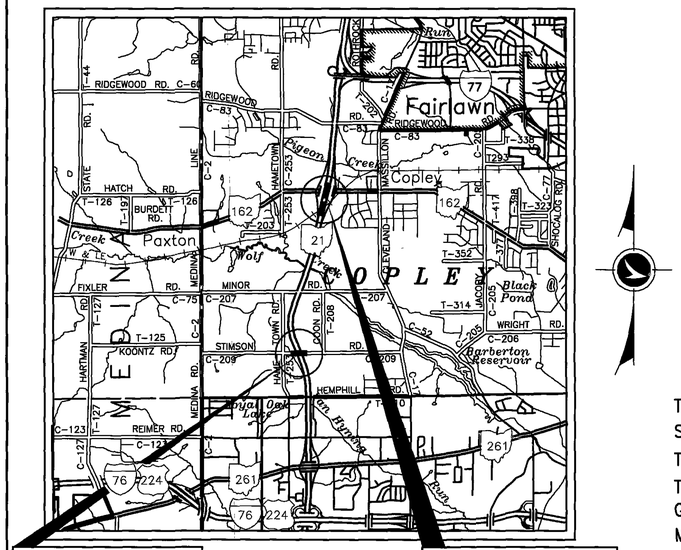
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
SUM-21-(5.69)(7.58)(7.78)
COPLEY TOWNSHIP
SUMMIT COUNTY
RECONSTRUCTION OF EXISTING SEPARATED CROSSING WITH THE WHEELING & LAKE ERIE R.R.



PROJECT LOCATION
SUM-21-5.69

LOCATION MAP

PROJECT LOCATIONS
SUM-21-7.58
SUM-21-7.78

SCALE IN MILES
0 4

PORTION TO BE IMPROVED
STATE & FEDERAL ROUTES — 21 — 224 — 76
COUNTY & TOWNSHIP ROUTES — C-000 — T-000

LATITUDE: N 41°-04'-13" LONGITUDE: W 81°-39'-51" SUM-21-5.69
LATITUDE: N 41°-05'-48" LONGITUDE: W 81°-39'-29" SUM-21-7.58
LATITUDE: N 41°-05'-58" LONGITUDE: W 81°-39'-26" SUM-21-7.78

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PROJECT DESCRIPTIONS:

SUM-21-5.69
IMPROVING 0.13 MILES OF STIMSON ROAD BY REHABILITATING AND RAISING THE EXISTING STEEL BEAM BRIDGE CARRYING STIMSON ROAD OVER S.R. 21 INCLUDING APPROACH ROADWAY RECONSTRUCTION.

SUM-21-7.58
IMPROVING 0.11 MILES OF S.R. 21 BY REHABILITATING, RAISING AND WIDENING THE EXISTING TWIN THREE SPAN STEEL BEAM BRIDGES OVER THE WHEELING & LAKE ERIE RAILROAD TRACKS INCLUDING APPROACH ROADWAY RECONSTRUCTION.

SUM-21-7.78
IMPROVING 0.18 MILES OF S.R. 21 BY REPLACING THE EXISTING TWIN THREE SPAN STEEL BEAM BRIDGES OVER S.R. 162 WITH NEW TWIN SINGLE SPAN STEEL BEAM BRIDGES WITH MSE RETAINING WALLS AND INCLUDING APPROACH ROADWAY RECONSTRUCTION.

2002 SPECIFICATIONS:

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

LIMITED ACCESS:

SUM-21-(7.58)(7.78)
THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

MAINTENANCE OF TRAFFIC ENDORSEMENT:

SUM-21-5.69
I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND A DETOUR WILL BE PROVIDED AS INDICATED ON SHEET NO. 9.

SUM-21-(7.58)(7.78)
I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THESE IMPROVEMENTS WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY EXCEPT AS NOTED ON SHEETS 27, 28 & 40, AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

APPROVED _____
DATE 1-18-05 DISTRICT DEPUTY DIRECTOR

APPROVED _____
DATE 2-9-05 DIRECTOR, DEPARTMENT OF TRANSPORTATION

DESIGN DESIGNATION:	SUM-21-5.69 C.R. 209	SUM-21-5.69 S.R. 21	SUM-21-7.58 S.R. 21	SUM-21-7.78 S.R. 21	SUM-21-7.78 S.R. 162
CURRENT ADT (2006)	740	34,100	32,500	32,500	8,200
DESIGN YEAR ADT (2026)	950	43,600	41,500	41,500	10,500
DESIGN HOURLY VOLUME (2026)	100	4,360	4,150	4,150	1,050
DIRECTIONAL DISTRIBUTION	60%	60%	60%	60%	60%
TRUCKS (24 HOUR B&C)	3%	11%	10%	10%	5%
DESIGN SPEED	60 m.p.h.	60 m.p.h.	60 m.p.h.	60 m.p.h.	50 m.p.h.
LEGAL SPEED	55 m.p.h.	55 m.p.h.	55 m.p.h.	55 m.p.h.	45 m.p.h.
DESIGN FUNCTIONAL CLASSIFICATION	RURAL LOCAL	URBAN PRINCIPAL ARTERIAL	URBAN PRINCIPAL ARTERIAL	URBAN PRINCIPAL ARTERIAL	URBAN MINOR ARTERIAL

DESIGN EXCEPTIONS:

DESIGN FEATURE	APPROVAL DATE	SHEET NO.
HORIZONTAL CLEARANCE BR. NO. SUM-21-0569	9-13-04	62, 136

PROJECT EARTH DISTURBED AREA = 17.64 AC.

ESTIMATED CONTRACTOR EARTH DISTURBED AREA = 3.50 AC.

NOTICE OF INTENT EARTH DISTURBED AREA = 21.14 AC.

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL 1-800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

FOR STRUCTURE OVER 20'
STATE OF OHIO JEFFREY S. KENNEDY E-57109 REGISTERED PROFESSIONAL ENGINEER
JEFFREY S. KENNEDY DATE 1/17/05

FOR ENTIRE PLAN EXCEPT STRUCTURE OVER 20'
STATE OF OHIO THOMAS L. SEITZ 24757 REGISTERED PROFESSIONAL ENGINEER
THOMAS L. SEITZ DATE 1-17-05

PREPARED AND RECOMMENDED BY
SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
CONSULTING ENGINEERS - SURVEYORS
MANSFIELD OHIO WOOSTER

STANDARD CONSTRUCTION DRAWINGS								SUPPLEMENTAL SPECIFICATIONS			
BP-3.1	7-16-04	RM-1.1	4-18-03	AS-1-81	7-19-02	HL-30.11	4-19-02	802	7-19-02	908	4-18-03
BP-4.1	7-16-04					HL-30.32	4-19-02	832	4-17-04		
BP-5.1	7-28-00	RM-4.2	4-18-03	GSD-1-96	7-19-02			833	2-12-03	927	6-14-95
BP-6.1	7-28-00			PCB-91	7-19-02	MT-35.10	4-20-01				
		CB-2.2	7-19-02	SICD-1-96	7-19-02	MT-95.30	7-16-04	864	7-11-00		
F-2.1	7-28-00					MT-95.40	7-16-04				
F-3.1	7-28-00	HW-2.1	7-19-02			MT-95.70	4-19-02				
F-3.3	7-28-00	HW-2.2	7-19-02	TC-41.10	1-19-01	MT-95.82	4-19-02				
F-3.4	7-28-00			TC-41.20	1-19-01	MT-99.30	4-16-04	SPECIAL PROVISIONS			
		DM-1.1	7-18-03	TC-41.50	7-16-04	MT-100.00	4-19-02				
GR-1.1	7-16-04	DM-1.2	7-19-02	TC-42.10	1-19-01	MT-101.20	10-18-02	WATERWAY PERMIT			
GR-2.1	1-16-04	DM-2.1	7-20-01	TC-42.20	7-16-04	MT-101.60	10-18-02	NWP NO. 3 (MAINTENANCE)		4-21-04	
GR-3.1	4-18-03			TC-52.10	4-20-01	MT-101.70	10-18-02	SECTION 401 WQC		8-17-04	
GR-4.2	10-17-03	DM-4.1	7-19-02	TC-52.20	4-20-01						
GR-5.1	4-18-03	DM-4.2	7-19-02	TC-61.10	1-19-01	MT-102.10	10-18-02	REINFORCED EARTH WALL		1-18-05	
GR-6.1	4-18-03	DM-4.3	7-19-02	TC-65.10	10-19-01	MT-102.20	10-18-02	RETAINED EARTH WALL		1-18-05	
GR-6.2	4-18-03	DM-4.4	7-19-02	TC-65.11	10-19-01	MT-105.10	10-18-02	MSE PLUS RETAINING WALL		1-18-05	
				TC-72.20	01-19-01	MT-105.11	10-18-02				

FEDERAL PROJECT NO. E035(629)
PID NO. 13837
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT WHEELING & LAKE ERIE R.R.
SUM-21-(5.69)(7.58)(7.78)
1 / 223

SUM - SR 21-(5.69) (7.58) (7.78)
050254 PID - 13837
Dist 4 4/20/2005
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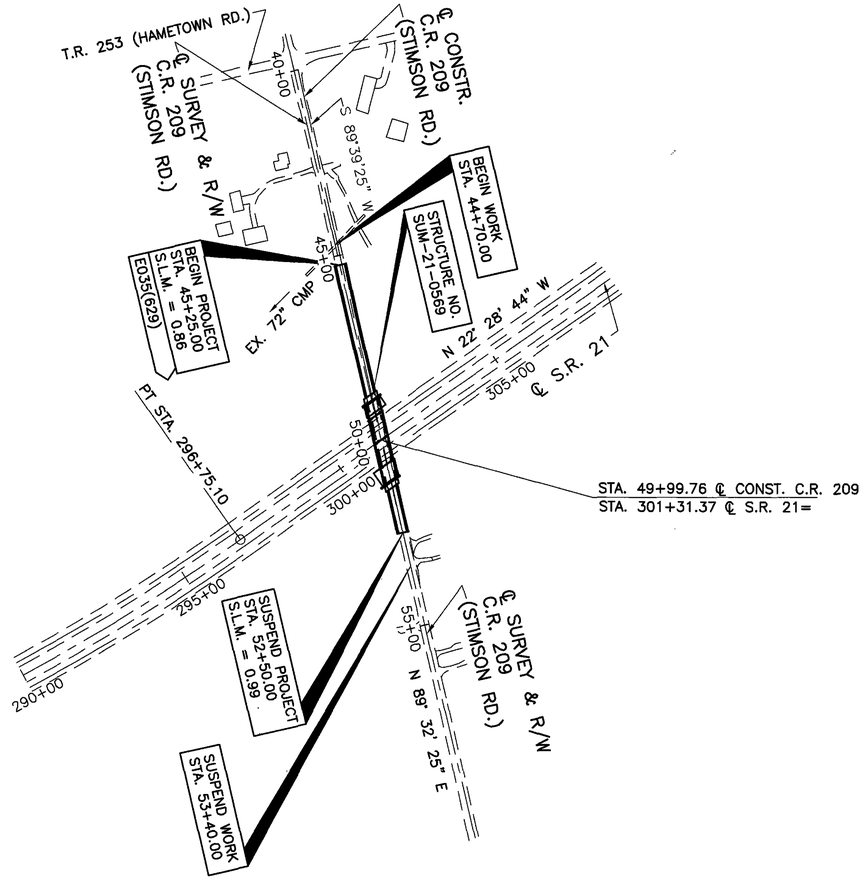
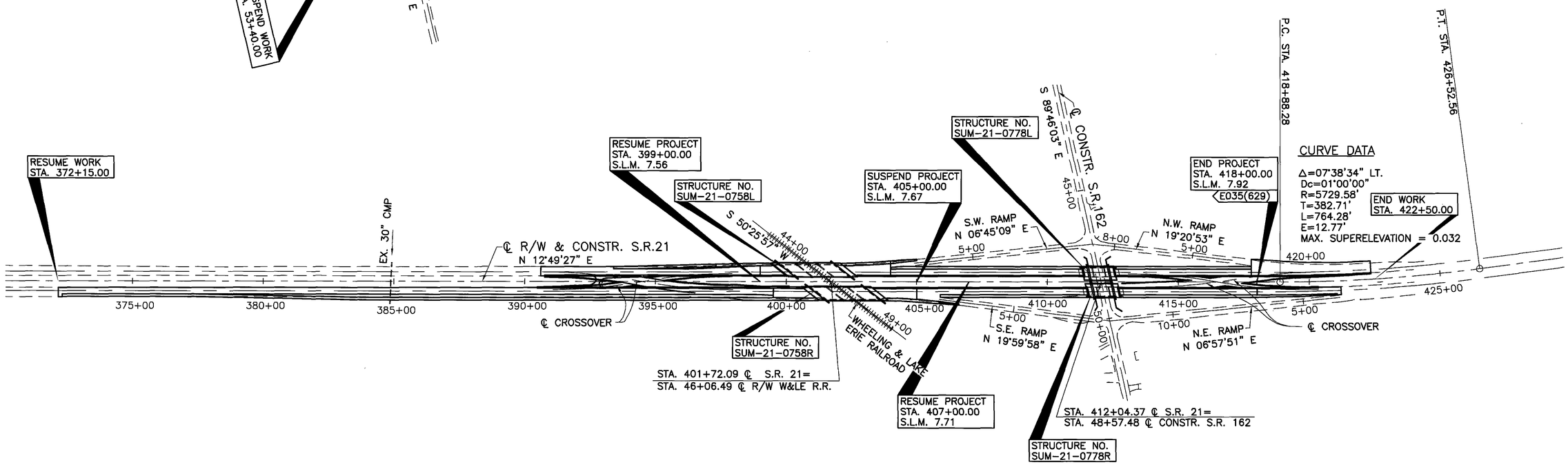


THERE ARE NO EXISTING LANDSCAPED AREAS WITHIN THE WORK LIMITS.



0 200 400
HORIZONTAL SCALE IN FEET

SCHEMATIC PLAN

SUM-21-(5.69)(7.58)(7.78)

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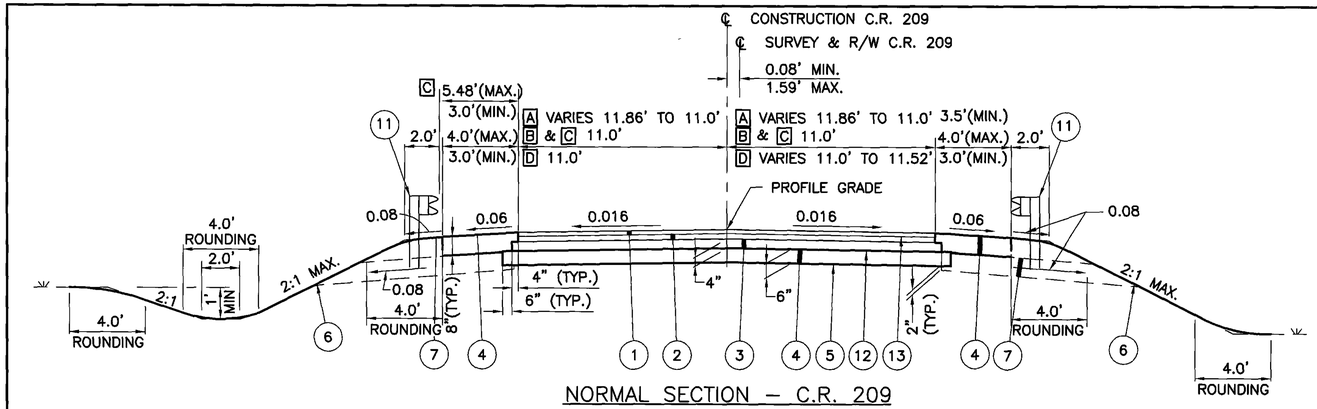
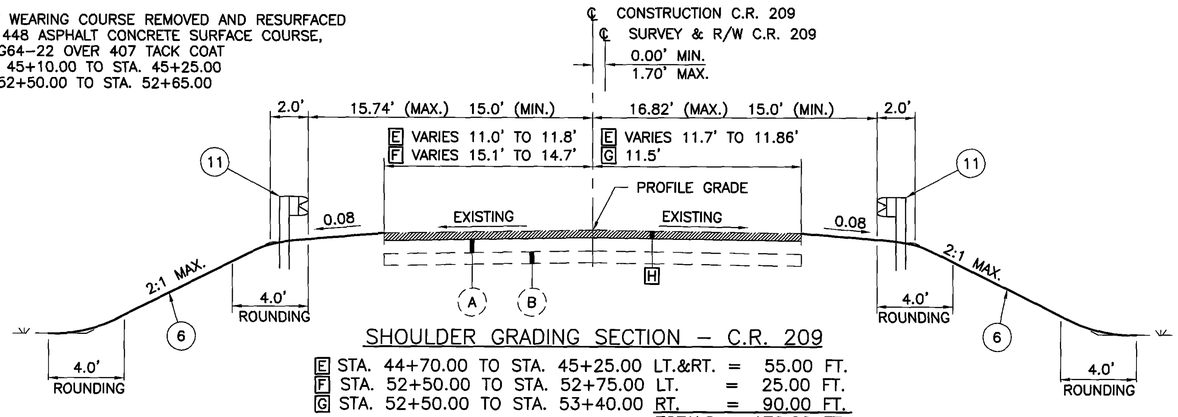


NORMAL SECTION – C.R. 209

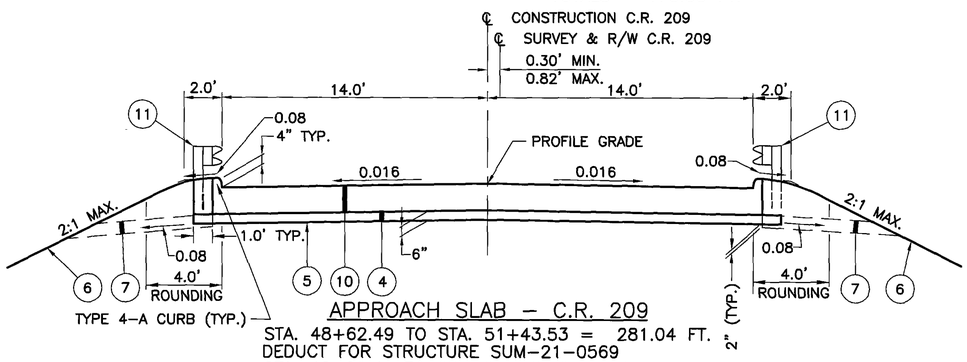
A STA. 45+25.00 TO STA. 45+76.60 LT.&RT. = 51.60 FT
B STA. 45+76.60 TO STA. 48+62.49 LT.&RT. = 285.89 FT.
C STA. 51+43.53 TO STA. 52+18.35 LT.&RT. = 74.82 FT.
D STA. 52+18.35 TO STA. 52+50.00 LT.&RT. = 31.65 FT.
TOTALS = 443.96 FT.

H 1 1/4" OF WEARING COURSE REMOVED AND RESURFACED WITH ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22 OVER 407 TACK COAT FROM STA. 45+10.00 TO STA. 45+25.00 AND STA. 52+50.00 TO STA. 52+65.00



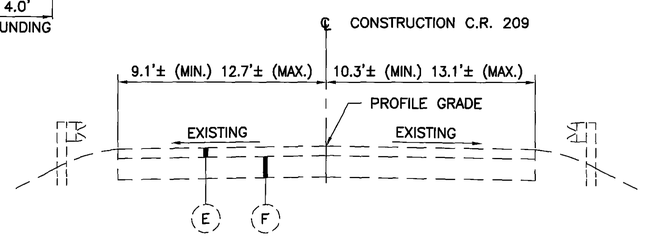
SHOULDER GRADING SECTION – C.R. 209

E STA. 44+70.00 TO STA. 45+25.00 LT.&RT. = 55.00 FT.
F STA. 52+50.00 TO STA. 52+75.00 LT. = 25.00 FT.
G STA. 52+50.00 TO STA. 53+40.00 RT. = 90.00 FT.
TOTALS = 170.00 FT.



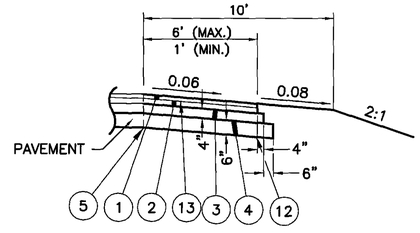
APPROACH SLAB – C.R. 209

STA. 48+62.49 TO STA. 51+43.53 = 281.04 FT.
DEDUCT FOR STRUCTURE SUM–21–0569
STA. 48+92.49 TO STA. 51+13.53 = –221.04 FT.
TOTALS = 60.00 FT.



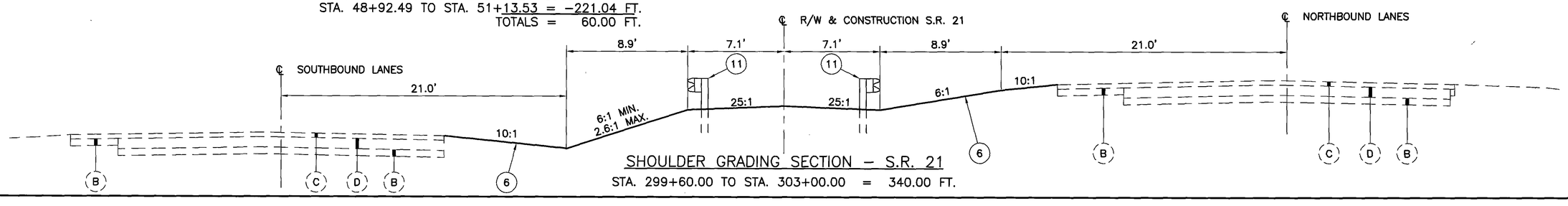
EXISTING APPROACH SLAB SECTION – C.R. 209

STA. 48+77.49 TO STA. 51+28.53 = 251.04 FT.
DEDUCT FOR STRUCTURE SUM–21–0569
STA. 48+92.49 TO STA. 51+13.53 = –221.04 FT.
TOTALS = 30.00 FT.



MAILBOX APPROACH

STA. 52+61.88 LT. C.R. 209



SHOULDER GRADING SECTION – S.R. 21

STA. 299+60.00 TO STA. 303+00.00 = 340.00 FT.

LEGEND

1	ITEM 448	1–1/4"	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22
2	ITEM 448	1–3/4"	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–22
3	ITEM 301		ASPHALT CONCRETE BASE, PG64–22
4	ITEM 304		AGGREGATE BASE
5	ITEM 204		SUBGRADE COMPACTION
6	ITEM 659		SEEDING AND MULCHING
7	ITEM 605		AGGREGATE DRAINS
8	ITEM 605	4"	SHALLOW PIPE UNDERDRAINS
9	ITEM 526		REINFORCED CONCRETE APPROACH SLAB (T=15")
10	ITEM 526		REINFORCED CONCRETE APPROACH SLAB (T=17")
11	ITEM 606		GUARDRAIL, TYPE 5
12	ITEM 408		PRIME COAT
13	ITEM 407		TACK COAT FOR INTERMEDIATE COURSE
14	ITEM 448	3"	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG. 64–22, UNDER GUARDRAIL, AS PER PLAN
A	8"± BITUMINOUS MATERIAL		
B	6"± CINDERS/SLAG/GRAVEL BASE MATERIAL		
C	4"± BITUMINOUS MATERIAL		
D	9"± REINFORCED CONCRETE PAVEMENT		
E	3"± BITUMINOUS MATERIAL		
F	9"± REINFORCED CONCRETE APPROACH SLAB		

TYPICAL SECTIONS – C.R. 209 (STIMSON ROAD)

SUM–21–(5.69)(7.58)(7.78)

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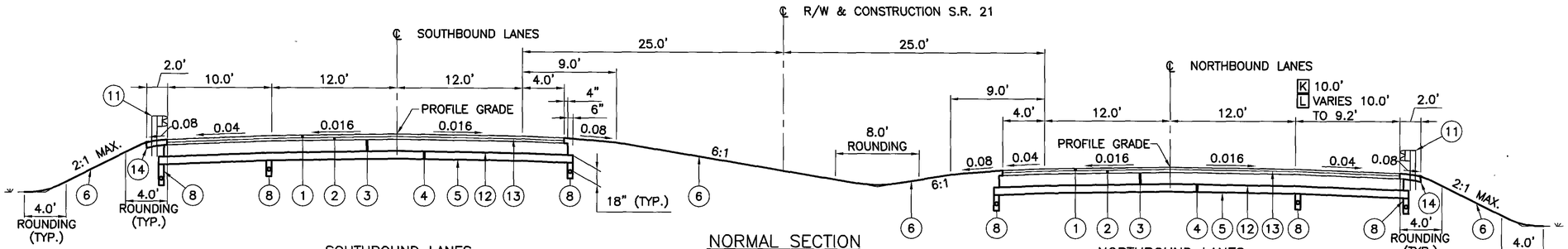
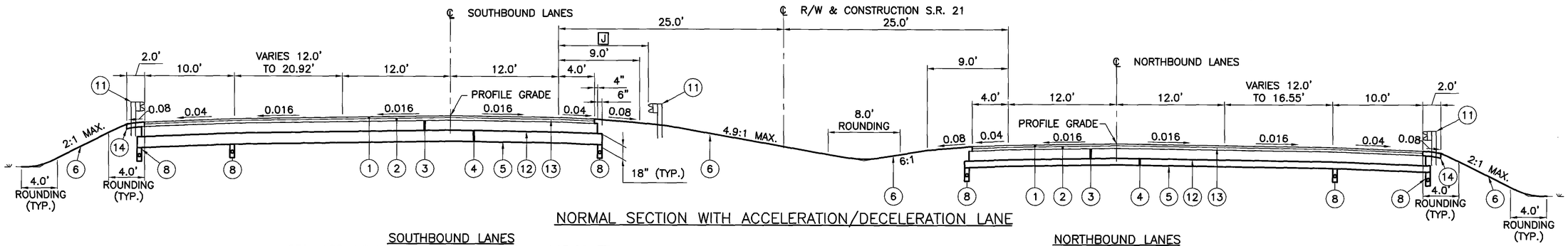


NORMAL SECTION

SOUTHBOUND LANES
STA. 407+00.00 TO STA. 411+29.09 = 429.09 FT.
STA. 412+63.13 TO STA. 417+77.75 = 514.62 FT.
TOTALS = 943.71 FT.

NORTHBOUND LANES
K STA. 407+00.00 TO STA. 411+45.62 = 445.62 FT.
K STA. 412+79.66 TO STA. 417+57.64 = 477.98 FT.
L STA. 417+57.64 TO STA. 418+00.00 = 42.36 FT.
TOTALS = 965.96 FT.

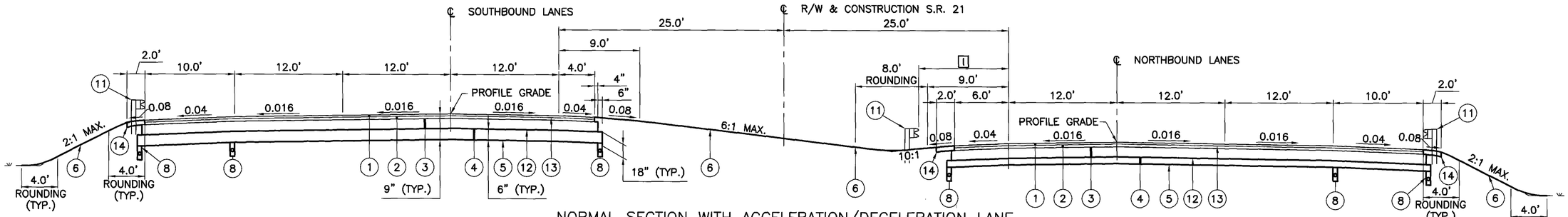


NORMAL SECTION WITH ACCELERATION/DECELERATION LANE

SOUTHBOUND LANES
STA. 402+56.40 TO STA. 404+00.00 = 143.60 FT.

NORTHBOUND LANES
STA. 403+54.00 TO STA. 405+00.00 = 146.00 FT.

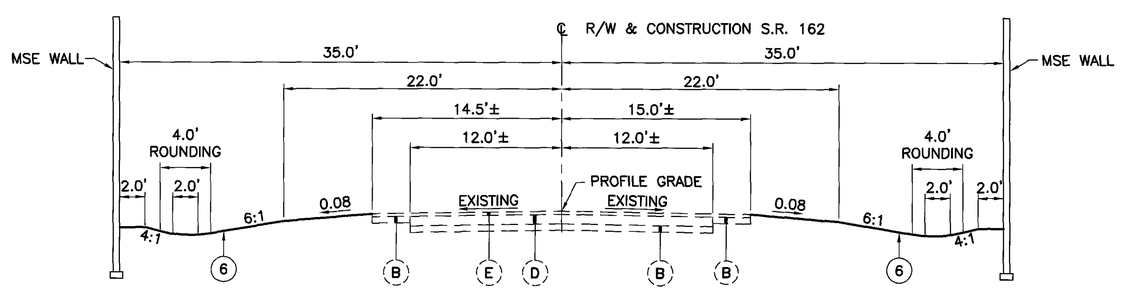
I VARIES 12.1' TO 6.0'
J VARIES 6.0' TO 13.2'



NORMAL SECTION WITH ACCELERATION/DECELERATION LANE

SOUTHBOUND LANES
STA. 399+00.00 TO STA. 399+81.37 = 81.37 FT.

NORTHBOUND LANES
STA. 399+50.00 TO STA. 400+78.79 = 128.79 FT.



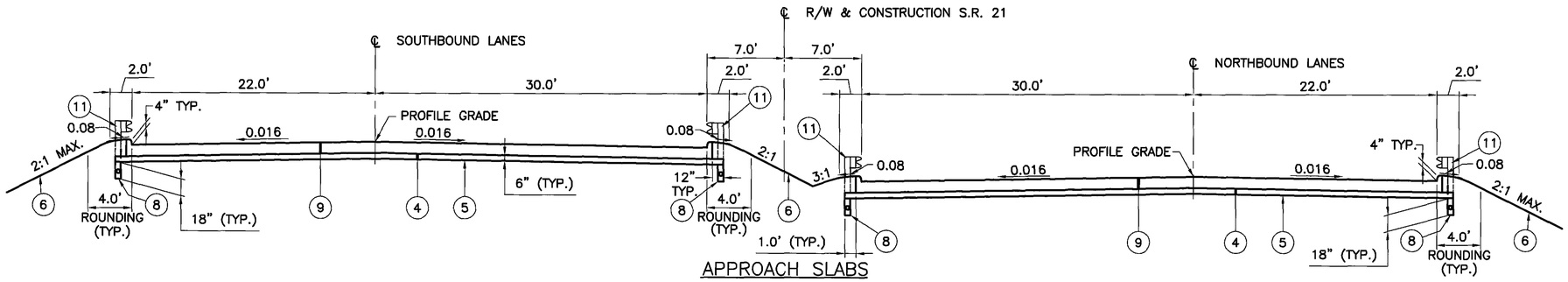
SHOULDER GRADING SECTION – S.R. 162
STA. 47+44.00 TO STA. 49+85.00 = 241.00 FT.

FOR ITEM LEGEND SEE SHEET 3

TYPICAL SECTIONS – SUM-21-(7.58)(7.78)

SUM-21-(5.69)(7.58)(7.78)

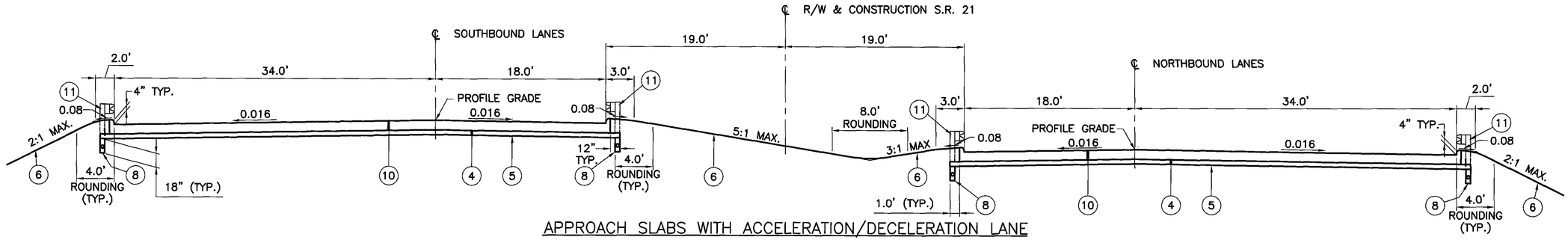
EM148AY.DWG



APPROACH SLABS

SOUTHBOUND LANES
STA. 411+29.09 TO STA. 412+63.13 = 134.04 FT.
DEDUCT FOR STRUCTURE SUM-21-0758L
STA. 411+54.09 TO STA. 412+38.13 = -84.04 FT.
TOTALS = 50.00 FT.

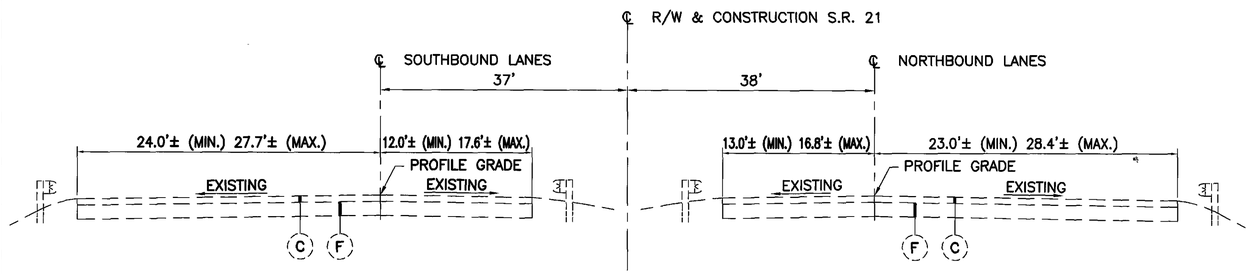
NORTHBOUND LANES
STA. 411+45.62 TO STA. 412+79.66 = 134.04 FT.
DEDUCT FOR STRUCTURE SUM-21-0778R
STA. 411+70.62 TO STA. 412+54.66 = -84.04 FT.
TOTALS = 50.00 FT.



APPROACH SLABS WITH ACCELERATION/DECELERATION LANE

SOUTHBOUND LANES
STA. 399+81.37 TO STA. 402+56.40 = 275.03 FT.
DEDUCT FOR STRUCTURE SUM-21-0778L
STA. 400+11.37 TO STA. 402+26.40 = -215.03 FT.
TOTALS = 60.00 FT.

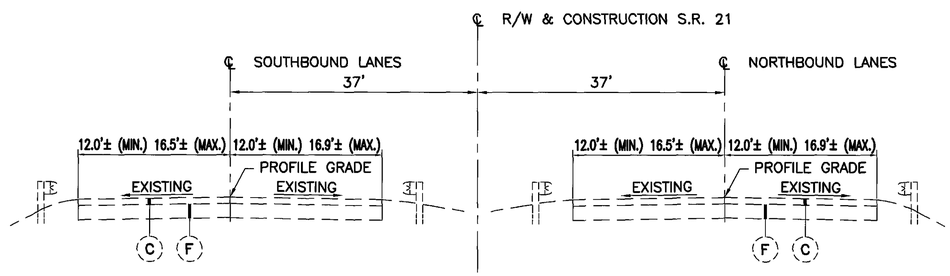
NORTHBOUND LANES
STA. 400+78.79 TO STA. 403+54.00 = 275.21 FT.
DEDUCT FOR STRUCTURE SUM-21-0778R
STA. 401+08.79 TO STA. 403+24.00 = -215.21 FT.
TOTALS = 60.00 FT.



EXISTING APPROACH SLAB SECTION WITH ACCELERATION/DECELERATION LANE

SOUTHBOUND LANES
STA. 399+86.37 TO STA. 402+51.40 = 265.03 FT.
DEDUCT FOR STRUCTURE SUM-21-0778L
STA. 400+11.37 TO STA. 402+26.40 = -215.03 FT.
TOTALS = 50.00 FT.

NORTHBOUND LANES
STA. 400+83.79 TO STA. 403+49.00 = 265.21 FT.
DEDUCT FOR STRUCTURE SUM-21-0778R
STA. 401+08.79 TO STA. 403+24.00 = -215.21 FT.
TOTALS = 50.00 FT.



EXISTING APPROACH SLAB SECTION

SOUTHBOUND LANES
STA. 411+20.30 TO STA. 412+71.91 = 151.61 FT.
DEDUCT FOR STRUCTURE SUM-21-0758L
STA. 411+35.30 TO STA. 412+56.91 = -121.61 FT.
TOTALS = 30.00 FT.

NORTHBOUND LANES
STA. 411+36.83 TO STA. 412+88.44 = 151.61 FT.
DEDUCT FOR STRUCTURE SUM-21-0778R
STA. 411+51.83 TO STA. 412+73.44 = -121.61 FT.
TOTALS = 30.00 FT.

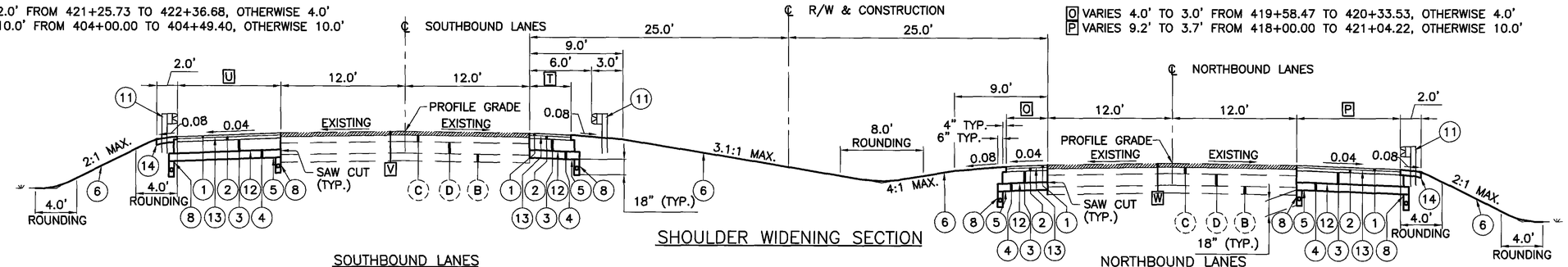
FOR ITEM LEGEND SEE SHEET 3

TYPICAL SECTIONS - SUM-21-(7.58)(7.78)

SUM-21-(5.69)(7.58)(7.78)

EM1484Y.DWG

T VARIES 4.0' TO 2.0' FROM 421+25.73 TO 422+36.68, OTHERWISE 4.0'
U VARIES 6.3' TO 10.0' FROM 404+00.00 TO 404+49.40, OTHERWISE 10.0'



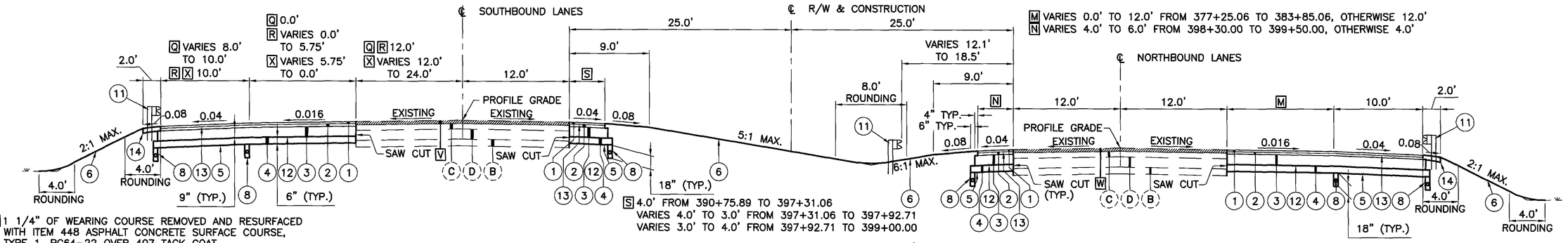
SHOULDER WIDENING SECTION

SOUTHBOUND LANES
STA. 404+00.00 TO STA. 407+00.00 LT. & RT. = 300.00 FT.
STA. 417+77.75 TO STA. 422+36.68 RT. ONLY = 458.93 FT.
TOTALS = 758.93 FT.

O VARIES 4.0' TO 3.0' FROM 419+58.47 TO 420+33.53, OTHERWISE 4.0'
P VARIES 9.2' TO 3.7' FROM 418+00.00 TO 421+04.22, OTHERWISE 10.0'

NORTHBOUND LANES
STA. 405+00.00 TO STA. 405+90.00 LT. ONLY = 90.00 FT.
STA. 405+90.00 TO STA. 407+00.00 LT. & RT. = 110.00 FT.
STA. 418+00.00 TO STA. 420+33.53 LT. & RT. = 233.53 FT.
STA. 420+33.53 TO STA. 421+04.22 RT. ONLY = 70.69 FT.
TOTALS = 504.22 FT.

Q VARIES 8.0' TO 10.0'
R X 10.0'
Q 0.0'
R VARIES 0.0' TO 5.75'
X VARIES 5.75' TO 0.0'
Q R 12.0'
X VARIES 12.0' TO 24.0'
M VARIES 0.0' TO 12.0' FROM 377+25.06 TO 383+85.06, OTHERWISE 12.0'
N VARIES 4.0' TO 6.0' FROM 398+30.00 TO 399+50.00, OTHERWISE 4.0'



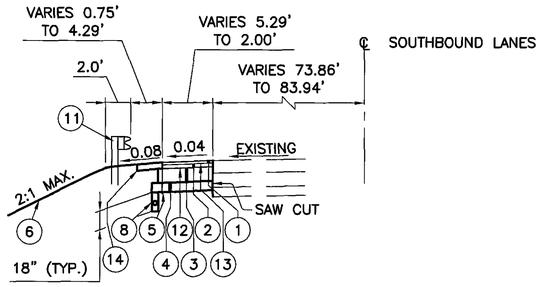
V 1 1/4" OF WEARING COURSE REMOVED AND RESURFACED WITH ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 OVER 407 TACK COAT
FROM STA. 390+60.89 TO STA. 399+00.00
AND STA. 404+00.00 TO STA. 407+00.00
AND STA. 417+77.75 TO STA. 422+36.68

S 4.0' FROM 390+75.89 TO 397+31.06
VARIES 4.0' TO 3.0' FROM 397+31.06 TO 397+92.71
VARIES 3.0' TO 4.0' FROM 397+92.71 TO 399+00.00

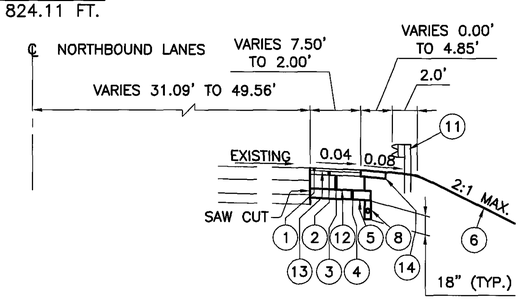
SHOULDER WIDENING SECTION WITH ACCELERATION/DECELERATION LANE

SOUTHBOUND LANES
STA. 390+75.89 TO STA. 393+40.00 RT. ONLY = 264.11 FT.
Q STA. 393+40.00 TO STA. 394+20.12 LT. & RT. = 80.12 FT.
R STA. 394+20.12 TO STA. 396+50.00 LT. & RT. = 229.88 FT.
X STA. 396+50.00 TO STA. 399+00.00 LT. & RT. = 250.00 FT.
TOTALS = 824.11 FT.

NORTHBOUND LANES
STA. 372+30.00 TO STA. 390+46.31 RT. ONLY = 1816.31 FT.
STA. 390+46.31 TO STA. 399+50.00 LT. & RT. = 903.69 FT.
TOTALS = 2720.00 FT.



RAMP WIDENING SOUTHWEST RAMP
STA.404+00.00 TO STA. 405+00.00 LT. = 100.00 FT.



RAMP WIDENING SOUTHEAST RAMP
STA.405+00.00 TO STA. 406+61.40 RT. = 161.40 FT.

W 1 1/4" OF WEARING COURSE REMOVED AND RESURFACED WITH ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 OVER 407 TACK COAT
FROM STA. 372+15.00 TO STA. 399+50.00
AND STA. 405+00.00 TO STA. 407+00.00
AND STA. 418+00.00 TO STA. 421+19.22

FOR ITEM LEGEND SEE SHEET 3

TYPICAL SECTIONS - SUM-21-(7.58)(7.78)

SUM-21-(5.69)(7.58)(7.78)

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ROUNDING
THE ROUNDING AT SLOPE BREAK POINTS SHOWN ON THE TYPICAL SECTIONS APPLY TO ALL CROSS SECTIONS EVEN THOUGH OTHERWISE SHOWN.

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

OIL
MARATHON ASHLAND PIPELINE
245 MILL ST.
LEXINGTON, OHIO 44904
(419) 884–0800

TELEPHONE
VERIZON COMMUNICATIONS
6223 NORWALK RD.
MEDINA, OHIO 44256
(330) 722–9588

ELECTRIC
OHIO EDISON COMPANY
1910 WEST MARKET ST.
BLDG. 1
AKRON, OHIO 44313
(330) 384–4714

GAS
DOMINION EAST OHIO
GAS SUPPLY OPERATIONS
7015 FREEDOM AVE. N.W.
NORTH CANTON, OIHO 44720–7381
(330) 266–2136

COMMUNICATIONS
WILLIAMS COMMUNICATIONS
161 TARBELL RD.
AKRON, OHIO 44303
(330) 252–0992

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.

CONTINGENCY QUANTITIES
THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED FOR SUCH ITEMS SHALL BE INCORPORATED INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

ELEVATION DATUM
ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM. NAVD(88) DATUM

WORK LIMITS
THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE INSTALLATION AND OPERATION OF ALL TEMPORARY TRAFFIC CONTROL AND TEMPORARY TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

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

SIZES	NO. TREES	NO. STUMPS	TOTAL
18"	9	0	9

PROOF ROLLING

AN ESTIMATED QUANTITY OF 13 HOURS OF ITEM 204 PROOF ROLLING HAS BEEN PROVIDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

WHEN IT IS NECESSARY TO SPLICE PROPOSED GUARDRAIL TO EXISTING GUARDRAIL, ONLY THE EXISTING GUARDRAIL SHALL BE CUT, DRILLED, OR PUNCHED. THE CONNECTION SHALL BE MADE USING A "W–BEAM RAIL SPLICE" AS SHOWN IN AASHTO M 180. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

FENCE LENGTHS

THE LENGTHS OF FENCE SHOWN IN THE PLANS ARE HORIZONTAL DIMENSIONS. MEASUREMENTS OF THE FINAL QUANTITIES SHALL BE MADE IN ACCORDANCE WITH ITEM 607.

ITEM 605 = AGGREGATE DRAINS
AGGREGATE DRAINS SHALL BE PLACE AT 50 FOOT INTERVALS ON EACH SIDE OF NORMAL CROWNED SECTIONS, STAGGERED SO THAT EACH DRAIN IS 25 FEET FROM THE ADJACENT DRAIN ON THE OPPOSITE SIDE, AND AT 25 FOOT INTERVALS ON THE LOW SIDE ONLY OF SUPERELAVATED SECTIONS. AN AGGREGATE DRAIN SHALL BE PLACED AT THE LOW POINT OF EACH SAG VERTICAL CURVE.

ITEM 606 – IMPACT ATTENUATOR, TYPE 1–98 BIDIRECTIONAL
THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING EITHER OF THE FOLLOWING IMPACT ATTENUATORS:

1) THE C–A–T MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330–545–4373).

THE LENGTH OF THE C–A–T SYSTEM IS CONSIDERED TO BE 31'–3" LONG. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE–APPROVED SHOP DRAWINGS:

DWG. NO.	DRAWING NAME	DWG./REV. DATE	ODOT APPROVAL DATE
SS245M	CRASH–CUSHION ATTENUATING TERMINAL TERMINAL PLAN, ELEVATION & SECTIONS FOR USE AS A LONGITUDINAL MEDIAN BARRIER TERMINAL OR CRASH CUSHION ATTENUATOR	4/10/97 Rev. 4	3/6/98
SS224M	C–A–T TRANSITION TO MEDIAN BARRIER GUARDRAIL PLAN, ELEVATION & SECTIONS	4/26/96	3/6/98
SS226M	C–A–T TRANSITION TO VERTICAL WALL OR PIER PLAN, ELEVATION & SECTIONS	4/26/96	3/6/98

2) THE BRAKEMASTER MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC., ONE EAST WACKER DRIVE, CHICAGO, IL 60601 (TELEPHONE: 312–467 6750).

THE LENGTH OF THE BRAKEMASTER SYSTEM IS CONSIDERED TO BE 32'–8" LONG. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE–APPROVED SHOP DRAWINGS:

DWG. NO.	DRAWING NAME	DWG./REV. DATE	ODOT APPROVAL DATE
92–00–02	BRAKEMASTER GENERAL ASSEMBLY (BIDIRECTIONAL SYSTEM)	3/10/97 Rev. K	3/6/98
92–00–82	BRAKEMASTER (BIDIRECTIONAL) WITH FOUNDATION TUBES	2/9/98	3/6/98
9202024	ANCHOR ASSEMBLY, FOUNDATION TUBE, 6 1/2 FT., BRS	6/12/97 Rev. D	3/6/98

3) THE FLEAT–MT MANUFACTURED BY ROAD SYSTEMS, INC. (RSI), 3616 OLD HOWARD COUNTY AIRPORT ROAD, BIG SPRINGS, TX, 79720 (TELEPHONE 915–263–2435) AND AVAILABLE FROM RSI'S LIST OF APPROVED DISTRIBUTORS.

THE LENGTH OF THE FLEAT–MT SYSTEM IS CONSIDERED TO BE 37'–6" LONG. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION AS DETAILED ON THE FOLLOWING PRE APPROVED SHOP DRAWINGS AND THE MANUFACTURERS INSTALLATION MANUAL.

DWG. NO.	DRAWING NAME	DWG./REV. DATE	ODOT APPROVALS DATE
MEDFLT–W–US	FLARED ENERGY ABSORBING TERMINAL – FLEAT–MT ASSEMBLY FOR WOOD BREAKAWAY POST SYSTEM	4/10/02 Rev. 5	1/6/03
MEDFLT–S–US	FLARED ENERGY ABSORBING TERMINAL – FLEAT–MT ASSEMBLY FOR STEEL BREAKAWAY POST SYSTEM	4/10/02 Rev. 6	1/6/03

THE FACE OF THE TYPE 1–98 IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19, APPROXIMATELY 36" X 12". PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606,IMPACT ATTENUATOR, TYPE 1–98 BIDIRECTIONAL, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED TRANSITIONS, HARDWARE, REFLECTIVE SHEETING AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

MANHOLES, CATCH BASINS AND INLETS REMOVED OR ABANDONED
ALL CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHT OF WAY FOR SALVAGE BY (STATE) FORCES.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 202 ITEM.

ITEM 606 – ANCHOR ASSEMBLY, TYPE E–98

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING EITHER OF THE FOLLOWING GUARDRAIL END TERMINALS.

1) THE ET–2000 (1997) MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330–545–4373).

THE LENGTH OF THE ET–2000 (1997) SYSTEM IS CONSIDERED TO BE 50'–0", INCLUSIVE OF TWO 25'–0" LONG RAIL ELEMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PREAPPROVED SHOP DRAWINGS:

DWG. NO.	DRAWING NAME	DWG./REV. DATE	ODOT APPROVAL DATE
SSS265M	ET–2000 (1997) PLAN, ELEVATION AND SECTIONS	6/20/97	3/6/98
SS142	ET2000 PLUS 50'–0" PLAN, ELEVATION AND SECTION 25'–0" RAIL, SLEEVE W/PL POSTS 1–4	4/12/00	7/31/00
SS141	ET2000 PLUS PLAN, ELEVATION AND SECTION 25'–0" RAIL, HBA POSTS 1–4	2/29/00	7/31/00
SS158	ET2000 PLUS 50'–0" WITH 12'–6" PANELS AND HBA POSTS 1–4 PLAN, ELEVATION AND SECTION	5/22/00	7/31/00

2) THE SKT–350 MANUFACTURED BY ROAD SYSTEMS, INC., 2516 MALLORY LANE, STOW, OHIO, 44224, (TELEPHONE: 330–346–0721).

THE LENGTH OF THE SKT–350 SYSTEM IS CONSIDERED TO BE 50'–0", INCLUSIVE OF FOUR 12'–6" LONG RAIL ELEMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE APPROVED SHOP DRAWINGS:

DWG. NO.	DRAWING NAME	DWG./REV. DATE	ODOT APPROVAL DATE
SKT–4M	SEQUENTIAL KINKING TERMINAL (SKT–350) ASSEMBLY WITH 4 FOUNDATION TUBES	12/11/97	3/6/98

THE FACE OF THE TYPE E–98 IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19, APPROXIMATELY 18" X 18".

REFER TO THE MANUFACTURER'S INSTRUCTION REGARDING THE INSTALLATION OF, AND THE GRADING AROUND, THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4–INCHES ABOVE THE GROUND.
THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 27–3/4–INCHES FROM THE EDGE OF THE SHOULDER.

ON–SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT DOES PROJECT MORE THAN 4–INCHES ABOVE THE GROUND LINE.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, TYPE E–98, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A
COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED TRANSITIONS, REFLECTIVE SHEETING, HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

SODDING
THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SODDED AREAS.

QUANTITIES ARE CALCULATED USING 206 SQ YD OF 660, SODDING REINFORCED (FROM SHEET NO. 71)

659, COMMERCIAL FERTILIZER	0.03 TON
659, LIME	0.09 TON
659, WATER	4 M GAL

CALCULATED KAA
CHECKED TLS

GENERAL NOTES

SUM–21–(5.69)(7.58)(7.78)

EM1484N.DWG scale 1:1

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

659, SOIL ANALYSIS TEST 2 EACH

659, TOPSOIL 5074 CU. YD.

659, SEEDING AND MULCHING 45706 SQ. YD.

659, REPAIR SEEDING AND MULCHING 2285 SQ. YD

659, INTER–SEEDING 2285 SQ. YD.

659, COMMERCIAL FERTILIZER 6.17 TON

659, LIME 9.44 ACRE

659, WATER 246 M. GAL.

659, MOWING 108 M. SQ. FT.

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

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

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

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

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEM.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEM.

PIPE CONNECTIONS TO CORRUGATED METAL STRUCTURES
CONNECTIONS OF PROPOSED LONGITUDINAL DRAINAGE TO CORRUGATED METAL STRUCTURES SHALL BE MADE BY MEANS OF A SHOP FABRICATED OR FIELD WELDED STUB ON THE STRUCTURE. THE STUB SHALL MEET THE REQUIREMENTS OF 707 AND HAVE A MINIMUM LENGTH OF 2 FEET AND A MINIMUM WALL THICKNESS OF 0.064 INCHES.

THE LOCATION AND ELEVATION OF THE STUB ARE TO BE CONSIDERED APPROXIMATE AND MAY BE ADJUSTED BY THE ENGINEER TO AVOID CUTTING THROUGH JOINTS IN THE STRUCTURE.

THE FIELD WELDED JOINT, IF USED, SHALL BE THOROUGHLY CLEANED AND REGALVANIZED OR OTHERWISE SUITABLY REPAIRED. WELDING SHALL MEET THE REQUIREMENTS OF 513.21.

A MASONRY COLLAR, AS PER STANDARD DRAWING DM–1.1, WILL BE REQUIRED TO CONNECT THE LONGITUDINAL DRAINAGE TO THE STUB, WHEN PIPE OTHER THAN CORRUGATED METAL IS PROVIDED FOR THE LONGITUDINAL DRAINAGE.

PAYMENT FOR CUTTING INTO THE STRUCTURE AND PROVIDING THE CONNECTION DESCRIBED, SHALL BE INCLUDED IN THE CONTRACT PRICE FOR ITEM 603 OR 522.

UNSUITABLE FOUNDATION SOILS
IF UNSUITABLE FOUNDATION SOILS ARE ENCOUNTERED IN THE AREAS OF THE PROPOSED ROADBED, THEY SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL MEETING THE REQUIREMENTS OF 203.02.R. THE LOCATIONS AND DIMENSIONS WILL BE AS DETERMINED BY THE ENGINEER.

THE FOLLOWING CONTINGENCY QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER:

ITEM 203 EMBANKMENT	1000 CU YD
ITEM 203 EXCAVATION	1000 CU YD

ITEM 407 – TACK COAT AND ITEM 407 – TACK COAT FOR INTERMEDIATE COURSE THE RATE OF APPLICATION OF THE ITEM 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER. FOR ESTIMATING PURPOSES ONLY, THE PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF:

ITEM 407 TACK COAT	0.075 GAL. PER SQ.YD.
ITEM 407 TACK COAT FOR INTERMEDIATE COURSE	0..04 GAL. PER SQ.YD.

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

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

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEMS.

ITEM SPECIAL – PIPE CLEANOUT
THIS WORK SHALL CONSIST OF REMOVING SEDIMENT AND DEBRIS FROM THE EXISTING DRAINAGE CONDUITS SPECIFIED IN THE PLANS. ALL MATERIAL REMOVED SHALL BE DISPOSED OF AS PER 105.16 AND 105.17. ALL SEWERS SHALL BE CLEANED OUT TO THE SATISFACTION OF THE ENGINEER.

CLEANOUT OF THE PIPE SHALL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM SPECIAL – PIPE CLEANOUT. THIS PRICE SHALL INCLUDE THE COST FOR MATERIAL, EQUIPMENT, LABOR, AND ALL INCIDENTALS REQUIRED TO COMPLETE THE CLEANOUT.

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

ITEM SPECIAL, PIPE CLEANOUT 58 FT (FROM SHEET NO. 113)

FARM DRAINS
ALL FARM DRAINS, WHICH ARE ENCOUNTERED DURING CONSTRUCTION, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS. EXISTING COLLECTORS WHICH ARE LOCATED BELOW THE ROADWAY DITCH ELEVATIONS, AND WHICH CROSS THE ROADWAY, SHALL BE REPLACED WITHIN THE RIGHT OF WAY CONSTRUCTION LIMITS BY ITEM 603 CONDUIT, TYPE B, ONE COMMERCIAL SIZE LARGER THAN THE EXISTING CONDUIT.

EXISTING COLLECTORS AND ISOLATED FARM DRAINS, WHICH ARE ENCOUNTERED ABOVE THE ELEVATION OF ROADWAY DITCHES, SHALL BE OUTLETTED INTO THE ROADWAY DITCH BY 603 TYPE F CONDUIT. THE OPTIMUM OUTLET ELEVATION SHALL BE ONE FOOT ABOVE THE FLOWLINE ELEVATION OF THE DITCH. LATERAL FIELD TILES WHICH CROSS THE ROADWAY SHALL BE INTERCEPTED BY 603, TYPE E CONDUIT, AND CARRIED IN A LONGITUDINAL DIRECTION TO AN ADEQUATE OUTLET OR ROADWAY CROSSING.

THE LOCATION, TYPE, SIZE AND GRADE OF REPLACEMENTS SHALL BE DETERMINED BY THE ENGINEER AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENTS.

EROSION CONTROL PADS AND ANIMAL GUARDS SHALL BE PROVIDED AT THE OUTLET END OF ALL FARM DRAINS AS PER STANDARD CONSTRUCTION DRAWING DM–1.1, EXCEPT WHEN THEY OUTLET INTO A DRAINAGE STRUCTURE. PAYMENT FOR THE EROSION CONTROL PADS AND ANIMAL GUARDS AND ANY NECESSARY BENDS OR BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PER–TINENT CONDUIT ITEMS.

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

ITEM 603	6" CONDUIT, TYPE E	300 FT
ITEM 603	6" CONDUIT, TYPE F	300 FT
ITEM 603	8" CONDUIT, TYPE E	150 FT
ITEM 603	8" CONDUIT, TYPE F	150 FT

ITEM 202 ANCHOR ASSEMBLY REMOVED, TYPE A:
THIS ITEM SHALL INCLUDE THE REMOVAL OF THE EXISTING TYPE A, ANCHOR ASSEMBLY INCLUDING ALL POSTS, HARDWARE, RAIL ELEMENTS, AND CONCRETE ANCHORS. ALL ITEMS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF.

THE EXISTING CONCRETE ANCHOR AND CONCRETE AT POSTS SHALL BE REMOVED ENTIRELY. ALL HOLES REMAINING AFTER REMOVAL SHALL BE FILLED WITH GRANULAR MATERIAL OR EXCESS MATERIAL RESULTING FROM GUARDRAIL CONSTRUCTION. ALL FILL MATERIAL SHALL BE THOROUGHLY COMPACTED AND LEVELED, AS DIRECTED BY THE ENGINEER.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 202, ANCHOR ASSEMBLY REMOVED, TYPE A.

PAVEMENT RESTORATION FOR PIPE INSTALLATIONS
STORM SEWER STA. 301+68.04 TO STA. 302+41.11, SR. 21

THE FOLLOWING QUANTITIES HAVE BEEN PROVIDED FOR PAVEMENT RESTORATION FOLLOWING INSTALLATION OF PIPES UNDER ITEM 603.

ITEM 301	ASPHALT CONCRETE BASE, PG64–22	18 CU YD
ITEM 304	AGGREGATE BASE	12 CU YD
ITEM 407	TACK COAT FOR INTERMEDIATE COURSE	4 GAL
ITEM 408	PRIME COAT	43 GAL
ITEM 448	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22	3 CU YD
ITEM 448	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–22	4 CU YD

THE ABOVE QUANTITIES ARE BASED ON A 301 THICKNESS OF 9", A 304 THICKNESS OF 6", 448 SURFACE COURSE THICKNESS OF 1.25', 448 INTERMEDIATE COURES OF 1.75' AND A PAVEMENT RESTORATION WIDTH THAT INCLUDES THE TRENCH WIDTH PLUS TWO FEET ON EACH SIDE OF THE TRENCH. THE TRENCH WIDTH WAS ASSUMED TO EQUAL THE SPAN TIMES 1.25 PLUS ONE FOOT.

PROVIDE ANY MATERIALS USED OUTSIDE THE LIMITS STATED ABOVE AT NO ADDITIONAL COST.

PAVING UNDER GUARDRAIL
THIS OPERATION SHALL INCLUDE PREPARATION OF THE GRADED SHOULDER USING ITEM 209, LINEAR GRADING, AS PER PLAN AND PAVING UNDER THE GUARDRAIL USING 448 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE, 1, PG 64–22, UNDER GUARDRAIL, AS PER PLAN.

ITEM 209, LINEAR GRADING, AS PER PLAN SHALL CONSIST OF EXCAVATING TOPSOIL, PLACING GRANULAR MATERIAL AND APPLYING HERBICIDE AS SPECIFIED IN THE PLANS AND IN ACCORDANCE WITH THE FOLLOWING:

ALL COLLECTED DEBRIS AND TOPSOIL, INCLUDING RHIZOMES, ROOTS AND OTHER VEGETATIVE PLANT MATERIAL SHALL BE REMOVED AND DISPOSED OF AS SPECIFIED IN 105.17.

THE REMOVAL MATERIAL SHALL BE REPLACED WITH COMPACTABLE GRANULAR MATERIAL CONFORMING TO 703.16 PLACED TO GRADE AS DETAILED ON THE TYPICAL SECTION OR AS APPROVED BY THE ENGINEER.

HERBICIDE SHALL BE EPA APPROVED FOR PAVING UNDER GUARDRAIL. IT SHALL BE APPLIED TO THE PREPARED AREA AFTER FIINAL LEVELING AND GRADING HAS BEEN COMPLETED. THE APPLICATION SHALL BE JUST PRIOR TO PAVING AND SHALL STRICTLY ADHERE TO THE MANUFACTURER'S INSTRUCTIONS.

EACH SUCCESSFUL BIDDER MUST BE LICENSED BY THE OHIO DEPARTMENT OF AGRICULTURE AS A COMMERCIAL APPLICATOR AND ALL PERSONS INVOLVED IN THE ACTUAL SPRAYING SHALL BE LICENSED AS COMMERCIAL OPERATORS IN THE APPROPRIATE SPRAY CATEGORY.

HERBICIDE LABEL, MATERIAL SAFETY DATA SHEET AND COPY OF APPLICATORS LICENSES SHALL BE SUBMITTED TO THE ENGINEER FOR VERIFICATION PRIOR TO COMMENCING WORK.

ALL EQUIPMENT, MATERIALS AND LABOR REQUIRED TO PERFORM THE WORK OUTLINED ABOVE SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 209, LINEAR GRADING, AS PER PLAN.

PAVING UNDER GUARDRAIL SHALL CONSIST OF PLACING ITEM 448 TO THE DEPTH SPECIFIED USING ONE OF THE FOLLOWING METHODS:

METHOD A:
1) SET GUARDRAIL POSTS
2) PLACE ITEM 448

METHOD B:
1) PLACE ITEM 448
2) BORE ASPHALT AT POST LOCATIONS (MAY BE OMITTED IF STEEL POSTS ARE USED
3) SET GUARDRAIL POSTS
4) PATCH AROUND POSTS. THE MATERIALS USED FOR PATCHING SHALL BE AN ASPHALT CONCRETE APPROVED BY THE ENGINEER. PATCHED AREAS SHALL BE COMPACTED USING EITHER HAND OR MECHANICAL METHODS. FINISHED SURFACES SHALL BE SMOOTH AND SLOPED TO DRAIN AWAY FROM THE POSTS.

ALL EQUIPMENT, MATERIAL AND LABOR REQUIRED TO PERFORM THE WORK OUTLINED ABOVE, WITH THE EXCEPTION OF SETTING GUARDRAIL POSTS, SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 448, ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 1, PG64–22, UNDER GUARDRAIL, AS PER PLAN.

EXISTING PLANS
EXISTING PLANS ENTITLED SUM–21–4.31 MAY BE INSPECTED IN THE ODOT DISTRICT 4 OFFICE IN AKRON, OHIO.

CALCULATED KAA
CHECKED TLS

GENERAL NOTES

SUM–21–(5.69)(7.58)(7.78)

EM1484N.DWG scale 1:1

ASBESTOS NOTIFICATION

AN ASBESTOS SURVEY OF THE STIMSON ROAD BRIDGE OVER S.R. 21 (SFN 7701470) AND S.R. 21 BRIDGES OVER THE WHEELING AND LAKE ERIE RAILROAD (SFN 7701624 & SFN 7701594) SCHEDULED FOR REHABILITATION AND OF THE S.R. 21 BRIDGES OVER S.R. 162 (SFN 7701683 & SFN 7701659) SCHEDULED FOR DEMOLITION WAS CONDUCTED BY A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST. THE SURVEY DETERMINED THAT NO ASBESTOS IS PRESENT ON THE BRIDGE STRUCTURES.

A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF DEMOLITION AND RENOVATION FORMS, PARTIALLY COMPLETED AND SIGNED BY THE BRIDGE OWNER, WILL BE PROVIDED TO THE SUCCESSFUL BIDDER. THE CONTRACTOR SHALL COMPLETE THE FORM AND SUBMIT IT TO:

AKRON REGIONAL AIR QUALITY MANAGEMENT DISTRICT
146 S. HIGH ST. SUITE 904
AKRON, OHIO 44308
LYNN M. MALCOLM, ADMIN..
(330) 375–2480
FAX: (330) 375–2402

AT LEAST TEN (10) WORKING DAYS PRIOR TO THE START OF ANY DEMOLITION AND/OR REHABILITATION. THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPLETED FORM TO THE ENGINEER.

INFORMATION REQUIRED ON THE FORM WILL INCLUDE: 1) THE CONTRACTORS NAME AND ADDRESS, 2) THE SCHEDULED DATES FOR THE START AND COMPLETION OF THE BRIDGE REMOVAL AND 3) A DESCRIPTION OF THE PLANNED DEMOLITION WORK AND THE METHOD(S) TO BE USED. A COPY OF THE OEPA FORM IS AVAILABLE FOR INSPECTION AT THE ODOT DISTRICT 4 OFFICE, 2088 SOUTH ARLINGTON ROAD, AKRON, OHIO 44306

BASIS FOR PAYMENT–THE CONTRACTOR SHALL FURNISH ALL FEES, LABOR, AND MATERIAL NECESSARY TO COMPLETE AND SUBMIT THE OEPA NOTIFICATION FORM. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN ITEM 202–PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

ENVIRONMENTAL COMMITMENTS

ENDANGERED SPECIES HABITAT

THIS PROJECT IS WITHIN THE RANGE OF THE FEDERALLY ENDANGERED INDIANA BAT (MYOTIS SODALIS) AND MAY IMPACT SUMMER ROOSTING HABITAT FOR THIS SPECIES. THE SUMMER ROOSTING HABITAT FOR THE INDIANA BAT CONSISTS OF LIVING OR DEAD TREES OR SNAGS WITH EXFOLIATING, PEELING OR LOOSE BARK, SPLIT TRUNKS AND/OR BRANCHES OR CAVITIES. THEREFORE, ANY UNAVOIDABLE CUTTING OF SUCH TREES WILL BE PERFORMED ONLY AFTER SEPTEMBER 15 AND BEFORE APRIL 15.

PRIOR TO ANY REMOVAL, THE UNDERSIDE OF THE BRIDGE SHOULD BE CAREFULLY EXAMINED FOR THE PRESENCE OF BATS, ESPECIALLY FROM APRIL 15 TO SEPTEMBER 15. IF ANY BATS ARE FOUND ROOSTING ON THE UNDERSIDE OF THE BRIDGE, THE USFWS, ECOLOGICAL SERVICES DIVISION SHOULD BE CONTACTED OR PROVIDED WITH INFORMATION.

WETLAND IMPACTS/AVOIDANCE

IN COMPLIANCE WITH THE PROGRAMMATIC WETLAND FINDING ESTABLISHED IN THE CURRENT PROGRAMMATIC CATEGORICAL EVALUATION AGREEMENT BETWEEN ODOT AND THE FEDERAL HIGHWAY ADMINISTRATION, IMPACT MINIMIZATION MEASURES HAVE BEEN IDENTIFIED AS ENVIRONMENTAL COMMITMENTS.

BEST MANAGEMENT PRACTICES AS DESCRIBED IN ODOT'S CONSTRUCTION AND MATERIALS SPECIFICATION MANUAL WILL BE IMPLEMENTED TO ENSURE MINIMUM IMPACTS TO WATERS OF THE UNITED STATES DURING CONSTRUCTION ACTIVITIES. WETLAND IMPACTS, AVOIDANCE AND MITIGATION MEASURES SHALL BE ADDRESSED IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP). UNDER NO CIRCUMSTANCES WILL THE CONTRACTOR IMPACT THE REMAINING WETLANDS WHICH ARE IDENTIFIED IN THE CONSTRUCTION PLANS AND SHALL BE IDENTIFIED IN THE SWPPP. UNDER NO CIRCUMSTANCES WILL THE CONTRACTOR STORE EQUIPMENT AND/OR MATERIALS WITHIN A WETLAND BOUNDARY. TO PROTECT AND DELINEATE THE BOUNDARY OF THE EXISTING, UNIMPACTED WETLANDS, A QUANTITY OF ITEM 832, FILTER FABRIC FENCE WILL BE IDENTIFIED IN THE SWPPP. THE FILTER FABRIC FENCE WILL BE INSTALLED AROUND THE PERIMETER OF THE REMAINING WETLANDS WITHIN THE RIGHT–OF–WAY MAINTAINING A ONE FOOT BUFFER BETWEEN THE FENCE AND THE WETLAND BOUNDARY. THE FENCE WILL BE INSTALLED PRIOR TO CONSTRUCTION ACTIVITIES. THIS INCLUDES ANY NECESSARY CLEARING AND GRUBBING ACTIVITIES. THE FENCE SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT.

WATERWAY PERMIT COMPLIANCE

THE CONTRACTOR SHALL COMPLY WITH ALL CONDITIONS SPECIFIED IN THE NATIONWIDE PERMIT #3 AND ALL MODIFICATIONS AND CONDITIONS SPECIFIED IN THE SECTION 401 WATER QUALITY CERTIFICATION ISSUED FOR THE PROJECT. THE U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT NO. 3 GENERAL CONDITIONS, REGIONAL CONDITIONS, SPECIAL CONDITIONS, AND OHIO STATE CERTIFICATION GENERAL CONDITIONS FOR NATIONWIDE PERMITS AND ALL MODIFICATIONS AND CONDITIONS SPECIFIED IN THE SECTION 401 WATER QUALITY CERTIFICATION MODIFICATIONS AND CONDITIONS SPECIFIED IN THE SECTION 401 WATER QUALITY CERTIFICATION SHALL BE INCLUDED IN THE SPECIAL PROVISIONS PACKAGE PROVIDED TO THE CONTRACTOR.

CALCULATED KAA
CHECKED TLS

GENERAL NOTES

SUM–21–(5.69)(7.58)(7.78)

8A
223

EM1484N.DWG scale 1:1

614 MAINTAINING TRAFFIC

STIMSON ROAD (C.R. 209) IS TO BE CLOSED TO ALL BUT LOCAL TRAFFIC TO ABUTTING PROPERTY OWNERS BETWEEN MEDINA LINE ROAD (C.R. 2) WEST OF THE PROJECT AND CLEVELAND MASSILLON ROAD (C.R. 17) EAST OF THE PROJECT. SEE DETOUR LIMITATION NOTE BELOW. A DETOUR ROUTE SHALL BE PROVIDED AS SHOWN HEREON. THE CONTRACTOR SHALL ADVISE THE ODOT DISTRICT OFFICE (330-786-3148) AND THE COUNTY OF SUMMIT 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.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN ANY SUCH SIGNS AND SIGN SUPPORTS AS DETAILED IN THE OHIO MANUAL OF UIFORM TRAFFIC CONTROL DEVICES, AND GATES AND BARRICADES AT THE APPROXIMATE WORK LIMITS OF THE PROJECT AND THE ADVANCE WARNING SIGNS AS SHOWN ON STANDARD CONSTRUCTION DRAWING MT-101.60.

DETOUR DURATION

THE MAXIMUM LENGTH OF TIME FOR THE DETOUR ROUTE TO BE IN EFFECT SHALL BE NINETY (90) CONSECUTIVE DAYS. CONSTRUCTION WORK MAY BE PERFORMED BEFORE AND AFTER THE DETOUR LIMITATION DATES, BUT THERE SHALL BE NO RESTRICTIONS (LANE WIDTH REDUCTIONS, TEMPORARY ROADWAYS, OR ONE WAY TRAFFIC) TO THROUGH OR LOCAL TRAFFIC. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SCHEDULE AND PERFORM THE CONSTRUCTION WORK WITHIN THE DETOUR LIMITATION TIME. THE FAILURE OF THE CONTRACTOR TO MEET THE DETOUR LIMITATION DATES WILL CAUSE SEPARATE LIQUIDATED DAMAGES OF $700.00 PER CALENDAR DAY OF OVERRUN OF DETOUR LIMITATION TIME TO BE ASSESSED. THE CONTRACTOR WILL COMPLY WITH ALL PROVISIONS OF 108.07 OF THE DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

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

ACCESS TO ADJACENT PROPERTIES SHALL BE MAINTAINED AT ALL TIMES AS PER 614.02 (a).

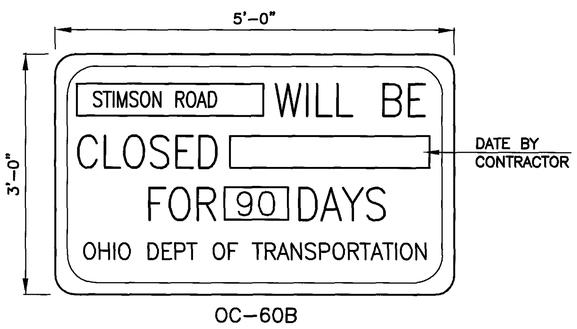
THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 410	TRAFFIC COMPACTED SURFACE, TYPE A OR B	200 CU YD
ITEM 616	WATER	100 M GAL

NOTICE OF CLOSURE SIGNS

THESE SIGNS SHALL BE ERECTED BY THE CONTRACTOR AT LEAST ONE WEEK IN ADVANCE OF THE SCHEDULED ROAD CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT HAND SIDE OF THE ROAD FACING TRAFFIC. THEY SHALL BE LOCATED IN THE FIELD SO AS NOT TO INTERFERE WITH ANY PERMANENT SIGNS. ON THIS PROJECT THEY SHOULD BE ERECTED AT THE POINT OF CLOSURE.

PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 MAINTAINING TRAFFIC AND SHALL INCLUDE FURNISHING, ERECTING, MAINTAINING AND REMOVING THE SIGNS INCLUDING SUPPORTS.



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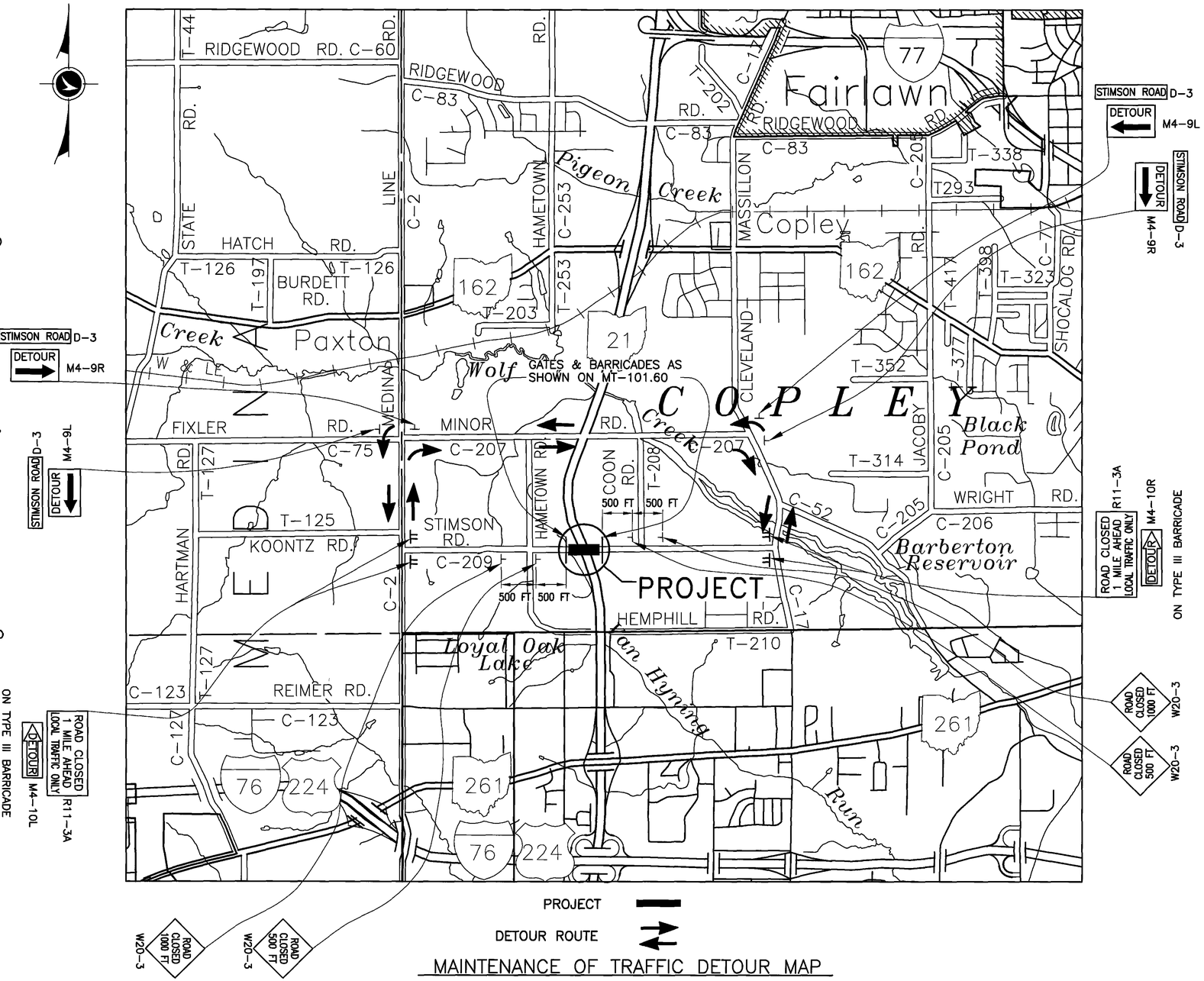


MAINTENANCE OF TRAFFIC DETOUR MAP

SEQUENCE OF OPERATIONS, ITEM 614 MAINTAINING TRAFFIC SUM-21-5.69

PHASE ONE – PHASE ONE SHALL INCLUDE ERECTION OF PORTABLE CONCRETE BARRIER TO CLOSE THE RIGHT LANE OF BOTH THE NORTHBOUND AND SOUTHBOUND LANES OF S.R. 21, SAWCUTTING AND REMOVAL OF THE EXISTING COMPOSITE PAVEMENT OF S.R. 21, REMOVAL OF THE EX. 33" CMP, CONSTRUCTION OF THE PROPOSED 33" STORM SEWER, BACKFILLING AND RESTORATION OF THE PAVEMENT, AND REMOVAL OF THE EXISTING SUPERSTRUCTURE (DECK ONLY) AS DETAILED ON SHEET NO. 10.

PHASE TWO – PHASE TWO SHALL INCLUDE ERECTION OF PORTABLE CONCRETE BARRIER TO CLOSE THE LEFT LANE OF BOTH THE NORTHBOUND AND SOUTHBOUND LANES OF S.R. 21, SAWCUTTING AND REMOVAL OF THE EXISTING COMPOSITE PAVEMENT OF S.R. 21, REMOVAL OF THE EX. 33" CMP, CONSTRUCTION OF THE PROPOSED 33" STORM SEWER, BACKFILLING AND RESTORATION OF THE PAVEMENT, AND REMOVAL OF THE EXISTING SUPERSTRUCTURE (DECK ONLY) AS DETAILED ON SHEET NO. 11.

PHASE THREE – PHASE THREE SHALL INCLUDE ERECTION OF PORTABLE CONCRETE BARRIER TO CLOSE THE MEDIAN SHOULDER OF BOTH THE NORTHBOUND AND SOUTHBOUND LANES OF S.R. 21, MODIFICATION OF THE EXISTING MEDIAN PIER, REMOVAL OF THE EXISTING MEDIAN GUARDRAIL, CONSTRUCTION OF THE PROPOSED GUARDRAIL, AND MEDIAN SHOULDER GRADING AS DETAILED ON SHEET NO. 12.

PHASE FOUR – PHASE FOUR SHALL INCLUDE ERECTION OF PORTABLE CONCRETE BARRIER TO CLOSE THE RIGHT SHOULDER OF BOTH THE NORTHBOUND AND SOUTHBOUND LANES OF S.R. 21, MODIFICATION OF THE EXISTING SHOULDER PIERS, REMOVAL OF THE EXISTING SHOULDER GUARDRAIL, CONSTRUCTION OF THE PROPOSED CONCRETE BARRIERS AND GUARDRAIL, AND SHOULDER GRADING AS DETAILED ON SHEET NO. 13.

EM1481M.DWG

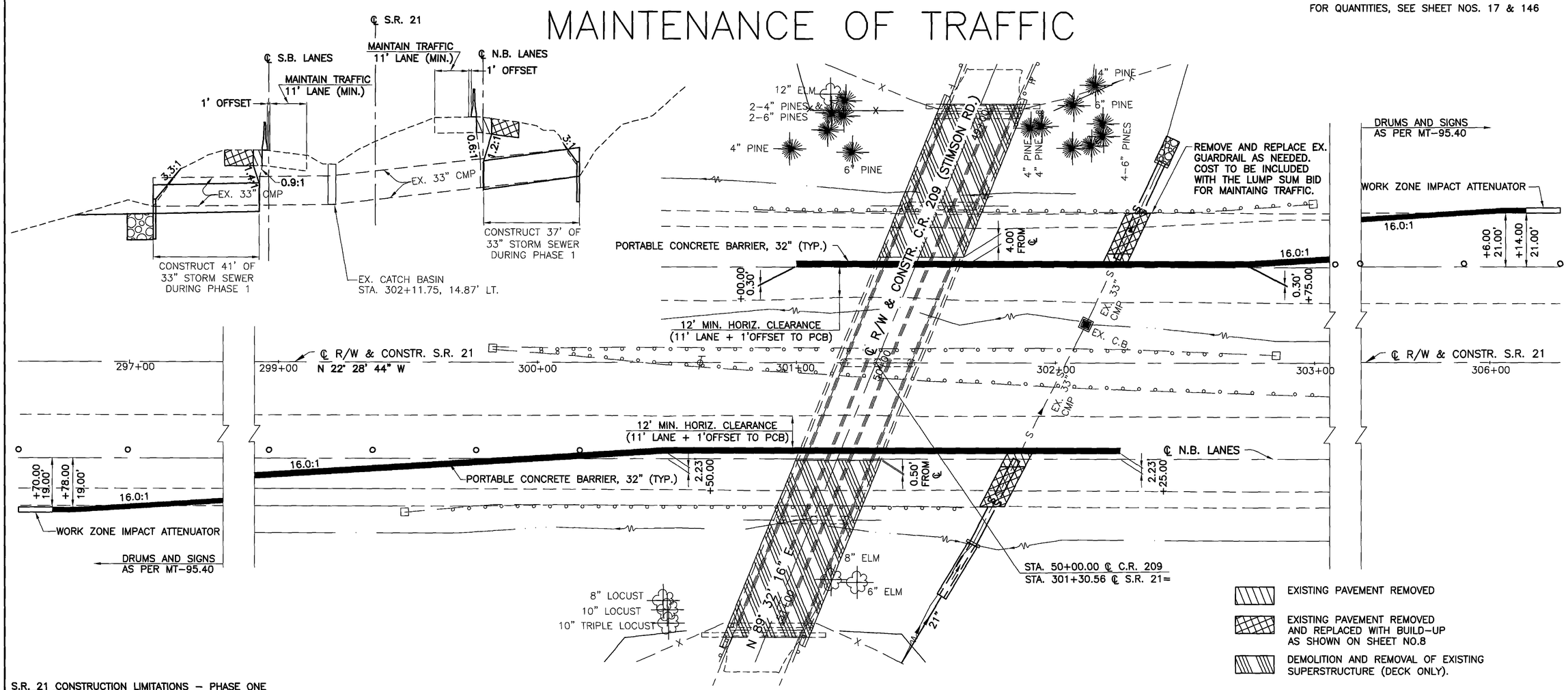
CALCULATED KAA CHECKED TLS

MAINTENANCE OF TRAFFIC
DETOUR FOR C.R. 209 (STIMSON ROAD)

SUM-21-(5.69)(7.58)(7.78)

MAINTENANCE OF TRAFFIC

FOR QUANTITIES, SEE SHEET NOS. 17 & 146



S.R. 21 CONSTRUCTION LIMITATIONS – PHASE ONE

TWO LANES OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES ON S.R. 21 EXCEPT FOR THE FOLLOWING CONDITIONS:

1. DEMOLITION AND REMOVAL OF THE EXISTING SUPERSTRUCTURE (DECK ONLY).
2. REMOVAL OF EXISTING 33" CMP AND CONSTRUCTION OF PROPOSED 33" STORM SEWER UNDER S.R. 21.

TWO LANES OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES EXCEPT FOR A PERIOD OF TIME FROM MONDAY THROUGH NOON ON FRIDAY PER CONDITION LISTED ABOVE, WHEN ONE LANE OF S.R. 21 TRAFFIC MAY CLOSED IN EACH DIRECTION AS SHOWN ON THIS SHEET. LIQUIDATED DAMAGES SHALL BE ASSESSED IN THE AMOUNT OF $1,250.00 PER DAY FOR EACH CALENDAR DAY THE LANES REMAIN CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT. LANE WIDTHS SHALL NOT BE LESS THAN ELEVEN FEET (11') AT ANY TIME.

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

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.

NO FULL DEPTH BRIDGE REMOVAL SHALL BE PERFORMED OVER AN OPEN LANE. A SAFETY NET OR PLATFORM SHALL BE REQUIRED TO PROTECT THE ROADWAY DURING THE REMOVAL OF THE EXISTING CONCRETE PARAPET AND DECK. THE CONTRACTOR SHALL PROVIDE A SAFETY NET OR PLATFORM OF SUITABLE STRENGTH ON THE UNDERSIDE OF THE DECK. THE DESIGN OF THE NET OR PLATFORM SHALL CONFORM WITH OSHA REQUIREMENTS AND THE APPROVAL OF THE ENGINEER AND SHALL REMAIN IN PLACE UNTIL THE WORK HAS BEEN COMPLETED AND ACCEPTED OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL SUBMIT A DEMOLITION PLAN AND SAFETY NET OR PLATFORM DESIGN 10 DAYS PRIOR TO COMMENCING ANY DEMOLITION FOR APPROVAL BY THE ENGINEER. THE SUBMITTAL SHALL BE IN WRITING TO THE DISTRICT CONSTRUCTION ENGINEER WITH A COPY TO THE PROJECT ENGINEER.

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

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 410	TRAFFIC COMPACTED SURFACE, TYPE A OR B	10 CU YD
ITEM 614	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	10 CU YD

THE CONTRACTOR SHALL MAINTAIN A VERTICAL CLEARANCE OF AT LEAST 14'-6" OVER S.R. 21 AT ALL TIMES THAT S.R. 21 IS OPEN TO TRAFFIC.

THE PORTABLE CONCRETE BARRIER, 32" SHALL ONLY BE IN PLACE FOR THE AMOUNT OF TIME IT TAKES THE CONTRACTOR TO SAWCUT AND REMOVE THE EXISTING COMPOSITE PAVEMENT OF S.R. 21, REMOVE THE EX. 33" CMP, CONSTRUCT THE PROPOSED 33" STORM SEWER, BACKFILL AND RESTORATION OF THE PAVEMENT, AND REMOVAL OF THE EXISTING SUPERSTRUCTURE (DECK ONLY) AS SHOWN ON THIS SHEET.

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

CHRISTMAS	NEW YEARS
MEMORIAL DAY	FOURTH OF JULY
LABOR DAY	THANKSGIVING

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

DAY OF THE WEEK	TIME ALL LANES MUST BE OPEN TO TRAFFIC
SUNDAY	12:00N FRIDAY THROUGH 12:00N MONDAY
MONDAY	12:00N FRIDAY THROUGH 12:00N TUESDAY
TUESDAY	12:00N MONDAY THROUGH 12:00N WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 12:00N THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 12:00N FRIDAY
FRIDAY	12:00N THURSDAY THROUGH 12:00N MONDAY
SATURDAY	12:00N FRIDAY THROUGH 12:00N MONDAY

NO EXTENSIONS OF TIME SHALL BE GRANTED FOR DELAYS IN MATERIAL DELIVERIES, UNLESS SUCH DELAYS ARE INDUSTRY-WIDE, OR FOR LABOR STRIKES, UNLESS SUCH STRIKES ARE AREA-WIDE.

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES IN THE AMOUNT OF $1,250.00 PER DAY.

EW1481M1.DWG

HORIZONTAL SCALE IN FEET: 0 20 40

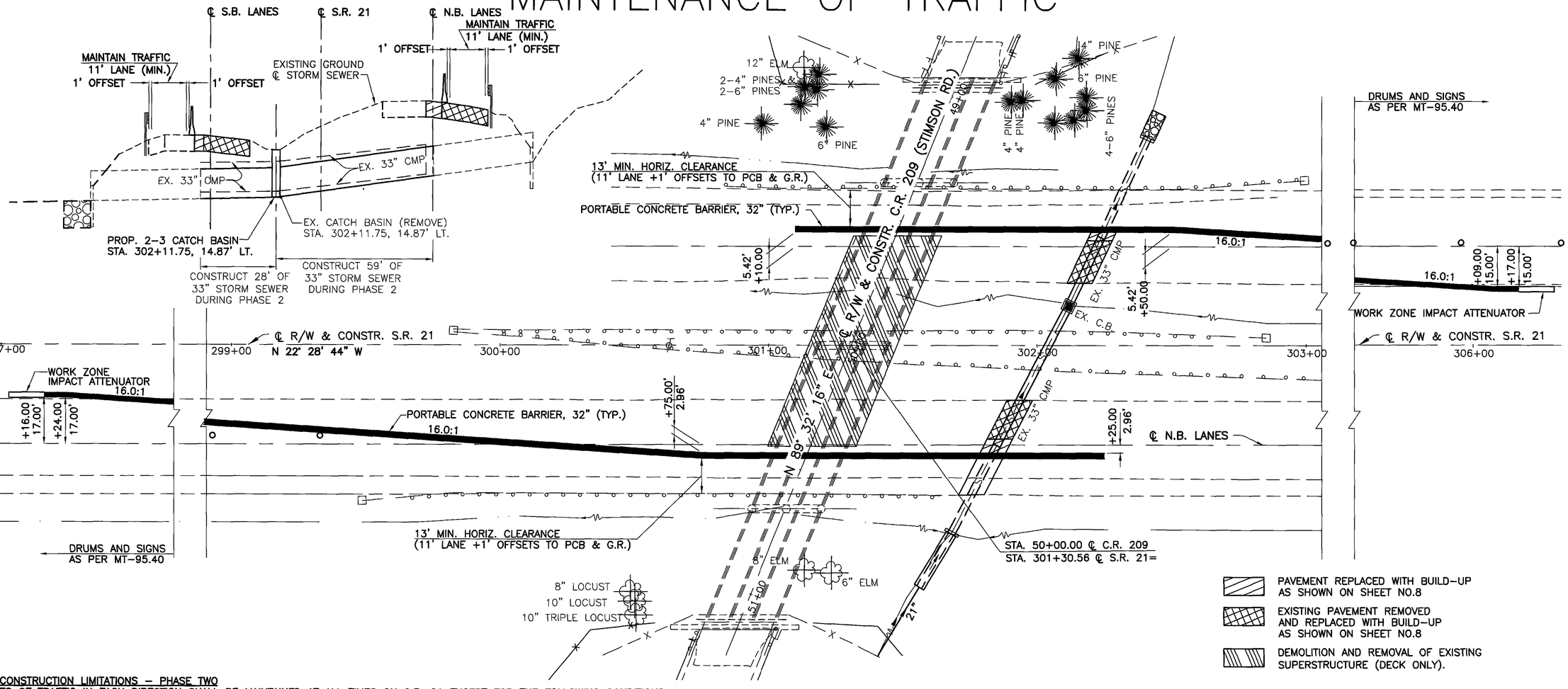
CALCULATED KAA CHECKED TLS

MAINTENANCE OF TRAFFIC – PHASE ONE – S.R. 21 AT STIMSON ROAD

SUM-21-(5.69)(7.58)(7.78)

MAINTENANCE OF TRAFFIC

FOR QUANTITIES, SEE SHEET NOS. 17 & 146



S.R. 21 CONSTRUCTION LIMITATIONS – PHASE TWO

TWO LANES OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES ON S.R. 21 EXCEPT FOR THE FOLLOWING CONDITIONS:

1. DEMOLITION AND REMOVAL OF THE EXISTING SUPERSTRUCTURE (DECK ONLY).
2. REMOVAL OF EXISTING 33" CMP AND CONSTRUCTION OF PROPOSED 33" STORM SEWER UNDER S.R. 21.

TWO LANES OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES EXCEPT FOR A PERIOD OF TIME FROM MONDAY THROUGH NOON ON FRIDAY PER CONDITION LISTED ABOVE, WHEN ONE LANE OF S.R. 21 TRAFFIC MAY CLOSED IN EACH DIRECTION AS SHOWN ON THIS SHEET. LIQUIDATED DAMAGES SHALL BE ASSESSED IN THE AMOUNT OF $1,250.00 PER DAY FOR EACH CALENDAR DAY THE LANES REMAIN CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT. LANE WIDTHS SHALL NOT BE LESS THAN ELEVEN FEET (11') AT ANY TIME.

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

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.

NO FULL DEPTH BRIDGE REMOVAL SHALL BE PERFORMED OVER AN OPEN LANE. A SAFETY NET OR PLATFORM SHALL BE REQUIRED TO PROTECT THE ROADWAY DURING THE REMOVAL OF THE EXISTING CONCRETE PARAPET AND DECK. THE CONTRACTOR SHALL PROVIDE A SAFETY NET OR PLATFORM OF SUITABLE STRENGTH ON THE UNDERSIDE OF THE DECK. THE DESIGN OF THE NET OR PLATFORM SHALL CONFORM WITH OSHA REQUIREMENTS AND THE APPROVAL OF THE ENGINEER AND SHALL REMAIN IN PLACE UNTIL THE WORK HAS BEEN COMPLETED AND ACCEPTED OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL SUBMIT A DEMOLITION PLAN AND SAFETY NET OR PLATFORM DESIGN 10 DAYS PRIOR TO COMMENCING ANY DEMOLITION FOR APPROVAL BY THE ENGINEER. THE SUBMITTAL SHALL BE IN WRITING TO THE DISTRICT CONSTRUCTION ENGINEER WITH A COPY TO THE PROJECT ENGINEER.

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

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 410	TRAFFIC COMPACTED SURFACE, TYPE A OR B	10 CU YD
ITEM 614	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	10 CU YD

THE CONTRACTOR SHALL MAINTAIN A VERTICAL CLEARANCE OF AT LEAST 14'-6" OVER S.R. 21 AT ALL TIMES THAT S.R. 21 IS OPEN TO TRAFFIC.

THE PORTABLE CONCRETE BARRIER, 32" SHALL ONLY BE IN PLACE FOR THE AMOUNT OF TIME IT TAKES THE CONTRACTOR TO SAWCUT AND REMOVE THE EXISTING COMPOSITE PAVEMENT OF S.R. 21, REMOVE THE EX. 33" CMP, CONSTRUCT THE PROPOSED 33" STORM SEWER, BACKFILL AND RESTORATION OF THE PAVEMENT, AND REMOVAL OF THE EXISTING SUPERSTRUCTURE (DECK ONLY) AS SHOWN ON THIS SHEET.

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

CHRISTMAS	NEW YEARS
MEMORIAL DAY	FOURTH OF JULY
LABOR DAY	THANKSGIVING

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

DAY OF THE WEEK	TIME ALL LANES MUST BE OPEN TO TRAFFIC
SUNDAY	12:00N FRIDAY THROUGH 12:00N MONDAY
MONDAY	12:00N FRIDAY THROUGH 12:00N TUESDAY
TUESDAY	12:00N MONDAY THROUGH 12:00N WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 12:00N THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 12:00N FRIDAY
FRIDAY	12:00N THURSDAY THROUGH 12:00N MONDAY
SATURDAY	12:00N FRIDAY THROUGH 12:00N MONDAY

NO EXTENSIONS OF TIME SHALL BE GRANTED FOR DELAYS IN MATERIAL DELIVERIES, UNLESS SUCH DELAYS ARE INDUSTRY-WIDE, OR FOR LABOR STRIKES, UNLESS SUCH STRIKES ARE AREA-WIDE.

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES IN THE AMOUNT OF $1,250.00 PER DAY.

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

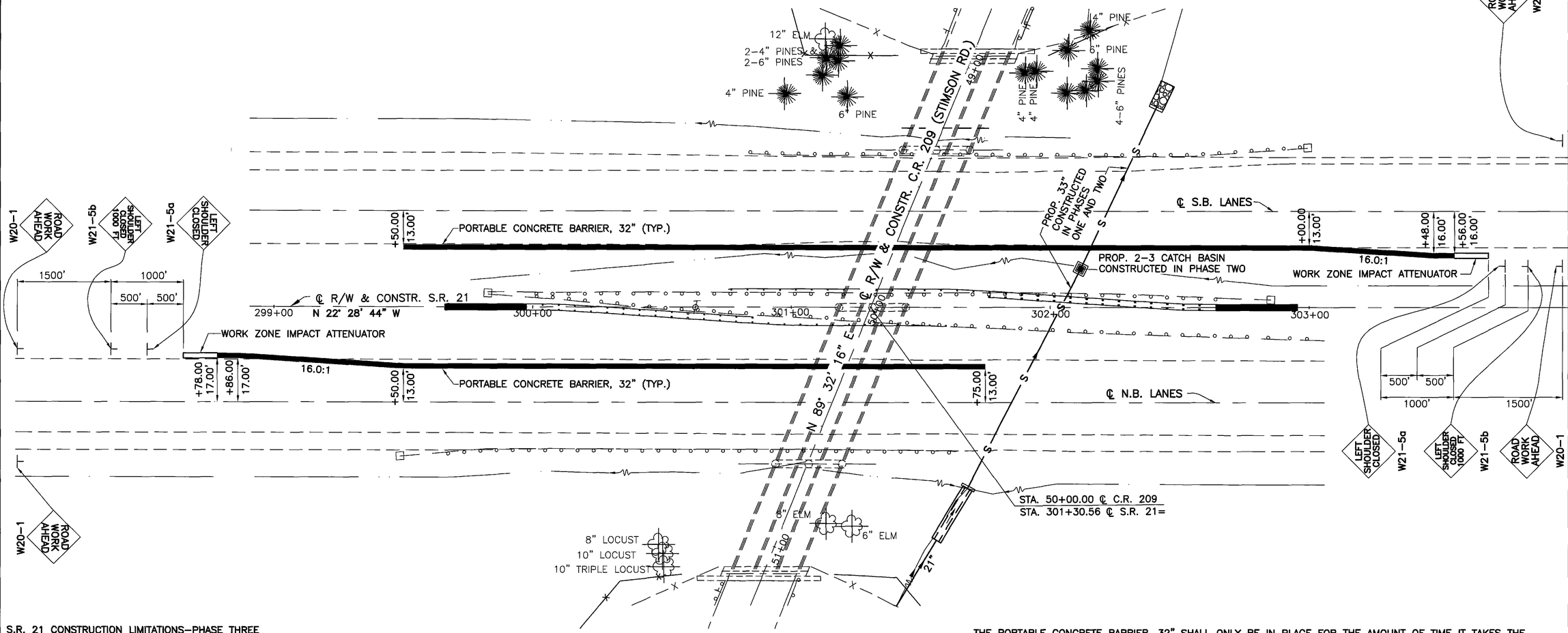
MAINTENANCE OF TRAFFIC – PHASE TWO – S.R. 21
AT STIMSON ROAD

SUM-21-(5.69)(7.58)(7.78)

EW1481M2.DWG

MAINTENANCE OF TRAFFIC

FOR QUANTITIES, SEE SHEET NO. 17.



S.R. 21 CONSTRUCTION LIMITATIONS–PHASE THREE

TWO LANES OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES ON S.R. 21 EXCEPT FOR THE FOLLOWING CONDITIONS:

1. JACKING OF THE EXISTING STEEL BEAMS OVER THE TRAVELED LANES.
2. CLEANING AND PAINTING OF THE EXISTING STEEL BEAMS OVER THE TRAVELED LANES.

TWO LANES OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES EXCEPT FOR A PERIOD OF TIME FROM MONDAY THROUGH NOON ON FRIDAY PER CONDITION LISTED ABOVE, WHEN ONE LANE OF S.R. 21 TRAFFIC MAY CLOSED IN EACH DIRECTION AS SHOWN ON STANDARD DRAWING MT–95.30. LIQUIDATED DAMAGES SHALL BE ASSESSED IN THE AMOUNT OF $1,250.00 PER DAY FOR EACH CALENDAR DAY THE LANES REMAIN CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT. LANE WIDTHS SHALL NOT BE LESS THAN ELEVEN (11') AT ANY TIME.

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

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.

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

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 410	TRAFFIC COMPACTED SURFACE, TYPE A OR B	10 CU YD
ITEM 614	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	10 CU YD

THE CONTRACTOR SHALL MAINTAIN A VERTICAL CLEARANCE OF AT LEAST 14'–6" OVER S.R. 21 AT ALL TIMES THAT S.R. 21 IS OPEN TO TRAFFIC.

THE PORTABLE CONCRETE BARRIER, 32" SHALL ONLY BE IN PLACE FOR THE AMOUNT OF TIME IT TAKES THE CONTRACTOR TO COMPLETE MODIFICATION OF THE EXISTING MEDIAN PIER, REMOVAL OF THE EXISTING MEDIAN GUARDRAIL, CONSTRUCTION OF THE PROPOSED GUARDRAIL, AND MEDIAN SHOULDER GRADING ALONG S.R. 21.

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

CHRISTMAS	NEW YEARS
MEMORIAL DAY	FOURTH OF JULY
LABOR DAY	THANKSGIVING

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

DAY OF THE WEEK	TIME ALL LANES MUST BE OPEN TO TRAFFIC
SUNDAY	12:00N FRIDAY THROUGH 12:00N MONDAY
MONDAY	12:00N FRIDAY THROUGH 12:00N TUESDAY
TUESDAY	12:00N MONDAY THROUGH 12:00N WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 12:00N THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 12:00N FRIDAY
FRIDAY	12:00N THURSDAY THROUGH 12:00N MONDAY
SATURDAY	12:00N FRIDAY THROUGH 12:00N MONDAY

NO EXTENSIONS OF TIME SHALL BE GRANTED FOR DELAYS IN MATERIAL DELIVERIES, UNLESS SUCH DELAYS ARE INDUSTRY–WIDE, OR FOR LABOR STRIKES, UNLESS SUCH STRIKES ARE AREA–WIDE.

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES IN THE AMOUNT OF $1,250.00 PER DAY.

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

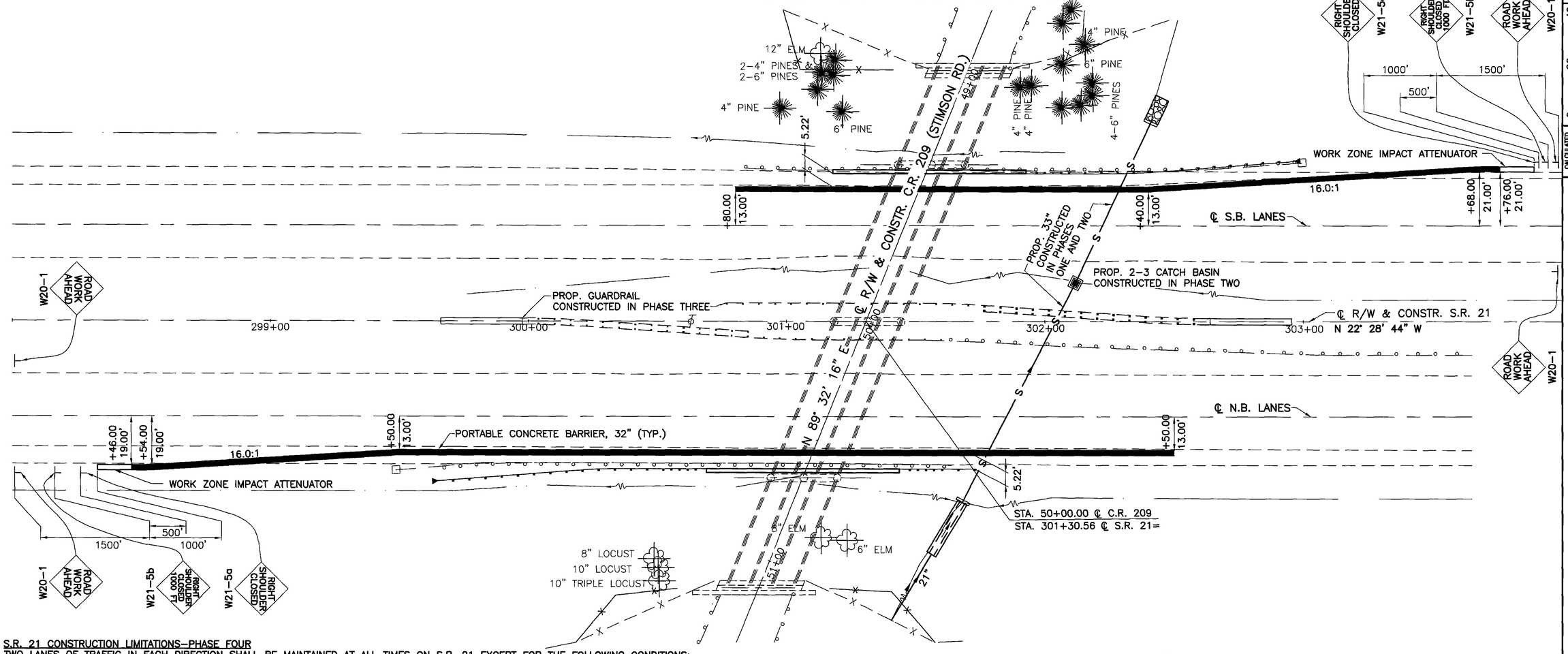
MAINTENANCE OF TRAFFIC – PHASE THREE – S.R. 21 AT STIMSON ROAD

SUM–21–(5.69)(7.58)(7.78)

EW1481M3.DWG

MAINTENANCE OF TRAFFIC

FOR QUANTITIES, SEE SHEET NO. 17



S.R. 21 CONSTRUCTION LIMITATIONS–PHASE FOUR

TWO LANES OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES ON S.R. 21 EXCEPT FOR THE FOLLOWING CONDITIONS:

1. JACKING THE EXISTING STEEL BEAMS OVER THE TRAVELED LANES.
2. CLEANING AND PAINTING OF THE EXISTING STEEL BEAMS OVER THE TRAVELED LANES.

