MEET THE REQUIREMENTS OF C&MS 732.04. THE CONTRACTOR SHALL PROVIDE THE CITY OF STREETSBORO, 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.

PAYMENT FOR ITEM 632 - PEDESTRIAN SIGNAL HEAD (LED), (COUNTDOWN), TYPE D2, AS PER PLAN SHALL BE MADE FOR THE NUMBER OF COMPLETE SIGNAL HEAD FURNISHED AND INSTALLED, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS AND NEW ATTACHMENT HARDWARE.

ITEM 632 - PEDESTRIAN PUSHBUTTON, AS PER PLAN

IN ORDER TO CONFORM TO THE AMERICANS WITH DISABILITIES ACT (ADA), THE REQUIREMENTS OF C&MS ITEMS 632.09 AND 732.06 ARE MODIFIED AS FOLLOWS:

1. THE PUSHBUTTON SHALL BE A MINIMUM OF 2 INCHES (50 MILLIMETERS) AT ITS SMALLEST DIMENSION.
2. THE PUSHBUTTON SHALL BE EQUIPPED TO EMIT AN AUDIBLE CHIRP AS THE BUTTON IS PUSHED TO CONFIRM THAT THE PEDESTRIAN CALL HAS BEEN PLACED.
3. THE PUSHBUTTON SHALL BE EQUIPPED WITH A RED INDICATOR LIGHT.
4. PUSHBUTTON HOUSINGS SHALL BE PROVIDED WITH A BLACK FINISH.

THIS ITEM SHALL INCLUDE ALL LABOR AND MATERIAL COSTS ASSOCIATED WITH THE PROVISION AND INSTALLATION OF THE PUSHBUTTON AS OUTLINED ABOVE. PAYMENT FOR THIS WORK SHALL BE AT THE CONTRACT UNIT PRICE FOR ITEM 632 - PEDESTRIAN PUSHBUTTON, AS PER PLAN AND WILL BE MEASURED BY THE NUMBER OF COMPLETE UNITS FURNISHED, INSTALLED AND ACCEPTED.

ITEM 632 - POWER SERVICE, AS PER PLAN

POWER SERVICE SHALL BE AS PER C&MS ITEM 632 WITH THE FOLLOWING EXCEPTIONS:

1. THE METER BASE MOUNTING HEIGHT SHALL BE NO MORE THAN 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 METER BASE AND DISCONNECT SWITCH SHALL BE MOUNTED ON THE CONTROLLER CABINET AS DETAILED ON SHEET 62. FIELD ADJUSTMENTS MAY BE MADE IN MOUNTING THE METER BASE AND DISCONNECT SWITCH WITH THE APPROVAL OF THE ENGINEER.
5. THE METER BASE AND DISCONNECT SWITCH SHALL BE PAINTED BLACK IN COLOR TO MATCH THE FINISH OF THE CONTROLLER CABINET.

DISCONNECT SWITCH ENCLOSURES FURNISHED IN ACCORDANCE WITH C&MS ITEM 632.24, POWER SERVICE, AS PER PLAN, SHALL INCLUDE A PADLOCK EQUAL TO MASTER NO. 4BKA OR WILSON BAHANNON 660, WITH LOCK BODY OF BRONZE OR BRASS AND KEYING SHALL BE TO THE STATE MASTER.

DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE POWER SOURCE LOCATION. THE POWER SOURCE LOCATION SHALL BE APPROVED BY THE CITY OF STREETSBORO. ALL ITEMS ASSOCIATED WITH THE POWER SERVICE THAT ARE NECESSARY TO PROVIDE ELECTRICAL SERVICE TO THE TRAFFIC SIGNAL INSTALLATION, INCLUDING BUT NOT LIMITED TO CONDUIT RISERS, CONDUIT, TRENCHING, PULL BOXES AND POWER SERVICE CABLE SHALL BE INCIDENTAL TO AND INCLUDING UNDER ITEM 632 - POWER SERVICE, AS PER PLAN, AS PER C&MS 632.24.

THE CONTRACTOR WILL BE RESPONSIBLE FOR REQUESTING AND SCHEDULING ANY INSPECTIONS OHIO EDISON MAY REQUIRE FOR THE POWER SERVICE HOOK UP. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT OHIO EDISON FOR THE ELECTRICAL SERVICE CONNECTION. UNDER NO CIRCUMSTANCE SHALL THE CONTRACTOR SPLICE POWER CABLES INTO OHIO EDISON'S CIRCUITS. THE VOLTAGE SUPPLIED SHALL BE NOMINALLY 120 VOLTS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING NECESSARY PERMITS AND PAYING OF ALL FEES. THE CONTRACTOR SHALL PAY ALL POWER CHARGES UNIT THE SIGNAL IS ACCEPTED BY THE CITY OF STREETSBORO.

THE COST FOR ALL NECESSARY ITEMS AND ASSOCIATED LABOR SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR ITEM 632 - POWER SERVICE, AS PER PLAN.

ITEM 633 - CABINET, TYPE TS-2, AS PER PLAN

THE CABINET SHALL BE FURNISHED AND INSTALLED ACCORDING TO CMS 633 AND 733 AND BE LISTED ON THE TRAFFIC AUTHORIZED PRODUCTS LIST (TAP).

IN ADDITION, THE CONTROLLER SHALL BE FULLY COMPATIBLE WITH THE CENTRAL SIGNAL SYSTEM CONTROL STATION (CSSCS) THAT IS BEING INSTALLED AS PART OF THIS PROJECT.

THE GROUND-MOUNTED CABINET SHALL BE A NEMA TS-2, TYPE 1, CABINET SIZE 6 WITH 16 LOAD SWITCH BAYS, LED UNDER-SHELF LIGHTING, POWER HARNESSES FOR BOTH TS2 TYPE 1 AND TYPE 2 CONTROLLERS AND SHALL HAVE A MINIMUM OF TWO SHELVES.

THE CABINET SHALL BE A DOUBLE DOOR SYSTEM WITH A SEPARATE AND ISOLATED COMPARTMENT FOR THE UPS EQUIPMENT.

THE CONTROLLER CABINET SHALL BE PAINTED MATTE BLACK (FEDERAL COLOR #17038) PER SUPPLEMENTAL SPECIFICATION 916.

EACH CABINET SHALL COME EQUIPPED WITH TWO 16-CHANNEL CABINET DETECTOR RACKS (CDR) INCLUDING BUS INTERFACE UNITS (BIU). THE LOOP DETECTOR TERMINATION PANEL FOR THE SECOND DETECTOR RACK SHALL BE OMITTED.

THE CABINET SHALL BE FURNISHED WITH AN EDI MMU AS ALLOWED ON THE TAP/APPROVED PRODUCTS LIST.

PAYMENT FOR ITEM 633 CABINET, TYPE TS-2, AS PER PLAN WILL BE AT THE CONTRACT BID PRICE PER EACH COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS TESTED AND ACCEPTED.

ITEM 625 - BRACKET ARM, (BY DESIGN), AS PER PLAN
ITEM 632 - (COMBINATION) SIGNAL SUPPORT, TYPE TC-81.22, (BY DESIGN), AS PER PLAN
ITEM 632 - PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN

ALL BRACKET ARMS SHALL CONFORM TO C&MS ITEM 625.09 AND 725.21.

ALL PEDESTALS SHALL CONFORM TO C&MS ITEM 632.19 AND 732.15 AND SHALL BE EQUIPPED WITH A TRANSFORMER BASE.

ALL SIGNAL SUPPORTS SHALL CONFORM TO ITEM 632.15 AND 732.11 EXCEPT THAT ALL POLES SHALL BE TAPERED TUBES OF A CONTINUOUS TAPER. POLES CONSISTING OF STRAIGHT SECTIONS WITH A TAPERED EFFECT ACCOMPLISHED BY USE OF REDUCERS SHALL NOT BE PERMITTED. POLE SHALL BE ROUND IN SHAPE. OCTAGON SHAPED POLES ARE NOT PERMITTED.

THE SIGNAL SUPPORTS, MAST ARMS, BRACKET ARMS, PEDESTALS, BASES, AND ALL EXPOSED HARDWARE SHALL HAVE A MATTE BLACK FINISH (FEDERAL COLOR 17038). THE ITEMS SHALL BE TREATED AND PAINTED BLACK PER SUPPLEMENTAL SPECIFICATION 916.

ALL PAINTED EQUIPMENT SHALL BE SHIPPED IN A MANNER TO MINIMIZE DAMAGE IN TRANSIT. PAINTED SURFACES WILL BE PROTECTED BY FOAM PADDING, CARDBOARD WRAPPING, SPIRAL WRAPPING WITH WAXED PAPER, CRATING, OR A COMBINATION OF THE LISTED METHODS. THE METHOD UTILIZED SHALL BE SELECTED BY THE SUPPORT MANUFACTURER AS MOST APPROPRIATE FOR THE PROJECT BASED ON POLE SIZES, QUANTITIES, CONFIGURATIONS AND METHOD OF TRANSPORTATION.

ANY FIELD TOUCH-UPS OF THE PAINTED SURFACE FOR ACCIDENTAL DAMAGE DURING TRANSPORT AND/OR INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO AND INCLUDED IN THE PAY ITEM.

PAYMENT FOR PAINTING OF SIGNAL EQUIPMENT SHALL BE INCIDENTAL AND INCLUDED IN THE UNIT BID PRICE FOR THE ITEM REQUIRING PAINTING.

ITEM 633 - UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF C&MS 633 AND 733, A CABINET RISER (8-INCH MINIMUM) AND ANCHOR BOLTS WILL BE PROVIDED FOR BASE-MOUNTED CABINETS. THE UPS SHALL BE INSTALLED IN AN OVERSIZE, COMPARTMENTALIZED CONTROLLER CABINET WITH THE TRAFFIC CONTROL EQUIPMENT, RATHER THAN A SEPARATE ENCLOSURE.

THE UPS CABINET SHALL INCLUDE A GENERATOR POWER PANEL WITH A HEAVY-DUTY POWER RELAY VERSUS THE LINE VOLTAGE GENERATOR SWITCH. THE GENERATOR INLET SHALL BE A RECESSED PANEL WITH A DOOR THAT IS FLUSH WITH THE EXTERNAL SIDE OF THE UPS CABINET. IT SHALL INCLUDE A RECESSED PLUG, AUTOMATIC TRANSFER SWITCH AND A DOOR THAT SECURELY CLOSES OVER THE POWER CORD.

THE CABINET SHALL HAVE A DOOR STOP MECHANISM AND THERMOSTATICALLY CONTROLLED FAN.

THE CABINET SHALL INCLUDE A BATTERY BALANCING DEVICE THAT REGULATES THE BATTERIES AND OPTIMIZES PERFORMANCE.

THE CABINET SHALL BE PAINTED MATTE BLACK (FEDERAL COLOR #17038) PER SUPPLEMENTAL SPECIFICATION 916.