TWO LANES OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES EXCEPT FOR A PERIOD OF TIME FROM MONDAY THROUGH NOON ON FRIDAY PER CONDITION LISTED ABOVE, WHEN ONE LANE OF S.R. 21 TRAFFIC MAY CLOSED IN EACH DIRECTION AS SHOWN ON STANDARD DRAWING MT-95.30. LIQUIDATED DAMAGES SHALL BE ASSESSED IN THE AMOUNT OF $1,250.00 PER DAY FOR EACH CALENDAR DAY THE LANES REMAIN CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT. LANE WIDTHS SHALL NOT BE LESS THAN ELEVEN FEET (11') AT ANY TIME.

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

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.

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

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 410	TRAFFIC COMPACTED SURFACE, TYPE A OR B	10 CU YD
ITEM 614	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	10 CU YD

THE CONTRACTOR SHALL MAINTAIN A VERTICAL CLEARANCE OF AT LEAST 14'-6" OVER S.R. 21 AT ALL TIMES THAT S.R. 21 IS OPEN TO TRAFFIC.

THE PORTABLE CONCRETE BARRIER, 32" SHALL ONLY BE IN PLACE FOR THE AMOUNT OF TIME IT TAKES THE CONTRACTOR TO COMPLETE MODIFICATION OF THE EXISTING SHOULDER PIERS, REMOVAL OF THE EXISTING SHOULDER GUARDRAIL, CONSTRUCTION OF THE PROPOSED CONCRETE BARRIERS AND GUARDRAIL, AND SHOULDER GRADING ALONG S.R. 21.

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

CHRISTMAS	NEW YEARS
MEMORIAL DAY	FOURTH OF JULY
LABOR DAY	THANKSGIVING

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

DAY OF THE WEEK	TIME ALL LANES MUST BE OPEN TO TRAFFIC
SUNDAY	12:00N FRIDAY THROUGH 12:00N MONDAY
MONDAY	12:00N FRIDAY THROUGH 12:00N TUESDAY
TUESDAY	12:00N MONDAY THROUGH 12:00N WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 12:00N THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 12:00N FRIDAY
FRIDAY	12:00N THURSDAY THROUGH 12:00N MONDAY
SATURDAY	12:00N FRIDAY THROUGH 12:00N MONDAY

NO EXTENSIONS OF TIME SHALL BE GRANTED FOR DELAYS IN MATERIAL DELIVERIES, UNLESS SUCH DELAYS ARE INDUSTRY-WIDE, OR FOR LABOR STRIKES, UNLESS SUCH STRIKES ARE AREA-WIDE.

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES IN THE AMOUNT OF $1,250.00 PER DAY.

HORIZONTAL SCALE IN FEET: 0, 20, 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – PHASE FOUR – S.R. 21
AT STIMSON ROAD

SUM-21-(5.69)(7.58)(7.78)

EW1481M4.DWG

SEQUENCE OF OPERATIONS, ITEM 614 MAINTAINING TRAFFIC SUM-21-(7.58)(7.78)
CONSTRUCTION SHALL BE DONE IN FOUR PHASES.

PHASE ONE
PHASE ONE SHALL BEGIN WITH CONSTRUCTION OF THE MEDIAN CROSSOVERS LOCATED IMMEDIATELY SOUTH OF THE W&LE RAILROAD BRIDGES AND IMMEDIATELY NORTH OF THE S.R. 162 BRIDGES, AND ANY PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A, AS PER PLAN AS IS SHOWN ON SHEETS 18 THROUGH 28. DURING CONSTRUCTION OF THE CROSSOVERS AND PAVEMENT FOR MAINTAINING TRAFFIC, TRAFFIC SHALL BE TRANSITIONED AWAY FROM THE WORK AREAS AS SHOWN ON STANDARD DRAWING MT-102.10. WHEN WORK IS BEING DONE IN THE MEDIAN AND TRAFFIC IS SHIFTED TOWARD THE OUTSIDE LANES, NO WORK SHALL BE PERFORMED ON THE OUTSIDE SHOULDERS. SIMILARLY WHEN WORK IS BEING DONE ON THE OUTSIDE SHOULDERS AND TRAFFIC IS SHIFTED TOWARD THE MEDIAN, NO WORK SHALL BE PERFORMED IN THE MEDIAN. ALL FOUR RAMPS SHALL REMAIN OPEN AT ALL TIMES DURING PHASE ONE.

PHASE TWO
DURING PHASE TWO THE NORTHBOUND LANES AND THE SOUTHEAST EXIT RAMP AT THE S.R. 162 INTERCHANGE WILL BE CLOSED AND TRAFFIC WILL BE MAINTAINED USING THE CROSSOVERS AND TWO-LANE, TWO-WAY OPERATION ON THE SOUTHBOUND LANES AS SHOWN ON SHEETS 31 THROUGH 41 AND ON STANDARD DRAWINGS MT-95.30 AND MT-95.70. NORTHBOUND TRAFFIC, ON S.R. 21, WISHING TO EXIT AT S.R. 162 USING THE SOUTHEAST RAMP WILL BE DETOURED AS SHOWN ON SHEET NO. 29. CONSTRUCTION OF ALL PROPOSED NORTHBOUND PAVEMENT, STRUCTURES AND ASSOCIATED ROADWAY ITEMS SHALL BE COMPLETED AND APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTING PHASE THREE.

PHASE THREE
PHASE THREE WILL MAINTAIN TRAFFIC USING THE CROSSOVERS AND FOUR-LANE, TWO-WAY OPERATION ON THE NEWLY CONSTRUCTED NORTHBOUND LANES AS SHOWN ON SHEETS 43 THROUGH 52 AND ON STANDARD DRAWINGS MT-95.30, MT-95.70, AND MT-102.10. THE SOUTHWEST RAMP OF THE S.R. 162 INTERCHANGE AND THE SOUTHBOUND LANES WILL THEN BE CLOSED AND S.R. 162 TRAFFIC WISHING TO ENTER S.R. 21 SOUTHBOUND USING THE SOUTHWEST RAMP WILL BE DETOURED AS SHOWN ON SHEET NO. 42. CONSTRUCTION OF ALL PROPOSED SOUTHBOUND PAVEMENT, STRUCTURES AND ASSOCIATED ROADWAY ITEMS WILL BE COMPLETED DURING PHASE THREE. TRAFFIC SHALL BE RETURNED TO NORMAL CONDITIONS IMMEDIATELY UPON COMPLETION OF CONSTRUCTION OF THE SOUTHBOUND LANES AND APPROVAL BY THE ENGINEER.

PHASE FOUR
WHEN TRAFFIC IS RETURNED TO NORMAL OPERATION, PHASE FOUR SHALL BEGIN. DURING THIS PHASE THE CROSSOVERS ARE TO BE REMOVED AND THE AFFECTED PORTIONS OF THE MEDIAN SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AS DIRECTED BY THE ENGINEER AND AS PER 615.08.

THROUGH TRAFFIC ON S.R. 162 SHALL BE MAINTAINED AS DETAILED UNDER THE S.R. 162 CONSTRUCTION LIMITATIONS HEADING ON THIS SHEET. THERE MAY BE SHORT PERIODS OF TIME IN WHICH THROUGH TRAFFIC WILL BE DETOURED.

MAINTENANCE OF TRAFFIC
THIS ITEM SHALL CONSIST OF MAINTENANCE OF TRAFFIC ON EXISTING ROADWAYS AND RAMPS IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, CURRENT EDITION, LATEST REVISION, ITEM 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS AND THE FOLLOWING:

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO ACCOMPLISH ALL WORK INDICATED IN THESE PLANS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

ALL FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT OPERATIONS SHALL BE COMPLETED THE SAME DAY THE EXCAVATION IS MADE. IF THE CONTRACTOR CANNOT COMPLETE THE WORK, THE EXCAVATION SHALL BE BACKFILLED OR PROTECTED AS PER SHEETS 31-53.

LANE RESTRICTIONS OR LANE REDUCTIONS EXCEPT AS EXPLICITLY SHOWN IN THESE PLANS SHALL NOT BE PERMITTED AFTER NORMAL WORKING HOURS. NORMAL WORKING HOUR SHALL BE THOSE HOURS DURING WHICH THE CONTRACTOR HAS A FULL COMPLEMENT OF EMPLOYEES AND EQUIPMENT ACTIVELY REMOVING AND/OR PLACING PAVEMENT MATERIALS.

ONLY DURING OFF-PEAK PERIODS (ie. ANY PERIOD OTHER THAN 6-8AM AND 4-6PM) SHALL THE CONTRACTOR INSTALL AND SUBSEQUENTLY RESET ALL TRAFFIC CONTROL NECESSARY FOR MAINTAINING TRAFFIC EACH CONSTRUCTION PHASE.

UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR BE PERMITTED TO HAVE WORK ZONES THAT ALTERNATELY CLOSE BOTH THE PASSING LANE AND THE DRIVING LANE UNLESS THE DISTANCE BETWEEN THE DRUMS, BARRICADES OR CONES EXCEEDS TWO (2) MILES.

CONES SHALL NOT BE ACCEPTABLE TRAFFIC CONTROL DEVICES FOR LANE RESTRICTIONS OR LANE REDUCTIONS THAT ARE IN OPERATION ONE-HALF HOUR AFTER SUNSET OR ONE HALF-HOUR BEFORE SUNRISE. ALL NIGHTTIME LANE RESTRICTIONS SHALL REQUIRE DRUMS OR BARRICADES AT A MAXIMUM SPACING OF FIFTY (50) FEET.

THE CONTRACTOR SHALL FURNISH, ERECT, MAINTAIN AND SUBSEQUENTLY REMOVE ALL FLAGS, BARRICADES, SIGNS, SIGN SUPPORTS AND FURNISH AND MAINTAIN ALL FLAGGERS, WATCHERS AND INCIDENTALS RELATED THERETO. THE ABOVE ITEMS SHALL BE UTILIZED IN CONFORMANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, LATEST REVISION. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING SIGNS THAT ARE TO BE USED AT THE DIRECTION OR APPROVAL OF THE ENGINEER: W8-1 [BUMP], W6-3[TWO-WAY TRAFFIC], W8-H13 [NO EDGE LINES], R4-1 [DO NOT PASS], R4-2 [PASS WITH CARE], W8-11 [UNEVEN LANES SYMBOL]. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO ACCOMPLISH THIS WORK SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

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

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

S.R. 162 CONSTRUCTION LIMITATIONS
TWO LANE TRAFFIC SHALL BE MAINTAINED AT ALL TIMES ON S.R. 162 EXCEPT FOR THE FOLLOWING CONDITIONS:

1. DEMOLITION AND REMOVAL OF THE EXISTING SUPERSTRUCTURES OVER THE TRAVELED LANES AND THE EXISTING PIERS.
2. PLACEMENT OF THE NEW STRUCTURAL STEEL BEAMS OVER THE TRAVELED LANES.

A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES EXCEPT FOR A PERIOD NOT TO EXCEED THREE (3) CONSECUTIVE CALENDAR DAYS PER CONDITION LISTED ABOVE, WHEN THROUGH TRAFFIC SHALL BE DETOURED AS SHOWN ON SHEET NO. 28. LIQUIDATED DAMAGES SHALL BE ASSESSED IN THE AMOUNT OF $1,250.00 PER DAY FOR EACH CALENDAR DAY THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT.

NOTICE OF CLOSURE SIGNS, AS DETAILED IN THESE PLANS SHALL BE ERECTED BY THE CONTRACTOR AT LEAST ONE WEEK IN ADVANCE OF THE SCHEDULED ROAD OR RAMP CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT HAND SIDE OF THE ROAD FACING TRAFFIC. THEY SHALL BE PLACE SO AS NOT TO INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS. THEY SHOULD BE ERECTED AT THE POINT OF CLOSURE.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN SIGNS AND SIGN SUPPORTS, AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND TYPE III BARRICADES OF THE TYPE AND LOCATION AS SHOWN IN THE PLANS.

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.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 410	TRAFFIC COMPACTED SURFACE, TYPE A OR B	10 CU YD
ITEM 614	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	10 CU YD

THE CONTRACTOR SHALL MAINTAIN A VERTICAL CLEARANCE OF AT LEAST 15'-0" OVER S.R. 162 AT ALL TIMES THAT THE ROADWAY IS OPEN TO TRAFFIC.

NO FULL DEPTH BRIDGE REPAIR SHALL BE PERFORMED OVER AN OPEN LANE. A SAFETY NET OR PLATFORM SHALL BE REQUIRED TO PROTECT THE ROADWAY, RAILROAD OR STREAM DURING THE REMOVAL OF THE EXISTING CONCRETE PARAPET AND DECK. THE CONTRACTOR SHALL PROVIDE A SAFETY NET OR PLATFORM OF SUITABLE STRENGTH ON THE UNDERSIDE OF THE DECK. THE DESIGN OF THE NET OR PLATFORM SHALL CONFORM WITH OSHA REQUIREMENTS AND THE APPROVAL OF THE ENGINEER AND SHALL REMAIN IN PLACE UNTIL THE WORK HAS BEEN COMPLETED AND ACCEPTED OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL SUBMIT A DEMOLITION PLAN AND SAFETY NET OR PLATFORM DESIGN 10 DAYS PRIOR TO COMMENCING ANY DEMOLITION FOR APPROVAL BY THE ENGINEER. THE SUBMITTAL SHALL BE IN WRITING TO THE DISTRICT CONSTRUCTION ENGINEER WITH A COPY TO THE PROJECT ENGINEER.

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.

TRENCH FOR WIDENING
TRENCH EXCAVATION FOR BASE WIDENING SHALL BE ONLY ON ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS OR BARRICADES AT ALL TIMES, AS SHOWN ON SHEET 14A. PLACEMENT OF PROPOSED BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND THE EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO THE APPROVAL OF THE ENGINEER. THE BASE WIDENING ON THIS PROJECT WILL BE COMPLETED TO A DEPTH OF 3 INCHES BELOW THE EXISTING PAVEMENT BY THE END OF THE WORK DAY. NO TRENCH WILL BE LEFT OPEN OVERNIGHT. IN CASE WORK MUST BE SUSPENDED BECAUSE OF INCLEMENT WEATHER OR OTHER REASONS, THE TRENCH FOR THE UNCOMPLETED BASE WIDENING WILL BE BACKFILLED AT THE DIRECTION OF THE ENGINEER.

ITEM 614 - BARRIER REFLECTORS AND/OR OBJECT MARKERS
BARRIER REFLECTORS AND/OR OBJECT MARKERS SHALL BE INSTALLED ON ALL PORTABLE CONCRETE BARRIER USED FOR TRAFFIC CONTROL. BARRIER REFLECTORS, OBJECT MARKERS AND THEIR INSTALLATION SHALL CONFORM TO CMS ITEM 626 EXCEPT THAT THE SPACING SHALL BE 50 FEET. FOR QUANTITIES, SEE SHEET NO. 17.

ITEM 615 PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A, AS PER PLAN
IN ADDITION TO THE REQUIREMENTS OF ITEM 615, THIS ITEM REPLACES THE 7 INCHES OF ITEM 302 ASPHALT CONCRETE BASE WITH 9 INCHES OF ITEM 301 ASPHALT CONCRETE BASE.

ON THIS PROJECT THE PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A, AS PER PLAN FOR MEDIAN CROSSOVERS SHALL BE A MINIMUM OF 18 FEET WIDE AND THE ROADWAY WIDTH SHALL NOT BE LESS THEN 22 FEET OUT TO OUT OF SHOULDERS. THE ALIGNMENT SHALL BE AS DETAILED ON SHEETS 22, 23, 26, 27, AND 28. THE PAVEMENT THICKNESS SHALL BE AS SHOWN ON THE SHOULDER WIDENING SECTION ON SHEET NO. 6. THE EXISTING PAVEMENT/SHOULDER SHALL BE SAWCUT AS PER 203.04(E).

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED ON SHEET 17 TO BE USED IN CONSTRUCTING THE PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A, AS PER PLAN.

ITEM 615	ROADS FOR MAINTAINING TRAFFIC	LUMP
ITEM 615	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A, AS PER PLAN	7048 S.Y.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED IN CONSTRUCTING THE PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A, AS PER PLAN.

ITEM 616	WATER	50 M GAL
ITEM 411	STABILIZED CRUSHED AGGREGATE	102 CU.YD.

UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL REMOVE THE PAVEMENT FOR MAINTAINING TRAFFIC, THAT IS NOT TO REMAIN AS PERMANENT PAVED SHOULDER, INCLUDING ANY TEMPORARY DRAINAGE FACILITIES. THE AFFECTED EXISTING EARTH MEDIAN AND PAVED SHOULDER SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AS DIRECTED BY THE ENGINEER AND AS PER 615.08.

PAVEMENT FOR MAINTAINING TRAFFIC SHALL NOT BE OPENED TO TRAFFIC UNTIL ALL WORK ZONE TRAFFIC CONTROL DEVICES, SIGNS, PAVEMENT MARKINGS AND PORTABLE CONCRETE BARRIERS HAVE BEEN ERECTED AND APPROVED BY THE ENGINEER.

ALTHOUGH ESTIMATES FOR EXCAVATION AND EMBANKMENT FOR ROADS FOR MAINTAINING TRAFFIC AND TEMPORARY DRAINAGE FACILITIES MAY BE SHOWN ON THE PLAN DETAILS, THESE ITEMS SHALL BE CONSIDERED INCIDENTAL TO, AND INCLUDED WITH PAYMENT FOR ITEM 615 ROADS FOR MAINTAINING TRAFFIC.

CONTRACTOR'S EQUIPMENT - OPERATION AND STORAGE
A QUALIFIED FLAGGER SHALL BE EMPLOYED WHERE THE CONTRACTOR'S EQUIPMENT MUST MERGE WITH THE TRAFFIC STREAM. THE CONTRACTOR'S EQUIPMENT SHALL BE EQUIPPED WITH AT LEAST ONE AMBER FLASHING LIGHT. PAVERS, ROLLERS AND OTHER EQUIPMENT MAY BE PARKED IN AREAS ALONG THE HIGHWAY WHEN PAVING OPERATIONS ARE SCHEDULED TO CONTINUE WITHIN THE NEXT WORKDAY. OTHERWISE THE EQUIPMENT SHALL BE STORED AT A STORAGE AREA OUTSIDE THE R/W, THE LOCATION OF WHICH SHALL HAVE PRIOR APPROVAL OF THE ENGINEER. WHEN PARKING ALONG THE HIGHWAY THE EQUIPMENT SHALL BE PLACED AND DELINEATED AS PER 614.03. NO EQUIPMENT SHALL BE PARKED IN THE MEDIAN OF THE HIGHWAY. ADEQUATE BARRICADES AND LIGHTS SHALL BE PLACED ON THE PAVEMENT SIDE OF THE EQUIPMENT TO IDENTIFY THE LIMITS OF THE EQUIPMENT. ALL OTHER EQUIPMENT, INCLUDING PRIVATE VEHICLES, SHALL BE STORED AT THE APPROVED CONTRACTOR'S STORAGE AREA. NO EQUIPMENT SHALL BE PARKED ON PRIVATE PROPERTY UNLESS PRIOR APPROVAL OF THE OWNER AND THE PROJECT ENGINEER/SUPERVISOR HAS BEEN GRANTED.

ESTIMATED QUANTITIES FOR EXCAVATION AND EMBANKMENT TO BE INCLUDED WITH ITEM 615 ROADS FOR MAINTAINING TRAFFIC

MAINTENANCE OF TRAFFIC CROSS SECTION SHEET NO.	203 EXCAVATION CU YD		203 EMBANKMENT CU YD
55	982		289
56	740		333
57	95		46
58	1		2
59	0		0
60	53		59
61	134		101
62	609		443
63	950		1210
64	206		528
65	65		129
66	362		573
67	706		774
68	787		423
69	359		315
70	57		61
TOTAL	6106		5286

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC - S.R. 21
GENERAL NOTES

SUM-21-(5.69)(7.58)(7.78)

14
223

EM1484MOTNOTES.DWG 1"=4'

ITEM 614 WORK ZONE CROSSOVER LIGHTING SYSTEM
THIS WORK SHALL CONSIST OF FURNISHING, ERECTING, OPERATING, MAINTAINING AND REMOVING A WORK ZONE LIGHTING SYSTEM FOR A PAIR OF CROSSOVERS. THE SYSTEM SHALL BE AS SHOWN ON STANDARD CONSTRUCTION DRAWING MT-100.00. THE CONTRACTOR SHALL ARRANGE FOR AND PAY FOR POWER. ALL MATERIALS AND CONSTRUCTION SHALL COMPLY WITH APPLICABLE PORTIONS OF ITEMS 625 AND 713 EXCEPT: THE PERFORMANCE TEST OF 625.19 F, AND CERTIFIED DRAWINGS REQUIREMENT OF 625.04, ARE WAIVED AND USED MATERIALS IN GOOD CONDITION ARE ACCEPTABLE.

POLES MAY BE LESS THAN 30'0" FROM THE EDGE OF PAVEMENT WHEN BEHIND GUARDRAIL. ADDITIONAL POLE LINES, CABLES AND APPURTENANCES NECESSARY TO FURNISH POWER TO THE LIGHTING SYSTEM SHALL BE INCLUDED IN THIS ITEM. SERVICE POLES SHALL BE POSITIONED WITH THE SAME CONSTRAINTS AS THE LIGHTING POLES AS A MINIMUM.

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

ITEM 622 PORTABLE CONCRETE BARRIER, 50", AS PER PLAN
THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, MAINTAINING, AND SUBSEQUENTLY REMOVING A 50 INCH PORTABLE CONCRETE BARRIER AT THE LOCATIONS SHOWN ON THE PLANS.

PORTABLE CONCRETE BARRIER, 32 INCHES HIGH WITH AN 18 INCH MINIMUM HEIGHT GLARE SCREEN MAY BE USED AT THE OPTION OF THE CONTRACTOR. THE GLARE SCREEN SHALL BE CONSTRUCTED USING ONE OF THE FOLLOWING SYSTEMS OR AN APPROVED EQUAL:

CARSONITE MODULAR GLARE SCREEN
CARSONITE INTERNATIONAL
605 BOB GIFFORD BLVD.
EARLY BRANCH, SC 29916
702-883-5104 OR 800-648-7974

TRINITY GLAREFOIL
TRINITY INDUSTRY
1170 N. STATE ST.
GIRARD, OH 44420
330-545-4373

PADDLE OR INTERMITTENT TYPE GLARE SCREENS SHALL BE DESIGNED USING A 20 DEGREE CUT-OFF ANGLE BASED ON TANGENT ALIGNMENT. THAT SPACING SHALL BE USED THROUGHOUT THE BARRIER LENGTH WITHOUT REGARD TO BARRIER CURVATURE.

THE GLARE SCREEN SYSTEM SHALL BE SECURELY FASTENED TO THE 32 INCH PORTABLE CONCRETE BARRIER USING THE HARDWARE AND PROCEDURES SPECIFIED BY THE MANUFACTURER.

PAYMENT SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO PERFORM THE WORK AND SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR ITEM 622, PORTABLE CONCRETE BARRIER, 50 INCH, AS PER PLAN.

DUST CONTROL
THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING QUANTITY HAS BEEN INCLUDED FOR DUST CONTROL PURPOSES.

ITEM 616 WATER 10 M GALLON

ITEM 614-LAW ENFORCEMENT OFFICER (WITH PATROL CAR)
IN ADDITION TO THE REQUIREMENTS OF 614 AND THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD), A UNIFORMED LAW ENFORCEMENT OFFICER AND OFFICIAL PATROL CAR WITH WORKING TOP MOUNTED EMERGENCY FLASHING LIGHTS SHALL BE PROVIDED FOR CONTROLLING TRAFFIC AS DIRECTED BY THE ENGINEER FOR THE FOLLOWING TASKS:

FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED.

DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.

LAW ENFORCEMENT OFFICERS (L.E.O.'S) SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED. THE LEO'S ARE CONSIDERED TO BE EMPLOYED BY THE CONTRACTOR AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR ACTIONS. ALTHOUGH THEY ARE EMPLOYED BY THE CONTRACTOR, THE PROJECT ENGINEER SHALL HAVE CONTROL OVER THEIR PLACEMENT. THE OFFICIAL PATROL CAR SHALL BE A SAFETY VEHICLE AS REQUIRED BY THE OHIO REVISED CODE.

THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THESE SERVICES WITH:

CANTON PATROL POST
4710 SHUFFEL ROAD
NORTH CANTON, OH 44720
PHONE: 330-433-6200
FAX: 330-433-6230

IF AFTER CONTACTING THE OHIO HIGHWAY PATROL, IT IS DETERMINED THAT THEY CANNOT SUPPLY THE LEO, THEN AN AUTHORIZED MUNICIPAL OR COUNTY POLICE OFFICER WITH A MARKED AND FLASHER-LIGHT EQUIPPED OFFICIAL POLICE OR PATROL CAR SHALL BE PROVIDED.

LAW ENFORCEMENT OFFICERS 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. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR 100 HOURS

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

IF CONTRACTORS WISH TO UTILIZE LEO'S FOR FLAGGING AND TRAFFIC CONTROL OTHER THAN FOR THAT REQUIRED IN THESE PLANS, THEY MAY DO SO AT THEIR OWN EXPENSE. PAYMENT FOR THE EXCESS ABOVE THE CONTRACT REQUIREMENTS WILL BE INCLUDED UNDER ITEM 614 MAINTAINING TRAFFIC.

ITEM 614 WORK ZONE MARKINGS AND SIGNS
A QUANTITY OF ITEM 614 WORK ZONE MARKING SIGN HAS BEEN INCLUDED IN THE PLAN. THIS QUANTITY SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING SIGNS: OW-62 [BUMP], OW-71[TWO-WAY TRAFFIC], OW-167 [NO EDGE LINES], R-33 [DO NOT PASS], R-34 [PASS WITH CARE], OW-171 [UNEVEN LANES SYMBOL]. THESE QUANTITIES SHALL BE AS PER 614.04.

THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED ON SHEET 17 TO BE USED ON THIS PROJECT:

ITEM 614 WORK ZONE EDGE LINE, CLASS 1, 740.06, TYPE 1 4.39 MILE
ITEM 614 WORK ZONE LANE LINE, CLASS 1, 740.06, TYPE 1 1.67 MILE

THE FOLLOWING QUANTITIES SHALL BE USED FOR THE MAINTENANCE OF TRAFFIC ON THIS PROJECT:

ITEM 614 WORK ZONE MARKING SIGN 20 EACH

ITEM 614, WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL OR BIDIRECTIONAL)
THIS ITEM SHALL CONSIST OF FURNISHING EITHER OF THE FOLLOWING ATTENUATORS:
1. THE QUADGUARD CZ, (24 INCHES (610 MILLIMETERS) WIDE SIX-BAY WORK ZONE IMPACT ATTENUATOR MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC., ONE EAST WACKER DRIVE, CHICAGO, IL. 60601 (TELEPHONE: 312-467-6750).

THE LENGTH OF THE SIX-BAY QUADGUARD CZ IS 20'-9" (6.33 METERS). INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DRAWING NUMBER	DRAWING NAME	DRAWING/ REVISION DATE	ODOT APPROVAL DATE
QSCZCVR-T4	QUADGUARD CZ SYSTEM FOR CONSTRUCTION ZONES	5/13/99 REV. J	8/27/99
35-40-10	QUADGUARD SYSTEM CONCRETE PAD, CZ, QG	11/19/97 REV. D	8/27/99
35-40-16	QUADGUARD SYSTEM BACKUP ASSEMBLY, CZ, QG	7/30/99 REV. F	8/27/99
354051Z	QUADGUARD CZ SYSTEM NOSE ASSEMBLY, CZ, QG, 24, 30, 36	5/17/99	8/27/99
35-40-18	TRANSITION ASSEMBLY, 4 OFFSET, QG	6/25/99 REV. F	8/27/99
35400260	QUADGUARD SYSTEM PCMB ANCHOR ASSEMBLY	11/19/97 REV. C	8/27/99

2. THE TRACC (TRINITY ATTENUATING CRASH CUSHION) MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-545-4373).

THE TRACC IS 21'-0" (6.4 METERS) LONG AND 2'-7" (0.8 METERS) WIDE. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DRAWING NUMBER	DRAWING NAME	DRAWING/ REVISION DATE	ODOT APPROVAL DATE
SS450	CRASH-CUSHION ATTENUATING TERMINAL PLAN, ELEVATION & SECTIONS	3/12/99 REV. 1	8/27/99
SS455	TRACC TRANSITION TO W-BEAM MEDIAN BARRIER PLAN, ELEVATION & SECTIONS	2/18/99	8/27/99
SS461	TRACC TRANSITION TO CONCRETE SAFETY SHAPE BARRIER PLAN, ELEVATION & SECTIONS	6/30/99 REV. 1	8/27/99
SS462	TRACC TRANSITION TO CONCRETE BARRIER SINGLE SLOPE PLAN, ELEVATION & SECTIONS	6/30/99	8/27/99

3. THE GREAT CZ IMPACT ATTENUATOR MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC.

THIS ATTENUATOR MAY BE USED UNTIL JANUARY 1, 2007 IF THE ITEM WAS PURCHASED BEFORE OCTOBER 1, 1998 AND IS IN THE CONTRACTOR'S INVENTORY.

THE CONTRACTOR SHALL PROVIDE A REPLACEMENT UNIT WHEN AN IMPACT IS SEVERE ENOUGH TO REQUIRE COMPLETE REPLACEMENT OF THE ATTENUATOR. THE CONTRACTOR SHALL HAVE A SPARE PARTS PACKAGE AVAILABLE ON THE PROJECT SITE AT ALL TIMES WHEN AN ATTENUATOR IS IN PLACE. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF ONE COMPLETE SPARE PARTS PACKAGE FOR EVERY ONE TO SIX UNITS INSTALLED ON THE PROJECT SITE. FOR EXAMPLE, FIVE INSTALLED UNITS REQUIRE ONE SPARE PARTS PACKAGE AND SEVEN INSTALLED UNITS REQUIRE TWO SPARE PARTS PACKAGES.

WHEN BIDIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS. PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 614, WORK ZONE IMPACT ATTENUATOR, (UNIDIRECTIONAL OR BIDIRECTIONAL), EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT, MAINTAIN, REPAIR, REPLACE OR RELOCATE A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS, TRANSITIONS, LEVELING PADS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

ITEM 614 TRANSITION AREA DELINEATION
IN TRANSITION AREAS FOR LANE SHIFTS EQUAL TO OR GREATER THAN 4 FEET AND CROSSOVERS, THE CONTRACTOR SHALL PROVIDE DELINEATION BY ONE OF THE FOLLOWING METHODS:

1. FULL PAVEMENT MARKINGS USING 873 WET REFLECTIVE REMOVABLE TAPE (METHOD A ON MT-99.30 AND MT-99.31); OR

2. FULL PAVEMENT MARKINGS USING 740.06 TYPE I WORK ZONE PAVEMENT MARKING MATERIAL SUPPLEMENTED WITH WORK ZONE RAISED PAVEMENT MARKERS (METHOD B ON MT-99.30 AND 99.31).

ALL MATERIAL FURNISHED SHALL BE LISTED ON THE DEPARTMENT'S PREQUALIFIED LISTS. THE INSTALLATION OF ALL MATERIALS SHALL MEET OR EXCEED THE MANUFACTURERS' RECOMMENDATIONS.

AFTER REMOVABLE PAVEMENT MARKINGS HAVE BEEN INSTALLED, THEY SHALL BE CUT AT 10 FOOT OR SHORTER INTERVALS.

PAYMENT FOR ITEM 614 TRANSITION AREA DELINEATION SHALL BE MADE AT THE CONTRACT BID PRICE PER FOOT OF TRANSITION AREA AND SHALL INCLUDE THE COST OF FURNISHING, INSTALLING, MAINTAINING AND REMOVING, IF NECESSARY, ONE OF THE DELINEATION SCHEMES SPECIFIED ABOVE.

PAYMENT SHALL ALSO INCLUDE REPLACEMENT, AS PER 614.11.A (CONSTRUCTION AND MATERIALS SPECIFICATIONS) OR 614.115.D (PROPOSAL NOTE 101-2002), OF ANY PART OF THE DELINEATION SYSTEM WHICH, IN THE JUDGMENT OF THE ENGINEER, FAILS. LANE CLOSURES REQUIRED TO REPAIR OR REPLACE MISSING TAPE OR WORK ZONE RAISED PAVEMENT MARKERS WILL BE AT THE ENGINEER'S APPROVAL AND AT THE CONTRACTOR'S COST.

THE TRANSITION AREA FOR SHIFT TAPERS IS GENERALLY CONSIDERED TO BEGIN 300 FT IN ADVANCE OF THE BEGINNING OF THE SHIFT TAPER AND TO END 300 FT BEYOND THE TERMINATION OF THE SHIFT TAPER. THE TRANSITION AREA FOR CROSSOVERS IS GENERALLY CONSIDERED TO BEGIN 300 FT IN ADVANCE OF THE BEGINNING OF THE CROSSOVER GEOMETRICS AND TO END 300 FT BEYOND THE TERMINATION OF THE CROSSOVER GEOMETRICS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED FOR ITEM 614
TRANSITION AREA DELINEATION.

PHASE TWO
STA. 383+17 TO STA. 402+13 N.B. = 1,896 FT
STA. 408+87 TO STA. 423+34 N.B. = 1,447 FT

PHASE THREE
STA. 368+75 TO STA. 386+85 N.B. = 1,810 FT
STA. 400+35 TO STA. 413+50 N.B. = 1,315 FT
STA. 387+75 TO STA. 425+37 S.B. = 3,812 FT
TOTAL = 10,280 FT

ITEM SPECIAL: RUMBLE STRIPS
THE RUMBLE STRIPS WILL BE PLACED AS SHOWN IN THE PLAN OR AS DIRECTED BY THE ENGINEER. RUMBLE STRIPS SHALL BE INSTALLED EITHER ON TOP OF THE PAVEMENT USING PREFORMED THERMOPLASTIC OR MILLED INTO THE PAVEMENT.

THERMOPLASTIC RUMBLE STRIPS SHALL BE 4 INCHES WIDE AND 0.5 INCH THICK IN PLACE. MILLED RUMBLE STRIPS SHALL BE 4 INCHES WIDE AND 0.5 INCH INTO THE PAVEMENT. THE RUMBLE STRIPS SHALL TRAVERSE THE TOTAL LANE WIDTH. THERE WILL BE TWO SECTIONS OF RUMBLE STRIPS. THE RUMBLE STRIPS MAY HAVE TO GO ACROSS TWO OR THREE LANES OF TRAFFIC.

THE FIRST SECTION WILL START AT 250 FEET PRIOR TOO THE CROSSOVER. THERE WILL BE 10 TRANSVERSE STRIPS 6 FEET APART. THE SECOND SECTION WILL START APPROXIMATELY 100 FEET TOWARDS THE CONSTRUCTION ACTIVITY. THERE WILL BE 10 STRIPS CROSSWISE AT 5 FEET APART.

THE RUMBLE STRIPS SHALL BE REMOVED WHEN THEY ARE NO LONGER NEEDED AS DETERMINED BY THE ENGINEER, MATERIAL USED FOR THE RUMBLE STRIPS SHALL BE PREFORMED THERMOPLASTIC MATERIAL: PREMARK, MANUFACTURED BY FLINT TRADING, INC. THOMASVILLE, NC 27360 PHONE: 910-475-6600, HOTAPE, MANUFACTURED BY ZUMAR INDUSTRIES, INC. TACOMA, WA 98444 PHONE 800-426-7967 OR APPROVED EQUAL. THE MANUFACTURERS RECOMMENDATIONS MUST BE FOLLOWED FOR INSTALLATION. THE MINIMUM PERMISSIBLE MATERIAL THICKNESS IS 125 MILS THICK AND THEREFORE MAY HAVE TO BE DOUBLED IN ORDER TO MEET THE THICKNESS REQUIREMENT.

A W8-H16-48 SIGN [RUMBLE STRIPS] SHALL BE DUAL MOUNTED APPROXIMATELY 500 FEET IN ADVANCE OF THE RUMBLE STRIP INSTALLATION. THE PROVISION, ERECTION, MAINTENANCE AND REMOVAL OF THE SIGNS AND SUPPORTS SHALL BE INCLUDED IN THE COST OF THE RUMBLE STRIPS.

THIS ITEM WILL BE PAID FOR BY THE FOOT AT 1 INCH THICKNESS FOR PREFORMED THERMOPLASTIC OR 0.5 INCHES OF MILLED THICKNESS. THIS WILL INCLUDE ALL LABOR MATERIALS AND EQUIPMENT FOR THE INSTALLATION, MAINTENANCE AND REMOVAL OF THE RUMBLE STRIPS.

ITEM SPECIAL: RUMBLE STRIPS 460 FOOT

CALCULATED KAA CHECKED TLS

MAINTENANCE OF TRAFFIC - S.R. 21
GENERAL NOTES

SUM-21-(5.69)(7.58)(7.78)

15
223

EM11484MOTNOTES.DWG 1"=4'

GENERAL NOTES

1. It is intended that this drawing be used for treatment of drop–offs that develop during construction operations, and that are not otherwise provided for in the construction plans. Where the plans do not provide specific items for labor, equipment, or materials to implement the drop–off treatments specified herein, they shall be included for payment in the lump sum bid for Item 614 – Maintaining Traffic.

2. While the need for certain advisory signing is noted herein, it is not intended that this be indicative of all signing that may be required to advise or warn motorist, and all requirements of the Ohio Manual of Uniform Traffic Control Devices (OMUTCD) must be fulfilled.

3. In urban or otherwise heavily developed areas where pedestrians and/or bicyclists may be present in significant numbers, additional signing and protective measures other than those shown herein may be required.

4. The drop–off treatment selected for use at any given location shall be appropriate for the prevailing conditions at the site.

5. Where concrete barrier is specified, it shall be in accordance with Standard Construction Drawing PCB – 9.1, RM–4.2 and Item 622.

6. When drums are specified for a drop–off condition, a minimum number of four drums shall be used. Spacing shall be as indicated in the plans or as specified in the OMUTCD.

7. When OW–151 (Low Shoulder) signs or OW–171 (Uneven Lanes symbol), OWP–171 (uneven lane plaque), and OC–53 (Maintain Present Lane) signs are required, they shall be placed 750' in advance of the condition, on all intersecting entrance ramps within the limits of the condition and immediately beyond all intersecting roadways within the limits of the condition. When the drop–off condition extends more than one–half mile, additional signs shall be erected at intervals of a maximum of one mile.

8. For locations, such as at ramps, lane shifts, lane closures, etc., where traffic is required to negotiate any difference in elevation between pavements, the Optional Wedge Treatment shall be provided.

9. Portable concrete barrier shall be placed on the same level as the traffic surface and shall not encroach on lane width(s) designated as the minimum required for traffic use. Where drums are used, and their presence would reduce traveled lane widths to less than 10', drums may be placed on the opposite level from that of traffic provided the drop–off depth does not exceed 5" and approval is granted by the Project Engineer.

10. Pavement Repairs (or similar work):

   a. Lengths greater than 60 feet – utilize appropriate treatment from Condition I.

   b. Lengths of 60 feet or less – repairs shall be affected in accordance with Item 255.08. Drums may be used as a separator adjacent to the traveled lane.

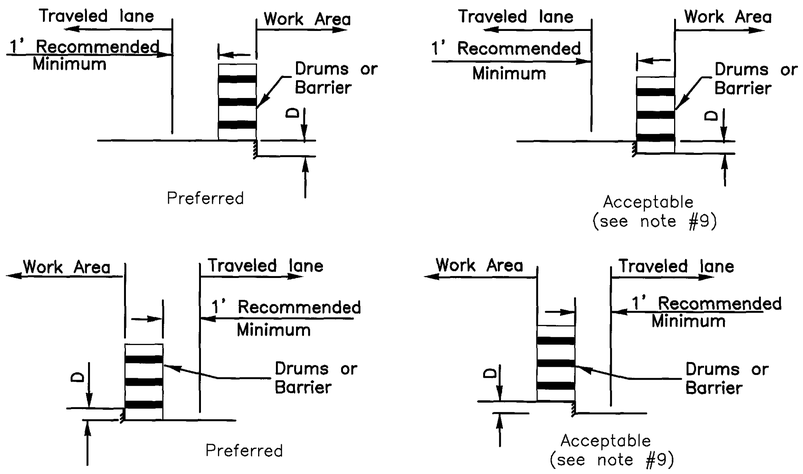
REVISED 4/27/99
SM1464ROPOFF.DWG

CONDITION I

1. These treatments are to be used for resurfacing, pavement planing excavation, etc., between, beside or within traveled lanes.

Distance From Traveled Lane	D (in)	Treatment
1FT–12FT	≤ 1*	Erect OW–171, AND OWP–171.
1FT–12FT	1*–3	1. Lane closure utilizing drums* as shown below. (use only on 3 or more lanes) – or – 2. Optional Wedge Treatment.
1FT–12FT	3 – 5	Lane closure utilizing drums as shown below
1FT–12FT	5 – 12	Lane closure utilizing portable concrete barrier as shown below.
>12FT–20FT	12 – 24	Lane closure utilizing drums as shown below
>12FT–20FT	>24	Lane closure utilizing portable concrete barrier as shown below.

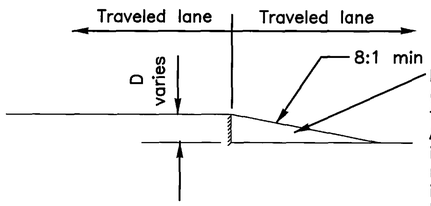
*Cones may be used for daytime only conditions.



OPTIONAL WEDGE TREATMENT

(MILLING OR RESURFACING)

1. This treatment may be used when permitted for Condition I only.
2. OW–171, OWP–171, and OC–53 signs required.



Firm and unyielding material (to be removed prior to placing the abutting pavement course) All labor, equipment, materials, and incidentals to provide and subsequently remove the pavement wedge shall be included and paid under the lump sum bid for Item 614– Maintaining Traffic

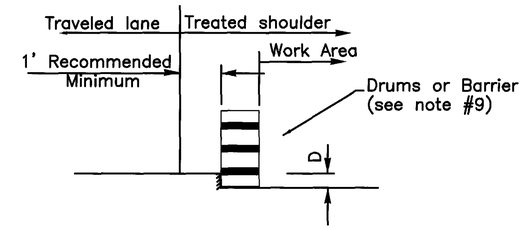
CONDITION II

DROPOFFS WITHIN GRADED SHOULDER AREA
[except for linear grading areas]

The treatments indicated below are for use in conjunction with resurfacing, planing, or excavation within the graded shoulder area.

Distance From Traveled Lane	D (in)	Treatment
1FT–12FT	≤ 1*	1.) If edgelines are present, no treatment necessary. or 2.) Erect OW–171, OWP–171, and OC–53 signs
1FT–12FT	1*– 5	1) If min. lane widths* requirements can be met, maintain lanes utilizing drums as shown below. – or – 2) If min. lane width* requirements cannot be met, close adjacent lane utilizing drums. (use only on 3 or more lanes) – or – 3) Optional shoulder treatment
>12FT–30FT	<= 24	Shoulder closure utilizing drums as shown below
>12FT–30FT	>24	Shoulder closure utilizing portable concrete barrier as shown below.

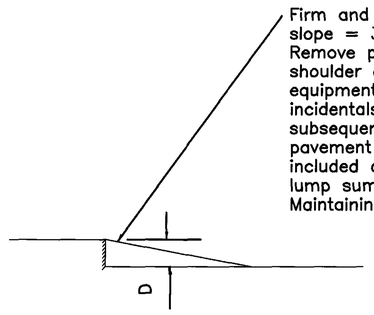
*Minimum lane widths shall be 10' unless otherwise specified in the plans.



OPTIONAL SHOULDER TREATMENT

1. This treatment shall not be used within a bituminous shoulder where a hot longitudinal joint per 401.17 is required.

2. OW–151 signs required.



Firm and unyielding material slope = 3:1 or flatter. Remove prior to placing the shoulder course. All labor, equipment, materials and incidentals to provide and subsequently remove the pavement wedge shall be included and paid under the lump sum bid for item 614 – Maintaining Traffic.

DROPOFFS IN WORK ZONES

SUM–21–(5.69)(7.58)(7.78)

	STATION				614	614	614	614	614	614	614	615	615	622	622
	FROM	TO	SIDE	SHEET NOS.	BARRIER REFLECTOR, TYPE B (WHITE)	BARRIER REFLECTOR, TYPE B (YELLOW)	OBJECT MARKER ONE WAY	OBJECT MARKER TWO WAY	WORK ZONE LANE LINE, CLASS I, 740.06, TYPE I	WORK ZONE EDGE LINE, CLASS I, 740.06, TYPE I	WORK ZONE IMPACT ATTENUATOR	ROADS FOR MAINTAINING TRAFFIC	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A, AS PER PLAN	PORTABLE CONCRETE BARRIER, 32"	PORTABLE CONCRETE BARRIER, 50"
					EACH	EACH	EACH	EACH	MILE	MILE	EACH	LUMP	SQ YD	FT	FT
PHASE ONE	296+56.92		RT.	10							1				
	296+70.00	302+25.00	RT.	10	13		13							556	
	301+00.00	306+14.00	LT.	10	12		12							515	
	306+27.08		LT.	10							1				
	390+75.89	397+95.45	LT. & RT.	22–23								LUMP	2181		
	407+00.00	411+28.67	LT.	25–26								LUMP	351		
	412+54.84	417+77.75	LT.	26–27								LUMP	433		
	412+54.84	422+36.68	LT. & RT.	26–28								LUMP	2048		
	399+00.00	399+69.03	LT.	24								LUMP	49		
	399+00.00	400+31.14	LT.	24								LUMP	54		
	401+92.67	403+50.00	LT.	24								LUMP	86		
	403+67.42	404+00.00	LT.	24								LUMP	19		
PHASE TWO	297+02.92		RT.	11							1				
	297+16.00	302+25.00	RT.	11		12	12							510	
	301+10.00	306+17.00	LT.	11		12	12							508	
	306+30.08		LT.	11							1				
	366+37.29	397+92.71	LT. & RT.	32–36						0.60					
	372+30.00	417+65.00	LT. & RT.	32–40						0.86					
	390+75.89	394+00.00	LT.	35						0.06					
	392+06.49	402+11.85	LT.	35–37						0.19					
	396+00.00	403+70.00	LT.	36–37					0.15						
	403+70.00	417+78.00	LT.	37–40						0.27					
	414+00.00	420+33.53	LT. & RT.	40–41						0.12					
	417+07.29	432+78.18	LT.	40–41						0.30					
	394+46.49	400+92.71	LT.	36–37		42									646
	400+92.71	411+07.29	LT.	37–39		42		22						1015	
	411+07.29	419+76.18	LT.	39–41		32									870
	419+89.46		LT.	41							1				
	397+95.45	400+00.00	RT.	36–37								LUMP	100		
	403+30.64	411+42.04	RT.	37–39								LUMP	744		
	405+90.00	411+12.64	RT.	38–39								LUMP	225		
	412+72.96	416+56.38	RT.	39–40								LUMP	758		
PHASE THREE	298+64.92		RT.	12							1				
	298+78.00	301+75.00	RT.	12		7	7							297	
	299+50.00	303+56.00	LT.	12		9	9							406	
	303+69.08		LT.	12							1				
	388+48.89		RT.	46							1				
	388+61.97	399+99.97	RT.	46–49		40									1138
	399+99.97	410+77.81	RT.	49–51		44		22						1078	
	410+77.81	417+57.57	RT.	51–52		45									680
	371+74.97	392+49.97	RT.	44–47						0.39					
	372+02.47	422+72.93	RT.	44–53					0.96						
	372+29.97	404+00.00	RT.	44–49						0.60					
	390+75.88	396+49.96	LT. & RT.	47–48						0.11					
	390+75.88	420+15.25	LT. & RT.	47–53					0.56						
	394+08.93	418+94.31	LT. & RT.	48–52						0.47					
	406+42.14	420+04.22	RT.	50–53						0.26					
	415+23.30	422+36.68	LT. & RT.	52–53						0.14					
	417+77.70	418+94.31	LT.	52						0.02					
PHASE FOUR															
	298+32.92		RT.	13							1				
	298+46.00	302+50.00	RT.	13	9		9							404	
	300+80.00	303+76.00	LT.	13	7		7							296	
	303+89.08		LT.	13							1				
	TOTALS				41	285	81	44	1.67	4.39	10	LUMP	7048	5585	3334

THE ABOVE ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY. (SHEET NO. 72)

* OBJECT MARKERS AND BARRIER REFLECTORS SHALL BE PLACED AS PER S.C.D. MT–101.70.

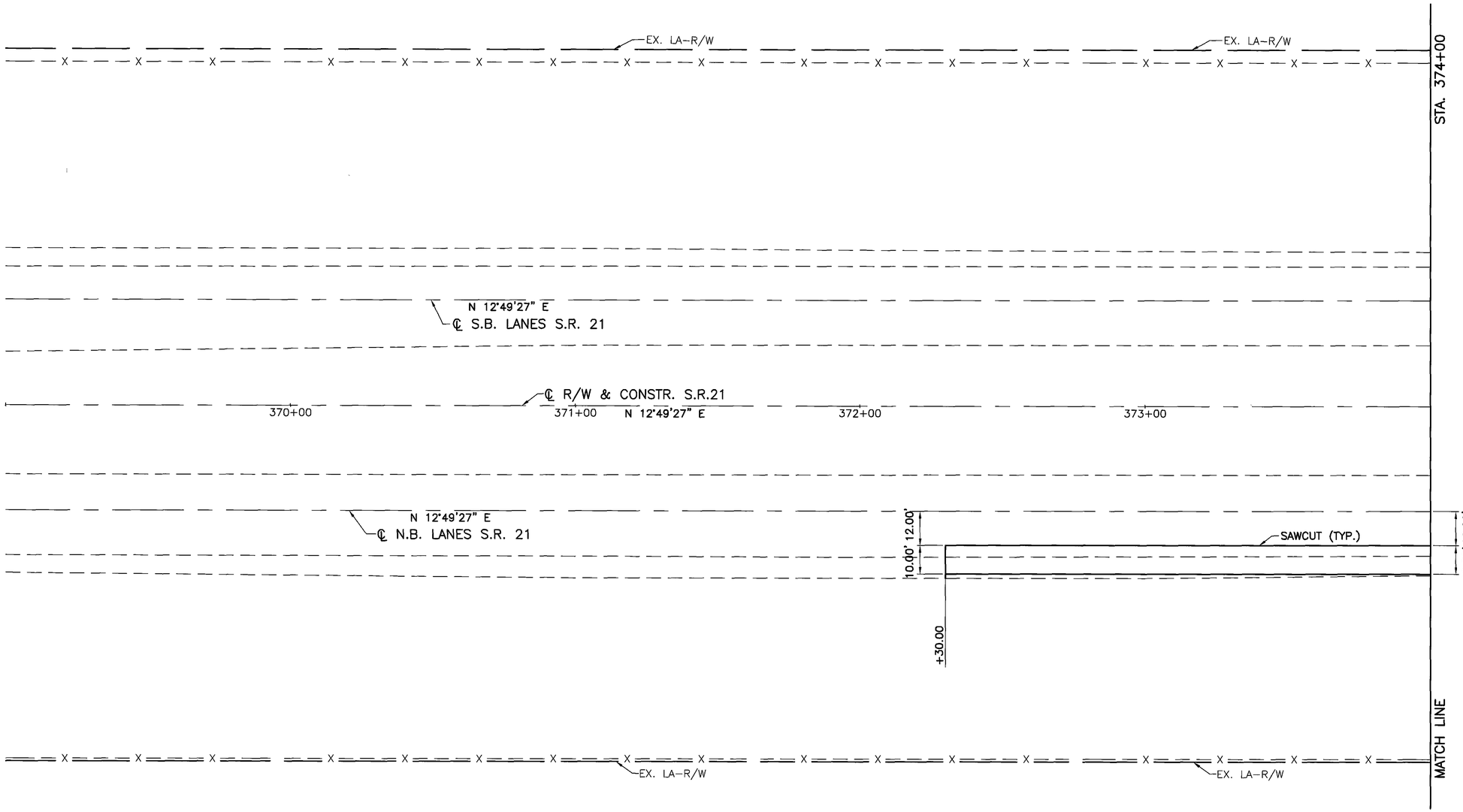
EM1484MOTQUAN.DWG 1"=4'

CALCULATED JAA
CHECKED KAA

MAINTENANCE OF TRAFFIC
ESTIMATED QUANTITIES

SUM–21–(5.69)(7.58)(7.78)

MAINTENANCE OF TRAFFIC



EW1484MOT0.DWG

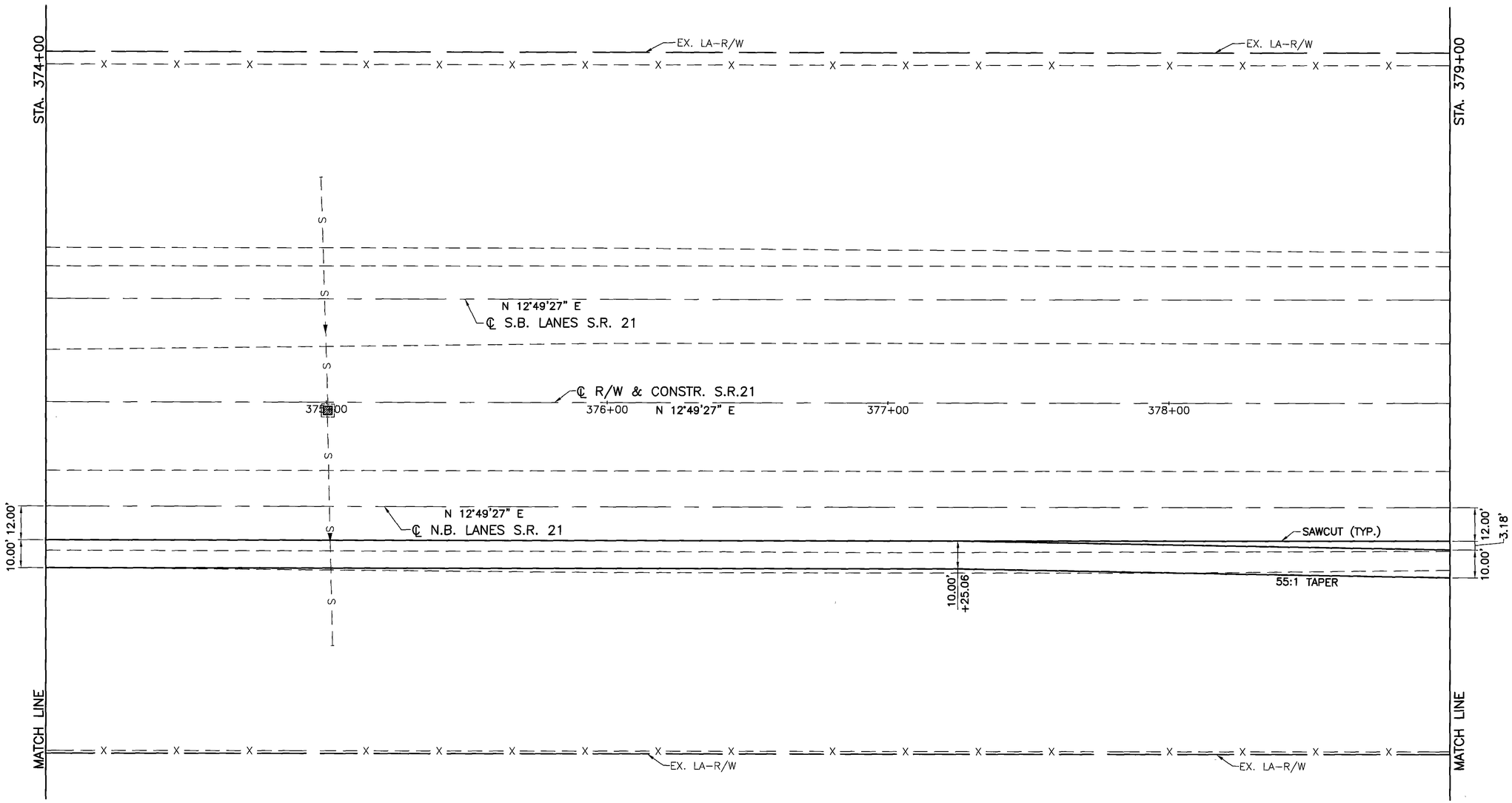
0 20 40
HORIZONTAL SCALE IN FEET

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE ONE

SUM-21-(5.69)(7.58)(7.78)

MAINTENANCE OF TRAFFIC



EW1484MOT1.DWG

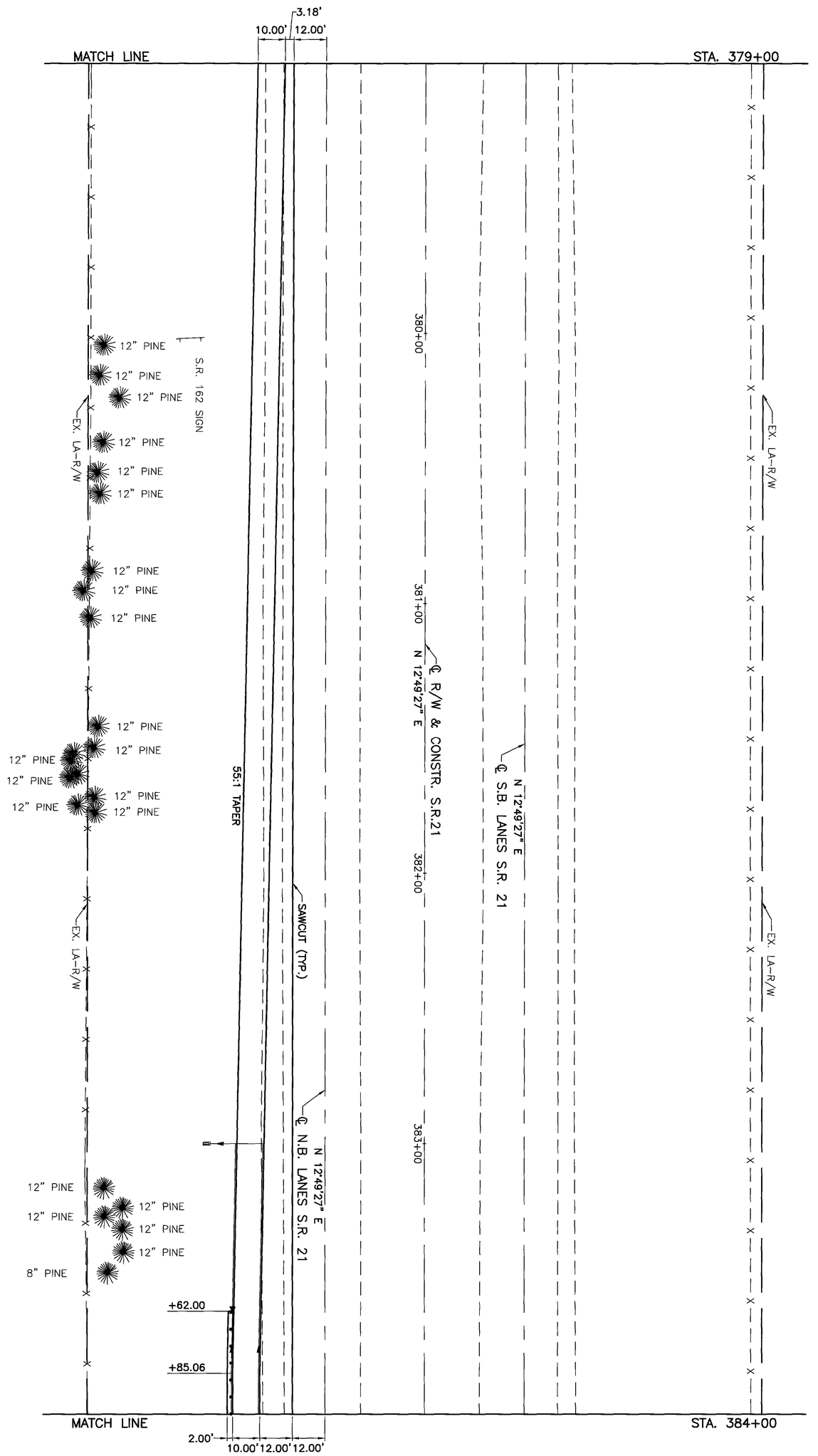
HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE ONE

SUM-21-(5.69)(7.58)(7.78)

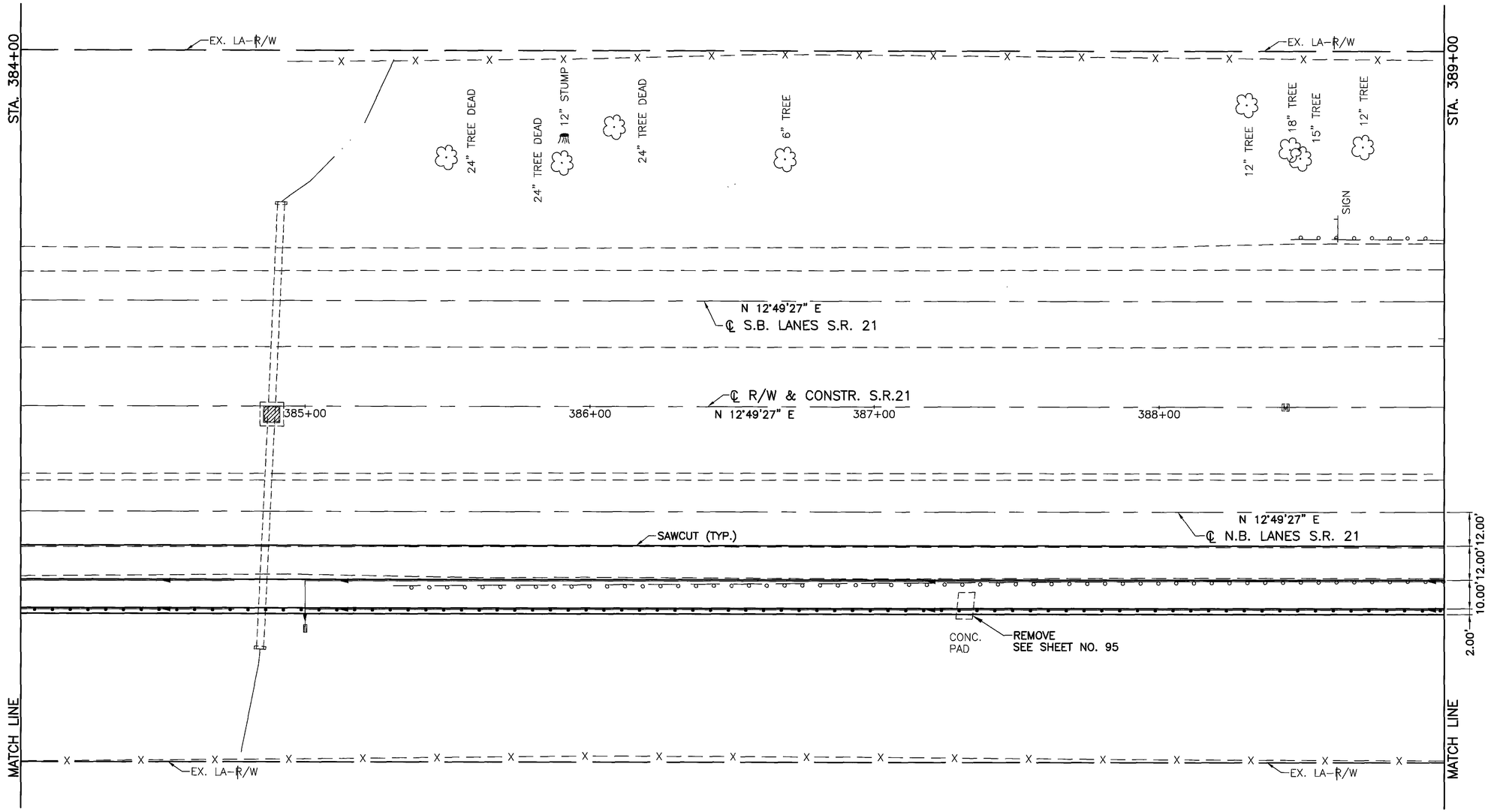
EW1484MOT2.DWG



MAINTENANCE OF TRAFFIC

20 / 223	SUM-21-(5.69)(7.58)(7.78)	MAINTENANCE OF TRAFFIC – S.R. 21 PHASE ONE	CALCULATED KAA CHECKED TLS	0 20 40 HORIZONTAL SCALE IN FEET

MAINTENANCE OF TRAFFIC



EW1484MOT3.DWG

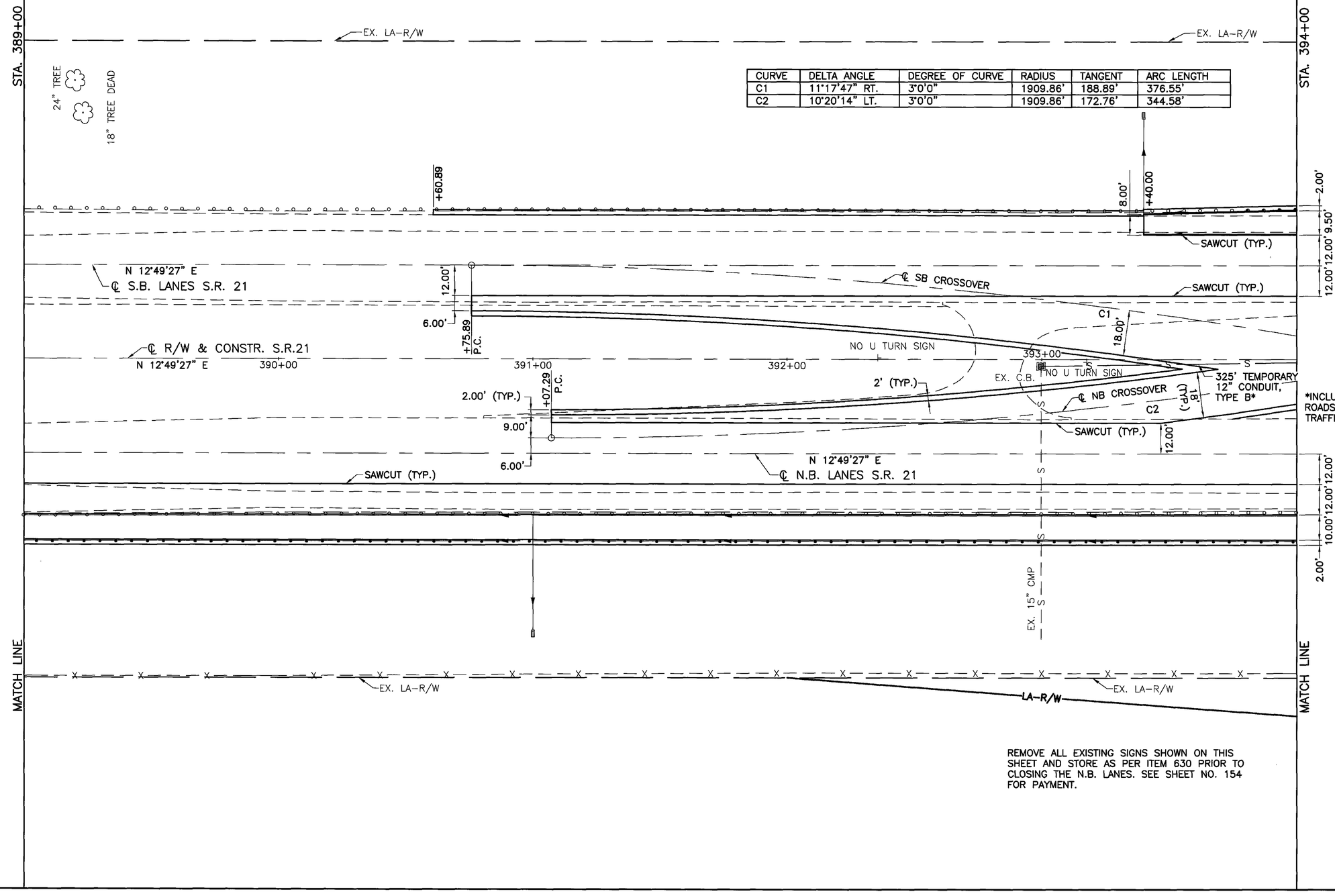
HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE ONE

SUM-21-(5.69)(7.58)(7.78)

MAINTENANCE OF TRAFFIC



CURVE	DELTA ANGLE	DEGREE OF CURVE	RADIUS	TANGENT	ARC LENGTH
C1	11°17'47" RT.	3°0'0"	1909.86'	188.89'	376.55'
C2	10°20'14" LT.	3°0'0"	1909.86'	172.76'	344.58'

*INCLUDE WITH ITEM 615 ROADS FOR MAINTAINING TRAFFIC FOR PAYMENT.

REMOVE ALL EXISTING SIGNS SHOWN ON THIS SHEET AND STORE AS PER ITEM 630 PRIOR TO CLOSING THE N.B. LANES. SEE SHEET NO. 154 FOR PAYMENT.

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

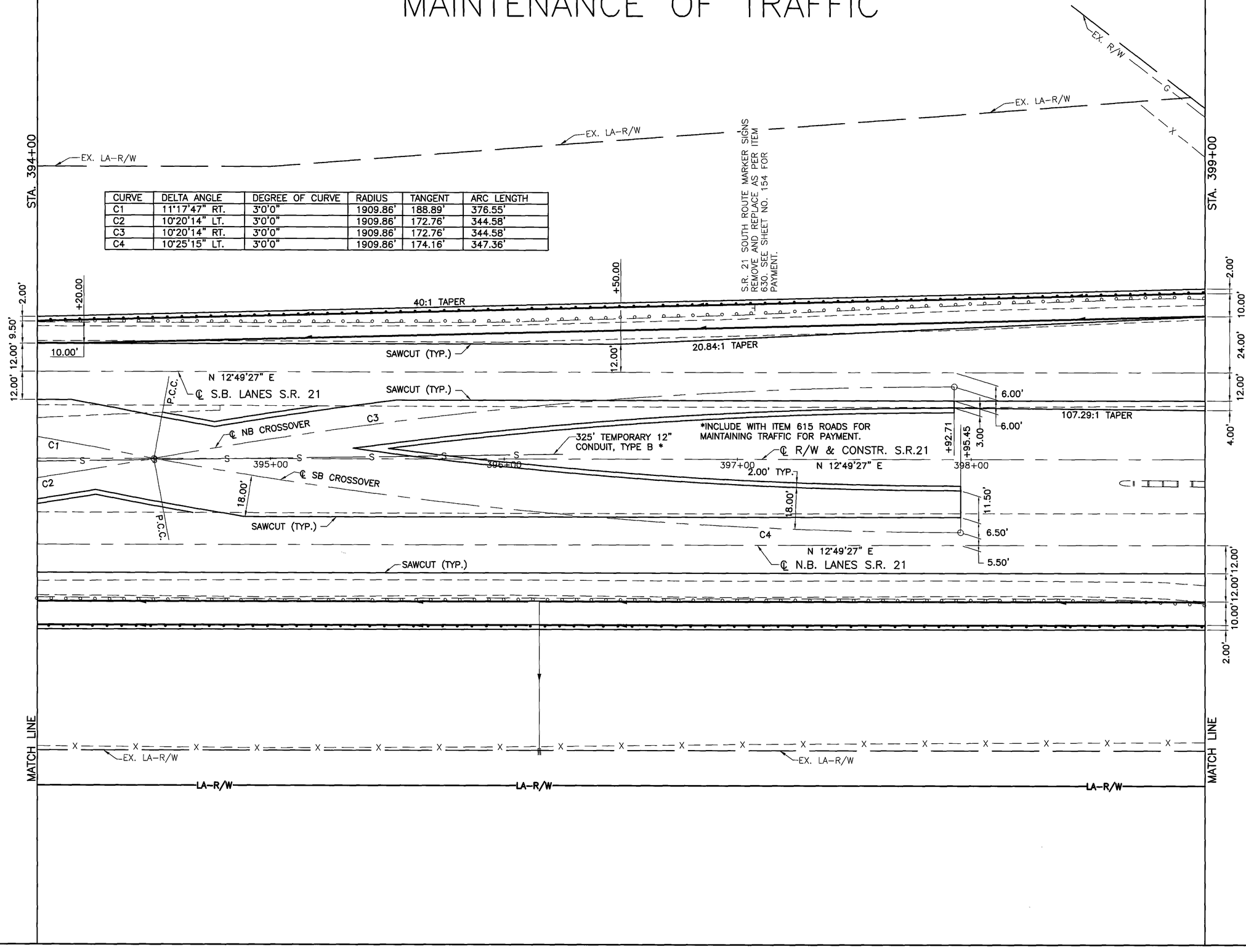
MAINTENANCE OF TRAFFIC – S.R. 21
PHASE ONE

SUM-21-(5.69)(7.58)(7.78)

22
223

EW11484MOT4.DWG

MAINTENANCE OF TRAFFIC



CURVE	DELTA ANGLE	DEGREE OF CURVE	RADIUS	TANGENT	ARC LENGTH
C1	11°17'47" RT.	3°0'0"	1909.86'	188.89'	376.55'
C2	10°20'14" LT.	3°0'0"	1909.86'	172.76'	344.58'
C3	10°20'14" RT.	3°0'0"	1909.86'	172.76'	344.58'
C4	10°25'15" LT.	3°0'0"	1909.86'	174.16'	347.36'

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

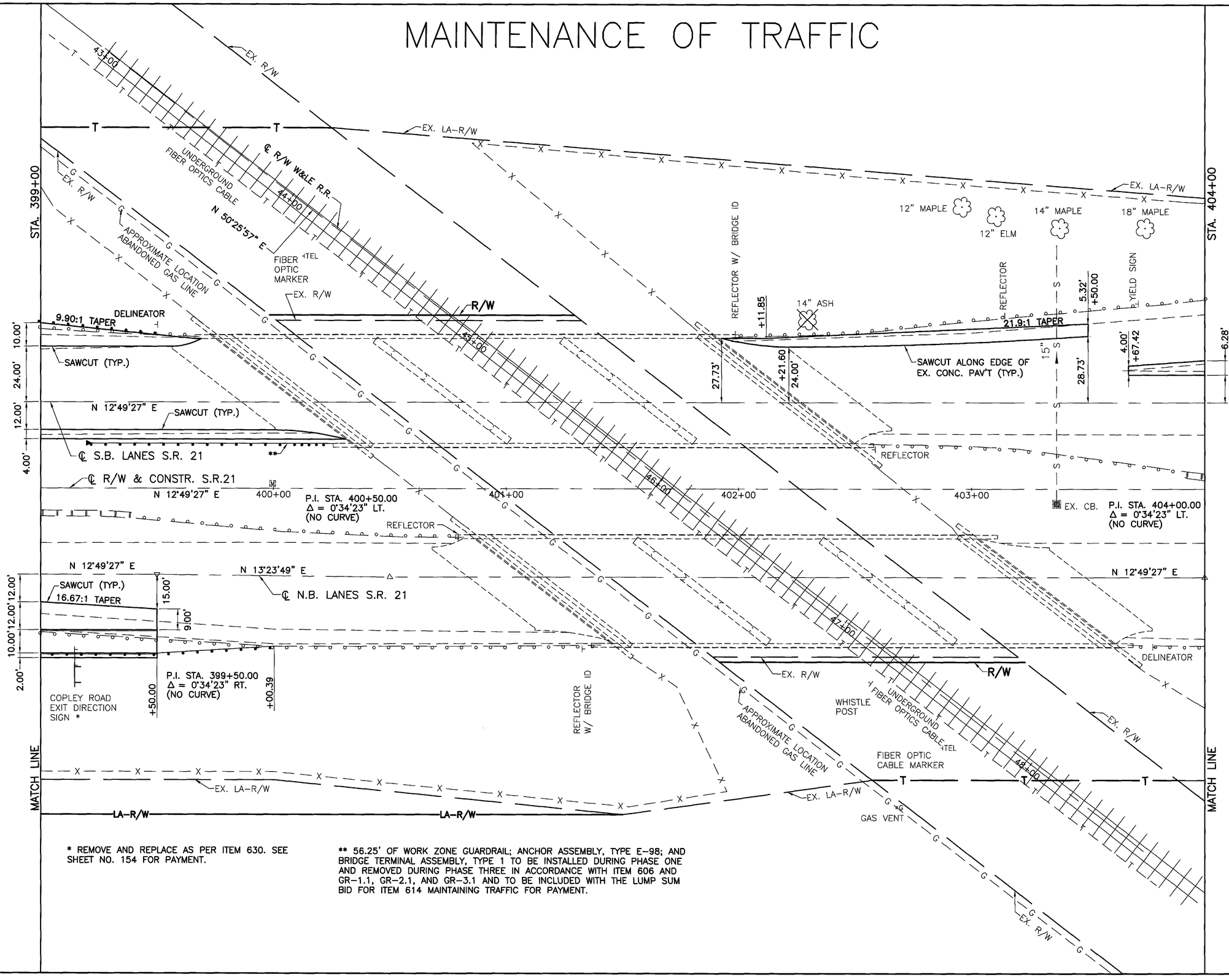
MAINTENANCE OF TRAFFIC – S.R. 21
PHASE ONE

SUM-21-(5.68)(7.58)(7.78)

23
223

EW1484MOT5.DWG

MAINTENANCE OF TRAFFIC



* REMOVE AND REPLACE AS PER ITEM 630. SEE SHEET NO. 154 FOR PAYMENT.

** 56.25' OF WORK ZONE GUARDRAIL; ANCHOR ASSEMBLY, TYPE E-98; AND BRIDGE TERMINAL ASSEMBLY, TYPE 1 TO BE INSTALLED DURING PHASE ONE AND REMOVED DURING PHASE THREE IN ACCORDANCE WITH ITEM 606 AND GR-1.1, GR-2.1, AND GR-3.1 AND TO BE INCLUDED WITH THE LUMP SUM BID FOR ITEM 614 MAINTAINING TRAFFIC FOR PAYMENT.

HORIZONTAL SCALE IN FEET
0 20 40

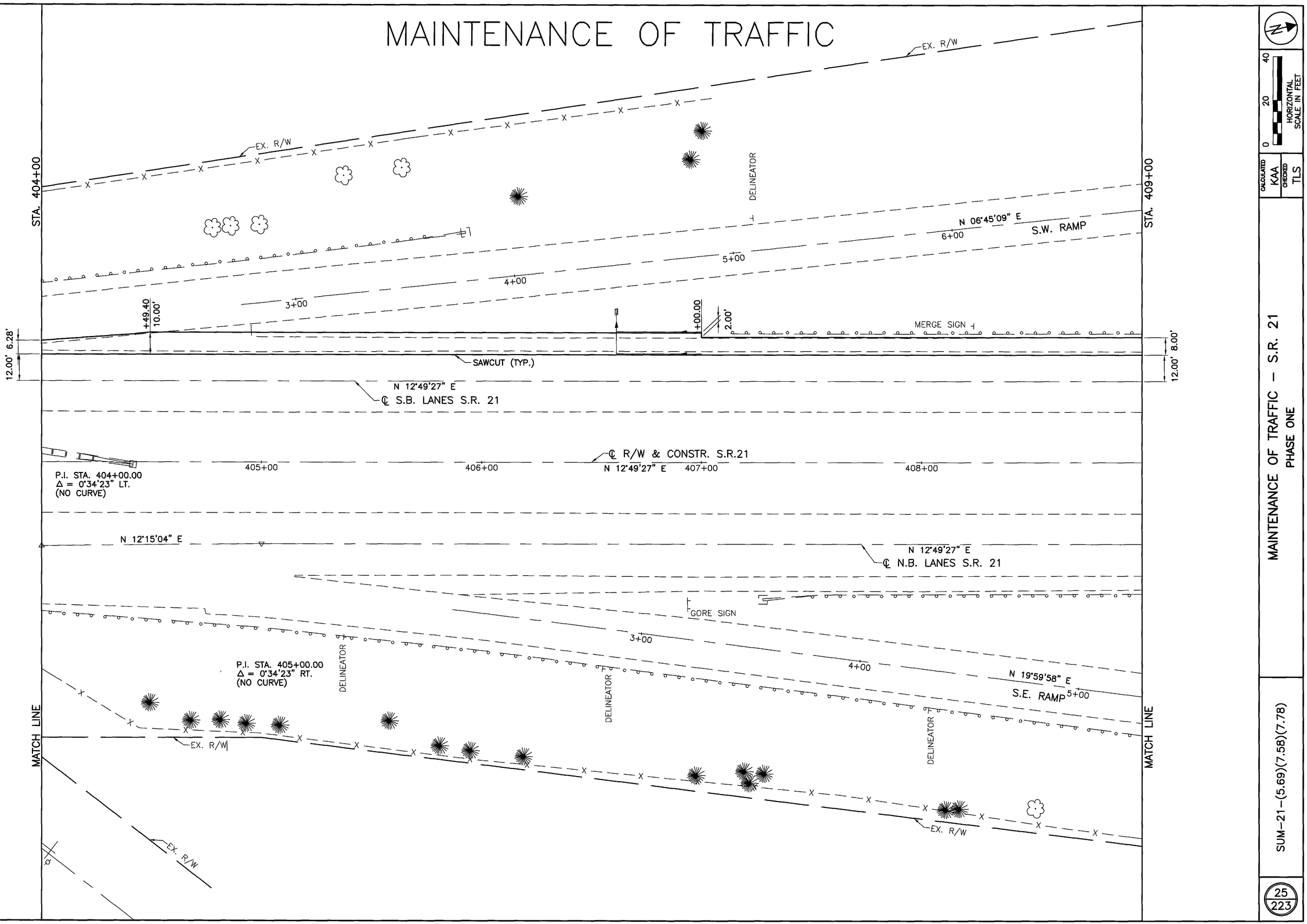
CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC - S.R. 21
PHASE ONE

SUM-21-(5.69)(7.58)(7.78)

EW1484MOT6.DWG

MAINTENANCE OF TRAFFIC



EW2148MOT7.DWG

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE ONE

SUM-21-(5.69)(7.58)(7.78)

MAINTENANCE OF TRAFFIC

STA. 409+00

STA. 414+00

MATCH LINE

MATCH LINE

NO PEDESTRIANS SIGN

S.R. 162 ROUTE MARKER SIGNS

STOP/DO NOT ENTER SIGNS

EX. LA-R/W

COPLEY ROAD ADVANCE DESTINATION SIGN

N 06°45'09" E

S.W. RAMP

7+00

8+00

9+00

S 18" ST.

47+00

℄ CONSTR. S.R.162

S 89°46'03" E

18" ST.

N 19°20'53" E

N.W. RAMP

7+00

8+00

STOP/DO NOT ENTER SIGNS

* 56.25' OF WORK ZONE GUARDRAIL; ANCHOR ASSEMBLY, TYPE E-98; AND BRIDGE TERMINAL ASSEMBLY, TYPE 1 TO BE INSTALLED DURING PHASE ONE AND REMOVED DURING PHASE THREE IN ACCORDANCE WITH ITEM 606 AND GR-1.1, GR-2.1, AND GR-3.1 AND TO BE INCLUDED WITH THE LUMP SUM BID FOR ITEM 614 MAINTAINING TRAFFIC FOR PAYMENT.

S.R. 21 ROUTE MARKER SIGNS

REFLECTOR W/ BRIDGE ID

DELINEATOR

+00.00

32.22:1 TAPER

SAWCUT (TYP.)

48+00

39.44:1 TAPER

SAWCUT (TYP.)

12.00' 8.00'

12.00' 12.00' 8.00'

N 12°49'27" E

℄ S.B. LANES S.R. 21

15.00'

6.00'

C5

REFLECTOR

2.00' (TYP.)

9.00'

3.00'

+07.29

5.26'

℄ R/W & CONSTR. S.R.21

N 12°49'27" E

410+00

411+00

412+00

413+00

EX. C.B.

EX. 12" CMP

REFLECTOR

+77.81

C6

17.50'

17.63'

N 12°49'27" E

℄ N.B. LANES S.R. 21

49+00

WRONG WAY SIGN

DELINEATOR

S.R. 21 NORTH ROUTE MARKER SIGNS

REFLECTOR W/ BRIDGE ID

TO I.R. 77 AND S.R. 21 NORTH ROUTE MARKER SIGNS

N 19°59'58" E

S.E. RAMP

6+00

7+00

8+00

STOP/DO NOT ENTER SIGNS

S 21" ST.

50+00

24" CMP

S.R. 162 ROUTE MARKER SIGNS

N.E. RAMP

N 06°57'51" E

11+00

12+00

WRONG WAY SIGN

DELINEATOR

COPLEY ROAD ADVANCE DESTINATION SIGN

STOP/DO NOT ENTER SIGN

NO LITTERING SIGN

EX. LA-R/W

EX. C.B.

ROUTE MARKER AND ADVANCE DESTINATION SIGNS

CURVE	DELTA ANGLE	DEGREE OF CURVE	RADIUS	TANGENT	ARC LENGTH
C5	10°14'00" RT.	3°00"	1909.86'	171.01'	341.11'
C6	08°11'40" LT.	3°00"	1909.86'	136.81'	273.15'

HORIZONTAL SCALE IN FEET

0 20 40

CALCULATED KAA

CHECKED TLS

MAINTENANCE OF TRAFFIC - S.R. 21
PHASE ONE

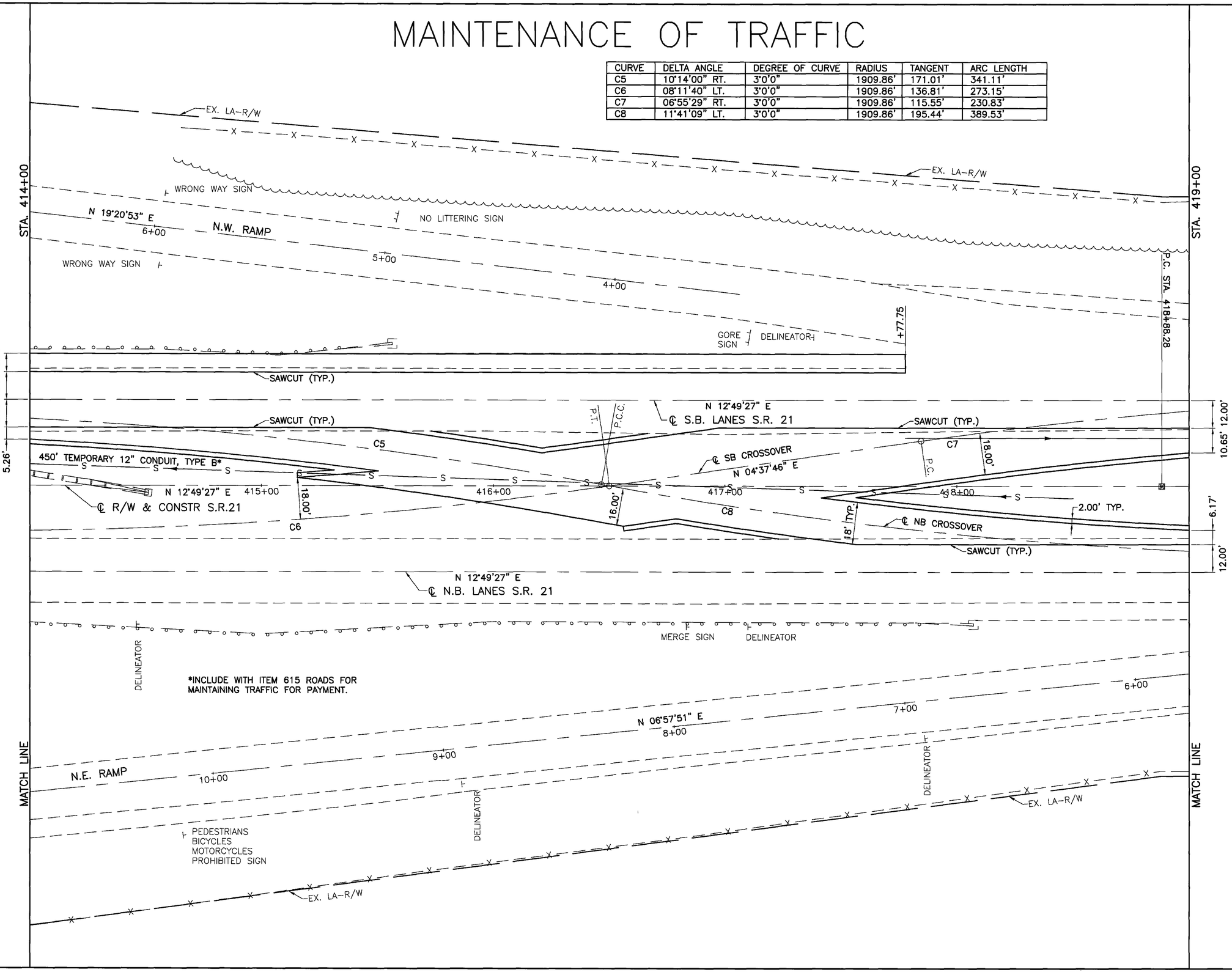
SUM-21-(5.69)(7.58)(7.78)

26
223

EM1484MOT8.DWG

MAINTENANCE OF TRAFFIC

CURVE	DELTA ANGLE	DEGREE OF CURVE	RADIUS	TANGENT	ARC LENGTH
C5	10°14'00" RT.	3°0'0"	1909.86'	171.01'	341.11'
C6	08°11'40" LT.	3°0'0"	1909.86'	136.81'	273.15'
C7	06°55'29" RT.	3°0'0"	1909.86'	115.55'	230.83'
C8	11°41'09" LT.	3°0'0"	1909.86'	195.44'	389.53'



EW1484M9.DWG

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

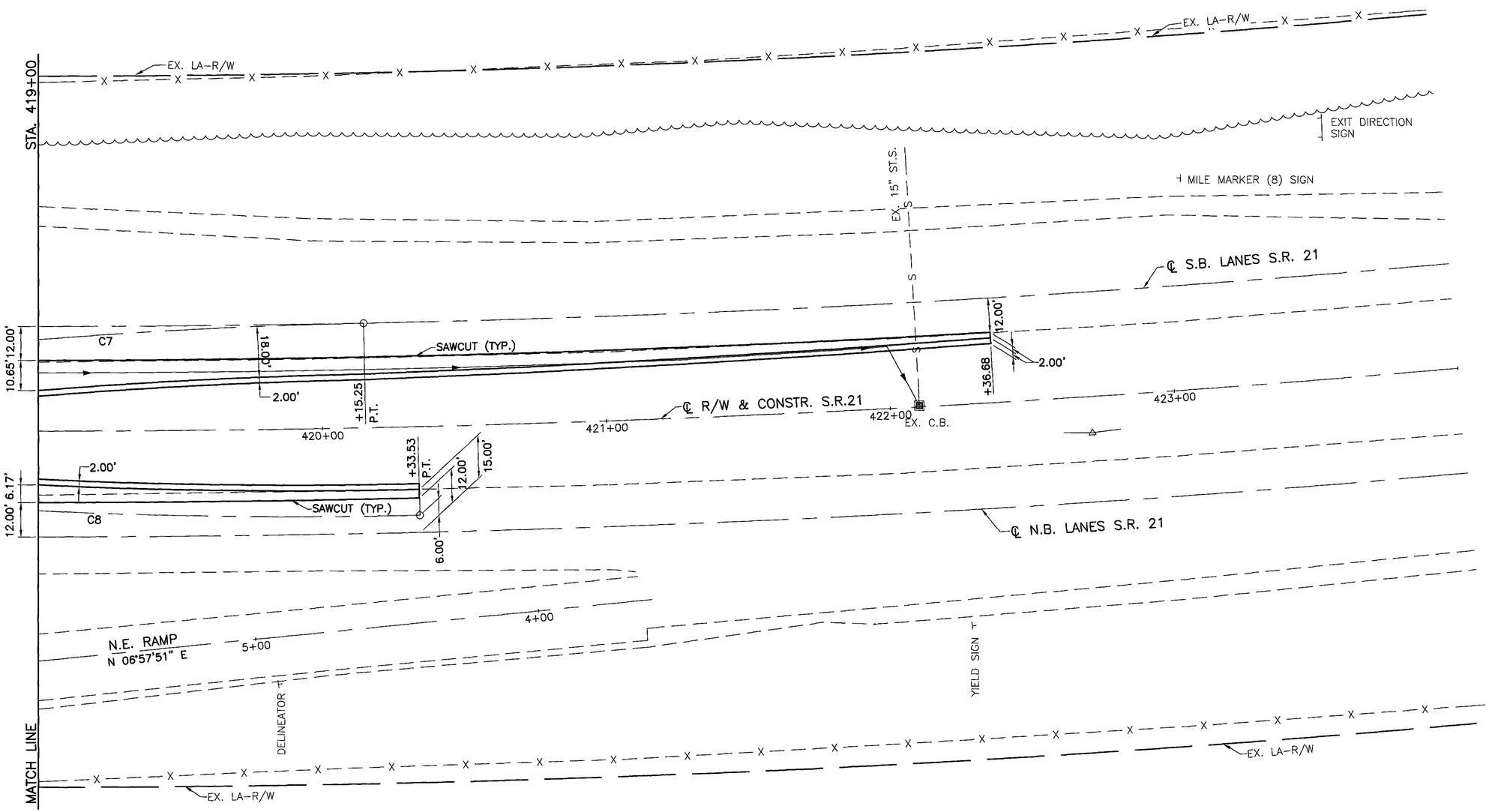
MAINTENANCE OF TRAFFIC – S.R. 21
PHASE ONE

SUM-21-(5.69)(7.58)(7.78)

MAINTENANCE OF TRAFFIC

CURVE	DELTA ANGLE	DEGREE OF CURVE	RADIUS	TANGENT	ARC LENGTH
C7	06°55'29" RT.	3°0'0"	1909.86'	115.55'	230.83'
C8	11°41'09" LT.	3°0'0"	1909.86'	195.44'	389.53'

CURVE DATA
P.I. STA. 422+70.99 ℄ S.R. 21
Δ=07°38'34" LT.
Dc=01°00'00"
R=5729.58'
T=382.71'
L=764.28'
E=12.77'



EW1484MOT10.DWG

CALCULATED KAA
CHECKED TLS

HORIZONTAL SCALE IN FEET
0 20 40

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE ONE

SUM-21-(5.69)(7.58)(7.78)

28
223

ITEM 614 MAINTAINING TRAFFIC

DETOUR NOTIFICATION

THE CONTRACTOR SHALL ADVISE THE ODOT DISTRICT OFFICE (330-786-3148) EIGHTEEN (18) DAYS IN ADVANCE OF WHEN THE DETOUR ROUTE SHOULD BE IN EFFECT. ODOT SHALL THEN PROVIDE AND INSTALL ALL DEVICES NECESSARY TO DEFINE THE ROUTE OF THE DETOUR AND SHALL MAINTAIN THE SAME THROUGHOUT THE DETOUR LIMITATION DATES. ALL TRAFFIC CONTROL DEVICES REQUIRED, OTHER THAN FOR THE DETOUR, SHALL BE FURNISHED, ERECTED, MAINTAINED, AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR.

THE CONTRACTOR SHALL PROVIDE, ERECT, AND MAINTAIN ANY SUCH SIGNS AND SIGN SUPPORTS AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND THE ADVANCE WARNING SIGNS AS SHOWN ON STANDARD CONSTRUCTION DRAWING MT-98.19.

DETOUR DURATION

THE MAXIMUM LENGTH OF TIME FOR THE DETOUR ROUTE TO BE IN EFFECT SHALL BE NINETY (90) CONSECUTIVE DAYS. CONSTRUCTION WORK MAY BE PERFORMED BEFORE AND AFTER THE DETOUR LIMITATION DATES, BUT THERE SHALL BE NO RESTRICTIONS (LANE WIDTH REDUCTIONS, TEMPORARY ROADWAYS, OR ONE WAY TRAFFIC) TO THROUGH OR LOCAL TRAFFIC. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SCHEDULE AND PERFORM THE CONSTRUCTION WORK WITHIN THE DETOUR LIMITATION TIME. THE FAILURE OF THE CONTRACTOR TO MEET THE DETOUR LIMITATION DATES WILL CAUSE SEPARATE LIQUIDATED DAMAGES OF $1250.00 PER CALENDAR DAY OF OVERRUN OF DETOUR LIMITATION TIME TO BE ASSESSED. THE CONTRACTOR WILL COMPLY WITH ALL PROVISIONS OF 108.07 OF THE DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

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

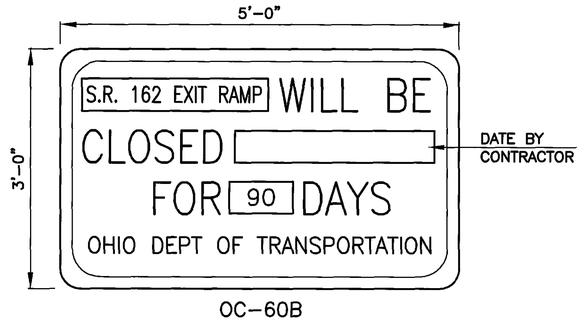
THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 410	TRAFFIC COMPACTED SURFACE, TYPE A OR B	200 CU YD
ITEM 616	WATER	100 M GAL

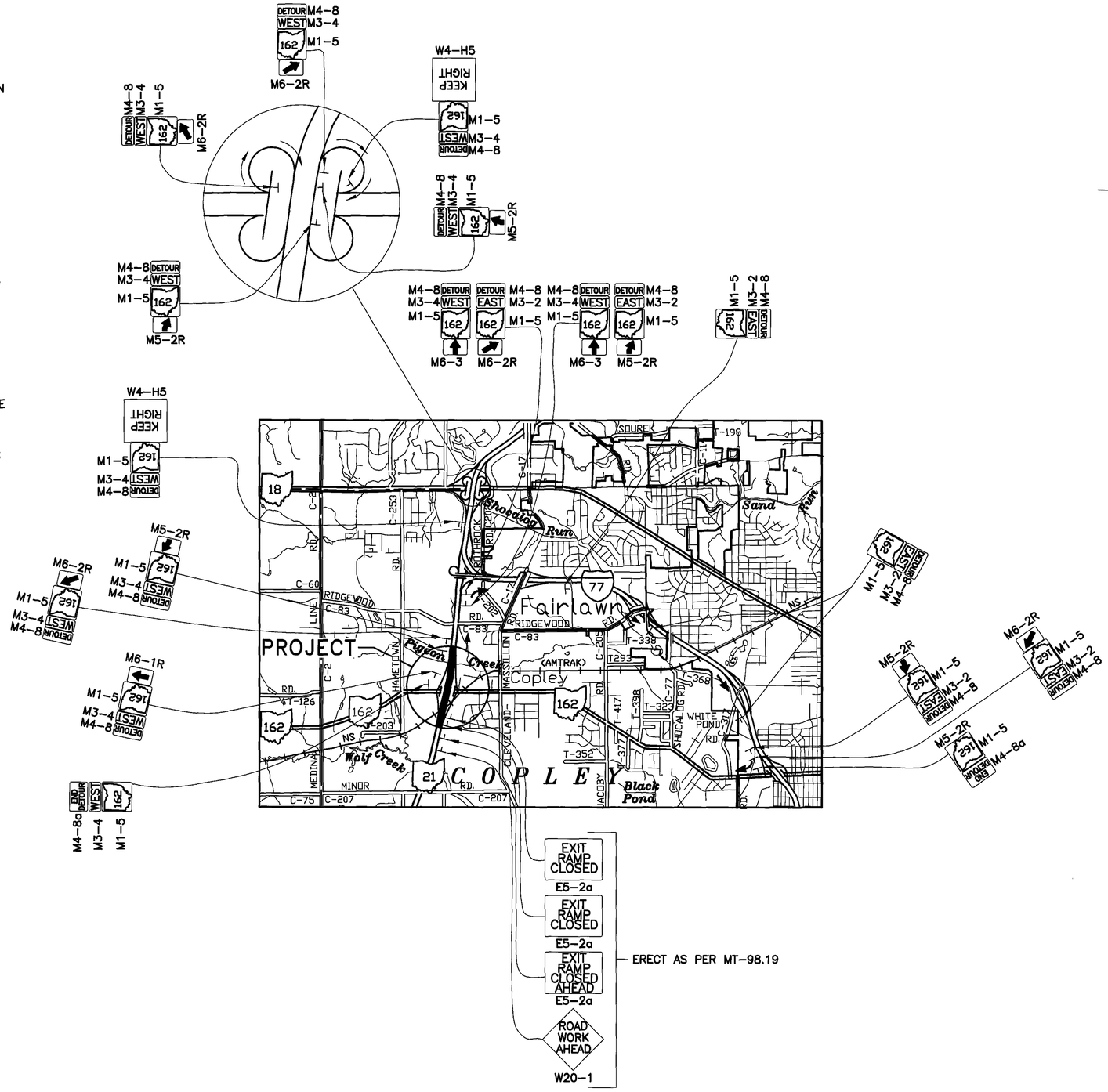
NOTICE OF CLOSURE SIGNS

THESE SIGNS SHALL BE ERECTED BY THE CONTRACTOR AT LEAST ONE WEEK IN ADVANCE OF THE SCHEDULED ROAD CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT HAND SIDE OF THE ROAD FACING TRAFFIC. THEY SHALL BE LOCATED IN THE FIELD SO AS NOT TO INTERFERE WITH ANY PERMANENT SIGNS. ON THIS PROJECT THEY SHOULD BE ERECTED AT THE POINT OF CLOSURE.

PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 MAINTAINING TRAFFIC AND SHALL INCLUDE FURNISHING, ERECTING, MAINTAINING AND REMOVING THE SIGNS INCLUDING SUPPORTS.



OC-60B



MAINTENANCE OF TRAFFIC DETOUR MAP

CALCULATED KAA CHECKED TLS

MAINTENANCE OF TRAFFIC - S.R. 21

DETOUR FOR S.R. 162 INTERCHANGE SOUTHEAST RAMP - PHASE TWO

SUM-21-(5.69)(7.58)(7.78)

EM1484MP1.DWG

614 MAINTAINING TRAFFIC

S.R. 162 IS TO BE CLOSED TO ALL BUT LOCAL TRAFFIC TO ABUTTING PROPERTY OWNERS BETWEEN S.R. 94 WEST OF THE PROJECT AND S.R. 21 EAST OF THE PROJECT FOR WEST BOUND TRAFFIC AND S.R. 94 WEST OF THE PROJECT AND INTERSTATE 77 EAST OF THE PROJECT FOR EAST BOUND TRAFFIC. SEE DETOUR LIMITATION NOTE BELOW. A DETOUR ROUTE SHALL BE PROVIDED AS SHOWN HEREON. THE CONTRACTOR SHALL ADVISE THE ODOT DISTRICT OFFICE (330-786-3148) 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.

THE CONTRACTOR SHALL PROVIDE, ERECT, AND MAINTAIN ANY SUCH SIGNS AND SIGN SUPPORTS AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND THE ADVANCE WARNING SIGNS AS SHOWN ON STANDARD CONSTRUCTION DRAWING MT-98.19.

DETOUR DURATION

THE MAXIMUM LENGTH OF TIME FOR THE DETOUR ROUTE TO BE IN EFFECT SHALL BE THREE (3) CONSECUTIVE DAYS FOR THE WORK AS DESCRIBED ON SHEET NO. 14. CONSTRUCTION WORK MAY BE PERFORMED BEFORE AND AFTER THE DETOUR LIMITATION DATES, BUT THERE SHALL BE NO RESTRICTIONS (LANE WIDTH REDUCTIONS, TEMPORARY ROADWAYS, OR ONE WAY TRAFFIC) TO THROUGH OR LOCAL TRAFFIC. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SCHEDULE AND PERFORM THE CONSTRUCTION WORK WITHIN THE DETOUR LIMITATION TIME. THE FAILURE OF THE CONTRACTOR TO MEET THE DETOUR LIMITATION DATES WILL CAUSE SEPARATE LIQUIDATED DAMAGES OF $1250.00 PER CALENDAR DAY OF OVERRUN OF DETOUR LIMITATION TIME TO BE ASSESSED. THE CONTRACTOR WILL COMPLY WITH ALL PROVISIONS OF 108.07 OF THE DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

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

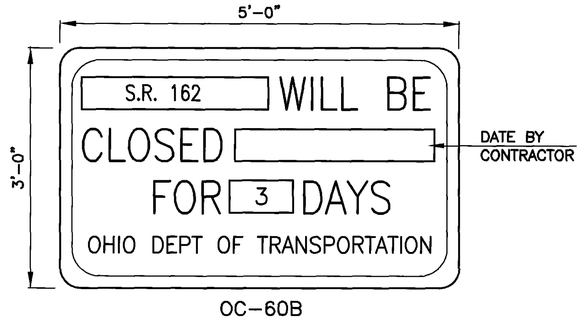
THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 410	TRAFFIC COMPACTED SURFACE, TYPE A OR B	20 CU YD
ITEM 616	WATER	10 M GAL

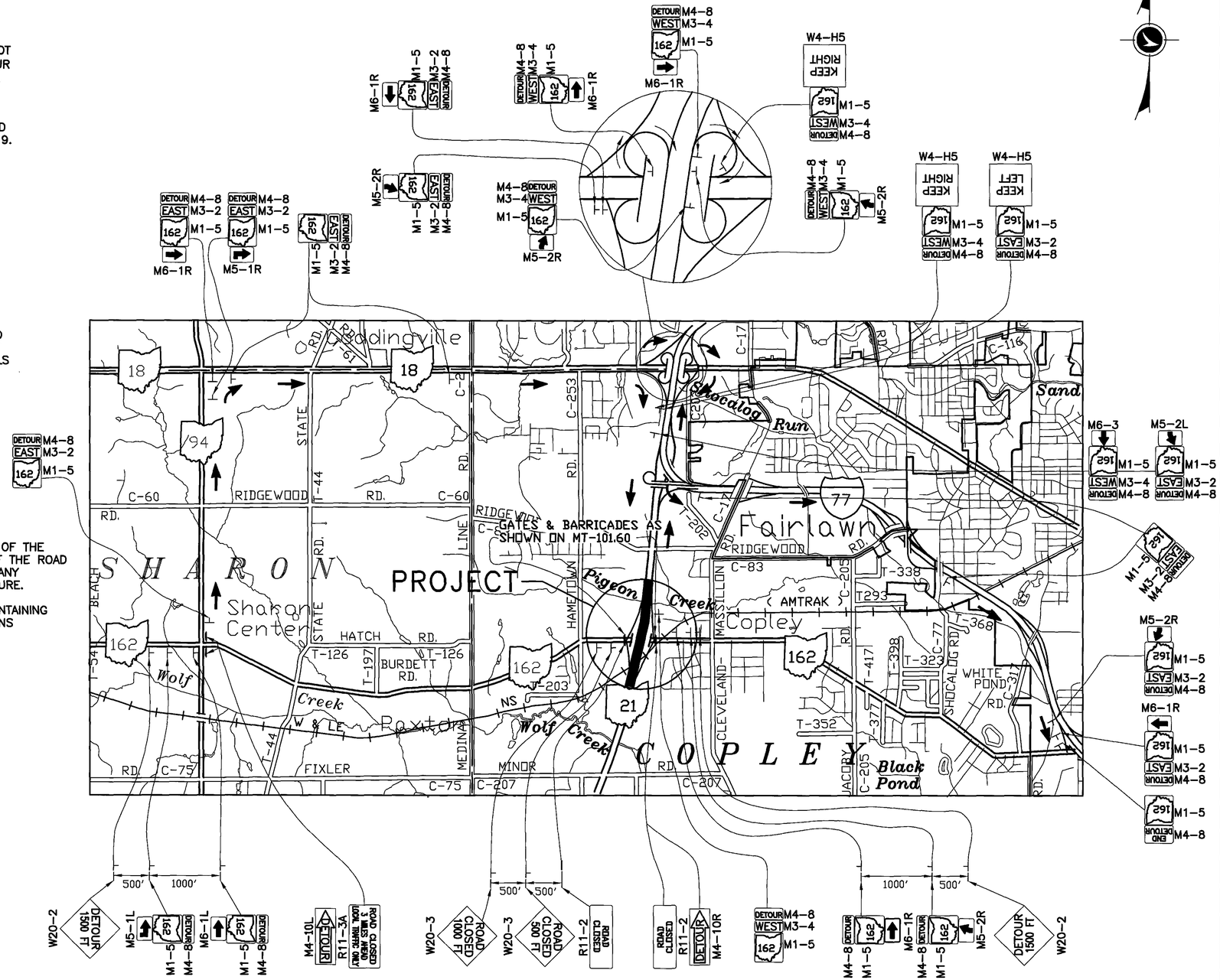
NOTICE OF CLOSURE SIGNS

THESE SIGNS SHALL BE ERECTED BY THE CONTRACTOR AT LEAST ONE WEEK IN ADVANCE OF THE SCHEDULED ROAD CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT HAND SIDE OF THE ROAD FACING TRAFFIC. THEY SHALL BE LOCATED IN THE FIELD SO AS NOT TO INTERFERE WITH ANY PERMANENT SIGNS. ON THIS PROJECT THEY SHOULD BE ERECTED AT THE POINT OF CLOSURE.

PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 MAINTAINING TRAFFIC AND SHALL INCLUDE FURNISHING, ERECTING, MAINTAINING AND REMOVING THE SIGNS INCLUDING SUPPORTS.



OC-60B



MAINTENANCE OF TRAFFIC DETOUR MAP

DETOUR DURATION

THE DETOUR ROUTE SHOWN HEREON SHALL BE IN EFFECT FOR PORTIONS OF PHASE TWO AND PHASE THREE.

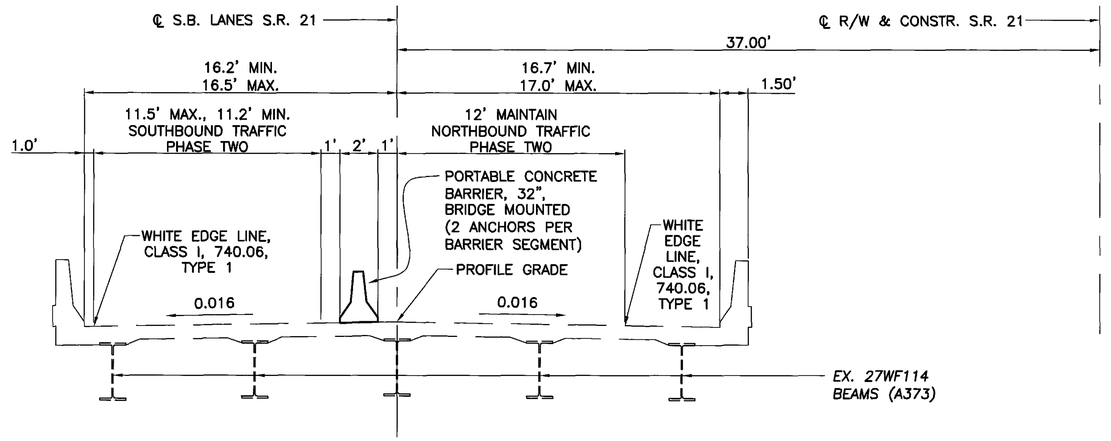
CALCULATED KAA CHECKED TLS

MAINTENANCE OF TRAFFIC - S.R. 21
DETOUR FOR STATE ROUTE 162 - PHASE TWO

SUM-21-(5.69)(7.58)(7.78)

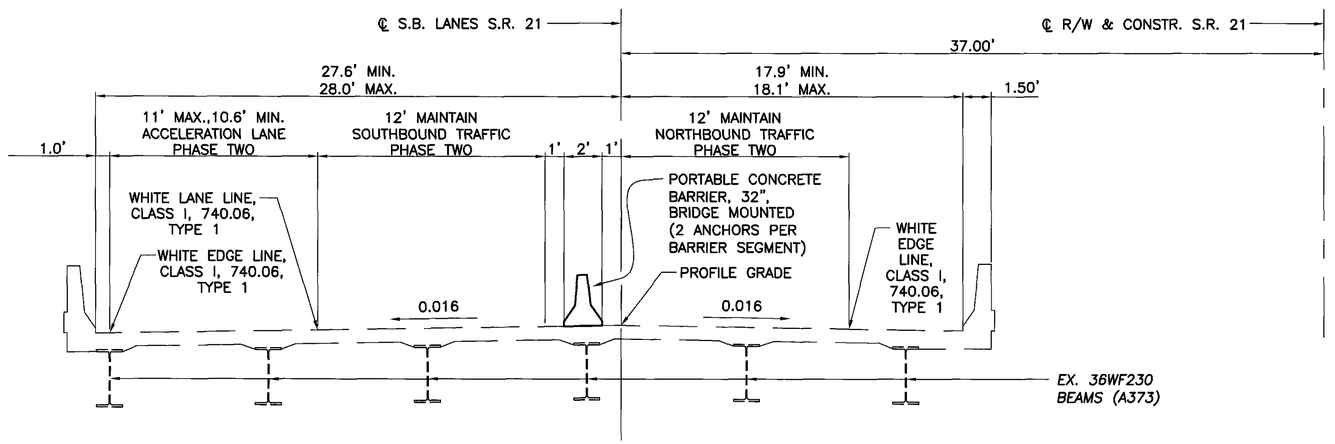
30
223

EM-1484MP3.DWG



SECTION – PHASE TWO

BRIDGE NO. SUM-21-0778L OVER S.R.162



SECTION – PHASE TWO

BRIDGE NO. SUM-21-0758L OVER WHEELING & LAKE ERIE RAILROAD

EM1484MOTTYP.DWG 1"=4'

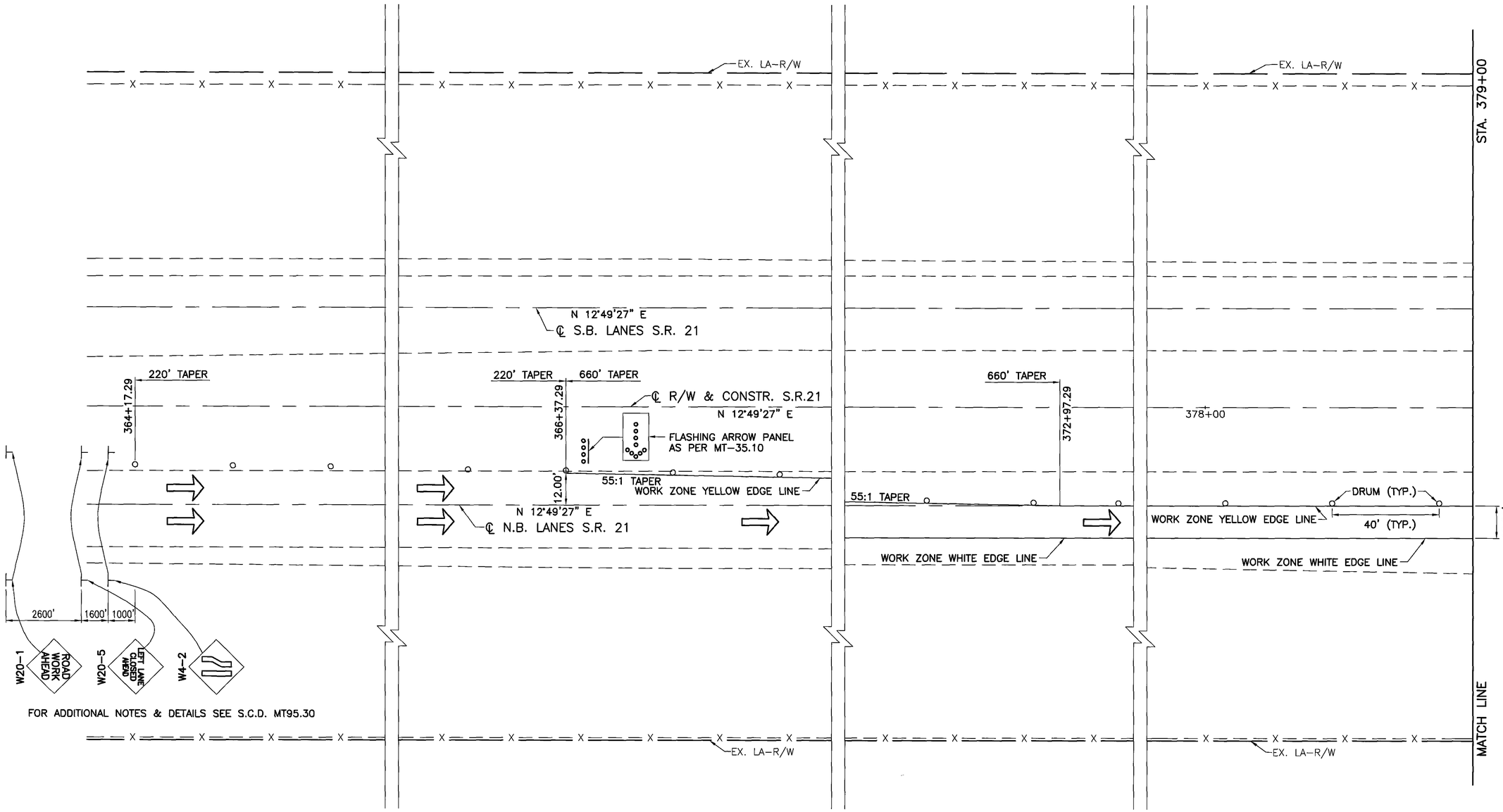
CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21

TYPICAL BRIDGE SECTIONS – PHASE TWO

SUM-21-(5.69)(7.58)(7.78)

MAINTENANCE OF TRAFFIC



EW1484MOT11.DWG

0 20 40
HORIZONTAL SCALE IN FEET

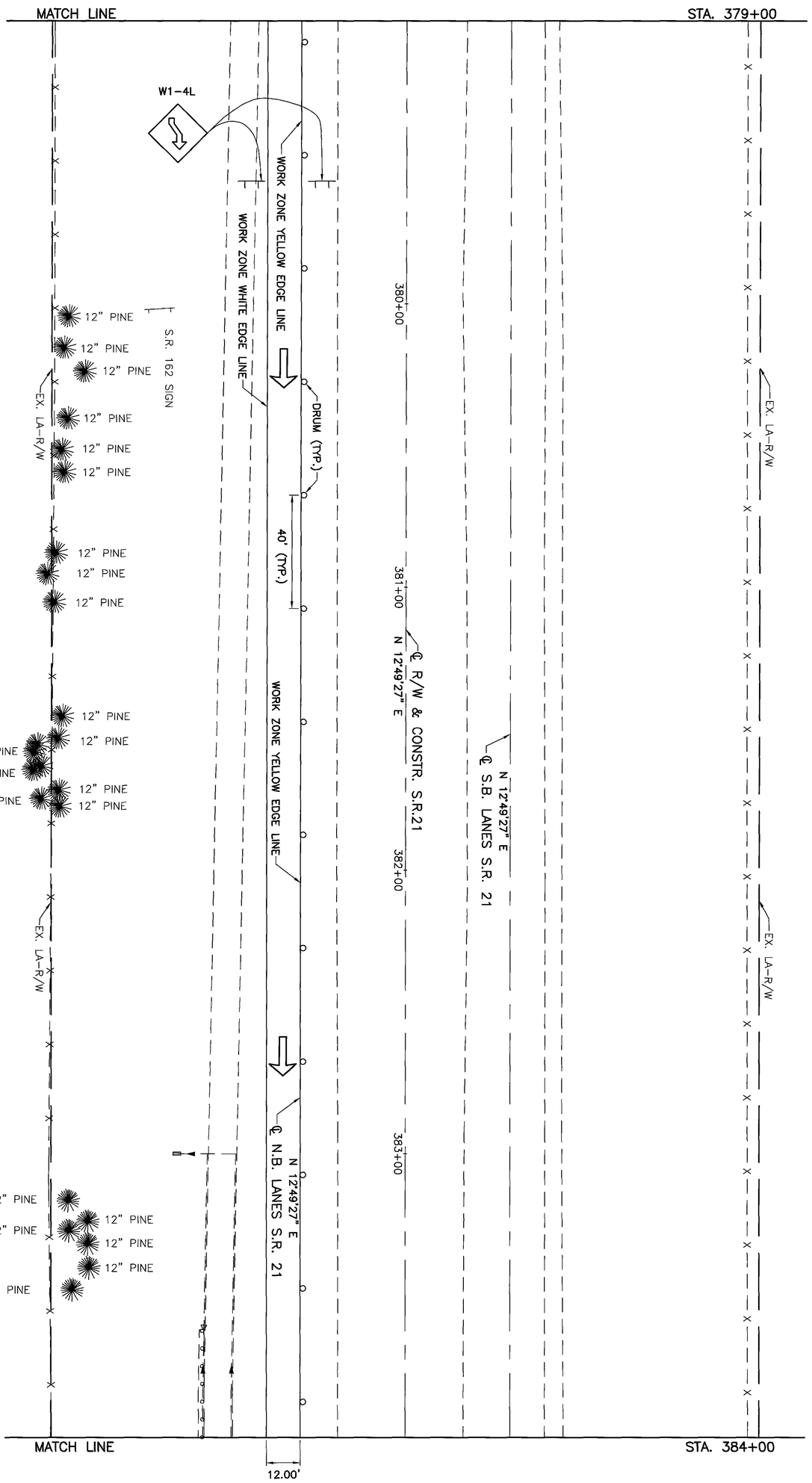
CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE TWO

SUM-21-(5.69)(7.58)(7.78)

32
223

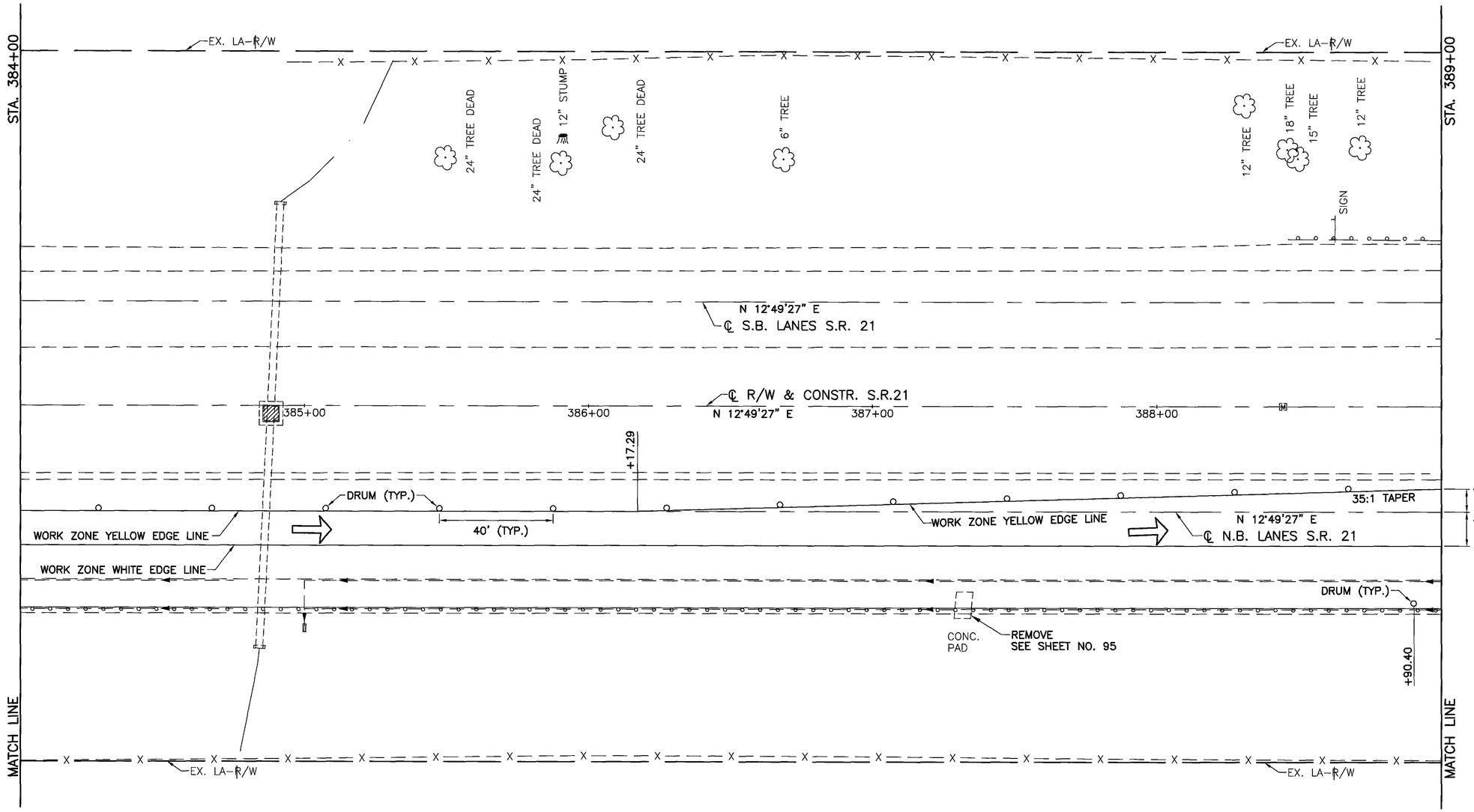
EW1484MOT12.DWG



MAINTENANCE OF TRAFFIC

33 / 223	SUM-21-(5.69)(7.58)(7.78)	MAINTENANCE OF TRAFFIC – S.R. 21 PHASE TWO	CALCULATED KAA CHECKED TLS	0 20 40 HORIZONTAL SCALE IN FEET

MAINTENANCE OF TRAFFIC



EW1484MOT13.DWG

HORIZONTAL SCALE IN FEET
0 20 40

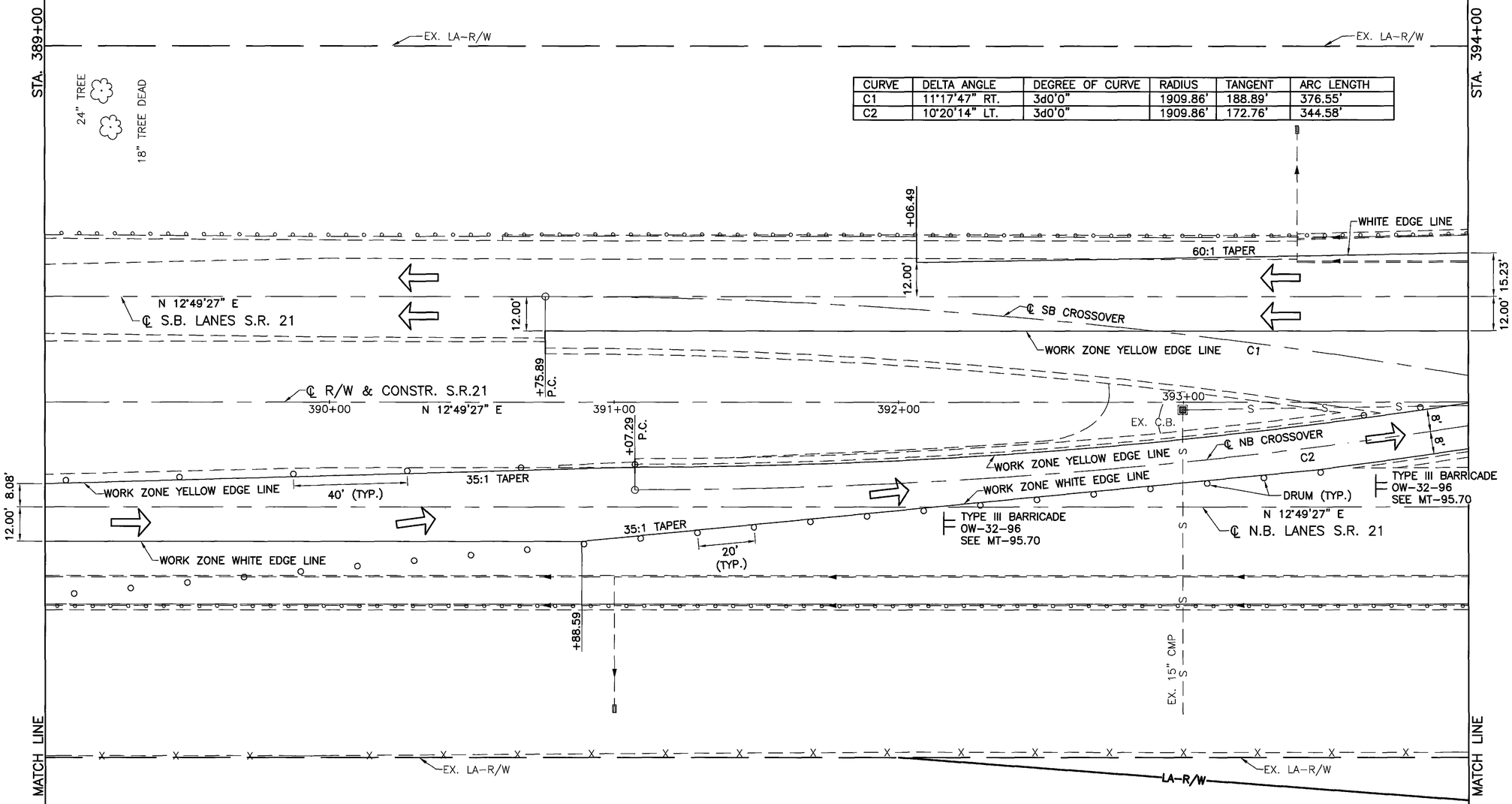
CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE TWO

SUM–21–(5.69)(7.58)(7.78)

MAINTENANCE OF TRAFFIC

CURVE	DELTA ANGLE	DEGREE OF CURVE	RADIUS	TANGENT	ARC LENGTH
C1	11°17'47" RT.	3d0'0"	1909.86'	188.89'	376.55'
C2	10°20'14" LT.	3d0'0"	1909.86'	172.76'	344.58'



EW1484MOT14.DWG

HORIZONTAL SCALE IN FEET
0 20 40

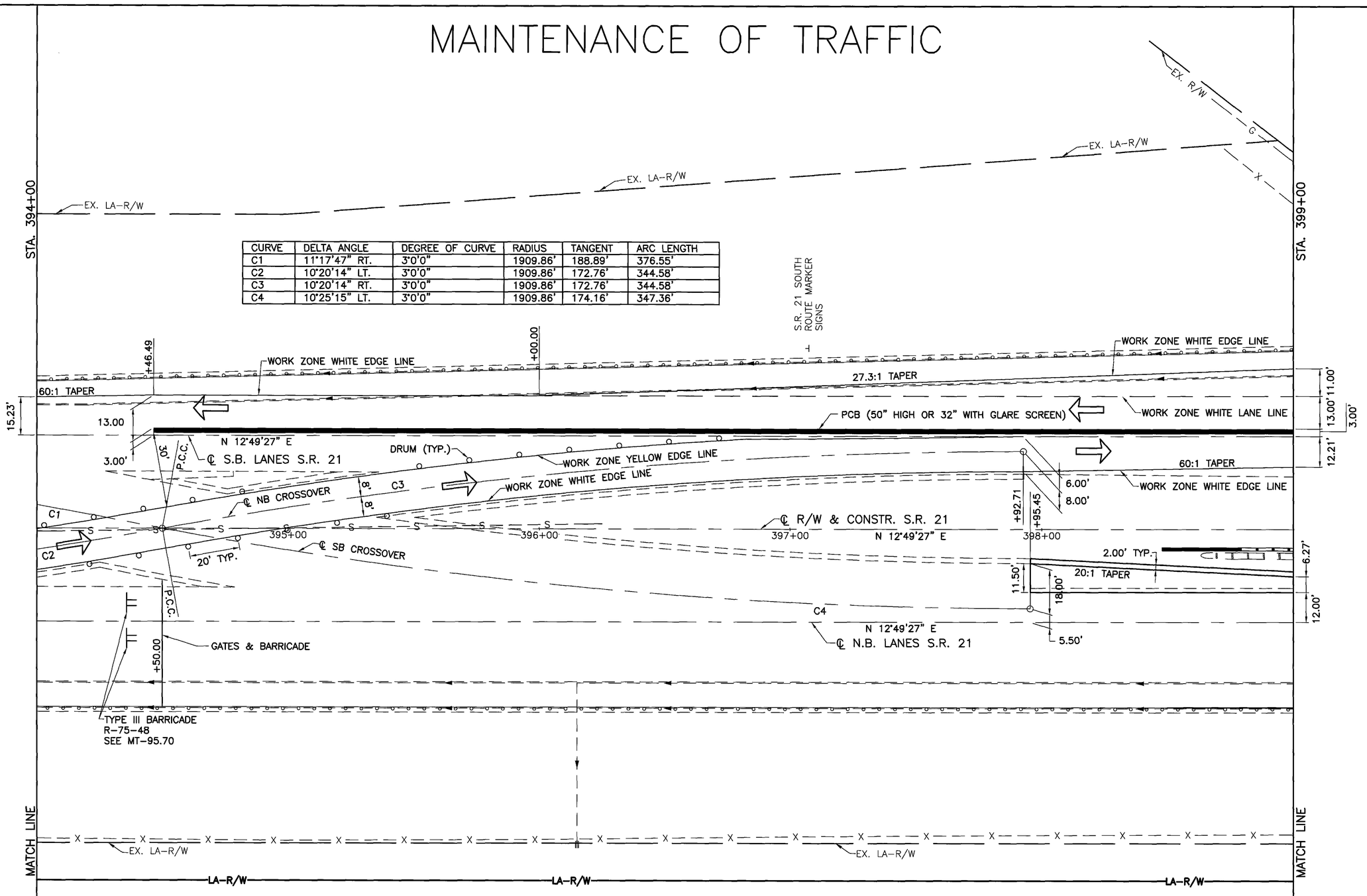
CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE TWO

SUM-21-(5.69)(7.58)(7.78)

MAINTENANCE OF TRAFFIC

CURVE	DELTA ANGLE	DEGREE OF CURVE	RADIUS	TANGENT	ARC LENGTH
C1	11°17'47" RT.	3°0'0"	1909.86'	188.89'	376.55'
C2	10°20'14" LT.	3°0'0"	1909.86'	172.76'	344.58'
C3	10°20'14" RT.	3°0'0"	1909.86'	172.76'	344.58'
C4	10°25'15" LT.	3°0'0"	1909.86'	174.16'	347.36'



EW1484MOT15.DWG

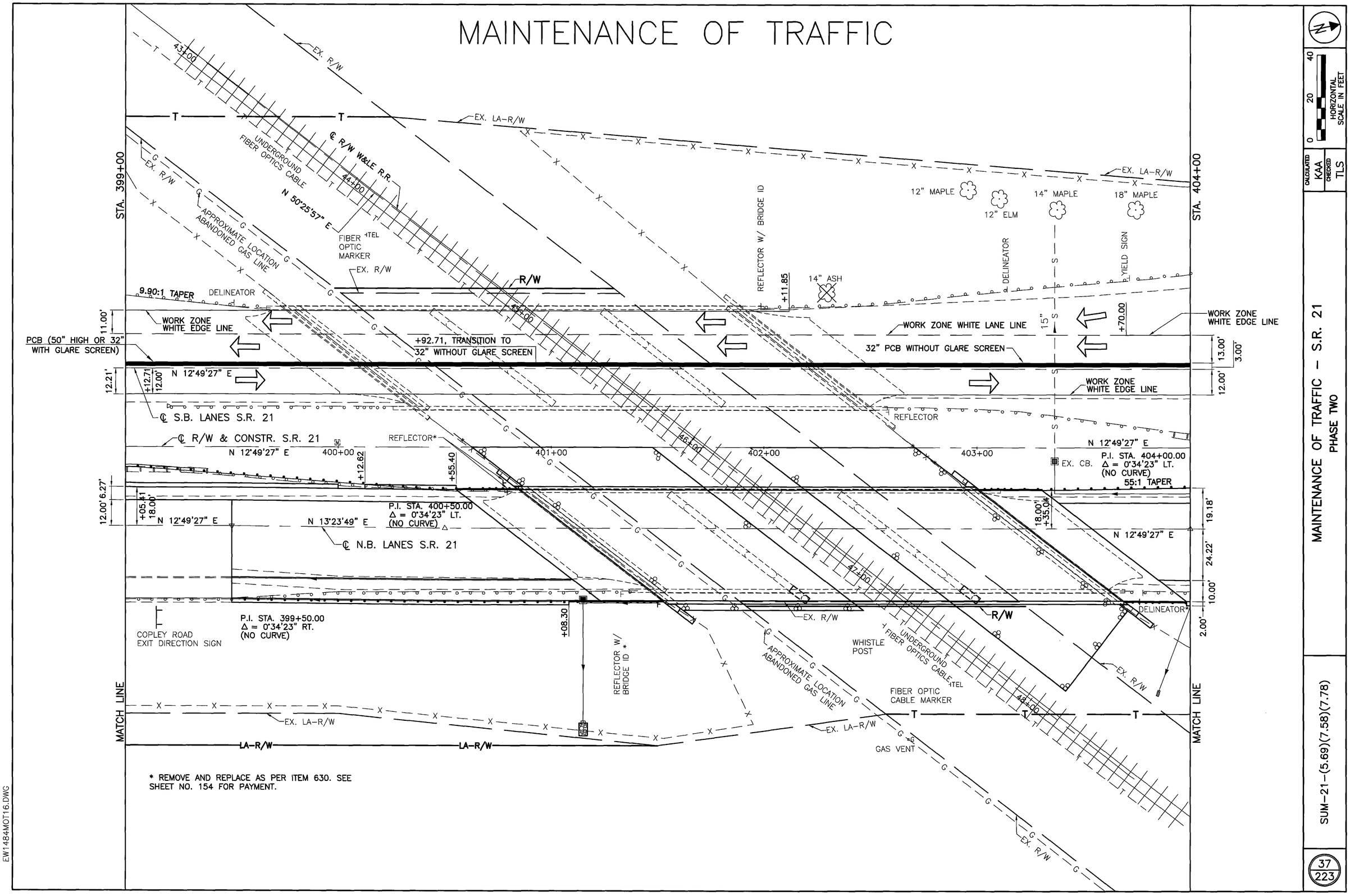
HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC - S.R. 21
PHASE TWO

SUM-21-(5.68)(7.58)(7.78)

MAINTENANCE OF TRAFFIC



* REMOVE AND REPLACE AS PER ITEM 630. SEE SHEET NO. 154 FOR PAYMENT.

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE TWO

SUM-21-(5.69)(7.58)(7.78)

37
223

EW148\MOT116.DWG

MAINTENANCE OF TRAFFIC

STA. 404+00

STA. 409+00

EX. R/W

EX. R/W

DELINEATOR

N 06°45'09" E

S.W. RAMP

6+00

5+00

4+00

3+00

WORK ZONE WHITE EDGE LINE

MERGE SIGN

32" PCB WITHOUT GLARE SCREEN

13.00'

3.00'

12.00'

N 12°49'27" E

℄ S.B. LANES S.R. 21

WORK ZONE WHITE EDGE LINE

℄ R/W & CONSTR. S.R.21

N 12°49'27" E

405+00

406+00

407+00

408+00

P.I. STA. 404+00.00
Δ = 0°34'23" LT.
(NO CURVE)

55:1 TAPER

7.18'

12.00'

24.22'

10.00'

2.00'

N 12°15'04" E

SAWCUT

SAWCUT

SAWCUT

SAWCUT

N 12°49'27" E

℄ N.B. LANES S.R. 21

15.27'

12.00'

12.00'

13.54'

12.00'

10.26'

±90.00

GORE SIGN*

10.00'

11.03'

±10.69

P.I. STA. 405+00.00
Δ = 0°34'23" RT.
(NO CURVE)

DELINEATOR*

DELINEATOR

406+61.40

4.19'

8.00'

3+00

4+00

5+00

N 19°59'58" E

S.E. RAMP

DELINEATOR

MATCH LINE

MATCH LINE

EX. R/W

EX. R/W

EX. R/W

* REMOVE AND REPLACE AS PER ITEM 630. SEE SHEET NO. 154 FOR PAYMENT.

EM1484MOT17.DWG

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE TWO

SUM-21-(5.69)(7.58)(7.78)

MAINTENANCE OF TRAFFIC

STA. 409+00

STA. 414+00

MATCH LINE

MATCH LINE

EX. LA-R/W

NO PEDESTRIANS SIGN

S.R. 162 ROUTE MARKER SIGNS

STOP/DO NOT ENTER SIGNS

COPLEY ROAD ADVANCE DESTINATION SIGN

N 06°45'09" E
S.W. RAMP

N 19°20'53" E
N.W. RAMP

STOP/DO NOT ENTER SIGNS

℄ CONSTR. S.R.162
S 89°46'03" E

+07.29, TRANSITION TO 50" HIGH PCB OR 32" WITH GLARE SCREEN

S.R. 21 ROUTE MARKER SIGNS

WORK ZONE WHITE EDGE LINE

32" PCB WITHOUT GLARE SCREEN

N 12°49'27" E

WORK ZONE WHITE EDGE LINE

℄ S.B. LANES S.R. 21

PCB (50" HIGH OR 32" WITH GLARE SCREEN)

REFLECTOR

WORK ZONE WHITE EDGE LINE

REFLECTOR

60:1 TAPER

TYPE T ANCHOR ASSEMBLY

C5

REFLECTOR

2.00' TYP.

℄ R/W & CONSTR. S.R. 21

N 12°49'27" E
55:1 TAPER

EX. C.B. (REMOVE)

EX. 12" CMP (REMOVE)

REFLECTOR *

25.0:1 TAPER

C6

N 12°49'27" E
℄ N.B. LANES S.R. 21

* REMOVE AND REPLACE AS PER ITEM 630. SEE SHEET NO. 154 FOR PAYMENT.

WRONG WAY SIGN

DELINEATOR *

S.R. 21 NORTH ROUTE MARKER SIGNS *

REFLECTOR * W/BRIDGE ID

TO I.R. 77 AND S.R. 21 NORTH ROUTE MARKER SIGNS

N 19°59'58" E
S.E. RAMP

STOP/DO NOT ENTER SIGNS

S.R. 162 ROUTE MARKER SIGNS

N.E. RAMP
N 06°57'51" E

24" CMP

WRONG WAY SIGN

DELINEATOR

COPLEY ROAD ADVANCE DESTINATION SIGN

STOP/DO NOT ENTER SIGN

NO LITTERING SIGN

EX. LA-R/W

EX. C.B.
ROUTE MARKER AND ADVANCE DESTINATION SIGNS

CURVE	DELTA ANGLE	DEGREE OF CURVE	RADIUS	TANGENT	ARC LENGTH
C5	10°14'00" RT.	3°0'0"	1909.86'	171.01'	341.11'
C6	08°11'40" LT.	3°0'0"	1909.86'	136.81'	273.15'

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE TWO

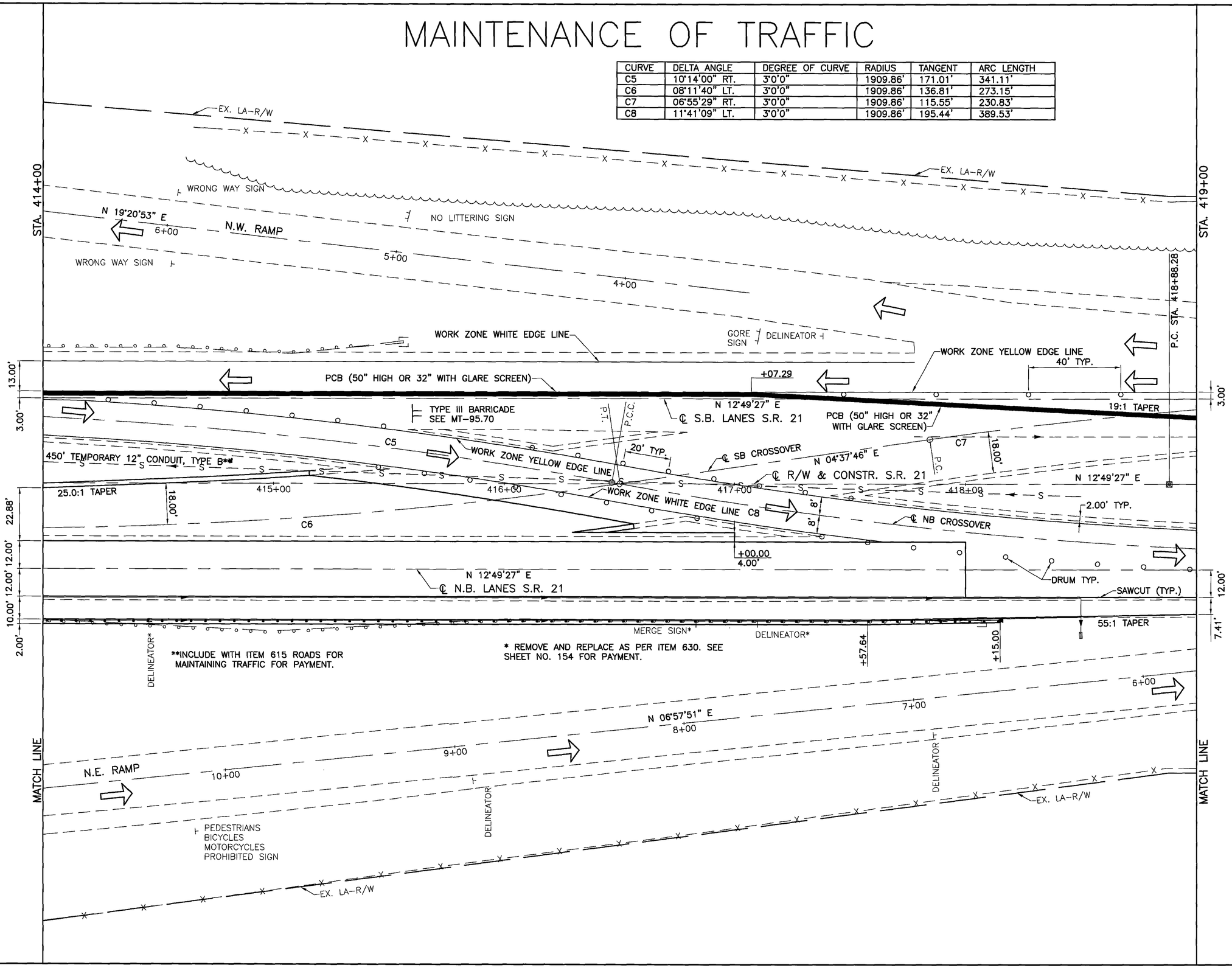
SUM-21-(5.69)(7.58)(7.78)

39
223

EM1484MOT18.DWG

MAINTENANCE OF TRAFFIC

CURVE	DELTA ANGLE	DEGREE OF CURVE	RADIUS	TANGENT	ARC LENGTH
C5	10°14'00" RT.	3°0'0"	1909.86'	171.01'	341.11'
C6	08°11'40" LT.	3°0'0"	1909.86'	136.81'	273.15'
C7	06°55'29" RT.	3°0'0"	1909.86'	115.55'	230.83'
C8	11°41'09" LT.	3°0'0"	1909.86'	195.44'	389.53'



HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE TWO

SUM-21-(5.69)(7.58)(7.78)

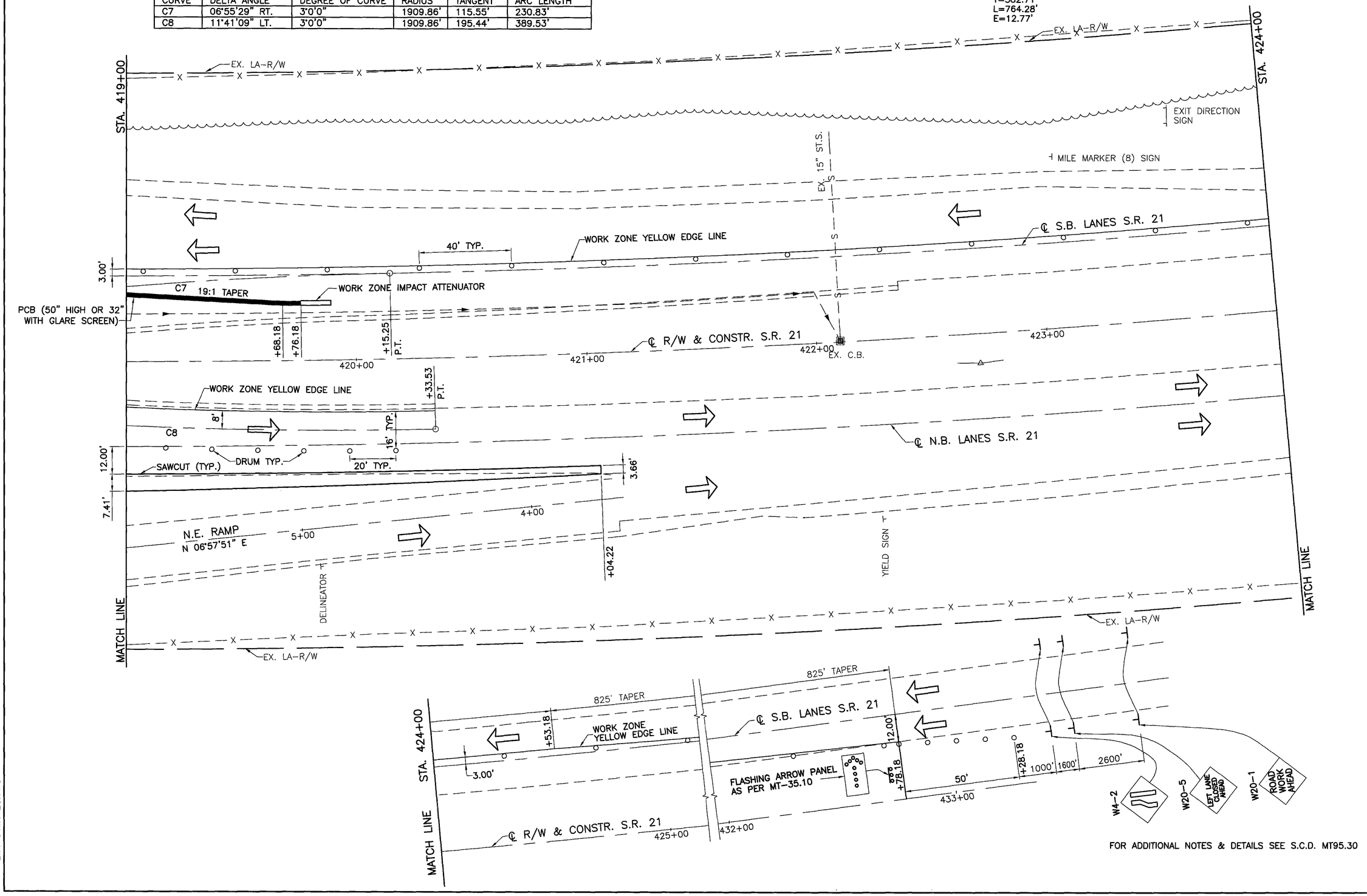
40
223

EW1484M19.DWG

MAINTENANCE OF TRAFFIC

CURVE	DELTA ANGLE	DEGREE OF CURVE	RADIUS	TANGENT	ARC LENGTH
C7	06°55'29" RT.	3°0'0"	1909.86'	115.55'	230.83'
C8	11°41'09" LT.	3°0'0"	1909.86'	195.44'	389.53'

CURVE DATA
P.I. STA. 422+70.99 ℄ S.R. 21
Δ=07°38'34" LT.
Dc=01°00'00"
R=5729.58'
T=382.71'
L=764.28'
E=12.77'



FOR ADDITIONAL NOTES & DETAILS SEE S.C.D. MT95.30

EW1484MOT20.DWG

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE TWO

SUM-21-(5.69)(7.58)(7.78)

41
223

ITEM 614 MAINTAINING TRAFFIC

DETOUR NOTIFICATION

THE CONTRACTOR SHALL ADVISE THE ODOT DISTRICT OFFICE (330-786-3148) EIGHTEEN (18) DAYS IN ADVANCE OF WHEN THE DETOUR ROUTE SHOULD BE IN EFFECT. ODOT SHALL THEN PROVIDE AND INSTALL ALL DEVICES NECESSARY TO DEFINE THE ROUTE OF THE DETOUR AND SHALL MAINTAIN THE SAME THROUGHOUT THE DETOUR LIMITATION DATES. ALL TRAFFIC CONTROL DEVICES REQUIRED, OTHER THAN FOR THE DETOUR, SHALL BE FURNISHED, ERECTED, MAINTAINED, AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR.

THE CONTRACTOR SHALL PROVIDE, ERECT, AND MAINTAIN ANY SUCH SIGNS AND SIGN SUPPORTS AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND THE ADVANCE WARNING SIGNS AS SHOWN ON STANDARD CONSTRUCTION DRAWING MT-98.19.

DETOUR DURATION

THE MAXIMUM LENGTH OF TIME FOR THE DETOUR ROUTE TO BE IN EFFECT SHALL BE NINETY (90) CONSECUTIVE DAYS. CONSTRUCTION WORK MAY BE PERFORMED BEFORE AND AFTER THE DETOUR LIMITATION DATES, BUT THERE SHALL BE NO RESTRICTIONS (LANE WIDTH REDUCTIONS, TEMPORARY ROADWAYS, OR ONE WAY TRAFFIC) TO THROUGH OR LOCAL TRAFFIC. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SCHEDULE AND PERFORM THE CONSTRUCTION WORK WITHIN THE DETOUR LIMITATION TIME. THE FAILURE OF THE CONTRACTOR TO MEET THE DETOUR LIMITATION DATES WILL CAUSE SEPARATE LIQUIDATED DAMAGES OF $1250.00 PER CALENDAR DAY OF OVERRUN OF DETOUR LIMITATION TIME TO BE ASSESSED. THE CONTRACTOR WILL COMPLY WITH ALL PROVISIONS OF 108.07 OF THE DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

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

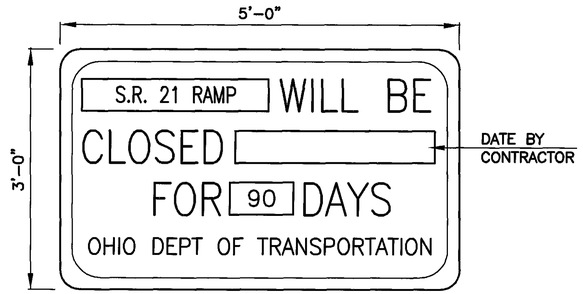
THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 410	TRAFFIC COMPACTED SURFACE, TYPE A OR B	200 CU YD
ITEM 616	WATER	100 M GAL

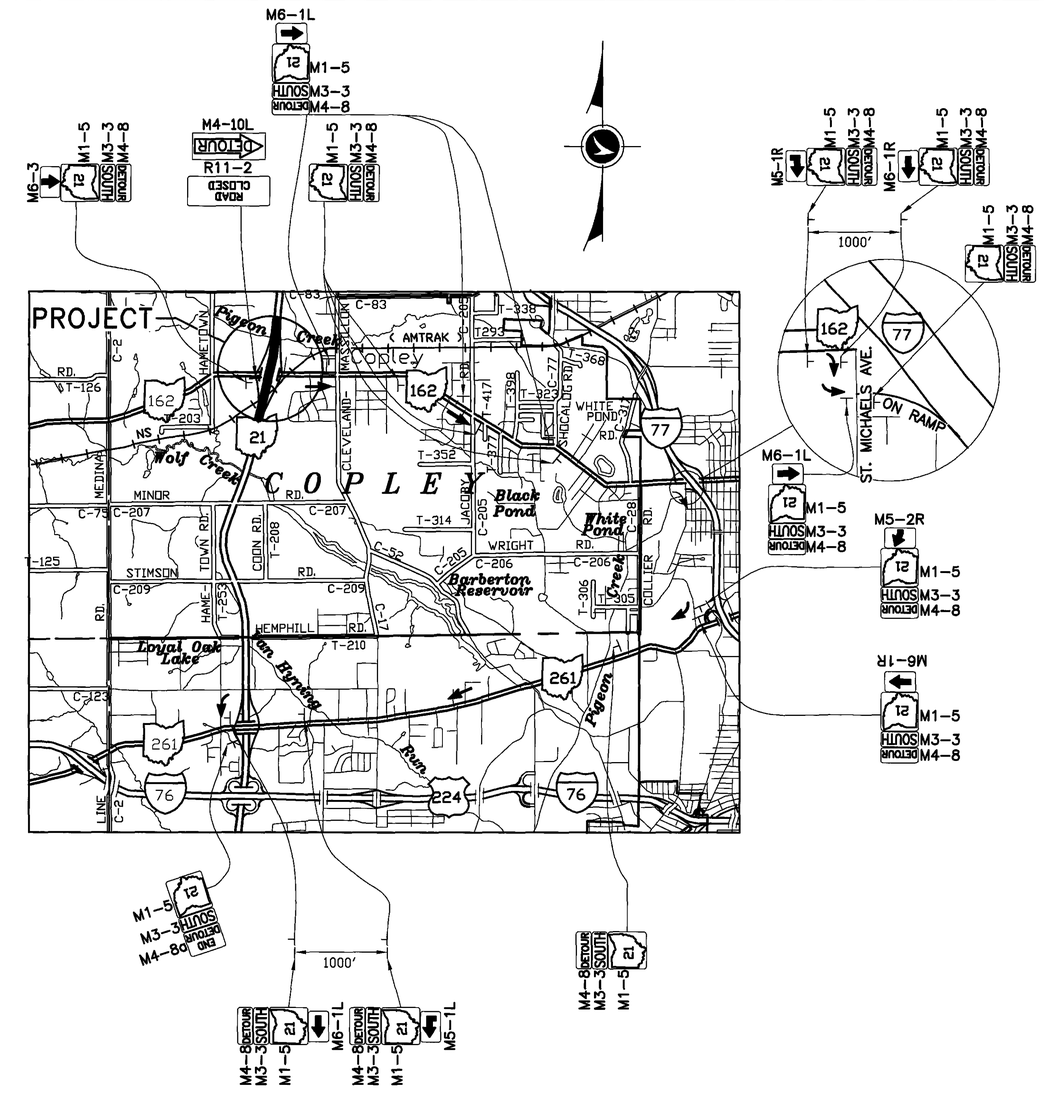
NOTICE OF CLOSURE SIGNS

THESE SIGNS SHALL BE ERECTED BY THE CONTRACTOR AT LEAST ONE WEEK IN ADVANCE OF THE SCHEDULED ROAD CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT HAND SIDE OF THE ROAD FACING TRAFFIC. THEY SHALL BE LOCATED IN THE FIELD SO AS NOT TO INTERFERE WITH ANY PERMANENT SIGNS. ON THIS PROJECT THEY SHOULD BE ERECTED AT THE POINT OF CLOSURE.

PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 MAINTAINING TRAFFIC AND SHALL INCLUDE FURNISHING, ERECTING, MAINTAINING AND REMOVING THE SIGNS INCLUDING SUPPORTS.



OC-60B



PROJECT

DETOUR ROUTE

MAINTENANCE OF TRAFFIC DETOUR MAP

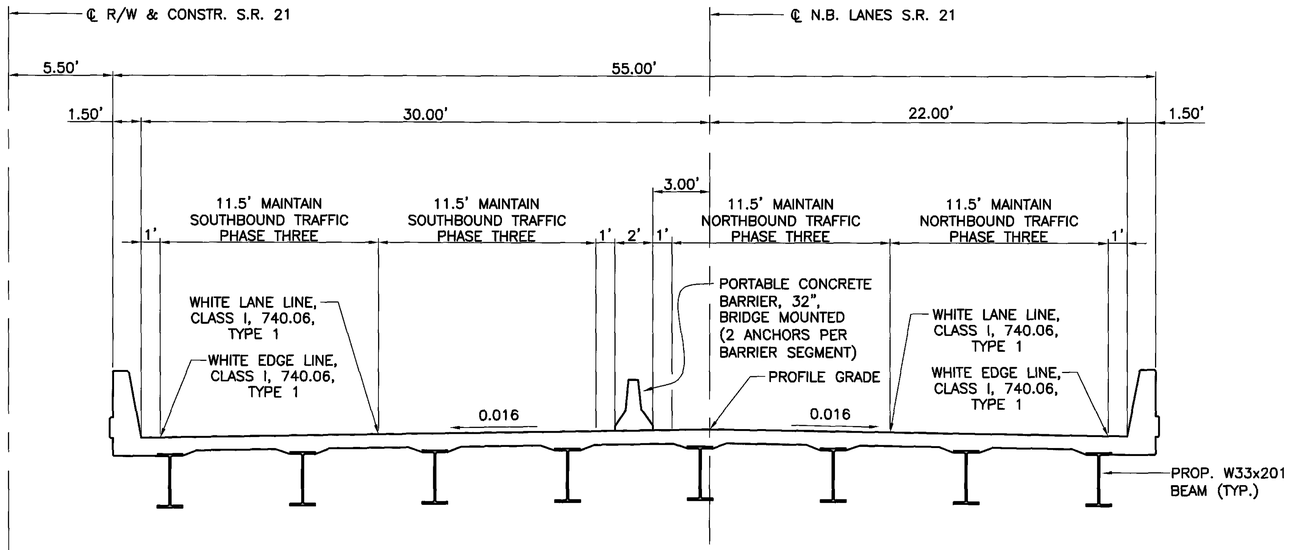
EM-1484MP2.DWG

CALCULATED KAA CHECKED TLS

MAINTENANCE OF TRAFFIC - S.R. 21

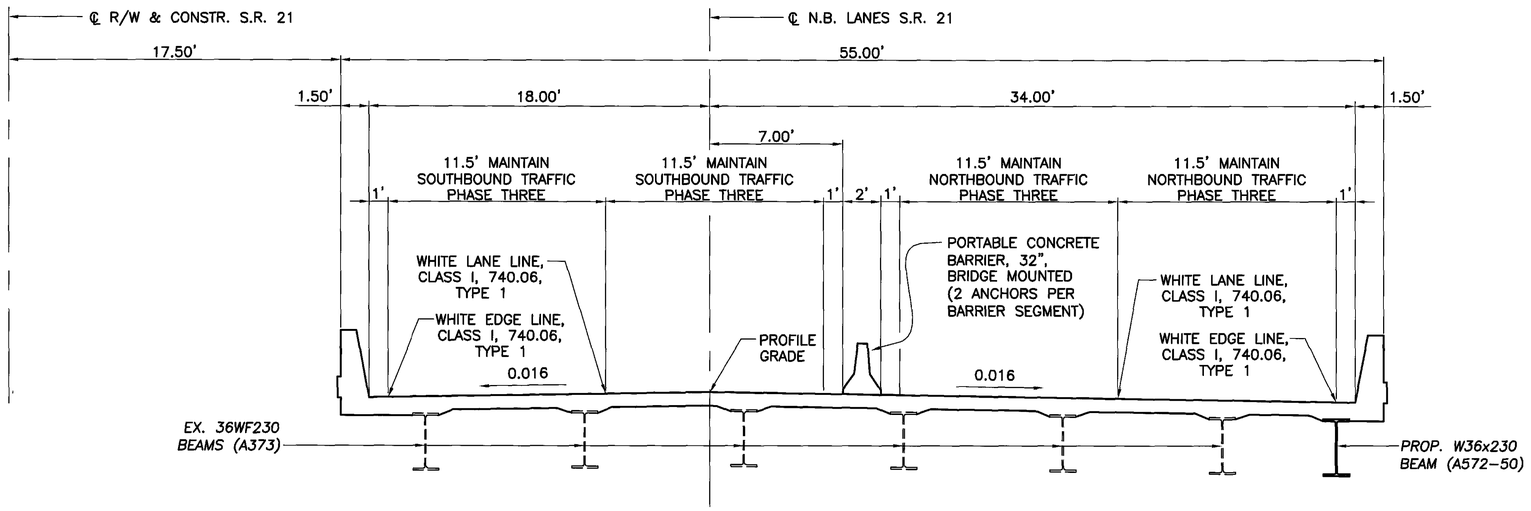
DETOUR FOR S.R. 162 INTERCHANGE SOUTHWEST RAMP - PHASE THREE

SUM-21-(5.69)(7.58)(7.78)



SECTION – PHASE THREE

BRIDGE NO. SUM-21-0778R OVER S.R.162



SECTION – PHASE THREE

BRIDGE NO. SUM-21-0758R OVER WHEELING & LAKE ERIE RAILROAD

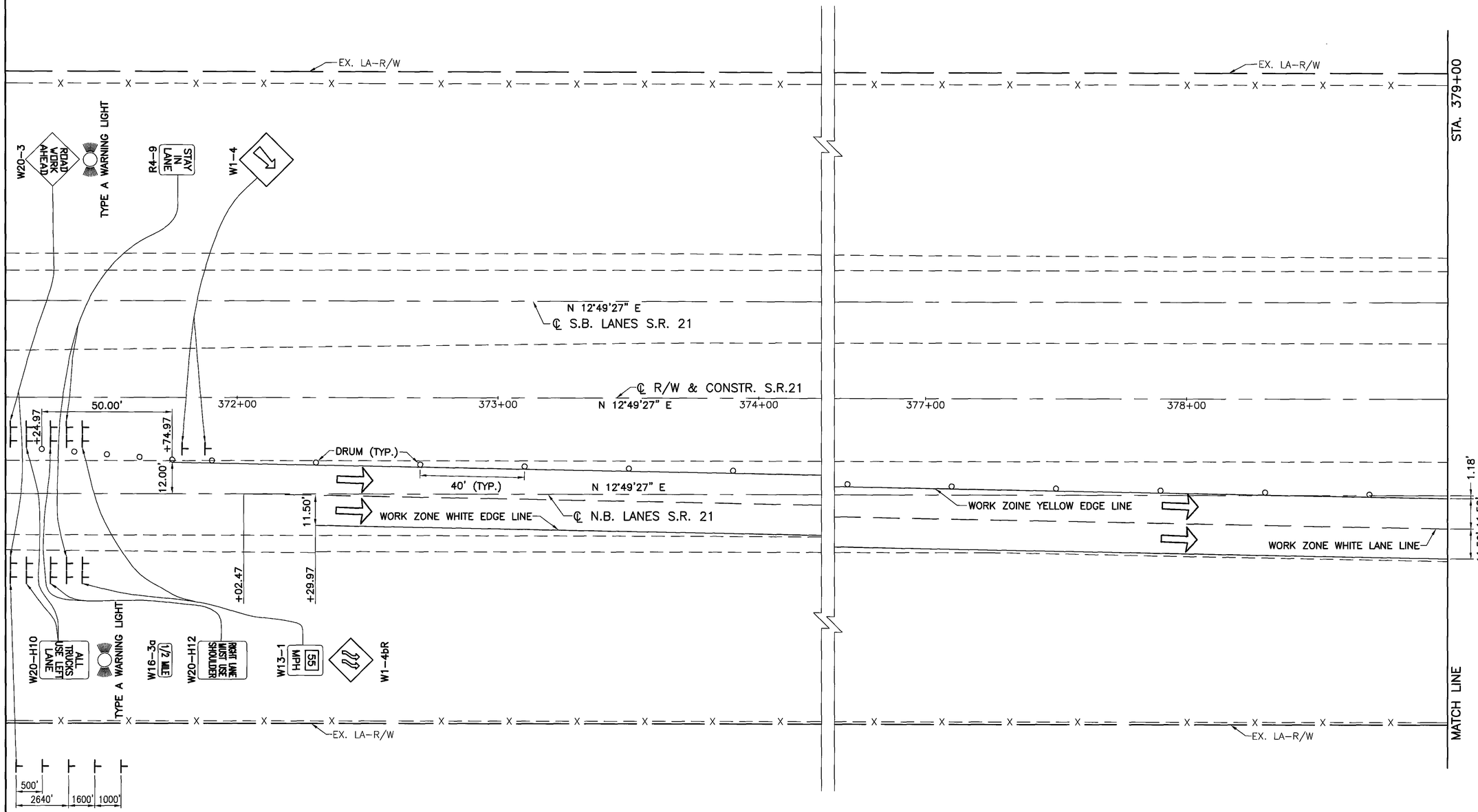
CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
TYPICAL BRIDGE SECTIONS PHASE THREE

SUM-21-(5.69)(7.58)(7.78)

EM1484MOTTYP.DWG 1"=4'

MAINTENANCE OF TRAFFIC



FOR ADDITIONAL NOTES & DETAILS SEE S.C.D. MT-102.10

EW1484MOT21.DWG

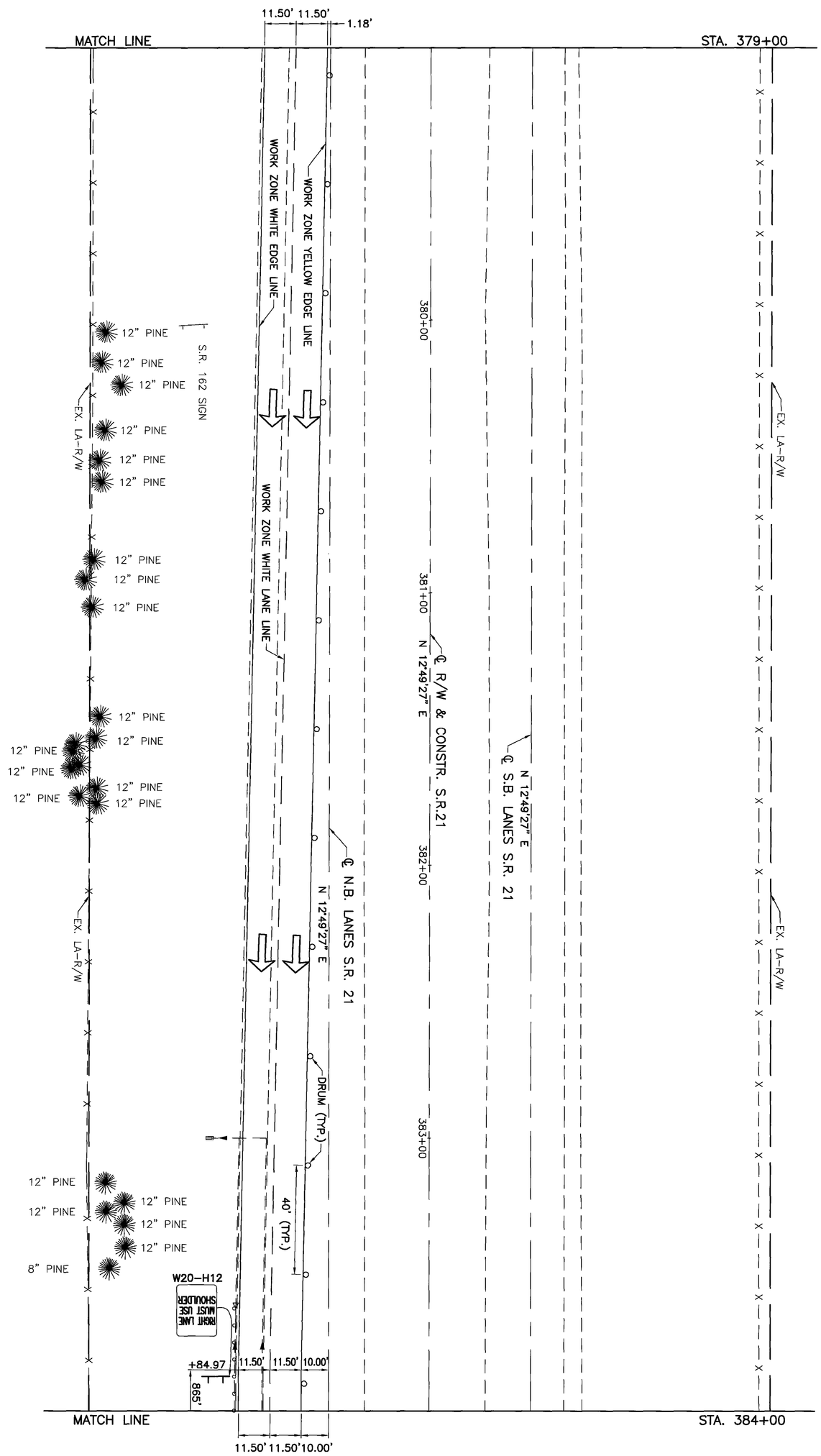
HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC - S.R. 21
PHASE THREE

SUM-21-(5.69)(7.58)(7.78)

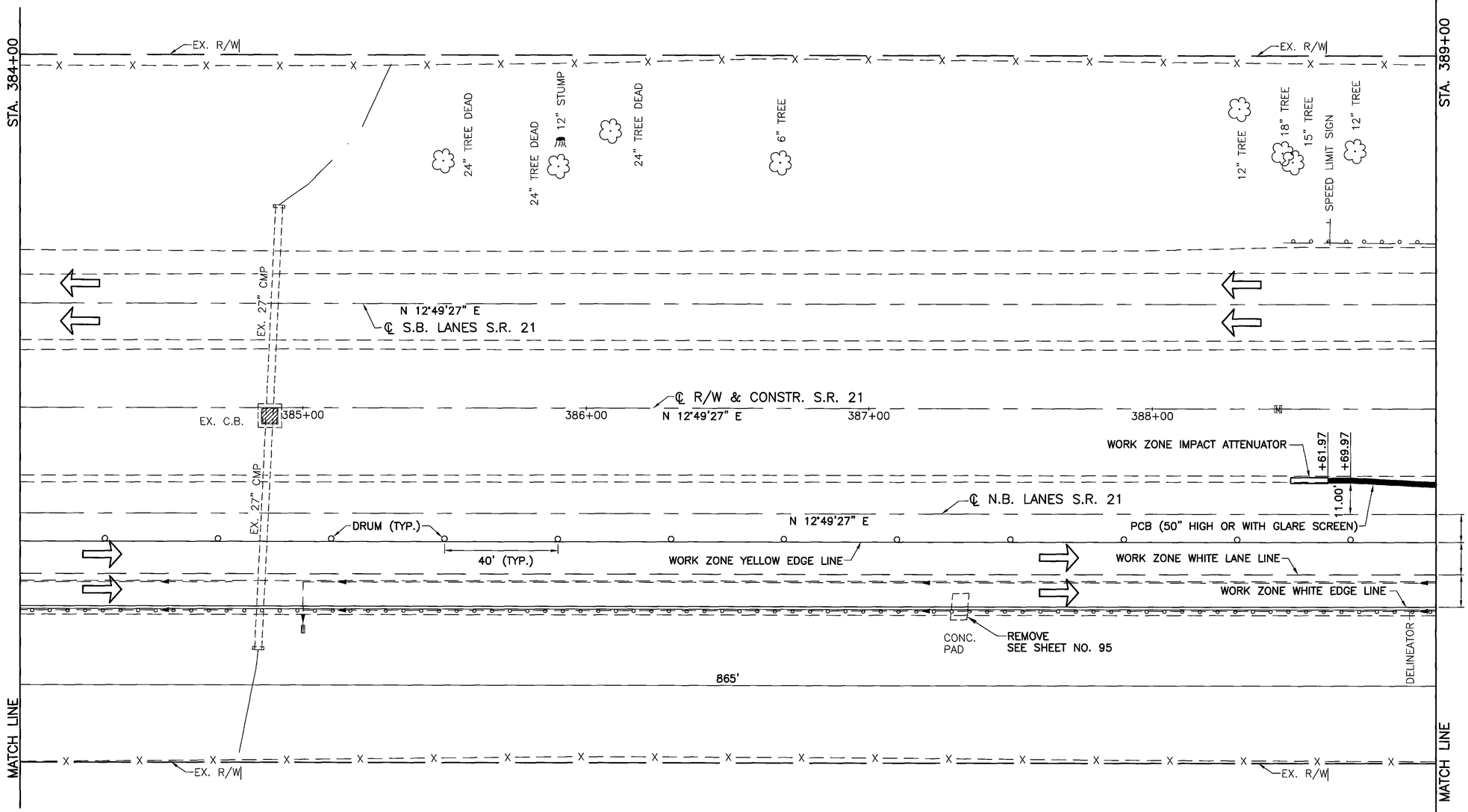
EW1484MOT22.DWG



MAINTENANCE OF TRAFFIC

45/223	SUM-21-(5.69)(7.58)(7.78)	MAINTENANCE OF TRAFFIC – S.R. 21 PHASE THREE	CALCULATED KAA CHECKED TLS	0 20 40 HORIZONTAL SCALE IN FEET

MAINTENANCE OF TRAFFIC



EW1484MOT23.DWG

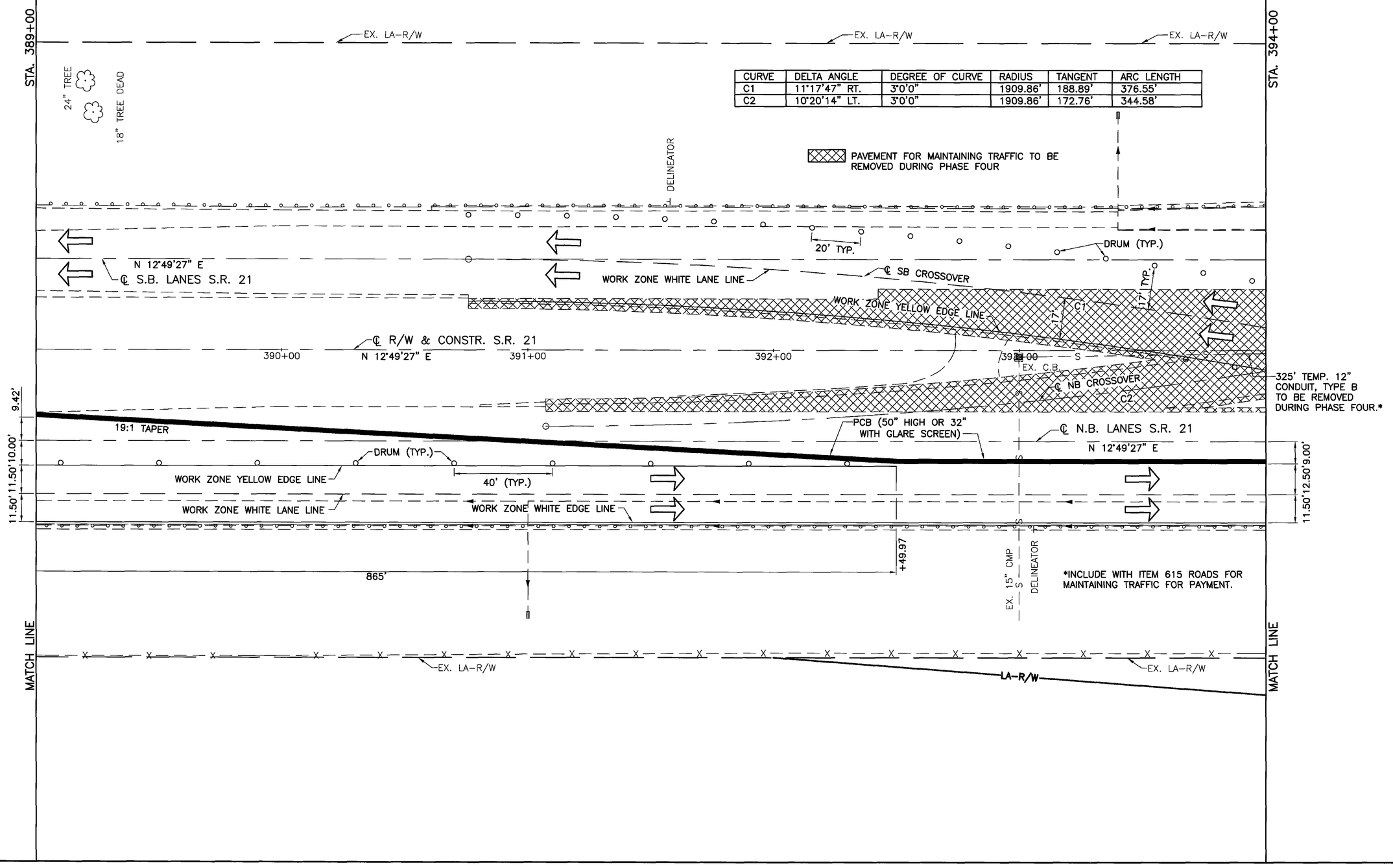
HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE THREE

SUM–21–(5.69)(7.58)(7.78)

MAINTENANCE OF TRAFFIC



CURVE	DELTA ANGLE	DEGREE OF CURVE	RADIUS	TANGENT	ARC LENGTH
C1	11°17'47" RT.	3°0'0"	1909.86'	188.89'	376.55'
C2	10°20'14" LT.	3°0'0"	1909.86'	172.76'	344.58'

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE THREE

SUM-21-(5.69)(7.58)(7.78)

47
223

EW1484MOT24.DWG

MAINTENANCE OF TRAFFIC

CURVE	DELTA ANGLE	DEGREE OF CURVE	RADIUS	TANGENT	ARC LENGTH
C1	11°17'47"	3°0'0"	1909.86'	188.89'	376.55'
C2	10°20'14"	3°0'0"	1909.86'	172.76'	344.58'
C3	10°20'14"	3°0'0"	1909.86'	172.76'	344.58'
C4	10°25'15"	3°0'0"	1909.86'	174.16'	347.36'

STA. 394+00

STA. 399+00

EX. LA-R/W

EX. LA-R/W

EX. LA-R/W

EX. R/W

G

X

S.R. 21 SOUTH ROUTE MARKER SIGNS

DELINEATOR

N 12°49'27" E

℄ S.B. LANES S.R. 21

C3

℄ NB CROSSOVER

C1

C2

395+00

℄ SB CROSSOVER

395+00

17.00'

17.00'

325' TEMP. 12" CONDUIT, TYPE B TO BE REMOVED DURING PHASE FOUR.*

℄ R/W & CONSTR. S.R. 21

N 12°49'27" E

397+00

398+00

*INCLUDE WITH ITEM 615 ROADS FOR MAINTAINING TRAFFIC FOR PAYMENT.

WORK ZONE WHITE EDGE LINE

20:1 TAPER

17.00'

+95.45

11.77'

5.50'

℄ N.B. LANES S.R. 21

N 12°49'27" E

20' TYP.

DRUM (TYP.)

WORK ZONE YELLOW EDGE LINE

WORK ZONE WHITE LANE LINE

C4

12.50'

PCB (50" HIGH OR WITH GLARE SCREEN)

11.50'

12.50'

9.00'

WORK ZONE WHITE LANE LINE

WORK ZONE WHITE EDGE LINE

11.50'

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED DURING PHASE FOUR

DELINEATOR

W20-H12

RIGHT LANE MUST USE SHOULDER

MATCH LINE

EX. LA-R/W

EX. LA-R/W

LA-R/W

LA-R/W

LA-R/W

MATCH LINE

FOR ADDITIONAL NOTES & DETAILS
SEE S.C.D. MT-102.10

EW1484MOT25.DWG

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE THREE

SUM-21-(5.68)(7.58)(7.78)

MAINTENANCE OF TRAFFIC

FOR ADDITIONAL NOTES & DETAILS
SEE STANDARD CONSTRUCTION DRAWING MT-102.10

STA. 399+00

STA. 404+00

EX. R/W

EX. LA-R/W

℄ R/W W&LE R.R.

UNDERGROUND FIBER OPTICS CABLE

N 50°25'57" E

APPROXIMATE LOCATION ABANDONED GAS LINE

FIBER OPTIC MARKER

DELINEATOR (REMOVE)

R/W

REFLECTOR W/ BRIDE I.D.

12" MAPLE

12" ELM

14" MAPLE

18" MAPLE

14" ASH

DELINIEATOR

YIELD SIGN

15"

REFLECTOR

N 12°49'27" E

℄ S.B. LANES S.R. 21

REMOVE, SEE NOTE ON SHEET 24

℄ R/W & CONSTR. S.R. 21

W1-4bR

FOR ADDITIONAL NOTES & DETAILS SEE S.C.D. MT-102.10

43+00 44+00 45+00 46+00 47+00

400+00 401+00 402+00 403+00

P.I. STA. 400+50.00
Δ = 0°34'23" LT.
(NO CURVE)

10 – 23' RUMBLE STRIPS AT 5' SPACING

EX. CB.

REMOVE DURING PHASE FOUR

P.I. STA. 404+00.00
Δ = 0°34'23" LT.
(NO CURVE)

+05.38

5.50' 11.77'

17.00'

℄ N.B. LANES S.R. 21

N 12°49'27" E N 13°23'49" E

7.00' +50.00

WORK ZONE WHITE EDGE LINE

WORK ZONE WHITE LANE LINE

7.00' +35.28

11.50' 6.68'

7.00' 2.00' 11.50' 12.50'

PCB (50" HIGH OR 32" WITH GLARE SCREEN)

10 – 23' RUMBLE STRIPS AT 6' SPACING

32" PCB WITHOUT GLARE SCREEN 100.00'

+50.00

WORK ZONE WHITE EDGE LINE

WORK ZONE WHITE LANE LINE

11.55' 12.50' 2.00' 5.82'

COPLEY ROAD EXIT DIRECTION SIGN

P.I. STA. 399+50.00
Δ = 0°34'23" RT.
(NO CURVE)

+99.97, TRANSITION TO 32" PCB WITHOUT GLARE SCREEN

REFLECTOR W/ BRIDGE ID

WHISTLE POST

FIBER OPTIC CABLE MARKER

DELINEATOR

MATCH LINE

MATCH LINE

EX. LA-R/W

LA-R/W

LA-R/W

GAS VENT

APPROXIMATE LOCATION ABANDONED GAS LINE

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED DURING PHASE FOUR

EW1484MOT26.DWG

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE THREE

SUM-21-(5.69)(7.58)(7.78)

MAINTENANCE OF TRAFFIC

STA. 404+00

STA. 409+00

EX. LA-R/W

EX. LA-R/W

12" PINE

12" PINE

24" MAPLE

12" MAPLE

12" PINE

DELINEATOR

12" THORN

14" MAPLE

14" MAPLE

+44.59

5.47'

8.00'

2.00'

10.05'

32.92'

12.00'

4.00'

3+00

4+00

5+00

6+00

N 06°45'09" E

S.W. RAMP

+44.00

MERGE SIGN

N 12°49'27" E

℄ S.B. LANES S.R. 21

℄ R/W & CONSTR. S.R. 21

N 12°49'27" E

405+00

406+00

407+00

408+00

P.I. STA. 404+00.00
Δ = 0°34'23" LT.
(NO CURVE)

WORK ZONE WHITE EDGE LINE

℄ N.B. LANES S.R. 21

N 12°15'04" E

N 12°49'27" E

WORK ZONE WHITE LANE LINE

32" PCB WITHOUT GLARE SCREEN

WORK ZONE WHITE EDGE LINE

WORK ZONE WHITE LANE LINE

REMOVE DURING PHASE FOUR

CONSTRUCT GUARDRAIL DURING PHASE FOUR

GORE SIGN

P.I. STA. 405+00.00
Δ = 0°34'23" RT.
(NO CURVE)

N 19°59'58" E

S.E. RAMP

MATCH LINE

MATCH LINE

12" PINE

12" PINE

14" PINE

14" PINE

DELINEATOR

12" PINE

DELINEATOR

DELINEATOR

14" PINE

14" PINE

12" PINE

16" PINE

12" PINE

10" ASH

EX. LA-R/W

12" PINE

14" PINE

14" PINE

14" PINE

14" PINE

EX. LA-R/W

EX. R/W

49+00

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED DURING PHASE FOUR

2.00'

10.00'

12.00'

12.00'

10.00'

2.00'

4.00'

4.00'

11.50'

12.50'

12.50'

2.00'

11.55'

EW2148M27.DWG

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE THREE

SUM-21-(5.69)(7.58)(7.78)

50
223

MAINTENANCE OF TRAFFIC

STA. 409+00

STA. 414+00

MATCH LINE

MATCH LINE

EX. LA-R/W

NO PEDESTRIANS SIGN

GATES & BARRICADES

RAMP CLOSED & DETOUR SIGN

S.R. 162 ROUTE MARKER SIGNS

18" ST.

9+00

7+00

N 06°45'09" E

S.W. RAMP

8+00

S.R. 21 ROUTE MARKER SIGNS

47+00

℄ CONSTR. S.R.162

S 89°46'03" E

STOP/DO NOT ENTER SIGNS

18" ST.

8+00

N 19°20'53" E

N.W. RAMP

7+00

COPLEY ROAD ADVANCE DESTINATION SIGN

STOP/DO NOT ENTER SIGNS

* REMOVE AND REPLACE AS PER ITEM 630 . SEE SHEET NO. 154 FOR PAYMENT.

REFLECTOR*

DELINEATOR*

41+00

42+00

℄ S.B. LANES S.R. 21

N 12°49'27" E

REMOVE, SEE NOTE ON SHEET 26

C5

REFLECTOR*

℄ R/W & CONSTR. S.R. 21

N 12°49'27" E

410+00

41+00

REFLECTOR

412+00

413+00

25.0:1 TAPER

REMOVE DURING PHASE FOUR WORK ZONE WHITE LANE LINE

C6

WORK ZONE WHITE EDGE LINE

32" PCB WITHOUT GLARE SCREEN

5.00

+50.28

PCB (50" HIGH OR 32" WITH GLARE SCREEN)

12.63' 16.25'

3.00' 2.00'

11.50' 9.50'

℄ N.B. LANES S.R. 21

N 12°49'27" E

49+00

WORK ZONE WHITE LANE LINE

WORK ZONE WHITE EDGE LINE

REMOVE DURING PHASE FOUR

CONSTRUCT GUARDRAIL DURING PHASE FOUR

WRONG WAY SIGN

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED DURING PHASE FOUR

DELINEATOR

+77.81, TRANSITION TO 50" HIGH PCB OR 32" WITH GLARE SCREEN

S.R. 21 NORTH ROUTE MARKER SIGNS

REFLECTOR W/BRIDGE ID

TO I.R. 77 AND S.R. 21 NORTH ROUTE MARKER SIGNS

NOTE: REMOVE EX. GUARDRAIL ALONG S.R. 162 ONLY AFTER ALL OF THE EXISTING PIERS HAVE BEEN COMPLETELY REMOVED, THE PROPOSED M.S.E. WALL HAS BEEN CONSTRUCTED AND BACKFILLED, AND ALL OF THE PROPOSED STORM SEWER HAS BEEN INSTALLED AND BACKFILLED.

W20-H12

RIGHT LANE MUST USE SHOULDER

FOR ADDITIONAL NOTES & DETAILS SEE S.C.D. MT-102.10

6+00

N 19°59'58" E

S.E. RAMP

7+00

WRONG WAY SIGN

DELINEATOR

COPLEY ROAD ADVANCE DESTINATION SIGN

STOP/DO NOT ENTER SIGNS

S.R. 162 ROUTE MARKER SIGNS

50+00

24" CMP

8+00

12+00

N.E. RAMP

N 06°57'51" E

11+00

21" STL

STOP/DO NOT ENTER SIGN

EX. C.B.

ROUTE MARKER AND ADVANCE DESTINATION SIGNS

NO LITTERING SIGN

EX. LA-R/W

CURVE	DELTA ANGLE	DEGREE OF CURVE	RADIUS	TANGENT	ARC LENGTH
C5	10°14'00" RT.	3°0'0"	1909.86'	171.01'	341.11'
C6	08°11'40" LT.	3°0'0"	1909.86'	136.81'	273.15'

HORIZONTAL SCALE IN FEET

0 20 40

CALCULATED TKAA

CHECKED TLS

MAINTENANCE OF TRAFFIC - S.R. 21

PHASE THREE

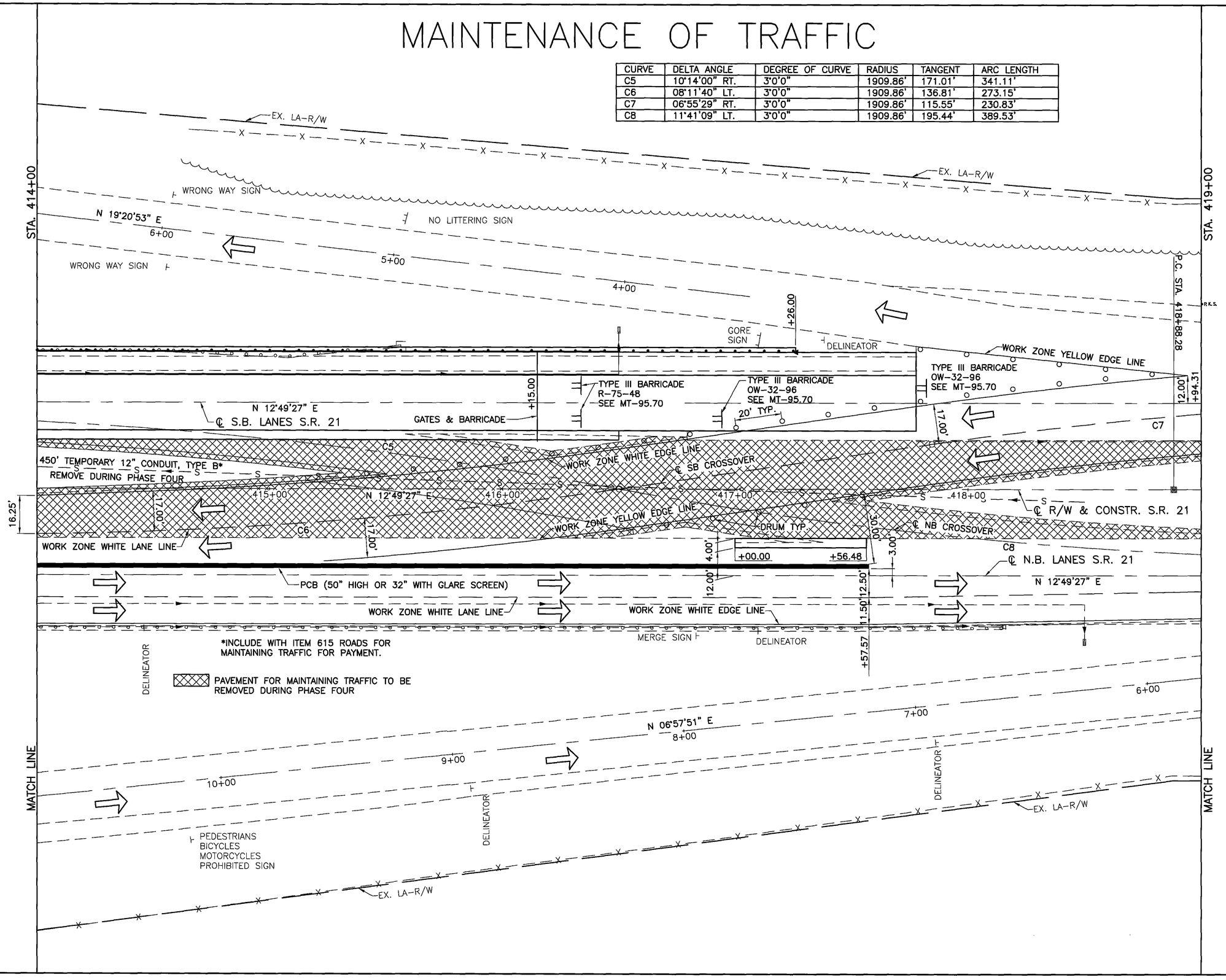
SUM-21-(5.69)(7.58)(7.78)

51
223

EM1484MOT28.DWG

MAINTENANCE OF TRAFFIC

CURVE	DELTA ANGLE	DEGREE OF CURVE	RADIUS	TANGENT	ARC LENGTH
C5	10°14'00" RT.	3°0'0"	1909.86'	171.01'	341.11'
C6	08°11'40" LT.	3°0'0"	1909.86'	136.81'	273.15'
C7	06°55'29" RT.	3°0'0"	1909.86'	115.55'	230.83'
C8	11°41'09" LT.	3°0'0"	1909.86'	195.44'	389.53'



EW1484M29.DWG

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC – S.R. 21
PHASE THREE

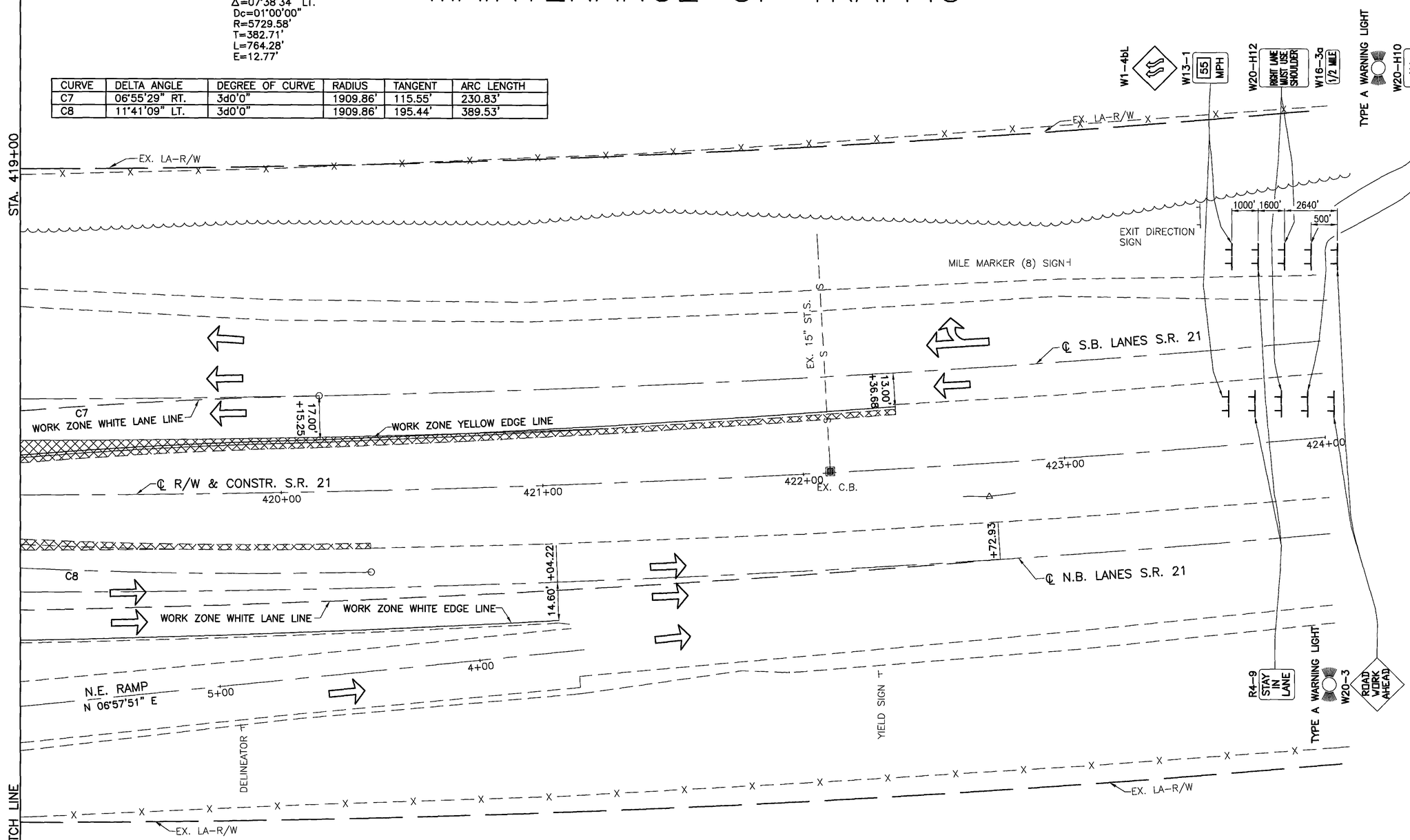
SUM-21-(5.69)(7.58)(7.78)

MAINTENANCE OF TRAFFIC

FOR ADDITIONAL NOTES & DETAILS SEE S.C.D. MT-102.10

CURVE DATA
P.I. STA. 422+70.99 ℄ S.R. 21
Δ=07°38'34" LT.
Dc=01°00'00"
R=5729.58'
T=382.71'
L=764.28'
E=12.77'

CURVE	DELTA ANGLE	DEGREE OF CURVE	RADIUS	TANGENT	ARC LENGTH
C7	06°55'29" RT.	3d0'0"	1909.86'	115.55'	230.83'
C8	11°41'09" LT.	3d0'0"	1909.86'	195.44'	389.53'



PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED DURING PHASE FOUR

EW1484MOT30.DWG

HORIZONTAL SCALE IN FEET
0 20 40

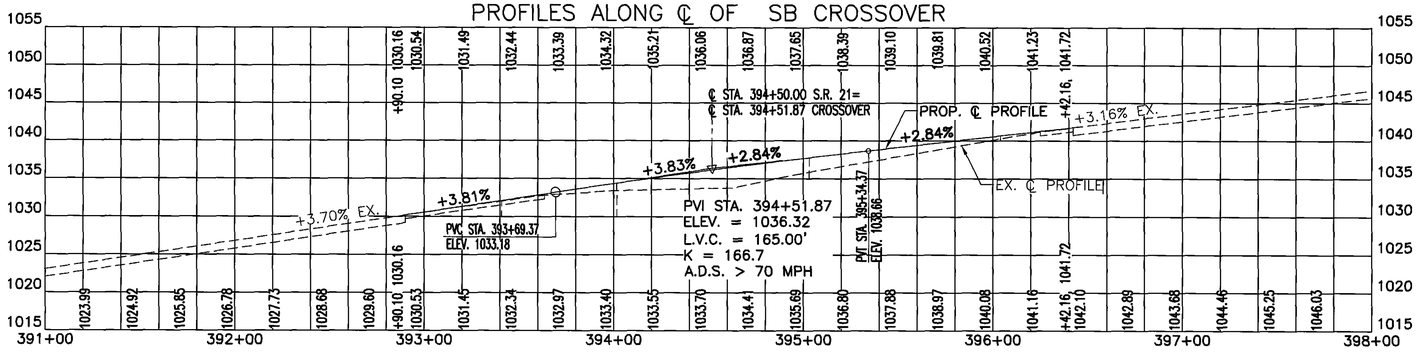
CALCULATED KAA
CHECKED TLS

MAINTENANCE OF TRAFFIC - S.R. 21
PHASE THREE

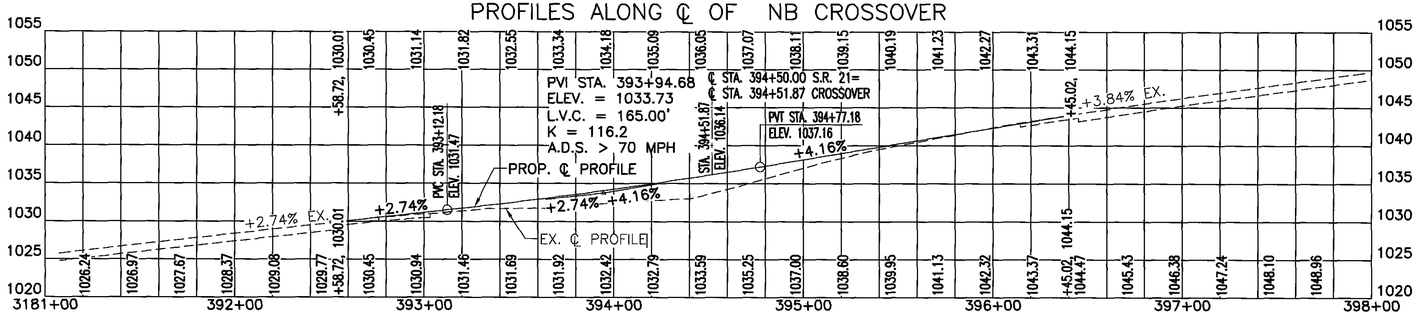
SUM-21-(5.69)(7.58)(7.78)

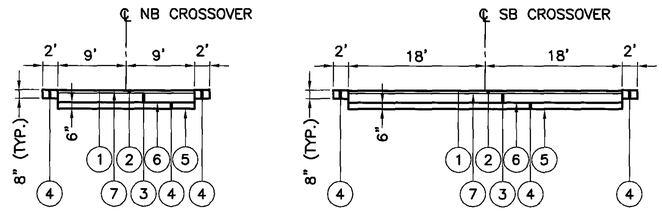
SUM-21-7.58

PROFILES ALONG ℄ OF SB CROSSOVER



PROFILES ALONG ℄ OF NB CROSSOVER





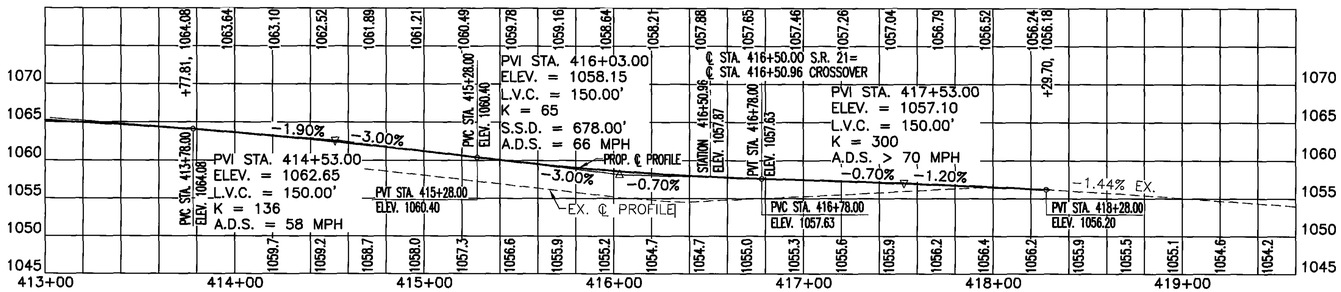
CROSSOVER TYPICAL SECTIONS

LEGEND

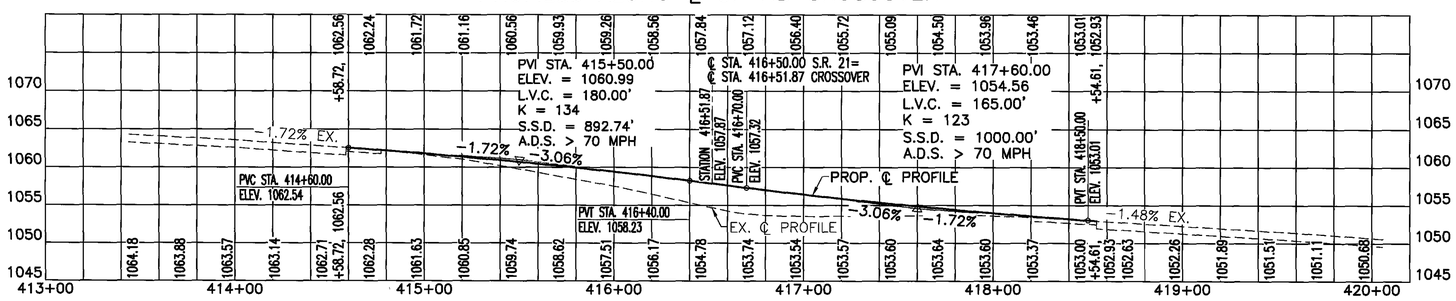
(1)	ITEM 448	1-1/4"	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22
(2)	ITEM 448	1-3/4"	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22
(3)	ITEM 301	9"	ASPHALT CONCRETE BASE, PG64-22
(4)	ITEM 304		AGGREGATE BASE
(5)	ITEM 204		SUBGRADE COMPACTION
(6)	ITEM 408		PRIME COAT
(7)	ITEM 407		TACK COAT FOR INTERMEDIATE COURSE

SUM-21-7.78

PROFILES ALONG ℄ OF SB CROSSOVER



PROFILES ALONG ℄ OF NB CROSSOVER



MAINTENANCE OF TRAFFIC - S.R. 21
MEDIAN CROSSOVER PROFILES & TYPICAL SECTIONS

SUM-21-(5.69)(7.58)(7.78)

CROSSOVER-PROFILES.DWG

SUPERELEVATION TABLE SUM-21-7.58 N.B. CROSSOVER

LEFT EDGE ELEV.	CORR. FROM PROFILE GRADE	DIST. FROM ℄	℄ & PROFILE GRADE ELEV.	℄ STATION	DIST. FROM ℄	CORR. FROM PROFILE GRADE	RIGHT EDGE ELEV.
1025.56	−0.17	9.00'	1025.73	391+07.29	——	——	——
1026.07	−0.17	9.00'	1026.24	391+25.00	——	——	——
1026.77	−0.20	9.00'	1026.97	391+50.00	——	——	——
1027.48	−0.19	9.00'	1027.67	391+75.00	——	——	——
1028.20	−0.17	9.00'	1028.37	392+00.00	——	——	——
1028.92	−0.16	9.00'	1029.08	392+25.00	——	——	——
1029.63	−0.14	9.00'	1029.77	392+50.00	——	——	——
1030.31	−0.14	9.00'	1030.45	392+75.00	1.38'	+0.03	1030.48
1031.00	−0.14	9.00'	1031.14	393+00.00	3.75'	+0.08	1031.22
1031.68	−0.14	9.00'	1031.82	393+25.00	6.45'	+0.19	1032.01
1032.41	−0.14	9.00'	1032.55	393+50.00	9.00'	+0.25	1032.80
1033.21	−0.13	8.55'	1033.34	393+75.00	9.00'	+0.19	1033.53
1034.14	−0.04	6.04'	1034.18	394+00.00	9.00'	+0.13	1034.31
1035.10	+0.01	3.19'	1035.09	394+25.00	9.00'	+0.07	1035.16
1036.41	+0.36	18.00'	1036.05	394+50.00	18.00'	+0.02	1036.07
1037.35	+0.28	9.00'	1037.07	394+75.00	3.07'	−0.03	1037.04
1038.47	+0.36	9.00'	1038.11	395+00.00	5.81'	−0.10	1038.01
1039.59	+0.44	9.00'	1039.15	395+25.00	8.20'	−0.22	1038.93
1040.72	+0.53	9.00'	1040.19	395+50.00	9.00'	−0.32	1039.87
1041.67	+0.44	6.45'	1041.23	395+75.00	9.00'	−0.26	1040.97
1042.51	+0.24	3.75'	1042.27	396+00.00	9.00'	−0.20	1042.07
1043.40	+0.09	1.38'	1043.31	396+25.00	9.00'	−0.14	1043.17
——	——	——	1044.47	396+50.00	9.00'	−0.14	1044.33
——	——	——	1045.43	396+75.00	9.00'	−0.15	1045.28
——	——	——	1046.38	397+00.00	9.00'	−0.16	1046.22
——	——	——	1047.24	397+25.00	9.00'	−0.16	1047.08
——	——	——	1048.10	397+50.00	9.00'	−0.15	1047.95
——	——	——	1048.96	397+75.00	9.00'	−0.17	1048.79
——	——	——	1049.57	397+92.71	9.00'	−0.18	1049.39

SUPERELEVATION TABLE SUM-21-7.78 N.B. CROSSOVER

LEFT EDGE ELEV.	CORR. FROM PROFILE GRADE	DIST. FROM ℄	℄ & PROFILE GRADE ELEV.	℄ STATION	DIST. FROM ℄	CORR. FROM PROFILE GRADE	RIGHT EDGE ELEV.
——	——	——	1064.69	413+07.29	9.00'	−0.14	1064.57
——	——	——	1064.48	413+25.00	9.00'	−0.12	1064.36
——	——	——	1064.18	413+50.00	9.00'	−0.12	1064.06
——	——	——	1063.88	413+75.00	9.00'	−0.13	1063.75
——	——	——	1063.57	414+00.00	9.00'	−0.13	1063.44
——	——	——	1063.14	414+25.00	9.00'	−0.13	1063.01
——	——	——	1062.71	414+50.00	9.00'	−0.14	1062.57
1062.29	+0.05	1.38'	1062.24	414+75.00	9.00'	−0.14	1062.10
1061.88	+0.16	3.75'	1061.72	415+00.00	9.00'	−0.14	1061.58
1061.43	+0.27	6.45'	1061.16	415+25.00	9.00'	−0.15	1061.01
1060.97	+0.41	9.00'	1060.56	415+50.00	9.00'	−0.26	1060.30
1060.34	+0.41	9.00'	1059.93	415+75.00	7.33'	−0.26	1059.67
1059.66	+0.40	9.00'	1059.26	416+00.00	5.23'	−0.22	1059.04
1059.01	+0.45	10.33'	1058.56	416+25.00	2.78'	−0.12	1058.44
1058.61	+0.77	18.00'	1057.84	416+50.00	18.00'	−0.28	1057.56
1057.32	+0.20	2.93'	1057.12	416+75.00	10.30'	−0.23	1056.89
1056.78	+0.38	5.52'	1056.40	417+00.00	9.00'	−0.27	1056.13
1056.25	+0.53	7.77'	1055.72	417+25.00	9.00'	−0.33	1055.39
1055.62	+0.53	9.00'	1055.09	417+50.00	9.00'	−0.40	1054.69
1054.96	+0.46	9.00'	1054.50	417+75.00	6.92'	−0.28	1054.22
1054.34	+0.38	9.00'	1053.96	418+00.00	4.31'	−0.17	1053.79
1053.77	+0.31	9.00'	1053.46	418+25.00	2.02'	−0.09	1053.37
1053.24	+0.23	9.00'	1053.01	418+50.00	0.08'	0.00	1053.01
1052.70	+0.07	9.00'	1052.63	418+75.00	——	——	——
1052.17	−0.09	9.00'	1052.26	419+00.00	——	——	——
1051.69	−0.20	9.00'	1051.89	419+25.00	——	——	——
1051.21	−0.30	9.00'	1051.51	419+50.00	——	——	——
1050.67	−0.44	9.00'	1051.11	419+75.00	——	——	——
1050.30	−0.38	9.00'	1050.68	420+00.00	——	——	——
1049.87	−0.32	9.00'	1050.19	420+25.00	——	——	——
1049.72	−0.32	9.00'	1050.04	420+33.53	——	——	——

SUPERELEVATION TABLE SUM-21-7.58 S.B. CROSSOVER

LEFT EDGE ELEV.	CORR. FROM PROFILE GRADE	DIST. FROM ℄	℄ & PROFILE GRADE ELEV.	℄ STATION	DIST. FROM ℄	CORR. FROM PROFILE GRADE	RIGHT EDGE ELEV.
——	——	——	1022.11	390+75.89	18.00'	−0.32	1021.79
——	——	——	1023.05	391+00.00	18.00'	−0.34	1022.71
——	——	——	1023.99	391+25.00	18.00'	−0.33	1023.66
——	——	——	1024.92	391+50.00	18.00'	−0.31	1024.61
——	——	——	1025.85	391+75.00	18.00'	−0.30	1025.55
——	——	——	1026.78	392+00.00	18.00'	−0.28	1026.50
——	——	——	1027.73	392+25.00	18.00'	−0.28	1027.45
——	——	——	1028.68	392+50.00	18.00'	−0.28	1028.40
——	——	——	1029.60	392+75.00	18.00'	−0.28	1029.32
1030.57	+0.03	1.19'	1030.54	393+00.00	18.00'	−0.28	1030.26
1031.59	+0.10	4.32'	1031.49	393+25.00	18.00'	−0.28	1031.21
1032.61	+0.17	7.77'	1032.44	393+50.00	18.00'	−0.28	1032.16
1033.63	+0.24	11.57'	1033.39	393+75.00	17.03'	−0.18	1033.21
1034.65	+0.33	15.70'	1034.32	394+00.00	11.69'	−0.18	1034.14
1035.59	+0.38	18.00'	1035.21	394+25.00	6.01'	−0.11	1035.10
1036.42	+0.36	18.00'	1036.06	394+50.00	18.00'	+0.02	1036.08
1037.04	+0.17	5.74'	1036.87	394+75.00	16.57'	−0.11	1036.76
1038.01	+0.36	11.14'	1037.65	395+00.00	12.49'	−0.09	1037.56
1038.93	+0.54	16.20'	1038.39	395+25.00	8.74'	−0.10	1038.29
1039.87	+0.77	18.00'	1039.10	395+50.00	5.34'	−0.06	1039.04
1040.41	+0.60	18.00'	1039.81	395+75.00	2.26'	−0.01	1039.80
1040.96	+0.44	18.00'	1040.52	396+00.00	3.53'	+0.03	1040.55
1041.50	+0.27	18.00'	1041.23	396+25.00	1.12'	+0.02	1041.25
1042.21	+0.11	18.00'	1042.10	396+50.00	——	——	——
1042.83	−0.06	18.00'	1042.89	396+75.00	——	——	——
1043.45	−0.23	18.00'	1043.68	397+00.00	——	——	——
1044.19	−0.27	18.00'	1044.46	397+25.00	——	——	——
1044.98	−0.27	18.00'	1045.25	397+50.00	——	——	——
1045.76	−0.27	18.00'	1046.03	397+75.00	——	——	——
1046.39	−0.28	18.00'	1046.67	397+95.45	——	——	——

SUPERELEVATION TABLE SUM-21-7.78 S.B. CROSSOVER

LEFT EDGE ELEV.	CORR. FROM PROFILE GRADE	DIST. FROM ℄	℄ & PROFILE GRADE ELEV.	℄ STATION	DIST. FROM ℄	CORR. FROM PROFILE GRADE	RIGHT EDGE ELEV.
1063.79	−0.29	18.00'	1064.08	413+77.81	1.50'	+0.05	1064.13
1063.35	−0.29	18.00'	1063.64	414+00.00	1.63'	+0.07	1063.71
1062.81	−0.29	18.00'	1063.10	414+25.00	2.08'	+0.11	1063.21
1062.38	−0.14	18.00'	1062.52	414+50.00	2.86'	+0.17	1062.69
1061.92	+0.03	18.00'	1061.89	414+75.00	3.97'	+0.26	1062.15
1061.41	+0.20	18.00'	1061.21	415+00.00	5.41'	+0.29	1061.50
1060.85	+0.36	18.00'	1060.49	415+25.00	7.18'	+0.30	1060.79
1060.30	+0.52	18.00'	1059.78	415+50.00	9.28'	+0.27	1060.05
1059.67	+0.51	14.11'	1059.16	415+75.00	11.71'	+0.20	1059.36
1059.04	+0.40	9.74'	1058.64	416+00.00	14.47'	+0.06	1058.70
1058.44	+0.23	5.04'	1058.21	416+25.00	17.56'	−0.14	1058.07
1058.65	+0.77	18.00'	1057.88	416+50.00	18.00'	−0.28	1057.60
1058.39	+0.74	18.00'	1057.65	416+75.00	4.96'	−0.33	1057.32
1058.10	+0.64	17.80'	1057.46	417+00.00	9.92'	−0.68	1056.78
1057.72	+0.46	14.20'	1057.26	417+25.00	14.89'	−1.01	1056.25
1057.33	+0.29	10.60'	1057.04	417+50.00	18.00'	−1.06	1055.98
1056.95	+0.16	7.00'	1056.79	417+75.00	18.00'	−0.90	1055.89
1056.57	+0.05	3.47'	1056.52	418+00.00	18.00'	−0.74	1055.78
1056.24	0.00	0.25'	1056.24	418+25.00	18.00'	−0.57	1055.67
——	——	——	1055.90	418+50.00	18.00'	−0.40	1055.50
——	——	——	1055.50	418+75.00	18.00'	−0.29	1055.21
——	——	——	1055.10	419+00.00	18.00'	−0.15	1054.95
——	——	——	1054.60	419+25.00	18.00'	−0.02	1054.58
——	——	——	1054.20	419+50.00	18.00'	−0.01	1054.19
——	——	——	1053.67	419+75.00	18.00'	+0.14	1053.81
——	——	——	1053.27	420+00.00	18.00'	+0.15	1053.42
——	——	——	1052.95	420+15.25	18.00'	−0.29	1052.66

MAINTENANCE OF TRAFFIC – S.R. 21
MEDIAN CROSSOVER SUUPERELEVATION TABLES

SUM-21-(5.69)(7.58)(7.78)

54A
223

CROSSOVER-PROFILES.DWG

SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
100	32		
		352	106
90	25		
		199	63
89	32		
		119	43
71	26		
		61	17
39	5		
		110	21
46	11		
		113	30
15	5		
		28	9
0	0		
		982	289

CALCULATED JAA
CHECKED KAA

CROSS SECTIONS – S.R. 21 MAINTENANCE OF TRAFFIC STA. 391+00 TO STA. 395+00

SUM-21-(5.69)(7.58)(7.78)

55
223

℄ SOUTHBOUND LANES ℄ NB CROSSOVER ℄ SB CROSSOVER ℄ NORTHBOUND LANES

10.00' 2.00' 12.00' 9.10' 16.95' 12.49' 4.00' 12.00' 12.00' 12.00' 10.00'

-1.56% -2.77% -1.51% +1.56% 6:1

TEMPORARY 12" CONDUIT, TYPE B

395+00
1039.06 1037.78

2:1 EX. LA-R/W LA-R/W

℄ SB CROSSOVER ℄ NB CROSSOVER

9.50' 12.00' 8.45' 7.25' 13.04' 13.81'

-1.70% -1.56% +1.56% 6:1

TEMPORARY 12" CONDUIT, TYPE B

394+00
1034.79 1034.65

BEGIN PROPOSED GUARDRAIL LT.
STA. 393+74.92

℄ SB CROSSOVER ℄ NB CROSSOVER

8.00' 12.00' 6.35' 4.50' 13.68' 4.23' 9.07' 4.00' 12.00'

-9.84% -1.75% -1.56% +1.56% +2.42% 6:1

AHEAD

(1031.5)

TEMPORARY 12" CONDUIT, TYPE B

393+40
1032.38 1032.76

BEGIN SHOULDER WIDENING
STA. 393+40.00 LT. (S.B.)