AFTER FOUR (4) HOURS OF BATTERY RUNTIME, THE SYSTEM SHALL BE PROGRAMMED TO SWITCH THE INTERSECTION FROM FULL OPERATION TO CONTROLLER AUTOMATIC FLASH OPERATION THROUGH THE MONITOR. THE CONTROLLER SHALL BE PROGRAMMED SO THAT FLASH OPERATION SHALL BEGIN ONCE THE INTERSECTION RUNS MINOR STREET GREEN (TYP. PH. 4 &8), ALL-RED CLEARANCE, AND THEN FLASH OPERATION.

THE UPS OUTPUT NOTIFICATIONS FOR ON BATTERY, BATTERY 2-HOUR TIMER, AND LOW BATTERY SHALL BE WIRED INTO THE TRAFFIC SIGNAL CABINET BACK PANEL OR THROUGH THE CONTROLLER WITH A C11 TO PROVIDE SPECIAL STATUS ALARMS FOR EACH OUTPUT INTO THE SIGNAL CONTROLLER.

ITEM 633 - UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN (CONT.)

THIS ITEM SHALL INCLUDE A RED LED STATUS INDICATOR LAMP TO ALLOW MAINTENANCE PERSONNEL AND LAW ENFORCEMENT TO QUICKLY ASSESS WHETHER A TRAFFIC SIGNAL CABINET IS BEING POWERED BY A UPS. THE LED HOUSING SHALL BE NEMA 4X, IP65 OR IP66, RATED FOR OUTDOOR USE AND BE TAMPER/ SHATTER RESISTANT. IT SHALL BE A DOMED ENCLOSURE CONTAINING A RED LENS WITH LED THAT IS VISIBLE FROM 100 FOOT MINIMUM. THE ENCLOSURE AND LED MODULE SHOULD BE PLACED ON THE SIDE OF THE UPS CABINET FACING TOWARDS THE MAINLINE ROADWAY AND SEALED FROM WATER INTRUSION. IT SHOULD BE WIRED USING MINIMUM 20GA STRANDED, INSULATED HOOKUP WIRE TO THE STATUS RELAY OUTPUTS OF THE UPS. THE WIRES SHALL BE TERMINATED BY LUGS AT THE DISPLAY END AND PERMANENTLY LABELED "BACKUP POWER STATUS DISPLAY," WITH WIRE POLARITY INDICATED. THE RED LED SHALL ONLY ILLUMINATE TO INDICATE THE CABINET IS OPERATING UNDER UPS BACKUP POWER (THE "BACKUP" OPERATING CONDITION). THIS ITEM INCLUDES PROGRAMMING THE UPS STATUS RELAY OUTPUTS TO PRODUCE THE LAMP STATUS DISPLAYS. THESE STATUS DISPLAYS WILL BE SOLID 100% DUTY CYCLE (NOT FLASHING) DISPLAYS. THE OPERATING VOLTAGE OF THE LED LAMP SHALL BE 120V AC UNLESS OTHERWISE INDICATED.

ITEM 633 - CABINET FOUNDATION, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT C&MS 633, 733 AND SCD TC-83.20, THE CONTROLLER FOUNDATION SHALL BE CONSTRUCTED PER THE DETAIL ON SHEET 61.

ITEM 633 - CONTROLLER WORK PAD, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT C&MS 633, 733 AND SCD TC-83.20, THE CONTROLLER WORK PAD SHALL BE CONSTRUCTED TO MATCH THE WIDTH OF THE CABINET FOUNDATION.

ITEM 809 - ATC CONTROLLER, AS PER PLAN

THE CONTROLLER UNIT SHALL BE FURNISHED AND INSTALLED PER SS 809 AND SHALL BE AN ECONOLITE COBALT CONTROLLER WITH EOS SOFTWARE.

PAYMENT FOR ITEM 809 - ATC CONTROLLER, AS PER PLAN SHALL BE MADE AT THE CONTRACT BID PRICE PER EACH AND SHALL INCLUDE ALL MATERIALS NECESSARY TO INSTALL THE CONTROLLER UNIT, COMPLETE IN PLACE, INCLUDING ALL CONNECTIONS MADE AND WIRING COMPLETE, FULLY TESTED AND ACCEPTED.

ITEM 809 - PREEMPT DETECTOR CABLE

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING PREEMPTION DETECTOR HOME RUN CABLE IN THE LOCATIONS SHOWN IN THE PLANS. IT SHALL CONNECT THE PREEMPT RECEIVING UNITS TO THE PHASE SELECTORS IN THE LOCAL CONTROLLER CABINET.

PREEMPTION DETECTOR CABLE SHALL CONFORM TO ODOT SPECIFICATION 632. ONLY ONE EXTERNAL SPLICE SHALL BE PERMITTED BETWEEN PREEMPTION RECEIVER UNIT AND CONTROLLER CABINET. THIS SPLICE SHALL MEET THE REQUIREMENTS OF C&MS 632.23 USING A WATERPROOF EPOXY SPLICE KIT. THE CABLE SHALL BE APPROVED FOR BOTH OVERHEAD AND UNDERGROUND USE. THE JACKET SHALL WITHSTAND EXPOSURE TO SUNLIGHT AND ATMOSPHERIC TEMPERATURES AND STRESSES REASONABLY EXPECTED IN NORMAL INSTALLATIONS.

PAYMENT FOR ITEM 809 - PREEMPT DETECTOR CABLE SHALL BE MADE AT THE CONTRACT UNIT PRICE PER FOOT FOR THE CABLE FURNISHED, IN PLACE, ALL CONNECTIONS MADE AND WIRING COMPLETED, TESTED AND ACCEPTED.

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ITEM 809 - EMERGENCY VEHICLE PREEMPTION, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING PREEMPTION EQUIPMENT IN THE LOCATIONS AND LOCAL CONTROLLERS AS SHOWN IN THE PLANS. THE PREEMPTION SHALL CONFORM TO ODOT SUPPLEMENTAL SPECIFICATION 809 AND SHALL UTILIZE COMMUNICATIONS TO IDENTIFY THE PRESENCE OF AN EMERGENCY PRIORITY VEHICLE. IT SHALL CAUSE THE TRAFFIC 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 GPS DETECTION TECHNIQUES TO DETERMINE AND LOG THE PRESENCE OF THE EMERGENCY VEHICLE. THE SYSTEM SHALL DETECT THE PRESENCE OF THE VEHICLE THROUGH AN EMITTING DEVICE LOCATED ON THE EMERGENCY VEHICLE. THE SYSTEM SHALL ACTIVATE THE PREEMPTION SEQUENCE BY APPLYING A SIGNAL TO ONE OF THE CONTROLLER'S PREEMPT DISCRETE INPUTS. THE SYSTEM SHALL BE COMPLETELY COMPATIBLE WITH THE CONTROLLER.

THE EQUIPMENT SHALL BE SHELF OR RACK MOUNTED AND EASILY REMOVABLE AND REPLACEABLE WITHIN THE CABINET. SUPPLY EQUIPMENT COMPLETELY WIRED IN THE CONTROLLER CABINET AND TESTED. THE SYSTEM SHALL BE CAPABLE OF PREEMPTING AND RECEIVING PRIORITY FOR EACH APPROACH TO THE INTERSECTION. IT SHALL BE POSSIBLE TO DETECT THE EMERGENCY VEHICLE AT LEAST 2000 FEET FROM THE INTERSECTION IN AN 80DB-A NOISE ENVIRONMENT.

ALL PREEMPTION PLANS SHOULD BE PROGRAMMED TO PREVENT THE YELLOW TRAP, UNLESS AS DIRECTED BY THE DISTRICT TRAFFIC ENGINEER. YELLOW TRAP PREVENT WILL FORCE THE TRANSITION THROUGH YELLOW CHANGE AND RED CLEARANCE FOR RESOLUTION OF YELLOW TRAP IF ANY PHASE OPPOSING THE PREEMPTION CLEARANCE PHASE(S) IS ACTIVE AND DISPLAYING A GREEN OR FLASHING YELLOW ARROW INDICATION WHEN THE PREEMPTION PLAN IS ACTIVATED AND THE PREEMPTION CLEARANCE PHASE(S) ARE GREEN.

SUPPLY EACH INTERSECTION SHOWN IN THE PLANS WITH THE FOLLOWING COMPONENTS, EACH BID SEPARATELY:

1. GPS RECEIVING UNIT.
2. PREEMPT DETECTOR CABLE.
3. PREEMPT PHASE SELECTOR ASSEMBLY AND INTERFACE WIRING PANEL.
4. CONFIRMATION LIGHT.

THE MODEL SUPPLIED SHALL BE OPTICOM GPS MANUFACTURED BY GLOBAL TRAFFIC TECHNOLOGIES, LLC.

THE CITY SHALL BE SUPPLIED WITH SOFTWARE REQUIRED TO CALIBRATE, LOG, AND OPERATE THE SYSTEM. TWO (2) OPERATING AND INSTRUCTION MANUALS SHALL BE SUPPLIED WITH THE SOFTWARE.

THE CONTRACTOR SHALL THOROUGHLY TEST THE INSTALLED SYSTEM. AS A MINIMUM, THE CONTRACTOR SHALL VERIFY THAT ALL CONNECTIONS ARE PROPERLY MADE TO THE CONTROLLER CABINETS. THE CONTRACTOR SHALL CHECK THAT THE RANGE SETTING IS PROPER FOR EACH INTERSECTION. THE CONTRACTOR SHALL DETERMINE THAT ALL PHASE SELECTORS ARE SELECTING THE PROPER PHASE AND TIMING ACCURATELY. THE CONTRACTOR SHALL VERIFY THAT ALL VEHICLE EMITTERS ARE BEING PROPERLY DETECTED.

PAYMENT FOR ITEM 809 - EMERGENCY VEHICLE PREEMPTION, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH PREEMPTION IN PLACE AND FULLY OPERATIONAL AS SHOWN IN THE PLANS, EXCEPT FOR THOSE ITEMS BID SEPARATELY.

ITEM 809 - PREEMPT RECEIVING UNIT, AS PER PLAN

RECEIVING UNITS SHALL CONSIST OF A LIGHTWEIGHT, WEATHERPROOF AND DIRECTIONAL ASSEMBLY. EACH RECEIVING UNIT SHALL BE 360 DEGREE ADJUSTABLE. THE RECEIVING UNIT SHALL BE CAPABLE OF SENDING THE PROPER ELECTRICAL SIGNAL TO THE TRAFFIC SIGNAL CONTROLLER VIA THE PREEMPTION DETECTOR CABLE. RECEIVING UNITS SHALL BE SUPPLIED WITH MAST ARM MOUNTING HARDWARE AS SHOWN IN THE PLANS. FURNISH PREEMPTION RECEIVING UNITS WITH 60-MONTH WARRANTIES OR FOR THE MANUFACTURER'S STANDARD WARRANTY WHICHEVER IS GREATER. ENSURE THAT THE WARRANTY PERIOD BEGINS ON THE DATE OF SHIPMENT TO THE PROJECT. ENSURE THAT EACH UNIT HAS A PERMANENT LABEL OR STAMP INDICATING THE DATE OF SHIPMENT.

ITEM 809 - PREEMPT RECEIVING UNIT, AS PER PLAN (CONT.)