EX. C.B.
STA. 392+99.73, 2.73' RT.
1028.38 T.G.
1026.46 ℄ 15" E.
FOR M.O.T ONLY
ADJUST TO GRADE 1029.08
1026.71 ℄ 12" N.

℄ SB CROSSOVER ℄ NB CROSSOVER

14.35' 4.97' 8.79' 4.00'

-1.56% +1.56% 4.0:1 2.8:1 4.6:1 5.7:1

EX. 15" CMP

393+00
1030.76 1031.50

15.98' 9.98'

+4.34%

392+70
1029.59 1030.61

5.26' OF PAVEMENT FOR MAINTAINING TRAFFIC TO REMAIN AS PAVED SHOULDER (TYP.)

4.00' 6.08' 12.00'

-1.56% 4.0:1 4.1 4.0:1 +1.56%

392+00
1026.84 1028.55

4.00' OF PAVEMENT FOR MAINTAINING TRAFFIC TO REMAIN AS PAVED SHOULDER (TYP.)

ROADS FOR MAINTAINING TRAFFIC (TYP.)

12.00' 12.00' 10.00'

12.00' 2.15' 4.0:1 4.1 2:1

391+00
1023.05 1025.63

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

BEGIN SHOULDER WIDENING
STA. 390+75.89 RT. (S.B.)

BEGIN SHOULDER WIDENING
STA. 390+46.31 LT. (N.B.)

STA. 390+00.00
SHEET TOTAL

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

NOTE: VOLUMES OF EARTHWORK FOR MAINTAINING TRAFFIC INCLUDE ALL CUTS AND FILLS REQUIRED FOR TEMPORARY PAVEMENT. CUTS OF ALL TEMPORARY FILLS REMOVED TO FINAL GROUND LINE. CUTS TO REMOVE TEMPORARY PAVEMENT.

EM1482X.DWG SCALE 1"=10'

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		34	12		
				68	29
		39	19		
				63	30
		46	22		
				17	8
		45	23		
				172	99
		79	48		
				76	39
		86	37		
				344	128
		100	32		
				740	333

CALCULATED JAA
CHECKED KAA

CROSS SECTIONS – S.R. 21 MAINTENANCE OF TRAFFIC
STA. 396+00 TO STA. 398+00

SUM–21–(5.69)(7.58)(7.78)

56
223

℄ SOUTHBOUND LANES

℄ NORTHBOUND LANES

ACCELERATION LANE

EX. LA–R/W

STA. 398+00.00 BK.

STA. 395+00.00

398+00
1049.91 1046.90

397+50
1048.21 1045.34

397+10
1046.84 1044.10

397+00
1046.50 1043.79

396+25
1043.76 1041.53

396+00
1042.84 1040.78

℄ NB CROSSOVER

℄ SB CROSSOVER

3.48' OF ROADS FOR MAINTAINING TRAFFIC TO REMAIN AS PAVED SHOULDER (TYP.)

4.00' OF PAVEMENT FOR MAINTAINING TRAFFIC TO REMAIN AS PAVED SHOULDER (TYP.)

4.00' OF ROADS FOR MAINTAINING TRAFFIC TO REMAIN AS PAVED SHOULDER (TYP.)

TEMPORARY 12" CONDUIT, TYPE B

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

SHEET TOTAL

EM1482X.DWG SCALE 1"=10'

SEEDING		END AREA		VOLUME		CALCULATED	JAA
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	CHECKED	KAA
		1	2				
		1	2				
				2	6		
		1	4				
		10	4				
				19	7		
		11	4				
		21	10				
				30	13		
		44	20				
		27	12				
				95	46		

NOTE: ALL PAVEMENT UNDER PROPOSED FILL SHALL BE REMOVED. COMPOSITE PAVEMENT, EX. REINFORCED CONC. PAV'T AND 4"± THICK BITUMINOUS WEARING COURSE, SHALL BE PAID FOR AS PAVEMENT REMOVED AS CALCULATED ON SHEET NO. 56. ALL OTHER PAVEMENT TO BE REMOVED, INCLUDING, BUT NOT LIMITED TO 4"± THICK PAVED SHOULDERS, SHALL BE INCLUDED WITH ITEM 203 EXCAVATION FOR PAYMENT. THE CAVITY CREATED BY ANY AND ALL PAVEMENT REMOVAL SHALL BE BACKFILLED ACCORDING TO CMS 202.02 EXCEPT WHEN THE CAVITY LIES WITHIN THE LIMITS OF SUBSEQUENT EXCAVATION OR OTHER WORK AND SHALL BE INCLUDED WITH ITEM 203 EMBANKMENT FOR PAYMENT.

℄ SOUTHBOUND LANES

℄ NORTHBOUND LANES

MATCH LINE STA. 400+29.43

37.50'

6.00' 12.00' 24.00' 10.00'

6.4:1

10:1

4.0:1

1051.8

67' OF 12" TYPE C AT 1.00%

PROP. C.B. NO. 3A
STA. 399+95.00, 19.00' LT.
1055.53 ℄ GRATE
1048.86 ℄ INVERT

80' OF 12" TYPE B AT 1.00%

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

2:1

1056.28 1052.82
400+00
1055.61 1052.71

℄ NORTHBOUND LANES

MATCH LINE STA. 400+29.43

24.00' 12.00' 4.00'

37.00'

6.00' 12.00' 12.00' 12.00' 10.00'

6.9:1

10:1

4.0:1

1050.1

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

AHEAD

EX. REINFORCED CONC. PAV'T TO BE REMOVED AH. AND TO REMAIN IN PLACE BK.

PAVEMENT FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE BK., PROP. PAVED SHOULDER

1054.67 1051.34
399+50
1054.29 1051.34

ACCELERATION LANE

BEGIN PAVEMENT NBL
STA. 399+50.00

PROP. C.B. NO. 3A
STA. 399+33.60, 71.00' LT.
1053.16 ℄ GRATE
1049.66 ℄ 4"
1049.66 ℄ INVERT

STA. 399+00.00, 127.05' LT.
℄ OUTLET ELEV. 1025.00

MATCH LINE STA. 400+29.43

10.00' 24.00' 12.00' 4.00'

-8.33
-8.33

1.10' 5.17'

6:1

4.0:1

10:1

1048.4

2:1

65' OF 12" TYPE F AT 31.75%

80' OF 12" TYPE B AT 1.00%

AHEAD

EX. REINFORCED CONC. PAV'T TO BE REMOVED AH. AND TO REMAIN IN PLACE BK.

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

1052.96
399+00
1052.96 1049.97

ACCELERATION LANE

RESUME PROJECT
BEGIN PAVEMENT SBL
STA. 399+00.00

MASONRY COLLAR AS PER DM-1.1 (INCLUDE WITH COST OF CONDUIT)

STA. 399+00.00, 121.05' LT.
1025.12 ℄ 22.5° BEND

6' OF 12" TYPE F AT 2.00%

HEADWALL AS PER HW-2.1

1.15'

10.00' 21.60' 12.00' 3.53'

-8.33

4.44' 4.33' 12.00' 12.00' 12.00' 10.00'

5:1

4.0:1

10:1

+1.56%

1046.6

2:1

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

398+50
1051.44 1048.43

BEGIN PROPOSED MEDIAN GUARDRAIL
STA. 398+49.30

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

STA. 398+00.00 AH

SHEET TOTAL

CROSS SECTIONS – S.R. 21 MAINTENANCE OF TRAFFIC
STA. 398+50 TO STA. 400+00

SUM-21-(5.69)(7.58)(7.78)

EM1482X.DWG SCALE 1"=10'

SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	JAA	KAA
		0	0				
				0	0		
		0	0				
				0	0		
		0	0				
				0	0		
		0	0				
				1	2		
		1	2				
				1	2		

CROSS SECTIONS – S.R. 21 MAINTENANCE OF TRAFFIC STA. 400+50 TO STA. 402+00

SUM-21-(5.69)(7.58)(7.78)

58
223

EM1482X.DWG SCALE 1"=10'

SHEET TOTAL

STA. 402+00.00 BK.

℄ SOUTHBOUND LANES

℄ NORTHBOUND LANES

1061.09 1058.01
402+00
1047.65 1028.94

1060.13 1056.89
401+50
1031.86 1039.40

1059.01 1055.65
401+00
1028.96 1055.10

1057.73 1054.29
400+50
1038.67 1053.91

MATCH LINE STA. 400+29.43 EX. LA-R/W

MATCH LINE STA. 400+29.43 2:1

EX. LA-R/W

DECELERATION LANE

MATCH LINE STA. 400+29.43

PROP. C.B. NO. 3A
STA. 401+15.00, 72.00' RT.
1055.05 ℄ GRATE
1047.37 ℄ INVERT

STA. 401+15.00, 83.4' RT.
1047.13 ℄ 22.5° BEND

4' X 6' ROCK CHANNEL PROTECTION, TYPE C, 1'-6" THICK

82' OF 12" TYPE B AT 1.00%

11' OF 12" TYPE F AT 2.00%

STA. 401+15.00, 129.37' RT.
℄ OUTLET ELEV. 1027.50

14' OF 12" PIPE AT 50.00%

STA. 401+15.00, 122.4' RT.
1027.64 ℄ 22.5° BEND

MASONRY COLLAR AS PER DM-1.1
(INCLUDE WITH COST OF CONDUIT)

6.00'

7' OF 12" TYPE F AT 2.00%

HEADWALL AS PER HW-2.1

DECELERATION LANE

PROP. C.B. NO. 3A
STA. 400+50.40, 19.00' RT.
1053.70 ℄ GRATE
1048.19 ℄ INVERT

6.00' 12.00' 24.00' 10.00'

MATCH LINE STA. 400+29.43 2.6:1

82' OF 12" TYPE B AT 1.00%

67' OF 12" TYPE C AT 1.00%

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

2:1

37.00' 38.00'

STA. 400+00.00

LA-R/W

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	JAA	KAA
		0	0				
				0	0		
				0	0		
		0	0				
				0	0		
		0	0				
				0	0		
		0	0				
				0	0		
				0	0		
				0	0

CROSS SECTIONS – S.R. 21 MAINTENANCE OF TRAFFIC
STA. 403+50 TO STA. 405+00

SUM-21-(5.69)(7.58)(7.78)

CALCULATED JAA
CHECKED KAA

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		12	11		
				19	18
		8	8		
				15	16
		8	9		
				13	17
		6	9		
				6	8
		0	0		
		SHEET TOTAL		53	59

60
223

EM1482X.DWG SCALE 1"=10'

¢ SOUTHBOUND LANES
SUSPEND PROPOSED MEDIAN GUARDRAIL
STA. 404+85.89
SUSPEND PROPOSED GUARDRAIL RT.
STA. 405+60.34
¢ NORTHBOUND LANES
SUSPEND PROJECT
SUSPEND PAVEMENT NBL
STA. 405+00.00
S.W. RAMP
ACCELERATION LANE
DECELERATION LANE
EX. LA-R/W
BACK
EX. REINFORCED CONC. PAV'T TO BE REMOVED BK. AND TO REMAIN IN PLACE AH.
EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)
EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)
MATCH LINE STA. 403+04.55
SUSPEND PAVEMENT SBL
STA. 404+00.00
EX. C.B. (TO REMAIN)
STA. 403+36.50, 6.31' RT.
1056.87 T.G.
1054.97 ñ 15" W.
ADJUST TO GRADE
ELEV. 1057.50
EX. 15" CMP (DO NOT DISTURB)
EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

1065.24 1062.25 405+00 1065.24 1062.25
1064.60 1061.83 404+50 1064.60 1061.56
1063.96 1061.30 404+00 1063.96 1060.86
1063.27 1060.66 403+50 1063.09 1059.76

1060.0 (1059.9)
1059.5 (1059.5)
1059.0 (1059.2)
1058.2 (1057.3)

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE
ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.
PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.
PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

SEEDING	
END WIDTH	SQ. YDS.

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

℄ SOUTHBOUND LANES ℄ NORTHBOUND LANES

SUSPEND PROPOSED GUARDRAIL LT.
STA. 406+72.92

S.W. RAMP 10.00' 12.00' 12.00' 4.00' 3:1 5.5:1 4.0:1 6:1

1061.5
(1060.9)

6.93' 4.00' 12.00' 12.00' 10.00' 7.52' 12.74' 4.21'
4.00% 2:1 S.E. RAMP 31.25' 16.12' BACK 2:1

1066.65 1063.70
406+61.40
1066.65 1063.70

RESUME PROPOSED GUARDRAIL RT.
STA. 406+08.38

S.W. RAMP 4:1 10:1 5:1 4.0:1 6:1

1060.9
(1060.3)

5.82' 1.52' 16.12' 7.14'
3.12% S.E. RAMP 2:1

1066.25 1063.28
406+00
1066.25 1063.28

PAVEMENT FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE (TYP.)

S.W. RAMP 10.00' 12.00' 12.00' 4.00' 4:1 10:1 4.7:1 4.0:1 6:1

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

1060.8
(1060.2)

4.00' 12.00' 12.00' 10.00' 0.26' 16.13' 7.61'
2.99% S.E. RAMP 2:1

1066.15 1063.18
405+90
1066.15 1063.18

EX. LA—R/W

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

END AREA		VOLUME	
CUT	FILL	CUT	FILL
44	27		
		77	50
24	17		
		9	6
STA. 405+90.00 AH. 23	16		
BK. 17	16		
		48	45
STA. 405+00.00 12	11		
SHEET TOTAL		134	101

CALCULATED JAA CHECKED KAA

CROSS SECTIONS — S.R. 21 MAINTENANCE OF TRAFFIC
STA. 405+90 TO STA. 406+61.40

SUM-21-(5.69)(7.58)(7.78)

61
223

EM1482X.DWG SCALE 1"=10'

SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
120	104		
		206	174
103	84		
		174	135
85	62		
		146	90
73	35		
		83	44
44	27		
		609	443

CALCULATED KAA
CHECKED TLS

℄ SOUTHBOUND LANES

℄ NORTHBOUND LANES

S.W. RAMP

S.E. RAMP

10.00' 12.00' 12.00' 4.00'
8.00'
2:1
6:1
4:1
1063.0
(1062.4)
1067.89 1065.05
408+50
1067.34 1064.38

10.36' 4.00' 12.00' 12.00' 10.00' 4.38'
2:1
1.71:1

9.45'
6:1
4:3:1
1062.7
(1062.1)
1067.56 1064.68
408+00
1067.32 1064.37

5.21'
2:1
1.66:1

ROADS FOR MAINTAINING TRAFFIC (TYP.)

8.55'
6:1
4:1
1062.3
(1061.6)
1067.23 1064.32
407+50
1067.11 1064.16

6.04'
2:1
1.76:1

NOTE: ALL EXISTING PAVEMENT UNDER PROPOSED FILL SHALL BE REMOVED. COMPOSITE PAVEMENT, EX. REINFORCED CONC. PAV'T AND 4"± THICK BITUMINOUS WEARING COURSE, SHALL BE PAID FOR AS PAVEMENT REMOVED AS CALCULATED ON SHEET NO. X. ALL OTHER PAVEMENT TO BE REMOVED, INCLUDING, BUT NOT LIMITED TO 4"± THICK PAVED SHOULDERS, SHALL BE INCLUDED WITH ITEM 203 EXCAVATION FOR PAYMENT. THE CAVITY CREATED BY ANY AND ALL PAVEMENT REMOVAL SHALL BE BACKFILLED ACCORDING TO CMS 202.02 EXCEPT WHEN THE CAVITY LIES WITHIN THE LIMITS OF SUBSEQUENT EXCAVATION OR OTHER WORK AND SHALL BE INCLUDED WITH ITEM 203 EMBANKMENT FOR PAYMENT.

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

RESUME PROPOSED GUARDRAIL LT.
STA. 407+44.52

10.00' 12.00' 12.00' 4.00'
8.00'
7.64' 4.00' 12.00' 12.00' 10.00' 6.88'
2:1
6:1
4:1
AH. ONLY
EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)
EX. REINFORCED CONC. PAV'T TO BE REMOVED AH. AND TO REMAIN IN PLACE BK.
1062.0
(1061.2)
1066.91 1063.96
407+00
1066.91 1063.96
AH. ONLY
PAVEMENT FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE BK., PROP. PAVED SHOULDER AH.

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

RESUME PROJECT
RESUME PAVEMENT
STA. 407+00.00

STA. 406+61.40

SHEET TOTAL

CROSS SECTIONS – S.R. 21 MAINTENACE OF TRAFFIC STA. 407+00 TO STA. 408+50

SUM-21-(5.69)(7.58)(7.78)

62
223

EM14844X.DWG SCALE 1"=10'

SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
104	203		
		218	359
131	185		
		250	325
139	166		
		250	292
131	149		
		232	234
120	104		
		950	1210

CALCULATED KAA
CHECKED TLS

℄ SOUTHBOUND LANES

℄ NORTHBOUND LANES

S.W. RAMP

S.E. RAMP

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE.

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

RESUME PROPOSED MEDIAN GUARDRAIL
STA. 410+15.34

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

STA. 408+50

SHEET TOTAL

SHEET TOTAL

EM1484X.DWG SCALE 1"=10'

CROSS SECTIONS – S.R. 21 MAINTENACE OF TRAFFIC STA. 409+00 TO STA. 410+50

SUM-21-(5.69)(7.58)(7.78)

SEEDING		END AREA		VOLUME		
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	
						STA. 410+50
		0	0			STA. 411+62.35 BK. X COS 12°35'30"
				14	23	
						STA. 411+37.35 AH. X COS 12°35'30"
		30	49			
				53	155	
		46	175			
				139	350	
		104	203			
				206	528	SHEET TOTAL

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS – S.R. 21 MAINTENACE OF TRAFFIC
STA. 411+00 TO STA. 411+62.35

SUM-21-(5.69)(7.58)(7.78)

64
223

¢ SOUTHBOUND LANES

¢ NORTHBOUND LANES

BRIDGE LIMITS SOUTHBOUND LANES
STA. 411+54.09 TO STA. 412+38.13

BRIDGE LIMITS NORTHBOUND LANES
STA. 411+70.62 TO STA. 412+54.66

2:1 NORMAL
M.S.E. WALL
1066.0
1069.17
411+54.09
1052.6
1066.49
411+70.62
1050.3
411+62.35 SKEWED 12°35'30" R.F.
EX. 21" ST.S.
EX. C.B.
STA. 411+91.84, 112.58' RT.
1039.35 T.G.
1035.91 ℄ 21" E.

EX. CONC. BARRIER TO BE REMOVED (TYP.)
2.08'
2:1 NORMAL
3:1 NORMAL
BK. ONLY
AH. ONLY
EX. APPROACH SLAB TO BE REMOVED (TYP.)
1065.7
1069.22
411+29.09
1066.53
1066.56
411+45.62
1063.52
411+37.35 SKEWED 12°35'30" R.F.

10.00' 12.00' 12.00' 4.00'
14.00' 4.00' 12.00' 12.00' 10.00' 0.21'
6:1
4:1
10:1
2:1
EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)
(1063.4)
1064.8
EX. C.B. (REMOVE)
STA. 411+10.68, 2.69'RT.
1061.70 T.G.
1058.75 ℄ 12" N.
1069.24
411+00
1066.59
1066.57
1063.77
S.E. RAMP

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

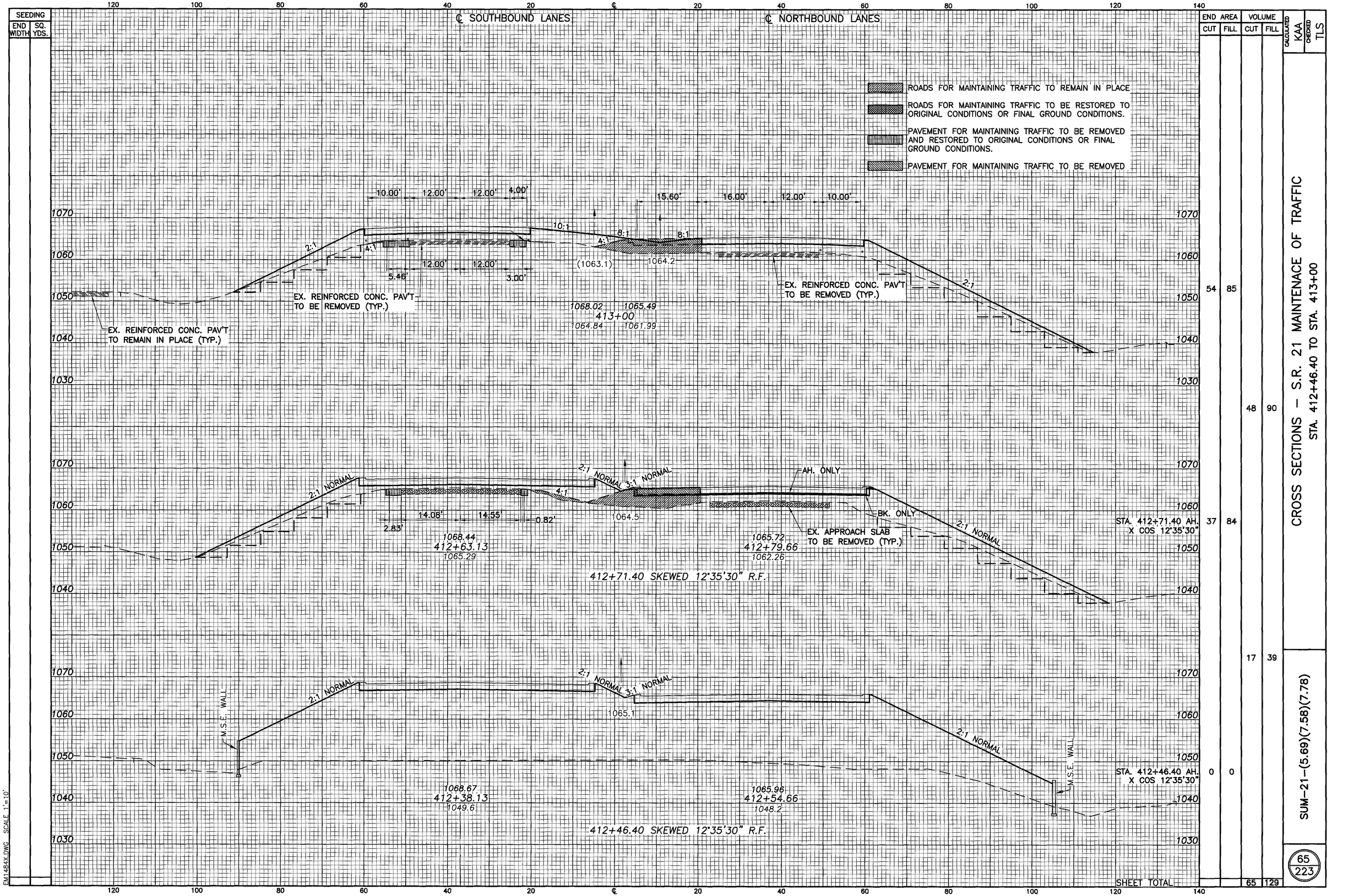
ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

FM1484X.DWG SCALE 1"=10'

SEEDING		END AREA		VOLUME		CALCULATED KAA
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	CHECKED TLS



STA. 412+71.40 AH. X COS 12°35'30"	37	84			
STA. 412+46.40 AH. X COS 12°35'30"	0	0			
			17	39	
SHEET TOTAL			65	129	
	54	85	48	90	

CROSS SECTIONS — S.R. 21 MAINTENACE OF TRAFFIC
STA. 412+46.40 TO STA. 413+00

SUM-21-(5.69)(7.58)(7.78)

65
223

EM1484X.DWG SCALE 1"=10'

SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
83	120		
		150	208
79	105		
		118	192
48	102		
		94	173
54	85		
		362	573

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS – S.R. 21 MAINTENACE OF TRAFFIC STA. 413+50 TO STA. 414+50

SUM-21-(5.69)(7.58)(7.78)

℄ SOUTHBOUND LANES ℄ NORTHBOUND LANES

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

1070 1060 1050 1040 1030

N.W. RAMP

N.E. RAMP

10.00' 12.00' 12.00' 4.00' 18.01' 2.87' 16.00' 12.00' 10.00'

℄ SB CROSSOVER

2:1 2:1 +1.56% 8:1 8:1 -1.56%

8.00' 12.00' 12.00' 8.36'

(1061.7) 1061.7

TEMPORARY 12" CONDUIT, TYPE B

1065.40 1062.96

414+50

1062.83 1060.03

19.63'

10:1 +1.56%

2:1 3:1 2:1 2:1 8:1 8:1

8.00' 5.26'

(1060.3) 1062.7

TEMPORARY 12" CONDUIT, TYPE B

18.7321899

1066.44 1063.97

414+00

1063.67 1060.86

END PROPOSED MEDIAN GUARDRAIL STA. 413+93.42

10.00' 12.00' 12.00' 4.00' 18.11' 16.00' 12.00' 10.00'

10:1 8:1 +1.56% 8:1

2:1 4:1 4:1

6.73' 12.00' 12.00' 3.48'

(1061.8) 1063.5

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

1067.31 1064.81

413+50

1064.26 1061.43

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

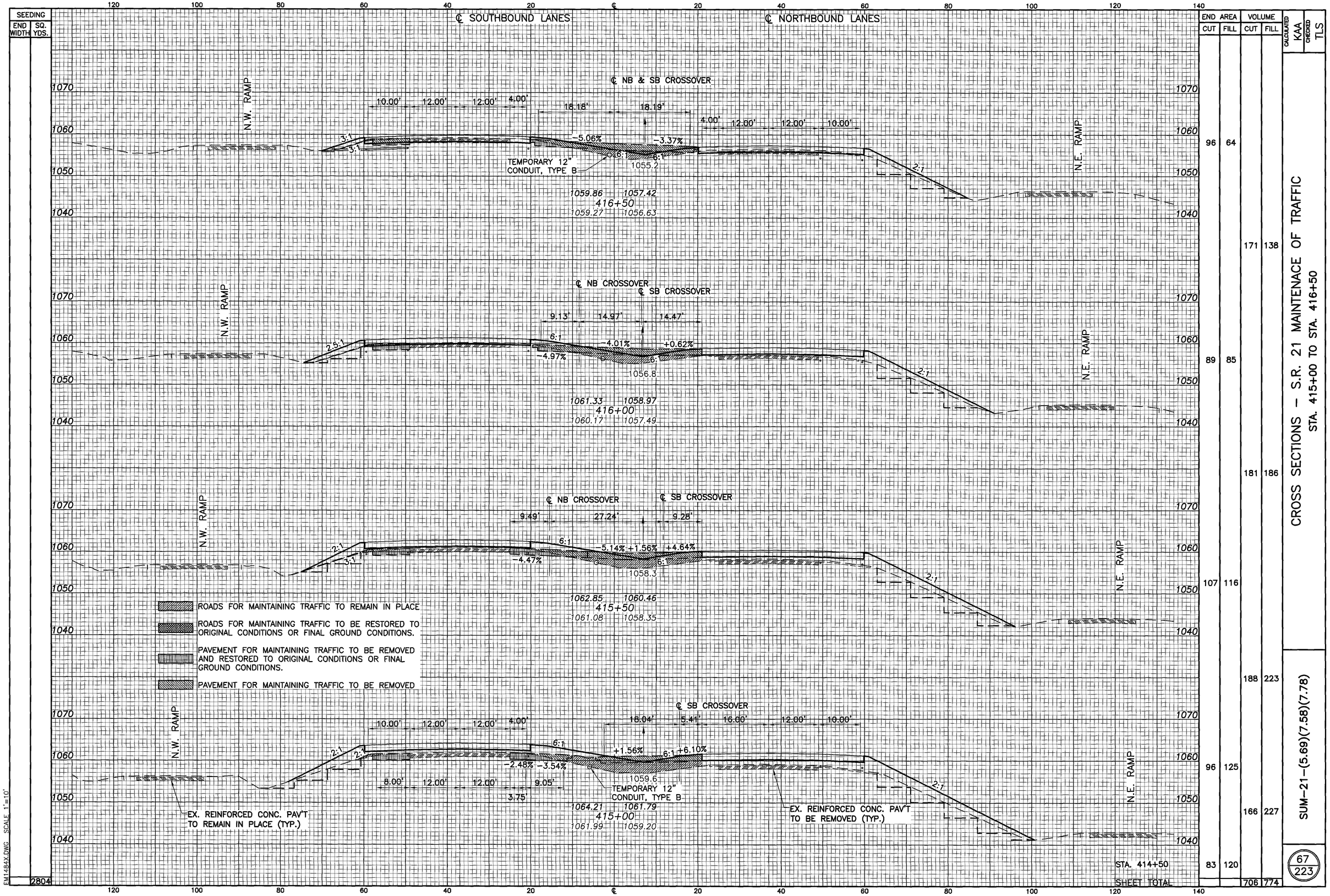
PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

STA. 413+00

SHEET TOTAL

EM1484X.DWG SCALE 1"=10'

SEEDING		END AREA		VOLUME		CALCULATED KAA
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	CHECKED TLS
		96	64	171	138	
		89	85			
		107	116	181	186	
		96	125	188	223	
		83	120	166	227	
2804				706	774	



STA. 414+50

SHEET TOTAL

CROSS SECTIONS – S.R. 21 MAINTENACE OF TRAFFIC STA. 415+00 TO STA. 416+50

SUM-21-(5.69)(7.58)(7.78)

67
223

EM1484X.DWG SCALE 1"=10'

SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
74	53		
		163	107
102	63		
		81	49
95	55		
		116	53
131	49		
		230	100
117	59		
		197	114
96	64		
		787	423

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS STA.

SUM-21-(5.69)(7.58)(7.78)

68
223

℄ SOUTHBOUND LANES ℄ NORTHBOUND LANES

DECELERATION LANE

EX. LA-R/W

N.E. RAMP

12.00' 4.00' 11.46' 9.10' 12.00' 12.00' 8.32'

3.07% 3.00% 2.8:1 6:1 6:1

TEMPORARY 12" CONDUIT, TYPE B

1051.2 (1050.1)

4.00'

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

418+50
1055.74 1053.28

END PROJECT
END PAVEMENT
STA. 418+00.00 NBL

℄ SB CROSSOVER ℄ NB CROSSOVER

END PROPOSED GUARDRAIL RT.
STA. 418+14.23

18.17' 3.47' 4.00' 9.04' 4.31' 9.23'

4.68% 4:1 -5.00% -2.27% 2.30% 6:1 6:1 2:1

1052.0 (1053.8) 1054.07

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

BK. ONLY

EX. REINFORCED CONC. PAV'T TO BE REMOVED BK. AND TO REMAIN IN PLACE AH.

418+00
1056.56 1054.07

END PAVEMENT
STA. 417+77.75 SBL

N.W. RAMP

℄ SB CROSSOVER ℄ NB CROSSOVER

10.83' 12.00' 12.00' 6.61' 18.18' 4.00' 9.06' 6.61' 12.00' 12.00' 10.00'

-6.78% 4:1 -5.78% -2.93% -2.35% 6:1 6:1 2:1

BK. ONLY BK. ONLY

1052.4 (1054.6)

EX. REINFORCED CONC. PAV'T TO BE REMOVED BK. AND TO REMAIN IN PLACE AH.

1056.96 1054.44
417+77.75
1056.96 1054.43

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED BK. AND TO REMAIN IN PLACE AH.

℄ SB CROSSOVER ℄ NB CROSSOVER

10.00' 12.00' 12.00' 4.00' 6.60' 18.19' 2.28' 9.07' 9.07' 12.79' 3.21'

-2.64% -6.77% -6.77% -4.21% 6:1 6:1 2:1

1052.9

1057.48 1054.96
417+50
1057.46 1054.91

END PROPOSED GUARDRAIL LT.
STA. 417+25.37

℄ SB CROSSOVER ℄ NB CROSSOVER

10.00' 12.00' 12.00' 4.00' 13.80' 15.44' 9.10' 16.00' 12.00' 10.00'

3:1 -3.63% -7.06% -3.03% 6:1 6:1 2:1

TEMPORARY 12" CONDUIT, TYPE B

1053.9

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

1058.58 1056.08
417+00
1058.37 1055.76

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

STA. 416+50

SHEET TOTAL

EM1484X.DWG SCALE 1"=10'

SEEDING		END AREA		VOLUME		CALCULATED KAA	CHECKED TLS
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL		
		17	22				
				37	46		
		20	24				
				54	46		
		38	26				
				77	56		
		45	35				
				82	75		
		44	46				
				109	92		
		74	53				
				359	315		

CROSS SECTIONS — S.R. 21 MAINTENACE OF TRAFFIC
STA. 419+00 TO STA. 421+04.22

SUM-21-(5.69)(7.58)(7.78)

69
223

℄ SOUTHBOUND LANES ℄ NORTHBOUND LANES

DECELERATION LANE — ACCELERATION LANE — N.E. RAMP

EX. LA-R/W

12.00' 4.00' 0.33' 4:1 4:1 1046.1 (1046.1) 421+04.22 1051.40 1049.07

12.00' 3.66' BK. ONLY

END SHOULDER WIDENING STA. 421+04.22 RT. (N.B.)

1.31' 4:1 4:1 (1047.1) 1047.0 420+50 1052.35 1050.01

4.60'

END SHOULDER WIDENING STA. 420+33.53 LT. (N.B.)

2.08' -1.60% 4:1 4:1 (1048.0) 1047.9 420+00 1053.22 1050.86

3.20' 12.00' 5.58' 4:1

3.48' -1.60% 4:1 5:1 6:1 1049.2 (1048.9) 419+50 1054.09 1051.69

4.23' 6.42' 4:1 +1.00% 4:1

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

12.00' 4.00' 6.65' -1.60% 3:1 6:1 3.2:1 6:1 1050.4 (1049.5) 419+00 1054.93 1052.50

5.98' 12.00' 12.00' 7.41' -1.00% 4:1

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

4.00'

STA. 418+50

SHEET TOTAL

SCALE 1"=10'

EM1484X.DWG

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
		0	0	0	2
		0	7		
		8	7		
				12	7
		10	4		
				20	19
		12	17		
				25	33
		17	22		
				57	61

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS – S.R. 21 MAINTENACE OF TRAFFIC STA. 421+50 TO STA. 423+00

SUM-21-(5.69)(7.58)(7.78)

70
223

℄ SOUTHBOUND LANES

℄ NORTHBOUND LANES

423+00

END WORK
STA. 422+50

STA. 422+50.00 BK.

422+50

12.00' 2.00'
4:1
BK. ONLY

STA. 422+36.22 AH.
BK.

END SHOULDER WIDENING
STA. 422+36.68 RT. (S.B.)

422+36.68
1048.98 1046.97

12.00' 2.60'
3.3:1

EX. 15" CONC.

EX. C.B. (DO NOT DISTURB)
STA. 422+10.31, 0.50' LT.
1044.54 T.G.
1041.70 ℄ 15" W.

422+00
1049.67 1047.45

DECELERATION LANE

ACCELERATION LANE

12.00' 3.50'
4:1
(1045.4)

421+50
1050.57 1048.30

EX. REINFORCED CONC. PAV'T
TO REMAIN IN PLACE (TYP.)

STA. 421+04.22 AH.

SHEET TOTAL

EX. LA-R/W

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

EM1484X.DWG SCALE 1"=10'

FROM SHEET NO.																						ITEM	ITEM EXT.	QUAN.	UNIT	DESCRIPTION	SEE SHEET NO.
7	8	9	10	11	12	13	14	15	17	29	30	42	73	74	75	76	78	114	115	146	154						
																										ROADWAY	
																						201	11000	LUMP		CLEARING AND GRUBBING	
														7067								202	23000	7067	SQ YD	PAVEMENT REMOVED	
													77	15570								202	23500	15647	SQ YD	WEARING COURSE REMOVED	
																		87				202	32000	87	FT	CURB REMOVED	
																		136				202	32800	136	SQ YD	CONCRETE SLOPE PROTECTION REMOVED	
																		58				202	35100	58	FT	PIPE REMOVED, 24" AND UNDER	
																				163		202	35200	163	FT	PIPE REMOVED, OVER 24"	
																		7073				202	38000	7073	FT	GUARDRAIL REMOVED	
																		125				202	38300	125	FT	GUARDRAIL REMOVED, BARRIER DESIGN	
																		12				202	42000	12	EACH	ANCHOR ASSEMBLY REMOVED, TYPE A	
																		5				202	42210	5	EACH	ANCHOR ASSEMBLY REMOVED, BARRIER DESIGN	
																		6				202	47000	6	EACH	BRIDGE TERMINAL ASSEMBLY REMOVED	
														69								202	54000	69	EACH	RAISED PAVEMENT MARKER REMOVED *AND DISPOSED*	
																		1		1		202	58100	2	EACH	CATCH BASIN REMOVED	
																		1900				202	75000	1900	FT	FENCE REMOVED	
																		6				202	98300	6	SQ YD	REMOVAL MISC.: *CONCRETE PAD*	
	1000															17008						203	10000	18008	CU YD	EXCAVATION	
	1000															17008						203	20000	18008	CU YD	EMBANKMENT	
																20820						203	40000	20820	CU YD	BORROW	
13																						204	45000	13	HOUR	PROOF ROLLING	
													1493	23126								204	10000	24619	SQ YD	SUBGRADE COMPACTION	
														0.05								209	60501	0.05	MILE	LINEAR GRADING, AS PER PLAN	8
																		1				604	39500	1	EACH	MONUMENT BOX ADJUSTED TO GRADE	
																		6656.21				606	13000	6656.21	FT	GUARDRAIL, TYPE 5	
																		375				606	15500	375	FT	GUARDRAIL, BARRIER DESIGN, TYPE 5	
																		125				606	17000	125	FT	RAISING TYPE 5 GUARDRAIL	
																		8				606	22010	8	EACH	ANCHOR ASSEMLY, TYPE E-98	
																		4				606	26500	4	EACH	ANCHOR ASSEMBLY, TYPE T	
																		18				606	35000	18	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 1	
																		6				606	60010	6	EACH	IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	
																		1448				607	15000	1448	FT	FENCE, TYPE 47	
																		25				609	24510	25	FT	CURB, TYPE 4-C	
																		150				622	24000	150	FT	CONCRETE BARRIER, TYPE D	
																										EROSION CONTROL	
																		2		3		601	32204	5	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER	
																		23				601	37500	23	FT	PAVED GUTTER, TYPE 1-2	
	2																					659	00100	2	EACH	SOIL ANALYSIS TEST	
	5074																					659	00300	5074	CU YD	TOPSOIL	
	45706																					659	10000	45706	SQ YD	SEEDING AND MULCHING	
	2285																					659	14000	2285	SQ YD	REPAIR SEEDING AND MULCHING	
	2285																					659	15000	2285	SQ YD	INTER-SEEDING	
0.03	6.17																					659	20000	6.20	TON	COMMERCIAL FERTILIZER	
0.09	9.44																					659	31000	9.53	ACRE	LIME	
4	246																					659	35000	250	M GAL	WATER	
	108																					659	40000	108	M SQ FT	MOWING	
																		206				660	20000	206	SQ YD	SODDING REINFORCED	
																		1233				670	00700	1233	SQ YD	DITCH EROSION PROTECTION	
																	1					832	10000	1	EACH	STORM WATER POLLUTION PREVENTION PLAN	
																	15000					832	30000	15000	EACH	EROSION CONTROL	
																										DRAINAGE	
	58																					SPECIAL	20270100	58	FT	PIPE CLEANOUT	
																			0.8	1.2		602	20000	2.0	CU YD	CONCRETE MASONRY	
																			375			603	00410	375	FT	4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET	
	300																					603	01400	300	FT	6" CONDUIT, TYPE E	
	300																					603	01500	300	FT	6" CONDUIT, TYPE F	
	150																					603	02500	150	FT	8" CONDUIT, TYPE E	
	150																					603	02600	150	FT	8" CONDUIT, TYPE F	
																			133			603	05200	133	FT	12" CONDUIT, TYPE F	
																			24			603	06100	24	FT	15" CONDUIT, TYPE C	
																			39			603	07600	39	FT	18" CONDUIT, TYPE C	
																			428			603	07601	428	FT	18" CONDUIT, TYPE C, AS PER PLAN	113
																			30			603	09100	30	FT	21" CONDUIT, TYPE C	
																			5			603	10600	5	FT	24" CONDUIT, TYPE C	
																				165		603	14700	165	FT	33" CONDUIT, TYPE A	
																			2			604	00800	2	EACH	CATCH BASIN, NO. 3A	
																			3			604	04500	3	EACH	CATCH BASIN, NO. 2-2B	
																			1	1		604	04900	2	EACH	CATCH BASIN, NO. 2-3	
																			1			604	09000	1	EACH	CATCH BASIN ADJUSTED TO GRADE	
																			11			604	36600	11	EACH	PRECAST REINFORCED CONCRETE OUTLET	
																			11761			605	05100	11761	FT	4" SHALLOW PIPE UNDERDRAINS	
																			211			605	31100	211	FT	AGGREGATE DRAINS	

CALCULATED RLS CHECKED TLS

GENERAL SUMMARY

SUM-21-(5.69)(7.58)(7.78)

EM1484G.DWG

FROM SHEET NO.																						ITEM	ITEM EXT.	QUAN.	UNIT	DESCRIPTION	SEE SHEET NO.
7	8	9	10	11	12	13	14	15	17	29	30	42	73	74	75	76	78	114	115	146	154						
																										PAVEMENT	
	18												129	5052								301	46000	5199	CU YD	ASPHALT CONCRETE BASE, PG64-22	
	12												315		3704							304	20000	4031	CU YD	AGGREGATE BASE	
													6		1168							407	10000	1172	GALLON	TACK COAT	8
	4												45		791							407	14000	840	GALLON	TACK COAT FOR INTERMEDIATE COURSE	
	43												464		8084							408	10000	8591	GALLON	PRIME COAT	
	4												55		961							448	46050	1020	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22	
	3														93							448	46061	93	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, UNDER GUARDRAIL, PG64-22, AS PER PLAN	8
													42		1227							448	47020	1272	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22	
																										TRAFFIC CONTROL	
																		2			5	620	10300	7	EACH	DELINEATOR, TYPE C, POST MOUNTED	
																		3				620	15300	3	EACH	DELINEATOR, TYPE D, POST MOUNTED	
																					5	620	31200	5	EACH	DELINEATOR REMOVED FOR DISPOSAL	
																			88			626	00100	88	EACH	BARRIER REFLECTOR, TYPE A	
																			21			626	00200	21	EACH	BARRIER REFLECTOR, TYPE B	
																					232.0	630	02100	232.0	FT	GROUND MOUNTED SUPPORT, NO. 2 POST	
																					61.0	630	03100	61.0	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
																					57.3	630	04100	57.3	FT	GROUND MOUNTED SUPPORT, NO. 4 POST	
																					80.0	630	06400	80.0	FT	GROUND MOUNTED SUPPORT, S4X7.7 BEAM	
																					52.3	630	07500	52.3	FT	GROUND MOUNTED SUPPORT, W10X22 BEAM	
																					34	630	85100	34	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
																					3	630	85600	3	EACH	REMOVAL OF GROUND MOUNTED MAJOR SIGN AND REERECTION	
																					23	630	86002	23	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
																					6	630	86102	6	EACH	REMOVAL OF GROUND MOUNTED BEAM SUPPORT AND DISPOSAL	
																					4.14	642	00102	4.14	MILE	EDGE LINE, TYPE 2	
																					1.86	642	00202	1.86	MILE	LANE LINE, TYPE 2	
																					0.14	642	00302	0.14	MILE	CENTER LINE, TYPE 2	
																					881	642	00402	881	FT	CHANNELIZING LINE, TYPE 2	
																					286	642	00702	286	FT	TRANSVERSE LINE, TYPE 2	
																										MAINTENANCE OF TRAFFIC	
		200	10	10	10	10	10			200	20	200										410	12000	670	CU YD	TRAFFIC COMPACTED SURFACE, TYPE A OR B	
							102															411	10000	102	CU YD	STABILIZED CRUSHED AGGREGATE	
								100														614	11100	100	HOURS	LAW ENFORCEMENT OFFICER WITH PATROL CAR	
								10280														614	11600	10280	FT	TRANSITION AREA DELINEATION	
									10													614	12350	10	EACH	WORK ZONE IMPACT ATTENUATOR	
									20													614	12460	20	EACH	WORK ZONE MARKING SIGN	
								1														614	12756	1	EACH	WORK ZONE CROSSOVER LIGHTING SYSTEM	
			10	10	10	10	10															614	13000	50	CU YD	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
									326													614	13300	326	EACH	BARRIER REFLECTOR, TYPE B	
									81													614	13350	81	EACH	OBJECT MARKER, ONE WAY	
									44													614	13360	44	EACH	OBJECT MARKER, TWO WAY	
									1.67													614	20200	1.67	MILE	WORK ZONE LANE LINE, CLASS I, 740.06, TYPE 1	
													0.14									614	21400	0.14	MILE	WORK ZONE CENTER LINE, CLASS II	
									4.39													614	22200	4.39	MILE	WORK ZONE EDGE LINE, CLASS I, 740.06, TYPE I	
									LUMP													615	10000	LUMP		ROADS FOR MAINTAINING TRAFFIC	
									7048													615	20001	7048	SQ YD	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A, AS PER PLAN	14
		100					50	10		100	10	100										616	10000	370	M GAL	WATER	
									5585													622	40020	5585	FT	PORTABLE CONCRETE BARRIER, 32"	
									3334													622	40030	3334	FT	PORTABLE CONCRETE BARRIER, 50"	
								460														SPECIAL	69013000	460	FT	RUMBLE STRIPS	
																										STRUCTURES	
																										FOR ESTIMATED QUANTITIES STRUCTURES 20' SPAN AND OVER	
																										SUM-21-0569	156
																										SUM-21-0758R	173
																										SUM-21-0758L	174
																										SUM-21-0778R	198
																										SUM-21-0778L	199
																						614	11000	LUMP		MAINTAINING TRAFFIC	
																						619	16020	16	MONTH	FIELD OFFICE, TYPE C	
																						623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
																						624	10000	LUMP		MOBILIZATION	

CALCULATED RLS CHECKED TLS

GENERAL SUMMARY

SUM-21-(5.69)(7.58)(7.78)

EM1484G.DWG

EM1481A.DWG

LINE	DESCRIPTION			QUANTITY	UNIT
	202–WEARING COURSE REMOVED				
1	45+10.00 TO 45+25.00 = 15.00' X 23.72'	= 355.80 SQ FT			
2	52+50.00 TO 52+65.00 = 15.00' X 22.60'	= 339.00 SQ FT			
3	SUM LINES 1 THROUGH 2 = 694.80 SQ FT/9 = 77.20 SQ YD		TO SHEET NO. 71	77	SQ YD
	204–SUBGRADE COMPACTION				
4	45+25.00 TO 45+76.60 = 51.60' X (26.72+25.00)/2'	= 1334.38 SQ FT			
5	45+76.60 TO 48+62.49 = 285.89' X 25.00'	= 7147.25 SQ FT			
6	48+62.49 TO 48+92.49 = 30.00' X 32.00'	= 960.00 SQ FT			
7	51+13.53 TO 51+43.53 = 30.00' X 32.00'	= 960.00 SQ FT			
8	51+43.53 TO 52+18.35 = 74.82' X 25.00'	= 1870.50 SQ FT			
9	52+18.35 TO 52+50.00 = [31.65' X (25.00'+25.52')/2]–(25.82X1.5)	= 760.75 SQ FT			
10	MAILBOX APP. STA. 52+60.16 LT. (COMPUTER)	= 400.17 SQ FT			
11	SUM LINES 4 THROUGH 10 = 13433.06 SQ FT/9 = 1492.56 SQ YD		TO SHEET NO. 71	1493	SQ YD
	301–BITUMINOUS AGGREGATE BASE, PG64–22				
12	45+25.00 TO 45+76.60 = 51.60' X (24.39+22.67)/2'	= 1214.15 SQ FT			
13	45+76.60 TO 48+62.49 = 285.89' X 22.67'	= 6481.13 SQ FT			
14	51+43.53 TO 52+18.35 = 74.82' X 22.67'	= 1696.17 SQ FT			
15	52+18.35 TO 52+50.00 = [31.65' X (22.67'+23.19')/2]–(25.82X0.33)	= 717.21 SQ FT			
16	MAILBOX APP. STA. 52+60.16 LT. (COMPUTER)	= 321.14 SQ FT			
17	SUM LINES 12 THROUGH 16 = 10429.80 SQ FTX4"/12/27	= 128.76 CU YD	TO SHEET NO. 72	129	CU YD
	304–AGGREGATE BASE, AS PER PLAN				
	PAVEMENT				
18	45+25.00 TO 45+76.60 = 51.60' X (25.39+23.67)/2'X6"/12	= 632.88 CU FT			
19	45+76.60 TO 48+62.49 = 285.89' X 23.67' X 6"/12	= 3383.51 CU FT			
20	48+62.49 TO 48+92.49 = 30.00' X 31.00' X 6"/12	= 465.00 CU FT			
21	51+13.53 TO 51+43.53 = 30.00' X 31.00' X 6"/12	= 465.00 CU FT			
22	51+43.53 TO 52+18.35 = 74.82' X 23.67' X 6"/12	= 885.50 CU FT			
23	52+18.35 TO 52+50.00 = [31.65' X (23.67'+24.19')/2]–(25.82X0.83)X6/12	= 367.98 CU FT			
24	MAILBOX APP. STA. 52+60.16 LT. (COMPUTER) X 6"/12	= 177.46 CU FT			
	AGGREGATE SHOULDER END AREA = 4.00' X 8"/12–(0.33' X 0.33')–(0.83' X 0.08') = 2.49 SQ FT				
25	45+25.00 TO 48+62.49 LT.&RT.= 337.49' X 2.49 SQ FT X 2	= 1680.70 CU FT			
26	51+43.53 TO 52+18.35 LT.&RT.= 74.82' X 2.49 SQ FT X 2	= 372.60 CU FT			
27	52+18.35 TO 52+42.16 LT.= (5.81' X 2.49 SQ FT)+[(16.98X(2.83+0.00)/2]	= 38.49 CU FT			
28	52+18.35 TO 52+50.00 RT = (31.65 X 2.49 SQ FT)–[31.65X(0.00+0.52)/2]	= 70.58 CU FT			
29	DEDUCT FOR 35:1 TAPERS LT.&RT.= (35.00' X 1.00' X 8"/12 X 0.5) X 4	= –46.67 CU FT			
30	SUM LINES 18 THROUGH 29 = 8493.03 CU FT/27	= 314.56 CU YD	TO SHEET NO. 72	315	CU YD
	407–TACK COAT				
31	SUM LINES 1 & 2 = 694.80 SQ.FT./9 X 0.075 GAL./SQ.YD.	= 5.79 GAL	TO SHEET NO. 72	6	GAL
	407–TACK COAT FOR INTERMEDIATE COURSE				
32	45+25.00 TO 45+76.60 = 51.60' X (23.72+22.00)/2'	= 1179.58 SQ FT			
33	45+76.60 TO 48+62.49 = 285.89' X 22.00'	= 6289.58 SQ FT			
34	51+43.53 TO 52+18.35 = 74.82' X 22.00'	= 1646.04 SQ FT			
35	52+18.35 TO 52+50.00 = 31.65' X (22.00'+22.52')/2	= 704.53 SQ FT			
36	MAILBOX APP. STA. 52+60.16 LT. (COMPUTER)	= 298.85 SQ FT			
37	SUM LINES 32 THRUGH 36 = 10118.58 SQ FT/9 X 0.04 GAL/SQ YD	= 44.97 GAL	TO SHEET NO. 72	45	GAL
	408–PRIME COAT				
38	SUM LINES 12 THROUGH 16 = 10429.80 SQ FT /9 X 0.4 GAL /SQ YD	= 463.55 GAL	TO SHEET NO. 72	464	GAL
	448–ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22				
39	SUM LINES 1, 2, 32, 33, 34, 35 & 36 = 10813.38 SQ FT X 1.25"/12/27=	41.72 CU YD	TO SHEET NO. 72	42	CU YD
	448–ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–22				
40	SUM LINES 32, 33, 34, 35 & 36 = 10118.58 SQ.FT. X 1.75"/12/27	= 54.65 CU YD	TO SHEET NO. 72	55	CU YD
	614–WORK ZONE CENTERLINE, CLASS II				
41	45+10.00 TO 52+65.00 ℄ = 755.00'/5280	= 0.14 MILE	TO SHEET NO. 72	0.14	MILE
	659–COMMERCIAL FERTILIZER				
42	FROM SHEET NO. 76 = 6942.00 SQ YD (659–SEEDING & MULCHING)				
43	FROM LINE 42 = 6942.00 SQ YD X 1 TON/7410 SQ YD	= 0.94 TON	TO SHEET NO. 8	0.94	TON
	659–WATER				
44	FROM LINE 42 = 6942.00 SQ YD X 0.0027 M GAL/SQ YD X 2	= 37.49 M GAL	TO SHEET NO. 8	37	M GAL
	659–TOPSOIL				
45	FROM LINE 42 = 6942.00 SQ YD X 111 CU.YD./1000 SQ YD	= 770.56 CU YD	TO SHEET NO. 8	771	CU YD
	659–LIME				
46	FROM LINE 42 = 6942.00 SQ YD X 9 SQ FT/SQ YD/43560 SQ FT/ACRE	= 1.43 ACRE	TO SHEET NO. 8	1.43	ACRE

EM1484A.DWG

LINE	DESCRIPTION	QUANTITY	UNIT
	202–PAVEMENT REMOVED		
1	399+00.00 TO 399+86.37 S.B. = [86.37'–(6' OFFSET/TAN 37°–35'–59")] X 36'/9 = 314.31 SQ.YD.		
2	402+51.40 TO 404+00.00 S.B. = 6176.4 SQ.FT. (COMPUTER)/9 = 686.27 SQ.YD.		
3	407+00.00 TO 411+20.30 S.B. = 420.30' X 24'/9 = 1120.80 SQ.YD.		
4	412+71.91 TO 417+77.75 S.B. = 505.84' X 24'/9 = 1348.91 SQ.YD.		
5	399+50.00 TO 400+83.78 N.B. = 4327.6 SQ.FT. (COMPUTER)/9 = 480.84 SQ.YD.		
6	403+54.00 TO 405+00.00 N.B. = 5279.6 SQ.FT. (COMPUTER)/9 = 586.62 SQ.YD.		
7	407+00.00 TO 411+36.83 N.B. = 436.83' X 24'/9 = 1164.88 SQ.YD.		
8	412+88.44 TO 418+00.00 N.B. = 511.56' X 24'/9 = 1364.16 SQ.YD.		
9	SUM LINES 1 THROUGH 8 = 7,066.79 SQ.YD. TO SHEET NO. 71	7,067	SQ.YD.
	202–WEARING COURSE REMOVED		
10	372+15.00 TO 372+30.00 N.B. = 15.00' X 35.50' = 532.50 SQ.FT.		
11	372+30.00 TO 390+46.31 N.B. = 1816.31' X 25.50' = 46315.91 SQ.FT.		
12	390+46.31 TO 399+00.00 N.B. = 853.69' X 24.00' = 20488.56 SQ.FT.		
13	399+00.00 TO 399+50.00 N.B. = 50.00' X (24.00'+27.00')/2 = 1275.00 SQ.FT.		
14	405+00.00 TO 407+00.00 N.B. = (COMPUTER) = 7908.55 SQ.FT.		
15	418+00.00 TO 420+33.53 N.B. = 233.53' X 24.00' = 5604.72 SQ.FT.		
16	420+33.53 TO 421+04.22 N.B. = 70.69' X (27.00'+26.63')/2 = 1895.55 SQ.FT.		
17	421+04.22 TO 421+19.22 N.B. = 15.00' X 30.30' = 454.50 SQ.FT.		
18	390+60.89 TO 390+75.89 S.B. = 15.00' X 35.50' = 532.50 SQ.FT.		
19	390+75.89 TO 393+40.00 S.B. = 264.11' X 31.50' = 8319.47 SQ.FT.		
20	393+40.00 TO 396+50.00 S.B. = 310.00' X 24.00' = 7440.00 SQ.FT.		
21	396+50.00 TO 399+00.00 S.B. = 250.00' X (24.00'+36.00')/2 = 7500.00 SQ.FT.		
22	404+00.00 TO 2+85.36 SW. RAMP S.B. = (COMPUTER) = 1637.14 SQ.FT.		
23	404+00.00 TO 407+00.00 S.B. = 300.00' X 24.00' = 7200.00 SQ.FT.		
24	417+77.75 TO 422+36.68 S.B. = (COMPUTER) = 23027.29 SQ.FT.		
25	SUM LINES 10 THROUGH 24 = 140,131.69 SQ.FT./9 = 15,570.19 SQ.YD. TO SHEET NO. 71	15,570	SQ.YD.
	202–RAISED PAVEMENT MARKER REMOVED		
25A	372+15.00 TO 421+19.22 N.B. = (4904.22'/120')+1 = 41.87		
25B	390+60.89 TO 422+36.68 S.B. = (3175.79'/120')+1 = 27.46		
25C	SUM LINES 25A AND 25B = 69.33 TO SHEET NO. 71	69	EACH
	204–SUBGRADE COMPACTION		
26	372+30.00 TO 377+25.06 N.B. RT. = 495.06' X 11.50' = 5693.19 SQ.FT.		
27	377+25.06 TO 383+85.06 N.B. RT. = 660.00' X (11.50'+23.50')/2 = 11550.00 SQ.FT.		
28	383+85.06 TO 390+46.31 N.B. RT. = 661.25' X 23.50' = 15539.38 SQ.FT.		
29	390+46.31 TO 398+30.00 N.B. LT.&RT. = 783.69' X 29.00' = 22727.01 SQ.FT.		
30	398+30.00 TO 399+00.00 N.B. LT.&RT. = 70.00' X (29.00'+30.17')/2 = 2070.95 SQ.FT.		
31	399+00.00 TO 399+50.00 N.B. LT.&RT. = 50.00' X (30.17'+28.00')/2 = 1454.25 SQ.FT.		
32	399+50.00 TO 400+78.79 N.B. LT.&RT. = 139.18' X 55.00' = 7654.90 SQ.FT.		
33	400+78.79 TO 401+08.79 N.B. LT.&RT. = 30.00' X 56.00' = 1680.00 SQ.FT.		
34	403+24.00 TO 403+54.00 N.B. LT.&RT. = 30.00' X 56.00' = 1680.00 SQ.FT.		
35	403+54.00 TO 405+00.00 N.B. LT.&RT. = (COMPUTER) = 7376.61 SQ.FT.		
36	405+00.00 TO 405+90.00 N.B. LT.&RT. = [90.00' X (18.03'+15.05')/2]+35.81S.F.(CURVE) = 1524.41 SQ.FT.		
37	405+90.00 TO 406+61.40 N.B. LT.&RT. = 71.40' X (26.55'+22.69')/2 = 1757.87 SQ.FT.		
38	406+61.40 TO 407+00.00 N.B. LT.&RT. = 38.60' X 17.00' = 656.20 SQ.FT.		
39	407+00.00 TO 411+45.62 N.B. LT.&RT. = 446.29' X 41.00' = 18297.89 SQ.FT.		
40	411+45.62 TO 411+70.62 N.B. LT.&RT. = 25.00' X 56.00' = 1400.00 SQ.FT.		
41	412+54.67 TO 412+79.67 N.B. LT.&RT. = 25.00' X 56.00' = 1400.00 SQ.FT.		
42	412+79.67 TO 417+57.64 N.B. LT.&RT. = 477.97' X 41.00' = 19596.77 SQ.FT.		
43	417+57.64 TO 418+00.00 N.B. LT.&RT. = 42.36' X (41.00'+40.23')/2 = 1720.45 SQ.FT.		
44	418+00.00 TO 419+58.47 N.B. LT.&RT. = 158.47' X (16.23'+13.28')/2 = 2338.22 SQ.FT.		
45	419+58.47 TO 420+33.53 N.B. LT.&RT. = 75.06' X (13.28'+10.94')/2 = 909.35 SQ.FT.		
46	420+33.53 TO 421+04.22 N.B. RT. = 70.69' X (6.44'+5.16')/2 = 410.00 SQ.FT.		
47	390+75.89 TO 393+40.00 S.B. RT. = 264.11' X 5.50' = 1452.61 SQ.FT.		
48	393+40.00 TO 394+20.12 S.B. LT.&RT. = 80.12' X (15.00'+17.00')/2 = 1281.92 SQ.FT.		
49	394+20.12 TO 395+00.00 S.B. LT.&RT. = 79.88' X (17.00'+19.00')/2 = 1437.84 SQ.FT.		
50	395+00.00 TO 396+50.00 S.B. LT.&RT. = 150.00' X (19.00'+22.75')/2 = 3131.25 SQ.FT.		
51	396+50.00 TO 397+31.06 S.B. LT.&RT. = 81.06' X (22.75'+20.89')/2 = 1768.73 SQ.FT.		
52	397+31.06 TO 397+92.71 S.B. LT.&RT. = 61.65' X (20.89'+18.47')/2 = 1213.27 SQ.FT.		
53	397+92.71 TO 399+00.00 S.B. LT.&RT. = 107.29' X (18.47'+17.00')/2 = 1902.79 SQ.FT.		
54	399+00.00 TO 399+81.37 S.B. LT.&RT. = 70.98' X 53.00' = 3761.94 SQ.FT.		
55	399+81.37 TO 400+11.37 S.B. LT.&RT. = 30.00' X 56.00' = 1680.00 SQ.FT.		
56	402+26.40 TO 402+56.40 S.B. LT.&RT. = 30.00' X 56.00' = 1680.00 SQ.FT.		
57	402+56.40 TO 404+00.00 S.B. LT.&RT. = (COMPUTER) = 8777.35 SQ.FT.		
58	404+00.00 TO 404+70.92 S.B. LT.&RT. = 70.92' X (23.33'+25.33')/2 = 1725.48 SQ.FT.		
59	404+70.92 TO 405+00.00 S.B. LT.&RT. = 29.08' X (25.33'+23.97')/2 = 716.82 SQ.FT.		
59A	405+00.00 TO 407+00.00 S.B. LT.&RT. = 200.00' X 17.00' = 3400.00 SQ.FT.		
60	407+00.00 TO 411+29.09 S.B. LT.&RT. = 428.42' X 41.00' = 17565.22 SQ.FT.		
61	411+29.09 TO 411+54.09 S.B. LT.&RT. = 25.00' X 56.00' = 1400.00 SQ.FT.		
62	412+38.13 TO 412+63.13 S.B. LT.&RT. = 25.00' X 56.00' = 1400.00 SQ.FT.		
63	412+63.13 TO 417+77.75 S.B. LT.&RT. = 514.62' X 41.00' = 21099.42 SQ.FT.		
64	417+77.75 TO 421+25.73 S.B. RT. = 347.98' X 5.50' = 1913.89 SQ.FT.		
64A	421+25.73 TO 422+36.68 S.B. RT. = 110.95' X (5.50'+3.50')/2 = 499.28 SQ.FT.		
65	390+46.32 TO 395+11.13 LT.&RT. = MEDIAN CROSSOVER (COMPUTER) = 2884.70 SQ.FT.		
66	SUM LINES 26 THROUGH 65 = 208,129.96 SQ.FT./9 = 23,125.55 SQ.YD. TO SHEET NO. 71	23,126	SQ.YD.
	209–LINEAR GRADING, AS PER PLAN		
66A	390+60.89 TO 393+39.95 S.B. LT. = 279.06'/5280 = 0.05 MILE TO SHEET NO. 71	0.05	MILE
	301–ASPHALT CONCRETE BASE, PG64–22		
67	372+30.00 TO 377+25.06 N.B. RT. = 495.06' X 10.33' = 5113.97 SQ.FT.		
68	377+25.06 TO 383+85.06 N.B. RT. = 660.00' X (10.33'+22.33')/2 = 10777.80 SQ.FT.		
69	383+85.06 TO 390+46.31 N.B. RT. = 661.25' X 22.33' = 14765.71 SQ.FT.		
70	390+46.31 TO 398+30.00 N.B. LT.&RT. = 783.69' X 26.67' = 20901.01 SQ.FT.		
71	398+30.00 TO 399+00.00 N.B. LT.&RT. = 70.00' X (26.67'+27.83')/2 = 1907.50 SQ.FT.		
72	399+00.00 TO 399+50.00 N.B. LT.&RT. = 50.00' X (27.83'+25.67')/2 = 1337.50 SQ.FT.		
73	399+50.00 TO 400+78.79 N.B. LT.&RT. = 139.18' X 52.67' = 7330.61 SQ.FT.		
74	403+54.00 TO 405+00.00 N.B. LT.&RT. = (COMPUTER) = 7063.55 SQ.FT.		
75	405+00.00 TO 405+90.00 N.B. LT.&RT. = [90.00' X (15.70'+12.72')/2]+35.81S.F.(CURVE) = 1314.71 SQ.FT.		
76	405+90.00 TO 406+61.40 N.B. LT.&RT. = 71.40' X (23.05'+19.19')/2 = 1507.97 SQ.FT.		
77	406+61.40 TO 407+00.00 N.B. LT.&RT. = 38.60' X 14.67' = 566.26 SQ.FT.		
78	407+00.00 TO 411+45.62 N.B. LT.&RT. = 446.29' X 38.67' = 17258.03 SQ.FT.		
79	412+79.67 TO 417+57.64 N.B. LT.&RT. = 477.97' X 38.67' = 18483.10 SQ.FT.		
80	417+57.64 TO 418+00.00 N.B. LT.&RT. = 42.36' X (38.67'+37.90')/2 = 1621.75 SQ.FT.		
81	418+00.00 TO 419+58.47 N.B. LT.&RT. = 158.47' X (13.90'+10.95')/2 = 1968.99 SQ.FT.		
82	419+58.47 TO 420+33.53 N.B. LT.&RT. = 75.06' X (10.95'+8.61')/2 = 734.09 SQ.FT.		
83	420+33.53 TO 421+04.22 N.B. RT. = 70.69' X (5.27'+3.99')/2 = 327.29 SQ.FT.		
84	390+75.89 TO 393+40.00 S.B. RT. = 264.11' X 4.33' = 1143.60 SQ.FT.		
85	393+40.00 TO 394+20.12 S.B. LT.&RT. = 80.12' X (12.67'+14.67')/2 = 1095.24 SQ.FT.		
86	394+20.12 TO 395+00.00 S.B. LT.&RT. = 79.88' X (14.67'+16.67')/2 = 1251.72 SQ.FT.		
87	395+00.00 TO 396+50.00 S.B. LT.&RT. = 150.00' X (16.67'+20.42')/2 = 2781.75 SQ.FT.		
88	396+50.00 TO 397+31.06 S.B. LT.&RT. = 81.06' X (20.42'+18.56')/2 = 1579.86 SQ.FT.		
89	397+31.06 TO 397+92.71 S.B. LT.&RT. = 61.65' X (18.56'+16.14')/2 = 1069.63 SQ.FT.		
90	397+92.71 TO 399+00.00 S.B. LT.&RT. = 107.29' X (16.14'+14.67')/2 = 1652.80 SQ.FT.		
91	399+00.00 TO 399+81.37 S.B. LT.&RT. = 70.98' X 50.67' = 3596.56 SQ.FT.		
92	402+56.40 TO 404+00.00 S.B. LT.&RT. = (COMPUTER) = 8414.13 SQ.FT.		
93	404+00.00 TO 404+58.48 S.B. LT.&RT. = 58.48' X (21.00'+22.40')/2 = 1269.02 SQ.FT.		
94	404+58.48 TO 405+00.00 S.B. LT.&RT. = 41.52' X (22.40'+20.47')/2 = 889.98 SQ.FT.		
95	405+00.00 TO 407+00.00 S.B. LT.&RT. = 200.00' X 14.67 = 2934.00 SQ.FT.		
96	407+00.00 TO 411+29.09 S.B. LT.&RT. = 428.42' X 38.67' = 16567.00 SQ.FT.		
97	412+63.13 TO 417+77.75 S.B. LT.&RT. = 514.62' X 38.67' = 19900.36 SQ.FT.		
98	417+77.75 TO 421+25.73 S.B. RT. = 347.98' X 4.33' = 1506.75 SQ.FT.		
98A	421+25.73 TO 422+36.68 S.B. RT. = 110.95' X (4.33'+2.33')/2 = 369.46 SQ.FT.		
99	390+46.32 TO 395+11.13 LT.&RT. = MEDIAN CROSSOVER (COMPUTER) = 2877.95 SQ.FT.		
100	SUM LINES 67 THROUGH 99 = 181,879.65 SQ.FT.X9"/12/27 = 5,052.21 CU.YD. TO SHEET NO. 72	5,052	CU.YD.

EM1484A.DWG

LINE	DESCRIPTION	QUANTITY	UNIT
	304–AGGREGATE BASE		
101	372+30.00 TO 377+25.06 N.B. RT. = 495.06' X 10.83' = 5361.50 SQ.FT.		
102	377+25.06 TO 383+85.06 N.B. RT. = 660.00' X (10.83'+22.83')/2 = 11107.80 SQ.FT.		
103	383+85.06 TO 390+46.31 N.B. RT. = 661.25' X 22.83' = 15096.34 SQ.FT.		
104	390+46.31 TO 398+30.00 N.B. LT.&RT. = 783.69' X 27.67' = 21684.70 SQ.FT.		
105	398+30.00 TO 399+00.00 N.B. LT.&RT. = 70.00' X (27.67'+28.83')/2 = 1977.50 SQ.FT.		
106	399+00.00 TO 399+50.00 N.B. LT.&RT. = 50.00' X (28.83'+26.67')/2 = 1387.50 SQ.FT.		
107	399+50.00 TO 400+78.79 N.B. LT.&RT. = 139.18' X 53.67' = 7469.79 SQ.FT.		
107A	400+78.79 TO 401+08.79 N.B. LT.&RT. = 30.00' X 55.00' = 1650.00 SQ.FT.		
107B	403+24.00 TO 403+54.00 N.B. LT.&RT. = 30.00' X 55.00' = 1650.00 SQ.FT.		
108	403+54.00 TO 405+00.00 N.B. LT.&RT. = (COMPUTER) = 7196.88 SQ.FT.		
109	405+00.00 TO 405+90.00 N.B. LT.&RT. = [90.00' X (16.70'+13.72')/2]+35.81S.F.(CURVE) = 1404.71 SQ.FT.		
110	405+90.00 TO 406+61.40 N.B. LT.&RT. = 71.40' X (24.55'+20.69')/2 = 1615.07 SQ.FT.		
111	406+61.40 TO 407+00.00 N.B. LT.&RT. = 38.60' X 15.67' = 604.86 SQ.FT.		
112	407+00.00 TO 411+45.62 N.B. LT.&RT. = 446.29' X 39.67' = 17704.32 SQ.FT.		
112A	411+45.62 TO 411+70.62 N.B. LT.&RT. = 25.00' X 55.00' = 1375.00 SQ.FT.		
112B	412+54.67 TO 412+79.67 N.B. LT.&RT. = 25.00' X 55.00' = 1375.00 SQ.FT.		
113	412+79.67 TO 417+57.64 N.B. LT.&RT. = 477.97' X 39.67' = 18961.07 SQ.FT.		
114	417+57.64 TO 418+00.00 N.B. LT.&RT. = 42.36' X (39.67'+38.90')/2 = 1664.11 SQ.FT.		
115	418+00.00 TO 419+58.47 N.B. LT.&RT. = 158.47' X (14.90'+11.95')/2 = 2127.46SQ.FT.		
116	419+58.47 TO 420+33.53 N.B. LT.&RT. = 75.06' X (11.95'+9.61')/2 = 809.15 SQ.FT.		
117	420+33.53 TO 421+04.22 N.B. RT. = 70.69' X (5.77'+4.49')/2 = 362.64 SQ.FT.		
118	390+75.89 TO 393+40.00 S.B. RT. = 264.11' X 4.83' = 1275.65 SQ.FT.		
119	393+40.00 TO 394+20.12 S.B. LT.&RT. = 80.12' X (13.67'+15.67')/2 = 1175.36 SQ.FT.		
120	394+20.12 TO 395+00.00 S.B. LT.&RT. = 79.88' X (15.67'+17.67')/2 = 1331.60 SQ.FT.		
121	395+00.00 TO 396+50.00 S.B. LT.&RT. = 150.00' X (17.67'+21.42')/2 = 2931.75 SQ.FT.		
122	396+50.00 TO 397+31.06 S.B. LT.&RT. = 81.06' X (21.42'+19.56')/2 = 1660.92 SQ.FT.		
123	397+31.06 TO 397+92.71 S.B. LT.&RT. = 61.65' X (19.56'+17.14')/2 = 1131.28 SQ.FT.		
124	397+92.71 TO 399+00.00 S.B. LT.&RT. = 107.29' X (17.14'+15.67')/2 = 1760.09 SQ.FT.		
125	399+00.00 TO 399+81.37 S.B. LT.&RT. = 70.98' X 51.67' = 3667.54 SQ.FT.		
125A	399+81.37 TO 400+11.37 S.B. LT.&RT. = 30.00' X 55.00' = 1650.00 SQ.FT.		
125B	402+26.40 TO 402+56.40 S.B. LT.&RT. = 30.00' X 55.00' = 1650.00 SQ.FT.		
126	402+56.40 TO 404+00.00 S.B. LT.&RT. = (COMPUTER) = 8569.49 SQ.FT.		
127	404+00.00 TO 404+63.79 S.B. LT.&RT. = 63.79' X (23.66'+23.90')/2 = 1516.21 SQ.FT.		
128	404+63.79 TO 405+00.00 S.B. LT.&RT. = 36.21' X (23.90'+21.97')/2 = 830.48 SQ.FT.		
129	405+00.00 TO 407+00.00 S.B. LT.&RT. = 428.42' X 15.67 = 3134.00 SQ.FT.		
130	407+00.00 TO 411+29.09 S.B. LT.&RT. = 418.19' X 39.67' = 16995.42 SQ.FT.		
130A	411+29.09 TO 411+54.09 S.B. LT.&RT. = 25.00' X 55.00' = 1375.00 SQ.FT.		
130B	412+38.13 TO 412+63.13 S.B. LT.&RT. = 25.00' X 55.00' = 1375.00 SQ.FT.		
131	412+63.13 TO 417+77.75 S.B. LT.&RT. = 514.62' X 39.67' = 20414.98 SQ.FT.		
132	417+77.75 TO 421+25.73 S.B. RT. = 347.01' X 4.83' = 1680.74 SQ.FT.		
132A	421+25.73 TO 422+36.68 S.B. RT. = 110.95' X (4.83'+2.83')/2 = 424.94 SQ.FT.		
133	390+46.32 TO 395+11.13 LT.&RT. = MEDIAN CROSSOVER (COMPUTER) = 2881.89 SQ.FT.		
134	SUM LINES 101 THROUGH 133 = 200,017.24 SQ.FT.X6"/12/27 = 3,704.03 CU.YD. TO SHEET NO. 72	3,704	CU.YD.
	407–TACK COAT		
134A	SUM LINES 10 THROUGH 24 = 140,131.69 SQ.FT./9 X 0.075 GAL./SQ.YD. = 1167.76 GAL. TO SHEET NO. 72	1168	GAL.
	407–TACK COAT FOR INTERMEDIATE COURSE		
135	372+30.00 TO 377+25.06 N.B. RT. = 495.06' X 10.00' = 4950.60 SQ.FT.		
136	377+25.06 TO 383+85.06 N.B. RT. = 660.00' X (10.00'+22.00')/2 = 10560.00 SQ.FT.		
137	383+85.06 TO 390+46.31 N.B. RT. = 661.25' X 22.00' = 14547.50 SQ.FT.		
138	390+46.31 TO 398+30.00 N.B. LT.&RT. = 783.69' X 26.00' = 20375.94 SQ.FT.		
139	398+30.00 TO 399+00.00 N.B. LT.&RT. = 70.00' X (26.00'+27.16')/2 = 1860.60 SQ.FT.		
140	399+00.00 TO 399+50.00 N.B. LT.&RT. = 50.00' X (27.16'+25.00')/2 = 1304.00 SQ.FT.		
141	399+50.00 TO 400+78.79 N.B. LT.&RT. = 139.18' X 52.00' = 7237.36 SQ.FT.		
142	403+54.00 TO 405+00.00 N.B. LT.&RT. = (COMPUTER) = 6973.87 SQ.FT.		
143	405+00.00 TO 405+90.00 N.B. LT.&RT. = [90.00' X (15.03'+12.05')/2]+35.81S.F.(CURVE) = 1254.41 SQ.FT.		
144	405+90.00 TO 406+61.40 N.B. LT.&RT. = 71.40' X (22.05'+18.19')/2 = 1436.57 SQ.FT.		
145	406+61.40 TO 407+00.00 N.B. LT.&RT. = 38.60' X 14.00' = 540.40 SQ.FT.		
146	407+00.00 TO 411+45.62 N.B. LT.&RT. = 446.29' X 38.00' = 16959.02 SQ.FT.		
147	412+79.67 TO 417+57.64 N.B. LT.&RT. = 477.97' X 38.00' = 18162.86 SQ.FT.		
148	417+57.64 TO 418+00.00 N.B. LT.&RT. = 42.36' X (38.00'+37.23')/2 = 1593.37 SQ.FT.		
149	418+00.00 TO 419+58.47 N.B. LT.&RT. = 158.47' X (13.23'+10.28')/2 = 1862.81 SQ.FT.		
150	419+58.47 TO 420+33.53 N.B. LT.&RT. = 75.06' X (10.28'+7.94')/2 = 683.80 SQ.FT.		
151	420+33.53 TO 421+04.22 N.B. RT. = 70.69' X (4.94'+3.66')/2 = 303.97 SQ.FT.		
152	390+75.89 TO 393+40.00 S.B. RT. = 264.11' X 4.00' = 1056.44 SQ.FT.		
153	393+40.00 TO 394+20.12 S.B. LT.&RT. = 80.12' X (12.00'+14.00')/2 = 1041.56 SQ.FT.		
154	394+20.12 TO 395+00.00 S.B. LT.&RT. = 79.88' X (14.00'+16.00')/2 = 1198.20 SQ.FT.		
155	395+00.00 TO 396+50.00 S.B. LT.&RT. = 150.00' X (16.00'+19.75')/2 = 2681.25 SQ.FT.		
156	396+50.00 TO 397+31.06 S.B. LT.&RT. = 81.06' X (19.75'+17.89')/2 = 1525.55 SQ.FT.		
157	397+31.06 TO 397+92.71 S.B. LT.&RT. = 61.65' X (17.89'+15.47')/2 = 1028.32 SQ.FT.		
158	397+92.71 TO 399+00.00 S.B. LT.&RT. = 107.29' X (15.47'+14.00')/2 = 1580.92 SQ.FT.		
159	399+00.00 TO 399+81.37 S.B. LT.&RT. = 70.98' X 50.00' = 3549.00 SQ.FT.		
160	402+56.40 TO 404+00.00 S.B. LT.&RT. = (COMPUTER) = 8311.68 SQ.FT.		
161	404+00.00 TO 404+49.40 S.B. LT.&RT. = 49.40' X (20.33'+21.83')/2 = 1041.35 SQ.FT.		
162	404+49.40 TO 405+00.00 S.B. LT.&RT. = 50.60' X (21.83'+19.47')/2 = 1044.89 SQ.FT.		
163	405+00.00 TO 407+00.00 S.B. LT.&RT. = 200.00' X 14.00 = 2800.00 SQ.FT.		
164	407+00.00 TO 411+29.09 S.B. LT.&RT. = 428.42' X 38.00' = 16279.96 SQ.FT.		
165	412+63.13 TO 417+77.75 S.B. LT.&RT. = 514.62' X 38.00' = 19555.56 SQ.FT.		
166	417+77.75 TO 421+25.73 S.B. RT. = 347.98' X 4.00' = 1391.92 SQ.FT.		
166A	421+25.73 TO 422+36.68 S.B. RT. = 110.95' X (4.00'+2.00')/2 = 332.85 SQ.FT.		
167	390+46.32 TO 395+11.13 LT.&RT. = MEDIAN CROSSOVER (COMPUTER) = 2874.45 SQ.FT.		
168	SUM LINES 135 THROUGH 167 = 177,900.38 SQ.FT./9 X 0.04 GAL./SQ.YD. = 790.67 GAL. TO SHEET NO. 72	791	GAL.
	408–PRIME COAT		
160	SUM LINES 67 THROUGH 99 = 181,879.65 SQ.FT./9 X 0.4 GAL./SQ.YD. = 8083.54 GAL. TO SHEET NO. 72	8084	GAL.
	448–ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22		
161	SUM LINES 10 THROUGH 24 = 140,131.69 SQ.FT.		
161A	SUM LINES 135 THROUGH 167 = 177,900.38 SQ.FT.		
161B	SUM LINES 135 THROUGH 167 = 318,032.07 SQ.FT. X 1.25"/12/27 = 1226.98 CU.YD. TO SHEET NO. 72	1227	CU.YD.
	448–ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–22		
162	SUM LINES 135 THROUGH 167 = 177,900.38 SQ.FT. X 1.75"/12/27 = 960.88 CU.YD. TO SHEET NO. 72	961	CU.YD.
	448–ASPHALT CONCRETTE INTERMEDIATE COURSE, TYPE 1, UNDER GUARDRAIL, PG64–22, AS PER PLAN		
163	383+62.00 TO 401+08.30 N.B. RT. = 1746.30' X 2.00' = 3492.60 SQ.FT.		
164	390+60.89 TO 399+27.22 S.B. LT. = 866.33' X 2.00' = 1732.66 SQ.FT.		
165	400+12.61 TO 400+55.40 N.B. LT. = 42.79' X 2.00' = 85.58 SQ.FT.		
166	403+98.37 TO 406+10.84 N.B. RT. = 212.81' X 2.00' = 425.62 SQ.FT.		
167	405+90.00 TO 411+50.33 N.B. RT. = 553.71' X 2.00' = 1107.42 SQ.FT.		
168	412+87.58 TO 418+15.00 N.B. RT. = 527.42' X 2.00' = 1054.84 SQ.FT.		
169	402+12.48 TO 404+44.71 S.B. LT. = 232.53' X 2.00' = 465.00 SQ.FT.		
170	407+44.00 TO 411+24.17 S.B. LT. = 380.17' X 2.00' = 760.34 SQ.FT.		
171	412+62.22 TO 417+26.00 S.B. LT. = 463.78' X 2.00' = 927.56 SQ.FT.		
172	SUM LINES 163 THROUGH 171 = 10,051.68 SQ.FT. X 3"/12/27 = 93.07 CU. YD. = 3,704.03 CU.YD. TO SHEET NO. 72	93	CU.YD.
	659–COMMERCIAL FERTILIZER		
173	FROM SHEET NO. 76 = 38764.00 SQ.YD. (659–SEEDING & MULCHING)		
174	FROM LINE 173 = 38764.00 SQ.YD. X 1 TON/7410 SQ.YD. = 5.23 TON TO SHEET NO. 8	5.23	TON
	659–WATER		
175	FROM LINE 173 = 38764.00 SQ.YD. X 0.0027 M.GAL./SQ.YD. X 2 = 209.33 M.GAL. TO SHEET NO. 8	209	M.GAL.
	659–TOPSOIL		
176	FROM LINE 173 = 38764.00 SQ.YD. X 111 CU.YD./1000 SQ.YD. = 4302.80 CU.YD. TO SHEET NO. 8	4303	CU.YD.
	659–LIME		
177	FROM LINE 173 = 38764.00 SQ.YD. X 9 SQ.FT./SQ.YD. /43560 SQ.FT./SQ.YD. = 8.01 ACRE TO SHEET NO. 8	8.01	ACRE

EARTHWORK & SEEDING SUB-SUMMARY

CROSS SECTION SHEET NO.	203 EXCAVATION CU YD		203 EMBANKMENT CU YD	203 BORROW CU YD		659 SEEDING AND MULCHING SQ YD
SUM-21-(5.69)						
83	57		45			188
84	786		999			1322
85	634		1011			1098
86	272		361			523
87	38		79			184
88	75		247			764
89	319		816			1669
90	55		150			1194
SUBTOTAL	2236		3708			6942
SUM-21-(7.58)						
116	169		2			253
117	320		14			445
118	365		209			778
119	382		1559			1525
120	1451		3853			5112
121	1640		6100			5592
122	1027		2692			3128
123	704		1382			1262
124	238		375			450
125	144		341			410
126	271		656			653
127	690		607			1634
128	728		835			1797
138	359		626			353
139	675		495			138
140	1012		748			33
141	499		352			63
142	412		425			221
SUBTOTAL	11086		21271			23847
SUM-21-(7.78)						
129	444		480			1671
130	764		1469			2619
131	576		2884			1774
132	208		2103			682
133	676		2814			2181
134	548		1915			2003
135	299		219			1512
136	95		33			983
137	0		0			363
143	4		52			197
144	57		649			620
145	15		231			312
SUBTOTAL	3686		12849			14917
EMBANKMENT & BORROW TOTAL			37828			
DEDUCT BORROW			-20820			
TOTAL	* 17008		* 17008	*** 20820		** 45706

* QUANTITIES CARRIED TO SHEET NO. 71

** QUANTITIES CARRIED TO SHEET NO. 8

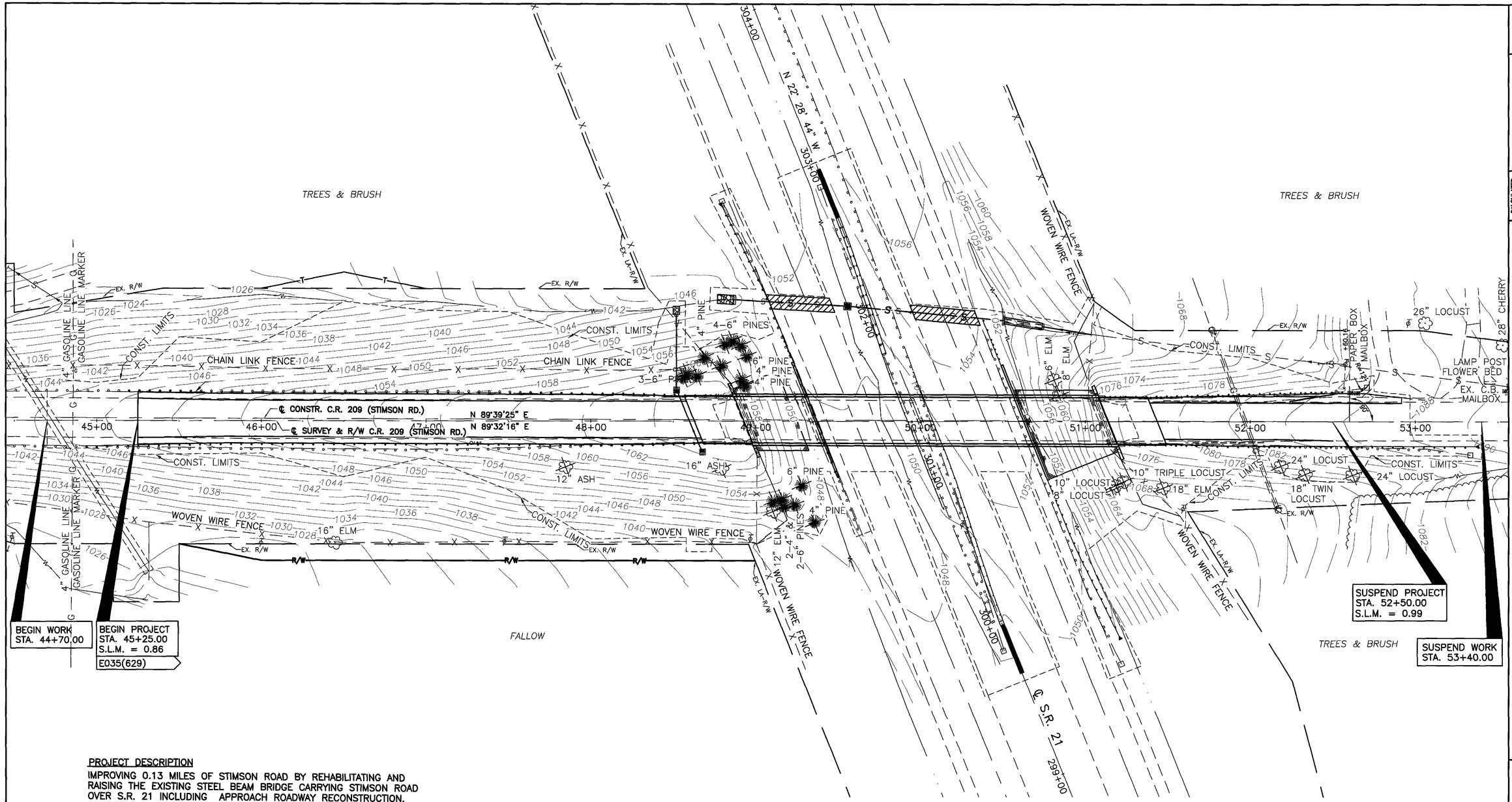
*** 203 BORROW = 37828 CU YD (TOTAL EMBANKMENT & BORROW) – 17008 CU YD (EXCAVATION) = 20820 CU YD

CALCULATED RLS CHECKED TLS

EARTHWORK & SEEDING SUB-SUMMARY

SUM-21-(5.69)(7.58)(7.78)

EM1484ESS.DWG



PROJECT DESCRIPTION

IMPROVING 0.13 MILES OF STIMSON ROAD BY REHABILITATING AND RAISING THE EXISTING STEEL BEAM BRIDGE CARRYING STIMSON ROAD OVER S.R. 21 INCLUDING APPROACH ROADWAY RECONSTRUCTION.

FOR ADDITIONAL DESCRIPTIONS, ITEMS AND QUANTITIES SEE SHEET NO. 60.

EM1481SP.DWG 1:30 scale

CALCULATED RLS CHECKED TLS

0 30 60 HORIZONTAL SCALE IN FEET

PROJECT SITE PLAN

SUM-21-(7.58)(7.78) STIMSON ROAD

SUM-21-(5.69)(7.58)(7.78)

PROJECT DESCRIPTION

SUM-21-7.58

IMPROVING 0.11 MILES OF S.R. 21 BY REHABILITATION, RAISING AND WIDENING THE EXISTING TWIN STEEL BEAM BRIDGES OVER THE WHEELING AND LAKE ERIE RAILROAD TRACKS INCUDING APPROACH ROADWAY RECONSTRUCTION.

SUM-21-7.78

IMPROVING 0.18 MILES OF S.R. 21 BY REPLACING THE EXISTING TWIN STEEL BEAM BRIDGES OVER S.R. 162 WITH NEW TWIN SINGLE SPAN STEEL BEAM BRIDGES WITH MSE RETAINING WALLS AND INCLUDING APPROACH ROADWAY RECONSTRUCTION.

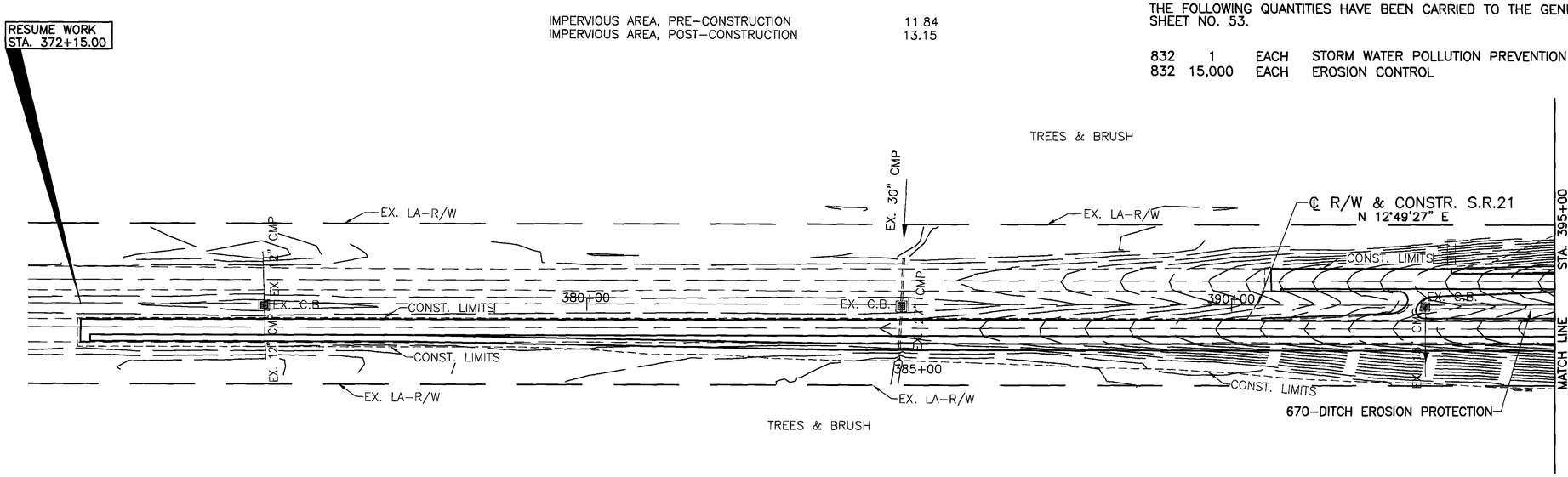
TOTAL AREA (RIGHT OF WAY)	36.19 ACRES
PROJECT EARTH DISTURBED AREA	17.64 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA	3.50 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA	21.14 ACRES
RUNOFF COEFFICIENT FOR PRE-CONSTRUCTION SITE	0.74
RUNOFF COEFFICIENT FOR POST CONSTRUCTION SITE	0.77
IMPERVIOUS AREA, PRE-CONSTRUCTION	11.84
IMPERVIOUS AREA, POST-CONSTRUCTION	13.15

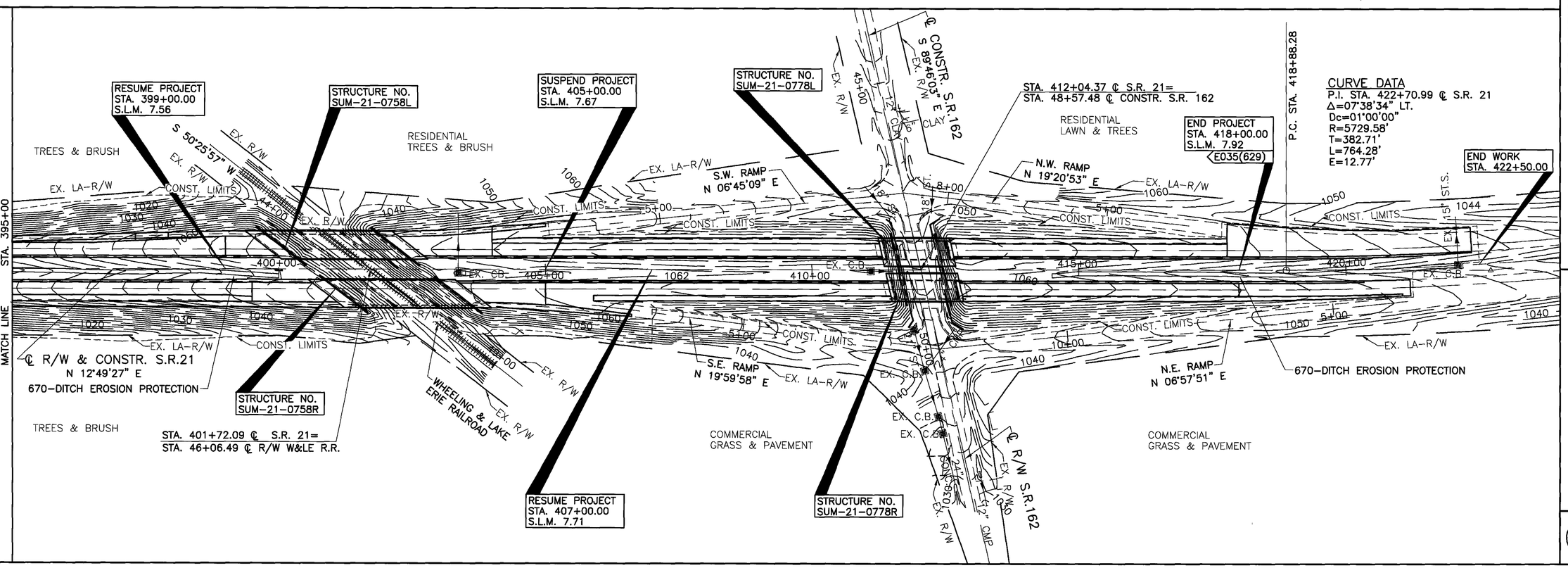
SOIL AND WATER CONSERVATION MAPS: SOIL SURVEY OF SUMMIT COUNTY, OHIO MAPS 18 & 21

IMMEDIATE RECEIVING WATERS:	ROADWAY DITCHES
SUBSEQUENT RECEIVING WATERS:	WOLF CREEK & PIGEON CREEK
LATITUDE:	N 41° 05' 48"
LONGITUDE:	W 81° 39' 29"
USGS 7.5 MINUTE QUADRANGLE MAP:	WADSWORTH

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY SHEET NO. 53.

832	1	EACH	STORM WATER POLLUTION PREVENTION PLAN
832	15,000	EACH	EROSION CONTROL



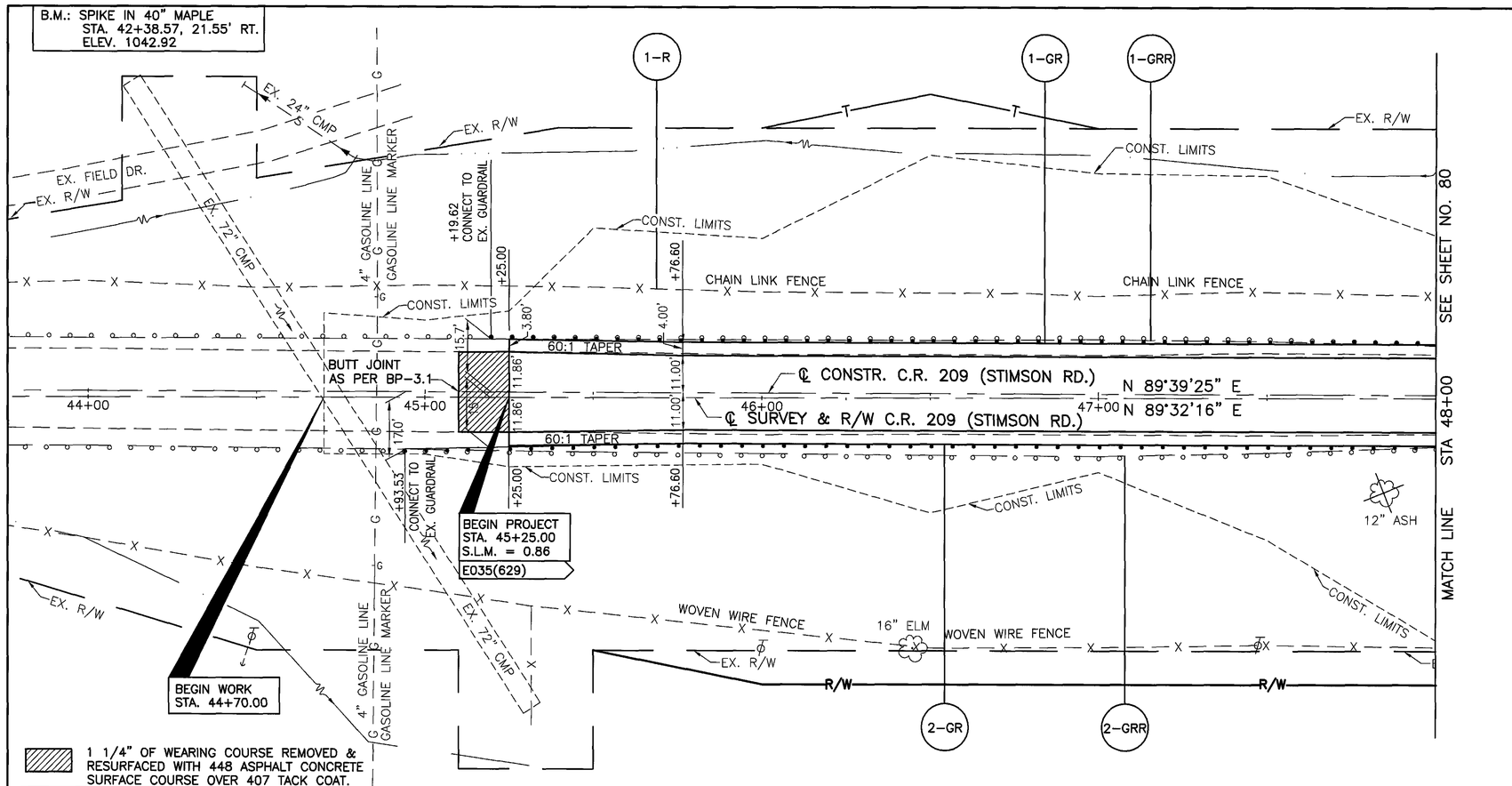


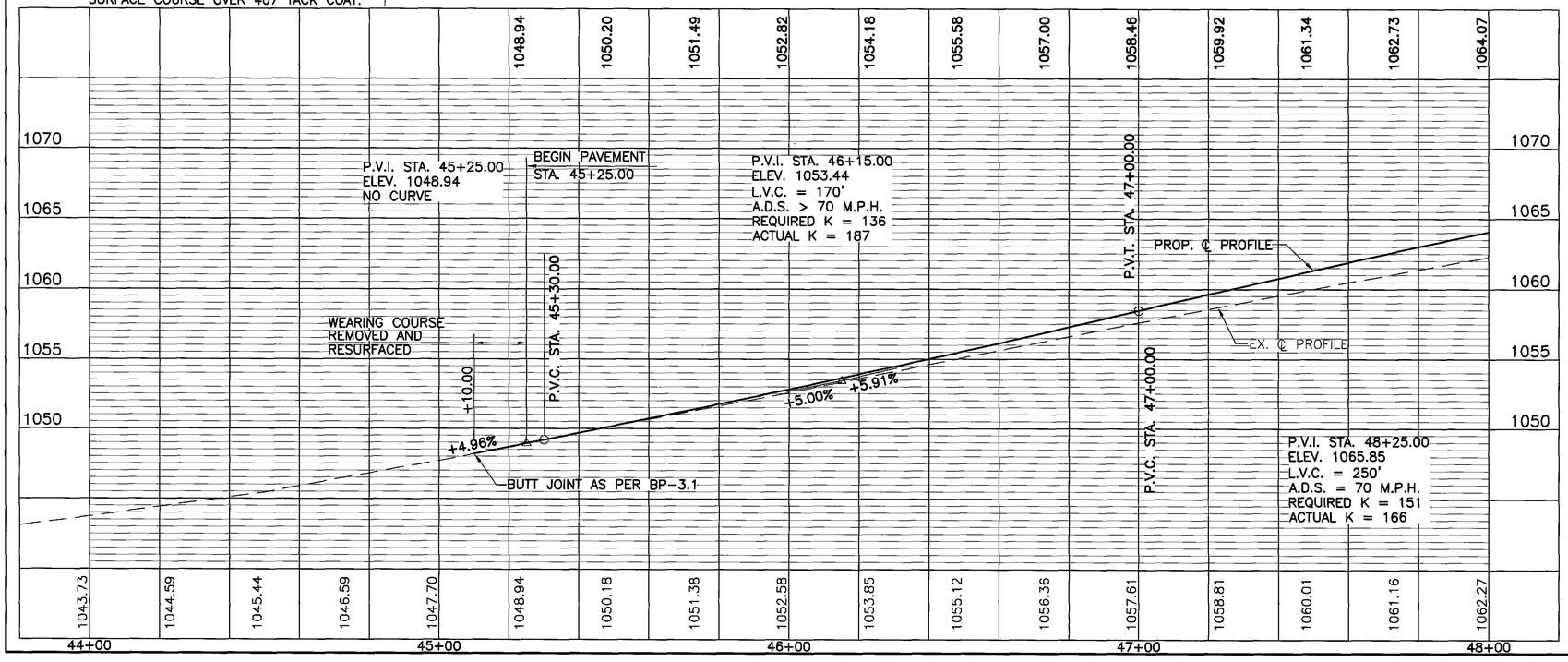
EM1484SP.DWG SCALE: 1"=100'

HORIZONTAL SCALE IN FEET
0 100 200

PROJECT SITE PLAN
SUM-21-(7.58)(7.78)

SUM-21-(5.69)(7.58)(7.78)





FOR TYPICAL SECTION OF ADJOINING PAVEMENT, SEE SHEET NO. 3

			STATION FROM	STATION TO	SIDE	REFERENCE NO.
202	GUARDRAIL REMOVED	FT	45+19.62	48+00.00	LT.	1-GRR
			44+93.53	48+00.00	RT.	2-GRR
202	FENCE REMOVED	FT	45+30.00	48+00.00	LT.	1-R
606	GUARDRAIL, TYPE 5	FT	45+19.62	48+00.00	LT.	1-GR
			44+93.53	48+00.00	RT.	2-GR
626	BARRIER REFLECTOR, TYPE A (WHITE)	EACH				

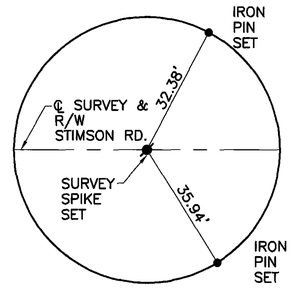
202	202	606	606	626	
280.38			280.38	4	
306.47			306.47	3	
	270.00				
586.85	270.00	586.85	586.85	7	TOTALS

CALCULATED RLS
CHECKED TLS

0 20 40 HORIZONTAL SCALE IN FEET

605-AGGREGATE DRAINS

STATION	SIDE	QUANTITY
45+25	LT.	9 L.F.
45+50	RT.	11 L.F.
45+75	LT.	9 L.F.
46+00	RT.	11 L.F.
46+25	LT.	8 L.F.
46+50	RT.	9 L.F.
46+75	LT.	8 L.F.
47+00	RT.	9 L.F.
47+25	LT.	8 L.F.
47+50	RT.	9 L.F.
47+75	LT.	8 L.F.
48+00	RT.	9 L.F.
TOTAL		108 L.F.

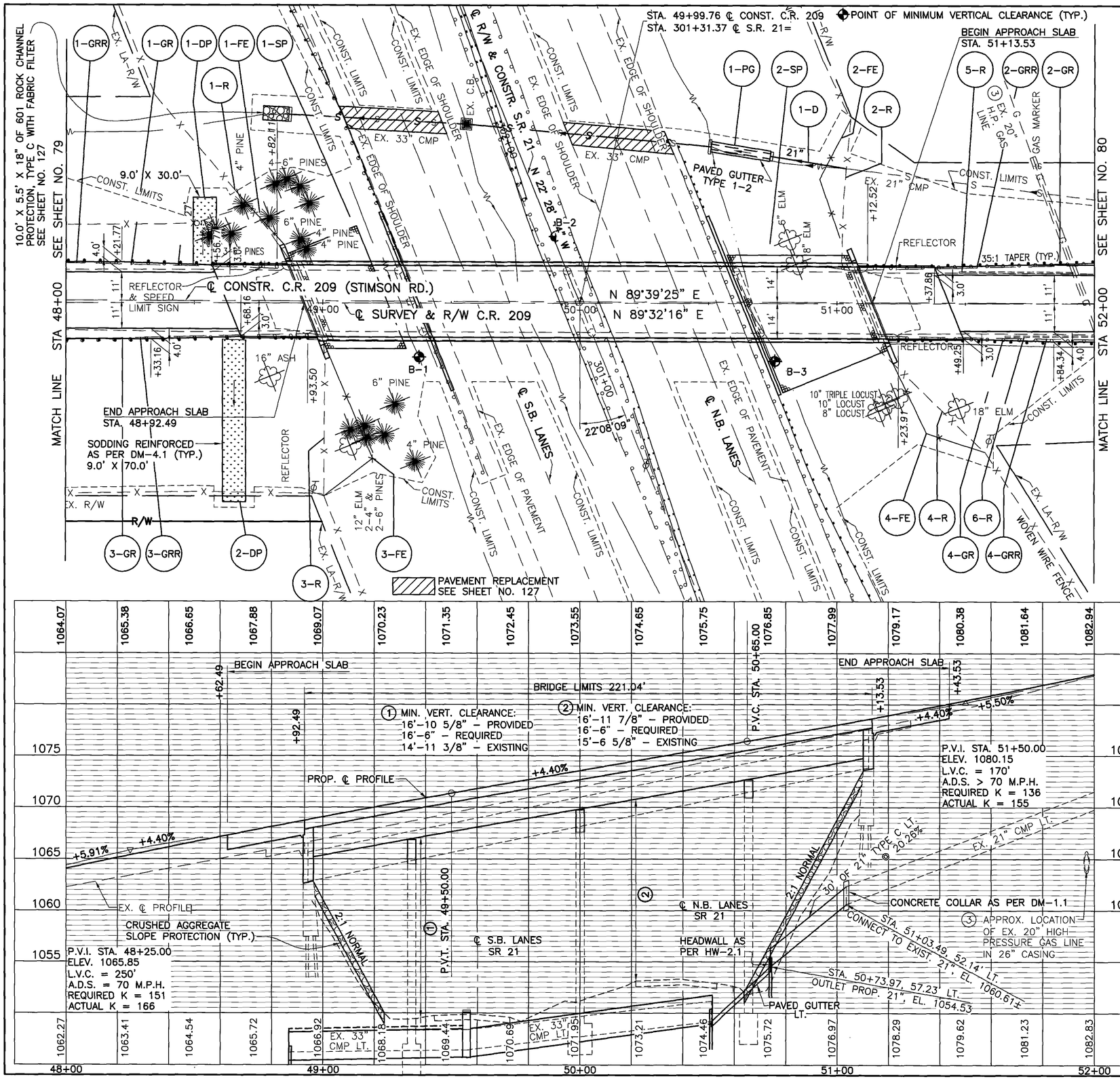


STA. 40+00.00
CENTERLINE REFERENCE

PLAN AND PROFILE C.R. 209 (STIMSON ROAD)
STA 45+00 TO STA 48+00

SUM-21-(5.69)(7.58)(7.78)

EM1481L1.DWG



FOR BRIDGE QUANTITIES, SEE SHEET 156
FOR ADDITIONAL QUANTITIES, SEE SHEET 82
FOR STORM SEWER DETAILS AND QUANTITIES, SEE SHEET 146
FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET 154

REFERENCE NO.	SIDE	STATION FROM	STATION TO	202 GUARDRAIL REMOVED		202 CURB REMOVED	202 FENCE REMOVED	601 PAVED GUTTER, TYPE 1-2	602 CONCRETE MASONRY	603 21" CONDUIT, TYPE C
				FT		FT	FT	FT	CU YD	FT
1-GRR	LT.	48+00.00	48+94.67±	94.67						
2-GRR	LT.	50+95.67	52+00.00	104.33						
3-GRR	RT.	48+00.00	49+06.37±	106.37						
4-GRR	RT.	51+08.25	52+00.00	91.75						
1-D	LT.	50+73.85	51+03.49						0.39	30
1-R	LT.	48+00.00	48+84.84				106			
2-R	LT.	51+01.75	51+05.17				55			
3-R	RT.	49+00.27	49+00.53				60			
4-R	LT.	51+15.37	51+57.72				59			
5-R	LT.	51+47.51	51+91.70			44				
6-R	RT.	51+65.31	52+08.34			43				
1-PG	LT.	50+50.90	50+73.84					23		
TOTALS				397.12		87	280	23	0.39	30

REFERENCE NO.	SIDE	STATION FROM	STATION TO	606 GUARDRAIL, TYPE 5		606 BRIDGE TERMINAL ASSEMBLY, TYPE 1	607 FENCE, TYPE 47	626 BARRIER REFLECTOR, TYPE _ (WHITE) A	626 B	660 SODDING REINFORCED
				FT		EACH	FT	EACH		SQ YD
1-GR	LT.	48+00.00	48+82.11	82.11		1		1	2*	
2-GR	LT.	51+12.52	52+00.00	87.48		1		1		
3-GR	RT.	48+00.00	48+93.50	93.53		1		1	2*	
4-GR	RT.	51+23.91	52+00.00	76.09		1		1		
1-FE	LT.	48+63.68	48+83.98				28			
2-FE	LT.	50+93.15	51+05.71				50			
3-FE	RT.	49+00.52	49+19.43				60			
4-FE	RT.	51+39.86	51+57.72				48			
1-DP	LT.	48+49.63	48+58.63							30
2-DP	RT.	48+61.01	48+70.01							70
TOTALS				339.18	4	186	4	4*		100

* INCLUDES REFLECTORS ON CONCRETE PARAPET BRIDGE RAILING.

605–AGGREGATE DRAINS

STATION	SIDE	QUANTITY
48+25	LT.	9 L.F.
48+50	RT.	10 L.F.
48+75	LT.	9 L.F.
48+90	RT.	10 L.F.
51+15	LT.	9 L.F.
51+30	RT.	10 L.F.
51+50	LT.	9 L.F.
51+75	RT.	10 L.F.
52+00	LT.	9 L.F.
TOTAL		85 L.F.

③ DOMINION EAST OHIO, 20" L#212 TPL 8, WITHIN 116' OF 26" CASING. 1–800–362–7557 (DO NOT DISTURB)

FOUNDATION INVESTIGATION LEGEND
◆ INDICATES BORING LOCATIONS
B–1 @ STA. 49+37.45, 21.0' RT.
B–2 @ STA. 49+90.53, 26.2' LT.
B–3 2 STA. 50+75.70, 22.5' RT.

EXISTING STRUCTURE

BRIDGE NO. SUM–21–0569
TYPE: CONTINUOUS NONCOMPOSITE STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS: 39'–3"±, 65'–6"±, 65'–6"±, 45'–9"± C/C BRGS.
ROADWAY: 24'–0"± F/F 2'–0" SAFETY CURBS
LOADING: CF–30(55)
SKEW: 22°–08'–09"± R.F.
WEARING SURFACE: BITUMINOUS OVER SDC OVERLAY
APPROACH SLABS: AS–1–47 (15'–0"± LONG)
ALIGNMENT: TANGENT
DATE BUILT: 1957
STRUCTURE FILE NO. 7701470

PROPOSED STRUCTURE

TYPE: NEW COMPOSITE REINFORCED CONCRETE DECK ON EXISTING CAP AND COLUMN PIERS AND SEMI–INTEGRAL ABUTMENTS
SPANS: 39'–3"±, 65'–6"±, 65'–6"±, 45'–9"± (C/C BRGS.)
ROADWAY: 28'–0" TOE/TOE CONCRETE PARAPETS
LOADING: HS25, CASE II AND THE ALTERNATE MILITARY LOADING.
FUTURE WEARING SURFACE (FWS) OF 60 PSF
SKEW: 22°–08'–09" R.F.
WEARING SURFACE: MONOLITHIC CONCRETE
APPROACH SLABS: AS–1–81 (30'–0" LONG)
ALIGNMENT: TANGENT
CROWN: 0.016
LATITUDE: N 41°–04'–13"
LONGITUDE: W 81°–39'–51"

HORIZONTAL SCALE IN FEET
0 20 40
CALCULATED RLS
CHECKED TLS

PLAN AND PROFILE C.R. 209 (STIMSON ROAD)
STA 48+00 TO STA 52+00

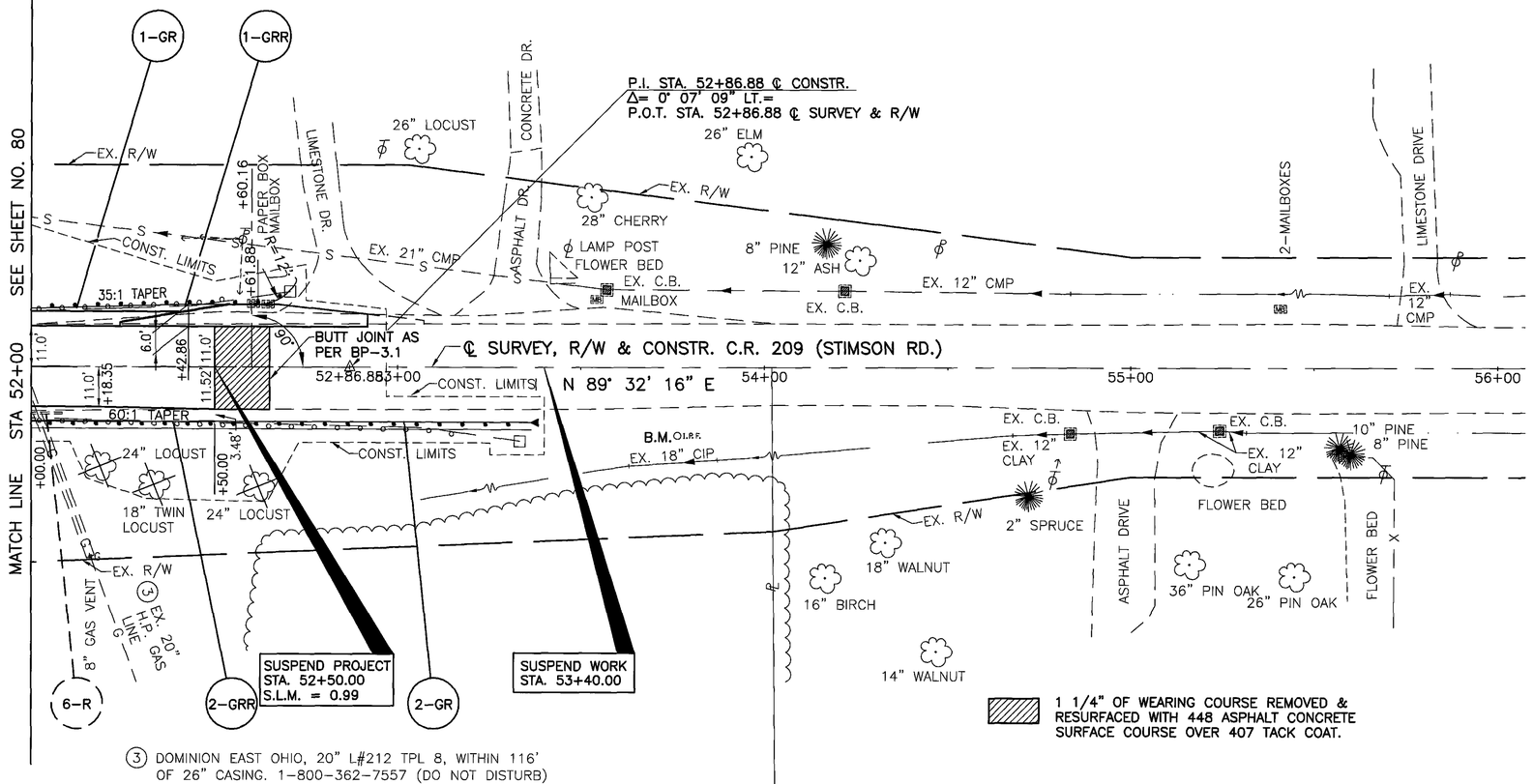
SUM–21–(5.69)(7.58)(7.78)

EM1481L2.DWG

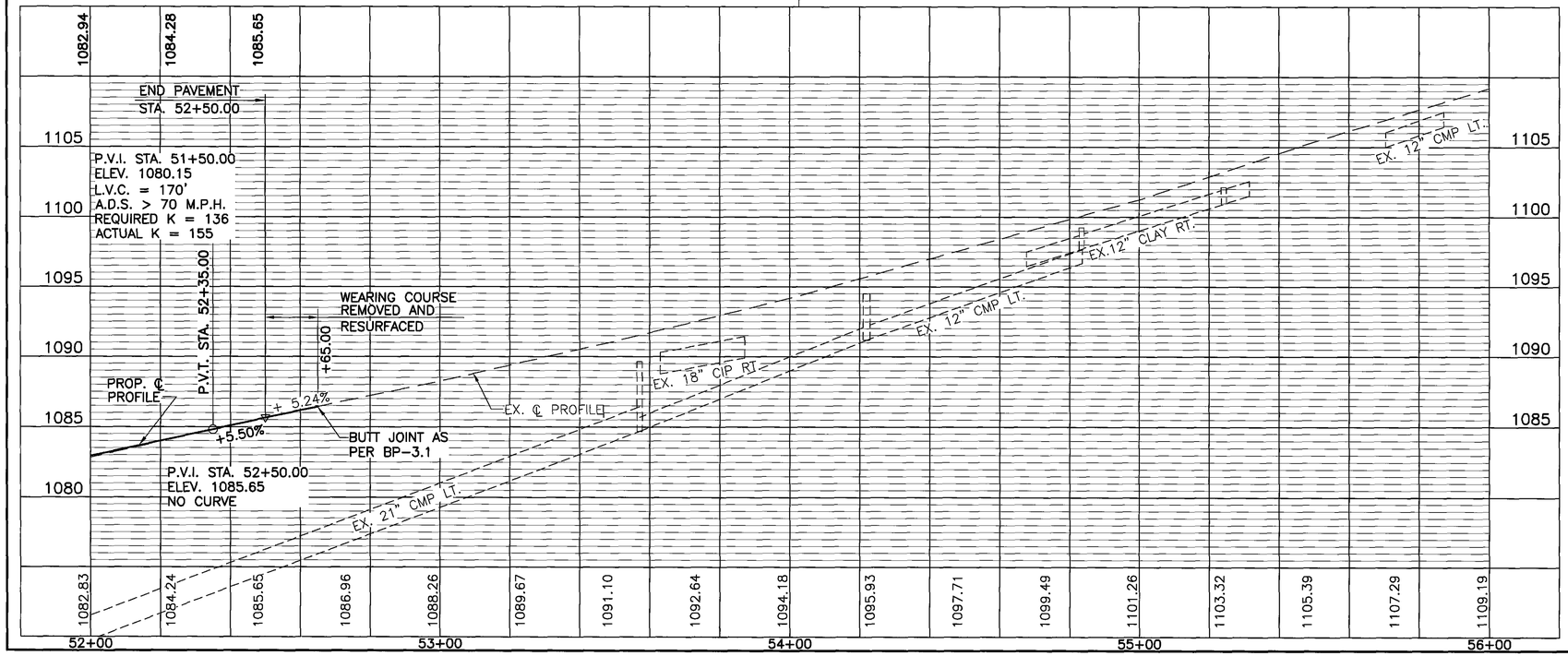
B.M.: TOP OF IRON PIN WITH O.D.O.T. CAP
STA. 53.+76.20, 18.71' RT.
ELEV. 1091.69

B.M.: SPIKE IN 26" MAPLE
STA. 57+02.14, 31.27' LT.
ELEV. 1115.84

FOR TYPICAL SECTION OF ADJOINING PAVEMENT, SEE SHEET NO. 3

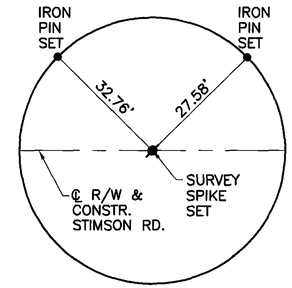


③ DOMINION EAST OHIO, 20" L#212 TPL 8, WITHIN 116' OF 26" CASING. 1-800-362-7557 (DO NOT DISTURB)



626	BARRIER REFLECTOR, TYPE A (WHITE)	EACH						1	2		3
606	ANCHOR ASSEMBLY, TYPE T	EACH						1			1
606	ANCHOR ASSEMBLY, TYPE E-98	EACH							1		1
606	GUARDRAIL, TYPE 5	LIN FT						62.52	86.41		148.93
202	ANCHOR ASSEMBLY REMOVED, TYPE A	EACH	1	1							2
202	GUARDRAIL REMOVED	LIN FT	45.67	108.25							153.92
STATION FROM			52+00.00	52+00.00				52+00.00	52+00.00		TOTALS
STATION TO			52+70.63	53+33.25				52+72.84	53+36.37		
SIDE			LT.	RT.				LT.	RT.		
REFERENCE NO.			1-GRR	2-GRR				1-GR	2-GR		

605-AGGREGATE DRAIN		
STATION	SIDE	QUANTITY
52+25	RT.	9 L.F.
52+50	LT.	9 L.F.
TOTAL		18 L.F.



STA. 57+00.00
CENTERLINE REFERENCE

HORIZONTAL SCALE IN FEET
0 20 40

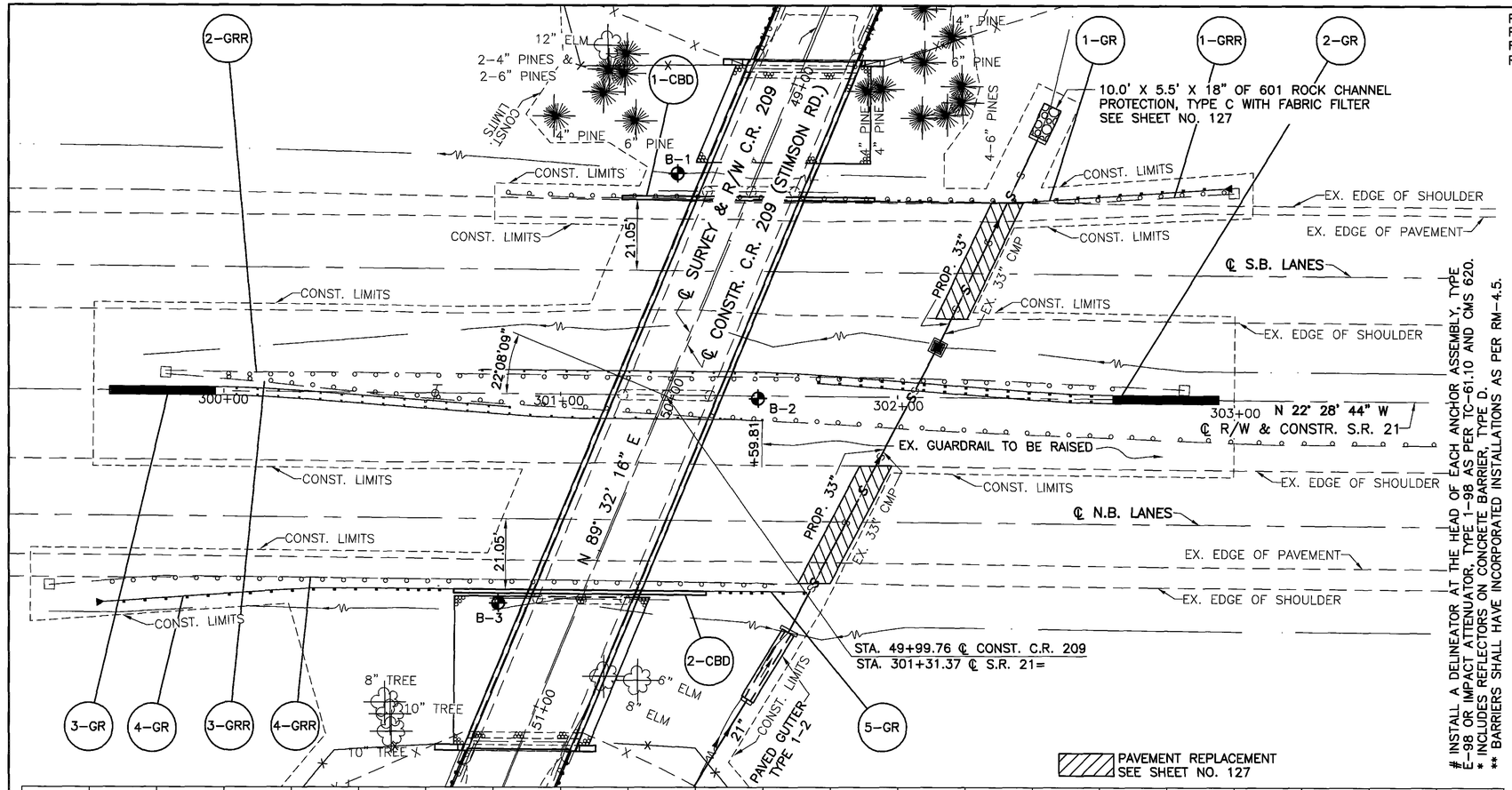
CALCULATED RLS
CHECKED TLS

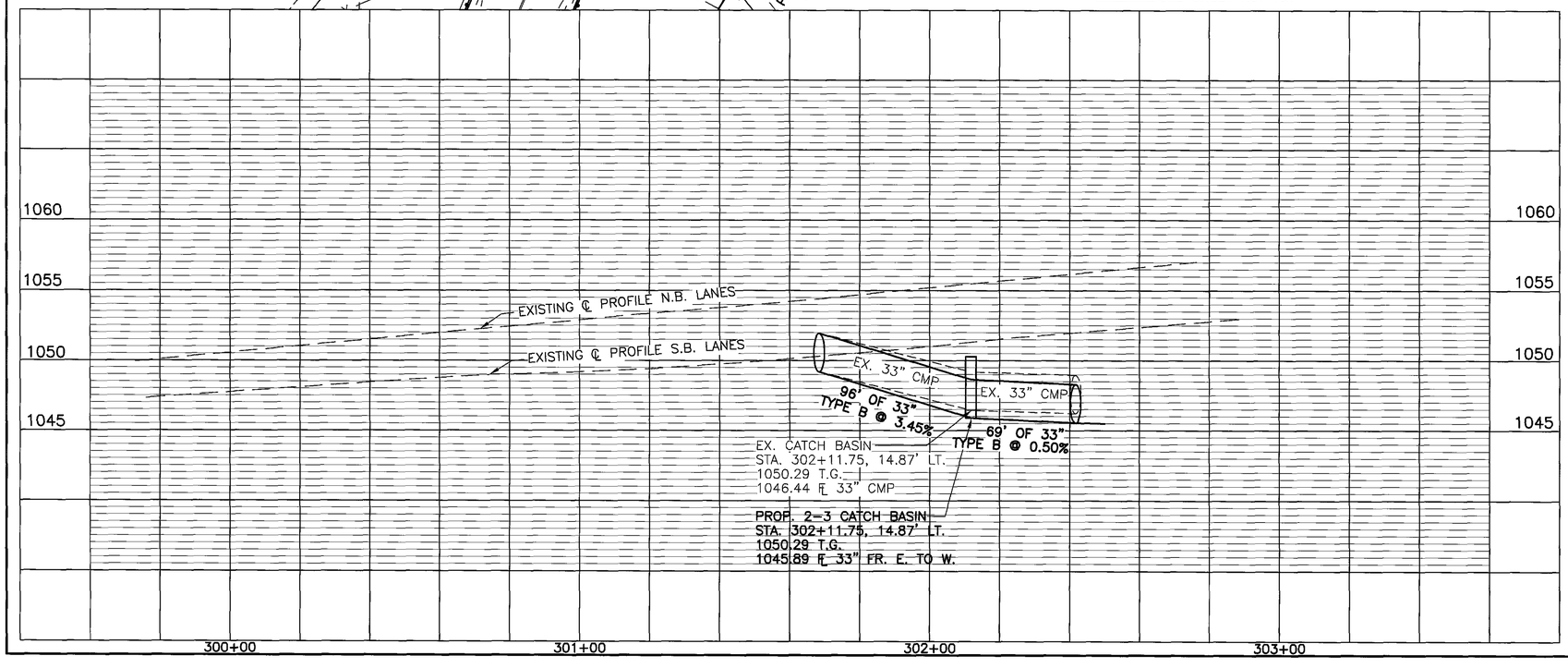
PLAN AND PROFILE C.R. 209 (STIMSON ROAD)
STA 52+00 TO STA 56+00

SUM-21-(5.69)(7.58)(7.78)

81
223

EM1481L3.DWG





FOR TYPICAL SECTION OF ADJOINING PAVEMENT, SEE SHEET NO. 6
FOR BRIDGE QUANTITIES, SEE SHEET NO. 156
FOR ADDITIONAL QUANTITIES, SEE SHEET NO. 80
FOR STORM SEWER DETAILS & QUANTITIES, SEE SHEET NO. 146

W WHITE Y YELLOW

| | | |

SEEDING			END AREA		VOLUME		
END WIDTH	SQ. YDS.		CUT	FILL	CUT	FILL	
		120 100 80 60 40 20 ℄ CONSTR. 20 40 60 80 100 120 140					
42	81	11.44' 11.44' ℄ SURVEY & R/W 2:1 2:1 1.53' 1050.20 45+50 1050.18 BENCH AS PER SECTION 203.05 OF THE CMS (TYP) EX. R/W 1023.6 EX. R/W AH. EX. R/W BK.	93	79	57	39	
16		11.86' 11.86' ℄ SURVEY & R/W BK. 2:1 2:1 AH. BK. 1.59' 1048.94 45+25 1048.94 BEGIN PROJECT BEGIN PAVEMENT STA. 45+25.00 EX. R/W 1023.0 EX. R/W 72" CMP	STA. 45+25.00 AH. 29 BK. 0	6 6			
47		BEGIN PROPOSED GUARDRAIL LT. STA. 44+92.95 ℄ SURVEY & R/W 2:1 1.64' 45+00 1047.70 EX. R/W 1022.4 EX. R/W 72" CMP	0	4			
18	60		0	3			
		BEGIN PROPOSED GUARDRAIL RT. STA. 44+93.53	0	2			
18		STA. 44+70.00 AH. BEGIN WORK STA. 44+70.00 ℄ SURVEY & R/W 1.74' 44+50 1045.44 EX. R/W 1025.3 EX. R/W 72" CMP STA. 44+70.00 AH.	0	0			
188		SHEET TOTAL			57	45	SHEET TOTAL

EM1481X.DWG SCALE 1"=10'

CALCULATED RLS
CHECKED TLS

CROSS SECTIONS – C.R.209 (STIMSON ROAD)
STA. 44+50 TO STA. 45+50

SUM-21-(5.69)(7.58)(7.78)

SEEDING		END AREA		VOLUME		
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	
86	419	145	221	231	342	
65	375	105	148	212	292	
70	303	124	167	186	223	
39	225	77	74	157	142	
42		93	79			
1322	SHEET TOTAL	786	999			

CALCULATED RLS
CHECKED TLS

CROSS SECTIONS – C.R.209 (STIMSON ROAD)
STA. 46+00 TO STA. 47+50

SUM-21-(5.69)(7.58)(7.78)

84
223

℄ CONSTR. 120 100 80 60 40 20 0 20 40 60 80 100 120 140

STA. 47+50

1060
1050
1040
1030

℄ SURVEY & R/W

2:1
1.12'
BENCH AS PER SECTION 203.05 OF THE CMS (TYP)
2:1
EX. R/W
R/W
1036.6
1061.34
47+50
1060.01

STA. 47+00

1060
1050
1040
1030

℄ SURVEY & R/W

2:1
1.22'
2:1
EX. R/W
R/W
1031.9
1058.46
47+00
1057.61

STA. 46+50

1060
1050
1040
1030
1020

℄ SURVEY & R/W

2:1
1.33'
2:1
TEMP. R/W
EX. R/W
R/W
BENCH AS PER SECTION 203.05 OF THE CMS (TYP)
1027.5
1055.58
46+50
1055.12

11.00' 11.00'

1060
1050
1040
1030
1020

℄ SURVEY & R/W

2:1
1.43'
2:1
EX. R/W
R/W
1025.1
1052.82
46+00
1052.58

STA. 45+50

1060
1050
1040
1030
1020

STA. 45+50.00 SHEET TOTAL

℄ CONSTR. 120 100 80 60 40 20 0 20 40 60 80 100 120 140

EM1481X.DWG SCALE 1"=10'

SEEDING END WIDTH	SEEDING SQ. YDS.
	43
	117
	27
	72
	−70
	77
	−30
	492
	100
	517
	86
	1098

120 100 80 60 40 20 ℄ CONSTR. 20 40 60 80 100 120 140

STA.48+92.49 BK.
(X COSINE 22°08'09")

BRIDGE LIMITS
STA. 48+92.49 TO STA. 51+13.53

MATCH LINE STA. 301+94.30 SEE SHEET NO. 90

MATCH LINE STA. 301+76.64 SEE SHEET NO. 89

MATCH LINE STA. 301+46.63 SEE SHEET NO. 89

℄ SURVEY & R/W

2:1 NORMAL

0.89'

1068.63
48+92.49 SKEWED 22°08'09" R.F.
1066.56

MATCH LINE STA. 302+50 SEE SHEET NO. 90

1046.0

MATCH LINE STA. 301+11.27 SEE SHEET NO. 89

MATCH LINE STA. 300+84.81 SEE SHEET NO. 89

STA. 48+92.49 BK.
(X COSINE 22°08'09")

ADJUST FOR SKEW

℄ SURVEY & R/W

MATCH LINE STA. 48+50.00

2:1 NORMAL

BK.

AH.

0.88'

STA.48+62.49
(X COSINE 22°08'09")

1067.17
48+62.49 SKEWED 22°08'09" R.F.
1065.14

STA. 48+62.49 AH.
(X COSINE 22°08'09") BK.

DEDUCT FOR SODDING
REINFORCED RT.
STA. 48+61.01 TO 48+70.01

MATCH LINE STA. 48+62.49

℄ SURVEY & R/W

2:1

0.95'

1066.65
48+50
1064.54

1044.9

EX. R/W

R/W

DEDUCT FOR SODDING
REINFORCED LT.
STA. 48+49.66 TO 48+58.66

℄ SURVEY & R/W

1.01'

1064.07
48+00
1062.27

1041.2

BENCH AS PER
SECTION 203.05
OF THE CMS (TYP)

STA. 47+50.00

STA. 47+50.00

SHEET TOTAL

SHEET TOTAL

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
74	117		
		2	−9
		61	97
36	58		
35	95		
		35	68
117	200		
		255	418
158	251		
		281	437
145	221		
		634	1011

CALCULATED RLS
CHECKED TLS

CROSS SECTIONS – C.R.209 (STIMSON ROAD)
STA. 48+00 TO STA. 48+92.49

SUM–21–(5.69)(7.58)(7.78)

85
223

EM1481X.DWG SCALE 1"=10'

SEEDING END WIDTH	SEEDING SQ. YDS.
13	125
32	178
32	28
45	192
70	
	523

END GUARDRAIL LT.
STA. 52+72.84

END PROJECT
END PAVEMENT
STA. 52+50.00

11.00' 11.60'

℄ SURVEY & R/W

AH. BK. 0.08'

2:1

EX. R/W

1077.6

EX. 21" CMP

1085.65
52+50
1085.65

11.00'

℄ SURVEY & R/W

0.18'

1082.94
52+00
1082.83

EX. 21" CMP

APPROXIMATE LOCATION OF EX. 20" HIGH PRESSURE GAS LINE IN 116' OF 26" CASING (CROSSES ℄ OF STIMSON RD. AT 51+97±)

MATCH LINE STA. 51+43.56

0.29'

1080.38
51+50
1079.62

EX. 21" CMP

℄ SURVEY & R/W

AH. BK. 0.32'

2:1 NORMAL

MATCH LINE STA. 51+43.56 SEE SHEET NO. 89

STA.51+43.53
(X COSINE 22°08'09")

1079.97
51+43.53 SKEWED 22°08'09" R.F.
1079.28

EX. 21" CMP

MATCH LINE STA. 301+46.63 SEE SHEET NO. 89

℄ SURVEY & R/W

0.39'

MATCH LINE STA. 301+11.27 SEE SHEET NO. 89

MATCH LINE STA. 300+84.81 SEE SHEET NO. 89

MATCH LINE STA. 300+63.41 SEE SHEET NO. 89

MATCH LINE STA. 301+76.64 SEE SHEET NO. 89

8:1 NORMAL

21" TYPE C

STA.51+13.53 AH.
(X COSINE 22°08'09")

1078.53
51+13.53 SKEWED 22°08'09" R.F.
1077.68

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL	
				STA. 52+50.00 AH.
0	6			
29	6			BK.
		78	56	
55	54			
		94	111	
				ADJUST FOR SKEW
0	8			
47	66			
		10	19	
40	90			STA. 51+43.53 AH.
75	87			(X COSINE 22°08'09") BK.
		90	167	
87	214			STA. 51+13.53 AH. (X COSINE 22°08'09")
		272	361	SHEET TOTAL

CALCULATED RLS
CHECKED TLS

CROSS SECTIONS – C.R.209 (STIMSON ROAD)
STA. 51+13.53 TO STA. 52+50.00

SUM-21-(5.69)(7.58)(7.78)

86
223

EM1481X.DWG SCALE 1"=10'

SEEDING	
END WIDTH	SQ. YDS.
21	
104	
26	
44	
6	
13	
36	
13	
184	SHEET TOTAL

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
23	44	17	33
0	6	21	46
		38	79

CALCULATED RLS
CHECKED TLS

SECTIONS – C.R.209 (STIMSON ROAD)

STA. 52+87 TO STA. 55+50

CROSS SECTIONS

SUM-21-(5.69)(7.58)(7.78)

87
223

EN1481X.DWG SCALE 1"=10'

120 100 80 60 40 20 ℄ CONSTR. 20 40 60 80 100 120 140

1110 1100 1090 1080

EX. R/W

1103.1 1103.2

55+50
1105.39

1098.7

EX. 12" CLAY

55+00
1101.26

EX. 12" CMP

1095.7

54+50
1097.71

EX. 12" CMP

1091.2

54+00
1094.18

1086.7

EX. 21" CMP

53+50
1091.10

STA. 53+40.00 BK.

END WORK
STA. 53+40.00

END GUARDRAIL RT.
STA. 53+36.37

EX. 21" CMP

53+31 DRIVEWAY LT.
1090.01

2:1

1097.4

53+00
1088.26

EX. 21" CMP

STA.52+75.00 AH.
BK.

52+87 DRIVEWAY LT.
1087.58

STA. 52+50.00

EX. 21" CMP

STA. 52+50.00 AH.

SHEET TOTAL

CROSS SECTIONS – S.R.21
STA. 299+43 TO STA. 300+63.41

CALCULATED: RLS
CHECKED: TLS

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
103	444	64	170	75	229
105 45	125	0	25		
45	195	0	18	0	18
45	764	0	0	0	0
		0	0	0	0
	SHEET TOTAL			75	247

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

℄ SOUTHBOUND LANES

℄ NORTHBOUND LANES

1070 1060 1050 1040

EX. R/W

10:1 4:1 25:1 25:1 6:1 10:1

1047.8 1049.8

300+63.41
1050.0

2:1

MATCH LINE STA. 51+13.53 SEE SHEET NO. 68

STA. 300+25.00 AH.
BK.

10:1 6:1 25:1 25:1 6:1 10:1

1046.9 1048.5 1048.5

300+00
1048.1

STA. 299+61 AH.

1047.4

299+61
1045.7

1046.7

STA. 299+43 AH.

299+43
1045.2

BEGIN WORK
299+43

EM1481X.DWG SCALE 1"=10'

SUM-21-(5.69)(7.58)(7.78)

SEEDING END WIDTH	SEEDING SQ. YDS.
111	
	411
136	
	568
153	
	445
150	
103	
	245
103	
	1669

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

℄ SOUTHBOUND LANES

℄ NORTHBOUND LANES

1080 1070 1060 1050 1040

2:1

10:1 2.6:1 25:1 25:1

1049.4

301+76.64
1052.0

EX. 33" CMP

STA. 301+68.04, 70.13' RT.
IL INLET EL. 1049.20

96' OF 33" TYPE A
@ 3.45%

HALF-HEIGHT HEADWALL
AS PER STD. DWG. HW-2.2

EX. R/W

SEE SHEET NO. 67
STA. 48+92.49

2:1

BENCH AS PER
SECTION 203.05
OF THE CMS (TYP)

10:1 3.1:1 25:1 25:1 6:1 10:1

1048.7

1051.6

301+46.63
1050.9

2:1 NORMAL

SEE SHEET NO. 68
STA. 51+13.53

MATCH LINE STA. 48+92.49

2:1

10:1 3.1:1 25:1 25:1 6:1 10:1

1047.7

1048.2

1051.1

301+11.27
1051.26

MATCH LINE STA. 51+13.53

2:1

STA. 300+84.81 AH.
BK.

EX. R/W

10:1 4:1 25:1 25:1 6:1 10:1

1046.4

1048.1

1050.4

300+84.81
1050.8

STA. 300+63.41 AH

STA. 300+63.41

SHEET TOTAL

SHEET TOTAL

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
39	103	52	170
54	202		
99	292		
97	244		
100	212		
108	189		
68	142		
64	170		
		319	816

CALCULATED RLS
CHECKED TLS

CROSS SECTIONS – S.R.21
STA. 300+84.81 TO STA. 301+76.64

SUM-21-(5.69)(7.58)(7.78)

EM1481X.DWG SCALE 1"=10'

SEEDING	
END WIDTH	SQ. YDS.
62	
84	
93	
111	
1194	SHEET TOTAL

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

℄ SOUTHBOUND LANES ℄ NORTHBOUND LANES

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
0	10	0	10
0	10	32	83
31	70	23	57
39	103	55	150

CALCULATED RLS
CHECKED TLS

END WORK
303+05

STA. 303+05 BK.
1055.6
303+05
1053.9
1053.5
1051.1
302+50
1052.9
1051.0
301+94.30

EX. R/W

1060
1050
1040

STA. 303+05 BK.

STA. 302+41.11 - 77.48' LT.
℄ OUTLET EL. 1045.54

EX. 33" CMP

69' OF 33" TYPE A
@ 0.50%

HALF-HEIGHT HEADWALL AS PER STD. DWG. HW-2.2

10.0' X 5.5' X 18" OF 601 - ROCK CHANNEL PROTECTION, TYPE C , WITH FABRIC FILTER

6:1 25:1 2:1 4.5:1 10:1

EX. 33" CMP EX. 33" CMP

69' OF 33" TYPE A
@ 0.50%

96' OF 33" TYPE A
@ 3.45%

PROP. 2-3 CATCH BASIN
STA. 302+11.75, 14.87' LT.
1050.29 T.G. 1045.89
℄ 33" FR. E. TO W.

EX. CATCH BASIN (REMOVE)
STA. 302+11.75, 14.87' LT.
1050.29 T.G.
1046.44 ℄ 33" CMP

MATCH LINE STA. 48+92.49 SEE SHEET NO. 67

446 548 200

STA. 301+76.64 AH.

STA. 301+76.64
SHEET TOTAL

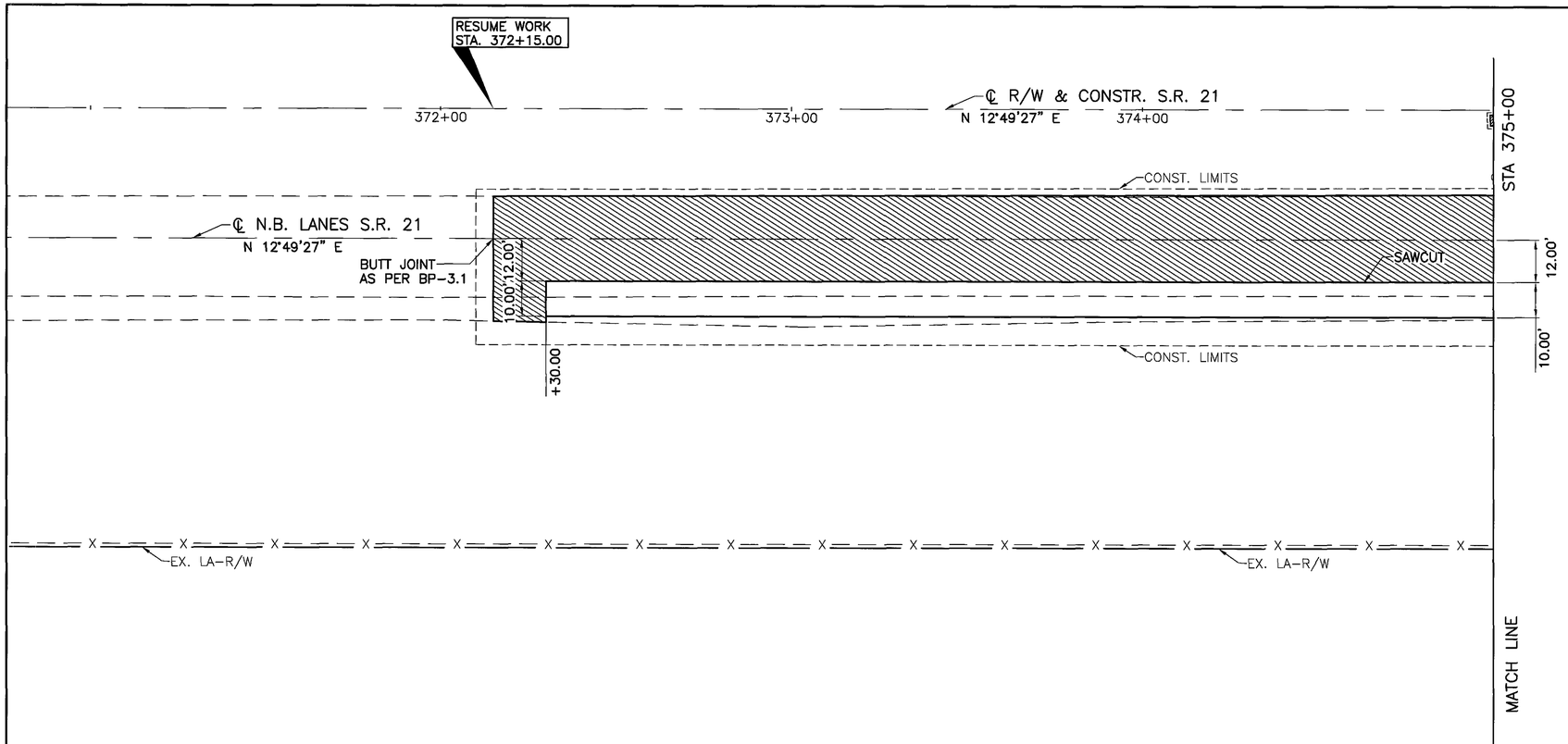
CROSS SECTIONS - S.R.21
STA. 301+94.30 TO STA. 303+05

SUM-21-(5.69)(7.58)(7.78)

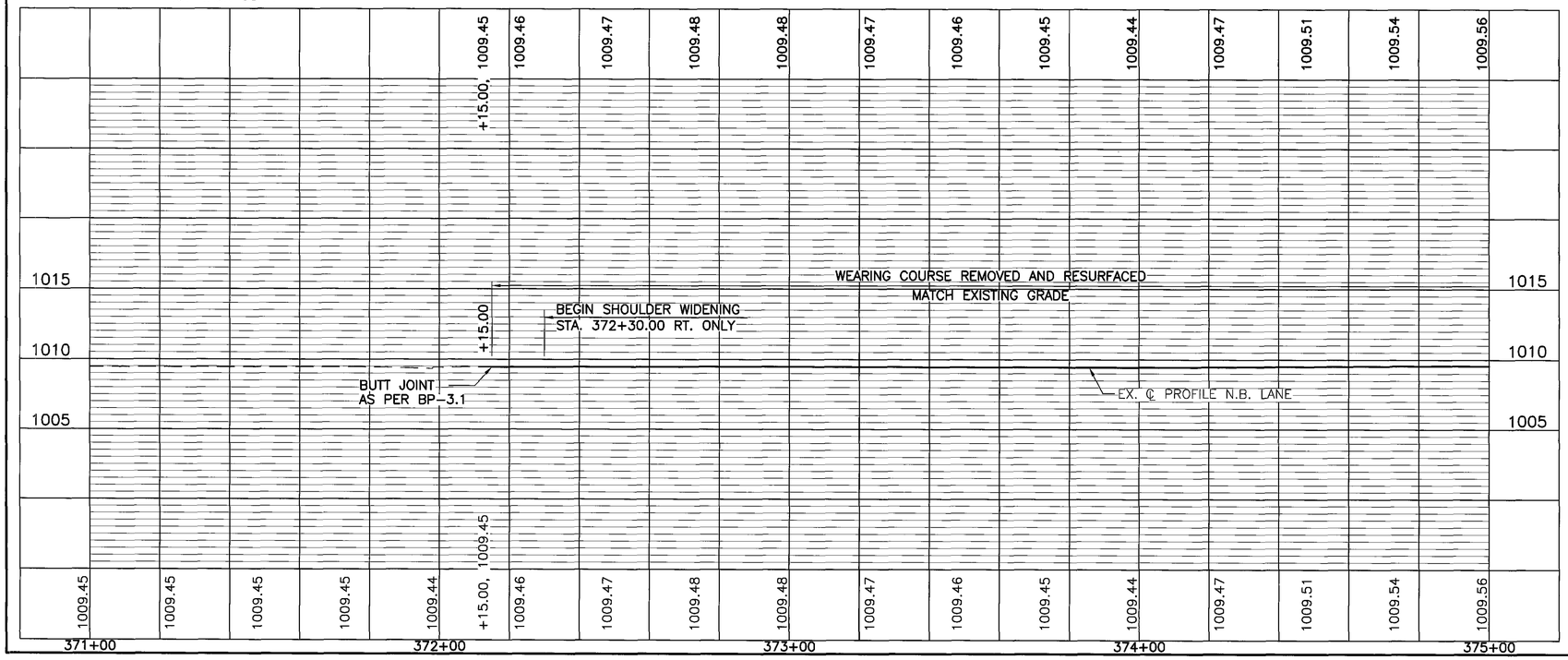
90
223

EM1481X.DWG SCALE 1"=10'

FOR TYPICAL SECTION OF ADJOINING PAVEMENT, SEE SHEET NO. 6



1 1/4" OF WEARING COURSE REMOVED & RESURFACED WITH 448 ASPHALT CONCRETE SURFACE COURSE OVER 407 TACK COAT.



EM1482L0-NB.DWG

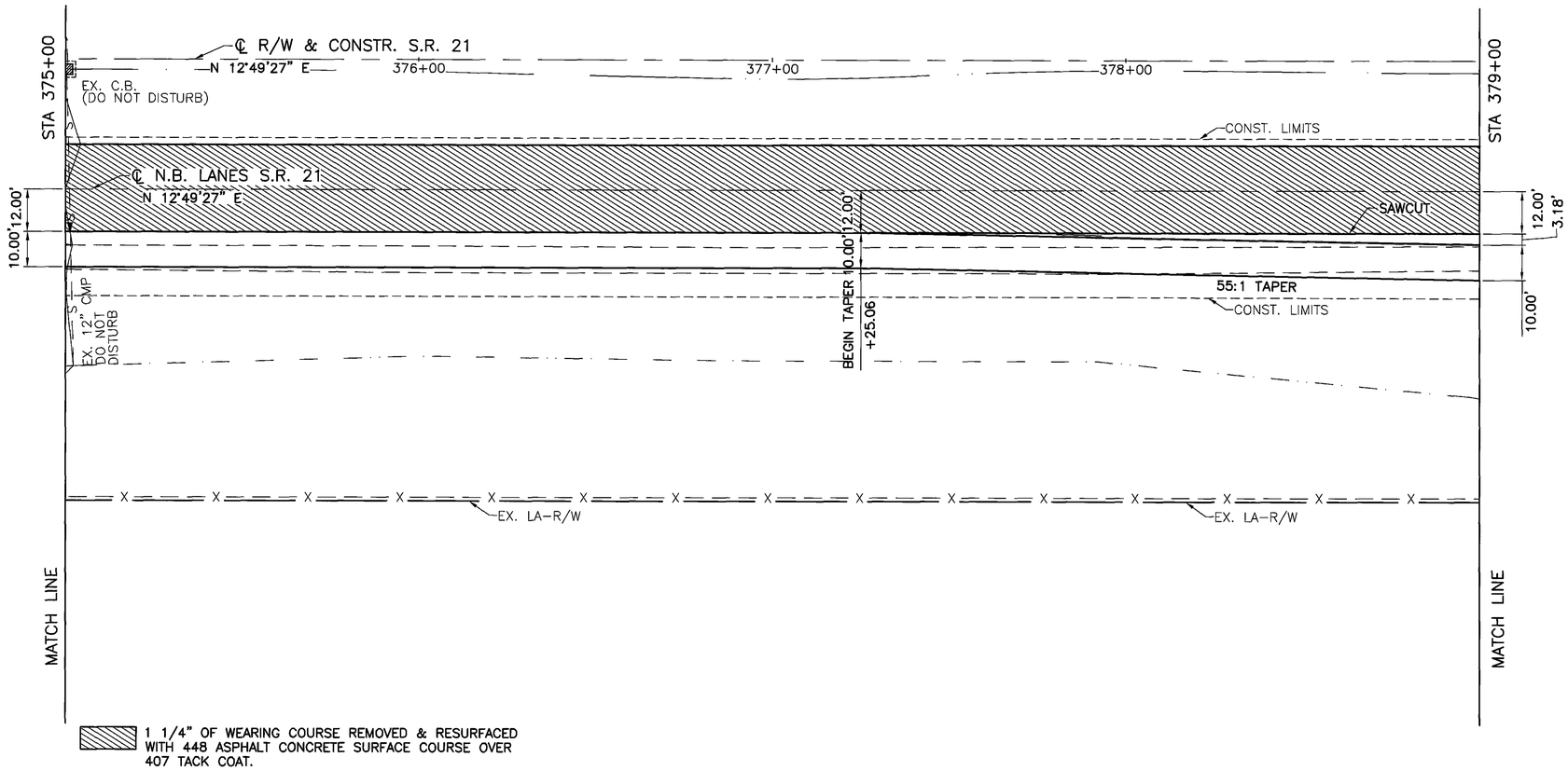
HORIZONTAL SCALE IN FEET
0 20 40

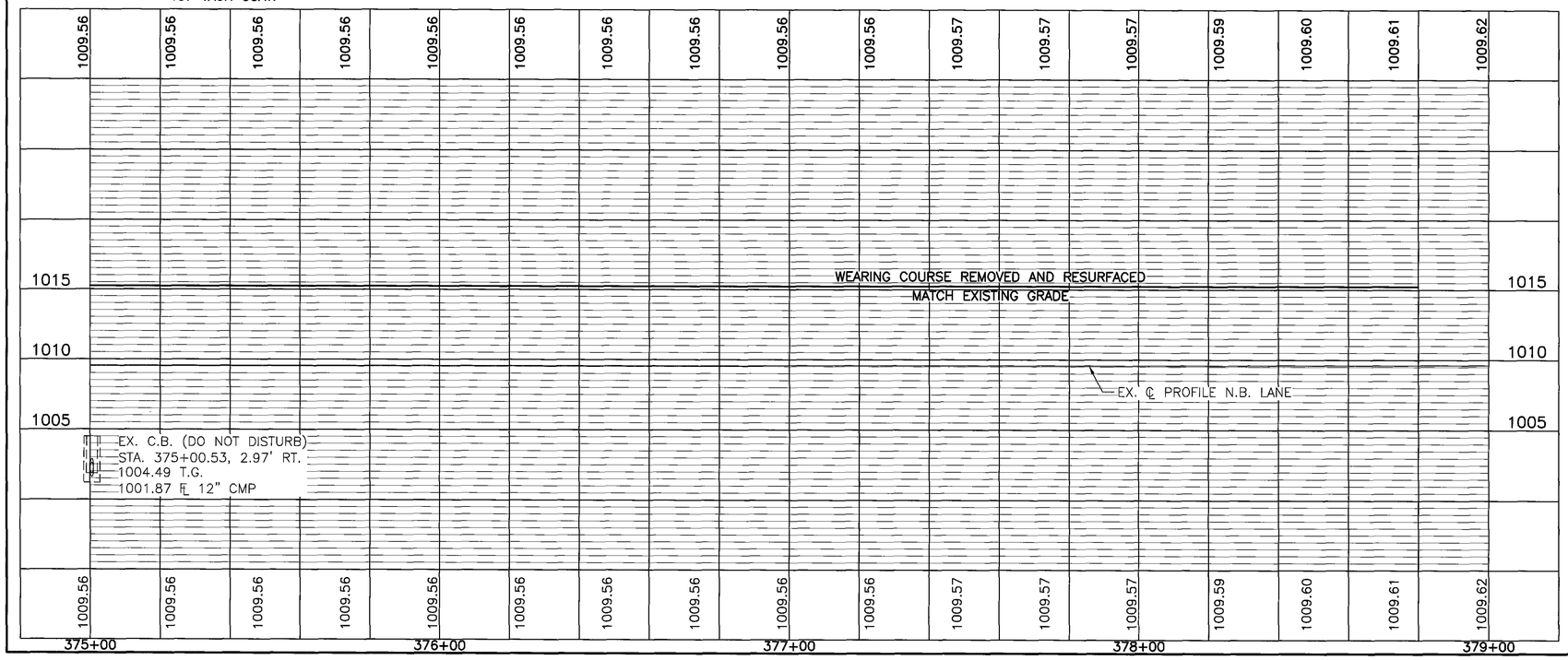
CALCULATED KAA
CHECKED TLS

PLAN AND PROFILE – S.R. 21 (NORTHBOUND LANES)

STA 371+00 TO STA 375+00

SUM-21-(5.69)(7.58)(7.78)





EM1482L1-NB.DWG

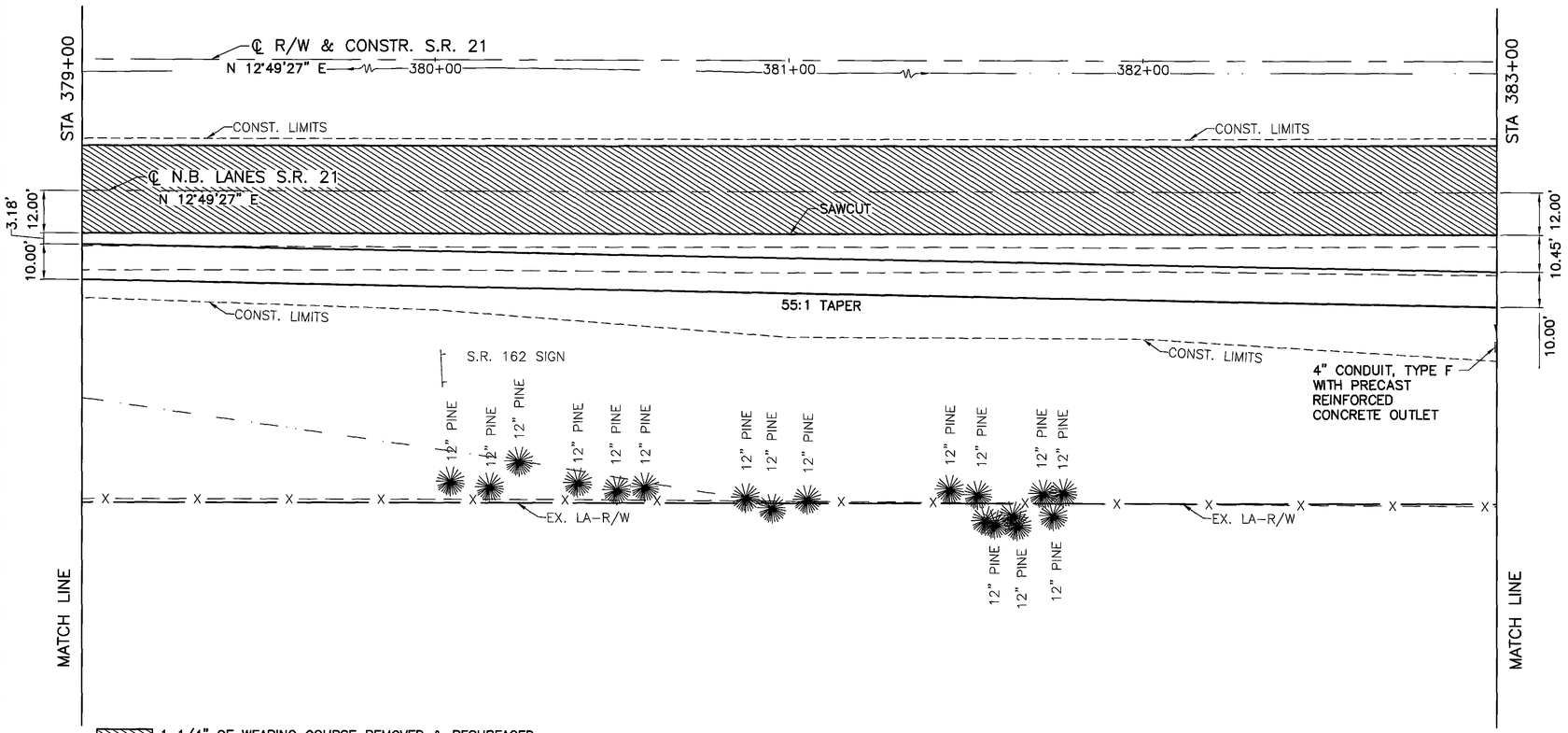
HORIZONTAL SCALE IN FEET
0 20 40

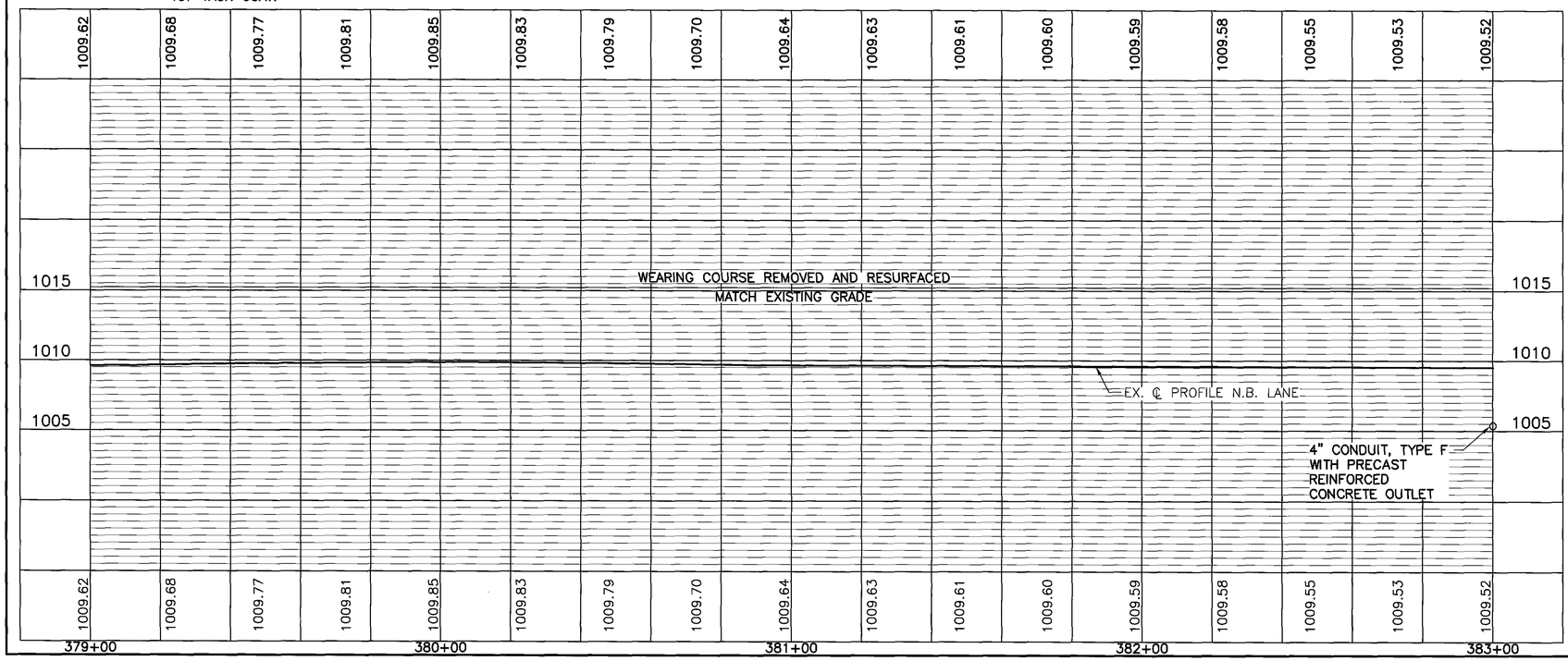
CALCULATED KAA
CHECKED TLS

PLAN AND PROFILE - S.R. 21 (NORTHBOUND LANES)

STA 375+00 TO STA 379+00

SUM-21-(5.69)(7.58)(7.78)





EM1482L2-NB.DWG

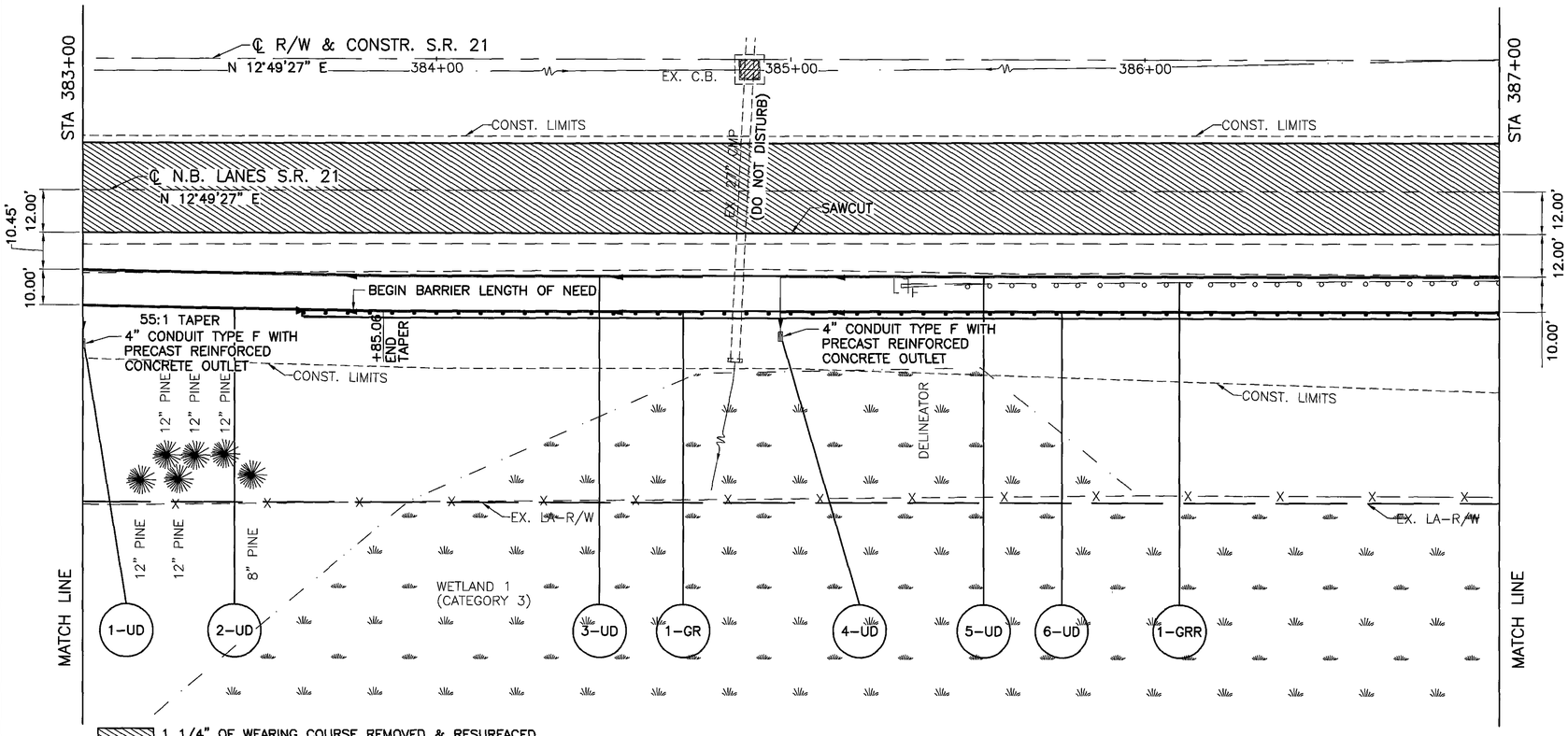
HORIZONTAL SCALE IN FEET
0 20 40

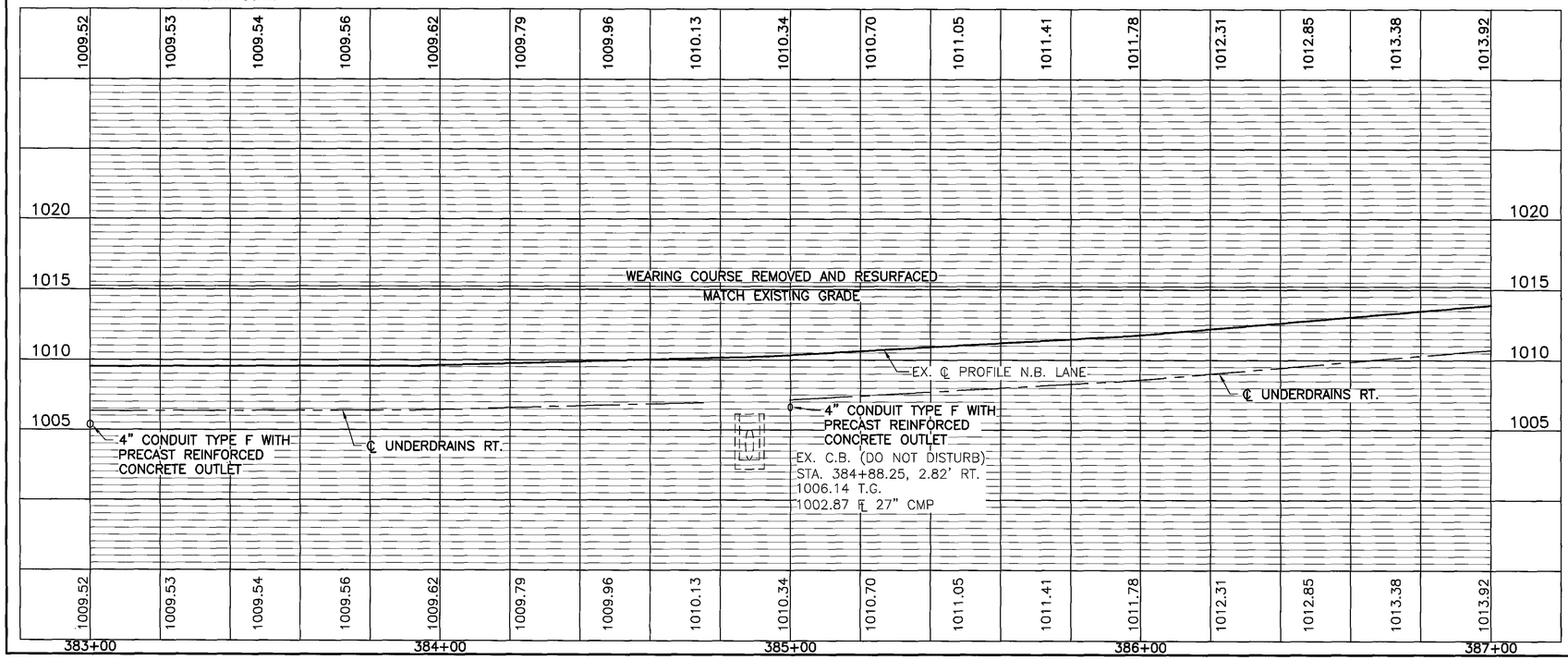
CALCULATED KAA
CHECKED TLS

PLAN AND PROFILE - S.R. 21 (NORTHBOUND LANES)

STA 379+00 TO STA 383+00

SUM-21-(5.69)(7.58)(7.78)



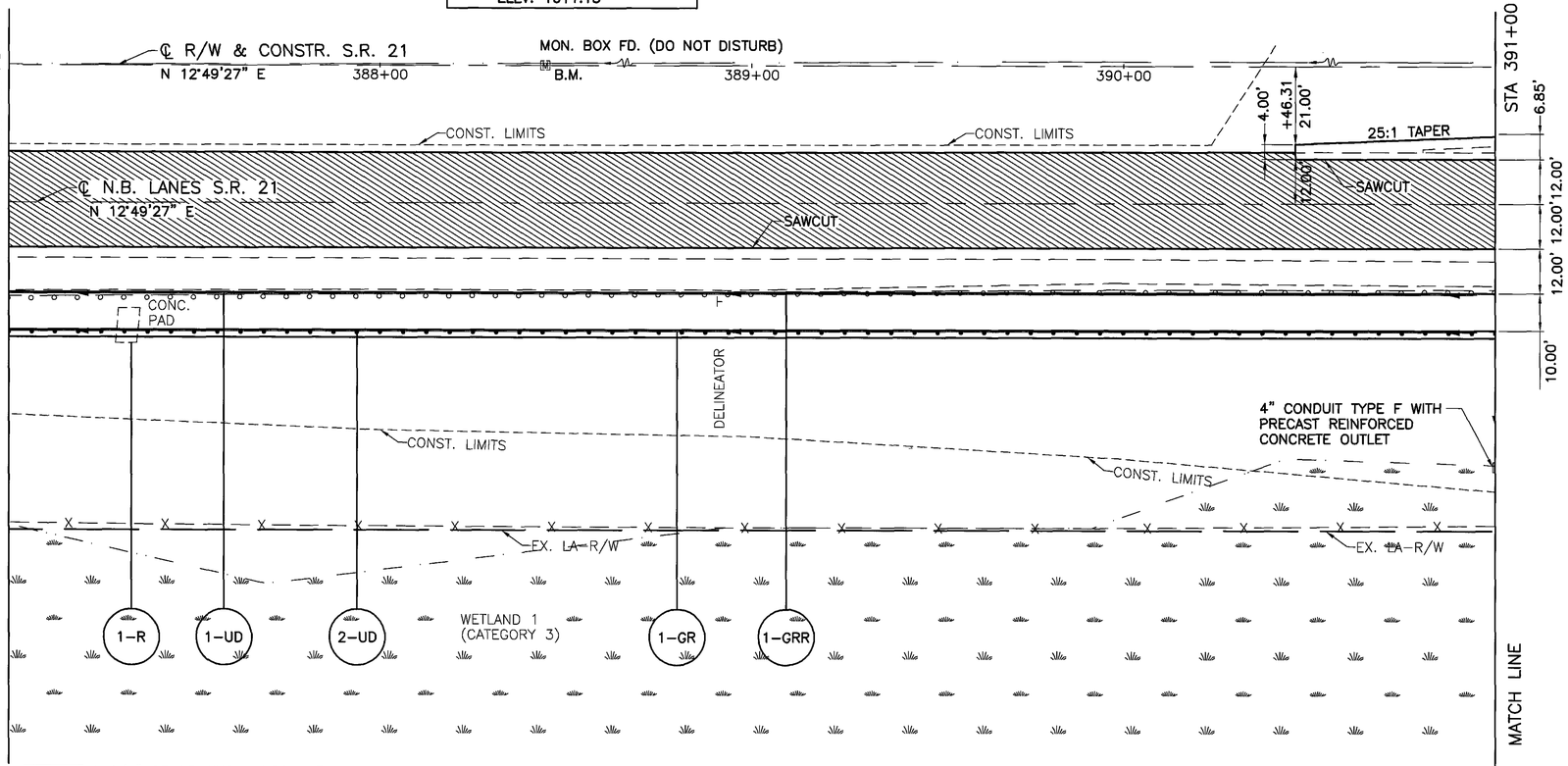


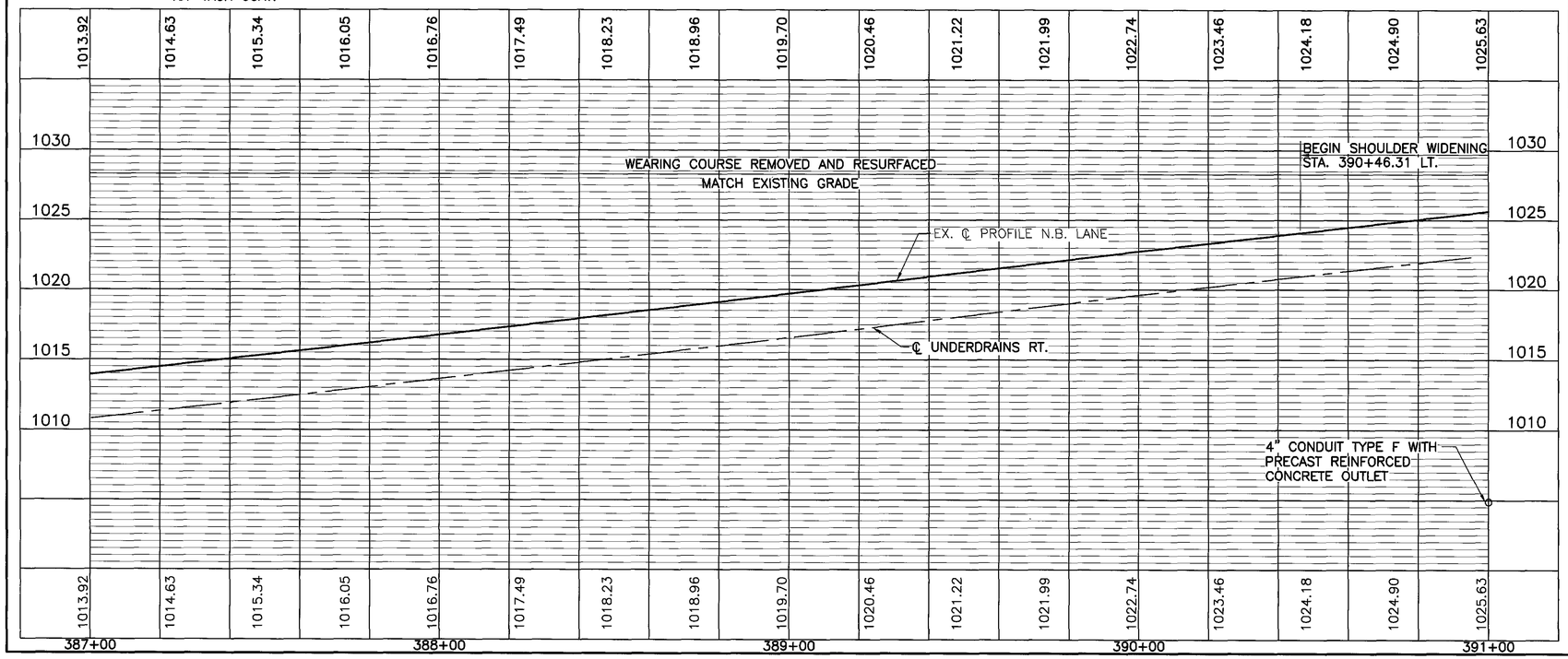
FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154

| | | |

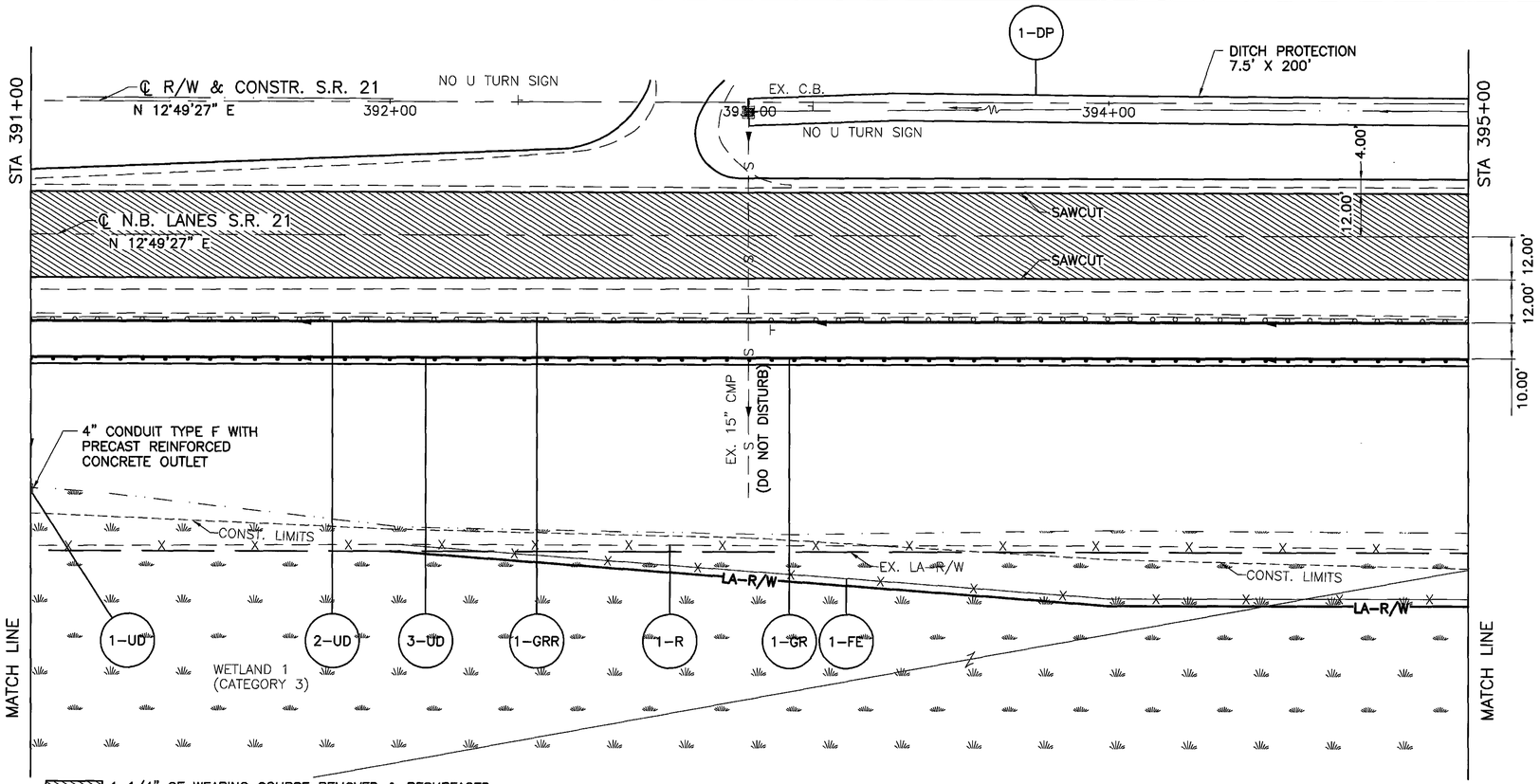
B.M.: TOP OF I.P. IN MON. BOX
STA. 388+44.41
ELEV. 1011.15

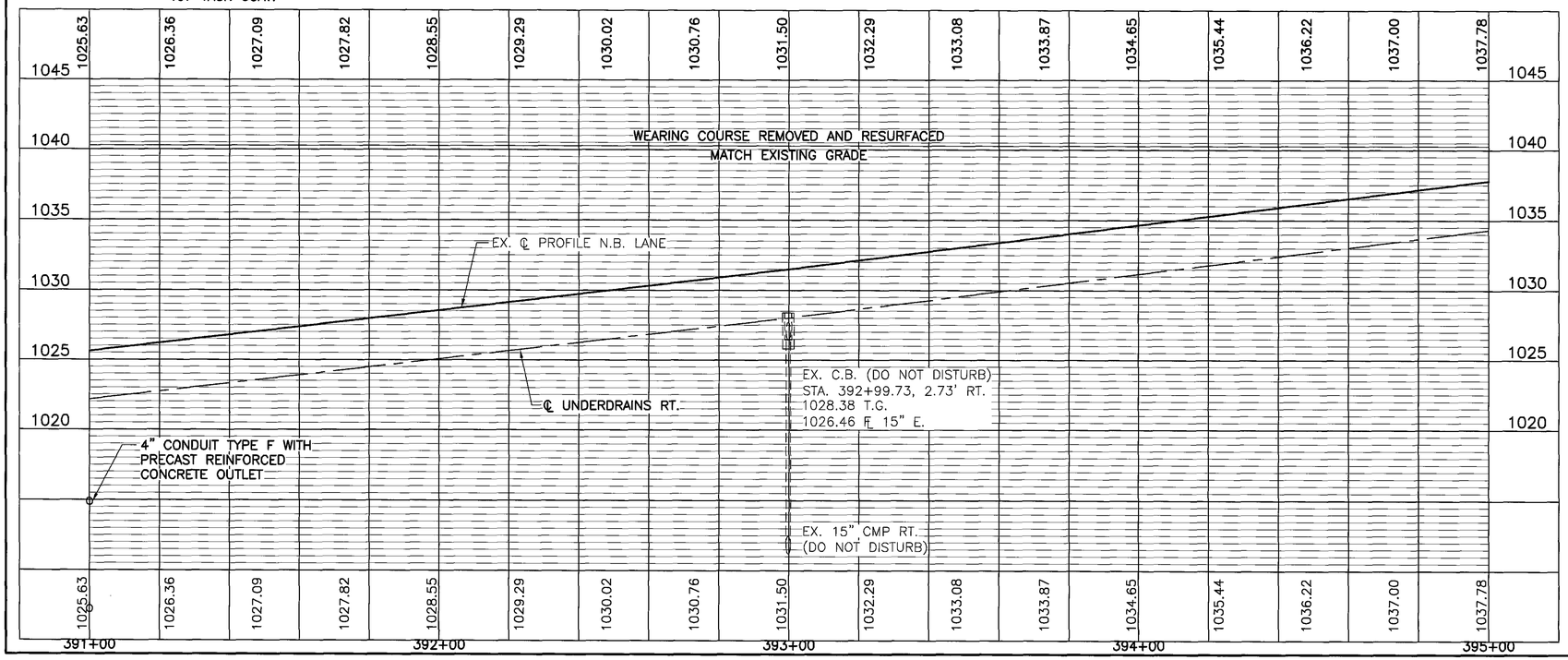
FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154





| | | |





FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154

				STATION FROM	STATION TO	626 BARRIER REFLECTOR, TYPE A (WHITE) EACH	670 DITCH EROSION PROTECTION SQ YD	607 FENCE, TYPE 47 FT	606 GUARDRAIL, TYPE 5 FT	605 4" SHALLOW PIPE UNDERDRAINS FT	604 PRECAST REINFORCED CONCRETE OUTLET EACH	603 4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET FT	202 FENCE REMOVED FT	202 GUARDRAIL REMOVED FT
														400.00
1–GRR	RT.	391	1	391+00.00	395+00.00									
1–GR	RT.	391	1	391+00.00	395+00.00	4			400.00					
1–UD	RT.	391	1	391+00.00							1	39		
2–UD	RT.	391	1	391+00.00	395+00.00					410				
3–UD	RT.	391	1	391+00.00	395+00.00					400				
1–R	RT.	392	1	392+01.83	395+00.00								298	
1–FE	RT.	392	1	392+01.83	395+00.00			299						
1–DP	RT.&LT.	393	1	393+00.00	395+00.00		167							
				TOTALS		4	167	299	400.00	810	1	39	298	400.00

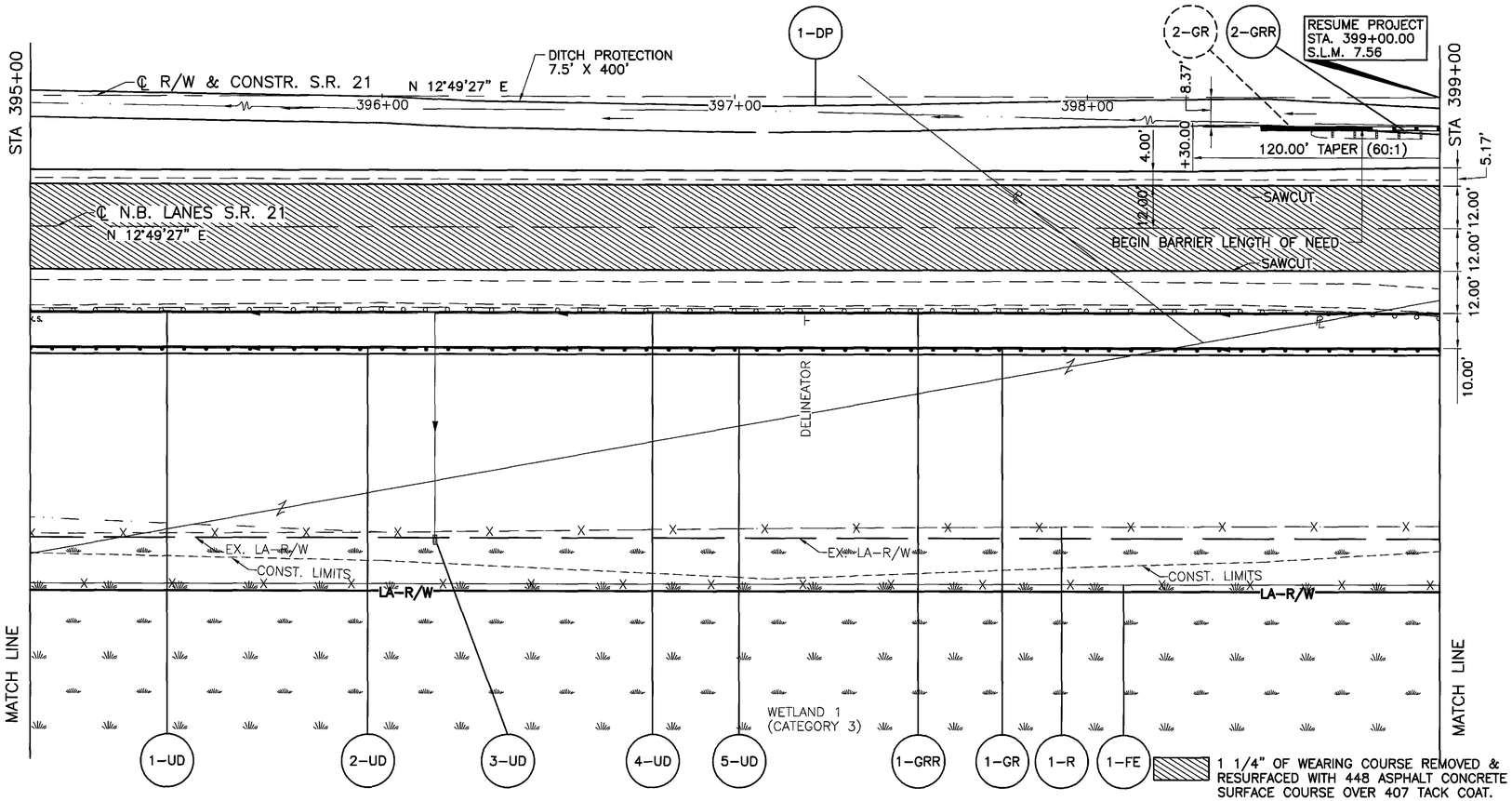
CALCULATED KAA
CHECKED TLS

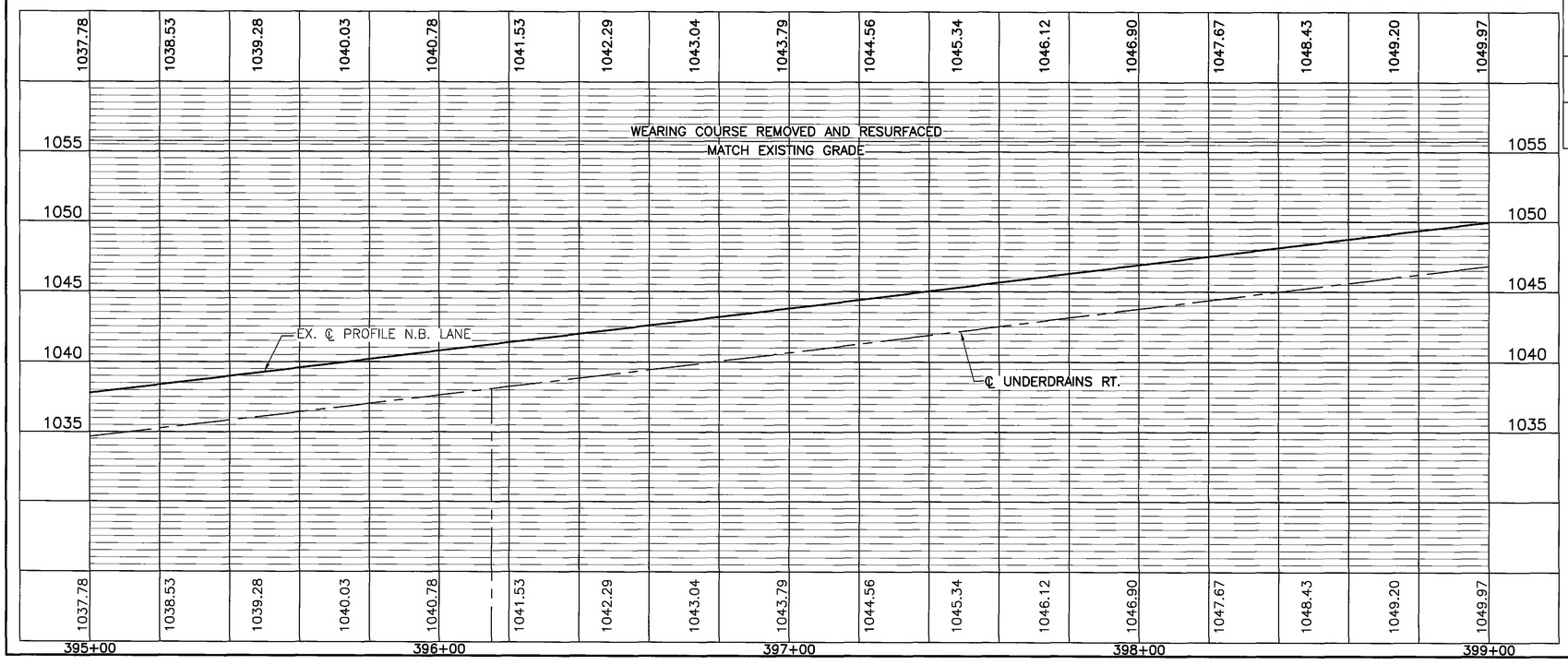
0 20 40
HORIZONTAL SCALE IN FEET

PLAN AND PROFILE – S.R. 21 (NORTHBOUND LANES)
STA 391+00 TO STA 395+00

SUM–21–(5.69)(7.58)(7.78)

EM1482L5–NB.DWG





FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154

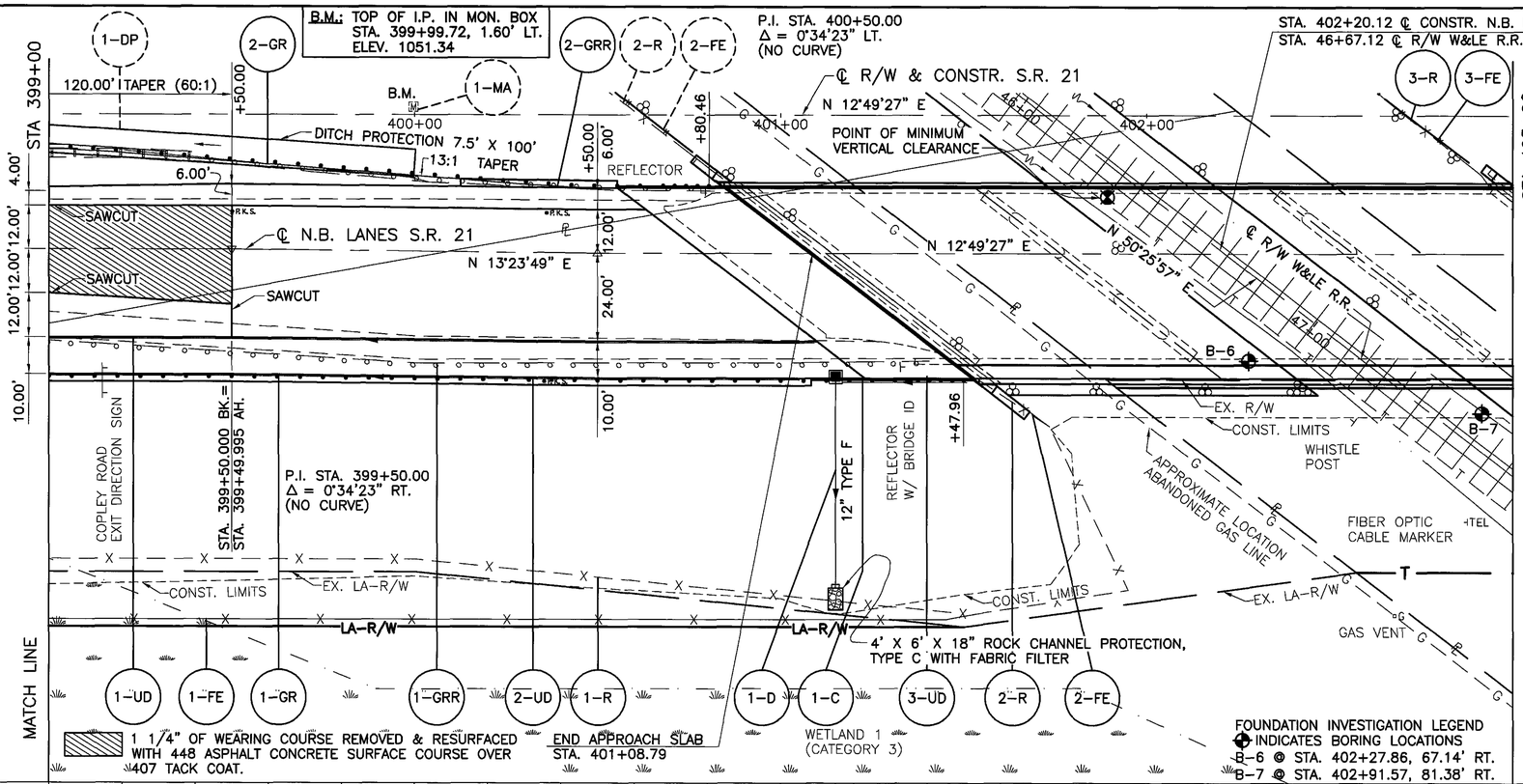
| | | |

B.M.: TOP OF I.P. IN MON. BOX
STA. 399+99.72, 1.60' LT.
ELEV. 1051.34

P.I. STA. 400+50.00
Δ = 0°34'23" LT.
(NO CURVE)

STA. 402+20.12 ℄ CONSTR. N.B. LANES S.R. 21=
STA. 46+67.12 ℄ R/W W&LE R.R.