THE PREEMPTION RECEIVING UNIT SHALL BE OPTICOM MODEL 3100 GPS RADIO UNIT AS MANUFACTURED BY GLOBAL TRAFFIC TECHNOLOGIES, LLC.

PAYMENT FOR ITEM 809 - PREEMPT RECEIVING UNIT, AS PER PLAN SHALL BE AT THE CONTRACT UNIT FOR EACH RECEIVING UNIT IN PLACE, COMPLETELY INSTALLED AT THE LOCATION SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 809 - PREEMPT PHASE SELECTOR, AS PER PLAN

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING PREEMPT PHASE SELECTORS INCLUDING WIRING INTERFACE PANELS IN THE LOCAL CONTROLLER CABINET AND ALL OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE PREEMPT PHASE SELECTORS COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS. THIS ITEM SHALL INCLUDE THE EXTRA CABINET SPACE NECESSARY TO BE LOCATED IN THE LOCAL CONTROLLER CABINETS WHERE INDICATED IN THE PLANS.

THE PHASE SELECTORS SHALL CONSIST OF A MODULE OR MODULES THAT WILL PROVIDE THE NECESSARY INPUTS TO THE CONTROLLER. PHASE SELECTORS SHALL BE SUPPLIED WITH SUFFICIENT QUANTITIES OF CHANNELS TO PROVIDE PREEMPTION FOR ALL APPROACHES TO THE INTERSECTION SEPARATELY. POWER SHALL BE OBTAINED FROM THE PHASE SELECTOR OR PHASE SELECTOR POWER SUPPLY AND NOT FROM THE LOCAL CONTROLLER TIMER.

THE PHASE SELECTORS SHALL HAVE FRONT PANEL INDICATORS FOR ACTIVE PREEMPT CHANNEL STATUS. IT SHALL HAVE TEST SWITCHES TO ACTIVATE ALL PREEMPT CHANNELS.

THE PHASE SELECTOR SHALL BE OPTICOM MODEL 764 MULTIMODE PHASE SELECTOR AS MANUFACTURED BY GLOBAL TRAFFIC TECHNOLOGIES, LLC.

FURNISH PREEMPT PHASE SELECTORS WITH 60-MONTH WARRANTIES OR FOR THE MANUFACTURER'S STANDARD WARRANTY WHICHEVER IS GREATER. ENSURE THAT THE WARRANTY PERIOD BEGINS ON THE DATE OF SHIPMENT TO THE PROJECT. ENSURE THAT EACH UNIT HAS A PERMANENT LABEL OR STAMP INDICATING THE DATE OF SHIPMENT.

PAYMENT FOR ITEM 809 - PREEMPT PHASE SELECTOR, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH PHASE SELECTOR IN PLACE, COMPLETELY INSTALLED IN THE LOCAL CONTROLLER SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 809 - PREEMPT CONFIRMATION LIGHT, AS PER PLAN

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING PREEMPT CONFIRMATION LIGHTS INCLUDING HARDWARE AND ALL OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE PREEMPT CONFIRMATION LIGHT COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS.

A CONFIRMATION LIGHT SHALL BE SUPPLIED FOR EACH APPROACH TO INDICATE THAT THE EMERGENCY VEHICLE HAS ACHIEVED CONTROL OF THE TRAFFIC SIGNAL.

THE CONFIRMATION LIGHT SHALL BE A WEATHER TIGHT LIGHTING FIXTURE. IT SHALL BE SUPPLIED WITH A GLOBE, LED LAMP AND MOUNTING HARDWARE TO ATTACH TO THE TRAFFIC SIGNAL MAST ARM. THE CONFIRMATION LIGHT SHALL BE POWERED BY A LOAD SWITCH IN THE TRAFFIC SIGNAL CONTROLLER. SIGNAL CABLE CONFORMING TO 732.19 SHALL BE USED FOR CONFIRMATION LIGHTS. A MINIMUM OF 2-CONDUCTOR CABLE SHALL BE USED WITH THE GREEN WIRE SERVING AS THE SAFETY GROUND CONDUCTOR.

PAYMENT FOR ITEM 809 - PREEMPT CONFIRMATION LIGHT, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH LIGHT IN PLACE, COMPLETELY INSTALLED IN THE LOCATION SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 809 - CCTV IP-CAMERA SYSTEM, PTZ, AS PER PLAN

IN ADDITION TO MEETING THE REQUIREMENTS OF ODOT SUPPLEMENTAL SPECIFICATIONS 809, THE FOLLOWING SHALL APPLY:

ALL ATTACHMENT HARDWARE SHALL HAVE A BLACK FINISH.

CAT 6E CABLE SHALL BE UTILIZED TO CONNECT THE CAMERA TO THE CABINET. CABLE SHALL BE CONSIDERED INCIDENTAL TO THIS PAY ITEM.

PAYMENT FOR ITEM 809 - CCTV IP-CAMERA SYSTEM, PTZ, AS PER PLAN SHALL BE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, INCLUDING THE CAMERA(S), MOUNTING HARDWARE, PROCESSOR MODULE, CABLES AND OTHER INCIDENTALS NECESSARY, TO PROVIDE THE PTZ CAMERA SYSTEM, COMPLETE AND IN PLACE, CONNECTIONS TESTED AND ACCEPTED.

ITEM 809 - ITS DEVICE, MISC.: HIGH-SPEED ETHERNET RADIO (ALTERNATE 1)

IN ADDITION TO MEETING THE REQUIREMENTS OF ODOT SUPPLEMENTAL SPECIFICATIONS 809, THE FOLLOWING SHALL APPLY:

ALL ATTACHMENT HARDWARE SHALL HAVE A BLACK FINISH.

THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER AND CITY OF STREETSBORO WITH THE MAKE AND MODEL OF THE RADIO TO BE PROVIDED WITH THE BASE BID PRIOR TO AWARD OF THE CONTRACT.

PAYMENT FOR ITEM 809 - ITS DEVICE, MISC.: HIGH-SPEED ETHERNET RADIO SHALL BE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, INCLUDING THE RADIO, MOUNTING HARDWARE, CABLES AND OTHER INCIDENTALS NECESSARY, TO PROVIDE THE HIGH-SPEED ETHERNET RADIO, COMPLETE AND IN PLACE, CONNECTIONS TESTED AND ACCEPTED.

ITEM 809 - ITS DEVICE, MISC.: HIGH-SPEED ETHERNET RADIO (ALTERNATE 2)

IN ADDITION TO MEETING THE REQUIREMENTS OF ODOT SUPPLEMENTAL SPECIFICATIONS 809, THE FOLLOWING SHALL APPLY:

THE HIGH-SPEED ETHERNET RADIO SHALL USE AN UNIFI DEVICE BRIDGE PRO RADIO MANUFACTURED BY UBIQUITI.

ALL ATTACHMENT HARDWARE SHALL HAVE A BLACK FINISH.

CAT 6E CABLE SHALL BE UTILIZED TO CONNECT THE CAMERA TO THE CABINET. CABLE SHALL BE CONSIDERED INCIDENTAL TO THIS PAY ITEM.

PAYMENT FOR ITEM 809 - ITS DEVICE, MISC.: HIGH-SPEED ETHERNET RADIO SHALL BE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, INCLUDING THE RADIO, MOUNTING HARDWARE, CABLES AND OTHER INCIDENTALS NECESSARY, TO PROVIDE THE HIGH-SPEED ETHERNET RADIO, COMPLETE AND IN PLACE, CONNECTIONS TESTED AND ACCEPTED.

ITEM 816 - VIDEO DETECTION SYSTEM, AS PER PLAN (ALTERNATE 1)

IN ADDITION TO MEETING THE REQUIREMENTS OF ODOT SUPPLEMENTAL SPECIFICATIONS 816 AND 907, THE VIDEO DETECTION SYSTEM SHALL BE COMPATIBLE WITH THE ECONOLITE CONTROLLER BEING PROVIDED FOR THIS PROJECT AND CAPABLE TO PROVIDE A SIMULTANEOUS LIVE COLOR VIDEO FEED FOR ALL CAMERAS BACK TO THE CITY'S EXISTING CENTRAL SIGNAL SYSTEM CONTROL STATION (CSSCS).

THE VIDEO DETECTION SYSTEM SHOULD ALSO BE INSTALLED AND CONFIGURED TO BE ABLE TO PROVIDE REAL-TIME COUNT DATA TO THE CSSCS SHOULD SYSTEM DETECTION ZONES BE ADDED IN THE FUTURE.

THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER AND CITY OF STREETSBORO WITH THE MAKE AND MODEL OF THE SYSTEM TO BE PROVIDED WITH THE BASE BID PRIOR TO AWARD OF THE CONTRACT.

THE CAMERA AND ALL ATTACHMENT HARDWARE SHALL HAVE A BLACK FINISH.

ITEM 816 - VIDEO DETECTION SYSTEM, AS PER PLAN (ALTERNATE 1) (CONT.)

THE CONTRACTOR DOES NOT NEED TO PROVIDE TRAINING AS SPECIFIED IN SUPPLEMENTAL SPECIFICATION 816.

PAYMENT FOR ITEM 816 - VIDEO DETECTION SYSTEM, AS PER PLAN (ALTERNATE 1) SHALL BE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, INCLUDING THE CAMERA(S), MOUNTING HARDWARE, PROCESSOR MODULE, CABLES AND OTHER INCIDENTALS NECESSARY, TO PROVIDE THE VIDEO DETECTION SYSTEM, COMPLETE AND IN PLACE, CONNECTIONS TESTED AND ACCEPTED.

ITEM 816 - VIDEO DETECTION SYSTEM, AS PER PLAN (ALTERNATE 2)

IN ADDITION TO MEETING THE REQUIREMENTS OF THE BASE BID (ALTERNATE 1), THE FOLLOWING SHALL APPLY:

THE VIDEO DETECTION SYSTEM SHALL USE A CURRUX SMARTCITY ITS VISION CONTROLLER WITH NTCIP AND SDLC MODULES MANUFACTURED BY CURRUX VISION IN CONJUNCTION WITH TWO AXIS M4318-PLVE PANORAMIC CAMERAS WITH T94T02D PENDANT MOUNT MANUFACTURED BY AXIS COMMUNICATIONS. THE CONTRACTOR SHALL INSTALL THE CURRUX SMARTCITY ITS VISION CONTROLLER AND AXIS M4318-PLVE PANORAMIC CAMERAS PER THE MANUFACTURER'S SPECIFICATIONS.

THE CAMERAS AND ALL ATTACHMENT HARDWARE SHALL HAVE A BLACK FINISH.

PAYMENT FOR ITEM 816 - VIDEO DETECTION SYSTEM, AS PER PLAN (ALTERNATE 2) SHALL BE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, INCLUDING THE CAMERA(S), MOUNTING HARDWARE, PROCESSOR MODULE, CABLES AND OTHER INCIDENTALS NECESSARY, TO PROVIDE THE VIDEO DETECTION SYSTEM, COMPLETE AND IN PLACE, CONNECTIONS TESTED AND ACCEPTED.