FOR BRIDGE QUANTITIES, SEE SHEET NO. 173
FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154
FOR STORM SEWER DETAILS, SEE CROSS SECTION SHEET NO. 123

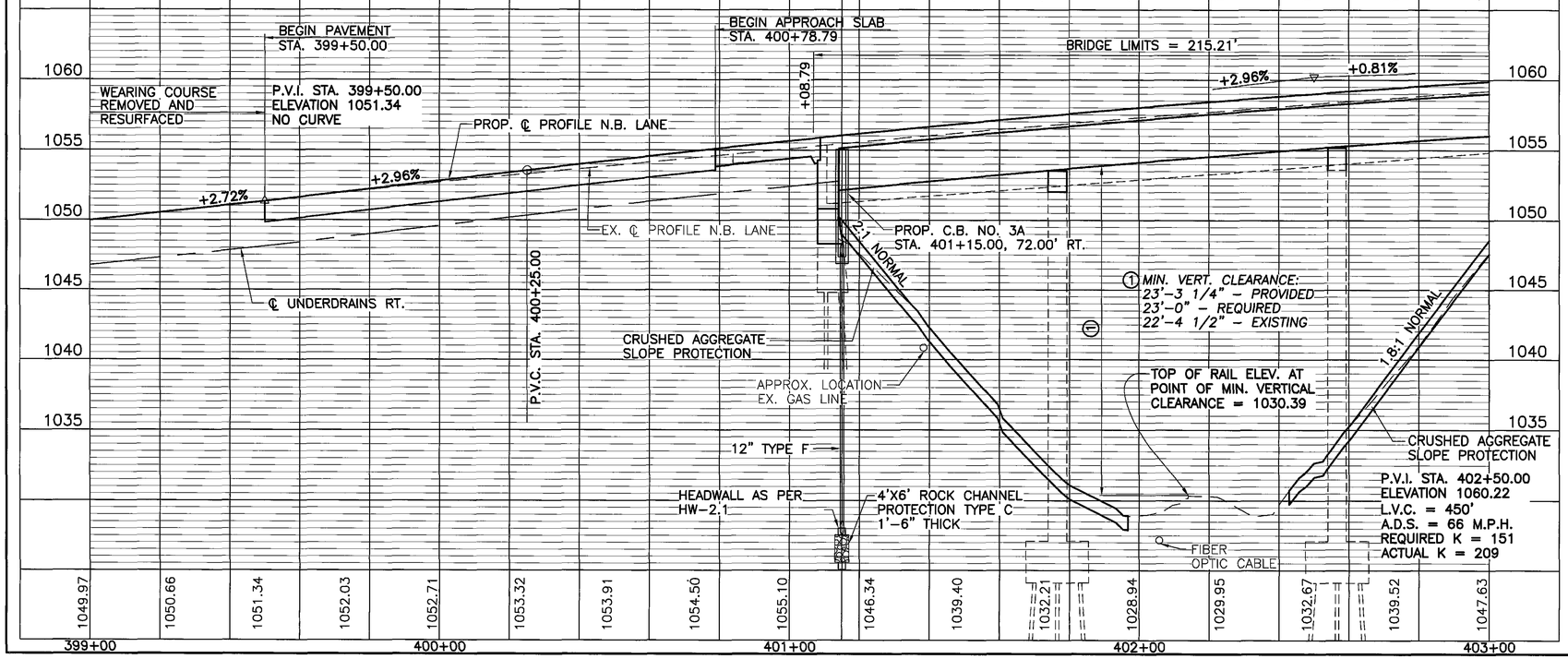


REFERENCE NO.	SIDE	STATION FROM	STATION TO	202 GUARDRAIL REMOVED FT	202 FENCE REMOVED FT	606 GUARDRAIL, TYPE 5 FT	606 BRIDGE TERMINAL ASSEMBLY, TYPE 1 EACH	606 GUARDRAIL, BARRIER DESIGN, TYPE 5 FT	606 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL) EACH	609 CURB, TYPE 4-C FT	626 BARRIER REFLECTOR, TYPE A EACH	626 BARRIER REFLECTOR, TYPE B EACH
1-GRR	RT.	399+00.00	401+40.60	240.82								
2-GRR	RT.	399+38.33	400+81.74	143.75								
1-C	RT.	401+08.30	401+22.96							15		
1-R	RT.	399+00.00	401+52.76		254							
2-R	RT.	401+54.09	401+73.41		23							
3-R	LT.&RT.	402+57.05	402+94.16		49							
1-GR	RT.	399+00.00	401+54.21			254.21	1				2 W	2 W
2-GR	RT.	398+49.30	400+86.71			156.25	1	50.00	1		3 Y	3 Y
TOTALS				384.57	326	410.46	2	50.00	1	15	5	5

W WHITE Y YELLOW

REFERENCE NO.	SIDE	STATION FROM	STATION TO	601 ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER CU YD	602 CONCRETE MASONRY CU YD	603 12" CONDUIT TYPE F, 707.05 FT	603 4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET FT	604 CATCH BASIN NO. 3A EACH	605 4" SHALLOW PIPE UNDERDRAINS FT	607 FENCE, TYPE 47 FT
1-D	RT.	401+15.00		1	0.21	62#		1		
1-UD	RT.	399+00.00	401+09.00						209	
2-UD	RT.	399+00.00	401+05.00						205	
3-UD	RT.	401+14.00	401+50.00				10		26	
3-FE	LT.&RT.	402+61.57	402+88.15							34
1-FE	RT.	399+00.00	401+52.76							253
2-FE	RT.	401+65.68	401+73.41							10
TOTALS				1	0.21	62	10	1	440	297

2-22.5° BENDS & 2-MASONRY COLLARS AS PER DM-1.1 (INCLUDED IN COST OF CONDUIT)



EXISTING STRUCTURE

BRIDGE NO. SUM-21-0758R
TYPE: CONTINUOUS NONCOMPOSITE STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS: 64'-0"±, 80'-0"±, 64'-0"± C/C BRGS.
ROADWAY: 45'-3"± TOE/TOE CONCRETE PARAPETS
LOADING: CF-2000(55)
SKEW: 52°-23'-30"± R.F.
WEARING SURFACE: BITUMINOUS OVER SDC OVERLAY
APPROACH SLABS: AS-1-47 (25'-0"± LONG)
ALIGNMENT: TANGENT
DATE BUILT: 1957
STRUCTURE FILE NO. 7701624

PROPOSED STRUCTURE

TYPE: NEW WIDENED COMPOSITE REINFORCED CONCRETE DECK ON EXTENDED MODIFIED "T" TYPE PIERS AND SEMI-INTEGRAL ABUTMENTS
SPANS: 64'-0"±, 80'-0"±, 64'-0"± C/C BRGS.
ROADWAY: 52'-0" TOE/TOE CONCRETE PARAPETS
LOADING: HS25, CASE II AND THE ALTERNATE MILITARY LOADING
SKEW: 52°-23'-30"± R.F.
WEARING SURFACE: MONOLITHIC CONCRETE
APPROACH SLABS: AS-1-81 (30'-0" LONG)
ALIGNMENT: TANGENT
CROWN: 0.016
LATITUDE: N 41°-05'-48"
LONGITUDE: W 81°-39'-29"

HORIZONTAL SCALE IN FEET 0 20 40
CALCULATED KAA
CHECKED TLS

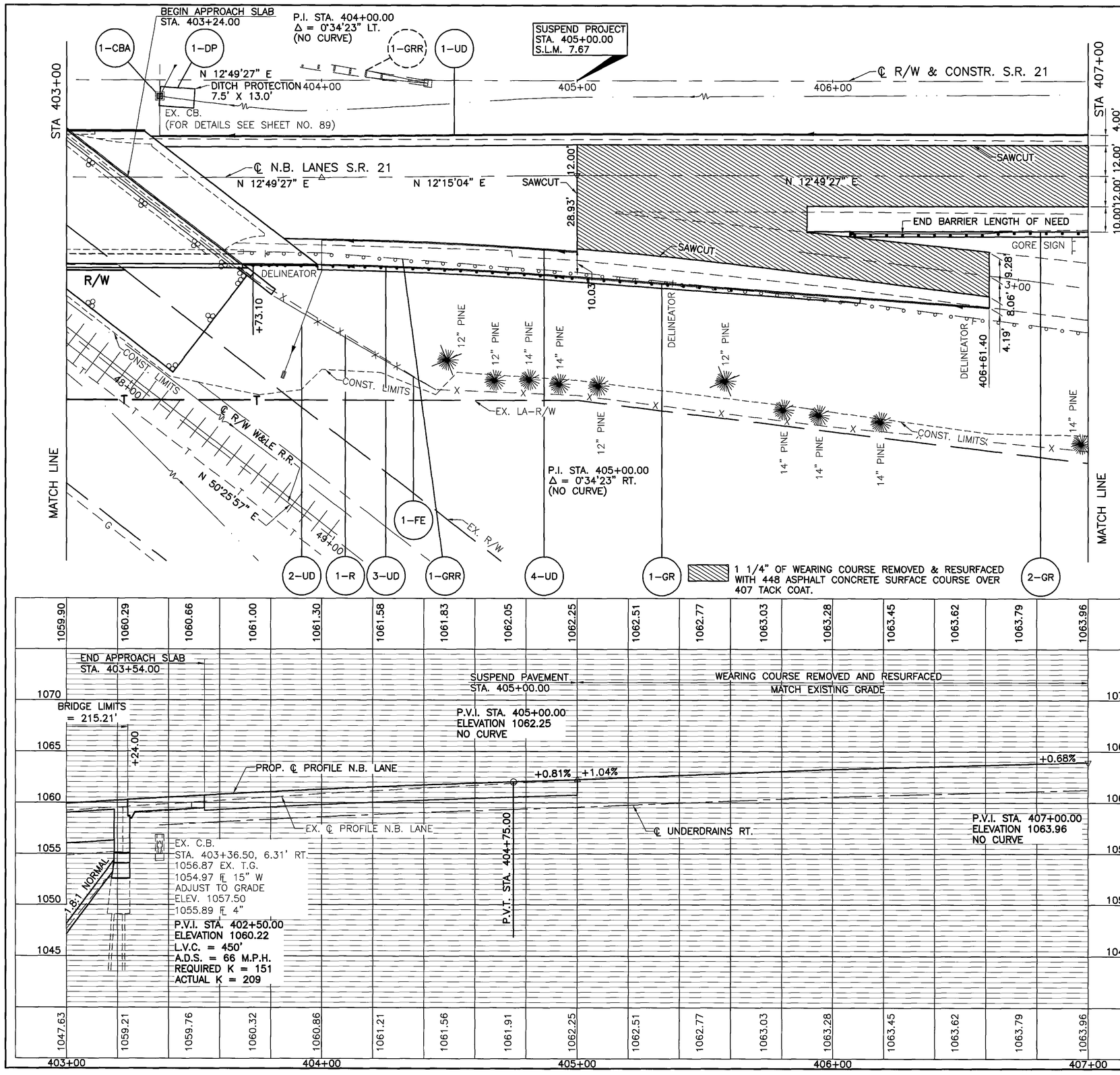
PLAN AND PROFILE - S.R. 21 (NORTHBOUND LANES)
STA 399+00 TO STA 403+00

SUM-21-(5.69)(7.58)(7.78)

98
223

EM1482L7-NB.DWG

FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154
FOR BRIDGE QUANTITIES, SEE SHEET NO. 173



				STATION FROM	STATION TO	SIDE	REFERENCE NO.	TOTALS
670	DITCH EROSION PROTECTION	SQ YD						11
626	BARRIER REFLECTOR, TYPE A (WHITE)	EACH						2
607	FENCE, TYPE 47	FT						76
606	ANCHOR ASSEMBLY, TYPE E-98	EACH						1
606	BRIDGE TERMINAL ASSEMBLY, TYPE 1	EACH						1
606	GUARDRAIL, TYPE 5	FT						235.37
605	4" SHALLOW PIPE UNDERDRAINS	FT						736
604	CATCH BASIN ADJUSTED TO GRADE	EACH						1
604	PRECAST REINFORCED CONCRETE OUTLET	FT						1
603	4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET	FT						63
202	FENCE REMOVED	FT						91
202	GUARDRAIL REMOVED	FT						193.75
				403+67.00	405+60.34	RT.	1-GRR	
				403+36.50	407+00.00	RT.	1-UD	
				403+84.00	404+00.00	RT.	2-UD	
				404+00.00	406+61.40	RT.	3-UD	
				404+00.00	405+00.00	RT.	4-UD	
				403+66.85	405+60.34	RT.	1-GR	
				406+08.38	407+00.00	RT.	2-GR	
				403+36.50		RT.	1-CBA	
				403+37.00	403+50.00	RT.	1-DP	
				403+67.24	404+44.55	RT.	1-R	
				403+79.18	404+44.55	RT.	1-FE	

EXISTING STRUCTURE

BRIDGE NO. SUM-21-0758 R
TYPE: CONTINUOUS NONCOMPOSITE STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS: 64'-0"±, 80'-0"±, 64'-0"± C/C BRGS.
ROADWAY: 45'-3"± TOE/TOE CONC. PARAPET
LOADING: CF-2000(55)
SKEW: 52°-23'-30" ± R.F.
WEARING SURFACE: BITUMINOUS OVER SDC OVERLAY
APPROACH SLABS: AS-1-47 (25'-0"± LONG)
ALIGNMENT: TANGENT
DATE BUILT: 1957
STRUCTURE FILE NO. 7701624

PROPOSED STRUCTURE

TYPE: NEW WIDENED COMPOSITE REINFORCED CONCRETE DECK ON EXTENDED MODIFIED "T" TYPE PIERS AND NEW SEMI-INTEGRAL ABUTMENTS
SPANS: 64'-0"±, 80'-0"±, 64'-0"± C/C BRGS.
ROADWAY: 52'-0" TOE/TOE CONCRETE PARAPETS
LOADING: HS25, CASE II AND THE ALTERNATE MILITARY LOADING
SKEW: 52°-23'-30" R.F.
WEARING SURFACE: MONOLITHIC CONCRETE
APPROACH SLABS: AS-1-81 (30'-0" LONG)
ALIGNMENT: TANGENT
CROWN: 0.016
LATITUDE: N 41°-05'-48"
LONGITUDE: W 81°-39'-29"

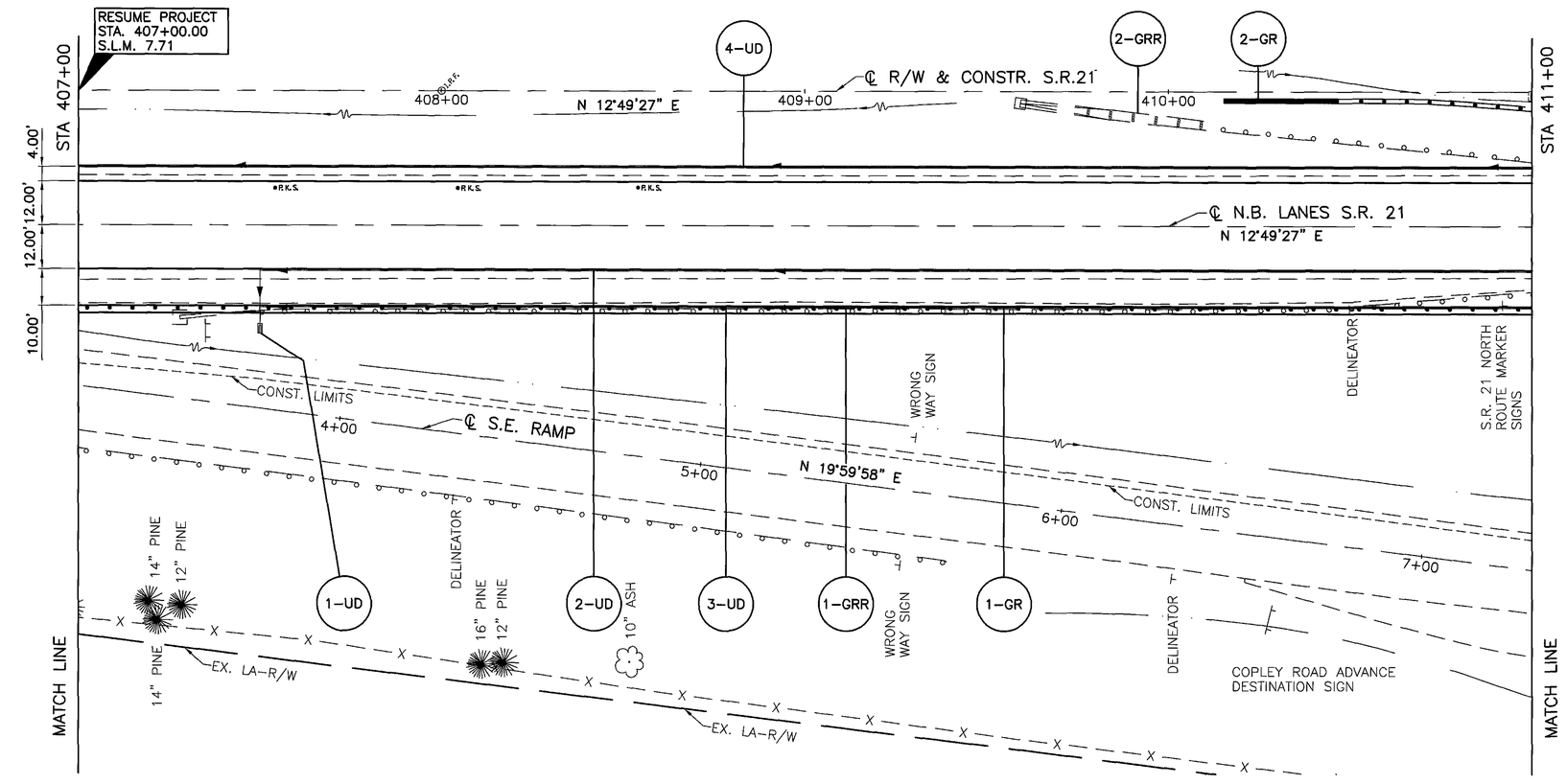
HORIZONTAL SCALE IN FEET
0 20 40
CALCULATED KAA
CHECKED TLS

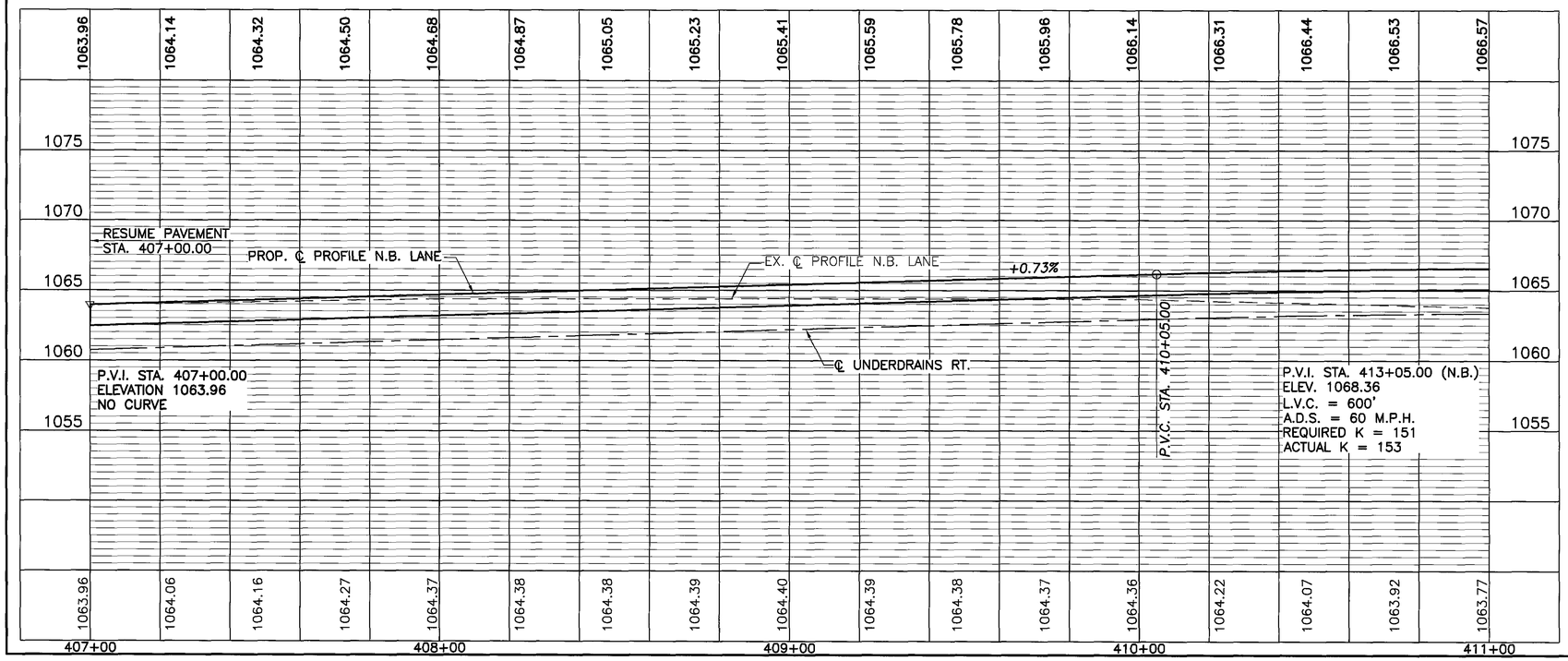
PLAN AND PROFILE - S.R. 21 (NORTHBOUND LANES)
STA 403+00 TO STA 407+00

SUM-21-(5.69)(7.58)(7.78)

99
223

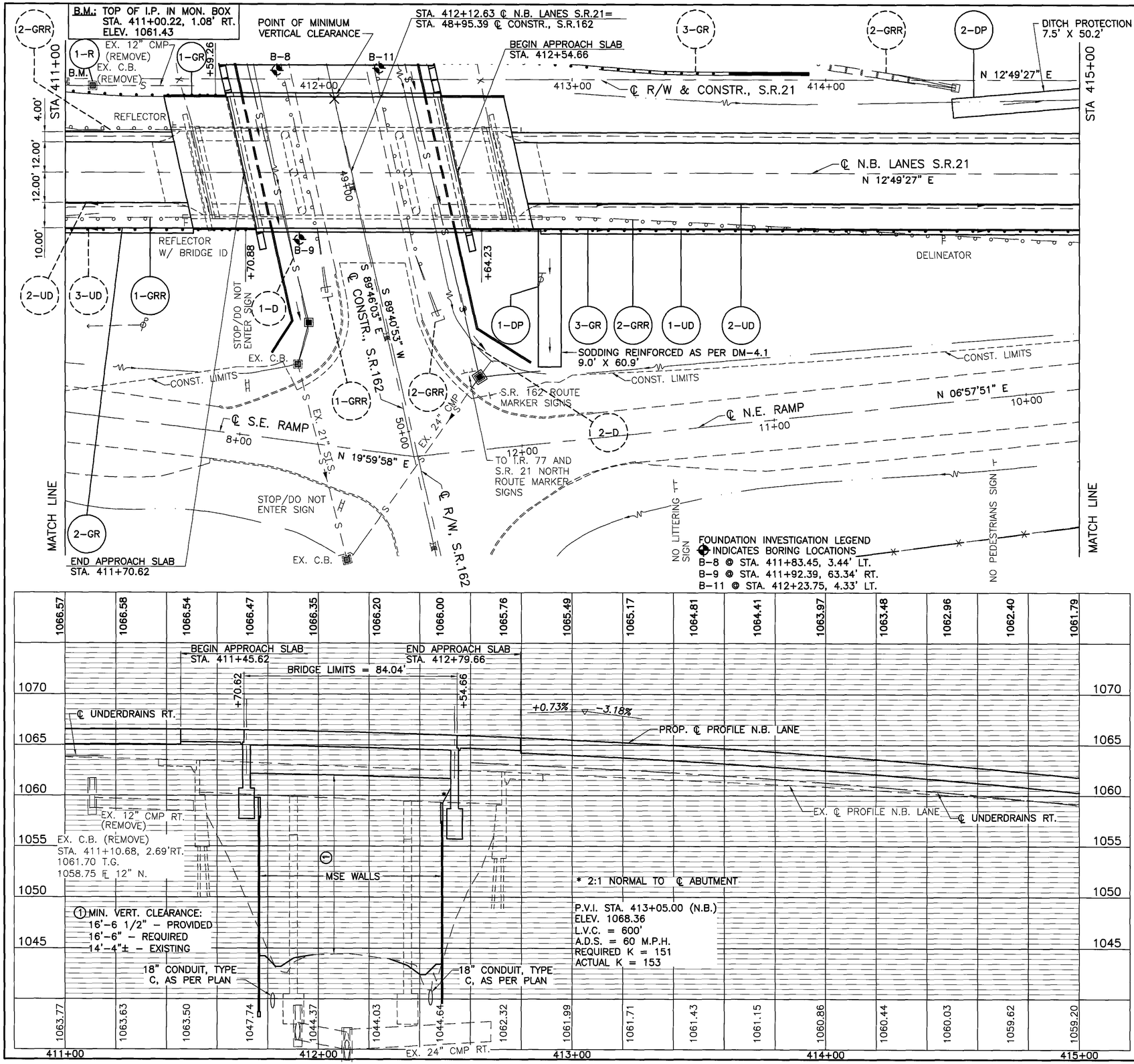
EM1482L8-NB.DWG





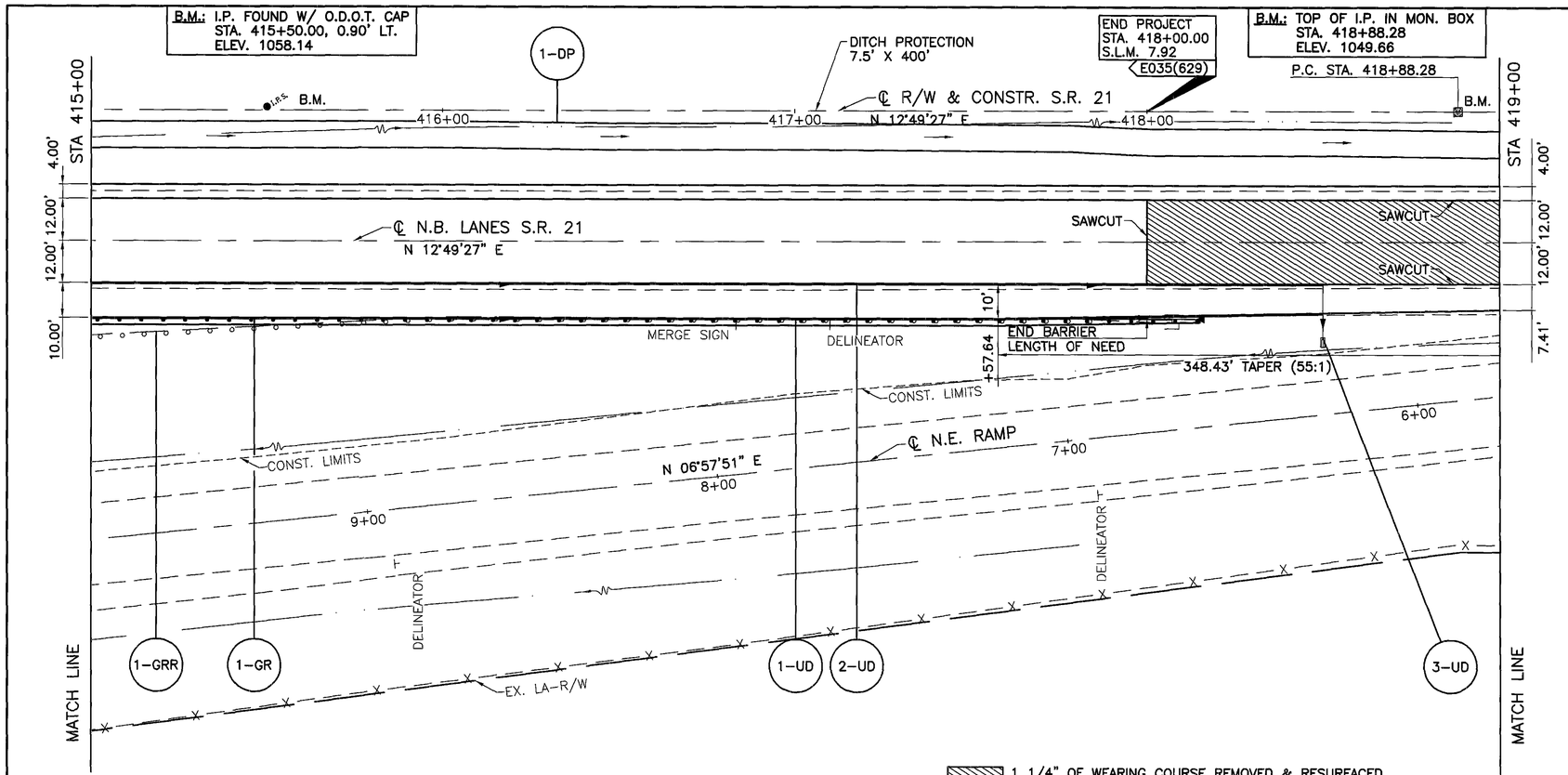
FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154

| | | |



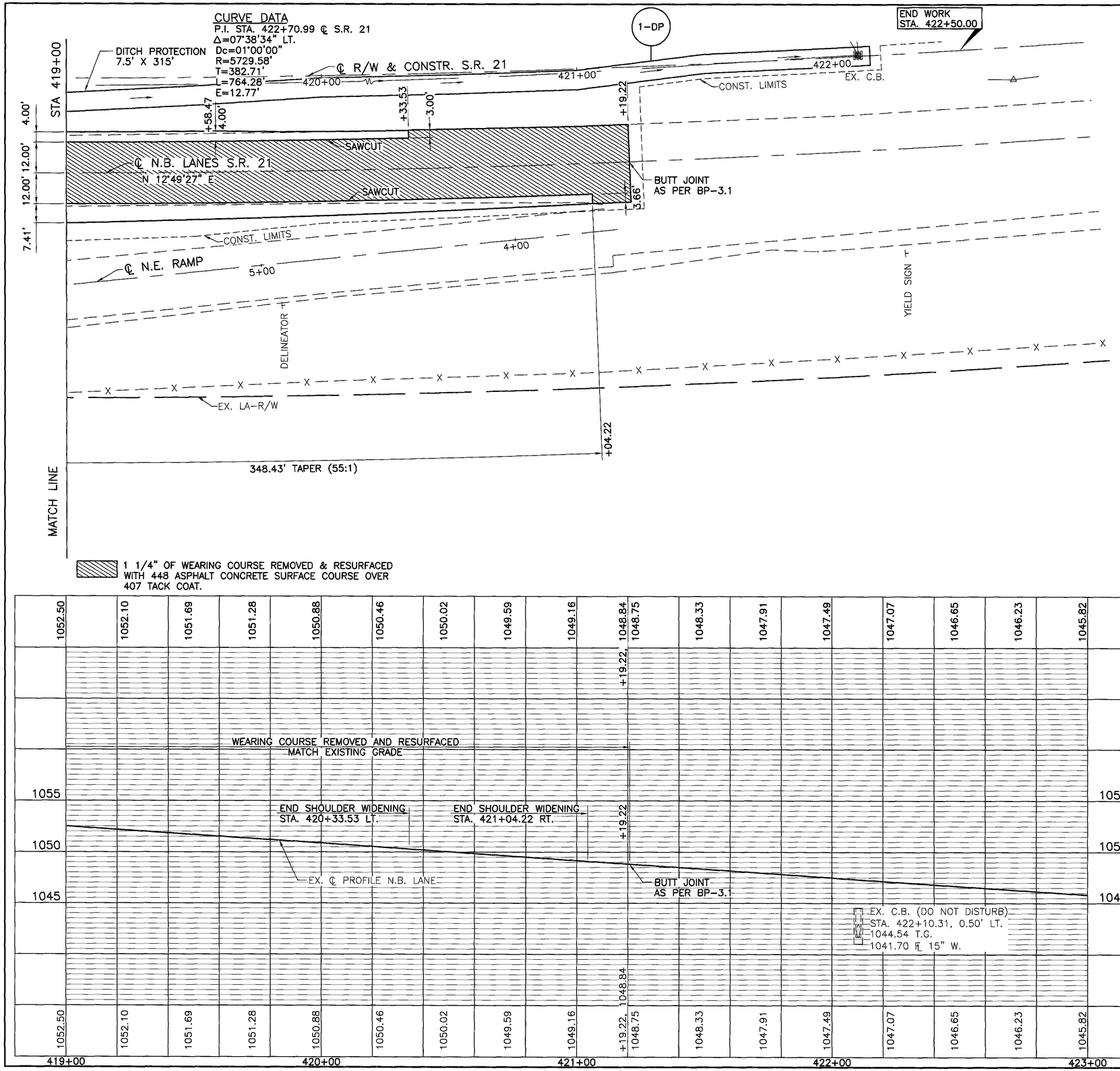
FOR S.R.162 DETAILS & QUANTITIES, SEE SHEET NO. 113
FOR BRIDGE QUANTITIES, SEE SHEET NO. 198
FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154

| | | |



FOR TYPICAL SECTION OF ADJOINING PAVEMENT, SEE SHEET NO. 4
FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154

| | | |



FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154

670	DITCH EROSION PROTECTION	SQ YD	263
			263

STATION FROM	STATION TO	SIDE	REFERENCE NO.
419+00.00	422+15.00	RT.	1-DP

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

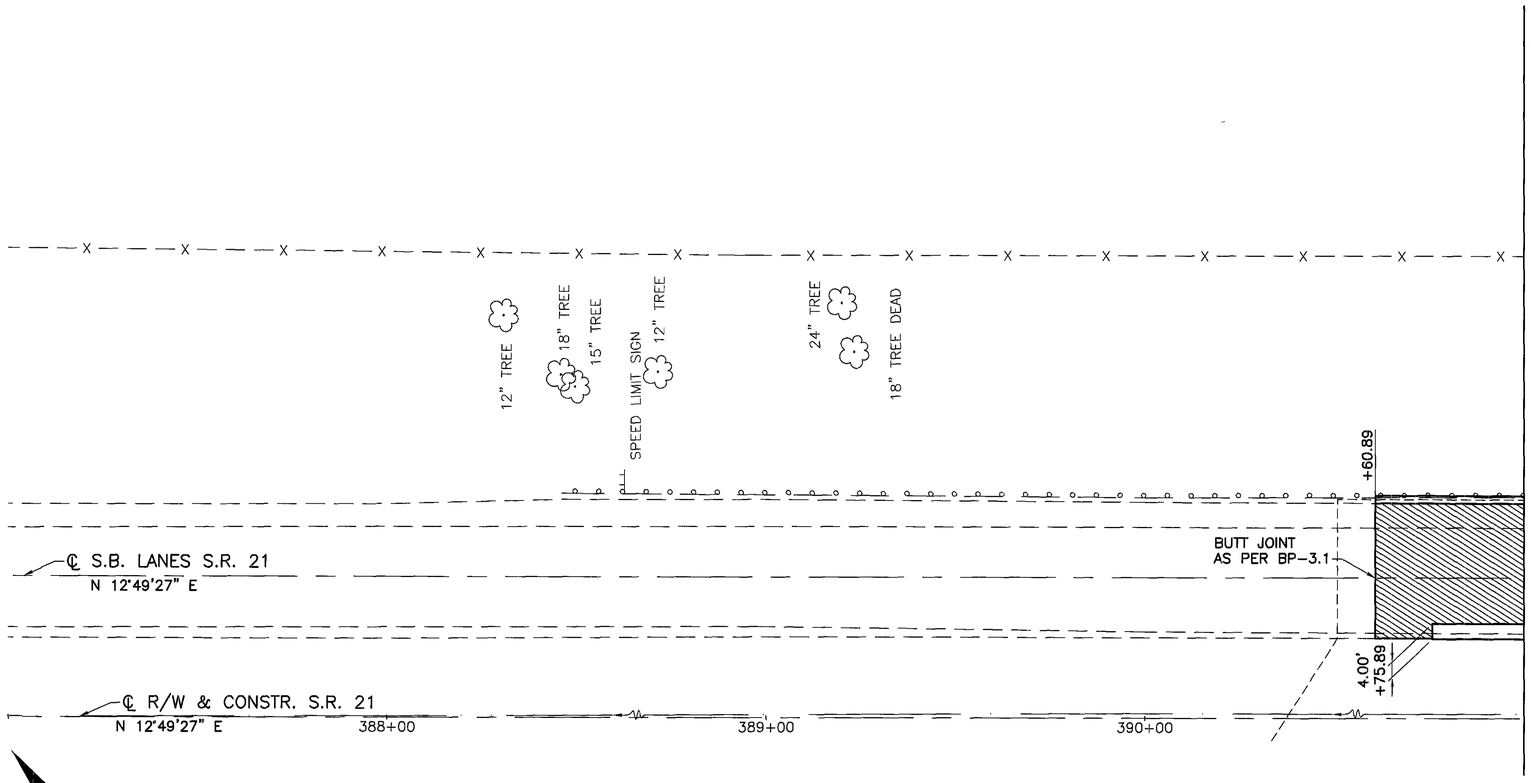
PLAN AND PROFILE – S.R. 21 (NORTHBOUND LANES)

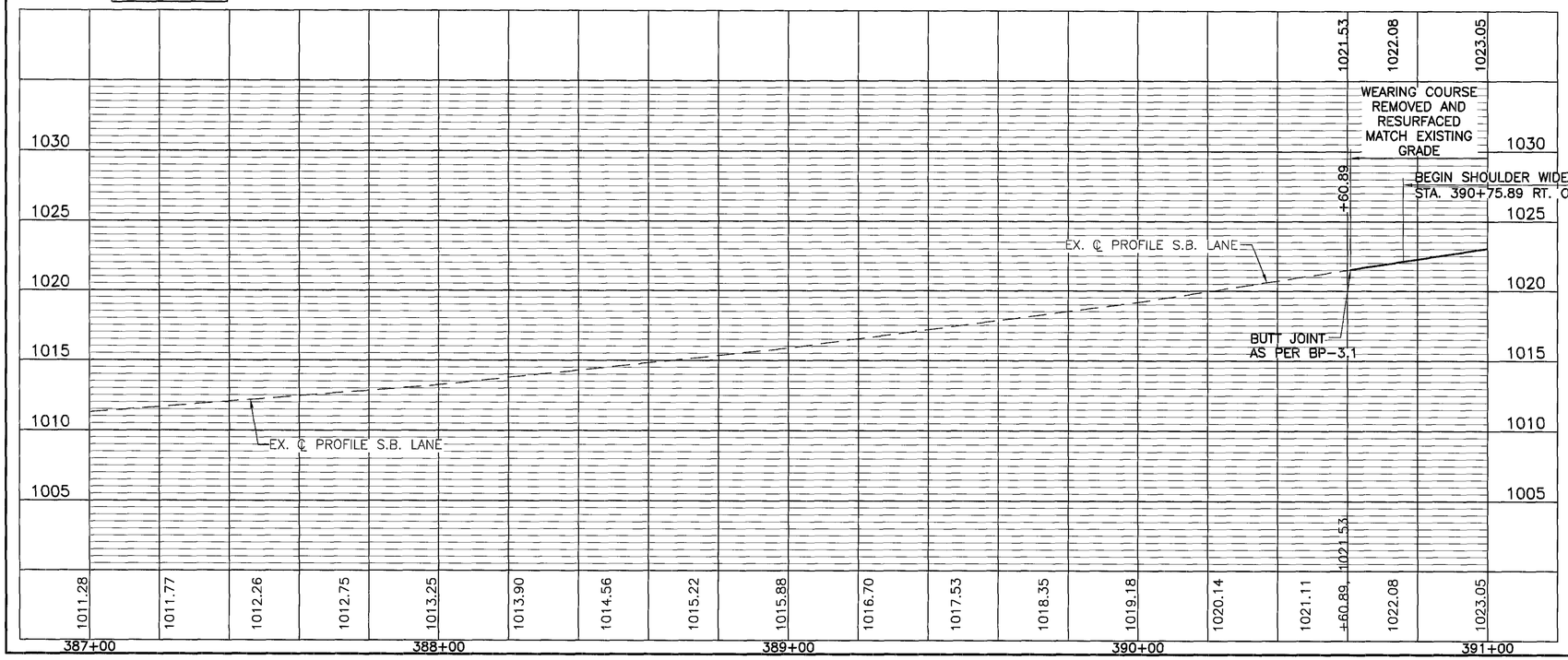
STA 419+00 TO STA 423+00

SUM-21-(5.69)(7.58)(7.78)

EM1484L4-NB.DWG

FOR TYPICAL SECTION OF ADJOINING PAVEMENT, SEE SHEET NO. 6
FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154





1 1/4" OF WEARING COURSE REMOVED & RESURFACED WITH 448 ASPHALT CONCRETE SURFACE COURSE OVER 407 TACK COAT.

EM1482L4-SB.DWG

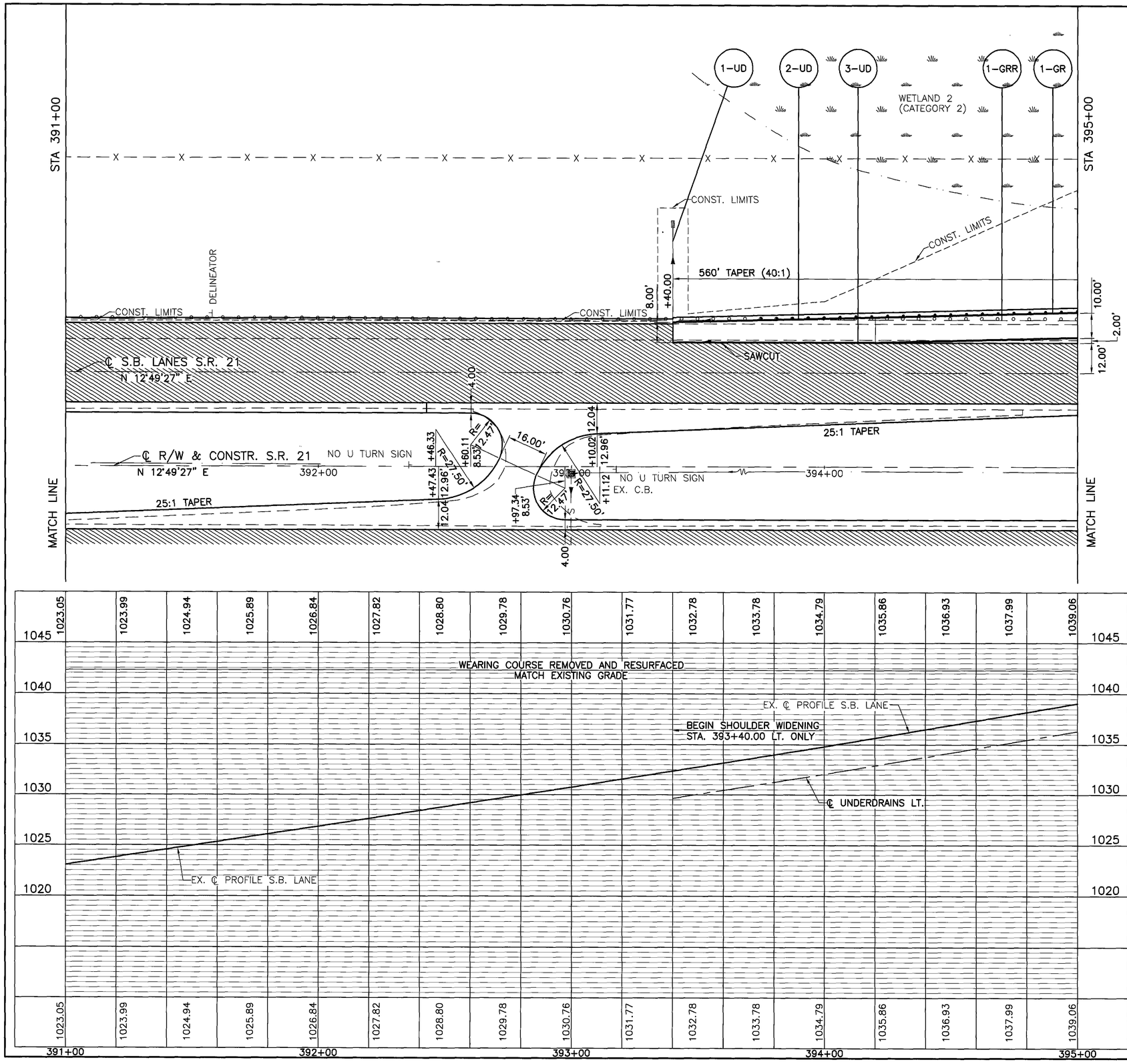
HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

PLAN AND PROFILE - S.R. 21 (SOUTHBOUND LANES)
STA 387+00 TO STA 391+00

SUM-21-(5.69)(7.58)(7.78)

104
223



FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154

				STATION FROM	STATION TO	SIDE	REFERENCE NO.	TOTALS
626	BARRIER REFLECTOR, TYPE A (WHITE)	EACH						2
				393+74.92	395+00.00	LT.	1-GR	2
606	GUARDRAIL, TYPE 5	FT						125.11
				393+74.91	395+00.00	LT.	1-GRR	125.11
605	4" SHALLOW PIPE UNDERDRAINS	FT						328
				393+40.00	395+00.00	LT.	1-UD	160
				393+40.00	395+00.00	LT.	2-UD	168
				393+40.00	395+00.00	LT.	3-UD	
604	PRECAST REINFORCED CONCRETE OUTLET	EACH						1
				393+40.00	395+00.00	LT.	1-UD	1
603	4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET	FT						41
				393+40.00	395+00.00	LT.	1-UD	41
202	GUARDRAIL REMOVED	FT	125.00					125.00

1 1/4" OF WEARING COURSE REMOVED & RESURFACED WITH 448 ASPHALT CONCRETE SURFACE COURSE OVER 407 TACK COAT.

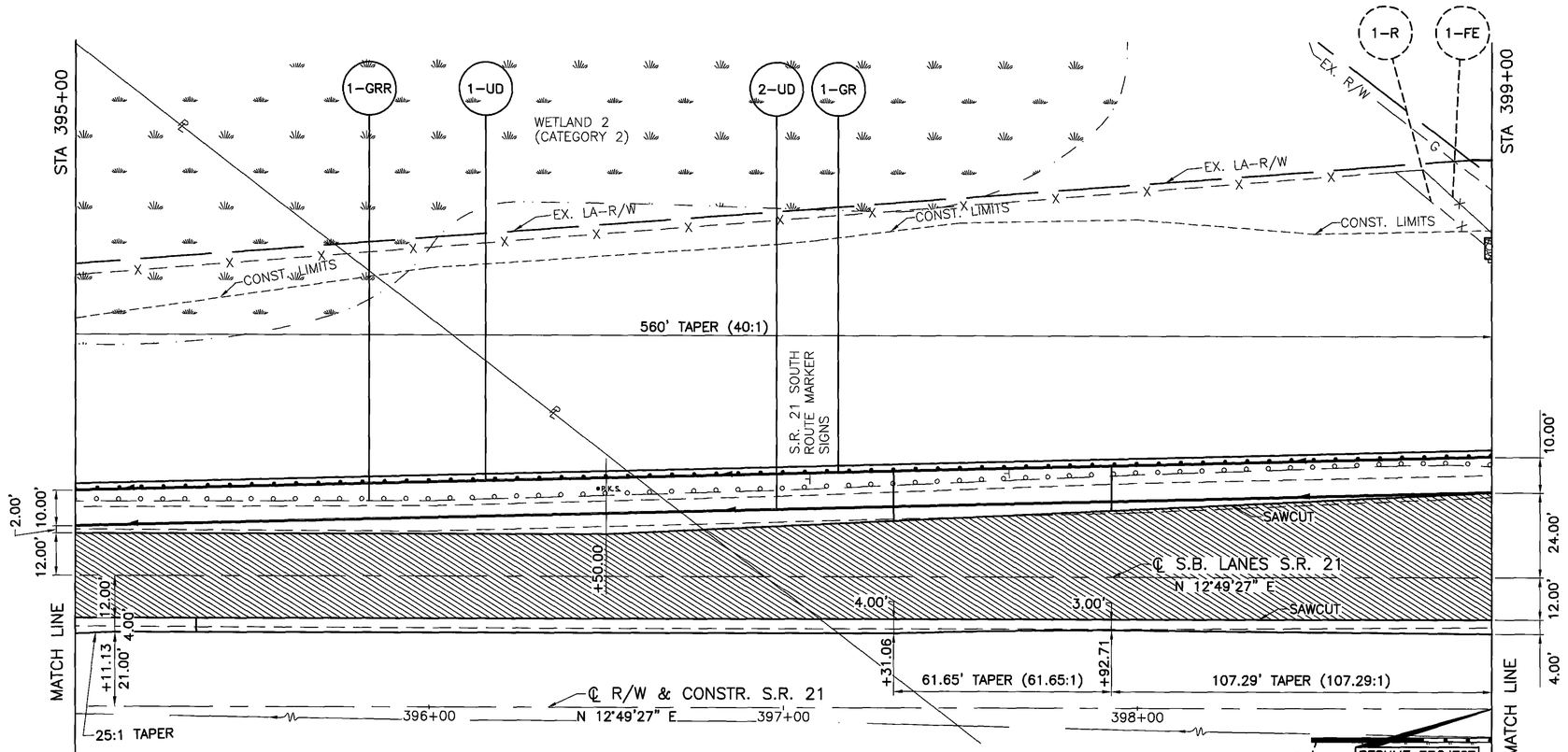
0 20 40 HORIZONTAL SCALE IN FEET

CALCULATED KAA
CHECKED TLS

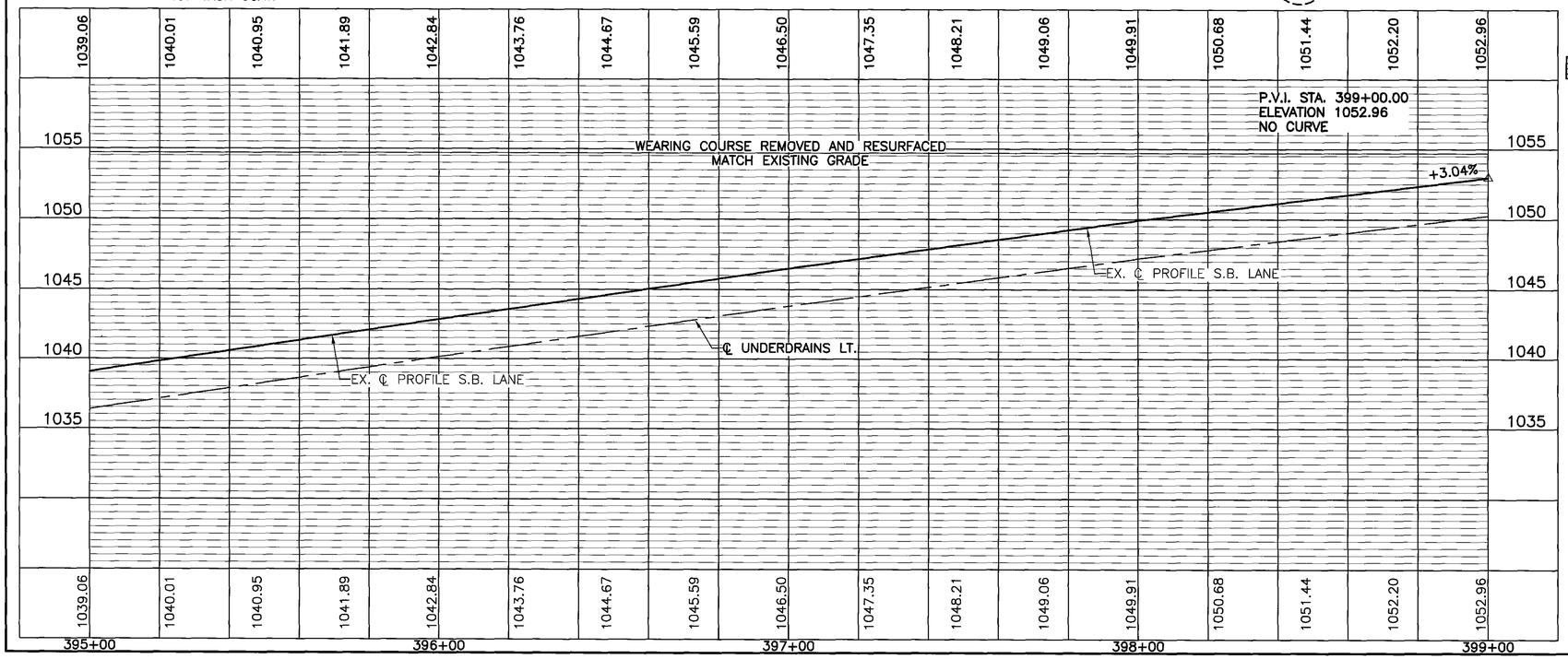
PLAN AND PROFILE – S.R. 21 (SOUTHBOUND LANES)
STA 391+00 TO STA 395+00

SUM-21-(5.69)(7.58)(7.78)

EM1482L5-SB.DWG

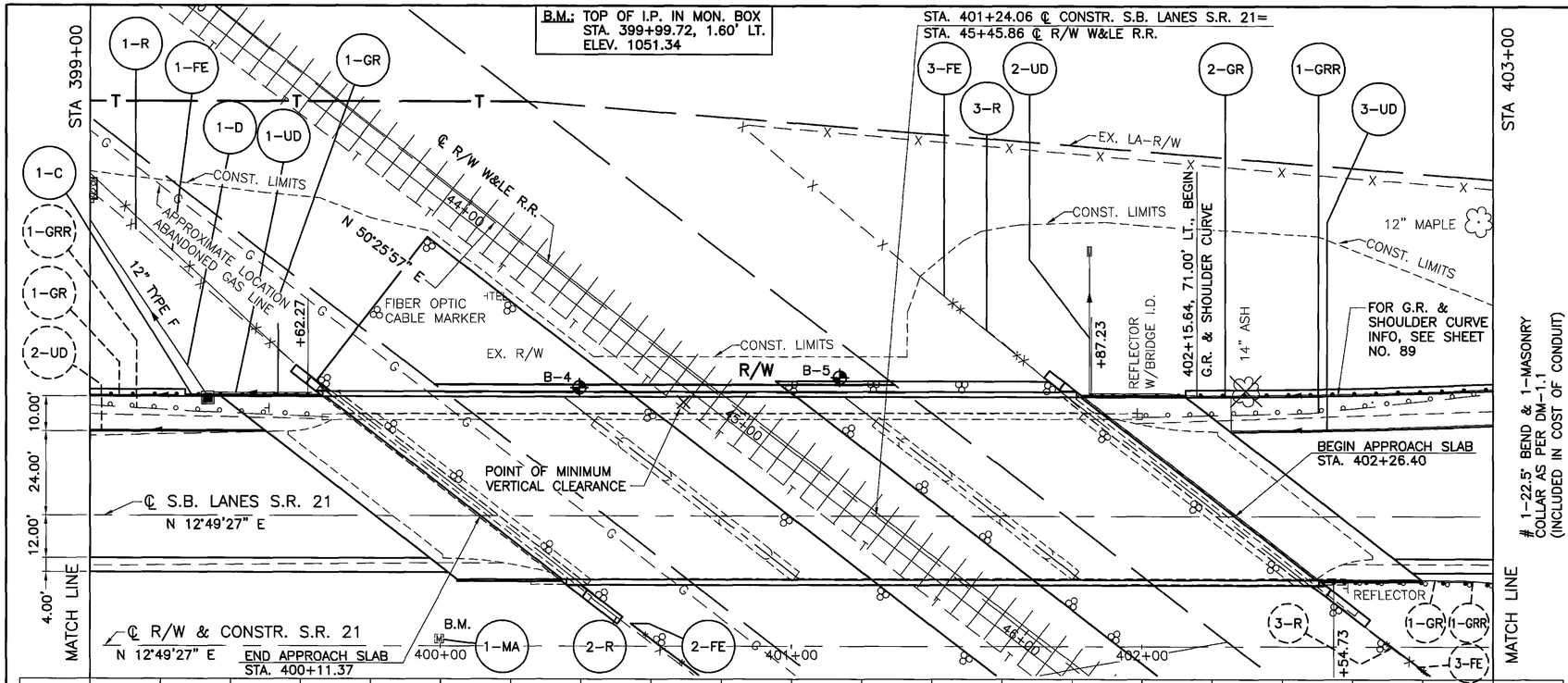


1 1/4" OF WEARING COURSE REMOVED & RESURFACED WITH 448 ASPHALT CONCRETE SURFACE COURSE OVER 407 TACK COAT.



FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154

| | | |

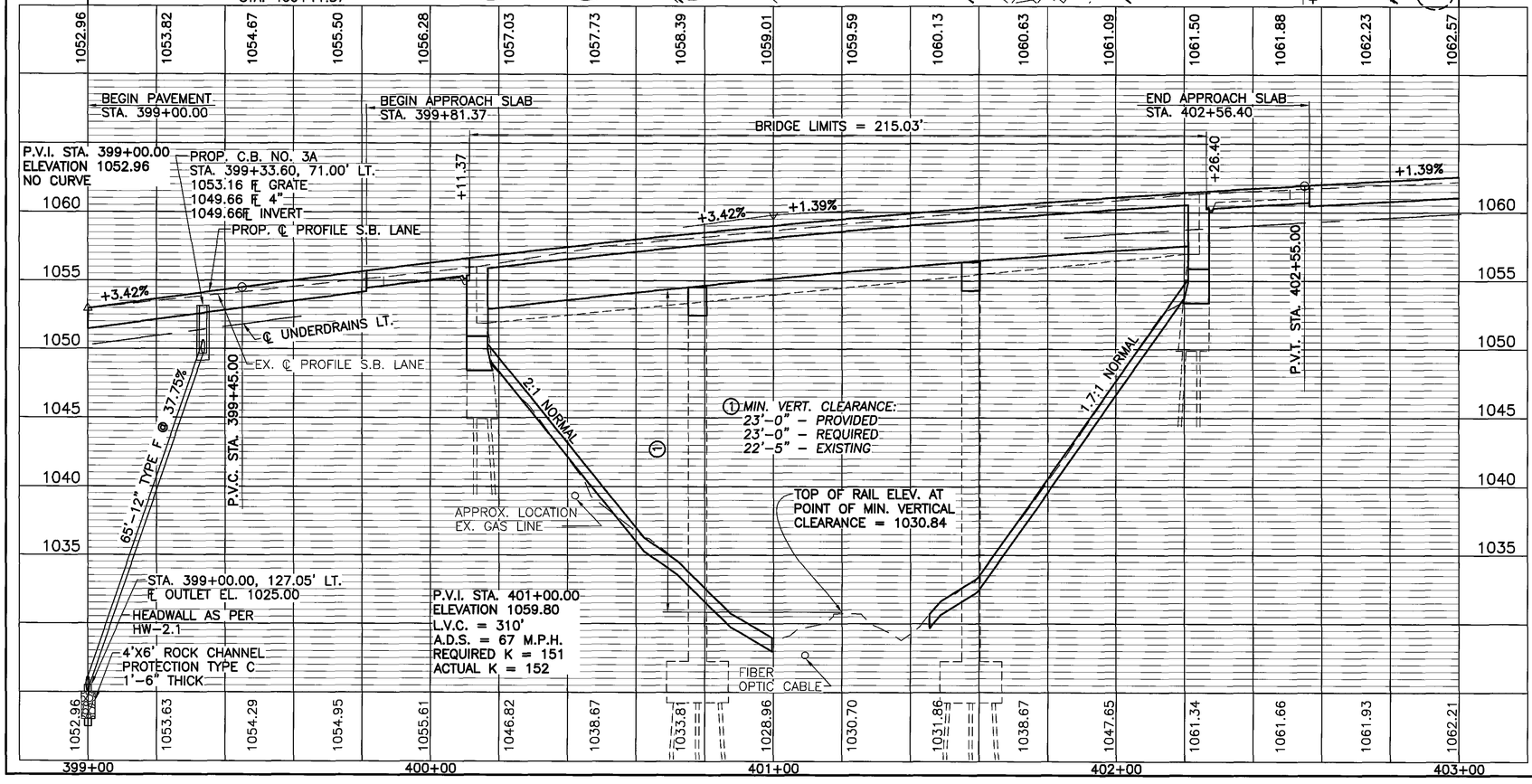


FOR BRIDGE QUANTITIES, SEE SHEET NO. 173
FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154

626	BARRIER REFLECTOR, TYPE _ (WHITE)	A	EACH																											2	2
		B	EACH																											2	2
609	CURB, TYPE 4-C		FT																											10	10
607	FENCE, TYPE 47		FT																											190	190
606	BRIDGE TERMINAL ASSEMBLY, TYPE 1		EACH																											2	2
606	GUARDRAIL, TYPE 5		FT																											187.55	187.55
605	4" SHALLOW PIPE UNDERDRAINS		FT																											208	208
604	MONUMENT BOX ADJUSTED TO GRADE		EACH																											1	1
604	PRECAST REINFORCED CONCRETE OUTLET		EACH																											1	1
604	CATCH BASIN, NO. 3A		EACH																											1	1
603	4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET		FT																											65	65
603	12" CONDUIT TYPE F, 707.05		FT																											71	71
602	CONCRETE MASONRY		CU YD																											0.21	0.21
601	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER		CU YD																											1	1
202	FENCE REMOVED		FT																											235	235
202	GUARDRAIL REMOVED		FT	104.40																										104.40	104.40

STATION FROM	STATION TO	SIDE	REFERENCE NO.
401+97.13	403+00.00	LT.	1-GRR
399+00.00	399+68.52	LT.	1-GR
401+80.98	403+00.00	LT.	2-GR
399+00.00	399+33.60	LT.	1-D
399+35.35	399+63.35	LT.	1-UD
401+85.00	403+00.00	LT.	2-UD
402+25.37	403+00.00	LT.	3-UD
398+72.64	399+70.25	LT.	1-R
400+42.68	400+82.07	LT.&RT.	2-R
401+36.68	401+82.18	LT.	3-R
398+72.64	399+56.84	LT.	1-FE
400+47.89	400+74.61	LT.&RT.	2-FE
401+36.68	401+70.69	LT.	3-FE
399+27.22	399+37.22	LT.	1-C
399+99.63		LT.	1-MA
			TOTALS

FOUNDATION INVESTIGATION LEGEND
⊕ INDICATES BORING LOCATIONS
B-4 @ STA. 400+39.61, 73.71' LT.
B-5 @ STA. 401+13.79, 76.53' LT.



EXISTING STRUCTURE

BRIDGE NO. SUM-21-0758L
TYPE: CONTINUOUS NONCOMPOSITE STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS: 64'-0"±, 80'-0"±, 64'-0"± C/C BRGS.
ROADWAY: 45'-3"± TOE/TOE CONCRETE PARAPETS
LOADING: CF-2000(55)
SKEW: 52°-23'-30"± R.F.
WEARING SURFACE: BITUMINOUS OVER SDC OVERLAY
APPROACH SLABS: AS-1-47 (25'-0"± LONG)
ALIGNMENT: TANGENT
DATE BUILT: 1957
STRUCTURE FILE NO. 7701594

PROPOSED STRUCTURE

TYPE: NEW WIDENED COMPOSITE REINFORCED CONCRETE DECK ON EXTENDED MODIFIED "T" TYPE PIERS AND SEMI-INTEGRAL ABUTMENTS
SPANS: 64'-0"±, 80'-0"±, 64'-0"± C/C BRGS.
ROADWAY: 52'-0" TOE/TOE CONCRETE PARAPETS
LOADING: HS25, CASE II AND THE ALTERNATE MILITARY LOADING
SKEW: 52°-23'-30"± R.F.
WEARING SURFACE: MONOLITHIC CONCRETE
APPROACH SLABS: AS-1-81 (30'-0" LONG)
ALIGNMENT: TANGENT
CROWN: 0.016
LATITUDE: N 41°-05'-48"
LONGITUDE: W 81°-39'-29"

CALCULATED KAA
CHECKED TLS

0 20 40 HORIZONTAL SCALE IN FEET

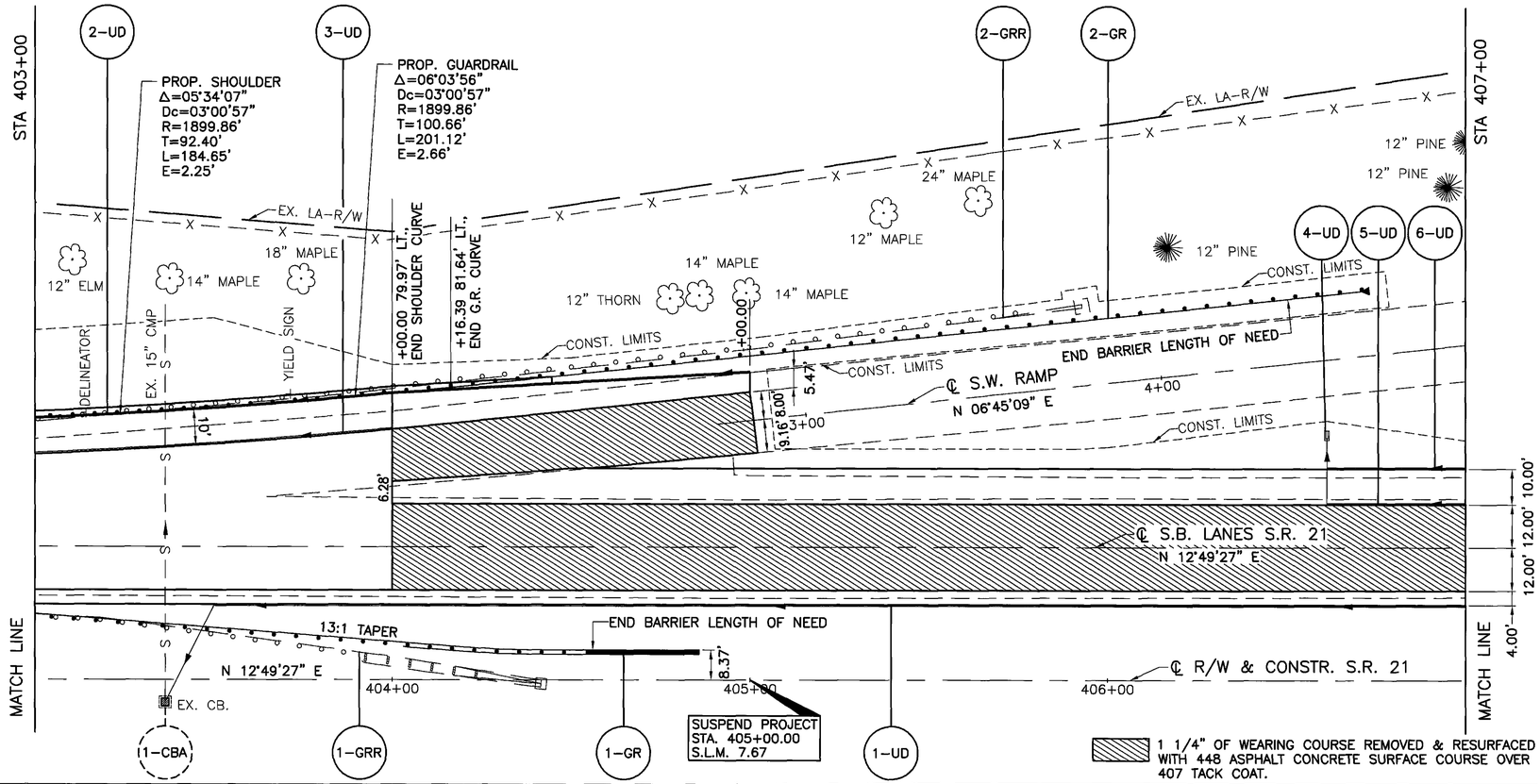
PLAN AND PROFILE - S.R. 21 (SOUTHBOUND LANES)

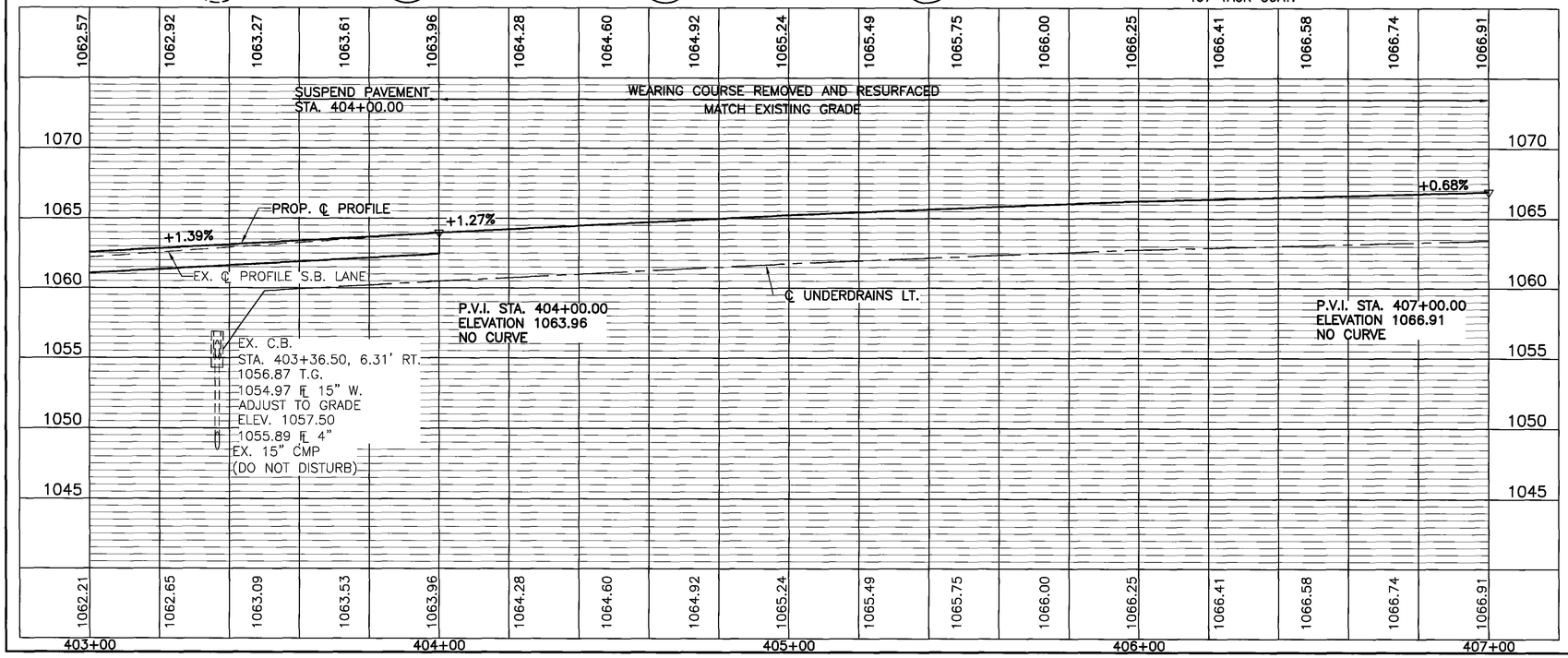
STA 399+00 TO STA 403+00

SUM-21-(5.69)(7.58)(7.78)

EM1482L7-SB.DWG

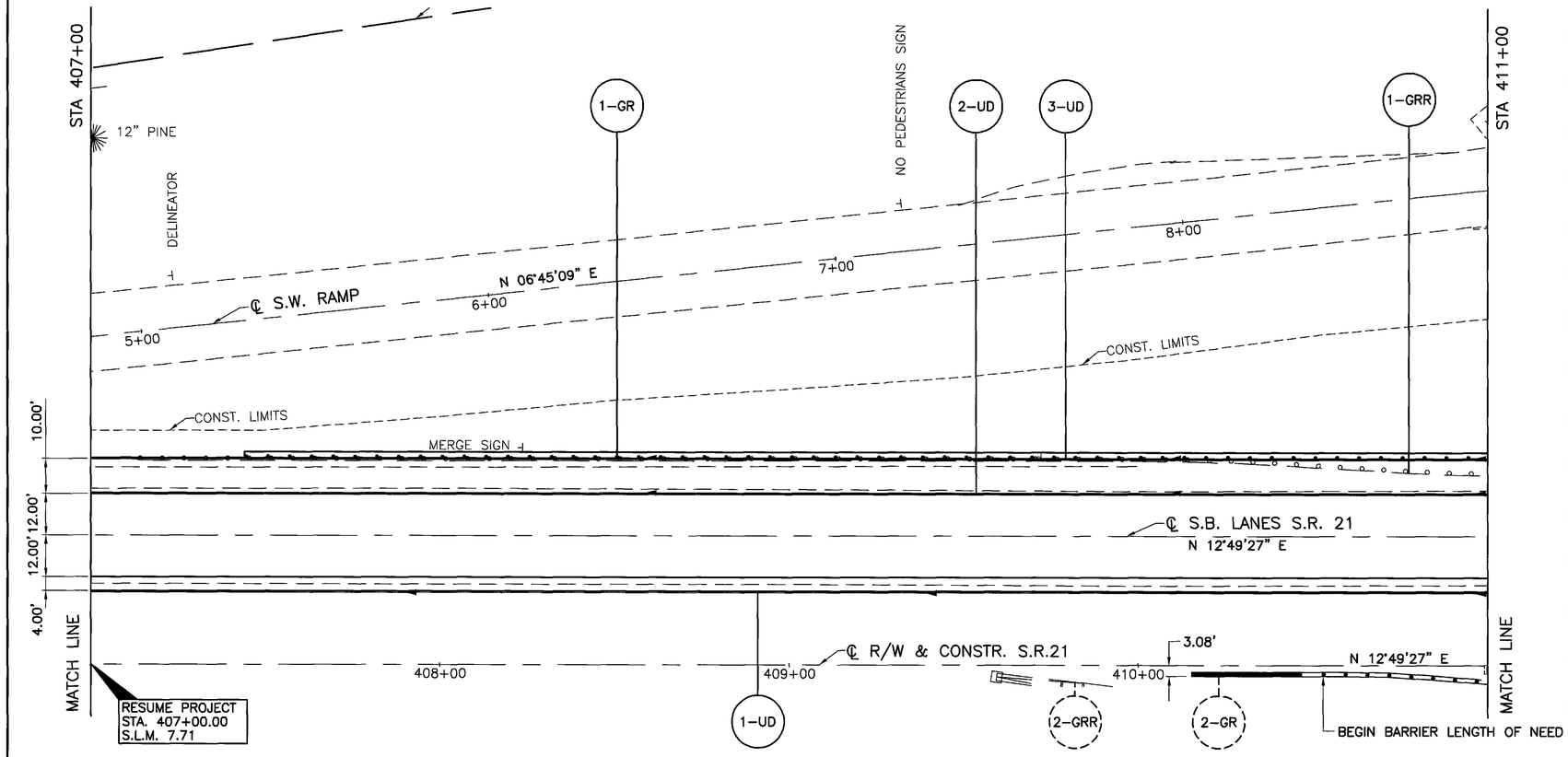
FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154

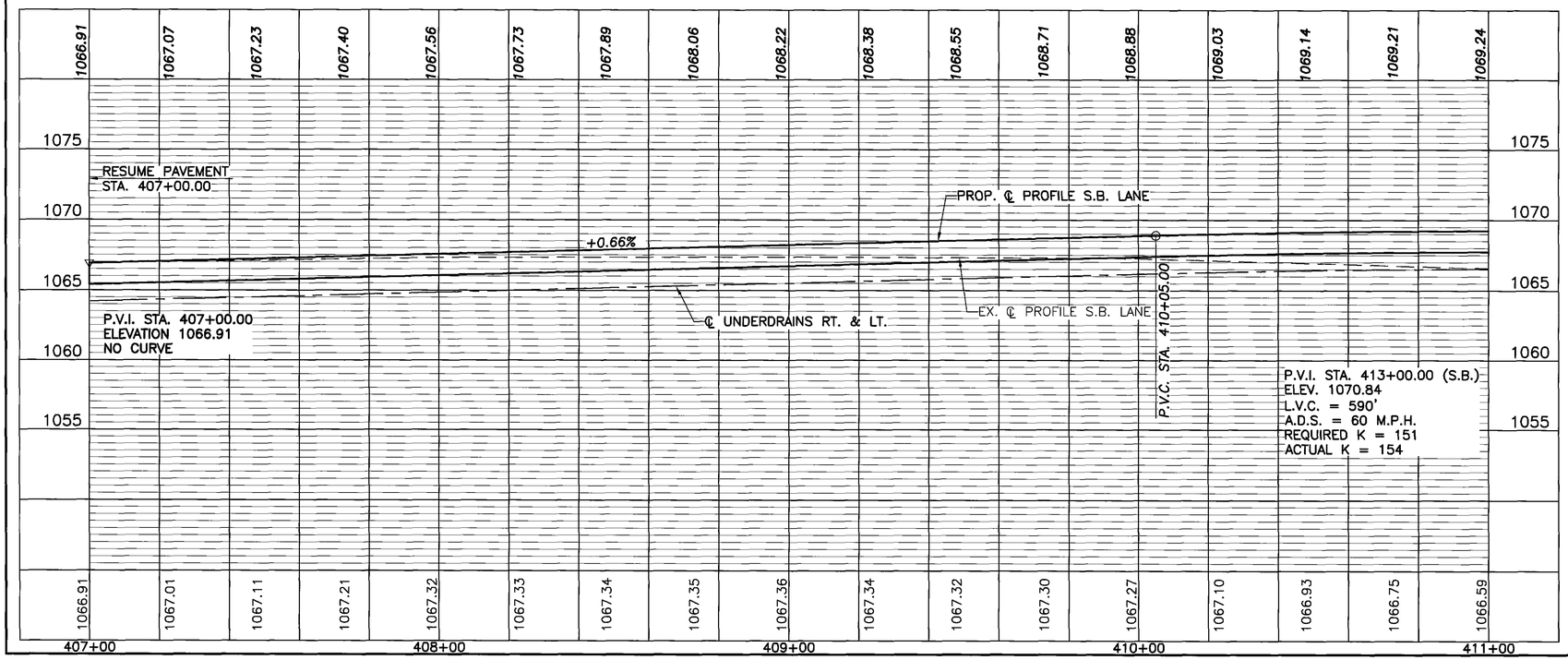




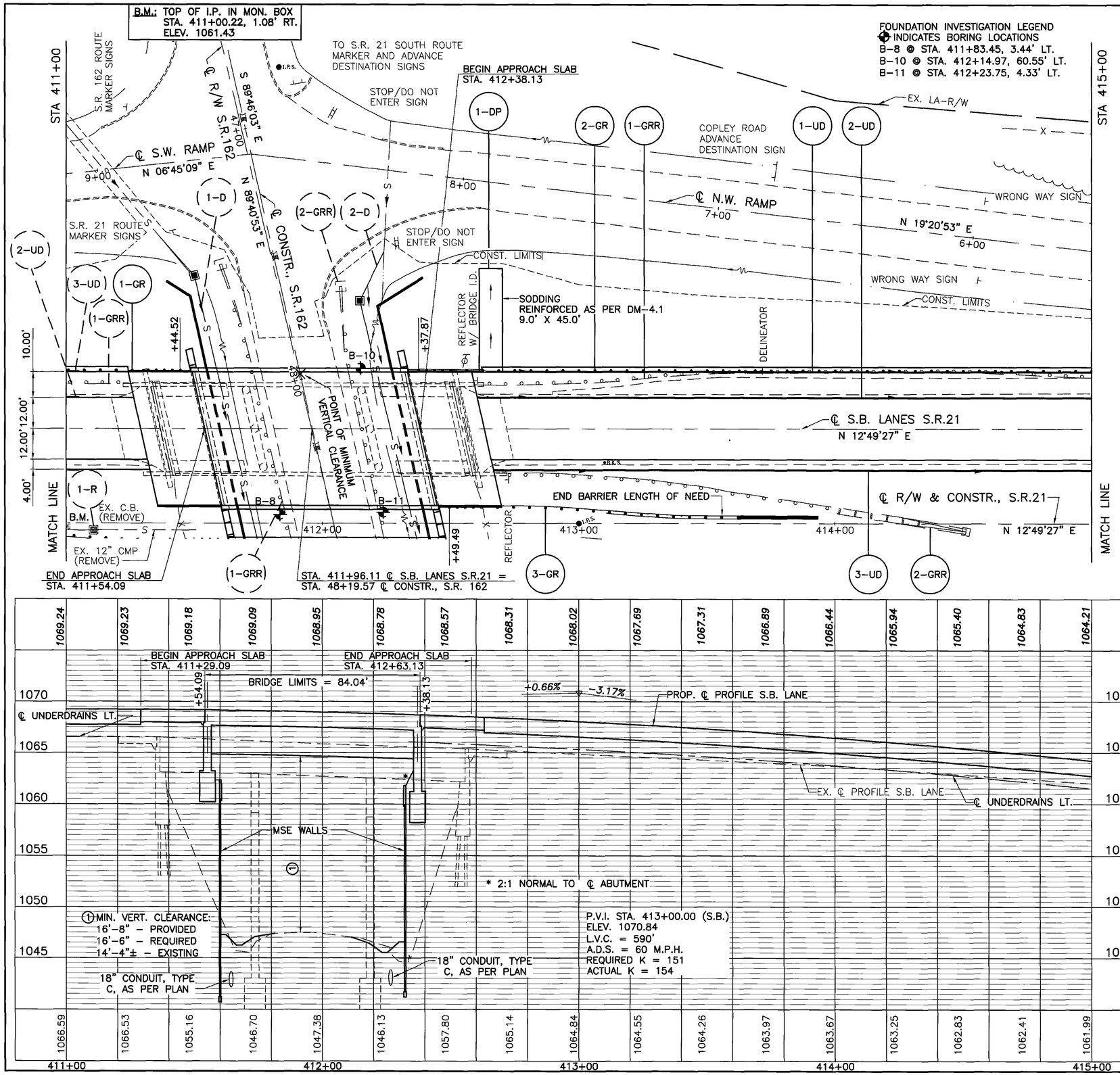
| | | |

FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154





| | | | | STATION | | | |



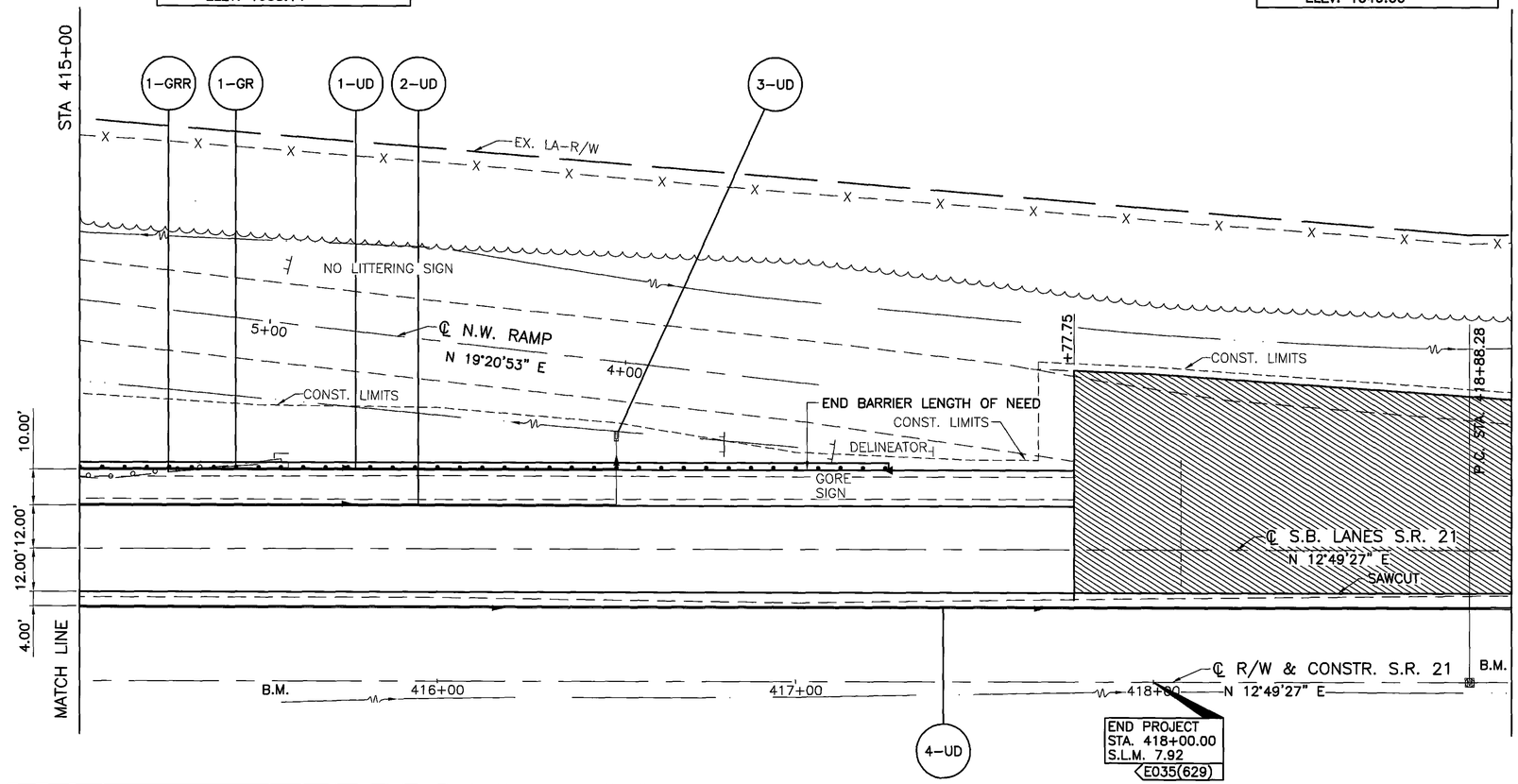
FOR S.R. 162 DETAILS & QUANTITIES, SEE SHEET NO. 113
FOR BRIDGE QUANTITIES, SEE SHEET NO. 198
FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154

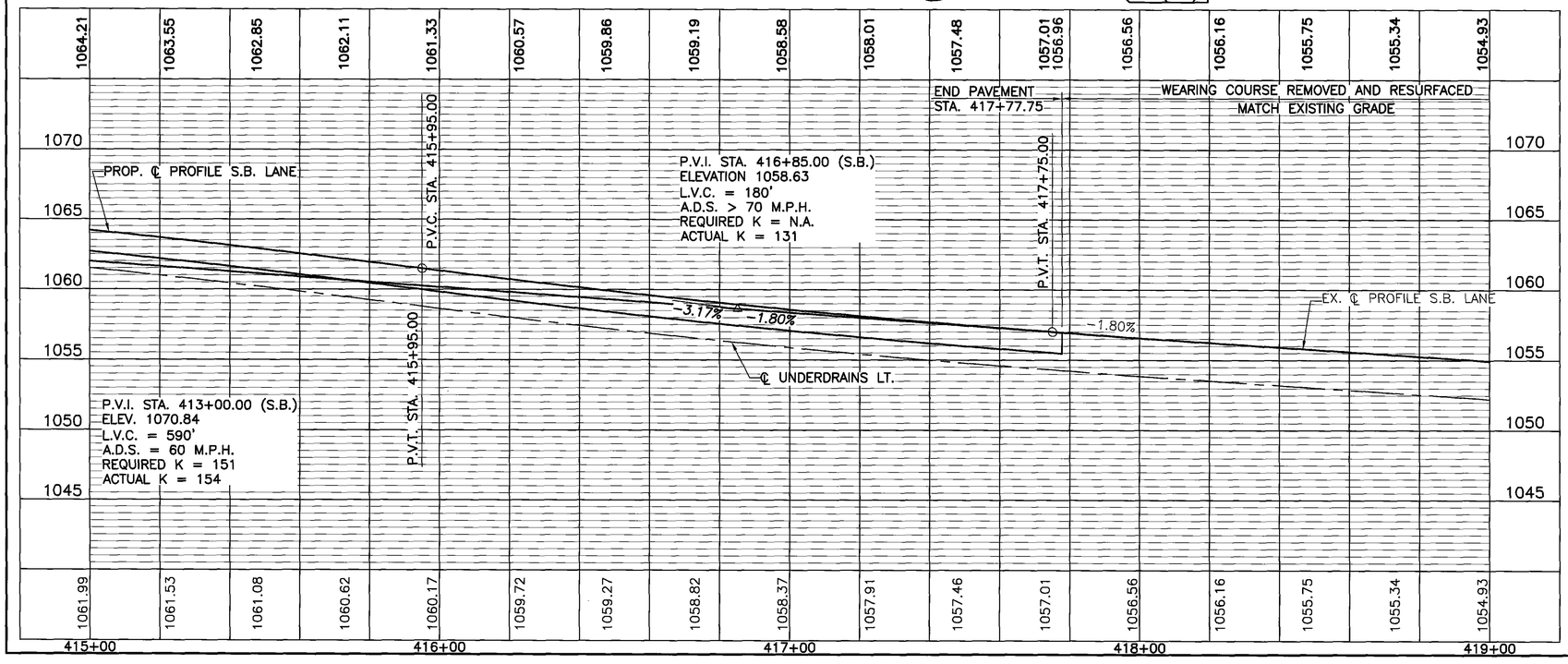
| | | |

B.M.: I.P. FOUND W/ O.D.O.T. CAP
STA. 415+50.00, 0.90' LT.
ELEV. 1058.14

B.M.: TOP OF I.P. IN MON. BOX
STA. 418+88.28
ELEV. 1049.66

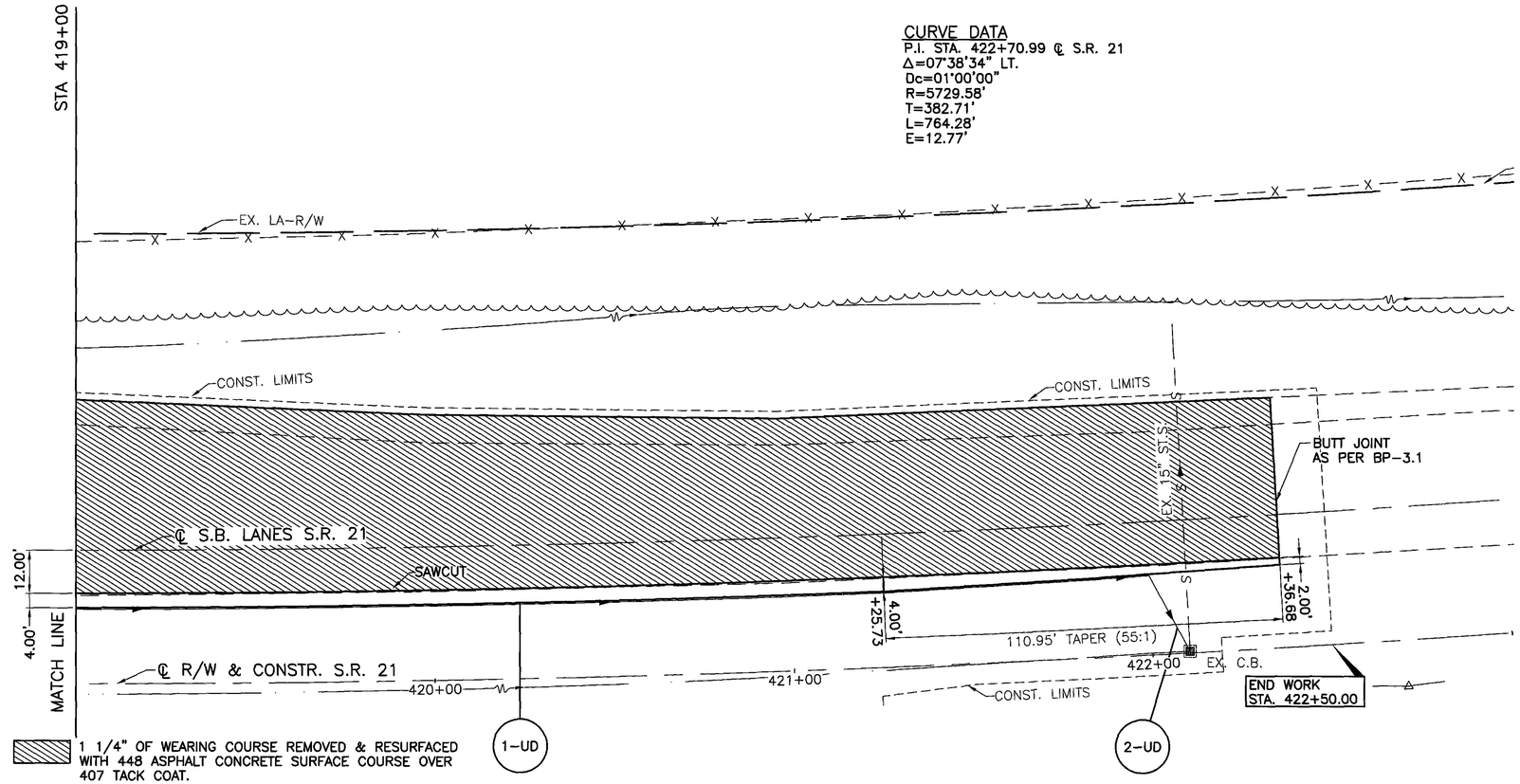
FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154

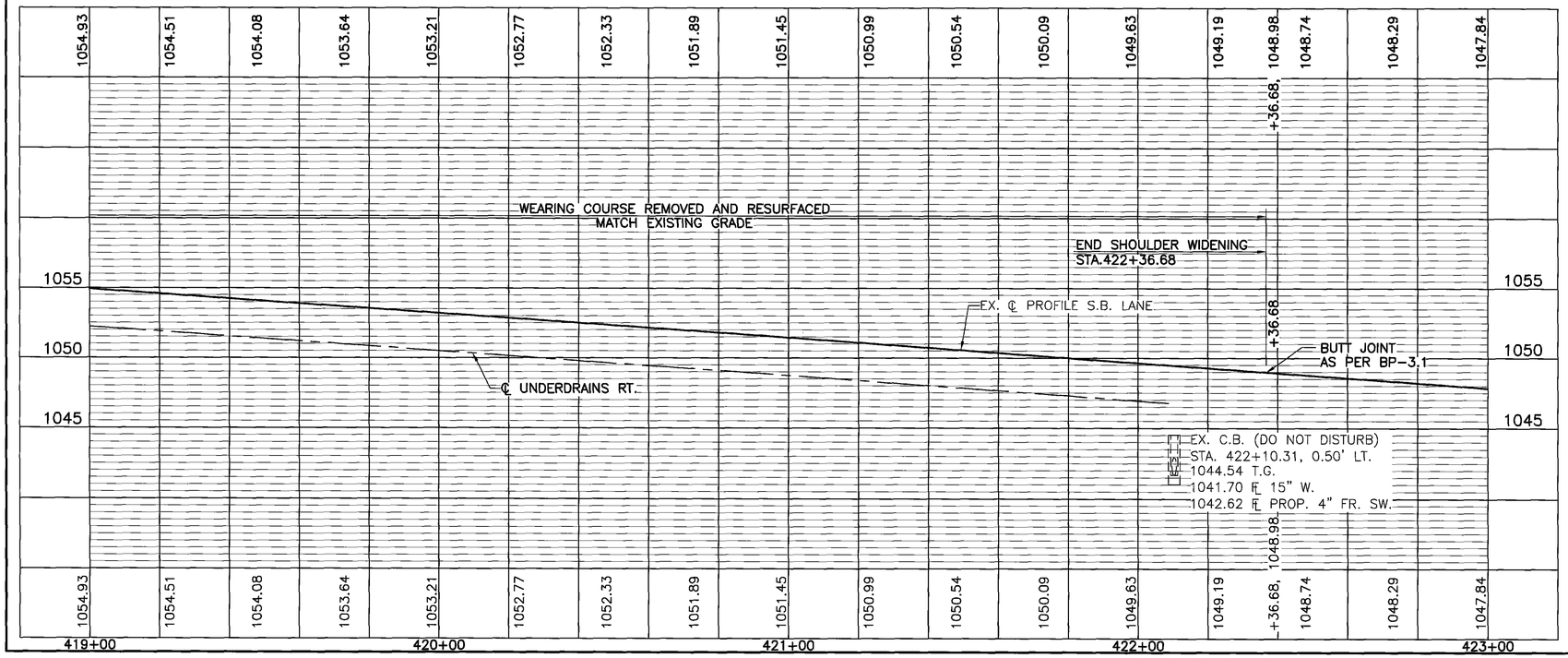




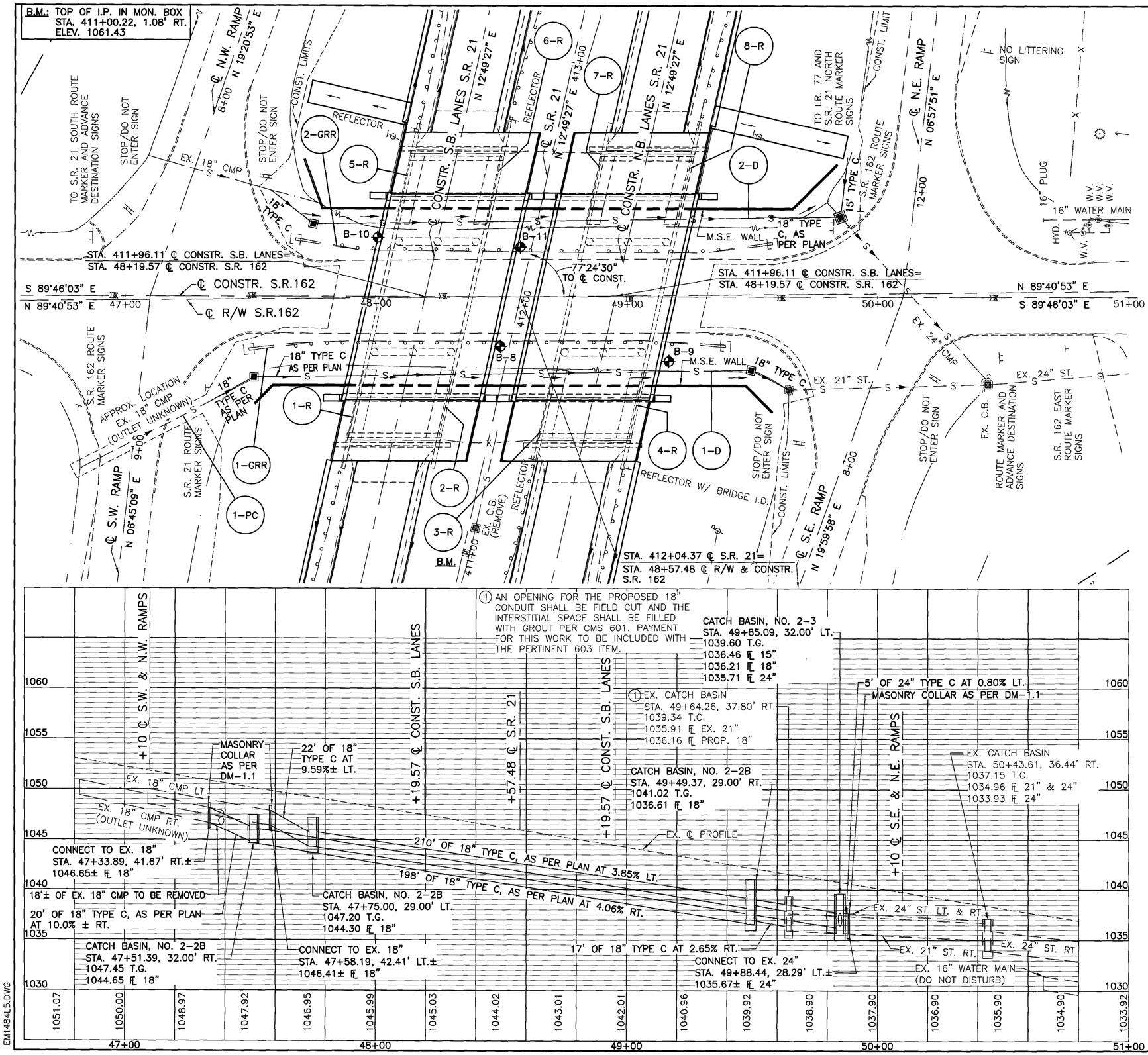
| | | |

FOR TYPICAL SECTION OF ADJOINING PAVEMENT, SEE SHEET NO. 6





| | | |



FOR TYPICAL SECTION OF ADJOINING PAVEMENT, SEE SHEET NO. 4
FOR BRIDGE QUANTITIES, SEE SHEET NOS. 198 & 199
FOR ADDITIONAL ROADWAY QUANTITIES, SEE SHEET NO. 101 & 110
FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET NO. 154
* CARRIED TO SHEET NO. 8

| | | |

FROM SHEET NO.	ROADWAY																							EROSION CONTROL				FROM SHEET NO.
	202		202	202	202	202	202	202	202	202	202	202	604	606	606	606	606	606	606	606	607	609	620	620	622	601	601	660	670	
	REMOVAL MISC.		CURB REMOVED	CONCRETE SLOPE PROTECTION REMOVED	PIPE REMOVED, 24" AND UNDER	GUARDRAIL REMOVED	GUARDRAIL REMOVED, BARRIER DESIGN	ANCHOR ASSEMBLY REMOVED, TYPE A	ANCHOR ASSEMBLY REMOVED, BARRIER DESIGN	BRIDGE TERMINAL ASSEMBLY REMOVED	CATCH BASIN REMOVED	FENCE REMOVED	MONUMENT BOX ADJUSTED TO GRADE	GUARDRAIL, TYPE 5	GUARDRAIL, BARRIER DESIGN, TYPE 5	RAISING TYPE 5 GUARDRAIL	ANCHOR ASSEMBLY, TYPE E-98	ANCHOR ASSEMBLY, TYPE T	BRIDGE TERMINAL ASSEMBLY, TYPE 1	IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	FENCE, TYPE 47	CURB, TYPE 4-C	DELINEATOR, TYPE C, POST MOUNTED	DELINEATOR, TYPE D, POST MOUNTED	CONCRETE BARRIER, TYPE D	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER	PAVED GUTTER TYPE 1-2	SODDING REINFORCED	DITCH EROSION PROTECTION	
	SQ YD		FT	SQ YD	FT	FT	FT	EACH	EACH	EACH	EACH	FT	EACH	FT	FT	FT	EACH	EACH	EACH	EACH	FT	FT	EACH	EACH	FT	CU YD	FT	SQ YD	SQ YD	
79						587						270		586.85																79
80			87			397						280		339.18					4		186							23	100		80
81						154		2						148.93			1	1												81
82						775		3	1					293.75	175.00	125	2	2	3	2			2	3	150					82
94						144		1						289.54			1													94
95	6					400								400.00																95
96						400						298		400.00							299								167	96
97						400	50		1			400		400.00							400								417	97
98						385						326		410.46	50.00				2	1	297	15				1				98
99						194						91		235.37			1		1		76								11	99
100						485	25	1	1	1				400.00	50.00					1										100
101					40	266				2	1			387.90					2									61	42	101
102						282		1						264.23			1												333	102
103																													263	103
105						125								125.11																105
106						468								400.13																106
107						104						235	1	187.55					2		190	10				1				107
108						408	25	1	1					480.96	50.00		1		1	1										108
109						413				1				342.98				1												109
110						379	25		1	2				387.90	50.00				3	1									45		110
111						32		1						175.37			1													111
113				136	18	275		2																						113
TOTAL	6		87	136	58	7073	125	12	5	6	1	1900	1	6656.21	375	125	8	4	18	6	1448	25	2	3	150	2	23	206	1233	TOTAL

CALCULATED RLS
CHECKED TLS

PLAN AND PROFILE SUB-SUMMARY

SUM-21-(5.69)(7.58)(7.78)

EM1484PPSS.DWG

FROM SHEET NO.	DRAINAGE																			TRAFFIC CONTROL							FROM SHEET NO.
	602	603		603	603	603	603	603	603		604	604	604	604	604		605	605				626	626				
	CONCRETE MASONRY	4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET		12" CONDUIT, TYPE F, 707.05	15" CONDUIT, TYPE C	18" CONDUIT, TYPE C	18" CONDUIT, TYPE C, AS PER PLAN	21" CONDUIT, TYPE C	24" CONDUIT, TYPE C		CATCH BASIN, NO. 3A	CATCH BASIN, NO. 2-2B	CATCH BASIN, NO. 2-3	CATCH BASIN ADJUSTED TO GRADE	PRECAST REINFORCED CONCRETE OUTLET		4" SHALLOW PIPE UNDERDRAINS	AGGREGATE DRAINS				BARRIER REFLECTOR, TYPE A	BARRIER REFLECTOR, TYPE B				
	CU YD	FT		FT	FT	FT	FT	FT	FT		EACH	EACH	EACH	EACH	EACH		FT	FT				EACH	EACH				
79																		108				7					79
80	0.39							30										85				4	4				80
81																		18				3					81
82																						12	2				82
94		16													2		773					4					94
95																	790					4					95
96		39													1		810					4					96
97		59													1		800					4					97
98	0.21	10		62							1						440					5	5				98
99		63												1	1		736					2					99
100		5													1		1140					5					100
101																	457					4	2				101
102		7													1		708					4					102
103																											103
105		41													1		328					2					105
106																	875					4					106
107	0.21	65		71							1				1		208					2	2				107
108		38													1		738					7	3				108
109																	1210					4					109
110																	739					4	3				110
111		8													1		710					3					111
112		24															299										112
113					24	39	428		5			3	1															113
TOTAL	0.8	375		133	24	39	428	30	5		2	3	1	1	11		11761	211				88	21				TOTAL

CALCULATED RLS
CHECKED TLS

PLAN AND PROFILE SUB-SUMMARY

SUM-21-(5.69)(7.58)(7.78)

EM1484PPSS.DWG

SEEDING END WIDTH	SEEDING SQ. YDS.
8	89
8	89
8	62
8	13
8	253

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

℄ SOUTHBOUND LANES ℄ NORTHBOUND LANES

1020 1010 1000 990

EX. LA-R/W

10.00'

EX. 12" CMP

375+00
1009.56

374+00
1009.44

373+00
1009.48

4:1

AHEAD

372+30
1009.46

BEGIN SHOULDER WIDENING
STA. 372+30.00 RT. ONLY (N.B.)

RESUME WORK
STA. 372+15

EX. REINFORCED CONC. PAV'T
TO REMAIN IN PLACE (TYP.)

372+00
1009.44

STA. 372+15.00 AH.

SHEET TOTAL

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
17	0	63	0
17	0	63	0
17	0	43	1
16	1	0	1
0	1		
0	0	0	1
		169	2

STA. 372+30.00 AH.
BK.

STA. 372+15.00 AH.

SHEET TOTAL

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS–S.R. 21
STA. 372+00 TO STA. 375+00

SUM–21–(5.69)(7.58)(7.78)

116
223

DRAWN WITH SCALE 1"=5'

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
8	89	20	1	72	2
8	89	19	0	67	2
8	89	17	1	61	4
8	89	16	1	59	4
8	89	16	1	61	2
8	445	17	0	320	14

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS–S.R. 21
STA. 376+00 TO STA. 380+00

SUM–21–(5.69)(7.58)(7.78)

117
223

℄ SOUTHBOUND LANES ℄ NORTHBOUND LANES

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

1020 1010 1000 990

EX. LA–R/W

380+00
1009.85

12.00' 5.00' 10.00' 4:1

379+00
1009.62

12.00' 3.18' 10.00' 4:1

378+00
1009.57

12.00' 1.36' 10.00' 4:1

377+00
1009.56

10.00' 4:1

376+00
1008.67

10.00' 4:1

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

STA. 375+00.00

SHEET TOTAL

EM1482X.DWG SCALE 1"=10'

SEEDING END WIDTH	SEEDING SQ. YDS.
18	194
17	189
17	156
11	128
12	111
8	778

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

℄ SOUTHBOUND LANES ℄ NORTHBOUND LANES

EX. LA–R/W

1010

1000

12.00' 12.00' 10.00'

2:1

EX. 27" CMP

EX. 27" CMP

385+00
1010.34

3:1

384+00
1009.62

BEGIN PROPOSED GUARDRAIL RT.
STA. 383+60.46

12.00' 10.45' 10.00'

4:1

383+00
1009.52

12.00' 8.63' 10.00'

4:1

382+00
1009.59

12.00' 6.82' 10.00'

4:1

EX. REINFORCED CONC. PAV'T
TO REMAIN IN PLACE (TYP.)

381+00
1009.64

990

STA. 380+00.00

SHEET TOTAL

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
31	36		
		87	96
16	16		
		61	50
17	11		
		69	30
20	5		
		74	20
20	6		
		74	13
20	1		
		365	209

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS–S.R. 21
STA. 381+00 TO STA. 385+00

SUM–21–(5.69)(7.58)(7.78)

118
223

EM1482X.DWG SCALE 1"=10'

CROSS SECTIONS – S.R. 21
STA. 386+00 TO STA. 390+00

SUM–21–(5.69)(7.58)(7.78)

CALCULATED JAA
CHECKED KAA

SEEDING END WIDTH	SEEDING SQ. YDS.	STA.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
39	394	390+00	17	119	61	404
32	344	389+00	16	99	56	369
30	233	388+00	14	100	40	258
26	71	387+25	15	86	14	80
25	261	387+00	15	86	91	270
22	222	386+00	34	60	120	178
18			31	36		
	1525	SHEET TOTAL			382	1559

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

12.00' 12.00' 10.00'

2:1

EX. LA–R/W

1020 1010 1000

390+00 1019.18 1022.74
389+00 1016.34 1019.70
388+00 1013.61 1016.76
387+25 1012.04 1014.63
387+00 1011.55 1013.92
386+00 1010.33 1011.78

STA. 385+00.00

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

EM1482X.DWG SCALE 1"=10'

119
223

SEEDING END WIDTH	SEEDING SQ. YDS.
163	1539
114	713
100	420
60	89 / 57
	188
	56 / 80
	622
80	933
	664
80	48 / 140 / 39
5112	SHEET TOTAL

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
121	395		
		363	1211
75	259		
		163	504
72	195		
58	195		
		98	264
74	161		
		99	184
104	171		
		249	449
88	175		
		305	672
77	188		
		174	569
17	119		
		1451	3853

CALCULATED JAA
CHECKED KAA

CROSS SECTIONS – S.R. 21
STA. 391+00 TO STA. 395+00

SUM–21–(5.69)(7.58)(7.78)

120
223

EM1482X.DWG SCALE 1"=10'

¢ SOUTHBOUND LANES ¢ NB CROSSOVER ¢ SB CROSSOVER ¢ NORTHBOUND LANES

10.00' 2.00' 12.00' 9.10' 16.95' 12.49' 4.00' 12.00' 12.00' 12.00' 10.00'

-1.56% -2.77% -1.51% +1.56%

6:1

TEMPORARY 12" CONDUIT, TYPE B

2:1

395+00
1039.06 1037.78

EX. LA-R/W

DEDUCT FOR DITCH EROSION PROTECTION LT. & RT.
STA. 393+00 TO 395+00

¢ SB CROSSOVER ¢ NB CROSSOVER

9.50' 12.00' 8.45' 7.25' 13.04' 13.81'

-1.70% -1.56% +1.56%

6:1

TEMPORARY 12" CONDUIT, TYPE B

394+00
1034.79 1034.65

BEGIN PROPOSED GUARDRAIL LT.
STA. 393+74.92

¢ SB CROSSOVER ¢ NB CROSSOVER

8.00' 12.00' 6.35' 4.50' 13.68' 9.07' 4.23' 4.00' 12.00'

-9.84% -1.75% -1.56% +1.56% +2.42%

6:1

(1031.5)

AHEAD

TEMPORARY 12" CONDUIT, TYPE B

393+40
1032.38 1032.76

STA. 393+40.00 AH.
BK.

BEGIN SHOULDER WIDENING
STA. 393+40.00 LT. (S.B.)

EX. C.B.
STA. 392+99.73, 2.73' RT.
1028.38 T.G.
1026.46 ℄ 15" E.
FOR M.O.T ONLY
ADJUST TO GRADE 1029.08
1026.71 ℄ 12" N.

ADD FOR UNDERDRAIN OUTLET STA. 393+40 LT.

¢ SB CROSSOVER ¢ NB CROSSOVER

14.35' 4.97' 8.79' 4.00'

-1.56% +1.56%

4.0:1 2.8:1 4.6:1 1.0 5.7:1

EX. 15" CMP

STA. 393+00.00 AH.
BK.

393+00
1030.76 1031.50

15.98' 9.98'

+4.34%

STA. 392+70.00 AH.
BK.

392+70
1029.59 1030.61

5.26' OF PAVEMENT FOR MAINTAINING TRAFFIC TO REMAIN AS PAVED SHOULDER (TYP.)

12.00'

4.00' 6.08'

-1.56% +1.56%

4.0:1 4:1

392+00
1026.84 1028.55

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

4.00' OF PAVEMENT FOR MAINTAINING TRAFFIC TO REMAIN AS PAVED SHOULDER (TYP.)

ROADS FOR MAINTAINING TRAFFIC (TYP.)

12.00' 12.00' 10.00'

12.00' 2.15'

4.0:1 4:1 2:1

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

391+00
1023.05 1025.63

STA. 390+28.87 AH.
BK.

STA. 390+00.00

BEGIN SHOULDER WIDENING
STA. 390+75.89 RT. (S.B.)

BEGIN SHOULDER WIDENING
STA. 390+46.31 LT. (N.B.)

STA. 390+00.00

SHEET TOTAL

SEEDING END WIDTH	SEEDING SQ. YDS.
188	1050
	417
190	840
188	208
187	2022
177	1889
163	5592

EX. LA-R/W

EX. LA-R/W

EX. LA-R/W

EX. LA-R/W

EX. LA-R/W

EX. LA-R/W

EM1482X.DWG SCALE 1"=10'

℄ SOUTHBOUND LANES

℄ NORTHBOUND LANES

ACCELERATION LANE

ACCELERATION LANE

ACCELERATION LANE

10.00' 2.30' 19.20' 12.00' 3.07'

7.27' 4.00' 12.00' 12.00' 12.00' 10.00'

2:1 5.2:1 4.0:1 10:1 +1.56% AH. 1045.1

398+00
1049.91 1046.90

STA. 398+00.00 AH.

3.48' OF ROADS FOR MAINTAINING TRAFFIC TO REMAIN AS PAVED SHOULDER (TYP.)

10.00' 3.45' 16.80'

4.00' OF PAVEMENT FOR MAINTAINING TRAFFIC TO REMAIN AS PAVED SHOULDER (TYP.)

8.04'

DEDUCT FOR DITCH EROSION PROTECTION RT.
STA. 395+00 TO 400+00

-1.56% 4.0:1 5.2:1 4.0:1 10:1 6:1 +1.56% (1043.2) 1043.3

397+50
1048.21 1045.34

4.00' OF ROADS FOR MAINTAINING TRAFFIC TO REMAIN AS PAVED SHOULDER (TYP.)

10.00' 4.37' 14.88' 0.80'

-1.56% 4.0:1 5.2:1 4.0:1 9.43' +1.56% 6:1 (1042.2) 1041.9

397+10
1046.84 1044.10

10.00' 4.60' 14.40' 1.26'

-1.56% 4.0:1 5.2:1 4.0:1 9.91' +1.56% 6:1 (1041.9) 1041.5

397+00
1046.50 1043.79

6.91' 15.69'

-1.56% 5.2:1 +1.56% 6:1 (1039.5) 1039.0

10.00' 4.50' 12.00' 12.00' 4.00' 8.79'

℄ SB CROSSOVER

℄ NB CROSSOVER

396+25
1043.76 1041.53

17.62' 4.00' 12.00' 12.00' 12.00' 10.00'

-5.26% -1.56% +1.56% -2.60% 6:1 (1040.0)

TEMPORARY 12" CONDUIT, TYPE B

2:1 EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

396+00
1042.84 1040.78

STA. 395+00.00

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
181	545		
175	545		
		317	1092
167	634		
		228	945
141	642		
		54	238
151	641		
		548	2140
145	515		
		493	1685
121	395		
SHEET TOTAL		1640	6100

CALCULATED JAA
CHECKED KAA

CROSS SECTIONS – S.R. 21
STA. 396+00 TO STA. 398+00

SUM-21-(5.69)(7.58)(7.78)

121
223

SEEDING END WIDTH	SEEDING SQ. YDS.
96	553
103	664
136	883
182	
188	
	3128

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
140	265		
		260	508
141	284		
122	284		
		212	549
107	309		
94	309		
		237	708
162	456		
		318	927
181	545		
		1027	2692

CALCULATED JAA
CHECKED KAA

NOTE: ALL PAVEMENT UNDER PROPOSED FILL SHALL BE REMOVED. COMPOSITE PAVEMENT, EX. REINFORCED CONC. PAV'T AND 4"± THICK BITUMINOUS WEARING COURSE, SHALL BE PAID FOR AS PAVEMENT REMOVED AS CALCULATED ON SHEET NO. 56. ALL OTHER PAVEMENT TO BE REMOVED, INCLUDING, BUT NOT LIMITED TO 4"± THICK PAVED SHOULDERS, SHALL BE INCLUDED WITH ITEM 203 EXCAVATION FOR PAYMENT. THE CAVITY CREATED BY ANY AND ALL PAVEMENT REMOVAL SHALL BE BACKFILLED ACCORDING TO CMS 202.02 EXCEPT WHEN THE CAVITY LIES WITHIN THE LIMITS OF SUBSEQUENT EXCAVATION OR OTHER WORK AND SHALL BE INCLUDED WITH ITEM 203 EMBANKMENT FOR PAYMENT.

℄ SOUTHBOUND LANES

℄ NORTHBOUND LANES

MATCH LINE STA. 400+29.43

37.50' 6.00' 12.00' 24.00' 10.00'

6.4:1 10:1 4.0:1 2:1

1051.8

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

1056.28 1052.82
400+00
1055.61 1052.71

℄ NORTHBOUND LANES

MATCH LINE STA. 400+29.43

24.00' 12.00' 4.00' 37.00' 6.00' 12.00' 12.00' 12.00' 10.00'

6.9:1 10:1 4.0:1

1050.1

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

AHEAD

EX. REINFORCED CONC. PAV'T TO BE REMOVED AH. AND TO REMAIN IN PLACE BK.

PAVEMENT FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE BK., PROP. PAVED SHOULDER

1054.67 1051.34
399+50
1054.29 1051.34

BEGIN PAVEMENT NBL
STA. 399+50.00

STA. 399+50.00 AH. 141 284
BK. 122 284

ACCELERATION LANE

PROP. C.B. NO. 3A
STA. 399+33.60, 71.00' LT.
1053.16 ℄ GRATE
1049.66 ℄ 4"
1049.66 ℄ INVERT

10.00' 24.00' 12.00' 4.00'

STA. 399+00.00, 127.05' LT.
℄ OUTLET ELEV. 1025.00

MATCH LINE STA. 400+29.43

2:1 6' OF 12" TYPE F AT 37.75%

AHEAD

5.17' 1.10' 6:1 4.0:1 10:1

1048.4

EX. REINFORCED CONC. PAV'T TO BE REMOVED AH. AND TO REMAIN IN PLACE BK.

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

1052.96
399+00
1052.96 1049.97

RESUME PROJECT
BEGIN PAVEMENT SBL
STA. 399+00.00

STA. 399+00.00 AH. 107 309
BK. 94 309

ACCELERATION LANE

MASONRY COLLAR AS PER DM-1.1 (INCLUDE WITH COST OF CONDUIT)

STA. 399+00.00, 121.05' LT.
1025.12 ℄ 22.5° BEND

6' OF 12" TYPE F AT 2.00%

HEADWALL AS PER HW-2.1

1.15' 10.00' 21.60' 12.00' 3.53'

4.44' 4.33' 12.00' 12.00' 12.00' 10.00'

2:1 5:1 4.0:1 10:1 +1.56%

1046.6

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

398+50
1051.44 1048.43

BEGIN PROPOSED MEDIAN GUARDRAIL
STA. 398+49.30

STA. 398+00.00

STA. 398+00.00 AH. 181 545

SHEET TOTAL

SHEET TOTAL

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

LA-R/W

CROSS SECTIONS – S.R. 21
STA. 398+50 TO STA. 400+00

SUM-21-(5.69)(7.58)(7.78)

122
223

EM1482X.DWG SCALE 1"=10'

SEEDING END WIDTH	SEEDING SQ. YDS.
2	125
43	306
67	375
68	456
96	1262

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
57	129	53	119
124	235	168	337
129	250	234	449
140	265	249	477
		704	1382

CALCULATED JAA
CHECKED KAA

CROSS SECTIONS – S.R. 21
STA. 400+50 TO STA. 402+00

SUM–21–(5.69)(7.58)(7.78)

123/223

¢ SOUTHBOUND LANES

¢ NORTHBOUND LANES

STA. 402+00 BK.

1061.09 1058.01
402+00
1047.65 1028.94

1060.13 1056.89
401+50
1031.86 1039.40

1059.01 1055.65
401+00
1028.96 1055.10

1057.73 1054.29
400+50
1038.67 1053.91

STA. 400+00.00

STA. 402+00.00 BK.

MATCH LINE STA. 400+29.43 EX. LA–R/W

MATCH LINE STA. 400+29.43 2:1 EX. LA–R/W

MATCH LINE STA. 400+29.43 DECELERATION LANE

PROP. C.B. NO. 3A
STA. 401+15.00, 72.00' RT.
1055.05 ℄ GRATE
1047.37 ℄ INVERT

STA. 401+15.00, 83.4' RT.
1047.13 ℄ 22.5° BEND

4' X 6' ROCK CHANNEL PROTECTION, TYPE C, 1'–6" THICK

STA. 401+15.00, 129.37' RT.
℄ OUTLET ELEV. 1027.50

11' OF 12" TYPE F AT 2.00%

4.4' OF 12" TYPE F AT 50.00%

STA. 401+15.00, 122.4' RT.
1027.64 ℄ 22.5° BEND

MASONRY COLLAR AS PER DM–1.1
(INCLUDE WITH COST OF CONDUIT)

6.00'

7' OF 12" TYPE F AT 2.00%

HEADWALL AS PER HW–2.1

DECELERATION LANE

6.00' 12.00' 24.00' 10.00'

2.6:1

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

2:1

37.00' 38.00'

LA–R/W

SHEET TOTAL

SHEET TOTAL

120 100 80 60 40 20 ¢ 20 40 60 80 100 120 140

EM1482X.DWG SCALE 1"=10'

SEEDING	
END WIDTH	SQ. YDS.
121	
	450
149	
450	SHEET TOTAL

BRIDGE LIMITS SOUTHBOUND LANES
STA. 400+11.37 TO STA. 402+26.40

BRIDGE LIMITS NORTHBOUND LANES
STA. 401+08.79 TO STA. 403+24.00

STA.400+59.43 BK.
X COSINE 52°24'25"

STA.400+29.43 AH.
X COSINE 52°24'25"

℄ SOUTHBOUND LANES

℄ NORTHBOUND LANES

MATCH LINE STA. 43+01 SEE SHEET NO. 138

MATCH LINE STA. 43+50 SEE SHEET NO. 138

MATCH LINE STA. 43+85.79 SEE SHEET NO. 138

MATCH LINE STA. 44+50 SEE SHEET NO. 138

MATCH LINE STA. 45+00.71 SEE SHEET NO. 139

MATCH LINE STA. 45+17.53 SEE SHEET NO. 139

MATCH LINE STA. 45+34.36 SEE SHEET NO. 139

MATCH LINE STA. 45+57.51 SEE SHEET NO. 139

MATCH LINE STA. 46+00 SEE SHEET NO. 140

MATCH LINE STA. 46+28 SEE SHEET NO. 140

MATCH LINE STA. 46+72.42 SEE SHEET NO. 140

MATCH LINE STA. 46+89.07 SEE SHEET NO. 141

MATCH LINE STA. 47+05.71 SEE SHEET NO. 141

MATCH LINE STA. 47+50 SEE SHEET NO. 141

MATCH LINE STA. 400+59.43, 120' LT.