ITEM 809 - ITS DEVICE, MISC.: LAYER 2 ETHERNET SWITCH

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AN INDUSTRY HARDENED, FULLY MANAGED LAYER 2 ETHERNET SWITCH PROVIDING A MINIMUM OF EIGHT (8) FAST ETHERNET (10/100 BASE TX) RJ45 COPPER PORTS. THE SWITCH SHALL OPERATE ON 120VAC, 10 WATTS, AND SHALL MEET AND/OR EXCEED NEMA TS2 ENVIRONMENTAL REQUIREMENTS.

THE ETHERNET SWITCH SHALL BE PROVIDED WITH TWO (2) 10' CAT5E ETHERNET PATCH CABLES WITH RJ45 TERMINATIONS, COMPATIBLE POWER SUPPLY, AND ALL ACCESSORIES NEEDED TO BE FULLY FUNCTIONAL.

THE ETHERNET SWITCH SHALL CONNECT TO ALL ETHERNET DEVICES IN THE CONTROLLER CABINET INCLUDING THE CONTROLLER, VIDEO DETECTION SYSTEM, CCTV CAMERA, HIGH-SPEED ETHERNET RADIOS AND ANY OTHER ETHERNET DEVICES USING PROPERLY RATED CAT5E CABLES WITH RJ45 CONNECTORS.

LAYER 2 ETHERNET SWITCHES SHALL BE DESIGNED TO BE CONFIGURABLE IN POINT-TO-POINT, DAISY-CHAIN, RING, AND MESH TOPOLOGIES FOR CONNECTIVITY INTO NEW AND EXISTING ETHERNET NETWORKS, ENABLING APPLICATIONS TO OPERATE RELIABLY, AND WITH LOW LATENCY.

ALL EQUIPMENT SHALL INCLUDE LICENSES, WHERE REQUIRED, FOR ANY SOFTWARE OR HARDWARE IN THE SYSTEM.

THE COST FOR THIS ITEM SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIAL AND INCIDENTALS REQUIRED TO ASSEMBLE A FUNCTIONAL, ETHERNET SYSTEM INCLUDING CONNECTIONS, TESTED AND ACCEPTED.

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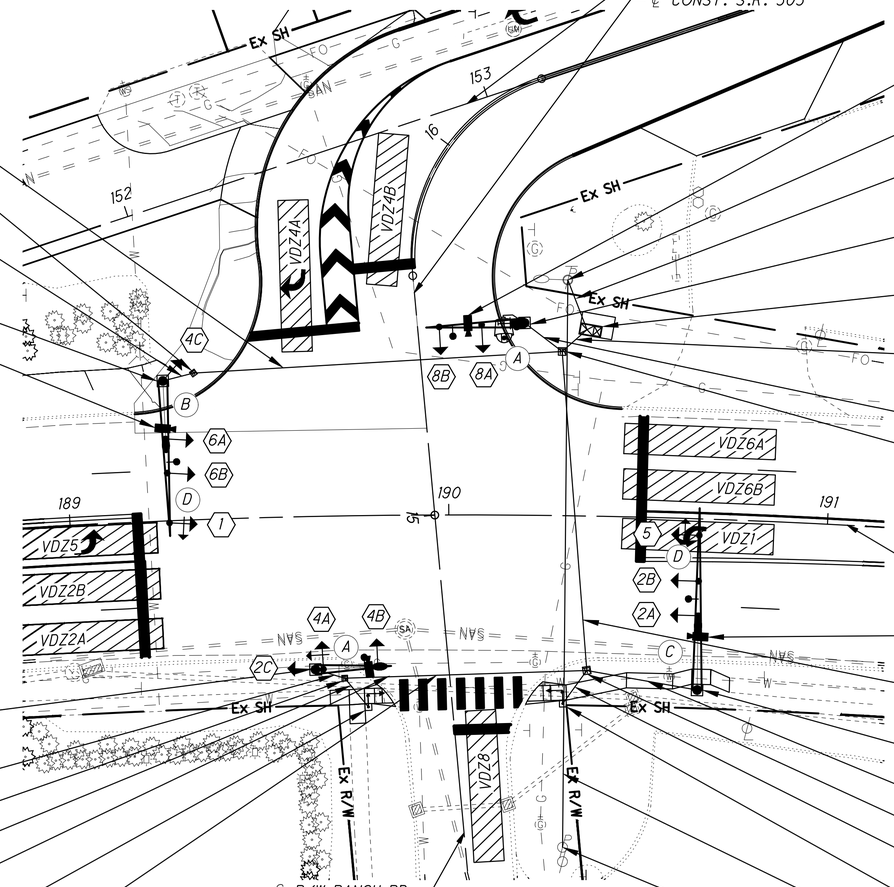
SHEET NO.	LOCATION			
57	S.R. 14 / S.R. 303 / RANCH RD.			
		EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 4, AS PER PLAN	632
		EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 12, AS PER PLAN	632
		EACH	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN	632
		EACH	CABINET, TYPE TS-2, AS PER PLAN	633
		EACH	CABINET FOUNDATION, AS PER PLAN	633
		EACH	CONTROLLER WORK PAD, AS PER PLAN	633
		EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN	633
		EACH	CCTV IP-CAMERA SYSTEM, PTZ, AS PER PLAN	809
		EACH	ITS DEVICE, MISC.: HIGH-SPEED ETHERNET RADIO	809
		EACH	ITS DEVICE, MISC.: LAYER 2 ETHERNET SWITCH	809
		EACH	ATC CONTROLLER, AS PER PLAN	809
		EACH	EMERGENCY VEHICLE PREEMPTION, AS PER PLAN	809
		EACH	PREEMPT RECEIVING UNIT, AS PER PLAN	809
		FT	PREEMPT DETECTOR CABLE	809
		EACH	PREEMPT PHASE SELECTOR, AS PER PLAN	809
		EACH	PREEMPT CONFIRMATION LIGHT, AS PER PLAN	809
		EACH	VIDEO DETECTION SYSTEM, AS PER PLAN	816
	TOTALS CARRIED TO GENERAL SUMMARY			

SHEET NO.	LOCATION			
57	S.R. 14 / S.R. 303 / RANCH RD.			
		EACH	BRACKET ARM, 15', AS PER PLAN	625
		FT	CONDUIT, 2", 725.04	625
		FT	CONDUIT, 3", 725.04	625
		FT	CONDUIT, 4", 725.04	625
		FT	CONDUIT, JACKED OR DRILLED, 725.04, 4"	625
		FT	TRENCH	625
		EACH	PULL BOX, 725.08, 18"	625
		EACH	PULL BOX, 725.08, 24"	625
		EACH	GROUND ROD	625
		FT	UNDERGROUND WARNING/MARKING TAPE	625
		EACH	ARC FLASH CALCULATIONS AND LABEL, TRAFFIC SIGNAL CABINET	625
		EACH	VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE	632
		EACH	VEHICULAR SIGNAL HEAD, (LED), 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE	632
		EACH	PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN, AS PER PLAN	632
		EACH	COVERING OF VEHICULAR SIGNAL HEAD	632
		EACH	COVERING OF PEDESTRIAN SIGNAL HEAD	632
		EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN	632
		FT	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	632
		FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	632
		EACH	SIGNAL SUPPORT FOUNDATION, AS PER PLAN	632
		EACH	PEDESTAL FOUNDATION	632
		FT	LOOP DETECTOR LEAD-IN CABLE	632
		FT	POWER CABLE, 2 CONDUCTOR, NO. 4 AWG	632
		EACH	POWER SERVICE, AS PER PLAN	632
		EACH	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 4, AS PER PLAN	632
	TOTALS CARRIED TO GENERAL SUMMARY			

59 / 65	POR-SR 303-2.72 PART 3	TRAFFIC SIGNAL SUBSUMMARY	CALCULATED JAH / CHECKED KMG



(1)-4" CONDUIT WITH (1)-7C, (1)-5C, (1)-2C LEAD-IN AND (1)-VIDEO
IN TRENCH = 98'

PB-1

(1)-3" CONDUIT WITH (1)-7C, (1)-5C, (1)-2C LEAD-IN AND (1)-VIDEO
IN TRENCH = 9'

SP-1, COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 12 WITH A 41' MAST ARM, 15' BRACKET ARM AND SUPPLEMENTAL SIGNAL HEAD
STA. 189+26.0, 37.0' LT.

CAMERA #1

SP-2, COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 4 WITH A 20' MAST ARM, 15' BRACKET ARM AND SUPPLEMENTAL SIGNAL HEAD
STA. 189+64.0, 40.4' RT.

(1)-3" CONDUIT WITH (1)-7C, (1)-5C, (1)-2C LEAD-IN, AND (1)-VIDEO
IN TRENCH = 8'

PB-2

(1)-2" CONDUIT WITH (1)-5C AND (1)-2C LEAD-IN
IN TRENCH = 10'

CAMERA #2

PS-1 WITH A PEDESTRIAN SIGNAL HEAD AND PUSHBUTTON 'P2A'
STA. 189+78.1, 50.5' RT.

(1)-4" CONDUIT WITH (1)-7C, (2)-5C, (2)-2C LEAD-IN, AND (1)-VIDEO
JACKED OR DRILLED = 64'

CAMERA #3

EXISTING UTILITY POLE # UNKNOWN WITH (1)-2" CONDUIT RISER
STA. 190+30.6, 62.2' LT.

(1)-2" CONDUIT WITH (1)-POWER CABLE
IN TRENCH = 15'

SP-3, TYPE TC-81.22, DESIGN 4 WITH A 26' MAST ARM, GPS PREEMPTION RECEIVING UNIT, HIGH-SPEED ETHERNET RADIO AND PTZ CAMERA
STA. 190+19.6, 50.8' LT.

PROPOSED GROUND MOUNTED CONTROLLER WITH UNINTERRUPTIBLE POWER SUPPLY AND WORK PAD
STA. 190+35.7, 49.2' LT.

(2)-4" CONDUITS WITH (4)-7C, (4)-5C, (6)-2C LEAD-IN, (4)-VIDEO, (1)-PREEMPT AND (2)-CAT 5E
IN TRENCH = 9'

(1)-3" CONDUIT WITH (1)-7C, (1)-2C LEAD-IN, (1)-VIDEO, (1)-PREEMPT AND (2)-CAT 5E
IN TRENCH = 13'

PB-3

℄ R/W & CONST. S.R. 14

CAMERA #4

(1)-4" CONDUIT WITH (2)-7C, (3)-5C, (4)-2C LEAD-IN AND (2)-VIDEO
JACKED OR DRILLED = 85'

SP-4, COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 12 WITH A 48' MAST ARM AND 15' BRACKET ARM
STA. 190+67.1, 45.2' RT.

(1)-3" CONDUIT WITH (1)-7C, (1)-2C LEAD-IN AND (1)-VIDEO
IN TRENCH = 30'

PB-4

(1)-2" CONDUIT WITH (1)-5C AND (1)-2C LEAD-IN
IN TRENCH = 11'

PS-2 WITH A PEDESTRIAN SIGNAL HEAD AND PUSHBUTTON 'P2B'
STA. 190+30.8, 49.6' RT.

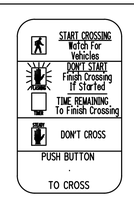
AERIAL POWER CABLE = 150'

PROPOSED POWER SOURCE EXISTING UTILITY POLE # UNKNOWN
STA. 190+31.3, 87.5' RT.

PULL BOX TABLE

PULL BOX #	STATION	SIDE	OFFSET	SIZE (IN.)
PB-1	189+34.0	LT	38.7'	18 X 18
PB-2	189+71.9	RT	42.8'	18 X 18
PB-3	190+29.4	LT	43.3'	24 X 24
PB-4	190+37.2	RT	40.8'	24 X 24

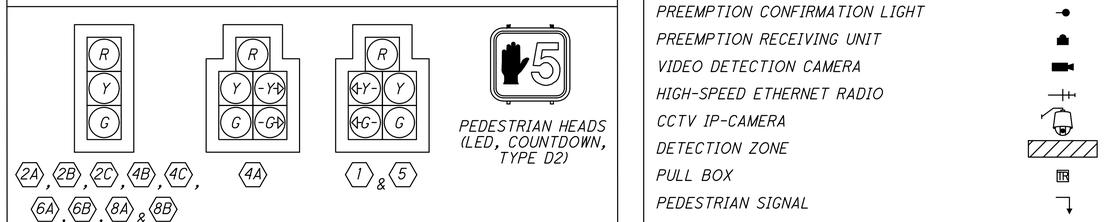
PEDESTRIAN SIGNS



R10-3E-9

1 - LEFT ARROW (PS-1)
1 - RIGHT ARROW (PS-2)

SIGNAL TYPES



1. ALL SIGNAL HEADS SHALL HAVE 12" LED LENSES.
2. ALL SIGNAL HEADS SHALL BE BLACK IN COLOR AND HAVE BACKPLATES.
3. ALL SIGNAL HEAD VISORS SHALL BE CUTAWAY TYPE.

LEGEND

- SIGNAL SUPPORT POLE
- PEDESTAL SUPPORT
- TRAFFIC SIGNAL, 3 UNIT HEAD, 12"
- TRAFFIC SIGNAL, 5 UNIT HEAD, 12"
- PREEMPTION CONFIRMATION LIGHT
- PREEMPTION RECEIVING UNIT
- VIDEO DETECTION CAMERA
- HIGH-SPEED ETHERNET RADIO
- CCTV IP-CAMERA
- DETECTION ZONE
- PULL BOX
- PEDESTRIAN SIGNAL
- PEDESTRIAN PUSHBUTTON
- PROPOSED CONTROLLER CABINET WITH WORK PAD AND UNINTERRUPTIBLE POWER SUPPLY

NOTES:

1. THE CONTRACTOR SHALL ENSURE THAT THE SIGNAL FACES ARE CLEARLY VISIBLE TO ALL ONCOMING VEHICLES; CLEAR OF ANY OBSTRUCTION ONCE TO THE MAST ARMS.
2. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES PRIOR TO EXCAVATION.
3. THE CONTRACTOR SHALL AIM SUPPLEMENTAL SIGNAL HEAD 2C TO THE LANE LINE APPROXIMATELY 350 FT IN ADVANCE OF THE STOP LINE FOR THE APPROACH.
4. FOR REFERENCE TO SIGNS (A), (B), (C) & (D), SEE SHEET 51.

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED JAH
CHECKED KMG

TRAFFIC SIGNAL PLAN
S.R. 14 / S.R. 303 / RANCH RD.

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SIGNAL TIMING CHART

INTERSECTION: S.R. 14 / S.R. 303 / RANCH RD.
MAINTAINING AGENCY: CITY OF STREETSBORO

START UP							
START IN: YELLOW/RED FLASH	DUAL ENTRY: YES		PHASES:		2, 4, 6, 8		
	REST IN RED:		RING 1	-		RING 2	-
TIME FOR: FLASH , ALL RED (SEC.): 9, 6	OVERLAP			A	B	C	D
FIRST PHASE(S): ϕ2 & ϕ6							
COLOR DISPLAYED: GREEN	PHASES			5	-	-	-

INTERVAL OR FEATURE		CONTROLLER MOVEMENT NO.							
INTERSECTION MOVEMENT (PHASE)		1	2	3	4	5	6	7	8
DIRECTION		WB LT	EB	-	SB	EB LT	WB	-	NB
MINIMUM GREEN (INITIAL)	(SEC.)	-	-	-	-	-	-	-	-
ADDED INITIAL	*(SEC./ACTUATION)	-	-	-	-	-	-	-	-
MAXIMUM INITIAL	*(SEC.)	-	-	-	-	-	-	-	-
PASSAGE TIME (PRESET GAP)	(SEC.)	3.0	3.0	-	3.0	3.0	3.0	-	3.0
TIME BEFORE REDUCTION	*(SEC.)	-	-	-	-	-	-	-	-
MINIMUM GAP	*(SEC.)	-	-	-	-	-	-	-	-
TIME TO REDUCE	*(SEC.)	-	-	-	-	-	-	-	-
MAXIMUM GREEN I	(SEC.)	20	60	-	30	20	60	-	30
MAXIMUM GREEN II	(SEC.)	-	-	-	-	-	-	-	-
YELLOW CHANGE	(SEC.)	3.3	4.2	-	4.3	3.3	4.2	-	4.3
ALL RED CLEARANCE	(SEC.)	2.0	1.0	-	1.0	2.0	1.0	-	1.0
DELAYED GREEN (LPI) #	(SEC.)	-	-	-	-	-	-	-	-
FLASHING YELLOW ARROW DELAY^	(SEC.)	-	-	-	-	-	-	-	-
WALK	(SEC.)	-	7	-	-	-	-	-	-
PEDESTRIAN CLEARANCE	(SEC.)	-	7	-	-	-	-	-	-
RECALL — MAXIMUM	(ON/OFF)	-	-	-	-	-	-	-	-
RECALL — MINIMUM	(ON/OFF)	-	ON	-	-	-	ON	-	-
RECALL — PEDESTRIAN	(ON/OFF)	-	-	-	-	-	-	-	-
MEMORY	(ON/OFF)	-	-	-	-	-	-	-	-

*VOLUME DENSITY CONTROLS

NOTES:

- ALL MOVEMENTS SHALL BE ACTUATED. THE PRIMARY THROUGH MOVEMENT SHOULD HAVE MIN RECALL ACTIVE TO REST IN GREEN.
- FOR PROTECTED/PERMISSIVE PHASES, IMPLEMENT CALL OMITS TO AVOID YELLOW BALL TRAP.
- ENABLE ϕ1 & ϕ5 DETECTOR SWITCHING TO ALLOW ϕ1 & ϕ5 TO EXTEND ϕ2 & ϕ6, RESPECTIVELY, WHEN ALLOCATED GREEN TIME FOR LEFT TURN PHASES ARE EXHAUSTED.
- COUNTDOWN PEDESTRIAN SIGNAL HEADS SHALL GO TO ZERO ON YELLOW PER OMUTCD FIGURE 4E-2.
- ALL DETECTOR DELAYS SHALL BE PLACED IN THE CONTROLLER.
- FOR ANY ENTRY TO FLASHING OPERATION PROGRAMMING SHALL RUN MINOR STREET GREEN (TYP. ϕ4 & ϕ8), ALL-RED CLEARANCE AND THEN FLASHING OPERATION.

COORDINATION TIMING PLANS

DAY(S) OF WEEK	PLAN NAME	HOURS	PLAN NO. OR CYCLE/SPLIT/OFFSET	CYCLE LENGTH (SEC)
MON - FRI	FREE	00:00 - 06:30	-	-
MON - FRI	PATTERN 1	06:30 - 10:30	1	110
MON - FRI	PATTERN 2	10:30 - 14:30	2	105
MON - FRI	PATTERN 3	14:30 - 18:30	3	115
MON - FRI	PATTERN 2	18:30 - 21:30	2	105
MON - FRI	FREE	21:30 - 24:00	-	-
SAT - SUN	FREE	00:00 - 08:00	-	-
SAT - SUN	PATTERN 2	08:00 - 20:00	2	105
SAT - SUN	FREE	20:00 - 24:00	-	-

COORDINATION TIMING CHART

S.R. 14 / S.R. 303										
PHASE	1	2	3	4	5	6	7	8	OFFSET 1 (SEC)	OFFSET 2 (SEC)
DIRECTION	WB LT	EB	-	SB	EB LT	WB	-	NB		
PLAN NO. OR C/S/O	SPLITS (G+Y+AR) IN SECONDS									
1	15	60	-	35	25	50	-	35	50	-
2	15	60	-	30	20	55	-	30	50	-
3	15	65	-	35	25	55	-	35	65	-

VIDEO DETECTION CHART

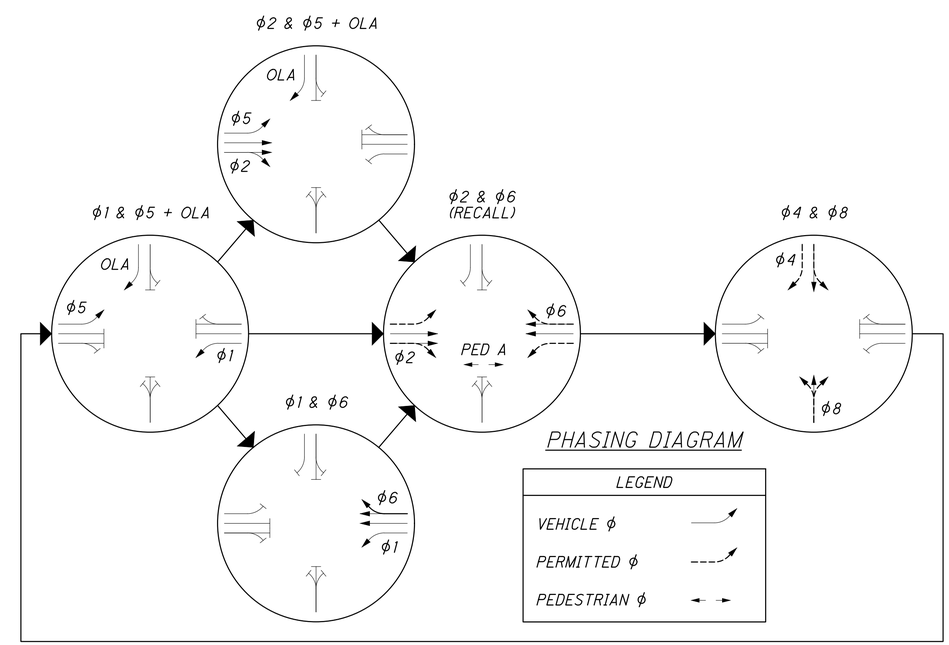
DETECTION ZONE DESIGNATION	SIZE (FT.)	PULSE OR PRESENCE	DELAY (SEC.)	ASSOCIATED CONTROLLER PHASE	DESCRIPTION
VDZ1	8 X 40	PRESENCE	5	ϕ1	WB LT CALL
VDZ2A	8 X 40	PRESENCE	-	ϕ2	EB CALL
VDZ2B	8 X 40	PRESENCE	-	ϕ2	EB CALL
VDZ4A	8 X 40	PRESENCE	10	ϕ4	SB CALL
VDZ4B	8 X 40	PRESENCE	-	ϕ4	SB CALL
VDZ5	8 X 40	PRESENCE	5	ϕ5	EB LT CALL
VDZ6A	8 X 40	PRESENCE	-	ϕ6	WB CALL
VDZ6B	8 X 40	PRESENCE	-	ϕ6	WB CALL
VDZ8	8 X 40	PRESENCE	10	ϕ8	NB CALL