MATCH LINE STA. 400+59.43, 130' RT.

MATCH LINE STA. 400+29.43, 120' LT.

MATCH LINE STA. 400+29.43, 130' RT.

2:1 NORMAL

35:1 NORMAL

36:1 NORMAL

EX. APPROACH SLAB TO BE REMOVED (TYP.)

EX. LA-R/W

1056.62
400+11.37
1055.96

1051.8

1055.87
401+08.79
1055.27

400+59.43 SKEWED 52°24'25" R.F.

NOTE: END AREAS FOR EARTHWORK AND END WIDTHS FOR SEEDING HAVE BEEN MEASURED ALONG THE SKEW AND MULTIPLIED BY THE COSINE OF THE SKEW ANGLE TO ADJUST THE MEASUREMENTS BEFORE MULTIPLYING BY THE APPROPRIATE CENTERLINE DISTANCE. (EXAMPLE: AT STA. 400+29.43 AH. THE MEASURED CUT WAS 449 SQ FT, THIS WAS MULTIPLIED BY 0.610 (COS 52°24'25") WHICH RESULTED IN AN END AREA OF 274 SQ FT)

-12.8:1

-4.8:1

-14.5:1

BACK
AHEAD

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

1052.8

1055.70
399+81.37
1055.12

1055.08
400+78.79
1054.56

400+29.43 SKEWED 52°24'25" R.F.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
155	293		
		238	375
274	382		
		238	375

CALCULATED JAA
CHECKED KAA

CROSS SECTIONS – S.R. 21
STA. 400+29.43 TO STA. 400+59.43

SUM-21-(5.69)(7.58)(7.78)

124
223

EM1482X.DWG SCALE 1"=10'

SEEDING	
END WIDTH	SQ. YDS.
128	
410	
118	
410	SHEET TOTAL

END AREA		VOLUME	
CUT	FILL	CUT	FILL
123	293		
		144	341
136	321		
		144	341

CALCULATED JAA
CHECKED KAA

CROSS SECTIONS – S.R. 21
STA. 402+74.55 TO STA. 403+04.55

SUM–21–(5.69)(7.58)(7.78)

125
223

EM1482X.DWG SCALE 1"=10'

SEEDING END WIDTH	SEEDING SQ. YDS.
45	267
51	264
44	122
0	
	653

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
59	54	108	169
58	128	108	303
59	199	55	184
0	0		
		271	656

CALCULATED JAA
CHECKED KAA

CROSS SECTIONS – S.R. 21
STA. 401+50 TO STA. 403+00

SUM-21-(5.69)(7.58)(7.78)

126
223

℄ SOUTHBOUND LANES ℄ NORTHBOUND LANES

ACCELERATION LANE

10.00' 25.86' 12.00' 4.00'

5.3:1
4.6:1

2:1

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

MATCH LINE STA. 403+04.55

EX. LA-R/W

1062.57 1059.90
403+00
1062.21 1047.63

ACCELERATION LANE

10.00' 24.31'

MATCH LINE STA. 403+04.55

2:1

1061.88 1059.01
402+50
1061.66 1032.67

MATCH LINE STA. 403+04.55

1061.09 1058.01
402+00
1047.65 1028.94

STA. 401+50 AH.

MATCH LINE STA. 403+04.55

1060.13 1056.89
401+50
1031.86 1039.40

1070 1060 1050 1040 1030

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

SHEET TOTAL

SHEET TOTAL

EM1482X.DWG SCALE 1"=10'

CROSS SECTIONS – S.R. 21
STA. 403+50 TO STA. 405+00

SUM-21-(5.69)(7.58)(7.78)

127/223

CALCULATED JAA
CHECKED KAA

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		STA. 405+00.00 AH.	126	147	
		BK.	143	147	
97	542				253 267
98	433		130	141	
					173 154
58		STA. 404+00.00 AH.	57	25	
		BK.	87	25	
69	353				145 80
	317		70	61	
-11					119 106
45		STA. 403+00.00	59	54	
1634		SHEET TOTAL			690 607

℄ SOUTHBOUND LANES

SUSPEND PROPOSED MEDIAN GUARDRAIL STA. 404+85.89

SUSPEND PROPOSED GUARDRAIL RT. STA. 405+60.34

℄ NORTHBOUND LANES

SUSPEND PROJECT SUSPEND PAVEMENT NBL STA. 405+00.00

S.W. RAMP

ACCELERATION LANE

DECELERATION LANE

EX. LA–R/W

BACK

1060.0 (1059.9)

1065.24 1062.25 405+00 1065.24 1062.25

EX. REINFORCED CONC. PAV'T TO BE REMOVED BK. AND TO REMAIN IN PLACE AH.

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

1059.5 (1059.5)

1064.60 1061.83 404+50 1064.60 1061.56

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

MATCH LINE STA. 403+04.55

SUSPEND PAVEMENT SBL STA. 404+00.00

EX. REINFORCED CONC. PAV'T TO BE REMOVED BK. AND TO REMAIN IN PLACE AH.

1059.0 (1059.2)

1063.96 1061.30 404+00 1063.96 1060.86

EX. C.B. (TO REMAIN)
STA. 403+36.50, 6.31' RT.
1056.87 T.G.
1054.97 E 15" W.
ADJUST TO GRADE
ELEV. 1057.50

EX. 15" CMP (DO NOT DISTURB)

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

1058.2 (1057.3)

1063.27 1060.66 403+50 1063.09 1059.76

DEDUCT FOR DITCH EROSION PROTECTION RT.
STA. 403+37 TO 403+50

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

EM1482X.DWG SCALE 1"=10'

SEEDING	
END WIDTH	SQ. YDS.
110	1797
99	713
98	975
97	

END AREA		VOLUME	
CUT	FILL	CUT	FILL
106	141		
110	141		
129	138	272	317
120	134	46	50
126	147	410	468
		728	835

CALCULATED JAA
CHECKED KAA

℄ SOUTHBOUND LANES ℄ NORTHBOUND LANES

SUSPEND PROPOSED GUARDRAIL LT.
STA. 406+72.92

S.W. RAMP 10.00' 12.00' 12.00' 4.00' 3:1 5.5:1 4.0:1 6:1

1061.5
(1060.9)

6.93' 4.00' 12.00' 12.00' 10.00' 7.52' 12.74' 4.21'
S.E. RAMP 2:1 4.00% 31.25' 16.12' BACK 2:1

STA. 406+61.40 AH.
BK.

1066.65 1063.70
406+61.40
1066.65 1063.70

RESUME PROPOSED GUARDRAIL RT.
STA. 406+08.38

S.W. RAMP 4:1 10:1 5:1 4.0:1 6:1

1060.9
(1060.3)

5.82' 1.52' 16.12' 7.14'
S.E. RAMP 3.12% 2:1

1066.25 1063.28
406+00
1066.25 1063.28

PAVEMENT FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE (TYP.)

EX. LA-R/W

S.W. RAMP 10.00' 12.00' 12.00' 4.00' 4:1 10:1 4.7:1 4.0:1 6:1

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

1060.8
(1060.2)

4.00' 12.00' 12.00' 10.00' 0.26' 16.13' 7.61'
S.E. RAMP 2.99% 2:1

EX. LA-R/W

1066.15 1063.18
405+90
1066.15 1063.18

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

STA. 405+00.00 STA. 405+00.00 AH.

SHEET TOTAL SHEET TOTAL

EM14B2X.DWG SCALE 1"=10'

CROSS SECTIONS – S.R. 21
STA. 405+90 TO STA. 406+61.40

SUM-21-(5.69)(7.58)(7.78)

128
223

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
93		75	109		
	489			133	166
83		69	70		
	431			117	110
72		57	49		
	378			94	78
64		44	35		
		34	35		
	373			100	126
110		106	141		
1671	SHEET TOTAL			444	480

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS – S.R. 21
STA. 407+00 TO STA. 408+50

SUM-21-(5.69)(7.58)(7.78)

129
223

EM1484X.DWG SCALE 1"=10'

℄ SOUTHBOUND LANES

S.W. RAMP

10.00' 12.00' 12.00' 4.00'
8.00'
2:1
6:1 4:1 6:1
1063.0
(1062.4)
1067.89 1065.05
408+50
1067.34 1064.38

℄ NORTHBOUND LANES

S.E. RAMP

10.36' 4.00' 12.00' 12.00' 10.00' 4.38'
2:1
1.71:1

S.W. RAMP

9.45'
2:1
6:1 4.3:1 6:1
1062.7
(1062.1)
1067.56 1064.68
408+00
1067.32 1064.37

ROADS FOR MAINTAINING TRAFFIC (TYP.)

S.E. RAMP

5.21'
2:1
1.66:1

S.W. RAMP

8.55'
2:1
6:1 4:1 6:1
1062.3
(1061.6)
1067.23 1064.32
407+50
1067.11 1064.16

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

S.E. RAMP

6.04'
2:1
1.76:1

NOTE: ALL EXISTING PAVEMENT UNDER PROPOSED FILL SHALL BE REMOVED. COMPOSITE PAVEMENT, EX. REINFORCED CONC. PAV'T AND 4"± THICK BITUMINOUS WEARING COURSE, SHALL BE PAID FOR AS PAVEMENT REMOVED AS CALCULATED ON SHEET NO. X. ALL OTHER PAVEMENT TO BE REMOVED, INCLUDING, BUT NOT LIMITED TO 4"± THICK PAVED SHOULDERS, SHALL BE INCLUDED WITH ITEM 203 EXCAVATION FOR PAYMENT. THE CAVITY CREATED BY ANY AND ALL PAVEMENT REMOVAL SHALL BE BACKFILLED ACCORDING TO CMS 202.02 EXCEPT WHEN THE CAVITY LIES WITHIN THE LIMITS OF SUBSEQUENT EXCAVATION OR OTHER WORK AND SHALL BE INCLUDED WITH ITEM 203 EMBANKMENT FOR PAYMENT.

RESUME PROPOSED GUARDRAIL LT.
STA. 407+44.52

S.W. RAMP

10.00' 12.00' 12.00' 4.00'
8.00'
2:1
6:1 4:1 6:1
1062.0
(1061.2)
1066.91 1063.96
407+00
1066.91 1063.96

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

AH. ONLY
EX. REINFORCED CONC. PAV'T TO BE REMOVED AH. AND TO REMAIN IN PLACE BK.

AH. ONLY
PAVEMENT FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE BK., PROP. PAVED SHOULDER AH.

S.E. RAMP

7.64' 4.00' 12.00' 12.00' 10.00' 6.88'
2:1

RESUME PROJECT
RESUME PAVEMENT
STA. 407+00.00

STA. 407+00.00 AH.
BK.

STA. 406+61.40

STA. 406+61.40

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
144	761	144	358	243	581
130	686	118	269	199	388
117	619	97	150	171	269
106	553	88	141	151	231
93	2619	75	109	764	1469

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS – S.R. 21
STA. 409+00 TO STA. 410+50

SUM–21–(5.69)(7.58)(7.78)

130
223

℄ SOUTHBOUND LANES

℄ NORTHBOUND LANES

S.W. RAMP

S.E. RAMP

RESUME PROPOSED MEDIAN GUARDRAIL
STA. 410+15.34

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

STA. 408+50

SHEET TOTAL

EM1484XL.DWG SCALE 1"=10'

SEEDING END WIDTH	SEEDING SQ. YDS.
127	351
126	587
157	836
144	1774

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	2329		
		69	1404
149	703		
149	654		
		219	750
167	430		
		288	730
144	358		
		576	2884

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS – S.R. 21
STA. 411+00 TO STA. 411+62.35

SUM–21–(5.69)(7.58)(7.78)

131
223

℄ SOUTHBOUND LANES

℄ NORTHBOUND LANES

BRIDGE LIMITS SOUTHBOUND LANES
STA. 411+54.09 TO STA. 412+38.13

BRIDGE LIMITS NORTHBOUND LANES
STA. 411+70.62 TO STA. 412+54.66

STA. 411+62.35 BK.
X COS. 12°35'30"

MATCH LINE STA. 47+44
SEE SHEET NO. 143

M.S.E. WALL MATCH LINE STA. 47+51.40
SEE SHEET NO. 143

MATCH LINE STA. 47+63
SEE SHEET NO. 143

MATCH LINE STA. 47+68.30
SEE SHEET NO. 143

MATCH LINE STA. 47+80.79
SEE SHEET NO. 143

MATCH LINE STA. 47+99.34
SEE SHEET NO. 144

MATCH LINE STA. 48+30
SEE SHEET NO. 144

MATCH LINE STA. 48+57
SEE SHEET NO. 144

MATCH LINE STA. 48+85
SEE SHEET NO. 144

MATCH LINE STA. 49+15.59
SEE SHEET NO. 144

MATCH LINE STA. 49+34.13
SEE SHEET NO. 145

M.S.E. WALL MATCH LINE STA. 49+57.96
SEE SHEET NO. 145

MATCH LINE STA. 49+65
SEE SHEET NO. 145

MATCH LINE STA. 49+78.05
SEE SHEET NO. 145

STA. 411+62.35 BK.
X COS 12°35'30"

2:1 NORMAL

1066.0

1069.17
411+54.09
1052.6

1066.49
411+70.62
1050.3

411+62.35 SKEWED 12°35'30" R.F.

EX. C.B.
STA. 411+91.84, 112.58' RT.
1039.35 T.G.
1035.91 ℄ 21" E.

EX. 21" ST.S.

EX. CONC. BARRIER TO BE REMOVED (TYP.)

2.08'

STA. 411+37.35
X COS. 12°35'30"

2:1 NORMAL

3:1 NORMAL

BK. ONLY

AH. ONLY

EX. APPROACH SLAB TO BE REMOVED (TYP.)

1065.7

1069.22
411+29.09
1066.53

1066.56
411+45.62
1063.52

411+37.35 SKEWED 12°35'30" R.F.

STA. 411+37.35 AH.
BK.
X COS 12°35'30"

10.00' 12.00' 12.00' 4.00'

14.00' 4.00' 12.00' 12.00' 10.00' 0.21'

6:1

4:1

10:1

2:1

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

(1063.4)

1064.8

EX. C.B. (REMOVE)
STA. 411+10.68, 2.69'RT.
1061.70 T.G.
1058.75 ℄ 12" N.

1069.24
411+00
1066.59

1066.57
1063.77

S.E. RAMP

STA. 410+50

SHEET TOTAL

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

FM1484X.DWG SCALE 1"=10'

SEEDING END WIDTH	SEEDING SQ. YDS.
144	
	427
	-61
125	
	361
	-45
135	
	682

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

℄ SOUTHBOUND LANES ℄ NORTHBOUND LANES

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

10.00' 12.00' 12.00' 4.00' 15.60' 16.00' 12.00' 10.00'

10:1 8:1 8:1 4:1 4:1 2:1 2:1

12.00' 12.00' 5.46' 3.00'

(1063.1) 1064.2

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

1068.02 1065.49
413+00
1064.84 1061.99

DEDUCT FOR SODDING REINFORCED RT.
STA. 412+86.58 TO 412+95.58

STA. 412+71.40 AH. X COS. 12°35'30"

2:1 NORMAL 2:1 NORMAL 3:1 NORMAL 4:1

AH. ONLY BK. ONLY

14.08' 14.55' 0.82' 2.83'

1064.5

1068.44
412+63.13
1065.29

1065.72
412+79.66
1062.26

EX. APPROACH SLAB TO BE REMOVED (TYP.)

412+71.40 SKEWED 12°35'30" R.F.

DEDUCT FOR SODDING REINFORCED LT.
STA. 412+61.22 TO 412+70.22

MATCH LINE STA. 47+51.40 SEE SHEET NO. 143

MATCH LINE STA. 47+63 SEE SHEET NO. 143

MATCH LINE STA. 47+68.30 SEE SHEET NO. 143

M.S.E. WALL

MATCH LINE STA. 47+80.79 SEE SHEET NO. 143

MATCH LINE STA. 47+99.34 SEE SHEET NO. 144

MATCH LINE STA. 48+30 SEE SHEET NO. 144

MATCH LINE STA. 48+57 SEE SHEET NO. 144

MATCH LINE STA. 48+85 SEE SHEET NO. 144

MATCH LINE STA. 49+15.59 SEE SHEET NO. 144

MATCH LINE STA. 49+34.13 SEE SHEET NO. 145

MATCH LINE STA. 49+57.96 SEE SHEET NO. 145

MATCH LINE STA. 49+65 SEE SHEET NO. 145

M.S.E. WALL

MATCH LINE STA. 49+78.05 SEE SHEET NO. 145

MATCH LINE STA. 49+85 SEE SHEET NO. 145

STA. 412+46.40 AH. X COS. 12°35'30"

1065.1

1068.67
412+38.13
1049.6

1065.96
412+54.66
1048.2

412+46.40 SKEWED 12°35'30" R.F.

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
119	540		
		140	609
STA. 412+71.40 AH.	146	610	
BK.	146	598	
X COS 12°35'30"			
		68	1494
STA. 412+46.40 AH.	0	2629	
X COS 12°35'30"			
SHEET TOTAL	208	2103	

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS – S.R. 21
STA. 412+46.40 TO STA. 413+00

SUM-21-(5.69)(7.58)(7.78)

132
223

EM1484X.DWG SCALE 1"=10'

SEEDING END WIDTH	SEEDING SQ. YDS.
122	
	703
	-42
131	
	742
136	
	778
144	
	2181

SHEET TOTAL

DEDUCT FOR DITCH EROSION PROTECTION RT.
STA. 414+50 TO 415+00

℄ SOUTHBOUND LANES ℄ NORTHBOUND LANES

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

N.W. RAMP

10.00' 12.00' 12.00' 4.00' 18.01' 2.87' 16.00' 12.00' 10.00'

℄ SB CROSSOVER

2:1 2:1 +1.56% 8:1 8:1 -1.56%

8.00' 12.00' 12.00' 8.36'

(1061.7) 1061.7

TEMPORARY 12" CONDUIT, TYPE B

1065.40 1062.96

414+50

1062.83 1060.03

N.E. RAMP

2:1

19.63'

N.W. RAMP

2:1 3:1 10:1 +1.56% 8:1 8:1

2:1 2:1

8.00' 5.26'

(1060.3) 1062.7

TEMPORARY 12" CONDUIT, TYPE B

18.7321899

1066.44 1063.97

414+00

1063.67 1060.86

N.E. RAMP

2:1

END PROPOSED MEDIAN GUARDRAIL
STA. 413+93.42

10.00' 12.00' 12.00' 4.00' 18.11' 16.00' 12.00' 10.00'

N.W. RAMP

10:1 8:1 +1.56% 8:1

2:1 4:1 4:1 4:1

5.75' 12.00' 12.00' 3.48'

(1061.8) 1063.5

EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

2:1

1067.31 1064.81

413+50

1064.26 1061.43

EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

STA. 413+00.00

STA. 413+00

SHEET TOTAL

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
112	436	211	855
116	487	231	955
134	544	234	1004
119	540		
		676	2814

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS – S.R. 21
STA. 413+50 TO STA. 414+50

SUM-21-(5.69)(7.58)(7.78)

133
223

EM1484X.DWG SCALE 1"=10'

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
				95	225
87		44	70		
	511				
	-333				
97		59	173		
	561				
				124	401
105		75	260		
	608				
				149	565
114		86	350		
	656				
				180	724
122		108	432		
	2003			548	1915

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS – S.R. 21
STA. 415+00 TO STA. 416+50

SUM-21-(5.69)(7.58)(7.78)

134
223

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

STA. 414+50 — SHEET TOTAL

DEDUCT FOR DITCH EROSION PROTECTION RT. STA. 415+00 TO 419+00

℄ SOUTHBOUND LANES — ℄ NORTHBOUND LANES

℄ NB & SB CROSSOVER
N.W. RAMP — N.E. RAMP
10.00' 12.00' 12.00' 4.00' 18.18' 18.19' 4.00' 12.00' 12.00' 10.00'
3:1 3:1 6:1 6:1 2:1
-5.06% -3.37%
TEMPORARY 12" CONDUIT, TYPE B
1055.2
1059.86 1057.42
416+50
1059.27 1056.63

℄ NB CROSSOVER ℄ SB CROSSOVER
N.W. RAMP — N.E. RAMP
9.13' 14.97' 14.47'
2.5:1 6:1 6:1 2:1
-4.97% -4.01% +0.62%
1056.8
1061.33 1058.97
416+00
1060.17 1057.49

℄ NB CROSSOVER ℄ SB CROSSOVER
N.W. RAMP — N.E. RAMP
9.49' 27.24' 9.28'
2:1 2:1 6:1 6:1 2:1
-4.47% -5.14% +1.56% +4.64%
1058.3
1062.85 1060.46
415+50
1061.08 1058.35

℄ SB CROSSOVER
N.W. RAMP — N.E. RAMP
10.00' 12.00' 12.00' 4.00' 18.04' 5.41' 16.00' 12.00' 10.00'
2:1 2:1 6:1 6:1 2:1
-2.48% -3.54% +1.56% +6.10%
8.00' 12.00' 12.00' 9.05' 3.75
1059.6
TEMPORARY 12" CONDUIT, TYPE B
1064.21 1061.79
415+00
1061.99 1059.20
EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)
EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE
ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.
PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.
PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

EM1484X.DWG SCALE 1"=10'

SEEDING END WIDTH	SEEDING SQ. YDS.
57	325
60	151
62	202
69	392
72	442
87	
1512	SHEET TOTAL

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
14	9		
		36	21
25	14		
35	14		
		32	15
43	23		
53	23		
		55	24
54	24		
		93	58
46	39		
		83	101
44	70		
		299	219

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS – S.R. 21
STA. 417+00 TO STA. 418+50

SUM-21-(5.69)(7.58)(7.78)

135
223

℄ SOUTHBOUND LANES
℄ NORTHBOUND LANES
DECELERATION LANE
EX. LA-R/W
N.E. RAMP
N.W. RAMP
℄ SB CROSSOVER
℄ NB CROSSOVER
TEMPORARY 12" CONDUIT, TYPE B
EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)
END PROJECT
END PAVEMENT
STA. 418+00.00 NBL
END PROPOSED GUARDRAIL RT.
STA. 418+14.23
STA. 418+00.00 AH.
BK.
BK. ONLY
EX. REINFORCED CONC. PAV'T TO BE REMOVED BK. AND TO REMAIN IN PLACE AH.
END PAVEMENT
STA. 417+77.75 SBL
STA. 417+77.75 AH.
BK.
PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED BK. AND TO REMAIN IN PLACE AH.
END PROPOSED GUARDRAIL LT.
STA. 417+25.37
STA. 417+00
STA. 416+50
EX. REINFORCED CONC. PAV'T TO BE REMOVED (TYP.)

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE
ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.
PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.
PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

EM1484X.DWG SCALE 1"=10'

SEEDING END WIDTH	SEEDING SQ. YDS.
30	190
33	263
45	217
50	264
50	278
57	297
	983

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
7	0		
		15	0
8	0		
		17	0
10	0		
		19	5
10	5		
		20	12
12	8		
		24	16
14	9		
		95	33

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS – S.R. 21
STA. 419+00 TO STA. 421+04.22

SUM-21-(5.69)(7.58)(7.78)

136
223

℄ SOUTHBOUND LANES

℄ NORTHBOUND LANES

DECELERATION LANE

ACCELERATION LANE

N.E. RAMP

EX. LA-R/W

DEDUCT FOR DITCH EROSION PROTECTION RT.
STA. 419+00 TO 422+15

421+04.22
1051.40 1049.07
12.00' 4.00' 0.33' 4:1 4:1 1046.1 (1046.1)
12.00' 3.66' BK. ONLY
STA. 421+04.22 AH.
BK.
END SHOULDER WIDENING
STA. 421+04.22 RT. (N.B.)

420+50
1052.35 1050.01
1.31' 4:1 4:1 (1047.1) 1047.0
4.60'
END SHOULDER WIDENING
STA. 420+33.53 LT. (N.B.)

420+00
1053.22 1050.86
2.08' -1.60% 4:1 4:1 (1048.0) 1047.9
3.20' 12.00' 5.58' 4:1

419+50
1054.09 1051.69
3.48' -1.60% 4:1 5:1 6:1 1049.2 (1048.9)
4.23' 6.42' +1.00% 4:1 4:1

419+00
1054.93 1052.50
12.00' 4.00' 6.65' -1.60% 3.4:1 6:1 1050.4 (1049.5)
5.98' 12.00' 12.00' 7.41' 3.2:1 -1.00% 4:1
4.00'
EX. REINFORCED CONC. PAV'T TO REMAIN IN PLACE (TYP.)

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

STA. 418+50 STA. 418+50

SHEET TOTAL SHEET TOTAL

EM1484X.DWG SCALE 1"=10'

SEEDING	
END WIDTH	SQ. YDS.
20	30
20	71
15	117
27	145
30	363

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
0	0		
		0	0
0	0		
		0	0
0	0		
		0	0
0	0		
		0	0

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS – S.R. 21
STA. 421+50 TO STA. 423+00

SUM-21-(5.69)(7.58)(7.78)

137
223

℄ SOUTHBOUND LANES ℄ NORTHBOUND LANES

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

1060 1050 1040 1030

EX. LA–R/W

423+00

END WORK
STA. 422+50

STA. 422+50.00 BK.

422+50

12.00' 2.00'
4:1
BK. ONLY

END SHOULDER WIDENING
STA. 422+36.68 RT. (S.B.)

422+36.68
1048.98 1046.97

STA. 422+36.22 AH.
BK.

12.00' 2.60'
3:1

EX. 15" CONC.

EX. C.B. (DO NOT DISTURB)
STA. 422+10.31, 0.50' LT.
1044.54 T.G.
1041.70 ℄ 15" W.

422+00
1049.67 1047.45

DECELERATION LANE

ACCELERATION LANE

12.00' 3.50'
4:1
(1045.4)

EX. REINFORCED CONC. PAV'T
TO REMAIN IN PLACE (TYP.)

421+50
1050.57 1048.30

STA. 421+04.22

STA. 421+04.22 AH.

SHEET TOTAL

ROADS FOR MAINTAINING TRAFFIC TO REMAIN IN PLACE

ROADS FOR MAINTAINING TRAFFIC TO BE RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED AND RESTORED TO ORIGINAL CONDITIONS OR FINAL GROUND CONDITIONS.

PAVEMENT FOR MAINTAINING TRAFFIC TO BE REMOVED

EM1484X.DWG SCALE 1"=10'

SEEDING	
END WIDTH	SQ. YDS.
54	
	55
54	
	181
37	
	117
6	
	353

END AREA		VOLUME	
CUT	FILL	CUT	FILL
119	82		
		240	352
83	214		
		82	198
41	84		
		37	76
0	0		
		359	626

CALCULATED JAA
CHECKED KAA

CROSS SECTIONS WHEELING & LAKE ERIE RAILROAD
STA. 43+01 TO STA. 44+50

SUM-21-(5.69)(7.58)(7.78)

138
223

STA. 43+01 AH.

BEGIN WORK
STA. 43+01

SHEET TOTAL

STA. 43+01 AH.

SHEET TOTAL

STA. 43+95 BK.

MATCH LINE STA. 402+74.55
SEE SHEET NO. 125

MATCH LINE STA. 400+59.43
SEE SHEET NO. 124

EX. R.R. R/W

TEMP. R/W

R/W

EX. FIBER OPTICS CABLE (DO NOT DISTURB)

APPROX. LOCATION ABANDONED GAS LINE (DO NOT DISTURB)

2:1

2:1 NORMAL

BEGIN CRUSHED AGGREGATE SLOPE PROTECTION RT. @ STA. 43+95

44+50

43+85.79

43+50

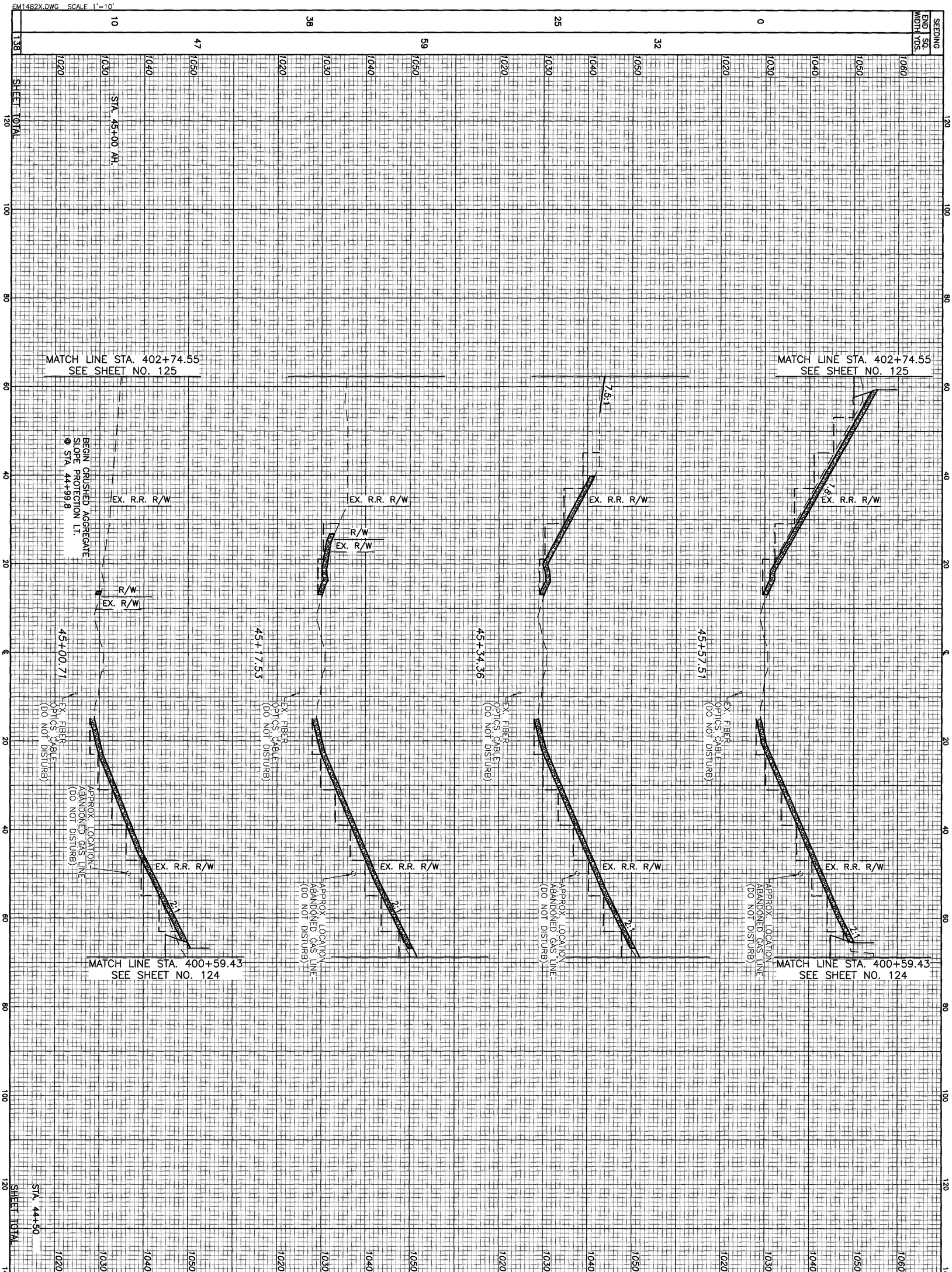
43+01

1060 1050 1040 1030 1020

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

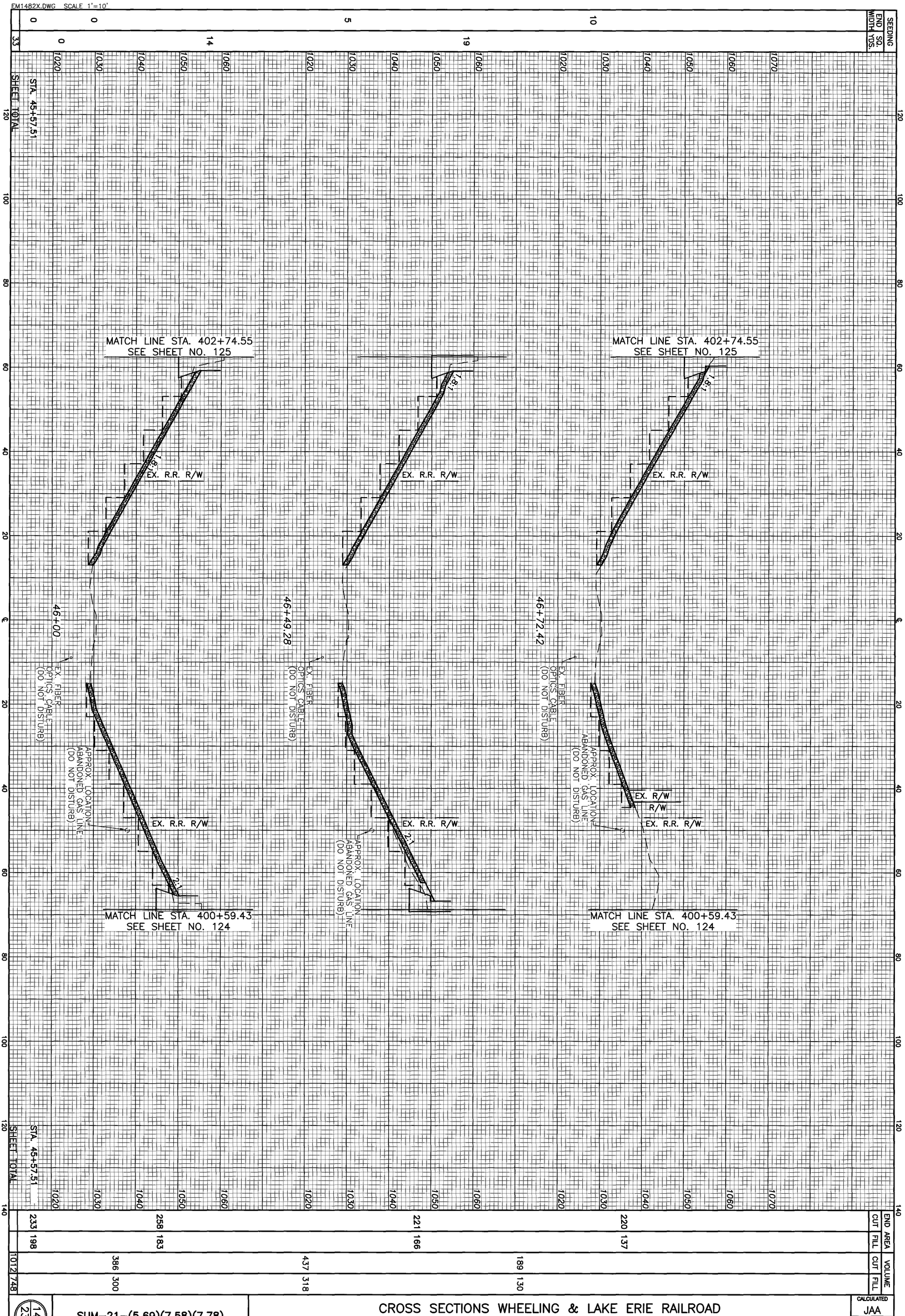
EM1482X.DWG SCALE 1"=10'

EM1482X.DWG SCALE 1"=10'



139/223	SUM-21-(5.69)(7.58)(7.78)	CROSS SECTIONS WHEELING & LAKE ERIE RAILROAD STA. 45+00.71 TO STA. 45+57.51	CALCULATED JAA CHECKED KAA

EM1482X.DWG SCALE 1"=10'



140/232	SUM-21-(5.69)(7.58)(7.78)	CROSS SECTIONS WHEELING & LAKE ERIE RAILROAD STA. 46+00 TO STA. 46+72.42	CALCULATED JAA CHECKED KAA

SEEDING	
END WIDTH	SQ. YDS.
0	
25	
10	
19	
10	
19	
10	
63	

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

MATCH LINE STA. 402+74.55
SEE SHEET NO. 125

1.8:1

EX. R.R. R/W

EX. R/W

EX. R/W

EX. R.R. R/W

EX. R/W

MATCH LINE STA. 400+59.43
SEE SHEET NO. 124

APPROX. LOCATION
ABANDONED GAS LINE
(DO NOT DISTURB)

EX. FIBER
OPTICS CABLE
(DO NOT DISTURB)

47+50

END CRUSHED AGGREGATE
SLOPE PROTECTION RT.
@ STA. 47+12.4

47+05.71

46+89.07

STA. 46+72.42

SHEET TOTAL

END AREA		VOLUME	
CUT	FILL	CUT	FILL
134	96		
		230	166
146	106		
		123	88
252	181		
		146	98
220	137		
		499	352

CALCULATED JAA
CHECKED KAA

CROSS SECTIONS WHEELING & LAKE ERIE RAILROAD
STA. 46+89.07 TO STA. 47+50

SUM-21-(5.69)(7.58)(7.78)

141
223

EM1482X.DWG SCALE 1"=10'

SEEDING		END AREA		VOLUME		CALCULATED JAA
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	CHECKED KAA
0		0	0			
	40			14	22	
29		30	47			
	124			60	121	
47		80	175			
	57			84	104	
55						
0						
	0	140	96			
0				254	178	
0		134	96			
	221			412	425	

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

1050 1040 1030 1020 1060

STA. 48+75 BK.

MATCH LINE STA. 402+74.55 SEE SHEET NO. 125

EX. R.R. R/W

EX. FIBER OPTICS CABLE (DO NOT DISTURB)

APPROX. LOCATION ABANDONED GAS LINE (DO NOT DISTURB)

49+00

END WORK STA. 48+75

MATCH LINE STA. 400+59.43 SEE SHEET NO. 124

2:1 NORMAL

TEMP. R/W

48+50

1.8:1

48+20.63

END CRUSHED AGGREGATE SLOPE PROTECTION LT. @ STA. 48+10.5

STA. 48+10.5 AH. BK.

1.6:1

48+00

STA. 47+50

SHEET TOTAL

CROSS SECTIONS WHEELING & LAKE ERIE RAILROAD STA. 48+00 TO STA. 49+00

SUM-21-(5.69)(7.58)(7.78)

142
223

EM1482X.DWG SCALE 1"=10'

SEEDING	
END WIDTH	SQ. YDS.
46	67
51	29
48	27
21	25
32	0
	197

END AREA		VOLUME	
CUT	FILL	CUT	FILL
6	108		
6	52		
		1	27
0	63		
		1	11
1	54		
4	7		
		1	13
		1	1
0	0		
		4	52

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS S.R. 162
STA. 47+44 TO STA. 47+80.79

SUM-21-(5.69)(7.58)(7.78)

143
223

STA. 47+80.79 AH.
BK.

M.S.E. WALL
4:1
6:1
1047.8
47+80.79
1048.98
CATCH BASIN, NO. 2-2B
STA. 47+75.00, 29.00' LT.
1047.20 T.G.
1044.30 ℄ 18"
18" TYPE C
AS PER PLAN
1047.4

BEGIN M.S.E. WALL
STA. 47+71.33, 54.61' LT.
4:1
18" TYPE C
47+68.30
1049.46
1047.8

SEE SHEET NO. 132
MATCH LINE
STA. 412+46.40

STA. 411+62.35
SEE SHEET NO. 131
MATCH LINE
2:1
4.2:1
1048.0
47+63
1049.66
BEGIN M.S.E. WALL
STA. 47+51.00, 42.82' RT.
47+51.40
1050.11
CATCH BASIN, NO. 2-2B
STA. 47+51.39, 32.00' RT.
1047.45 T.G.
1044.65 ℄ 18"

BEGIN WORK
STA. 47+44
47+44
1050.42
STA. 47+44 AH.
STA. 47+21 AH.
SHEET TOTAL
SHEET TOTAL

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

1070 1060 1050 1040

EM1464X.DWG SCALE 1"=10'

SEEDING	
END WIDTH	SQ. YDS.
41	139
41	128
41	123
41	140
41	90
46	
	620

END AREA		VOLUME	
CUT	FILL	CUT	FILL
15	127		
		15	142
12	123		
		12	133
12	133		
		12	137
11	141		
		12	155
11	132		
		6	82
6	108		
		57	649

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS S.R. 162
STA. 47+99.34 TO STA. 49+15.59

SUM-21-(5.69)(7.58)(7.78)

144
223

EM14844X.DWG SCALE 1"=10'

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

1070 1060 1050 1040

M.S.E. WALL

2:1

4:1 6:1 6:1 4:1

18" TYPE C AS PER PLAN

49+15.59
1043.60
1041.8
1042.0

48+85
1044.86
1043.1
1043.2

48+57
1045.98
1044.3
1044.3

48+30
1047.08
1045.4
1045.4

47+99.34
1048.26
1046.5
1046.6

SEE SHEET NO. 132
STA. 412+46.40
MATCH LINE
SEE SHEET NO. 131
STA. 411+62.35
MATCH LINE

STA. 47+80.79
SHEET TOTAL
STA. 47+80.79 AH.
SHEET TOTAL

SEEDING END WIDTH	SEEDING SQ. YDS.
0	8
17	15
21	15
23	25
41	35
48	124
46	90
41	312

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
		1	2
3	14		
		1	6
3	31		
		1	23
1	65		
		1	17
5	66		
		4	91
4	140		
		7	92
15	127		
		15	231

CALCULATED KAA
CHECKED TLS

CROSS SECTIONS S.R. 162
STA. 49+34.13 TO STA. 49+85

SUM-21-(5.69)(7.58)(7.78)

145
223

END WORK
STA. 49+93

STA. 49+93 BK.

STA. 49+87.91, 55.84' LT.
1037.73 ℄ INLET

24' OF 15" TYPE C
@ 5.29%

END M.S.E. WALL
STA. 49+83.94, 52.73' LT.

CATCH BASIN, NO. 2-3
STA. 49+85.09, 32.00' LT.
1039.60 T.G.
1036.46 ℄ 15"
1036.21 ℄ 18"
1035.71 ℄ 24"

EX. 21"

EX. 24" CMP
℄ EX. 24" CMP
EL. 1035.78

18" TYPE C
AS PER PLAN

STA. 49+72

SEE SHEET NO. 132
STA. 412+46.40

SEE SHEET NO. 131
STA. 411+62.35

M.S.E. WALL

EX. C.B.
1039.35 T.C.
1035.91 ℄ 21" TO E.

MATCH LINE

END M.S.E. WALL
STA. 49+57.96, 45.52' RT.

CATCH BASIN, NO. 2-2B
STA. 411+96.10, 96.00' RT.
1041.02 T.G.
1036.61 ℄ 18"

STA. 49+15.59

49+85
1040.75

49+78.05
1041.03

49+65
1041.55

49+57.96
1041.84

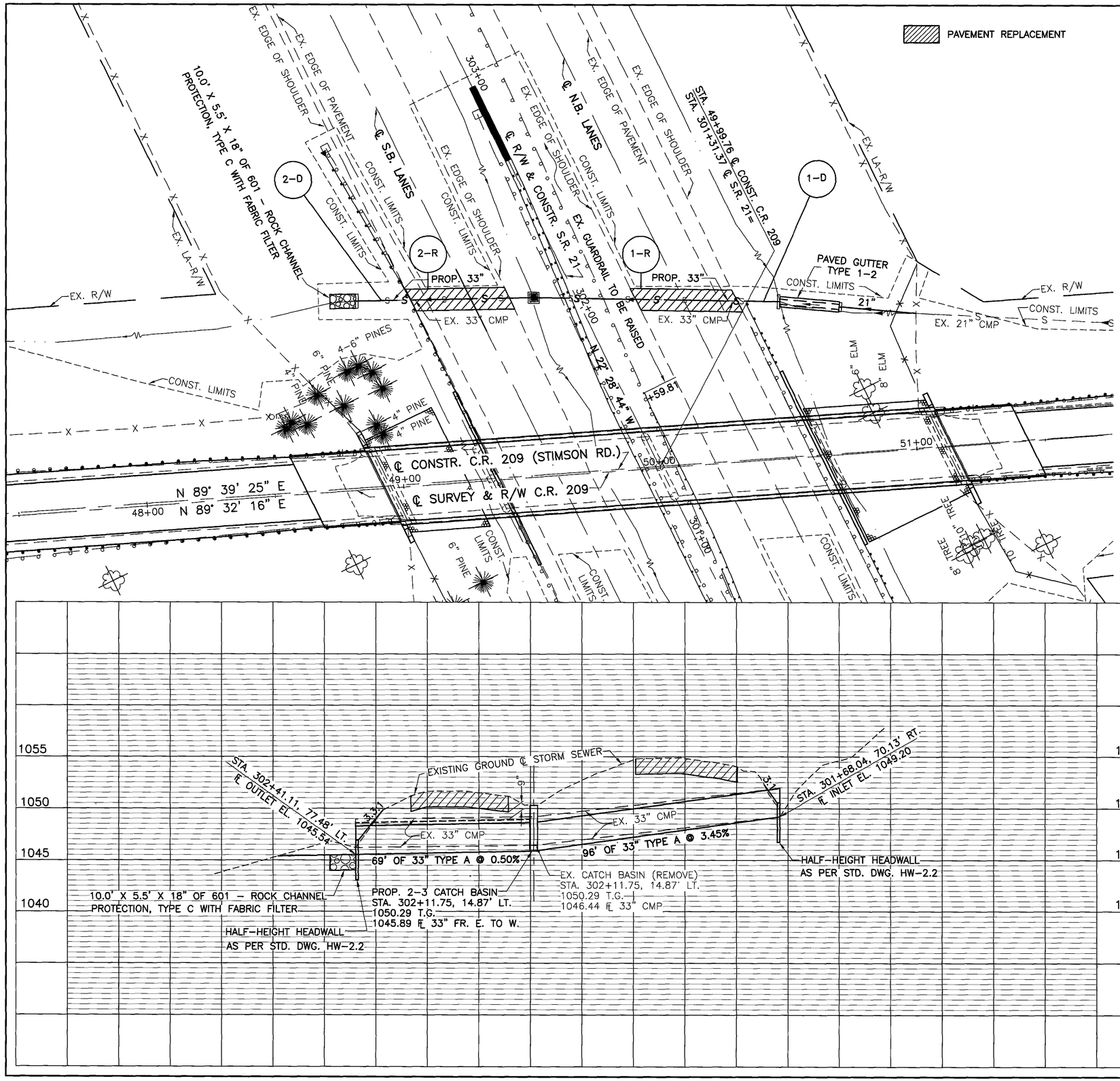
49+34.13
1042.83

1040.0
1040.3
1039.6
1040.4
1039.8
1041.1
1041.8

4:1
6:1
3.7:1
16.4:1
2:1

SHEET TOTAL

EM1484X.DWG SCALE 1"=10'



FOR STIMPSON ROAD PLAN AND PROFILE, SHEET NO. 62
FOR PAVEMENT REPLACEMENT DETAILS AND QUANTITIES , SHEET NO. 8

				STATION FROM	STATION TO										TOTALS
202	CATCH BASIN REMOVED	EACH													1
202	PIPE REMOVED OVER 24"	FT													163
604	CATCH BASIN, NO. 2-3	EACH	1												1
603	33" CONDUIT, TYPE A, 706.02	FT	96												165
602	CONCRETE MASONRY	CU YD	0.62												1.2
601	ROCK CHANNEL PROTECTION, TYPE C, WITH FABRIC FILTER	CU YD	3												3
SIDE	REFERENCE NO.														
	1-D	LT.		301+68.04	302+11.75										
	2-D	LT.&RT.		302+11.75	302+41.11										
	1-R	LT.&RT.		301+68.04	302+11.75										
	2-R	LT.		302+11.75	302+41.11										

0 20 40 HORIZONTAL SCALE IN FEET

CALCULATED RLS CHECKED TLS

STORM SEWER

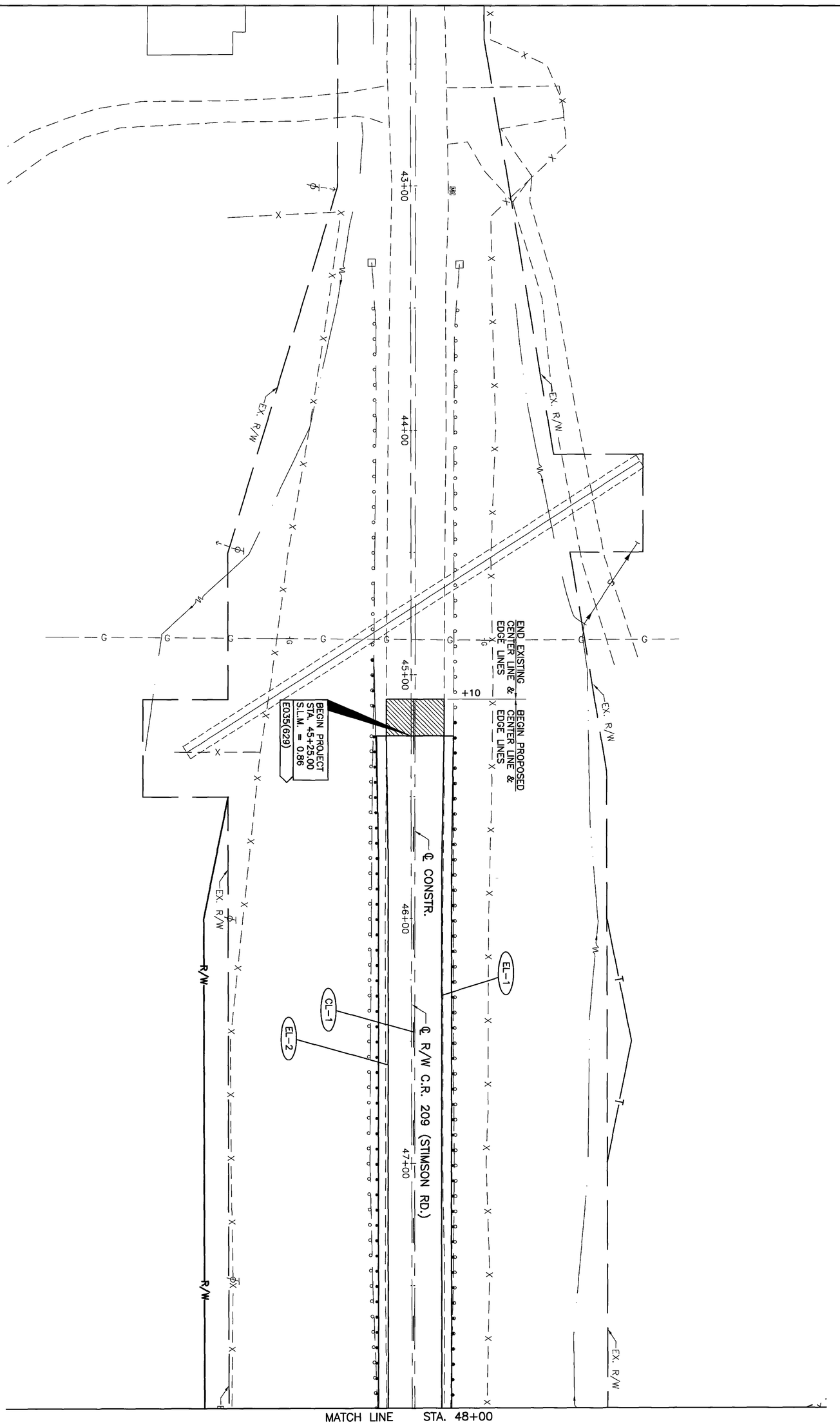
STA 301+68.04 TO STA 302+41.11 S.R. 21

SUM-21-(5.69)(7.58)(7.78)

146
223

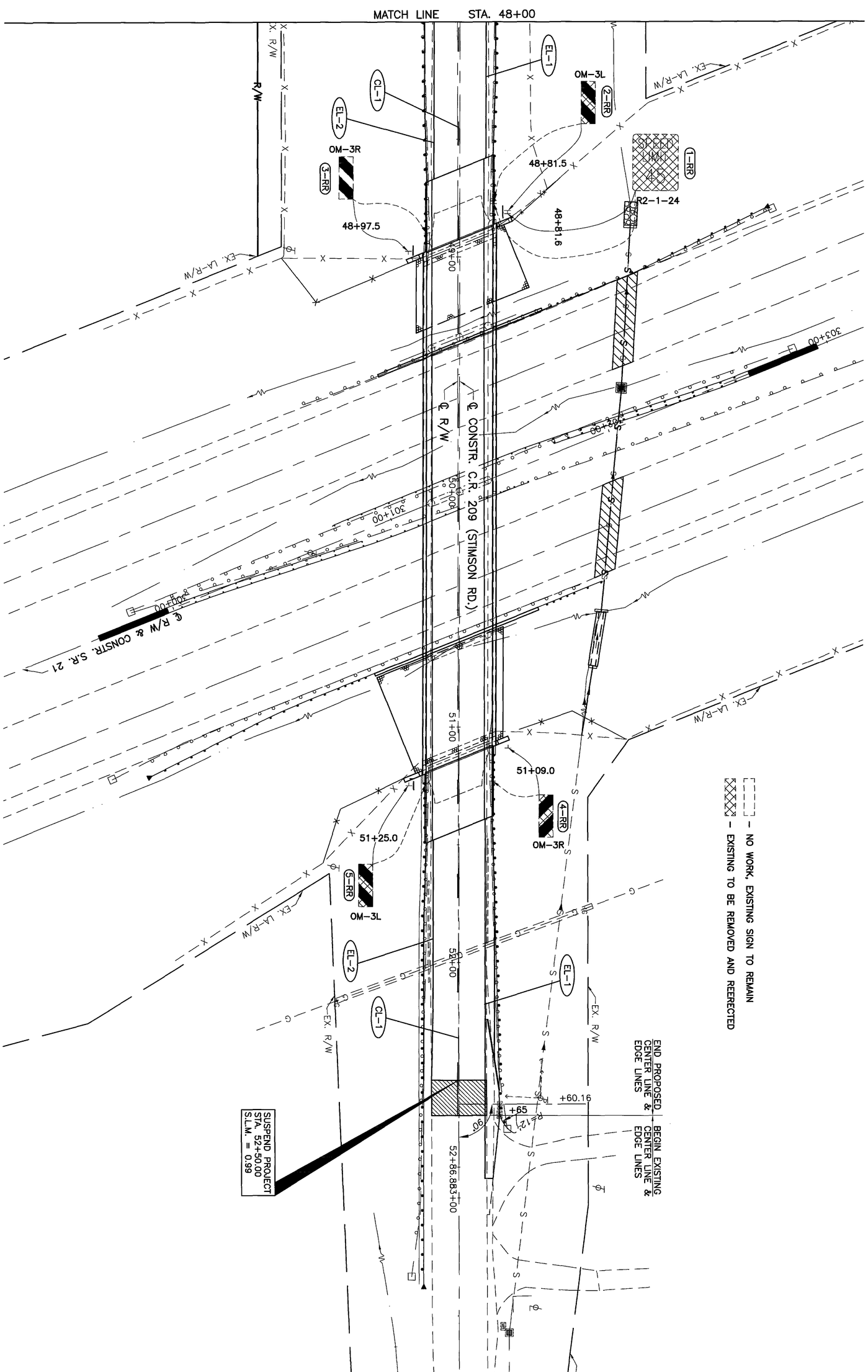
EM-1481ST.DWG

EW1481TC1.DWG



147/223	SUM-21-(5.69)(7.58)(7.78)	SIGNING & PAVEMENT MARKING PLAN STIMSON ROAD STA. 43+00 TO STA. 48+00	CALCULATED KAA CHECKED TLS	0 20 40 HORIZONTAL SCALE IN FEET	N

EW1481TC2.DWG



148/223

SUM-21-(5.69)(7.58)(7.78)

SIGNING & PAVEMENT MARKING PLAN
STIMSON ROAD STA. 48+00 TO 53+00

CALCULATED KAA
CHECKED TLS

0 20 40
HORIZONTAL SCALE IN FEET

– NO WORK, EXISTING SIGN TO REMAIN

– EXISTING SIGN TO BE REMOVED AND REERECTED

℄ S.B. LANES S.R.21

℄ R/W & CONSTR., S.R.21

℄ N.B. LANES S.R.21

366+00 380+00 381+00 382+00 383+00 384

STA. 384+00

MATCH LINE

+37

END EXISTING LANE LINE & EDGE LINES N.B. LANES

BEGIN PROPOSED LANE LINE & EDGE LINES N.B. LANES

Copley Rd Akron 162 NEXT RIGHT

EL–3 EL–4 LL–1

STA. 384+00 STA. 389+00

EX. 27" CMP

EX. 27" CMP

EX. C.B.

+00 385+00 386+00 387+00 388+00 389

SPEED LIMIT 55

MATCH LINE MATCH LINE

DELINEATOR 385+35 1–D

EL–3 EL–4 LL–1

CONC. PAD

388+90 2–D DELINEATOR

HORIZONTAL SCALE IN FEET 0 20 40

CALCULATED KAA CHECKED TLS

SIGNING & PAVEMENT MARKING PLAN
STA. 379+00 TO STA. 389+00

SUM–21–(5.69)(7.58)(7.78)

149
223

EW1484TC1.DWG

END EXISTING EDGE LINE (INSIDE) S.B. LANES

BEGIN PROPOSED EDGE LINE (INSIDE) S.B. LANES

DELINEATOR (DO NOT DISTURB)

EXISTING SIGN TO REMAIN, NO WORK

– EXISTING SIGN TO BE REMOVED & REERECTED

END EXISTING EDGE LINE (OUTSIDE) S.B. LANES

BEGIN PROPOSED EDGE LINE (OUTSIDE) S.B. LANES

EL–5

EL–6

+40

STA. 389+00

STA. 394+00

℄ S.B. LANES S.R.21

℄ R/W & CONSTR., S.R.21

+00

390+00

391+00

6–RR

7–RR

392+36

R3–4–36

R3–H4a–24

392+00

393+00

EX. C.B.

393+18

394

9–RR

8–RR

R3–H4a–36

R3–4–36

℄ N.B. LANES S.R.21

MATCH LINE

EL–3

EL–4

LL–1

EX. 15" CMP

DELINEATOR

393+05

3–D

MATCH LINE

11–RR

10–RR

M3–3–30

M1–5–30–2

397+07

DELINEATOR

5–D

397+64

END EXISTING CENTER LINE S.B. LANES

BEGIN PROPOSED CENTER LINE S.B. LANES

LL–2

EL–5

EL–6

+85

STA. 394+00

STA. 399+00

℄ S.B. LANES S.R.21

RESUME PROJECT STA. 399+00.00 S.L.M. 7.56

℄ R/W & CONSTR., S.R.21

+00

395+00

396+00

397+00

398+00

399

℄ N.B. LANES S.R.21

MATCH LINE

EL–3

EL–4

LL–1

DELINEATOR

397+20

4–D

MATCH LINE

EW1484TC2.DWG

HORIZONTAL SCALE IN FEET

0 20 40

CALCULATED KAA

CHECKED TLS

SIGNING & PAVEMENT MARKING PLAN

STA. 389+00 TO STA. 399+00

SUM–21–(5.69)(7.58)(7.78)

STA. 399+00

MATCH LINE

℄ S.B. LANES S.R.21

℄ R/W & CONSTR., S.R.21

℄ N.B. LANES S.R.21

LL-2

DELINEATOR (REMOVE)

FIBER OPTIC MARKER

EX. R/W

R/W

+20

BEGIN PROPOSED LANE LINE S.B. LANES

EL-6

15-RR

OM-3R

401+83

EL-5

LL-4

DELINEATOR

END PROPOSED LANE LINE S.B. LANES

BEGIN PROPOSED EDGE LINE (OUTSIDE) S.B. LANES

CH-1

EL-7

+40

BEGIN PROPOSED CHANELIZING LINE S.B. LANES & RAMP

403+72

17-RR

R1-2-48

STA. 404+00

APPROXIMATE LOCATION ABANDONED GAS LINE

400+77

OM-3L

13-RR

IRON PIN SET

402+59

403+00

16-RR

OM-3L

N 12°49'27" E

404

+00

400+00

401+00

402+00

E1-H3

CL 2 GAS LINE (69M)

399+15

EL-3

EL-4

LL-3

LL-1

12-RR

– EXISTING TO REMAIN, NO WORK

– EXISTING TO BE REMOVED & REERECTED

OM-3R

401+50

14-RR

EX. R/W

WHISTLE POST

R/W

403+76

OM-3R

18-RR

MATCH LINE

EL-6

CH-1

DELINEATOR (REMOVE)

+00

5+00

4+00

3+00

END PROPOSED EDGE LINE (OUTSIDE) S.B. LANES & RAMP

BEGIN EXISTING EDGE LINE (OUTSIDE) S.B. LANES RAMP

20-RR

W4-1R-36

408+24

EL-5

LL-2

EL-7

STA. 404+00

+40

℄ S.B. LANES S.R.21

STA. 409+00

SUSPEND PROJECT STA. 405+00.00 S.L.M. 7.67

RESUME PROJECT STA. 407+00.00 S.L.M. 7.71

℄ R/W & CONSTR., S.R.21

+00

405+00

406+00

407+00

408+00

409

END PROPOSED LANE LINE N.B. LANES

+72

BEGIN PROPOSED CHANELIZING LINES & TRAVERSE LINE N.B. LANES & RAMP

END PROPOSED CHANELIZING LINES & TRAVERSE LINE N.B. LANES & RAMP

END PROPOSED CHANELIZING LINE N.B. LANES & RAMP

℄ N.B. LANES S.R.21

+12

+24

MATCH LINE

+61

3+00

END PROPOSED EDGE LINE (OUTSIDE) N.B. LANES & RAMP

407+35

EL-9

19-RR

E5-1

4+00

LL-3

LL-1

EL-3

EL-4

DELINEATOR (REMOVE)

CH-2

BT-1

CH-3

EL-10

DELINEATOR (DO NOT DISTURB)

MATCH LINE

EW1484TC3.DWG

HORIZONTAL SCALE IN FEET

0 20 40

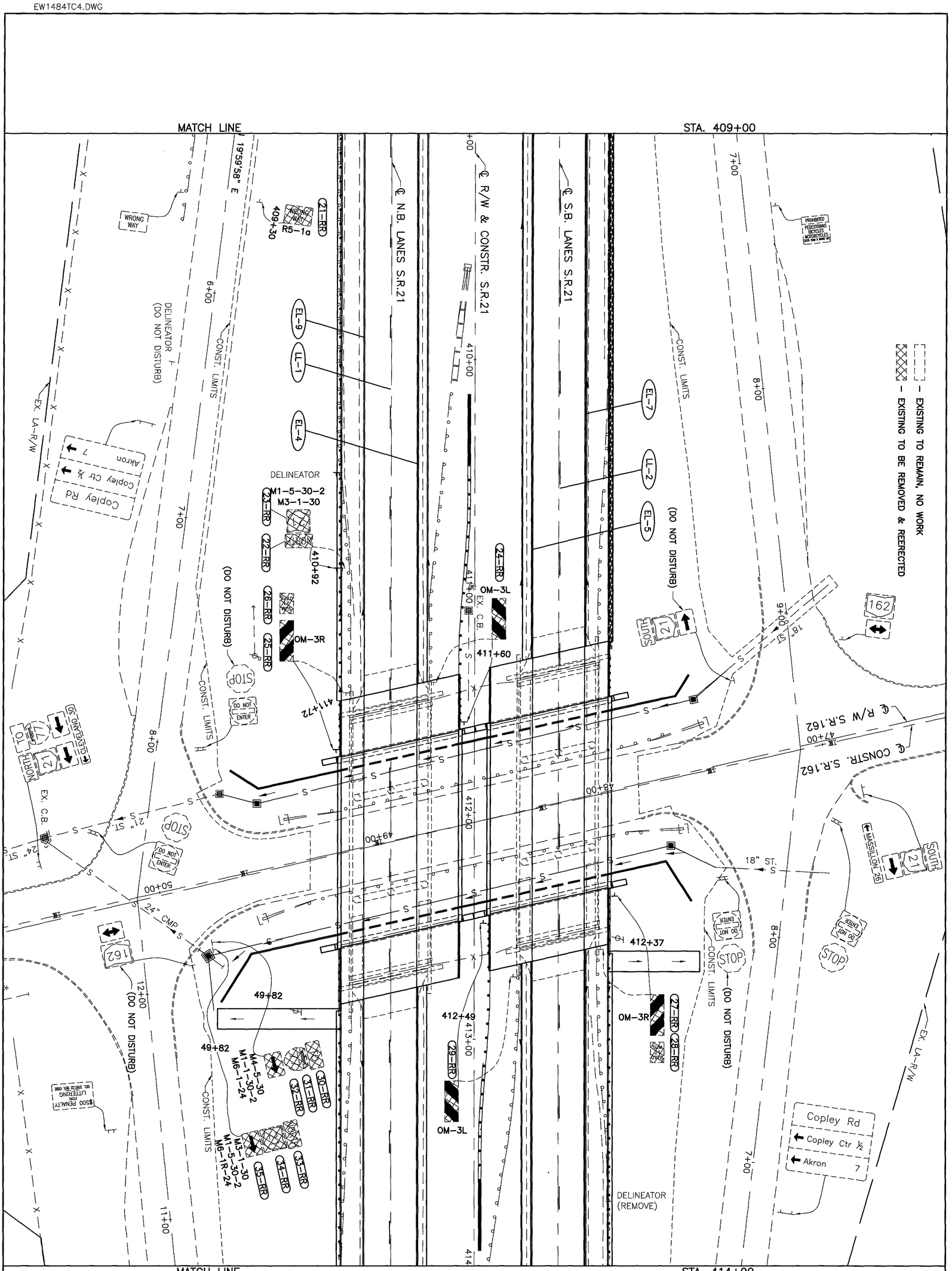
CALCULATED KAA

CHECKED TLS

SIGNING & PAVEMENT MARKING PLAN
STA. 399+00 TO STA. 409+00

SUM-21-(5.69)(7.58)(7.78)

EW1484TC4.DWG



– EXISTING TO REMAIN, NO WORK

– EXISTING TO BE REMOVED & REERECTED

152/223	SUM-21-(5.69)(7.58)(7.78)	SIGNING & PAVEMENT MARKING PLAN STA. 409+00 TO STA. 414+00	CALCULATED KAA CHECKED TLS	0 20 40 HORIZONTAL SCALE IN FEET	N

STA. 414+00

MATCH LINE

5+00

4+00

WRONG WAY

END PROPOSED
EDGE LINE (OUTSIDE)
S.B. LANES

37-RR

E5-1

+74

BEGIN PROPOSED
CHANELIZING LINES &
TRAVERSE LINE
S.B. LANES & RAMP

CH-4 BT-2 CH-5

P.C. STA. 418+88.28

STA. 419+00

EL-7 LL-2 EL-5

416+80

GORE SIGN

DELINEATOR (REMOVE)

℄ S.B. LANES S.R.21

END PROJECT
STA. 418+00.00
S.L.M 7.92

℄ R/W & CONSTR., S.R.21

+00 415+00 416+00 417+00 418+00 419

℄ N.B. LANES S.R.21

MATCH LINE

DELINEATOR

EL-9 LL-1 EL-4

W4-1R-36

36-RR

416+83

DELINEATOR

– NO WORK, EXISTING TO REMAIN

– EXISTING TO BE REMOVED & REERECTED

6+00

7+00

N 06°57'51" E

BEGIN EXISTING
EDGE LINES
LANE LINE
S.B. LANE

END PROPOSED
CHANELIZING LINE
TRAVERSE LINE
S.B. LANES & RAMP

BEGIN PROPOSED
LANE LINE
S.B. LANES

EL-8 LL-5 LL-2 EL-5

+87

STA. 419+00

END PROPOSED
LANE LINE
S.B. LANES

+74

EX. 15" ST.S.

℄ S.B. LANES S.R.21

℄ R/W & CONSTR., S.R.21

+00 420+00 421+00 422+00 EX. C.B. 423+00 424+00

END PROPOSED
EDGE LINES
LANE LINE
S.B. LANES

EL-8

+13

LL-2

EL-5

431+00

℄ N.B. LANES S.R.21

MATCH LINE

END PROPOSED
CENTER LINE
N.B. LANES

+68

BEGIN EXISTING
CENTER LINE
N.B. LANES

4+00

5+00

+19

DELINEATOR

EL-4 LL-1 EL-9

END PROPOSED
EDGE LINES
(INSIDE & OUTSIDE)
N.B. LANES

BEGIN EXISTING
EDGE LINES
N.B. LANES

X X X X

EW1484TC5.DWG

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED KAA
CHECKED TLS

SIGNING & PAVEMENT MARKING PLAN
STA. 414+00 TO STA. 424+00

SUM-21-(5.69)(7.58)(7.78)

EW1484TC-QUAN.DWG

SIGNS

SHEET NO.	REFERENCE NO.	LOCATION	STATION	SIDE	CODE	SIZE (INCHES)	620 DELINEATOR, TYPE C, POST MOUNTED	620 DELINEATOR REMOVED FOR DISPOSAL	630 GROUND MOUNTED SUPPORT, NO. 2 POST	630 GROUND MOUNTED SUPPORT, NO. 3 POST	630 GROUND MOUNTED SUPPORT, NO. 4 POST	630 GROUND MOUNTED SUPPORT, 54X7.7 BEAM	630 GROUND MOUNTED SUPPORT, W10X22 BEAM	630 REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	630 REMOVAL OF GROUND MOUNTED MAJOR SIGN AND REERECTION		630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	630 REMOVAL OF GROUND MOUNTED BEAM SUPPORT AND DISPOSAL
							EACH	EACH	FT	FT	FT	FT	FT	EACH	EACH		EACH	EACH
129	1-RR	STIMSON ROAD	48+81.60	LT.	R2-1-24	24" X 36"			12.50					1			1	
	2-RR				OM-3L	12" X 36"								1				
129	3-RR	STIMSON ROAD	48+97.50	RT.	OM-3R	12" X 36"			11.50					1			1	
129	4-RR	STIMSON ROAD	51+09.00	LT.	OM-3R	12" X 36"			11.50					1			1	
129	5-RR	STIMSON ROAD	51+25.00	RT.	OM-3L	12" X 36"			11.50					1			1	
131	6-RR	S.R. 21 MEDIAN	392+36	LT.	R3-4-36	36" X 36"					14.00			1			1	
	7-RR				R3-H4a-24	24" X 30"								1				
131	8-RR	S.R. 21 MEDIAN	393+18	RT.	R3-4-36	36" X 36"					14.00			1			1	
	9-RR				R3-H4a-24	24" X 30"								1				
131	10-RR	S.R. 21 S.B.	397+07	LT.	M3-3-30	30" X 15"				15.50				1			1	
	11-RR				M1-5-30-2	30" X 30"								1				
132	12-RR	S.R. 21 N.B.	399+15	RT.	E1-H3	144" X 120"							24.50 27.75		1			2
132	13-RR	S.R. 21 N.B.	400+77	RT.	OM-3L	12" X 36"			14.25					1			1	
132	14-RR	S.R. 21 N.B.	401+50	RT.	OM-3R	12" X 36"			14.25					1			1	
132	15-RR	S.R. 21 S.B.	401+83	LT.	OM-3R	12" X 36"			14.25					1			1	
132	16-RR	S.R. 21 S.B.	402+59	LT.	OM-3L	12" X 36"			14.25					1			1	
132	17-RR	S.R. 21 S.B.	403+72	LT.	R1-2-48	48" X 48" X 48"			14.50 15.50					1			1	
132	18-RR	S.R. 21 N.B.	403+76	RT.	OM-3R	12" X 36"			14.25					1			1	
132	19-RR	S.R. 21 N.B.	407+35	RT.	E5-1	72" X 60"						19.00 21.00			1			2
132	20-RR	S.R. 21 S.B.	408+24	LT.	W4-1R-36	36" X 36"				15.00				1			1	
133	21-RR	S.R. 21 N.B. EXIT RAMP	409+30	RT.	R5-1a	36" X 24"			12.50 12.75					1			1	
133	22-RR	S.R. 21 S.B.	410+92	RT.	M3-1-30	30" X 15"				15.50				1			1	
	23-RR				M1-5-30-2	30" X 30"								1				
133	24-RR	S.R. 21 S.B.	411+60	RT.	OM-3L	12" X 36"			14.25					1			1	
133	25-RR	S.R. 21 S.B.	411+72	RT.	OM-3R	12" X 36"			15.00					1			1	
	26-RR					9" X 12"								1				
133	27-RR	S.R. 21 S.B.	412+37	LT.	OM-3L	12" X 36"			15.00					1			1	
	28-RR					9" X 12"								1				
133	29-RR	S.R. 21 S.B.	412+49	LT.	OM-3L	12" X 36"			14.25					1			1	
133	30-RR	S.R. 162	49+82	RT.	M4-5-30	30" X 15"								1			1	
	31-RR				M1-1-30-2	30" X 30"					14.50			1				
	32-RR				M6-1-24	24" X 18"								1				
133	33-RR	S.R. 162	49+82	RT.	M3-1-30	30" X 15"								1			1	
	34-RR				M1-5-30-2	30" X 30"					14.75			1				
	35-RR				M6-1R-24	24" X 18"								1				
134	36-RR	S.R. 21 S.B.	416+83	RT.	W4-1R-36	36" X 36"				15.00				1			1	
134	37-RR	S.R. 21 S.B.	416+80	LT.	E5-1	72" X 60"						19.00 21.00			1			2
130	1-D	S.R. 21 N.B.	385+35	RT.			1	1										
130	2-D	S.R. 21 N.B.	388+90	RT.			1	1										
131	3-D	S.R. 21 N.B.	393+05	RT.			1	1										
131	4-D	S.R. 21 N.B.	397+20	RT.			1	1										
131	5-D	S.R. 21 S.B.	397+64	LT.			1	1										
			TOTALS (QUANTITIES CARRIED TO SHEET NO. 54)				5	5	232.0	61.0	57.3	80.0	52.3	34	3		23	6

PAVEMENT MARKINGS

SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE		642 EDGE LINE, TYPE 2, WHITE	642 EDGE LINE, TYPE 2, YELLOW	642 LANE LINE, TYPE 2	642 CENTER LINE, TYPE 2	642 CHANNELIZING LINE, TYPE 2, WHITE	642 TRANSVERSE LINE, TYPE 2, WHITE		
							MILE	MILE	MILE	MILE	FT	FT		
128-129	EL-1	STIMSON ROAD	45+10	52+65	LT.		0.14							
128-129	EL-2	STIMSON ROAD	45+10	52+65	RT.		0.14							
128-129	CL-1	STIMSON ROAD	45+10	52+65	℄					0.14				
130-132	EL-3	S.R. 21 N.B. OUTSIDE	366+37	406+61	RT.		0.76							
130-134	EL-4	S.R. 21 N.B. INSIDE	366+37	421+19	RT.			1.04						
131-134	EL-5	S.R. 21 S.B. INSIDE	390+75	431+13	LT.			0.76						
131-132	EL-6	S.R. 21 S.B. OUTSIDE	393+40	405+00	LT.		0.22							
132-134	EL-7	S.R. 21 S.B. OUTSIDE	403+40	417+74	LT.		0.27							
134	EL-8	S.R. 21 S.B. OUTSIDE	417+74	431+13	LT.		0.25							
132-134	EL-9	S.R. 21 N.B. OUTSIDE	406+12	421+19	RT.		0.29							
134	EL-10	S.R. 21 N.B. RAMP	406+24	406+61	RT.			0.01						
130-134	LL-1	S.R. 21 N.B.	366+37	422+68	RT.				1.07					
131-134	LL-2	S.R. 21 S.B.	398+85	431+13	LT.				0.61					
132	LL-3	S.R. 21 N.B.	399+35	404+72	RT.				0.10					
132	LL-4	S.R. 21 S.B.	401+20	403+40	LT.				0.04					
134	LL-5	S.R. 21 S.B.	419+87	421+74	LT.				0.04					
132	CH-1	S.R. 21 S.B.	403+40	405+02	LT.						163			
132	CH-2	S.R. 21 N.B.	404+72	406+12	RT.						140			
132	CH-3	S.R. 21 N.B.	404+72	406+24	RT.						152			
134	CH-4	S.R. 21 S.B.	417+74	419+87	LT.						213			
134	CH-5	S.R. 21 S.B.	417+74	419+87	LT.						213			
132	BT-1	S.R. 21 N.B.	404+72	406+12	RT.							123		
134	BT-2	S.R. 21 S.B.	417+74	419+87	LT.							163		
SUB-TOTAL							2.07	2.07						
TOTALS (QUANTITIES CARRIED TO SHEET NO. 54)							4.14		1.86	0.14	881	286		

SUM-21-(5.69)(7.58)(7.78)

SIGNING & PAVEMENT MARKING SUB-SUMMARY

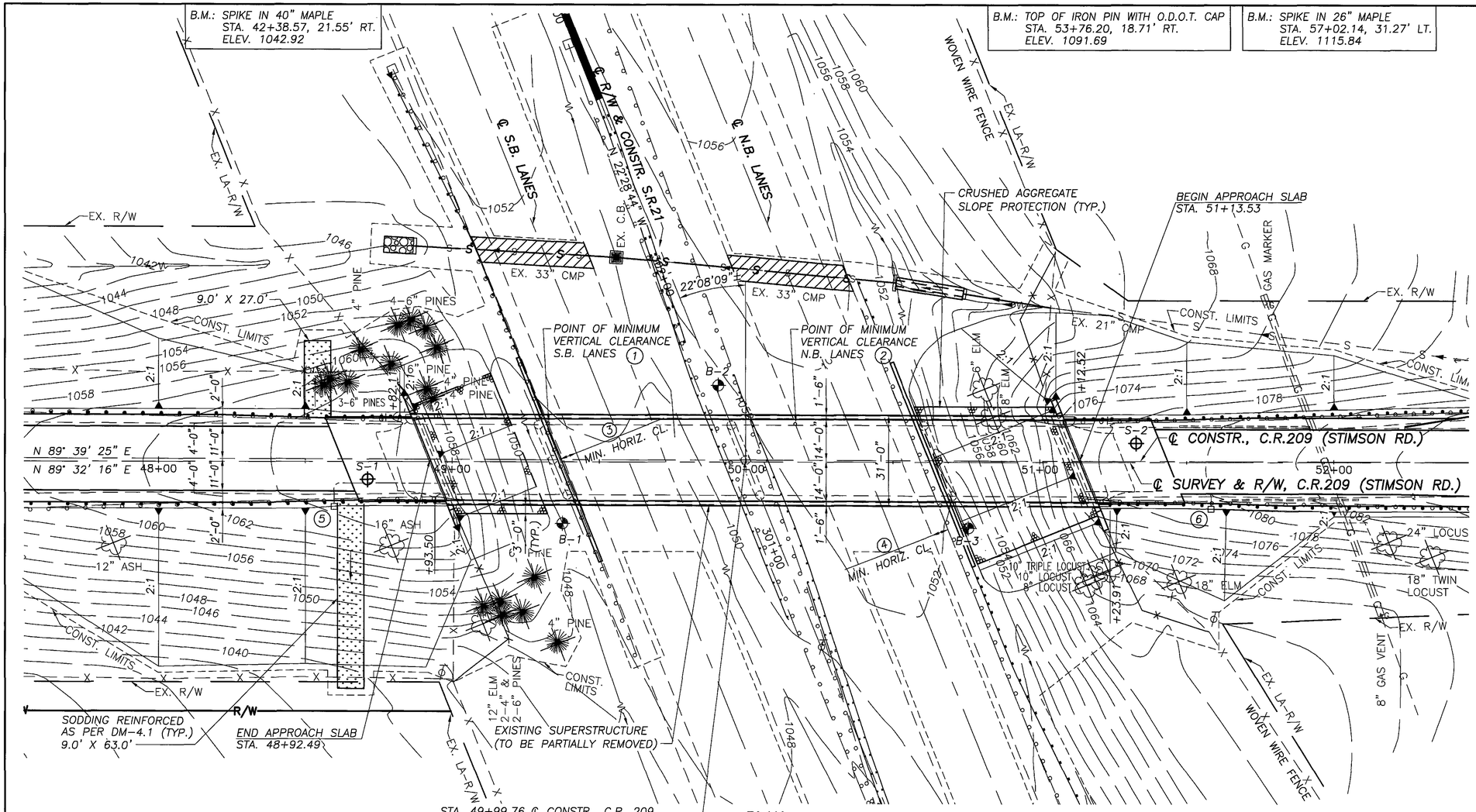
CALCULATED KAA

CHECKED TLS

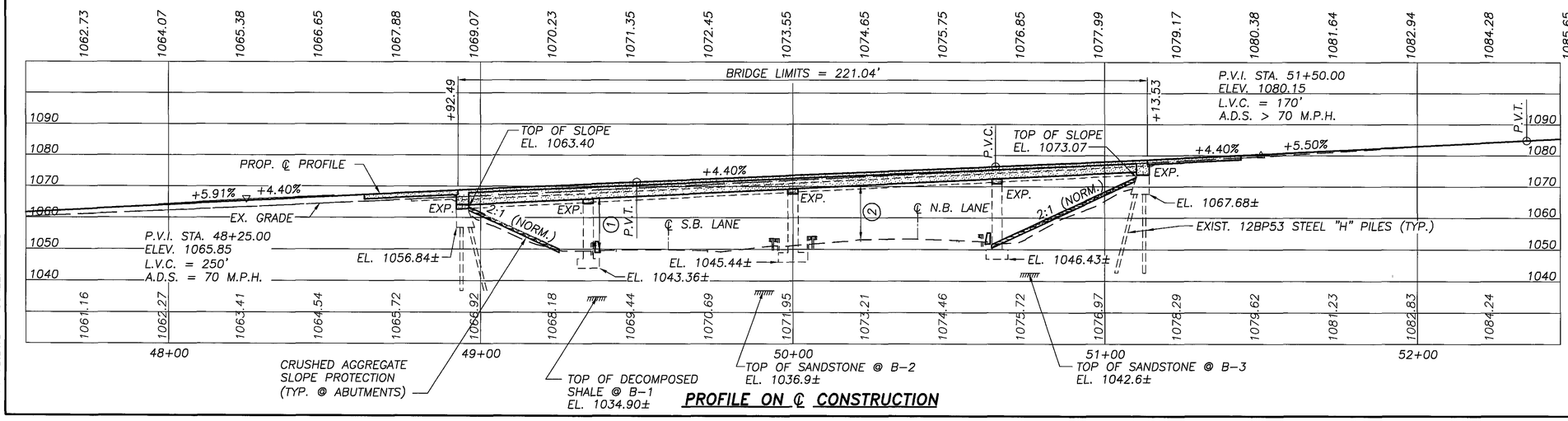
B.M.: SPIKE IN 40" MAPLE
STA. 42+38.57, 21.55' RT.
ELEV. 1042.92

B.M.: TOP OF IRON PIN WITH O.D.O.T. CAP
STA. 53+76.20, 18.71' RT.
ELEV. 1091.69

B.M.: SPIKE IN 26" MAPLE
STA. 57+02.14, 31.27' LT.
ELEV. 1115.84



PLAN



PROFILE ON ℄ CONSTRUCTION

SCALE: 1:20

EM1481S.DWG

UTILITIES: TELEPHONE AND GAS LINES ARE TO BE RELOCATED BY OWNERS AS REQUIRED.

SURVEY DATUM: NAVD(88)

(1) MINIMUM VERTICAL CLEARANCE:
16'-10 5/8" – PROVIDED
16'-6" – REQUIRED
14'-11 3/8" – EXISTING

(2) MINIMUM VERTICAL CLEARANCE:
16'-11 7/8" – PROVIDED
16'-6" – REQUIRED
15'-6 5/8" – EXISTING

(3) MINIMUM HORIZONTAL CLEARANCE:
9'-0 5/8" – PROVIDED
10'-0" – REQUIRED
9'-3 5/8" – EXISTING

(4) MINIMUM HORIZONTAL CLEARANCE:
9'-0 5/8" – PROVIDED
10'-0" – REQUIRED
5'-11 1/8" – EXISTING

LOCATIONS OF PULL BOX, 725.09, 24"
(5) STA. 48+59.77 ℄ CONSTR. C.R.209, 16.24' RT.
(6) STA. 51+58.25 ℄ CONSTR. C.R.209, 16.26' RT.

SCUPPERS, DOWNSPOUTS AND DRAIN PIPES LOCATED AT REAR ABUTMENT, REAR SPAN, FORWARD SPAN AND FORWARD ABUTMENT ARE TO BE REMOVED AND INCLUDED WITH ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN, FOR PAYMENT.

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

AVERAGE DAILY TRAFFIC: 720 (2004)
930 (2024)
AVERAGE DAILY TRUCK TRAFFIC: 28 (2024)

FOUNDATION INVESTIGATION LEGEND:
⊕ – INDICATES BORING LOCATION
B-1 @ STA. 49+37.45, 21.0' RT.
B-2 @ STA. 49+90.53, 26.2' LT.
B-3 @ STA. 50+75.70, 22.5' RT.

⊕ – INDICATES SOIL PROFILE LOCATION
S-1 @ STA. 48+71.23, 6.1' RT.
S-2 @ STA. 51+32.79, 6.5' LT.

EXISTING STRUCTURE

TYPE: CONTINUOUS NONCOMPOSITE STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS: 39'-3"±, 65'-6"±, 65'-6"±, 45'-9"± (C/C BRGS.)
ROADWAY: 24'-0"± F/F 2'-0" SAFETY CURBS
LOADING: CF-30(55)
SKEW: 22°-08'-09"± R.F.
WEARING SURFACE: BITUMINOUS OVER SDC OVERLAY
APPROACH SLABS: AS-1-47 (15'-0"± LONG)
ALIGNMENT: TANGENT
DATE BUILT: 1957
STRUCTURE FILE NO. 7701470

PROPOSED STRUCTURE

TYPE: NEW COMPOSITE REINFORCED CONCRETE DECK ON EXISTING CAP AND COLUMN PIERS AND SEMI-INTEGRAL ABUTMENTS
SPANS: 39'-3"±, 65'-6"±, 65'-6"±, 45'-9"± (C/C BRGS.)
ROADWAY: 28'-0" TOE/TOE CONCRETE PARAPETS
LOADING: HS25, CASE II AND THE ALTERNATE MILITARY LOADING.
FUTURE WEARING SURFACE (FWS) OF 60 PSF
SKEW: 22°-08'-09" R.F.
WEARING SURFACE: MONOLITHIC CONCRETE
APPROACH SLABS: AS-1-81 (30'-0" LONG)
ALIGNMENT: TANGENT
CROWN: 0.016
LATITUDE: N 41°-04'-13"
LONGITUDE: W 81°-39'-51"

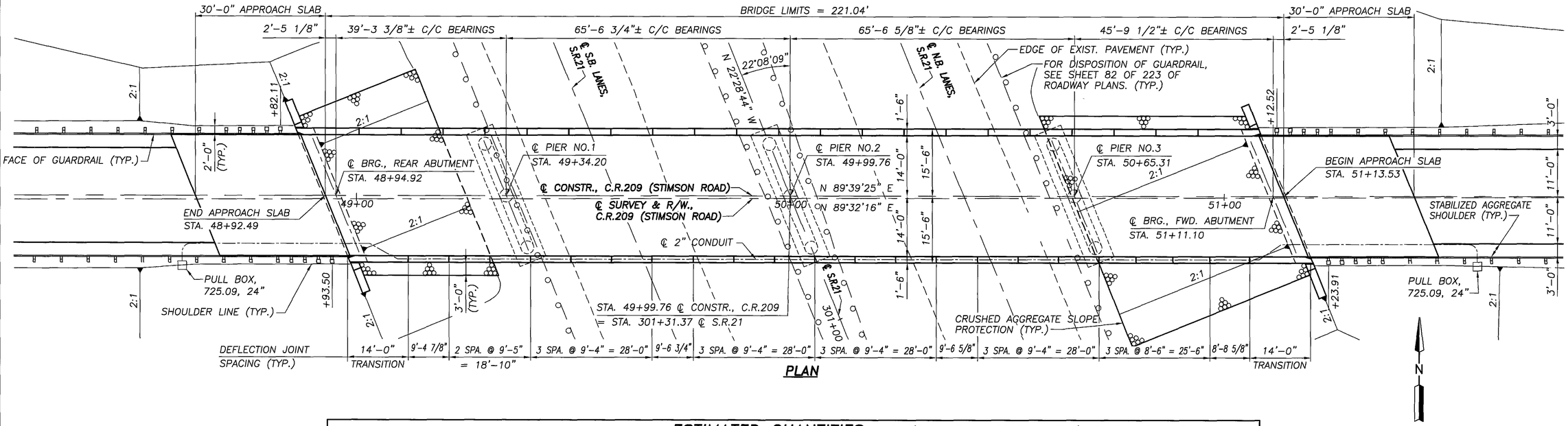
SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756-7302
CONSULTING ENGINEERS – SURVEYORS

DESIGNED JSK
DRAWN KAA
REVIEWED TLS
DATE 11-02
CHECKED KAA
REVISED
STRUCTURE FILE NUMBER 7701470

SUMMIT COUNTY
STA. 48+92.49
STA. 51+13.53

SITE PLAN
BRIDGE NO. SUM-21-0569
C.R.209 (STIMSON ROAD) OVER S.R.21

SUM-21-(5.69)(7.58)(7.78)



PLAN

ESTIMATED QUANTITIES

CALC'D BY: JSK 6-25-04 CHK'D BY: RAK 7-14-04

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUTS.	PIERS	GEN'L	AS PER PLAN SHEET NO.
202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LUMP	3/16
202	22900	77	SQ YD	APPROACH SLAB REMOVED		77			
503	11100	LUMP		COFFERDAMS, CRIBS AND SHEETING				LUMP	
503	21301	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN				LUMP	3/16
509	10000	76,405	POUND	EPOXY COATED REINFORCING STEEL	66,653	1375	8377		
509	20001	1000	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN				1000	3/16
510	10000	238	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT		124	114		
511	43200	84	CU YD	CLASS C CONCRETE, PIER			84		
511	43500	24	CU YD	CLASS C CONCRETE, ABUTMENT INCLUDING FOOTING		24			
511	50001	208	CU YD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN	208				16/16
511	50101	69	CU YD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN	69				16/16
511	52000	LUMP		CLASS HP CONCRETE TEST SLAB	LUMP				
513	10201	297	POUND	STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN	297				3/16
513	20000	2192	EACH	WELDED STUD SHEAR CONNECTORS	2192				
514	00050	8194	SQ FT	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL*	8194				
514	00056	8194	SQ FT	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT*	8194				
514	00060	8194	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT*	8194				
514	00067	8194	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT, AS PER PLAN*	8194				16/16
514	00504	15	MAN HOUR	GRINDING FINS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL*	15				
514	10000	6	EACH	FINAL INSPECTION REPAIR*	6				
516	14021	84	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN		84			7/16
516	44001	8	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN, 1 3/4" x 11 1/2" x 1'-6" WITH 1 7/8" x 1'-0 1/2" x 1'-7" LOAD PLATE			8		14/16
516	44001	4	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN, 1 3/4" x 11 1/2" x 1'-6" WITH 2" x 1'-0 1/2" x 1'-7" LOAD PLATE			4		14/16
516	44101	8	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN, 2 3/4" x 9" x 1'-2" WITH 1 1/2" x 10" x 1'-3" LOAD PLATE		8			14/16
516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN	LUMP				3/16
518	21201	67	CU YD	POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN		67			7/16
518	40000	95	FT	6" PERFORATED CORRUGATED PLASTIC PIPE		95			
518	40010	68	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS		68			
519	11101	23	SQ FT	PATCHING CONCRETE STRUCTURE, AS PER PLAN		20	3		3/16
526	30000	93	SQ YD	REINFORCED CONCRETE APPROACH SLABS (T=17")	93				
601	20000	438	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION				438	
603	00400	40	FT	4" CONDUIT, TYPE E				40	
625	25400	327	FT	CONDUIT, 2", 725.04	327				
625	30600	2	EACH	PULL BOX, 725.09, 24"				2	
864	10100	877	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	540	19	318		

* SEE PROPOSAL NOTE

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. (419) 756-3598
MANSFIELD, OHIO 44907 (419) 756-7302
CONSULTING ENGINEERS - SURVEYORS

DESIGNED JSK | DRAWN JSK | REVIEWED TLS | DATE 6-04
CHECKED RAK | REVISED | STRUCTURE FILE NUMBER 7701470

GENERAL PLAN & ESTIMATED QUANTITIES
BRIDGE NO. SUM-21-0569
C.R.209 (STIMSON ROAD) OVER S.R.21

SUM-21-(5.69)(7.58)(7.78)

2 / 16

156 / 223

EM1481GP.DWG SCALE: 1:144

GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:
AS-1-81, REVISED 7-19-02
GSD-1-96, REVISED 7-19-02
HL-30.11, DATED 4-19-02
HL-30.32, DATED 4-19-02
SICD-1-96, REVISED 7-19-02

AND TO SUPPLEMENTAL SPECIFICATIONS:
864, DATED 7-11-00

DESIGN SPECIFICATIONS:
THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002, AND THE O.D.O.T. BRIDGE DESIGN MANUAL.

DESIGN LOADING:
HS25, CASE II AND THE ALTERNATE MILITARY LOADING.
FUTURE WEARING SURFACE (FWS) OF 60 psf.

DESIGN DATA:
CONCRETE CLASS HP - COMPRESSIVE STRENGTH 4500 psi (SUPERSTRUCTURE)
CONCRETE CLASS C - COMPRESSIVE STRENGTH 4000 psi (SUBSTRUCTURE)
STRUCTURAL STEEL -
A.S.T.M. A373 - YIELD STRENGTH 33,000 psi. (EXISTING BEAMS AND CROSS FRAMES)
A.S.T.M. A572/A709 GRADE 50 - YIELD STRENGTH 50,000 psi. (REPLACEMENT CROSS FRAMES)
REINFORCING STEEL -
A.S.T.M. A615 OR A996, GRADE 60 - MINIMUM YIELD STRENGTH 60,000 psi
MINIMUM CONCRETE COVER - 2 INCHES UNLESS OTHERWISE NOTED.

DECK PROTECTION METHOD:
EPOXY COATED REINFORCING STEEL, 2 1/2" CONCRETE COVER, AND SEALING OF CONCRETE SURFACES.

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN:
UNCLASSIFIED EXCAVATION SHALL BE IN ACCORDANCE WITH 503 EXCEPT THAT THE BACK-FILL MATERIAL BEHIND THE ABUTMENTS SHALL BE 203 MATERIAL PLACED IN 6" LIFTS AND COMPACTED IN ACCORDANCE WITH 304.05.

PROPOSED WORK:
DEMOLITION - REMOVAL OF CONCRETE DECK, SAFETY CURBS, CONCRETE PARAPETS, ABUTMENT BACKWALLS AND WINGWALLS, ABUTMENT AND PIER BEARINGS, SOME CROSS FRAMES, APPROACH SLABS, GUARDRAILS AND SPALLED PORTIONS OF ABUTMENT BREASTWALLS AND PIER CAPS AND COLUMNS.

CONSTRUCTION - EXTEND CONCRETE PIER FOOTINGS. CONSTRUCT 6" REINFORCED CONCRETE COLLARS AROUND EACH COLUMN AT PIER NOS. 1 AND 2. JACK AND SUPPORT SUPERSTRUCTURE TO PROVIDE 16'-6" MINIMUM VERTICAL CLEARANCE. CONSTRUCT NEW ABUTMENT AND PIER BRIDGE SEATS. INSTALL NEW ELASTOMERIC BEARINGS AT ABUTMENTS AND PIERS. REMOVE EXISTING PAINT AND RUST OFF EXISTING BEAMS AND CROSS FRAMES. REMOVE AND REPLACE HEAVILY RUSTED OR DAMAGED CROSS FRAMES. INSTALL WELDED STUD SHEAR CONNECTORS ON ALL BEAMS. CONSTRUCT CONCRETE END DIAPHRAGMS (AT ABUTMENTS), COMPOSITE DECK AND BRIDGE PARAPETS. PAINT EXISTING STEEL BEAMS AND CROSS FRAMES AND LOAD PLATES AT BEARINGS. CONSTRUCT NEW CONCRETE APPROACH SLABS.

TRAFFIC - TO BE DETOURED DURING CONSTRUCTION. FOR MAINTENANCE OF TRAFFIC DETAILS, SEE SHEETS 9 THROUGH 13 OF 223 IN ROADWAY PLANS.

WORK SEQUENCE:
- CLOSE ROADWAY AND DETOUR TRAFFIC.
- REMOVE EXISTING CONCRETE DECK, SAFETY CURBS, CONCRETE PARAPET, EXPANSION JOINTS, STEEL END CROSS FRAMES, APPROACH SLABS AND PORTIONS OF ABUTMENTS.
- JACK AND SUPPORT EXISTING STEEL SUPERSTRUCTURE.
- EXTEND CONCRETE PIER FOOTINGS.
- CONSTRUCT 6" CONCRETE COLLARS FOR EXISTING COLUMNS AT PIER NOS. 1 AND 2.
- CONSTRUCT NEW ABUTMENT AND PIER BRIDGE SEATS.
- INSTALL NEW ELASTOMERIC BEARINGS AT ABUTMENTS AND PIERS.
- CLEAN PAINT AND RUST OFF EXISTING BEAMS.
- INSTALL STUD SHEAR CONNECTORS ON ALL BEAMS.
- CONSTRUCT CONCRETE END DIAPHRAGMS AT ABUTMENTS.
- CONSTRUCT NEW CONCRETE DECK AND PARAPETS.
- CONSTRUCT ABUTMENT WINGWALLS AND APPROACH SLABS.
- INSTALL NEW GUARDRAILS AND OPEN REHABILITATED STRUCTURE TO TRAFFIC.

ITEM 603, 4" CONDUIT, TYPE E:
AN ALLOWANCE OF 20 FEET OF 4" CONDUIT, TYPE E, HAS BEEN PROVIDED TO DRAIN EACH PULL BOX AS DIRECTED BY THE ENGINEER.

STRUCTURE EXCAVATION LIMITS FOR THE PROPOSED STRUCTURE SHALL BE AS DEFINED IN 503.11 EXCEPT THAT THERE SHALL BE NO DEDUCTION FOR REMOVALS MADE AS PART OF 202. EXCAVATION OUTSIDE THESE LIMITS NECESSARY TO REMOVE PORTIONS OF THE EXISTING STRUCTURE IS INCLUDED IN 202 FOR PAYMENT.

ITEM 864, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE):
THE CONCRETE SEALING MATERIAL SHALL BE THE "LIGHT NEUTRAL" COLOR MEETING FEDERAL COLOR STANDARD NO. 17778 AS PER THE DETAILS IN THE PLANS. FOR ADDITIONAL NOTES, SEE SUPPLEMENTAL SPECIFICATION 864.

ITEM 519, PATCHING CONCRETE STRUCTURES, AS PER PLAN: PRIOR TO THE SURFACE CLEANING SPECIFIED IN 519.04 AND WITHIN 24 HOURS OF PLACING PATCHING MATERIAL, BLAST CLEAN ALL SURFACES TO BE PATCHED INCLUDING EXPOSED REINFORCING STEEL. ACCEPTABLE METHODS INCLUDE HIGH-PRESSURE WATER BLASTING WITH OR WITHOUT ABRASIVES IN THE WATER, ABRASIVE BLASTING WITH CONTAINMENT, OR VACUUM ABRASIVE BLASTING.

ESTIMATED QUANTITY HAS BEEN INCREASED BY 50% OVER FIELD-MARKED QUANTITY TO ALLOW FOR ADDITIONAL DETERIORATION.

LOCATION	FIELD MARKED PATCH AREA	DATE INSPECTED
REAR ABUTMENT	2 SQ. FT.	JULY 16, 2001
PIER NO.1	1 SQ. FT.	JULY 16, 2001
FORWARD ABUTMENT	11 SQ. FT.	JULY 16, 2001

ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN:
DESCRIPTION: THIS WORK SHALL CONSIST OF THE REMOVAL OF CONCRETE DECKS INCLUDING SAFETY CURBS, PARAPETS, DECK JOINTS AND OTHER APPURTENANCES FROM STEEL SUPPORTING SYSTEMS (BEAMS, CROSS FRAMES, ETC.) AND PORTIONS OF EXISTING SUBSTRUCTURES. THE PROVISIONS OF ITEM 202 APPLY EXCEPT AS SPECIFIED BY THE FOLLOWING NOTES. PERFORM WORK CAREFULLY DURING DECK REMOVALS TO PROTECT PORTIONS OF SUCH SYSTEMS THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. IN THIS RESPECT, THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED.

PROTECTION OF TRAFFIC: PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING STRUCTURE, THE CONTRACTOR SHALL SUBMIT PLANS FOR THE PROTECTION OF VEHICULAR TRAFFIC UNDER THE STRUCTURE TO THE DIRECTOR AT LEAST 30 DAYS BEFORE CONSTRUCTION BEGINS. THESE PLANS SHALL INCLUDE PROVISIONS FOR ANY DEVICES AND STRUCTURES THAT MAY BE NECESSARY TO ENSURE SUCH PROTECTION. MAINTAIN TEMPORARY VERTICAL CLEARANCES SPECIFIED ON THE PLANS OR IN THE PROPOSAL AT ALL TIMES EXCEPT AS OTHERWISE APPROVED BY THE DIRECTOR.

PROTECTION OF STEEL SUPPORT SYSTEMS: BEFORE DECK SLAB CUTTING IS PERMITTED, DRAW THE OUTLINE OF PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK ON THE SURFACE OF THE DECK. DRILL SMALL DIAMETER PILOT HOLES 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2 INCHES OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. PERFORM WORK CAREFULLY DURING CUTTING OF THE DECK SLAB TO AVOID DAMAGING STEEL MEMBERS THAT ARE TO BE INCORPORATED INTO THE PROPOSED STRUCTURE.

REMOVAL METHODS: THE CONTRACTOR MAY REMOVE CONCRETE BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS. FOR REMOVALS OVER STEEL BEAM BRIDGE MEMBERS, THE CONTRACTOR MAY USE A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS UNLESS APPROVED BY THE ENGINEER. REMOVAL METHODS OVER BRIDGE MEMBERS SHALL ENSURE ADEQUATE DEPTH CONTROL AND PREVENT NICKING OR GOUGING THE PRIMARY STEEL MEMBERS.

DECK REMOVALS: DUE TO THE POSSIBLE PRESENCE OF WELDED ATTACHMENTS TO EXISTING STRUCTURAL STEEL (FINISHING MACHINE, SCUPPER AND FORM SUPPORTS, ETC.), PERFORM WORK CAREFULLY DURING DECK REMOVAL TO AVOID DAMAGING STRINGERS WHICH ARE TO REMAIN. REPLACE OR REPAIR STRINGERS DAMAGED BY THE REMOVAL OPERATIONS AT NO COST TO THE PROJECT. SUBMIT PROPOSED REPAIRS, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER, IN WRITING TO THE DIRECTOR AT LEAST 20 DAYS BEFORE PERFORMING REPAIR WORK.

EXTRANEOUS MEMBERS: REMOVE EXISTING EXTRANEOUS MEMBERS (I.E. FINISHING MACHINE AND FORM SUPPORTS, ETC., AND THE SUPPORT FOR SCUPPERS AND BULB ANGLES WHICH ARE TO BE REMOVED) ATTACHED BY WELDED CONNECTION TO THE DESIGNATED TENSION PORTIONS OF THE TOP FLANGES OF EXISTING STEEL MEMBERS AND GRIND THE FLANGE SURFACES SMOOTH. CAREFULLY GRIND PARALLEL TO THE FLANGES.

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT, ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

SUBSTRUCTURE CONCRETE REMOVAL: REMOVE CONCRETE BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. HYDRAULIC HOE-RAM TYPE HAMMERS WILL NOT BE PERMITTED. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAT 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

REMOVE SPALLED OR CRACKED CONCRETE FROM THE PIER COLUMNS BEFORE PLACEMENT OF 6" THICK CONCRETE PIER COLLARS IN THE LOCATIONS AND QUANTITIES GIVEN BELOW:

LOCATION	FIELD MARKED REMOVAL AREA	DATE INSPECTED
PIER NO.1	40 SQ. FT.	JULY 16, 2001
PIER NO.2	6 SQ. FT.	JULY 16, 2001

LOADING LIMITATIONS: NO PART OF THE STRUCTURE SHALL BE SUBJECTED TO UNIT STRESSES THAT EXCEED 136.5% OF ALLOWABLE UNIT STRESSES AS DEFINED IN THE A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DUE EITHER TO DEMOLITION, ERECTION OR CONSTRUCTION METHODS, OR TO THE USE OR MOVEMENT OF DEMOLITION OR ERECTION EQUIPMENT ON OR ACROSS THE STRUCTURE. SUBMIT STRUCTURAL ANALYSIS COMPUTATIONS, BY AN OHIO REGISTERED PROFESSIONAL ENGINEER, SHOWING THE ALLOWABLE STRESSES AND THE MAXIMUM STRESSES PRODUCED BY THE REMOVAL METHODS OR EQUIPMENT TO THE DIRECTOR AT LEAST 20 DAYS BEFORE CONSTRUCTION BEGINS.

EXISTING END CROSS FRAME REMOVAL: THE EXISTING END CROSS FRAMES SHALL BE REMOVED AND WEB SURFACES GROUND SMOOTH. GRINDING SHALL BE CAREFULLY DONE IN THE HORIZONTAL DIRECTION.

MEASUREMENT AND PAYMENT: THE DEPARTMENT WILL MEASURE THE QUANTITY OF REMOVALS ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES OF REMOVALS AT THE CONTRACT PRICE FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.

INSPECTION OF EXISTING STRUCTURAL STEEL: THE ENGINEER WILL VISUALLY INSPECT ALL EXISTING BUTT-WELDED SPLICES AND/OR TOP FLANGE COVER PLATE FILLET WELDS TO ENSURE THE WELDS, PLATES AND BEAMS ARE FREE OF DEFECTS AND CRACKS. IF NECESSARY, REMOVE ALL DECK SLAB HAUNCH FORMS IMMEDIATELY ADJACENT TO SUCH WELDS THAT MAY INTERFERE WITH THE ENGINEER'S INSPECTION. THE INSPECTION WILL NOT TAKE PLACE UNTIL THE TOP FLANGES ARE CLEANED ACCORDING TO 511.10, BUT IT WILL BE DONE BEFORE THE DECK SLAB REINFORCEMENT IS INSTALLED. THE DEPARTMENT WILL PAY FOR THE COST ASSOCIATED WITH THIS INSPECTION WITH ITEM 511, CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN. THE ENGINEER WILL REPORT ALL CRACKS FOUND TO THE OFFICE OF CONSTRUCTION ADMINISTRATION, BRIDGE CONSTRUCTION SPECIALIST, ALONG WITH SPECIFIC INFORMATION ON LOCATION OF THE CRACKS, LENGTH AND DEPTH SO AN EVALUATION AND REPAIR OR REPLACEMENT RECOMMENDATION CAN BE MADE.

REMOVAL OF EXISTING STRUCTURE:
WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC, REMOVE PORTIONS OF THE EXISTING STRUCTURE AS PREVIOUSLY DESCRIBED.

EXISTING STRUCTURE VERIFICATION:
DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK, BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO C.M.S. SECTIONS 102.05, 105.02 AND 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PRE-BID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED IN THE FIELD.

ITEM 509, REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN:
REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION. THE DEPARTMENT WILL PAY UP TO AN ALLOWANCE OF 1000 POUNDS AT THE CONTRACT PRICE FOR REPLACEMENT REINFORCING STEEL SPECIFIED BY THE ENGINEER DUE TO CORROSION AND INCLUDE PLACEMENT, DOWELING, BENDING, SUPPORTING, TIE WIRES AND TYING OF THAT SPECIFIED REINFORCING STEEL.

REPLACE ALL EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT.

ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN:
THIS WORK CONSISTS OF RAISING OR REPOSITIONING THE EXISTING STRUCTURE TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS.

SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH CMS 501.05.

IF, DURING THE JACKING OPERATIONS, DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, IMMEDIATELY CEASE THE JACKING OPERATION AND INSTALL SUPPORTS TO THE SATISFACTION OF THE ENGINEER. ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. THE BRIDGE BEARINGS SHALL BE FULLY SEATED AT ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUBMIT A REPAIR PLAN TO THE ENGINEER. THE DEPARTMENT WILL NOT PAY FOR THE REPAIR COSTS TO ENSURE FULL SEATING ON BEARINGS.

THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN:
ALL REQUIREMENTS OF 513 APPLY TO SHOP FABRICATED MEMBERS. PERFORM WORK FOR FIELD-FABRICATED MEMBERS ACCORDING TO ITEM 513, EXCEPT AS MODIFIED HEREIN. THE DEPARTMENT WILL NOT REQUIRE THE CONTRACTOR PERFORMING FIELD FABRICATION TO BE PREQUALIFIED AS SPECIFIED IN SUPPLEMENT 1078. SUBMIT A WRITTEN LETTER OF MATERIAL ACCEPTANCE, 501.06, TO THE ENGINEER. PROVIDE SHOP DRAWINGS ACCORDING TO 513.04 OR SUPPLY THE ENGINEER WITH "AS-BUILT" DRAWINGS MEETING 513.04 AFTER COMPLETION OF FIELD FABRICATION. THE ENGINEER WILL REVIEW THE SUBMITTED DRAWINGS FOR CONCURRENCE WITH THE FINAL AS-BUILT CONDITION. IF NECESSARY, THE ENGINEER MAY CONTACT THE OFFICE OF STRUCTURAL ENGINEERING FOR TECHNICAL ASSISTANCE. IF THE ENGINEER IS SATISFIED WITH THE "AS-BUILT" DRAWINGS AND THE DELIVERED MATERIALS, SUPPLY A COPY OF THE DRAWINGS, STAMPED AND DATED, ALONG WITH MICROFILM, TO THE STRUCTURAL, WELDING AND METALS SECTION OF THE OFFICE OF MATERIAL MANAGEMENT FOR RECORD PURPOSES.