PREEMPT CHANNELS

CHANNEL 1 = ϕ(2+5) (EASTBOUND ONLY)
CHANNEL 2 = ϕ(4) (SOUTHBOUND ONLY)
CHANNEL 3 = ϕ(1+6) (WESTBOUND ONLY)
CHANNEL 4 = ϕ(8) (NORTHBOUND ONLY)

PREEMPT NOTES:

1. UPON PREEMPTION, ACTIVE WALK INDICATIONS SHALL IMMEDIATELY BE TERMINATED, FOLLOWED BY THE TIMING OF THE PEDESTRIAN CLEARANCE INTERVAL.
2. IF ANY ACTIVE PHASE OPPOSES THE PREEMPT PHASE, ALL ACTIVE PHASES SHALL TIME THEIR YELLOW AND ALL RED CLEARANCE INTERVALS UPON COMPLETION OF ANY PEDESTRIAN INTERVALS PRIOR TO TRANSITIONING TO THE PREEMPT PHASE IN ORDER TO AVOID THE POTENTIAL FOR YELLOW BALL TRAP.
3. AFTER RELEASE FROM PREEMPT, YELLOW AND ALL RED CLEARANCE INTERVALS SHALL BE DISPLAYED AND RETURN TO NORMAL COORDINATION TIMING PROGRESSION PER CURRENT COORDINATION RECOVERY SETTINGS.



CALCULATED JAH
CHECKED KMG

TRAFFIC SIGNAL DETAILS
S.R. 14 / S.R. 303 / RANCH RD.

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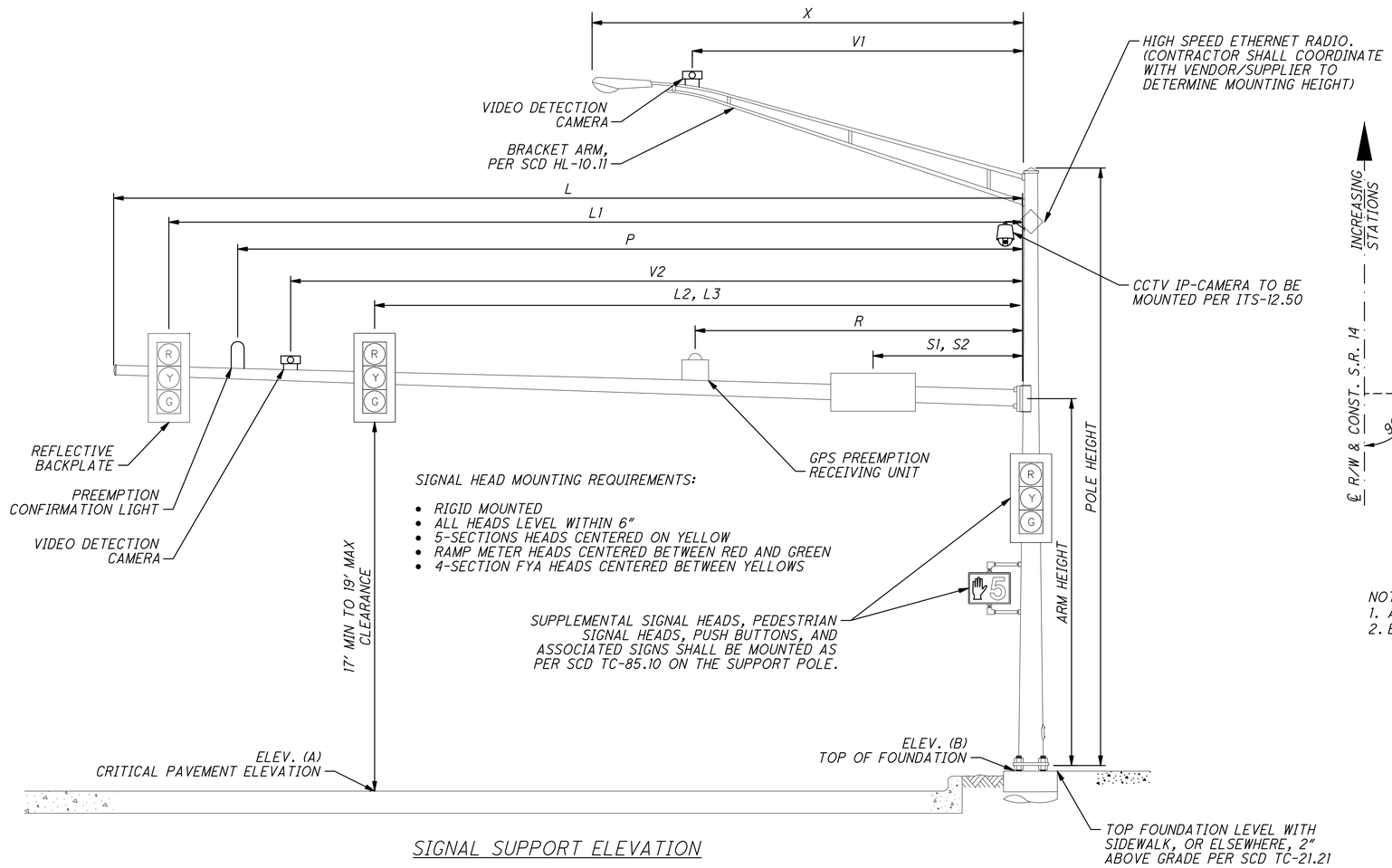
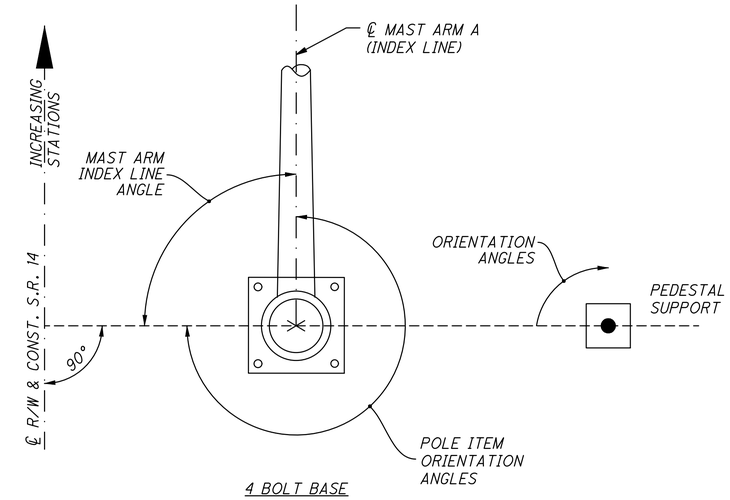


SIGNAL SUPPORT ELEVATION



NOTES:
1. ALL ANGLES MEASURED CLOCKWISE.
2. BASE PLATE IS ORIENTED SQUARE TO MAST ARM A, EVEN IF THE SUPPORT HAS TWO ARMS.

POLE ORIENTATION

MAST ARM TABLE

SUPPORT NO.	STATION	OFFSET	ELEVATION		SIGNAL SUPPORT DETAILS															MAST ARM A INDEX LINE ANGLE	ANGLES (DEG.) FROM MAST ARM A / INDEX LINE				
			A (Pavement Elevation)	B (Top of Foundation)	DESIGN TYPE	DESIGN NO.	POLE HEIGHT	ARM HEIGHT	L	L1	L2	L3	S1	S2	P	R	V1	V2	X		PEDESTRIAN SIGNAL	PEDESTRIAN PUSHBUTTON	SUPPLEMENTAL SIGNAL HEAD	BRACKET ARM	HANDHOLE
							FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	DEG	DEG	DEG	DEG	DEG	DEG
SP-1	189+26.0	37.0' LT.	1149.90	1151.15	TC-81.22	12	27	18.5	41	37.5	24.5	15.5	34.5	7.5	20	-	14	-	15	0	-	-	225	0	180
SP-2	189+64.0	40.4' RT.	1149.02	1149.15	TC-81.22	4	27	20.5	20	16.5	2	-	9	-	13.5	-	14	-	15	90	-	-	180	0	90
SP-3	190+19.6	50.8' LT.	1149.87	1151.04	TC-81.22	4	21	19.5	26	22.5	11.5	-	5.5	-	19.5	2	-	14.5	-	90	-	-	-	-	180
SP-4	190+67.1	45.2' RT.	1150.99	1150.65	TC-81.22	12	27	20.5	48	41	28.5	19.5	38	10	24	-	14	-	15	0	-	-	-	0	180
PS-1	189+78.1	50.5' RT.	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	180
PS-2	190+30.8	49.6' RT.	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	90

CALCULATED JAH
CHECKED KMG

TRAFFIC SIGNAL DETAILS
S.R. 14 / S.R. 303 / RANCH RD.

POR-SR 303-2.72
PART 3

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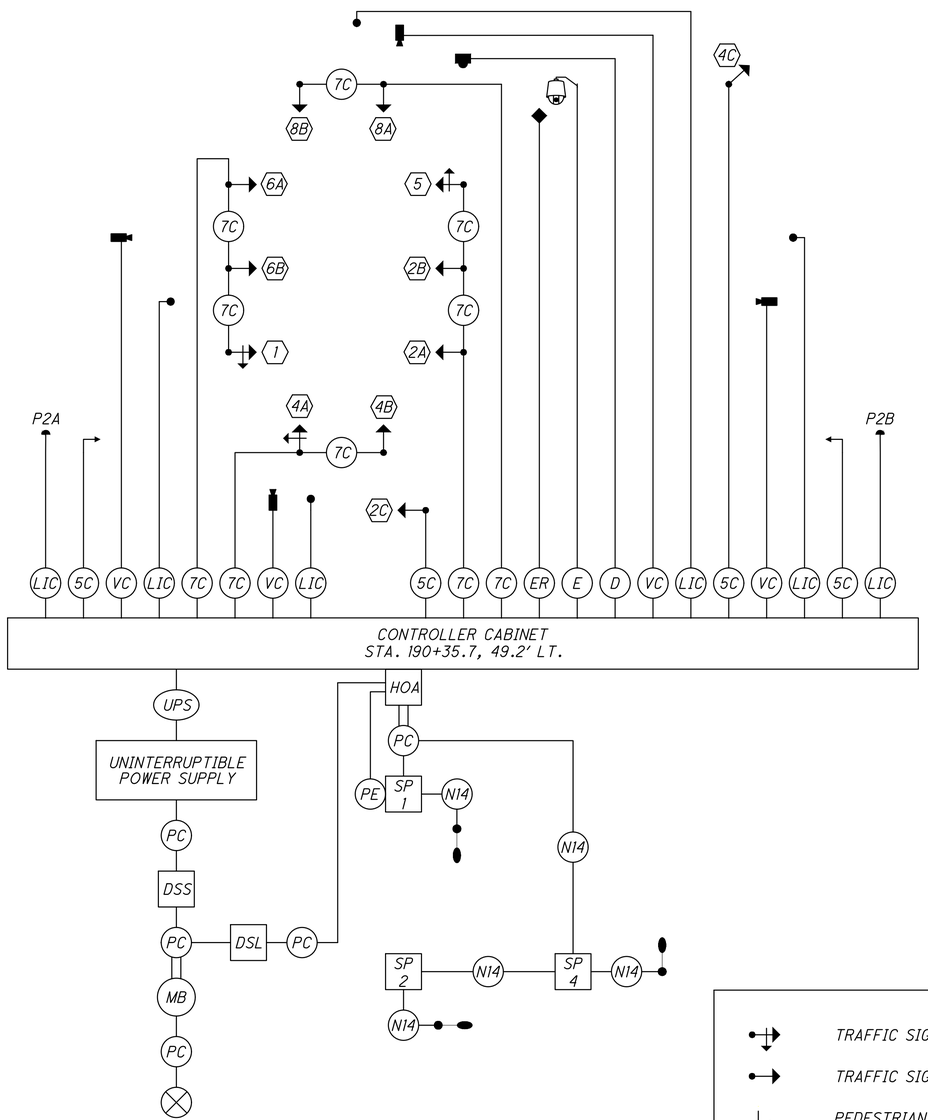
WIRING DIAGRAM



FIELD WIRING HOOK-UP CHART

SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
1 (WB LT)	R	ϕ6 R	Y
	Y	ϕ6 Y	
	G	ϕ6 G	
	<--Y---	ϕ1 Y	
	<--G---	ϕ1 G	
2A, 2B, 2C (EB)	R	ϕ2 R	Y
	Y	ϕ2 Y	
	G	ϕ2 G	
4A (SB RT)	R	ϕ4 R	R
	Y	ϕ4 Y	
	G	ϕ4 G	
	---Y-->	ϕ5 Y / LS 13 Y	
	---G-->	ϕ5 G / LS 13 G	
4B, 4C (SB)	R	ϕ4 R	R
	Y	ϕ4 Y	
	G	ϕ4 G	
5 (EB LT)	R	ϕ2 R	Y
	Y	ϕ2 Y	
	G	ϕ2 G	
	<--Y---	ϕ5 Y	
	<--G---	ϕ5 G	
6A, 6B (WB)	R	ϕ6 R	Y
	Y	ϕ6 Y	
	G	ϕ6 G	
8A, 8B (NB)	R	ϕ8 R	R
	Y	ϕ8 Y	
	G	ϕ8 G	
PEDESTRIAN MOVEMENTS			
PED A	W	ϕ2 PED / LS 9 G	OUT
	DW	ϕ2 PED / LS 9 R	
OVERLAPS			
OLA	---Y-->	ϕ5 Y / LS 13 Y	OUT
	---G-->	ϕ5 G / LS 13 G	
LS = LOAD SWITCH			

LEGEND

	TRAFFIC SIGNAL, 4 OR 5 UNIT HEAD, 12"		CCTV IP-CAMERA	PC	POWER CABLE, 2 CONDUCTOR, NO. 4 AWG
	TRAFFIC SIGNAL, 3 UNIT HEAD, 12"	LIC	2/C NO. 14 AWG (LEAD-IN CABLE)	SP #	SIGNAL SUPPORT POLE NO. __
	PEDESTRIAN SIGNAL	5C	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	DSS	SIGNAL DISCONNECT SWITCH
	PEDESTRIAN PUSH BUTTON	7C	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	DSL	LIGHTING DISCONNECT SWITCH
	VIDEO DETECTION CAMERA	VC	VIDEO CAMERA CABLE	UPS	UNINTERRUPTIBLE POWER SUPPLY CABLE
	ETHERNET RADIO	E	ETHERNET CAT 6E ARMORED CABLE	HOA	HAND/ OFF/ AUTO SWITCH
	LUMINAIRE, CONVENTIONAL	PE	PHOTOELECTRIC CELL		POWER SOURCE
	HIGH-SPEED ETHERNET RADIO	N14	SIGNAL CABLE, 4 CONDUCTOR, NO. 14 AWG	MB	METER BASE
	GPS PREEMPTION RECEIVING UNIT	ER	HIGH-SPEED ETHERNET RADIO CABLE		
	PREEMPTION CONFIRMATION LIGHT	D	PREEMPTION DETECTOR CABLE		

CALCULATED JAH
CHECKED KMG

TRAFFIC SIGNAL DETAILS
S.R. 14 / S.R. 303 / RANCH RD.

POR-SR 303-2.72
PART 3

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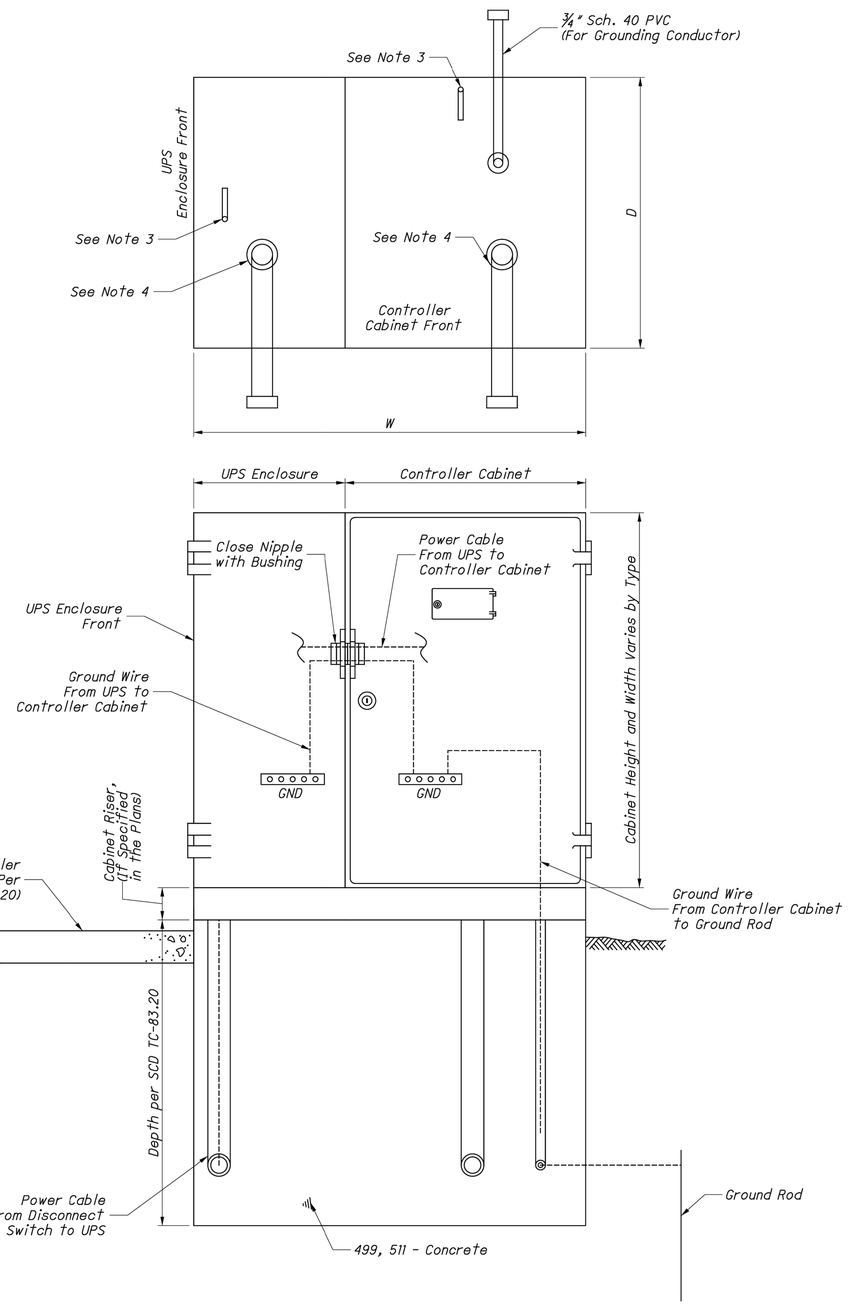

NOTES:

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 ¾" 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

THIS DRAWING REPLACES PIS 208320 DATED 04-20-2012.

OFFICE OF ROADWAY ENGINEERING

DESIGNED XXX REVIEWED XXX

REVISION DATE 07-18-2014 CHECKED CHECKED

PLAN INSERT SHEET

UNINTERRUPTIBLE POWER SUPPLY (UPS) AND CONTROLLER CABINET FOUNDATION

PIS 208320

1/1

0/0

CALCULATED JAH CHECKED KMG

TRAFFIC SIGNAL DETAIL

POR-SR 303-2.72 PART 3

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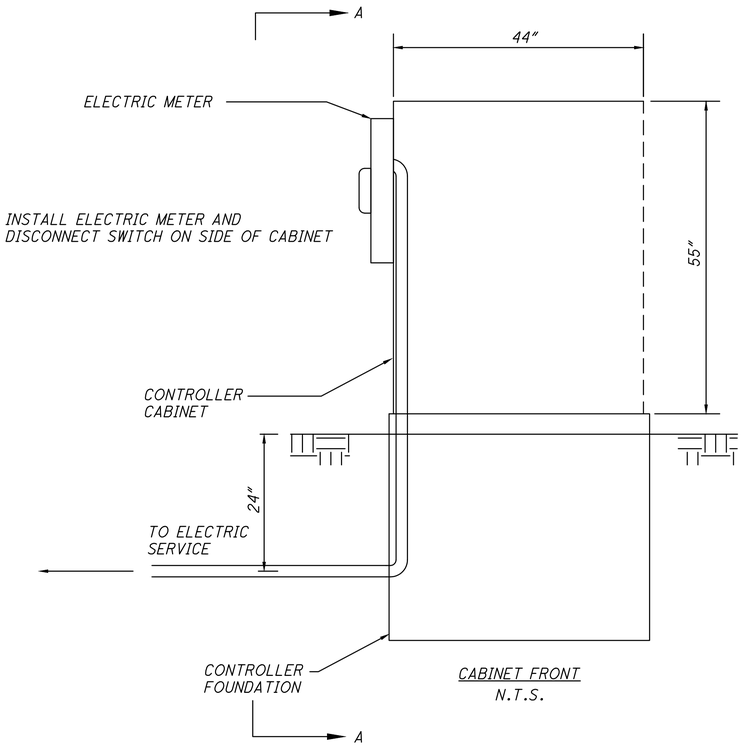
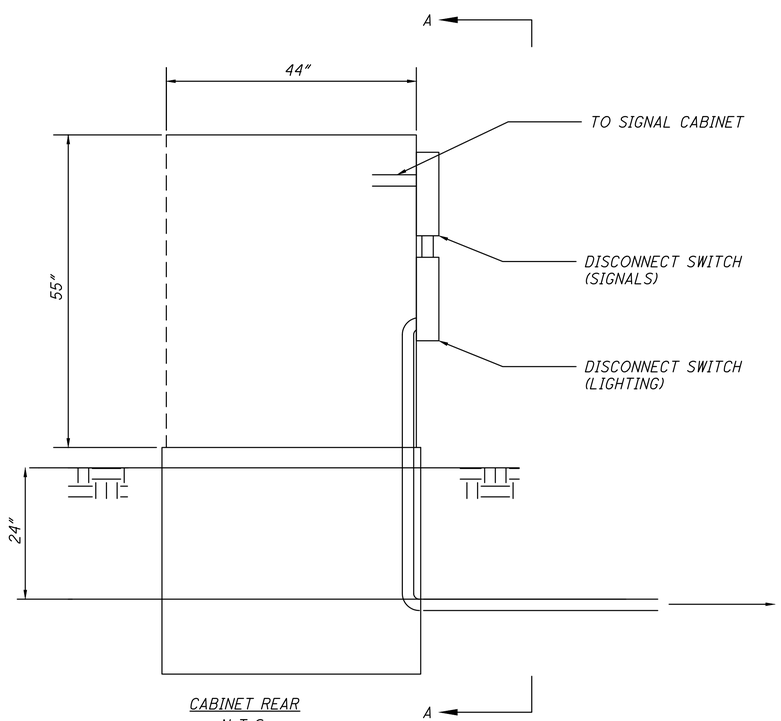
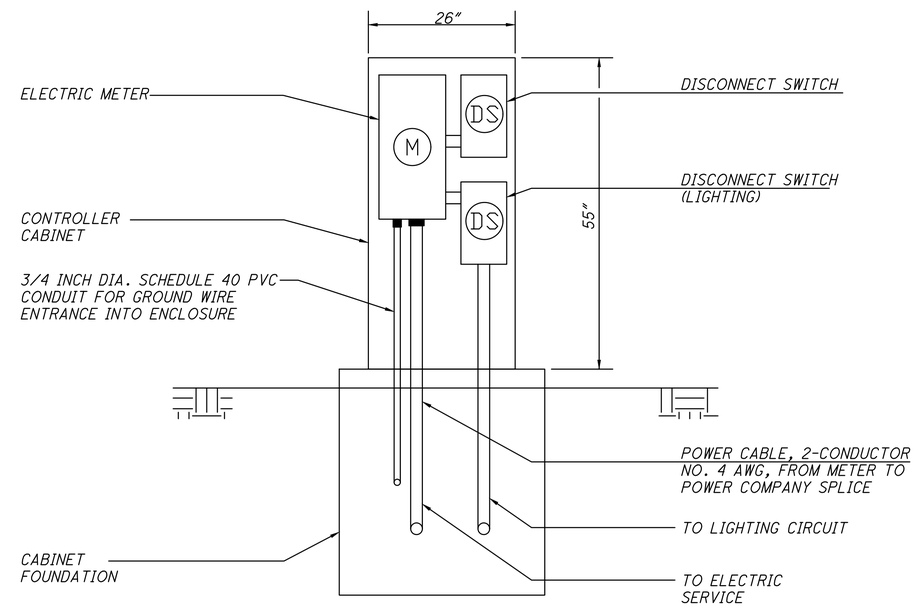


CABINET FRONT
N.T.S.



CABINET REAR
N.T.S.



VIEW A-A
N.T.S.

CALCULATED JAH
CHECKED KMG

TRAFFIC SIGNAL DETAIL

POR-SR 303-2.72
PART 3

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ITEM 625 - LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN, IES-III-M, 17,000-19,000 LUMENS

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION SPECIFICATIONS, LUMINAIRES FOR CONVENTIONAL LIGHTING SHALL BE LED, TYPE III, MVOLT, HAVE AN OUTPUT BETWEEN 17,000 - 19,000 LUMENS AND SHALL BE ON THE ODOT APPROVED LIST. THE CONTRACTOR SHALL PROVIDE ODOT DISTRICT 4 WITH PRODUCT CUT SHEETS FOR APPROVAL PRIOR TO ORDERING.

THE LUMINAIRE HOUSING SHALL HAVE A BLACK FINISH TO MATCH THE PROPOSED BRACKET ARM.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER C&MS ITEM 625 - LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN, IES-III-M, 17,000-19,000 LUMENS FOR EACH LUMINAIRE INSTALLED WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO PERFORM THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

CALCULATED JAH
CHECKED KMG

LIGHTING NOTES

POR-SR 303-2.72
PART 3

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REF NO.	SHEET NO.	STATION TO STATION	SIDE	CONNECTION, FUSED PULL APART	CONNECTION, UNFUSED PULL APART	NO. 6 AWG 2400 VOLT DISTRIBUTION CABLE	NO. 10 AWG POLE AND BRACKET CABLE	CONDUIT, 2", 725.051	CONDUIT, 3", 725.051	CONDUIT, JACKED OR DRILLED, 725.051, 3"	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN, IES-III-M, 17,000-19,000 LUMENS	TRENCH	PULL BOX, 725.08, 18"	UNDERGROUND WARNING/MARKING TAPE
				625	625	625	625	625	625	625	625	625	625	625
				EACH	EACH	FT	FT	FT	FT	FT	EACH	FT	EACH	FT
		TO												
1	65	189+33.8 TO 190+33.6	LT			321			102			102		102
2	65	189+33.8	LT										1	
3	65	189+33.8 TO 189+26.0	LT			52.5		10				10		10
4	65	189+26.0	LT	1	1		126				1			
5	65	189+64.0	RT	1	1		126				1			
6	65	189+64.0 TO 189+74.4	RT			64.5		14				14		14
7	65	189+74.4	RT										1	
8	65	189+74.4 TO 190+40.8	RT			210				65				
9	65	190+35.7 TO 190+33.6	LT			105		5				5		5
10	65	190+33.6	LT										1	
11	65	190+33.6 TO 190+40.8	LT/RT			288				91				
12	65	190+67.1	RT	1	1		126				1			
13	65	190+67.1 TO 190+40.8	RT			201		26				26		26
14	65	190+40.8	RT										1	
TOTALS THIS SHEET				3	3	1242	378	55	102	156	3	157	4	157
TOTALS CARRIED TO THE GENERAL SUMMARY				3	3	1242	378	55	102	156	3	157	4	157

CALCULATED JAH
CHECKED KMG

LIGHTING SUBSUMMARY

POR-SR 303-2.72
PART 3

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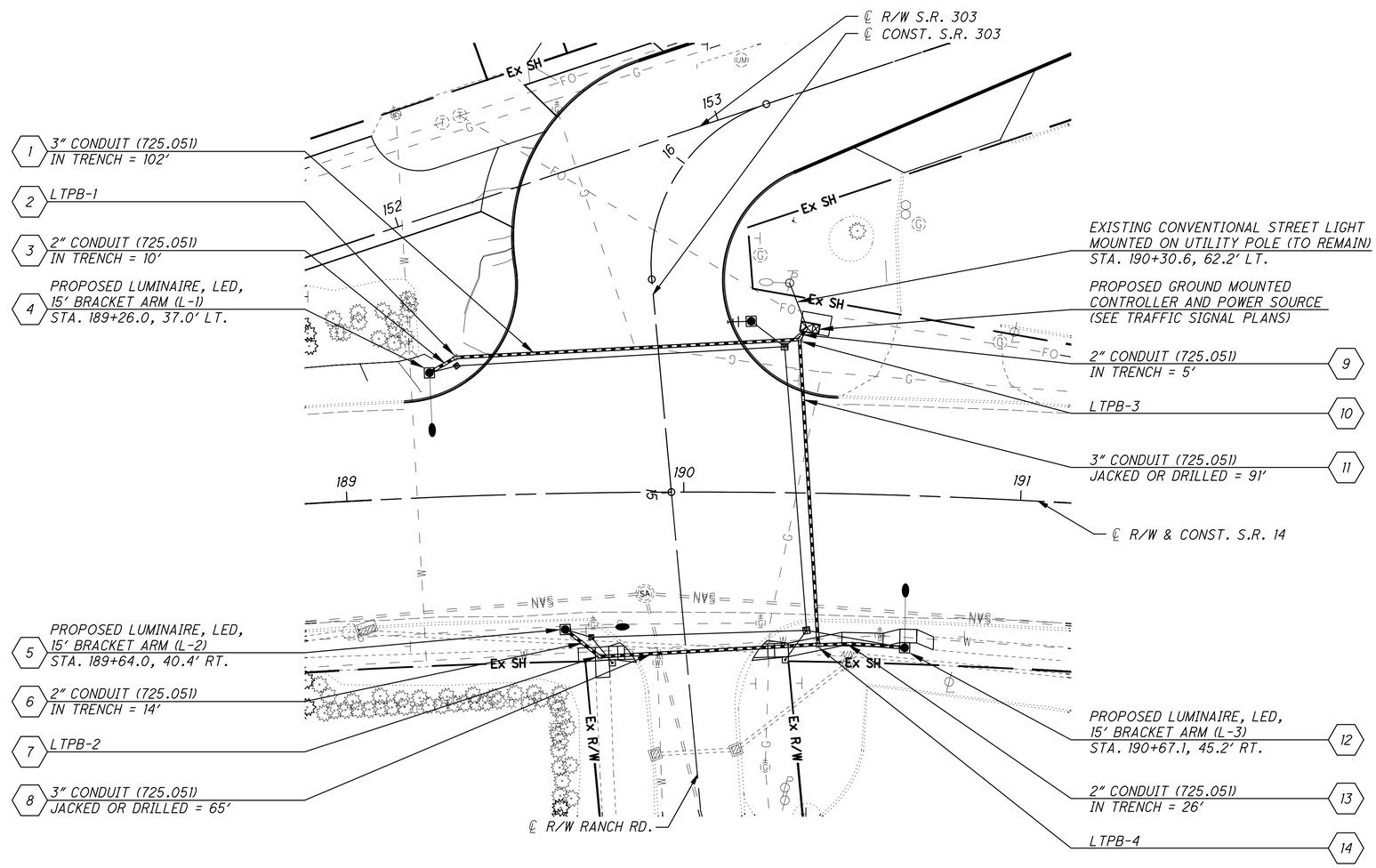

PULL BOX TABLE

PULL BOX #	STATION	SIDE	OFFSET	SIZE (IN.)
LTPB-1	189+33.8	LT	41.2'	18 X 18
LTPB-2	189+74.4	RT	48.6'	18 X 18
LTPB-3	190+33.6	LT	45.5'	18 X 18
LTPB-4	190+40.8	RT	45.0'	18 X 18

LEGEND

- PROPOSED LED LUMINAIRE, BRACKET ARM ON COMBINATION SIGNAL POLE
- EXISTING LUMINAIRE
- PROPOSED PULL BOX (725.08)
- LIGHTING CONDUIT WITH (3)#6, 2400V DISTRIBUTION CABLE
- SUB-SUMMARY REFERENCE NUMBER

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED JAH
CHECKED KMG

LIGHTING PLAN
S.R. 14 / S.R. 303 / RANCH RD.

POR-SR 303-2.72
PART 3

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