ONLY THE CROSS FRAME MEMBERS INDICATED ON SHEET 12 OF 16 OF THESE PLANS ARE INCLUDED WITH THIS ITEM.

ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN:
INSTALL A 3 FOOT WIDE NEOPRENE SHEET AT LOCATIONS SHOWN IN THE PLANS. SECURE THE NEOPRENE SHEETING TO THE CONCRETE WITH 1 1/4" x #10 GAUGE (LENGTH x SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 1 INCH OUTSIDE DIAMETER, #10 GAUGE GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 9 INCHES. USE OF OTHER SIMILAR GALVANIZED DEVICES, WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 6 INCHES±, FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS, SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 6 INCHES±, FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF ROADWAY. FOR VERTICAL JOINTS, INSTALL TWO ADDITIONAL FASTENERS AT 6 INCHES, CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHOULD COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED, SHALL BE AT LEAST 1 FOOT IN LENGTH, OR 6 INCHES IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

THE NEOPRENE SHEETING SHALL BE 3/32" THICK GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003," BY E. I. DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY THE GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	A.S.T.M. METHOD	REQUIREMENT
THICKNESS, INCHES	D751	0.094" ± 0.01
BREAKING STRENGTH, GRAB, LBS., MINIMUM (LONG. x TRANS.)	D751	700 X 700
ADHESIVE STRIP, 1" WIDE x 2" LONG, LBS., MINIMUM	D751	9
BURST STRENGTH, PSI, MINIMUM	D751	1400
HEAT AGING, 70 HR, 212°F, 180° BEND WITHOUT CRACKING	D2136	NO CRACKING OF COATING
LOW TEMP. BRITTLENESS, 1 HR, -40°F, BEND AROUND 1/4" MANDREL	D2136	NO CRACKING OF COATING

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE TOTAL LENGTH OF JOINT TO BE SEALED BY THE NUMBER OF FEET.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.

UTILITY LINES: THE UTILITY SHALL BEAR ALL EXPENSE INVOLVED IN RELOCATING THE AFFECTED UTILITY LINES. THE CONTRACTOR AND UTILITY ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

GENERAL NOTES ARE CONTINUED ON SHEET 16 OF 16.

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN STREET P.O. BOX 3598
MANSFIELD, OHIO 44907
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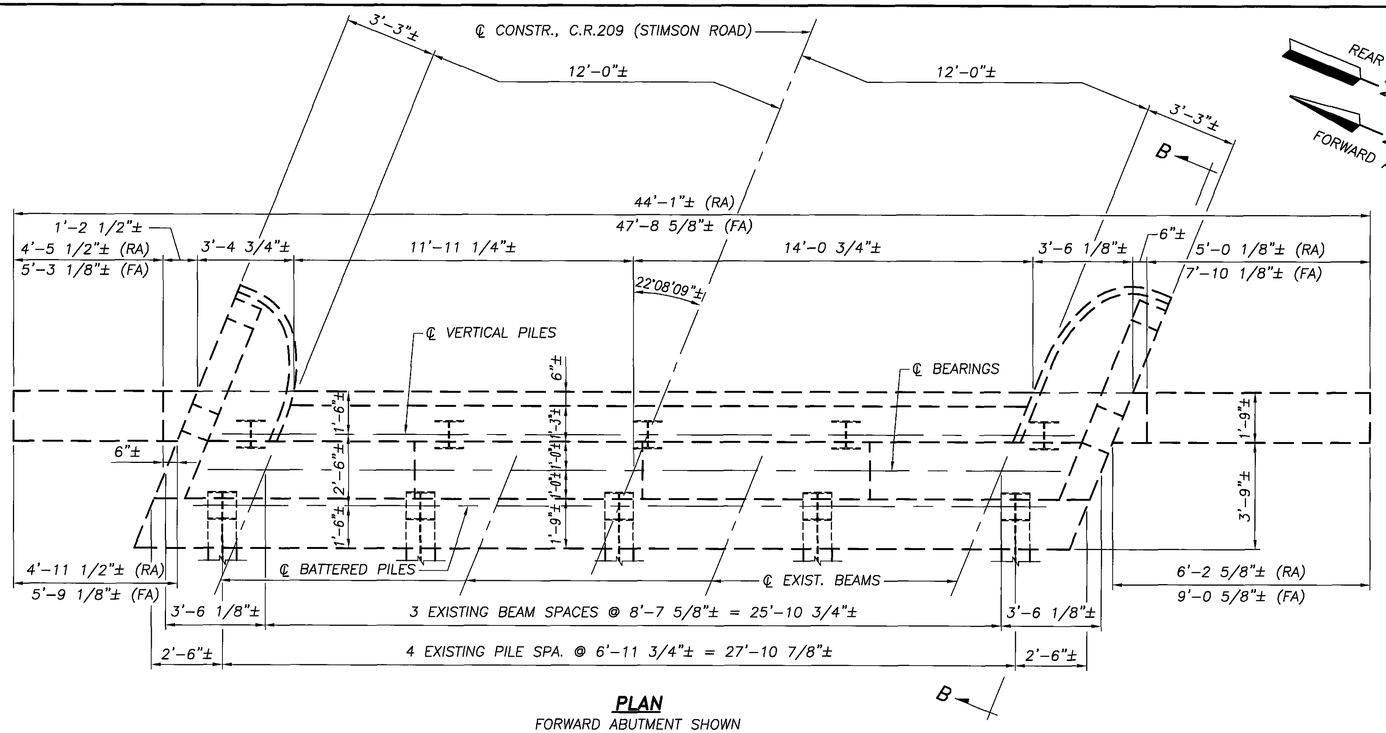
CONSULTING ENGINEERS - SURVEYORS

DESIGNED JSK
DRAWN JSK
CHECKED RAK
REVISED
REVIEWED TLS
DATE 6-04
STRUCTURE FILE NUMBER 7701470

GENERAL NOTES
BRIDGE NO. SUM-21-(5.69)(7.58)(7.78)
C.R.209 (STIMSON ROAD) OVER S.R.21

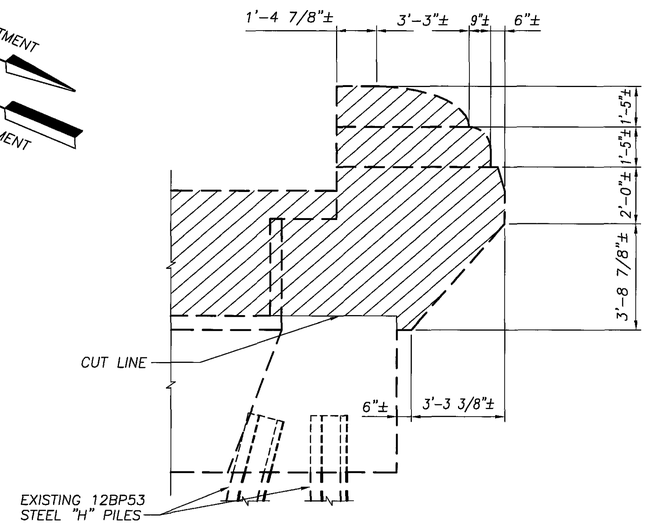
SUM-21-(5.69)(7.58)(7.78)

EM1481GP.DWG SCALE: 1:96



PLAN

FORWARD ABUTMENT SHOWN
REAR ABUTMENT SIMILAR



SECTION B–B

NOTES:

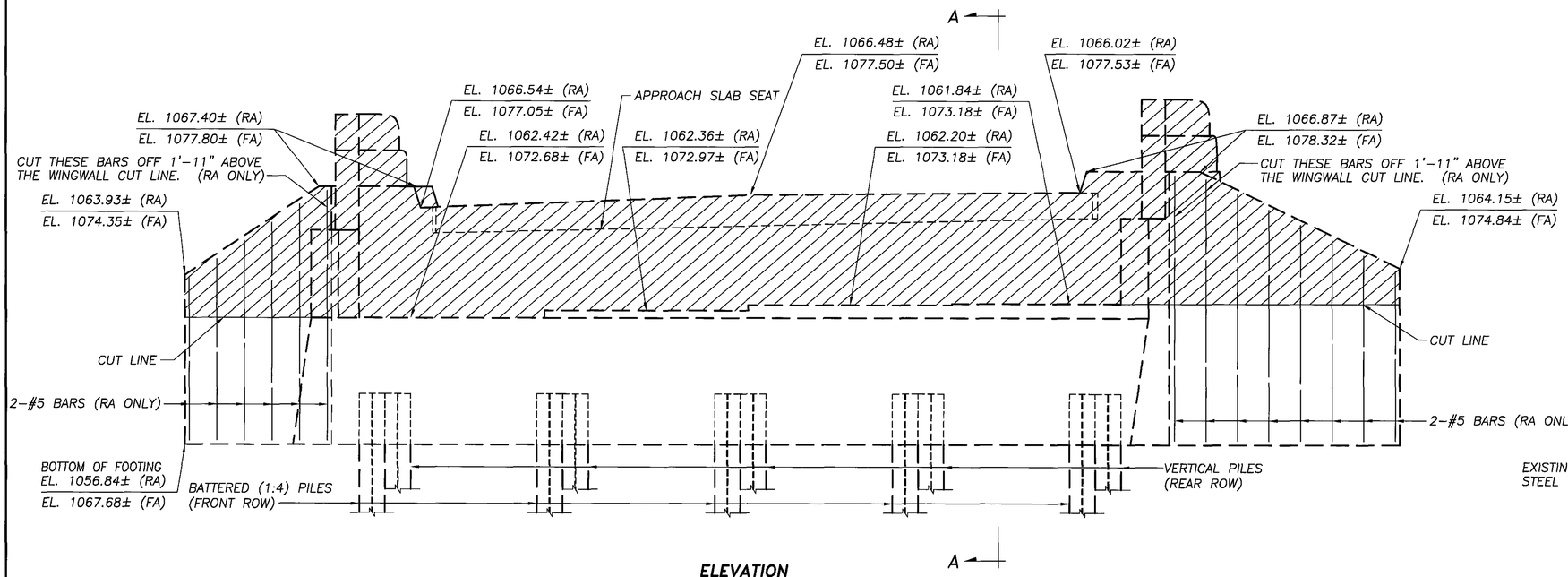
HATCHED AREAS INDICATE CONCRETE WHICH IS TO BE REMOVED, AS PER ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.

ONLY REINFORCING STEEL INDICATED ON THIS SHEET IS TO BE CLEANED, STRAIGHTENED (WHERE NECESSARY) AND LEFT IN PLACE.

FOR ABUTMENT NOTES, SEE SHEET 7 OF 16.

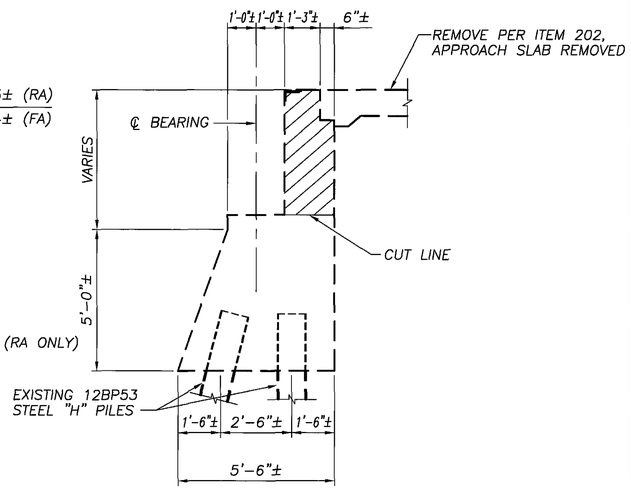
NOTATION:

FA = FORWARD ABUTMENT
RA = REAR ABUTMENT



ELEVATION

LOOKING FORWARD – FORWARD ABUTMENT
LOOKING BACK – REAR ABUTMENT



SECTION A–A

EM1481AB.DWG SCALE: 1:32

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909 S. MAIN ST. P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756-7302
CONSULTING ENGINEERS – SURVEYORS

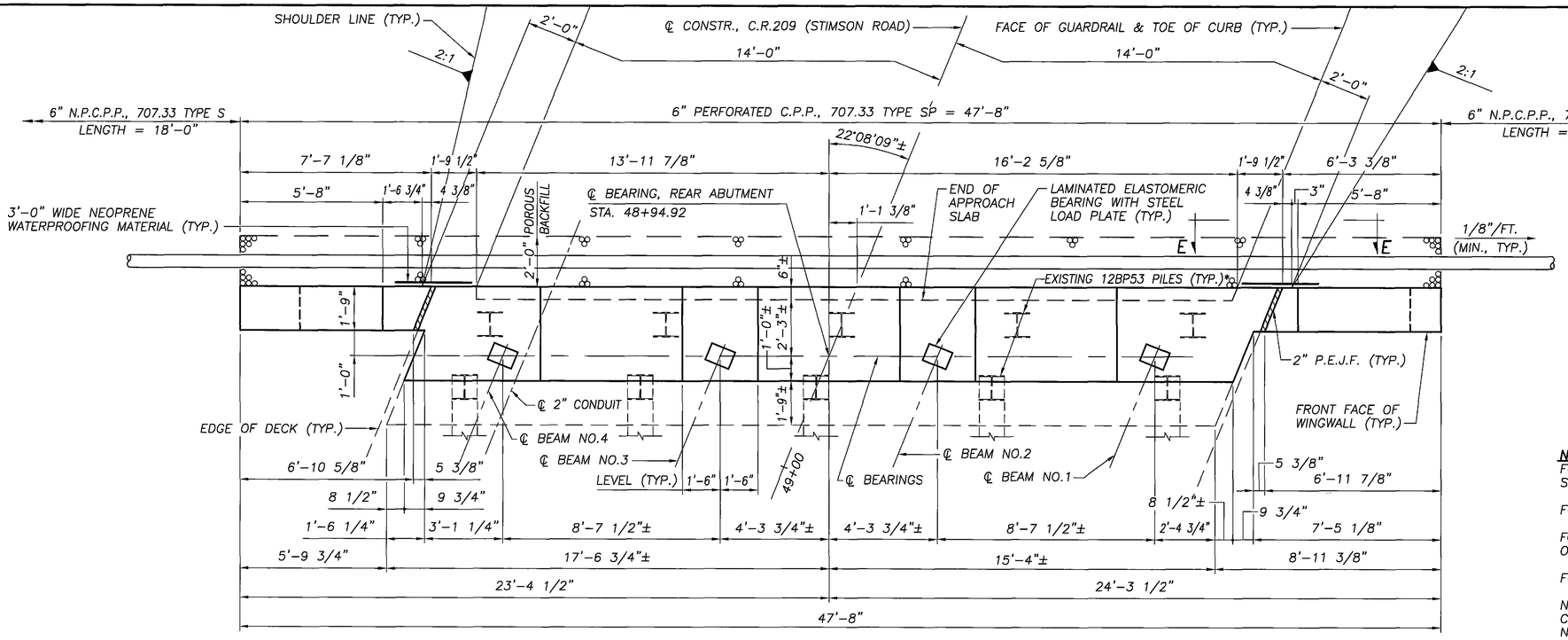
DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	6-04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701470	

ABUTMENT REMOVALS
BRIDGE NO. SUM-21-0569
C.R.209 (STIMSON ROAD) OVER S.R.21

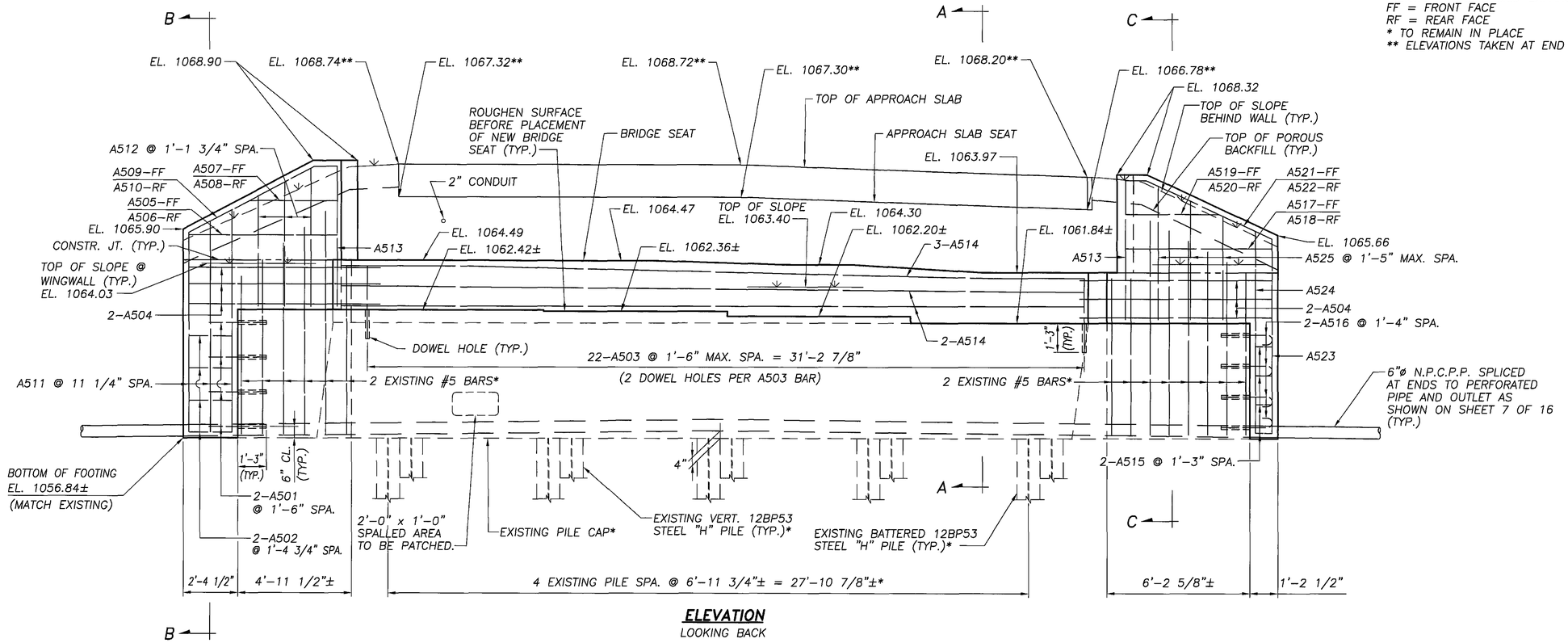
SUM-21-(5.69)(7.58)(7.78)

4 / 16

158
223



PLAN



ELEVATION
LOOKING BACK

NOTES:

FOR ABUTMENT NOTES, SECTIONS AND VIEWS, SEE SHEET 7 OF 16.

FOR ABUTMENT REMOVAL DETAILS, SEE SHEET 4 OF 16.

FOR SUPERSTRUCTURE DETAILS, SEE SHEETS 11 AND 12 OF 16.

FOR BEARING DETAILS, SEE SHEET 14 OF 16.

NOTATION:
C.P.P. = CORRUGATED POLYETHYLENE PIPE
N.P.C.P.P. = NON-PERFORATED CORRUGATED POLYETHYLENE PIPE
P.E.J.F. = PREFORMED EXPANSION JOINT FILLER
FF = FRONT FACE
RF = REAR FACE
** TO REMAIN IN PLACE*
*** ELEVATIONS TAKEN AT END OF APPROACH SLAB*

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DESIGNED	DRAWN	REVIEWED	DATE
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REAR ABUTMENT DETAILS

BRIDGE NO. SUM-21-0569
C.R.209 (STIMSON ROAD) OVER S.R.21

SUM-21-(5.69)(7.58)(7.78)

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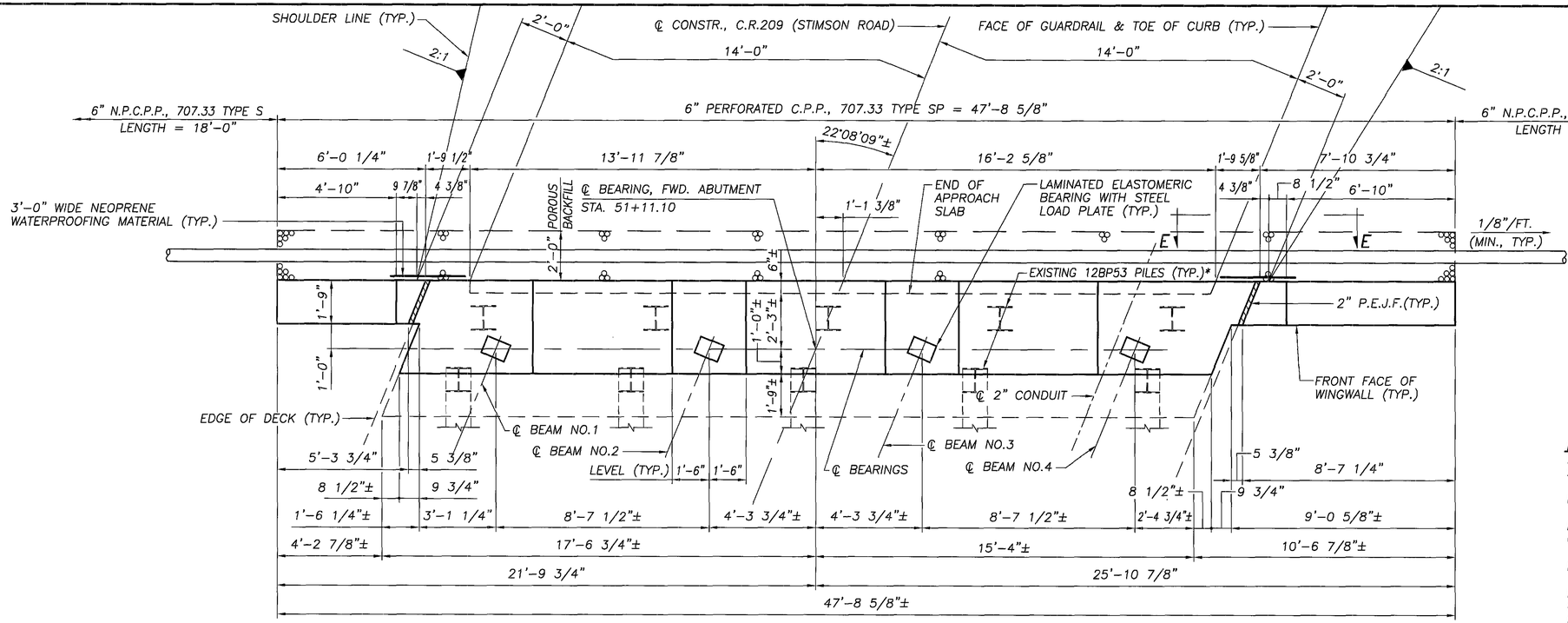
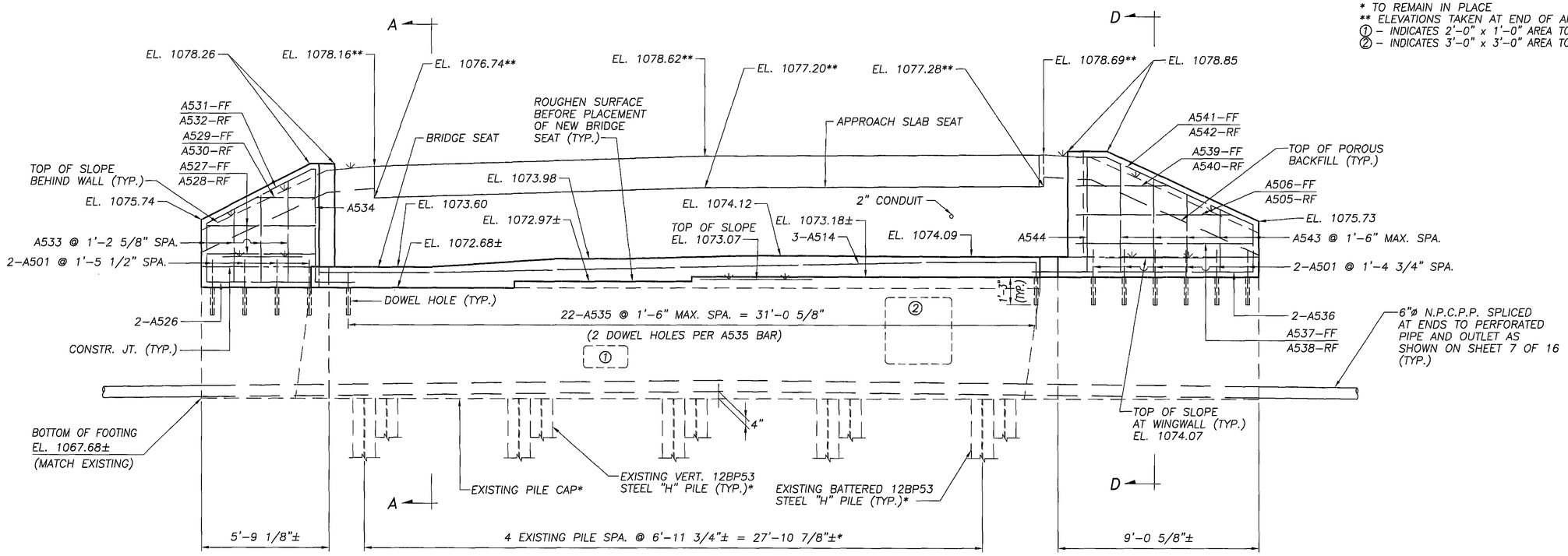


PLAN



ELEVATION
LOOKING FORWARD

NOTES:

FOR ABUTMENT NOTES, SECTIONS AND VIEWS, SEE SHEET 7 OF 16.

FOR ABUTMENT REMOVAL DETAILS, SEE SHEET 4 OF 16.

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FF = FRONT FACE
RF = REAR FACE
** TO REMAIN IN PLACE*
*** ELEVATIONS TAKEN AT END OF APPROACH SLAB*
① – INDICATES 2'–0" x 1'–0" AREA TO BE PATCHED.
② – INDICATES 3'–0" x 3'–0" AREA TO BE PATCHED.

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CONSULTING ENGINEERS – SURVEYORS

DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	6–04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701470	

FORWARD ABUTMENT DETAILS
BRIDGE NO. SUM–21–0569
C.R.209 (STIMSON ROAD) OVER S.R.21

SUM–21–(5.69)(7.58)(7.78)

6 / 16

160 / 223

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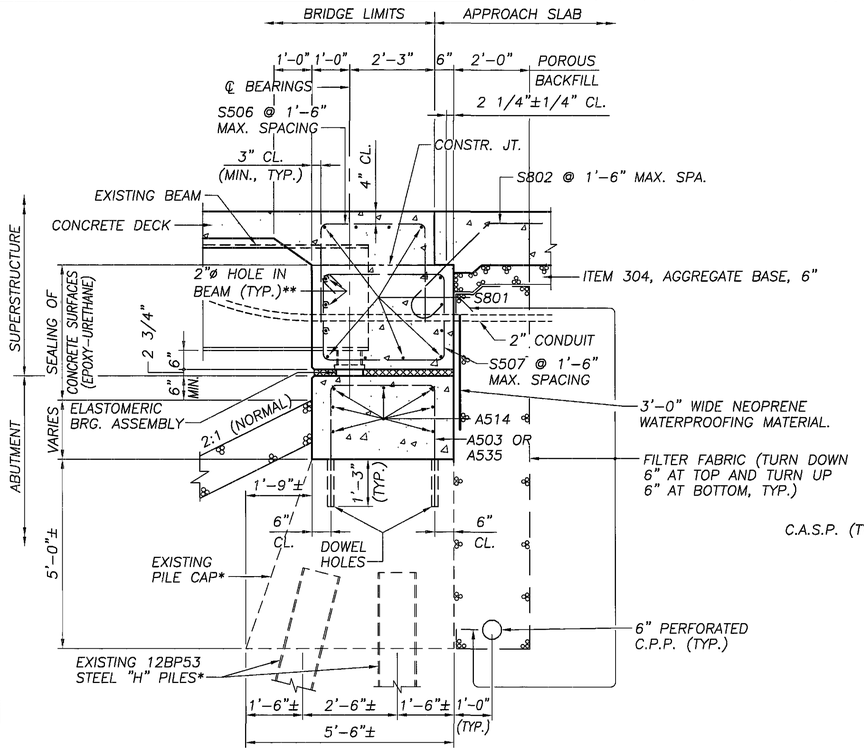
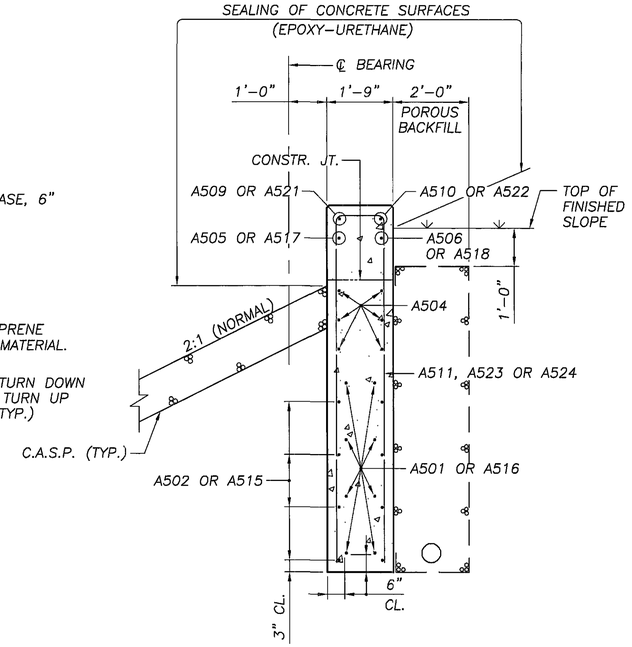


SECTION A–A



SECTION B–B

ABUTMENT NOTES:

POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN, 2 FEET THICK SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO 1 FOOT BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE ENDS OF THE WINGWALLS.

ABUTMENT DIAPHRAGM CONCRETE, STEEL SUPERSTRUCTURE: PLACE THE CONCRETE ENCASING THE STRUCTURAL STEEL MEMBERS WITH THE DECK CONCRETE OR AT LEAST 48 HOURS BEFORE PLACEMENT OF THE DECK CONCRETE.

ABUTMENT CONCRETE ABOVE THE BRIDGE SEAT CONSTRUCTION JOINT SHALL NOT BE PLACED UNTIL THE CONCRETE END DIAPHRAGMS HAVE BEEN CAST.

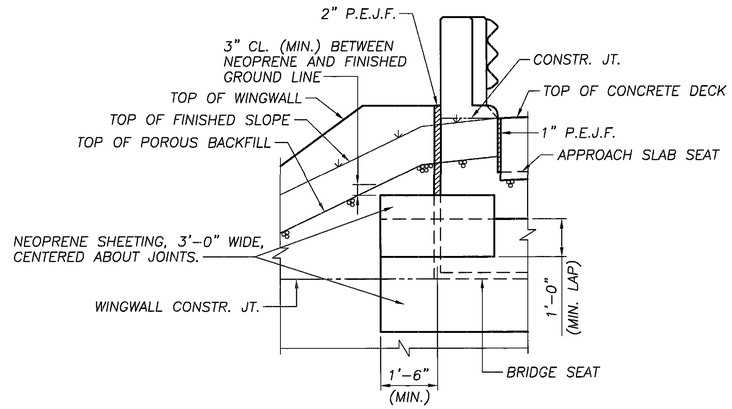
NOTATION:
C.P.P. = CORRUGATED POLYETHYLENE PIPE
C.A.S.P. = CRUSHED AGGREGATE SLOPE PROTECTION
* TO REMAIN IN PLACE
** INCLUDE WITH ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN, FOR PAYMENT.

REINFORCING STEEL: SEE SHEET 16 OF 16. ALL REINFORCING STEEL CLEARANCES AT ABUTMENTS ARE 3" UNLESS NOTED.

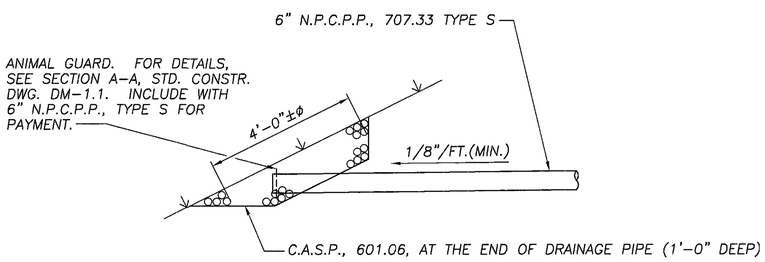
FOR SUPERSTRUCTURE AND BEARING DETAILS, SEE SHEETS 11, 12 AND 14 OF 16.

FOR SEMI-INTEGRAL ABUTMENT DETAILS, SEE STANDARD BRIDGE DRAWING SICD-1-96.

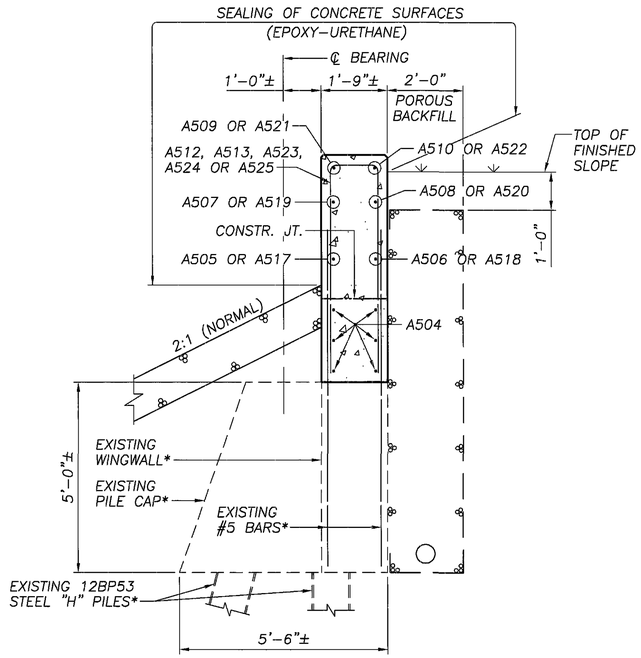
FOR CONDUIT INSTALLATION AND LOCATION DETAILS, SEE STANDARD CONSTRUCTION DRAWING HL-30.32.



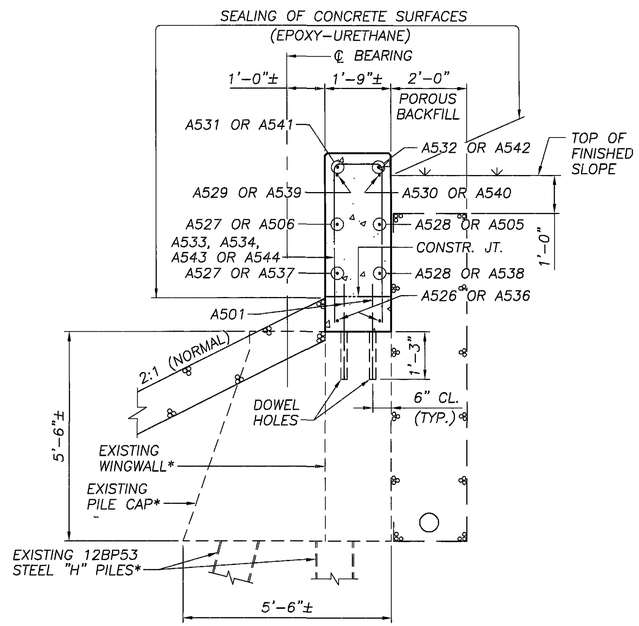
VIEW E–E



TERMINATION OF 6" N.P.C.P.P. DETAIL



SECTION C–C



SECTION D–D

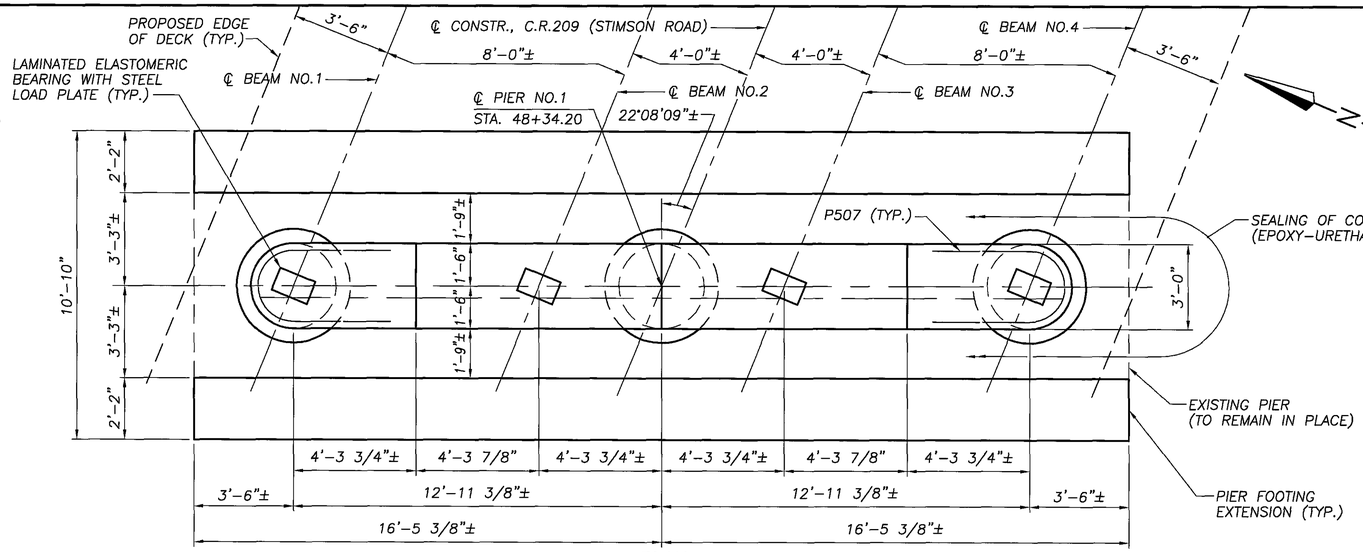
SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 SPRINGMILL ST. 3598
MANSFIELD, OHIO 44907
(419) 756-7302
CONSULTING ENGINEERS – SURVEYORS

DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	6-04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701470	

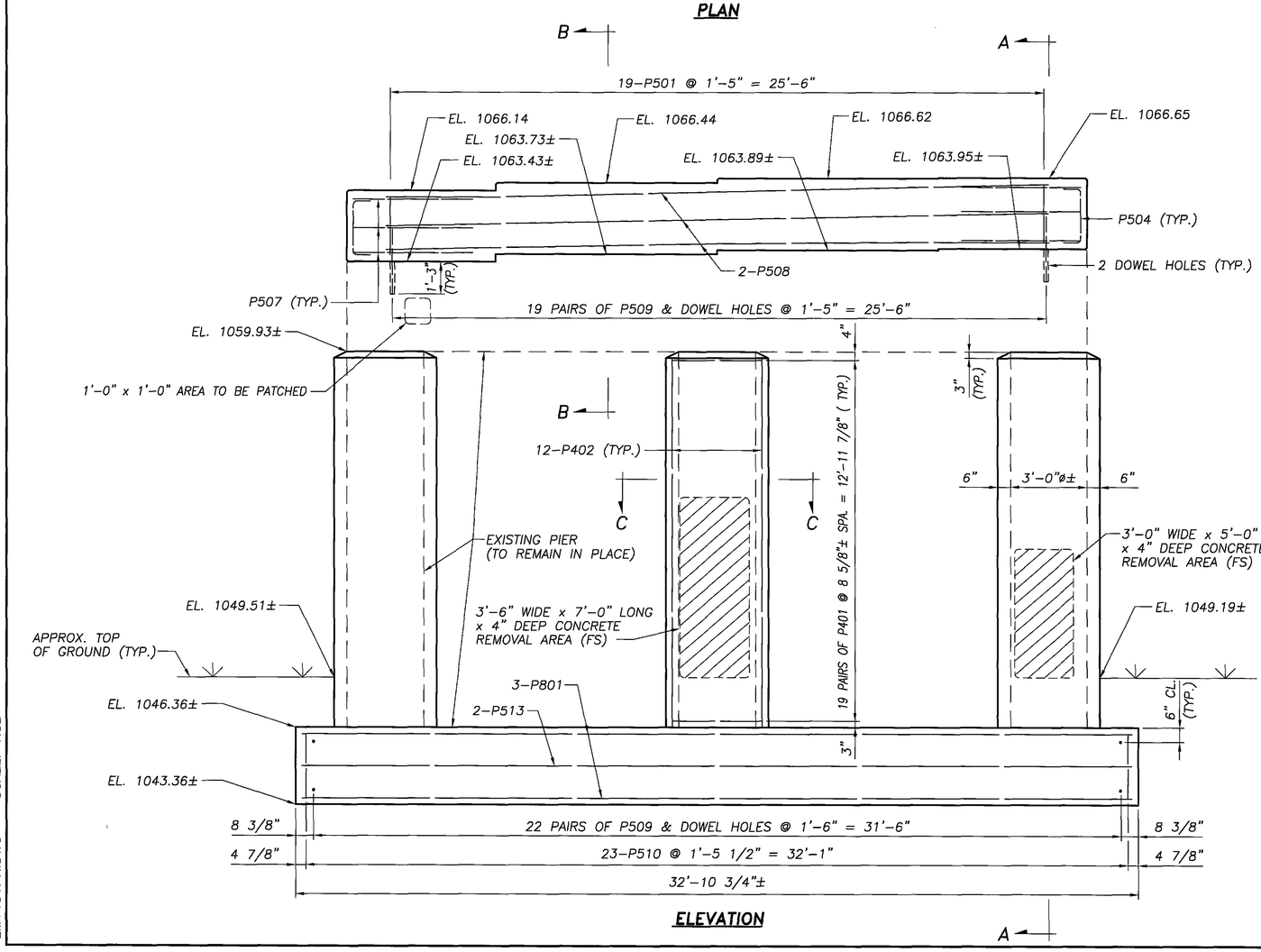
ABUTMENT DETAILS
BRIDGE NO. SUM-21-05.69
C.R.209 (STIMSON ROAD) OVER S.R.21

SUM-21-(5.69)(7.58)(7.78)

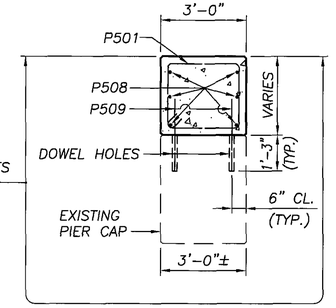
EM1481AB.DWG SCALE: 1:24



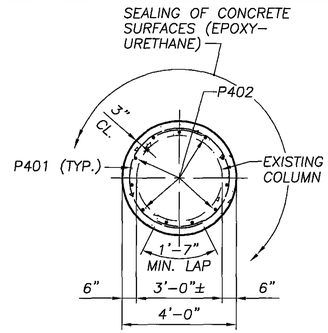
PLAN



ELEVATION



SECTION B-B



SECTION C-C

PIER NOTES:

ALL REINFORCING STEEL CLEARANCES AT PIERS ARE 3" UNLESS NOTED.

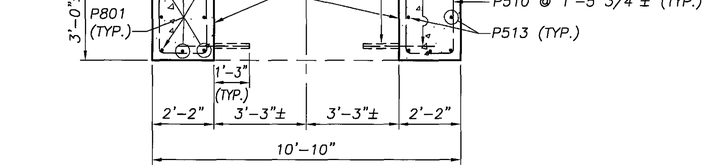
FOR ELASTOMERIC BEARING DETAILS, SEE SHEET 14 OF 16.

REINFORCING STEEL: SEE SHEET 16 OF 16.

HATCHED AREA INDICATES CONCRETE REMOVAL TO BE INCLUDED WITH ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN, FOR PAYMENT.

FS = FAR SIDE

DIRECTIONS FOR FOOTING CONSTRUCTION; DO NOT OVEREXCAVATE AT FOOTING EXTENSIONS. IF OVEREXCAVATION DOES OCCUR, COMPACT SOIL AS DIRECTED BY THE ENGINEER.



SECTION A-A

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756-7302
CONSULTING ENGINEERS - SURVEYORS

DESIGNED JSK | DRAWN JSK | REVIEWED TLS | DATE 7-04

CHECKED RAK | REVISED | STRUCTURE FILE NUMBER 7701470

PIER NO.1 DETAILS

BRIDGE NO. SUM-21-0569
C.R.209 (STIMSON ROAD) OVER S.R.21

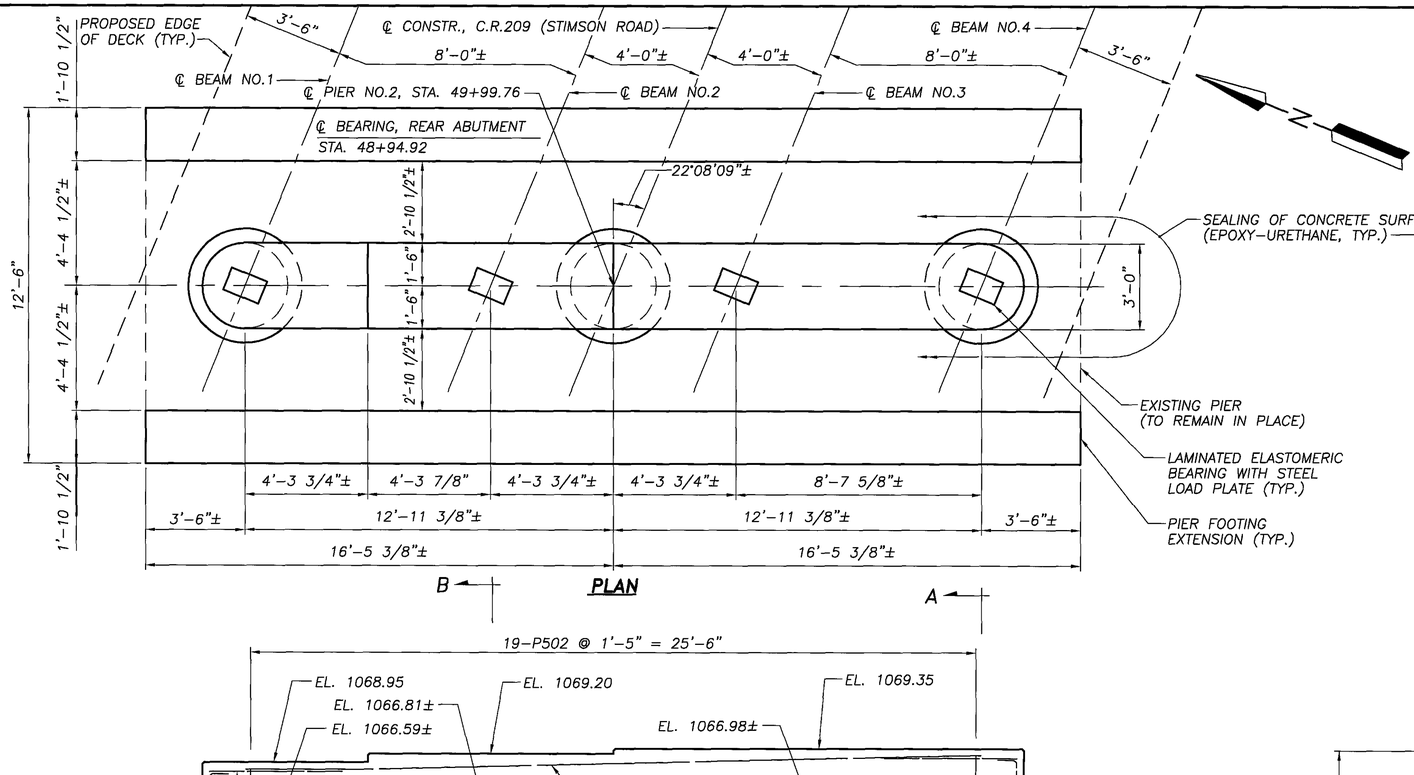
SUM-21-(5.69)(7.58)(7.78)

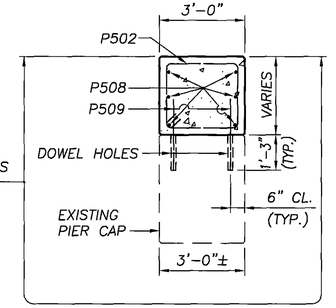
8/16

162/223

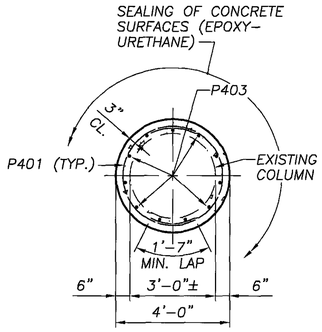
SCALE: 1:32

EM1481PR.DWG





SECTION B-B



SECTION C-C

PIER NOTES:

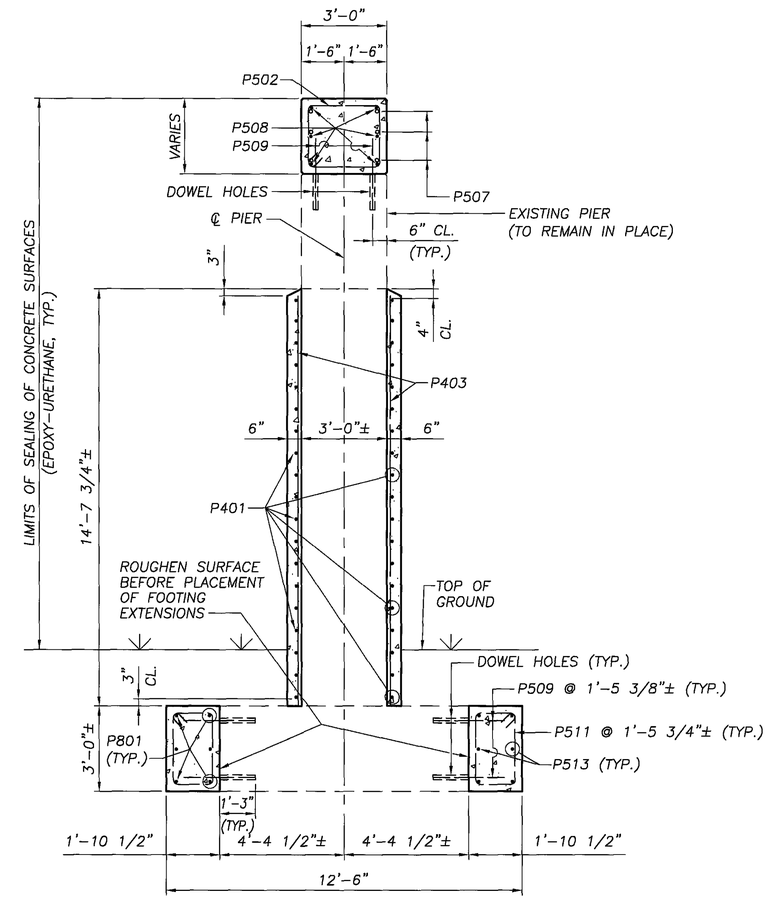
ALL REINFORCING STEEL CLEARANCES AT PIERS ARE 3" UNLESS NOTED.

FOR ELASTOMERIC BEARING DETAILS, SEE SHEET 14 OF 16.

REINFORCING STEEL: SEE SHEET 16 OF 16.

HATCHED AREA INDICATES CONCRETE REMOVAL TO BE INCLUDED WITH ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN, FOR PAYMENT.

DIRECTIONS FOR FOOTING CONSTRUCTION: DO NOT OVEREXCAVATE AT FOOTING EXTENSIONS. IF OVEREXCAVATION DOES OCCUR, COMPACT SOIL AS DIRECTED BY THE ENGINEER.



SECTION A-A

SCALE: 1:32

EM1481PR.DWG

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. P.O. BOX 3598
MANSFIELD, OHIO 44901
(419) 756-7302
CONSULTING ENGINEERS - SURVEYORS

DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	7-04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701470	

PIER NO.2 DETAILS

BRIDGE NO. SUM-21-0569
C.R.209 (STIMSON ROAD) OVER S.R.21

SUM-21-(5.69)(7.58)(7.78)

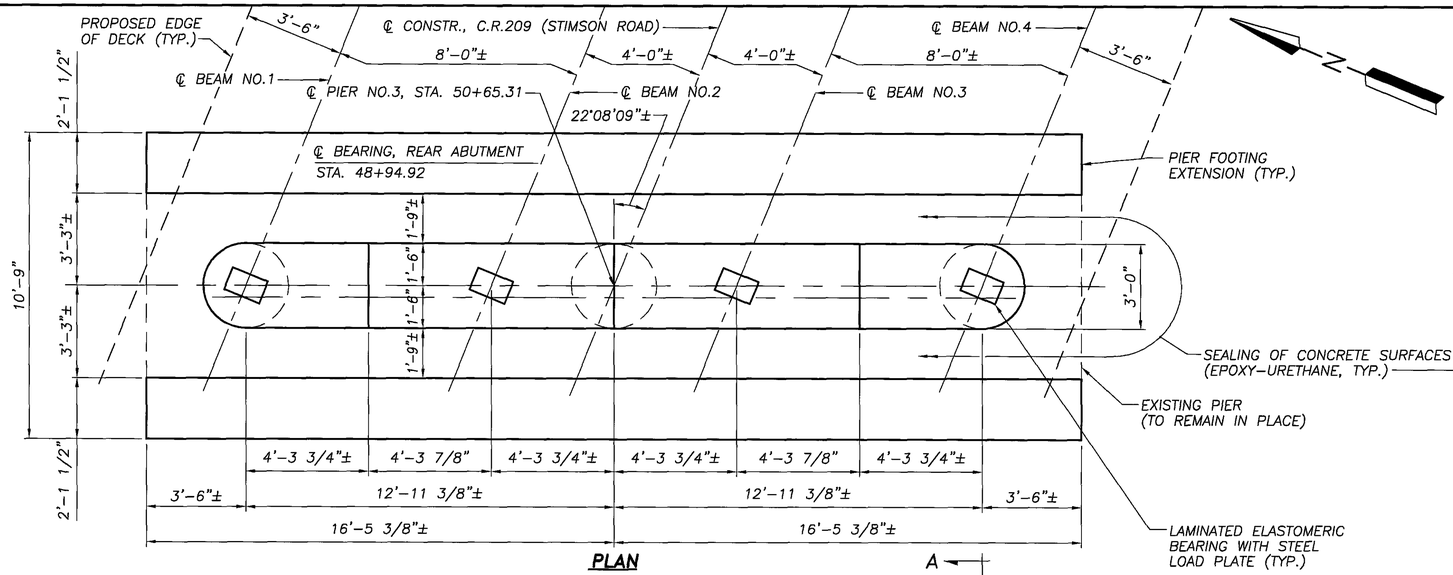
PIER NOTES:

ALL REINFORCING STEEL CLEARANCES AT PIER ARE 3" UNLESS NOTED.

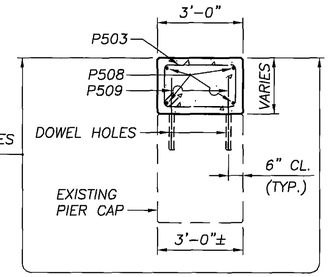
FOR ELASTOMERIC BEARING DETAILS, SEE SHEET 14 OF 16.

REINFORCING STEEL: SEE SHEET 16 OF 16.

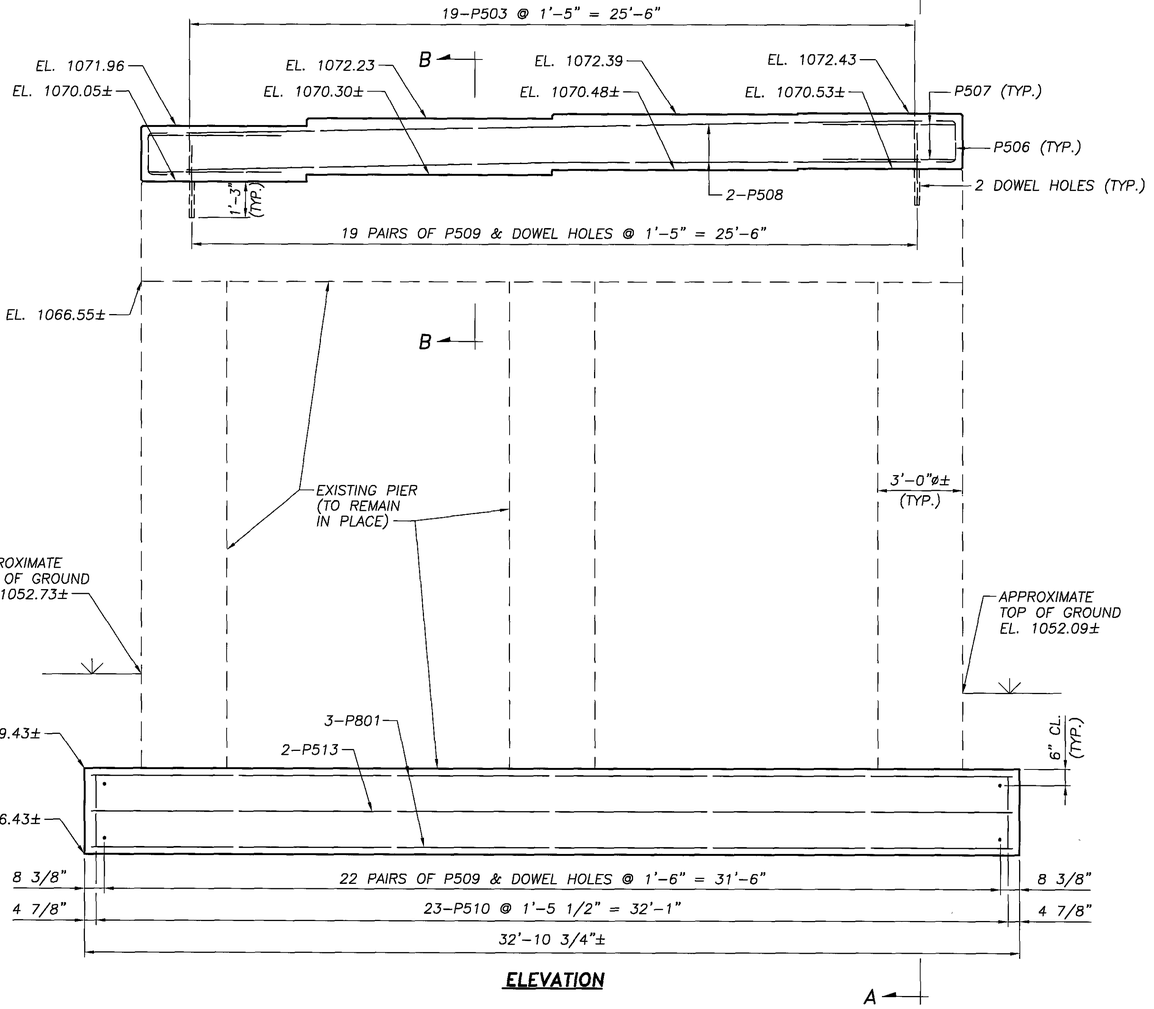
DIRECTIONS FOR FOOTING CONSTRUCTION: DO NOT OVEREXCAVATE AT FOOTING EXTENSIONS. IF OVEREXCAVATION DOES OCCUR, COMPACT SOIL AS DIRECTED BY THE ENGINEER.



PLAN



SECTION B-B



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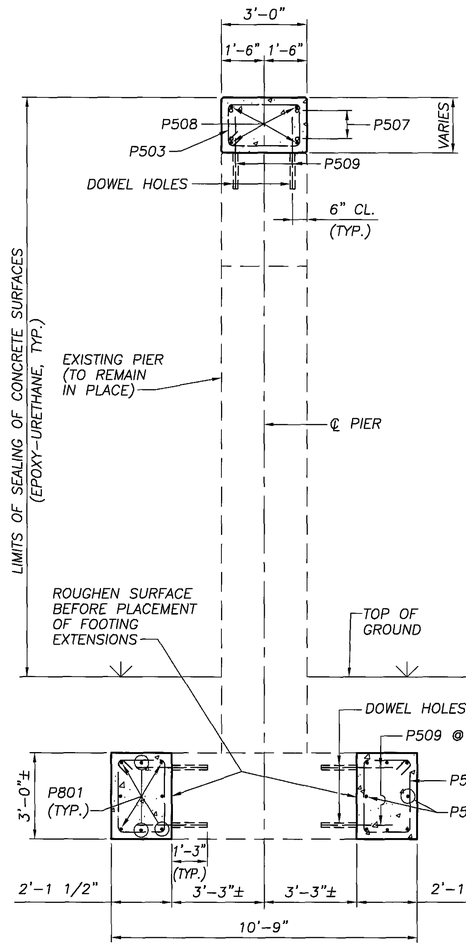


SECTION A-A

EM1481PR.DWG SCALE: 1:32

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756-7302
CONSULTING ENGINEERS - SURVEYORS

DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	7-04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701470	

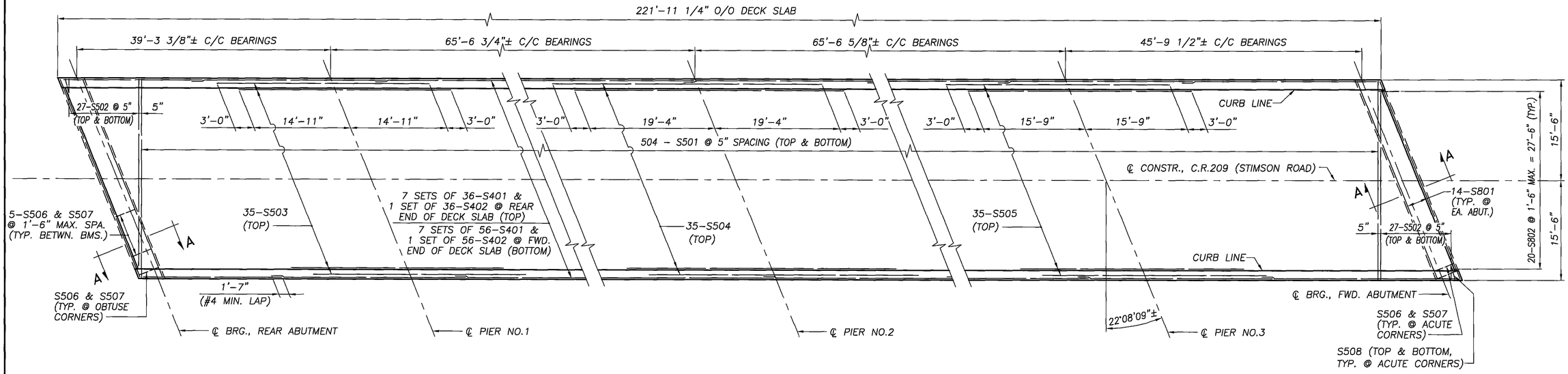
PIER NO.3 DETAILS

BRIDGE NO. SUM-21-0569
C.R.209 (STIMSON ROAD) OVER S.R.21

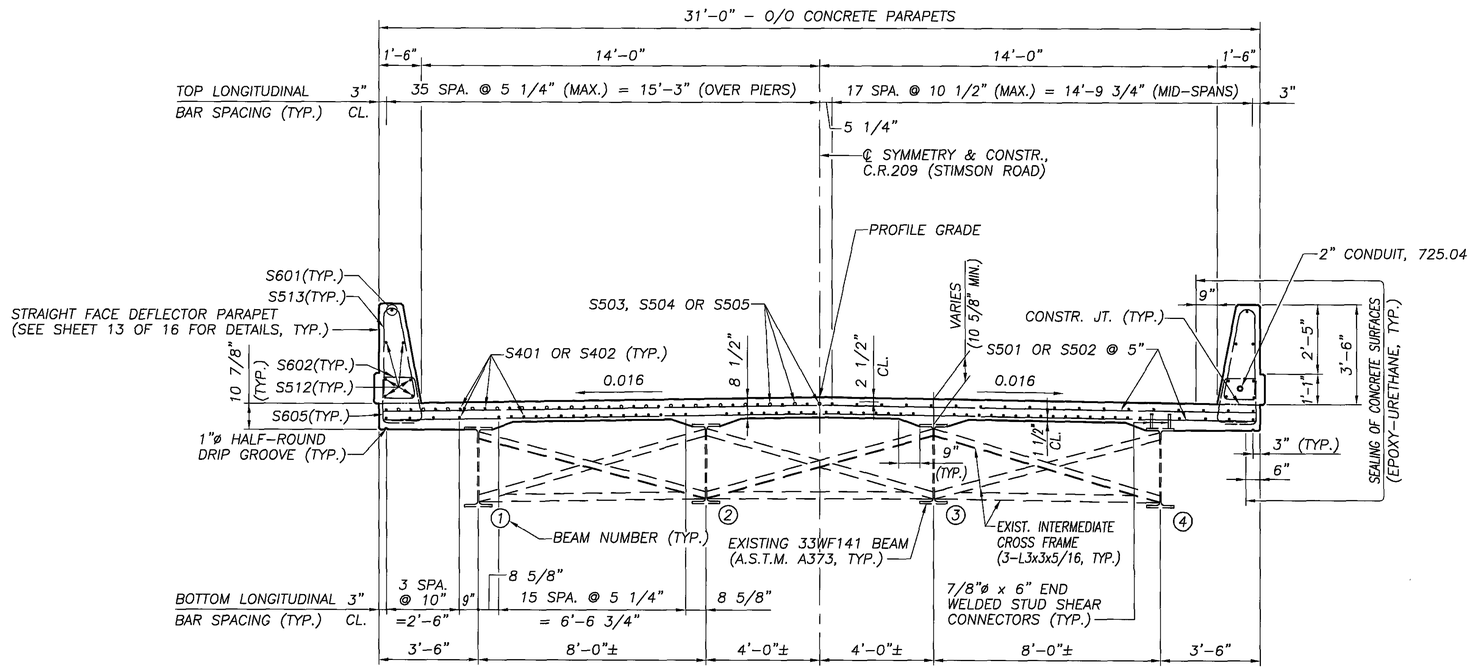
SUM-21-(5.69)(7.58)(7.78)

10/16

164
223



SLAB PLAN



TRANSVERSE SECTION

NOTES:

DECK SLAB CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 2 INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE IS ±3 INCHES.

THE PAY QUANTITY FOR ITEM 894 SUPERSTRUCTURE CONCRETE IN THE END DIAPHRAGMS IS DETERMINED AS FOLLOWS: BELOW THE BOTTOM OF THE TOP BEAM FLANGE, ABOVE THE BRIDGE SEAT CONSTRUCTION JOINT AND BETWEEN THE DECK FASCIAS.

FOR SUPERSTRUCTURE NOTES, SEE SHEET 14 OF 16.

FOR END DIAPHRAGM DETAILS, SEE SECTION A-A, SHEET 7 OF 16.

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. - P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756-2302
CONSULTING ENGINEERS - SURVEYORS

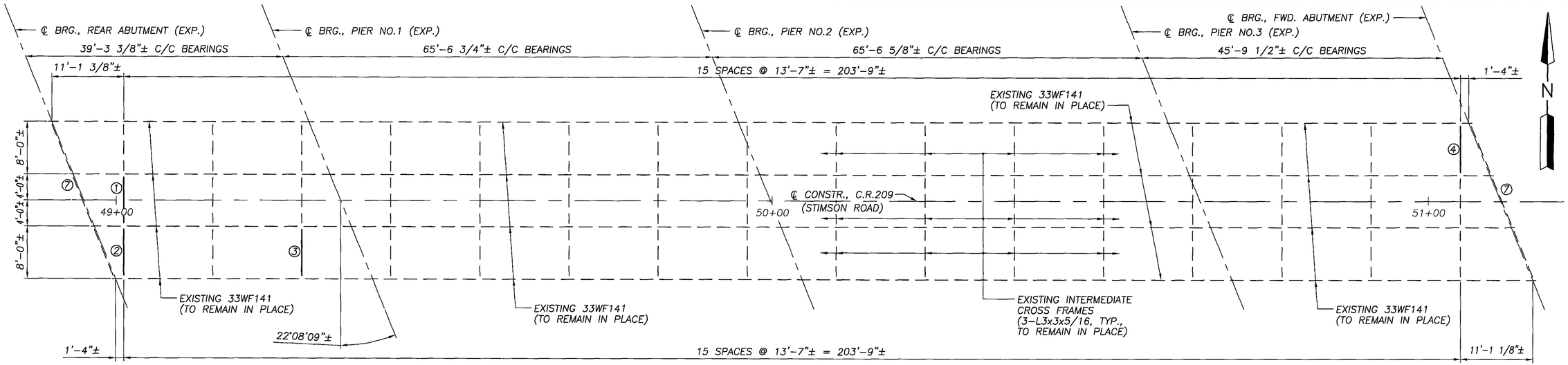
DESIGNED JSK | DRAWN JSK | REVIEWED TLS | DATE 5-04
CHECKED RAK | REVISED | STRUCTURE FILE NUMBER 7701470

SLAB PLAN & TRANSVERSE SECTION

BRIDGE NO. SUM-21-0569
C.R.209 (STIMSON ROAD) OVER S.R.21

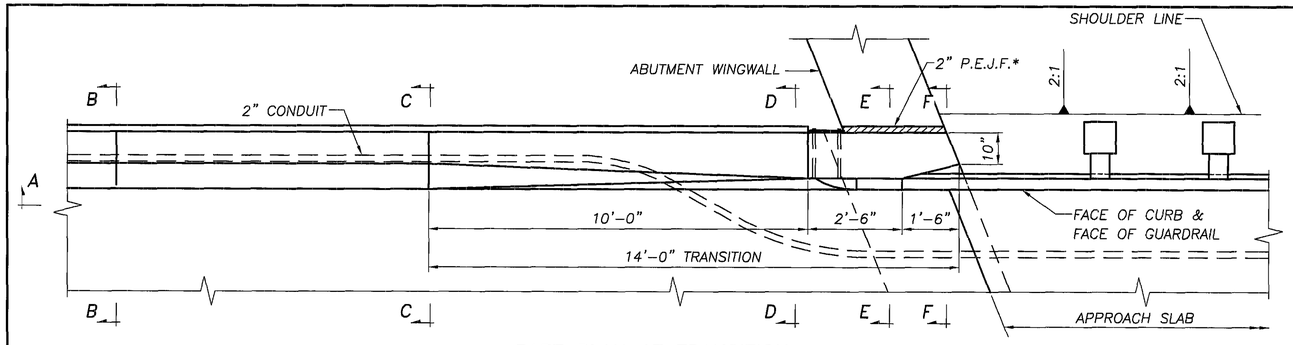
SUM-21-(5.69)(7.58)(7.78)

EM1481S1.DWG SCALE: 1:96

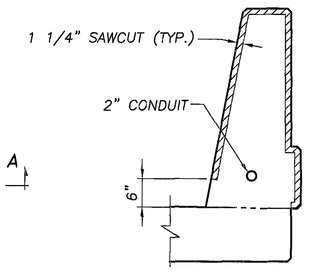


FRAMING PLAN

| | | |



PART PLAN AT TRANSITION



SECTION B–B

(SECTION THROUGH SAWCUT)
SAWCUT PERIMETER = 7'–6"

NOTES:

CONTROL JOINTS FOR CONCRETE PARAPETS:
THE JOINTS SHALL BE CONSTRUCTED BY SAWING 1 1/4 INCH DEEP ALONG THE PERIMETER OF THE PARAPET AS SOON AS THE SAW CAN BE OPERATED WITHOUT DAMAGING THE CONCRETE.

THE USE OF AN EDGE GUIDE, FENCE, OR JIG IS REQUIRED TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF 1/4 INCH.

THE PERIMETER OF THE DEFLECTION CONTROL JOINT SHALL BE SEALED WITH A CAULKING MATERIAL TO A MINIMUM DEPTH OF 1 INCH CONFORMING TO FEDERAL SPECIFICATION TT–S–00227E. THE BOTTOM 1/2 INCH OF THE OUTSIDE FACE OF THE PARAPET SHOULD BE LEFT UNSEALED TO ALLOW ANY WATER WHICH MAY ENTER THE JOINT TO ESCAPE.

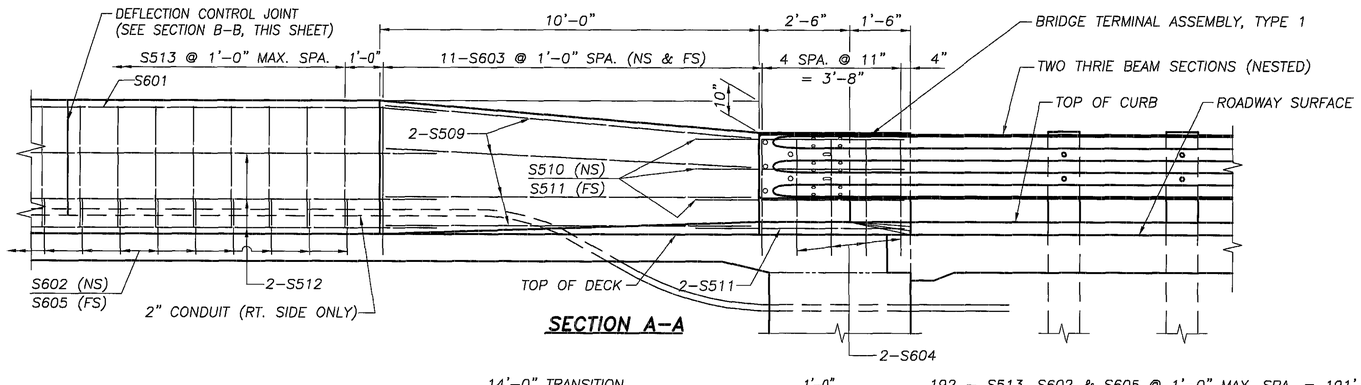
QUANTITIES OF CONCRETE, DEFLECTION JOINT SAWCUT AND CAULKING MATERIAL FOR PARAPET ARE INCLUDED WITH ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN, FOR PAYMENT.

FOR BRIDGE TERMINAL ASSEMBLY, TYPE 1, DETAILS, SEE STANDARD ROADWAY CONSTRUCTION DRAWING GR–3.1.

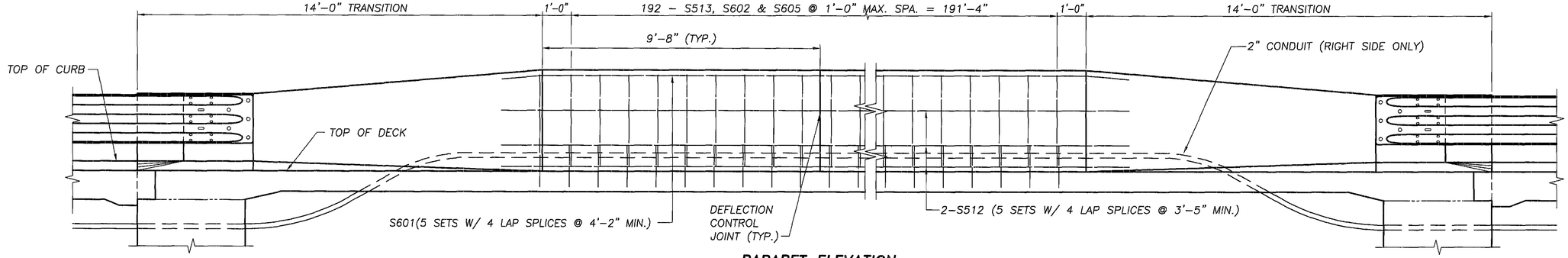
FOR PARAPET DEFLECTION CONTROL JOINT SPACING, SEE SHEET 2 OF 16.

FOR CONDUIT LOCATION DETAILS, SEE STD. CONSTR. DWG. HL–30.32.

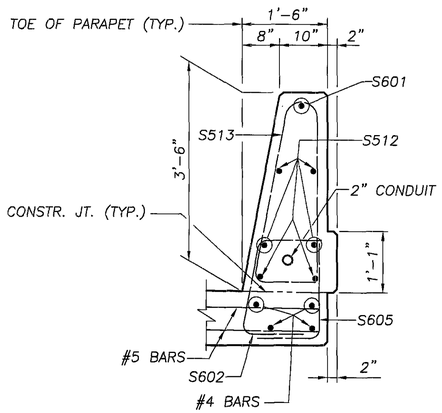
NOTATION:
FS = FAR SIDE
NS = NEAR SIDE
* INCLUDE WITH ABUTMENT CONCRETE FOR PAYMENT.



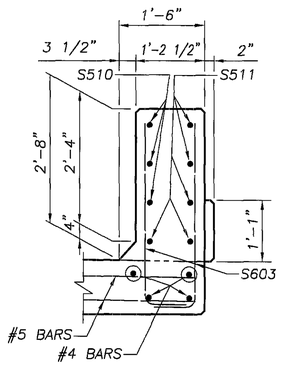
SECTION A–A



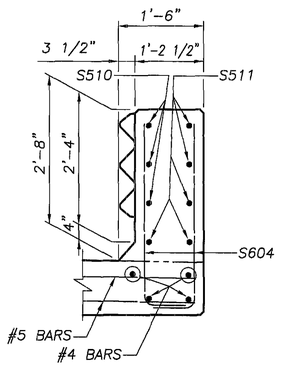
PARAPET ELEVATION



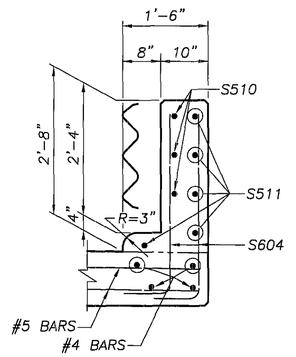
SECTION C–C



SECTION D–D



SECTION E–E



SECTION F–F

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. – P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756–7502
CONSULTING ENGINEERS – SURVEYORS

DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	6–04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701470	

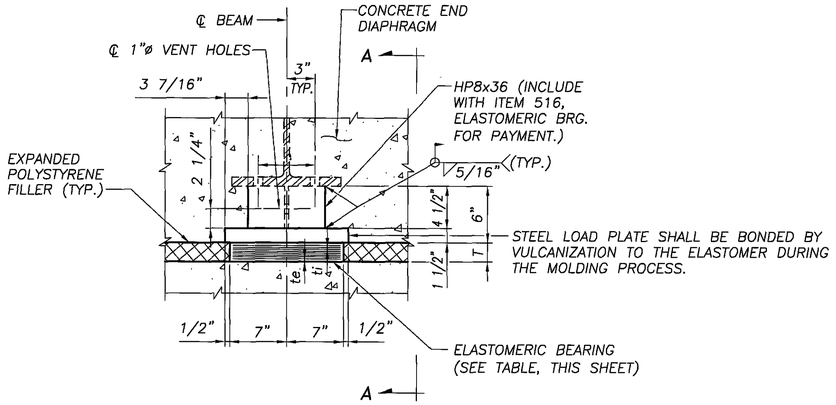
PARAPET DETAILS
BRIDGE NO. SUM–21–0569
C.R.209 (STIMSON ROAD) OVER S.R.21

SUM–21–(5.69)(7.58)(7.78)

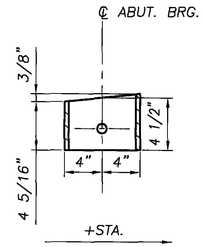
13/16

167/223

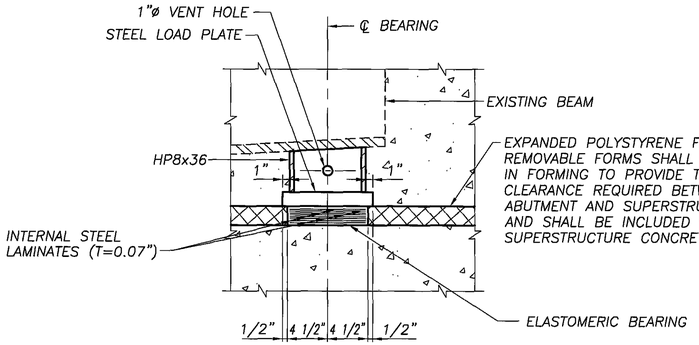
EM1481PAR.DWG SCALE: 1:96



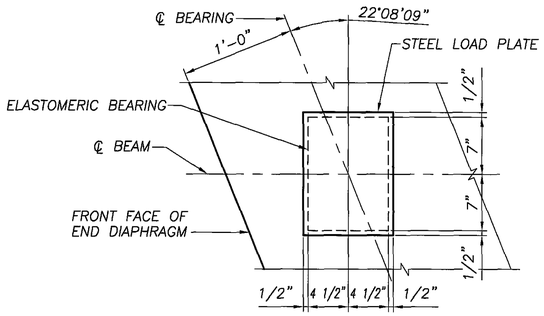
ELEVATION OF LAMINATED ELASTOMERIC EXPANSION BEARING AT ABUTMENTS



BEVELED TOP OF HP8x36 AT ABUTMENT BEARINGS



SECTION A–A

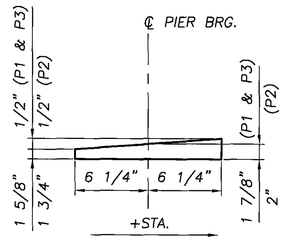


PLAN VIEW – ABUTMENT EXPANSION BEARING

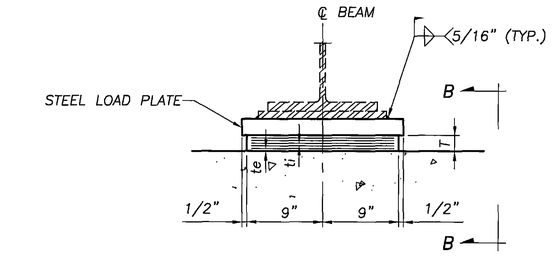
BEARING DESIGN LOADS

	REAR ABUT.	PIER NO.1	PIER NO.2	PIER NO.3	FWD. ABUT.
DEAD LOAD	39.15K	103.21K	125.90K	108.94K	45.88K
LIVE LOAD	53.25K	69.11K	67.18K	67.71K	55.40K
TOTAL	92.40K	172.32K	193.08K	176.45K	101.28K

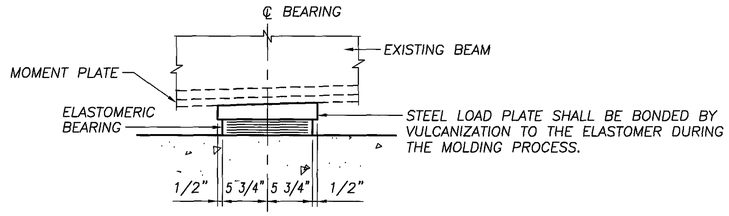
ELASTOMERIC BEARING DATA	ABUTMENTS	PIER NOS. 1 & 3	PIER NO.2
STEEL LOAD PLATE (T x L x W)	1 1/2" x 10" x 1–3"	1 7/8" x 1'–0 1/2" x 1'–7"	2" x 1'–0 1/2" x 1'–7"
LAMINATED ELASTOMERIC BRG. (T x L x W)	2 3/4" x 9" x 1–2"	1 3/4" x 11 1/2" x 1'–6"	1 3/4" x 11 1/2" x 1'–6"
NUMBER OF STEEL LAMINATES	8	4	4
EXTERIOR ELASTOMER THICKNESS, te	0.19"	0.24"	0.24"
INTERIOR ELASTOMER THICKNESS, ti	0.26"	0.33"	0.33"
NUMBER OF INTERIOR ELASTOMER LAYERS	7	3	3



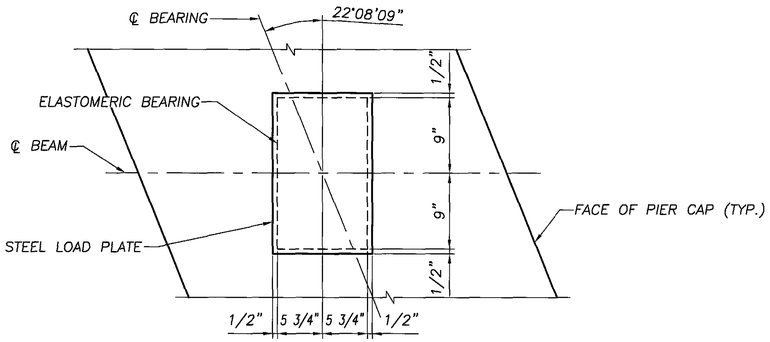
BEVELED LOAD PLATE AT PIER BEARINGS



ELEVATION OF LAMINATED ELASTOMERIC EXPANSION BEARING AT PIERS



VIEW B–B



PLAN VIEW – PIER EXPANSION BEARING

SUPERSTRUCTURE NOTES:

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN:
BEARING ANCHOR RODS: AT THE OPTION OF THE CONTRACTOR, THE BEARING ANCHOR RODS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST IN PLACE.

BEARING REPOSITIONING: IF THE STEEL IS ERECTED AT AN AMBIENT TEMPERATURE HIGHER THAN 80°F OR LOWER THAN 40°F AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/6 OF THE BEARING HEIGHT AT 60°F±10°F, RAISE THE BEAMS TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 60°F±10°F.

ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.6 (METHOD A) OF THE A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, TESTING, ANCHOR RODS AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516, ELASTOMERIC BEARINGS WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN, EACH.

WELD ATTACHMENT OF SUPPORTS FOR THE CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION." DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION." FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE AT LEAST 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER THAN 3/4" THICK.

FOR STRUCTURAL STEEL AND CROSS FRAME DETAILS, SEE BRIDGE STANDARD DRAWING GSD–1–96.

REINFORCING STEEL: SEE SHEET 16 OF 16.

WELDING: CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300°F AS DETERMINED BY USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.

NOTATION:
P1 = PIER NO.1
P2 = PIER NO.2
P3 = PIER NO.3

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DESIGNED JSK | DRAWN JSK | REVIEWED TLS | DATE 6–04
CHECKED RAK | REVISED | STRUCTURE FILE NUMBER 7701470

BEARING DETAILS & SUPERSTRUCTURE NOTES
BRIDGE NO. SUM–21–0569
C.R.209 (STIMSON ROAD) OVER S.R.21

SUM–21–(5.69)(7.58)(7.78)

14/16

168/223

EM1481S3.DWG SCALE: 1:96

SCREED TABLE

POINT		SPAN 1 ℄ BRG., RA	1/4 POINT	1/2 POINT	3/4 POINT	SPAN 2 ℄ BRG., P1	1/4 POINT	1/2 POINT	3/4 POINT	SPAN 3 ℄ BRG., P2	1/4 POINT	1/2 POINT	3/4 POINT	SPAN 4 ℄ BRG., P3	1/4 POINT	1/2 POINT	3/4 POINT	℄ BRG., FA
LEFT CURB LINE	STA.	48+89.22	48+99.04	49+08.87	49+18.69	49+28.51	49+44.90	49+61.29	49+77.67	49+94.06	50+10.45	50+25.84	50+43.23	50+59.62	50+71.07	50+82.52	50+93.96	51+05.41
	ELEV.	1068.34	1068.81	1069.27	1069.72	1070.17	1070.92	1071.66	1072.36	1073.06	1073.80	1074.54	1075.25	1075.95	1076.46	1076.98	1077.50	1078.02
BEAM LINE 1	STA.	48+90.06	48+99.88	49+09.69	49+19.51	49+29.32	49+45.71	49+62.10	49+78.48	49+94.87	50+11.26	50+27.65	50+44.04	50+60.43	50+71.88	50+83.33	50+94.77	51+06.22
	ELEV.	1068.41	1068.88	1069.34	1069.79	1070.24	1070.99	1071.72	1072.43	1073.13	1073.87	1074.61	1075.32	1076.02	1076.53	1077.05	1077.57	1078.09
BEAM LINE 2	STA.	48+93.30	49+03.12	49+12.94	49+22.76	49+32.58	49+48.97	49+65.36	49+81.74	49+98.13	50+14.52	50+30.91	50+47.29	50+63.68	50+75.13	50+86.58	50+98.03	51+09.48
	ELEV.	1068.69	1069.16	1069.62	1070.06	1070.51	1071.26	1072.00	1072.70	1073.40	1074.14	1074.88	1075.59	1076.29	1076.80	1077.32	1077.85	1078.37
CROWN LINE	STA.	48+94.92	49+04.74	49+14.56	49+24.38	49+34.20	49+50.59	49+66.98	49+83.37	49+99.76	50+16.15	50+32.54	50+48.92	50+65.31	50+76.76	50+88.21	50+99.65	51+11.10
	ELEV.	1068.83	1069.30	1069.76	1070.20	1070.65	1071.40	1072.13	1072.84	1073.54	1074.28	1075.01	1075.72	1076.42	1076.94	1077.46	1077.98	1078.51
BEAM LINE 3	STA.	48+96.54	49+06.36	49+16.10	49+26.01	49+35.83	49+52.22	49+68.61	49+85.00	50+01.39	50+17.78	50+34.17	50+50.56	50+66.95	50+78.40	50+89.84	51+01.29	51+12.74
	ELEV.	1068.85	1069.31	1069.76	1070.21	1070.66	1071.41	1072.14	1072.84	1073.55	1074.28	1075.02	1075.73	1076.43	1076.95	1077.47	1078.00	1078.52
BEAM LINE 4	STA.	48+99.77	49+09.60	49+19.43	49+29.25	49+39.08	49+55.47	49+71.86	49+88.24	50+04.63	50+21.02	50+37.42	50+53.81	50+70.20	50+81.65	50+93.10	51+04.54	51+15.99
	ELEV.	1068.87	1069.33	1069.79	1070.23	1070.67	1071.42	1072.15	1072.86	1073.56	1074.30	1075.03	1075.74	1076.45	1076.96	1077.49	1078.02	1078.55
RIGHT CURB LINE	STA.	49+00.61	49+10.43	49+20.26	49+30.08	49+39.90	49+56.29	49+72.68	49+89.06	50+05.45	50+21.84	50+38.23	50+54.62	50+71.01	50+82.46	50+93.91	51+05.35	51+16.80
	ELEV.	1068.88	1069.34	1069.79	1070.24	1070.68	1071.42	1072.16	1072.86	1073.57	1074.30	1075.04	1075.75	1076.45	1076.97	1077.50	1078.02	1078.55

NOTES:
SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT.
ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED REMAINING DEAD LOAD DEFLECTIONS.

NOTATION:
FA = FORWARD ABUTMENT
P1 = PIER NO.1
P2 = PIER NO.2
P3 = PIER NO.3
RA = REAR ABUTMENT

DEAD LOAD DEFLECTION – BEAM LINES 1 & 4

SPAN POINT	SPAN 1 ℄ BRG., RA	1/4	1/2	3/4	SPAN 2 ℄ BRG., P1	1/4	1/2	3/4	SPAN 3 ℄ BRG., P2	1/4	1/2	3/4	SPAN 4 ℄ BRG., P3	1/4	1/2	3/4	℄ BRG., FA
DEFLECTION DUE TO STEEL WEIGHT	0	0	0	0	0	1/16"	1/16"	1/16"	0	0	1/16"	1/16"	0	0	0	0	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	1/16"	1/16"	0	0	1/4"	3/8"	3/16"	0	3/16"	5/16"	3/16"	0	1/16"	1/8"	1/8"	0
TOTAL DEAD LOAD DEFLECTION	0	1/16"	1/16"	0	0	5/16"	7/16"	1/4"	0	3/16"	3/8"	1/4"	0	1/16"	1/8"	1/8"	0

DEAD LOAD DEFLECTION – BEAM LINES 2 & 3

SPAN POINT	SPAN 1 ℄ BRG., RA	1/4	1/2	3/4	SPAN 2 ℄ BRG., P1	1/4	1/2	3/4	SPAN 3 ℄ BRG., P2	1/4	1/2	3/4	SPAN 4 ℄ BRG., P3	1/4	1/2	3/4	℄ BRG., FA
DEFLECTION DUE TO STEEL WEIGHT	0	0	0	0	0	1/16"	1/16"	1/16"	0	0	1/16"	1/16"	0	0	1/16"	0	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	1/16"	1/16"	0	0	1/4"	7/16"	3/16"	0	3/16"	3/8"	3/16"	0	1/16"	1/8"	1/8"	0
TOTAL DEAD LOAD DEFLECTION	0	1/16"	1/16"	0	0	5/16"	1/2"	1/4"	0	3/16"	7/16"	1/4"	0	1/16"	3/16"	1/8"	0

EM1481S4.DWG SCALE: 1:96

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DEAD LOAD DEFLECTIONS & SCREED ELEVATIONS

BRIDGE NO. SUM-21-0569
C.R.209 (STIMSON ROAD) OVER S.R.21

SUM-21-(5.69)(7.58)(7.78)

15/16

169/223

GRADE 60 EPOXY COATED REINFORCING STEEL – SUPERSTRUCTURE

MARK	NUMBER			LENGTH	WEIGHT (LBS.)	TYPE	DIMENSIONS				
	LP	RP	TOTAL				A	B	C	I.R.	INC.
S401			644	30'–0"	12,906	STR.					
S402			92	22'–9"	1398	STR.					
S501			1008	30'–8"	32,241	STR.					
			4	2'–2"							
S502			SERIES	TO	1751	STR.					1'-0 1/4"
			OF 27	28'–11"							
S503			35	32'–10"	1199	STR.					
S504			35	41'–8"	1521	STR.					
S505			35	34'–6"	1259	STR.					
S506			36	7'–4"	275	6	2'–9"	2'–7"	2'–7"		
S507			36	11'–6"	432	7	3'–3"	2'–3"			
S508			4	2'–1"	9	STR.					
S509	16	16	32	10'–0"	334	STR.					
S510	6	6	12	5'–6"	69	3	1'–8"	2'–5"	1'–5"		
S511	10	10	20	5'–6"	115	STR.					
S512	30	30	60	35'–11"	2248	STR.					
S513	192	192	384	7'–5"	2970	1	1'–1"	3'–2"	3'–0"	2 3/4"	
S601	5	5	10	35'–3"	529	STR.					
S602	192	192	384	3'–7"	2067	5	1'–1"	1'–8"			
	4	4	8	4'–2"				3'–3"			
S603	SERIES	SERIES	SERIES	TO	606	4	1'–1"	TO			1"
	OF 11	OF 11	OF 11	5'–0"				4'–1"			
S604	16	16	32	4'–2"	200	4	1'–1"	3'–3"			
S605	192	192	384	2'–7"	1490	4	1'–1"	1'–8"			
S801			28	32'–10"	2455	STR.					
S802			40	5'–5"	519	10	3'–1"	1'–5"			
				TOTAL	66,653						

GRADE 60 EPOXY COATED REINFORCING STEEL – PIERS

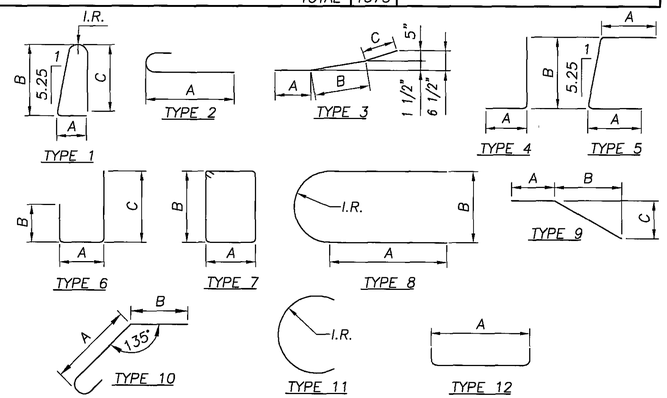
MARK	NUMBER				LENGTH	WEIGHT (LBS.)	TYPE	DIMENSIONS		
	P1	P2	P3	TOTAL				A	B	I.R.
P401	114	120		234	7'–1"	1107	11			1'-8 1/2"
P402	36			36	13'–4"	321	STR.			
P403		36		36	14'–4"	345	STR.			
P501	19			19	10'–0"	198	7	2'–6"	2'–3"	
P502		19		19	9'–4"	185	7	2'–6"	1'–11"	
P503			19	19	8'–4"	165	7	2'–6"	1'–5"	
P504	2			2	3'–8"	8	12	2'–3"		
P505		2		2	3'–4"	7	12	1'–11"		
P506			2	2	2'–10"	6	12	1'–5"		
P507	6	6	4	16	10'–8"	178	8	3'–5"	2'–6"	1'-2 3/8"
P508	6	6	4	16	25'–11"	432	STR.			
P509	130	130	130	390	2'–6"	1017	STR.			
P510	46			46	8'–10"	424	7	1'–8"	2'–6"	
P511		46		46	8'–2"	392	7	1'–4"	2'–6"	
P512			46	46	8'–8"	416	7	1'–7"	2'–6"	
P513	4	4	4	12	32'–5"	406	STR.			
P801	12	8	12	32	32'–5"	2770	STR.			
					TOTAL	8377				

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST LETTER IDENTIFIES THE BAR LOCATION. THE NEXT TWO DIGITS FOR A FOUR–DIGIT NUMBER OR THE NEXT DIGIT FOR A THREE–DIGIT NUMBER INDICATES THE BAR SIZE DESIGNATION. THE REMAINING DIGITS INDICATE THE SEQUENCE NUMBER.
EXAMPLE: A501
A = LOCATION OF THE BAR IN THE STRUCTURE (ABUTMENT)
5 = BAR SIZE DESIGNATION (#5, 5/8"ø)
01 = SEQUENCE NUMBER
BAR DIMENSIONS SHOWN ARE OUT–TO–OUT UNLESS NOTED. ALL REINFORCING STEEL IS TO BE EPOXY COATED. STRAIGHT BARS ARE INDICATED BY "STR."

NOTATION:
FA = FORWARD ABUTMENT
P1 = PIER NO.1
P2 = PIER NO.2
P3 = PIER NO.3
RA = REAR ABUTMENT
LP = LEFT PARAPET
RP = RIGHT PARAPET
I.R. = INSIDE RADIUS
INC. = INCREMENT

GRADE 60 EPOXY COATED REINFORCING STEEL – ABUTMENTS

MARK	NUMBER			LENGTH	WEIGHT (LBS.)	TYPE	DIMENSIONS			
	RA	FA	TOTAL				A	B	C	INC.
A501	8	20	28	2'–6"	73	STR.				
A502	8		8	1'–10"	15	STR.				
A503	22		22	8'–10"	203	6	2'–9"	3'–2"	3'–2"	
A504	8		8	8'–4"	70	STR.				
A505	1	1	2	6'–6"	14	STR.				
A506	1	1	2	7'–0"	15	STR.				
A507	1		1	3'–10"	4	STR.				
A508	1		1	4'–4"	5	STR.				
A509	1		1	8'–1"	8	9	1'–0"	6'–6"	2'–11"	
A510	1		1	8'–7"	9	9	1'–6"	6'–6"	2'–11"	
	1		1	18'–3"				8'–8"	8'–8"	
A511	SERIES		SERIES	TO	60	6	1'–3"	TO	TO	6"
	OF 3		OF 3	20'–3"				9'–8"	9'–8"	
	1		1	10'–9"				4'–10"	4'–10"	
A512	SERIES		SERIES	TO	37	6	1'–3"	TO	TO	7"
	OF 3		OF 3	13'–0"				6'–0"	6'–0"	
A513	2		2	13'–2"	27	6	1'–3"	6'–1"	6'–1"	
A514	7	3	10	32'–4"	337	STR.				
A515	8		8	9"	6	STR.				
A516	8		8	2'–9"	23	2	2'–4"			
A517	1		1	6'–4"	7	STR.				
A518	1		1	5'–10"	6	STR.				
A519	1		1	4'–0"	4	STR.				
A520	1		1	3'–6"	4	STR.				
A521	1		1	7'–0"	7	9	11"	5'–6"	2'–7"	
A522	1		1	6'–6"	7	9	5"	5'–6"	2'–7"	
A523	1		1	17'–10"	19	6	1'–3"	8'–5"	8'–5"	
A524	1		1	18'–5"	19	6	1'–3"	8'–9"	8'–9"	
	1		1	10'–0"				4'–6"	4'–6"	
A525	SERIES		SERIES	TO	35	6	1'–3"	TO	TO	8"
	OF 3		OF 3	12'–8"				5'–10"	5'–10"	
A526		2	2	6'–8"	14	STR.				
A527		2	2	4'–11"	10	STR.				
A528		2	2	5'–5"	11	STR.				
A529		1	1	2'–8"	3	STR.				
A530		1	1	3'–2"	3	STR.				
A531		1	1	5'–6"	6	9	2"	4'–9"	2'–5"	
A532		1	1	6'–0"	6	9	8"	4'–9"	2'–5"	
		1	1	6'–2"				2'–7"	2'–7"	
A533		SERIES	SERIES	TO	34	6	1'–3"	TO	TO	8"
		OF 4	OF 4	10'–2"				4'–7"	4'–7"	
A534		1	1	11'–2"	12	6	1'–3"	5'–1"	5'–1"	
A535		22	22	6'–4"	145	6	2'–9"	1'–11"	1'–11"	
A536		2	2	10'–0"	21	STR.				
A537		1	1	8'–0"	8	STR.				
A538		1	1	7'–6"	8	STR.				
A539		1	1	4'–2"	4	STR.				
A540		1	1	3'–8"	4	STR.				
A541		1	1	8'–8"	9	9	1'–4"	6'–8"	3'–1"	
A542		1	1	8'–2"	9	9	10"	6'–8"	3'–1"	
		1	1	5'–4"				2'–2"	2'–2"	
A543		SERIES	SERIES	TO	42	6	1'–3"	TO	TO	8"
		OF 5	OF 5	10'–8"				4'–10"	4'–10"	
A544		1	1	11'–4"	12	6	1'–3"	5'–2"	5'–2"	
				TOTAL	1375					



GENERAL NOTES (CONT'D.)

FOUNDATION BEARING PRESSURE: PIER NO.1 AND NO.3 FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM BEARING PRESSURE OF 1.50 TONS PER SQUARE FOOT. PIER NO.2 FOOTING, AS DESIGNED, PRODUCES A MAXIMUM BEARING PRESSURE OF 1.45 TONS PER SQUARE FOOT. THE ALLOWABLE BEARING PRESSURE IS 2.0 TONS PER SQUARE FOOT.

ITEM 514, FIELD PAINTING STRUCTURAL STEEL: ALL EXISTING STEEL SHALL BE CLEANED AND PAINTED WITH A PRIME, INTERMEDIATE AND FINISH COAT OF PAINT IN THE FIELD USING SYSTEM OZEU. THE COLOR OF THE FINISH COAT SHALL BE FEDERAL STANDARD NO.595B–15526 (BLUE).

ITEM 511, CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN &
ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN:
THE PROVISIONS OF 511 SHALL APPLY EXCEPT AS NOTED BELOW.

SLIPFORMING:
SLIPFORMING SHALL NOT BE ALLOWED FOR THIS PROJECT.

MIX OPTIONS:
MIX 4, AS PER PLAN, SHALL BE THE ONLY MIX OPTION FOR THESE ITEMS. THE FOLLOWING PROPORTIONS WILL BE USED AS A STARTING MIX DESIGN.

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)
MIX 4, AS PER PLAN (GGBF SLAG + MICROSILICA)

AGGREGATE TYPE	FINE AGGREGATE (LBS.)	#8 COARSE AGGREGATE (LBS.)	#57 COARSE AGGREGATE (LBS.)	TOTAL (LBS.)	CEMENT CONTENT (LBS.)	GGBF SLAG (LBS.)	MICRO–SILICA (LBS.)	WATER TO CEMENTIOUS RATIO (MAX.)	AIR CONTENT ± 2%
GRAVEL	1245	360	1315	2920	400	170	30	0.42	7
LIMESTONE	1245	360	1335	2940	400	170	30	0.42	7
SLAG	1245	315	1155	2715	400	170	30	0.42	7

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.82, LIMESTONE SAND 2.68, LIMESTONE 2.85, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICROSILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER PER A.S.T.M. C127.

BASIS OF PAYMENT:
PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

ITEM	EXTENSION	UNITS	DESCRIPTION
511	50001	CU. YD.	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN
511	50101	CU. YD.	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. – P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756–7302
CONSULTING ENGINEERS – SURVEYORS

DESIGNED JSK | DRAWN JSK | REVIEWED TLS | DATE 6–04 | CHECKED RAK | REVISED | STRUCTURE FILE NUMBER 7701470

REINFORCING STEEL & GENERAL NOTES (CONTINUED)
BRIDGE NO. SUM–21–0569
C.R.209 (STIMSON ROAD) OVER S.R.21

SUM–21–(5.69)(7.58)(7.78)

16/16

170/223

EM1481REBAR.DWG SCALE: 1:96

B.M.: TOP OF I.P. IN MON. BOX
STA. 399+99.72, 1.60' LT.
ELEV. 1051.34

STA. 401+72.09 ℄ R/W & CONSTR., S.R.21
= STA. 46+06.49 ℄ R/W W. & L.E. R.R.

℄ S.B. LANES S.R.21
N 12°49'27" E

℄ R/W & CONSTR., S.R.21
N 12°49'27" E
400+00 P.I. STA. 400+50.00 N.B.L.
Δ = 0°34'23" LT.
(NO CURVE)

℄ N.B. LANES S.R.21
N 12°49'27" E
N 13°23'49" E

END APPROACH SLAB
STA. 401+08.79

POINT OF MINIMUM VERTICAL CLEARANCE

BEGIN APPROACH SLAB
STA. 403+24.00
N 12°49'27" E
N 12°15'04" E

52°23'30"

UNDERGROUND FIBER OPTICS CABLE

EXISTING STRUCTURE (TO BE PARTIALLY REMOVED, TYP.)

CRUSHED AGGREGATE SLOPE PROTECTION (TYP.)

CONST. LIMITS

EX. R/W

EX. LA-R/W

LA-R/W

℄ R/W W. & L.E. R.R.
N 50°25'57" E

P.I. STA. 399+50.00 N.B.L.
Δ = 0°34'23" RT.
(NO CURVE)

STA. 402+20.12 ℄ N.B. LANES S.R.21
= STA. 46+67.12 ℄ R/W W. & L.E. R.R.

PLAN

SURVEY DATUM: NAVD(88)

UTILITY: GAS LINE IS TO BE RELOCATED BY OWNER AS NEEDED.

P.I. STA. 404+00.00 N.B.L.
Δ = 0°34'23" LT.
(NO CURVE)

① MINIMUM LATERAL CLEARANCE:
25'-8 3/4" – PROVIDED & EXISTING
25'-0" – REQUIRED

② MINIMUM LATERAL CLEARANCE:
19'-8 1/4" – PROVIDED & EXISTING
25'-0" – REQUIRED

③ MINIMUM VERTICAL CLEARANCE:
23'-3 1/4" – PROVIDED
23'-0" – REQUIRED
22'-4 1/2" – EXISTING

LOCATIONS OF PULL BOX, 725.09, 24":

④ STA. 401+09.31 ℄ N.B. LANES, 38.0' RT.

⑤ STA. 404+07.08 ℄ N.B. LANES, 38.43' RT.

NOTATION:
N.B. = NORTHBOUND
S.B. = SOUTHBOUND

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

AVERAGE DAILY TRAFFIC: 29,200 (2004)
36,900 (2024)
AVERAGE DAILY TRUCK TRAFFIC: 4,430 (2024)

TRAFFIC COUNTS INCLUDE BOTH S.B. AND N.B. LANES

FOUNDATION INVESTIGATION LEGEND:

⊕ – INDICATES CORE BORING LOCATION

B-4 @ STA. 400+39.61, 73.71' LT.
B-5 @ STA. 401+13.79, 76.53' LT.
B-6 @ STA. 402+27.86, 67.14' RT.
B-7 @ STA. 402+91.57, 81.38' RT.

⊕ – INDICATES SOIL PROFILE LOCATION

S-3 @ STA. 400+23.10, 11.16' LT.
S-4 @ STA. 400+49.22, 11.71' RT.
S-5 @ STA. 403+91.32, 75.89' LT.
S-6 @ STA. 404+37.38, 66.18' RT.

EXISTING STRUCTURE

TYPE: CONTINUOUS NON-COMPOSITE STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS: 64'-0"±, 80'-0"±, 64'-0"± C/C BRGS.
ROADWAY: 45'-3"± TOE/TOE CONCRETE PARAPETS
LOADING: CF-2000(55)
SKEW: 52°-23'-30"± R.F.
WEARING SURFACE: BITUMINOUS OVER SDC OVERLAY
APPROACH SLABS: AS-1-47 (25'-0"± LONG)
ALIGNMENT: TANGENT
DATE BUILT: 1957
STRUCTURE FILE NO. 7701624

PROPOSED STRUCTURE

TYPE: NEW WIDENED COMPOSITE REINFORCED CONCRETE DECK ON EXTENDED MODIFIED "I" TYPE PIERS AND SEMI-INTEGRAL ABUTMENTS
SPANS: 64'-0"±, 80'-0"±, 64'-0"± C/C BRGS.
ROADWAY: 52'-0" TOE/TOE CONCRETE PARAPETS
LOADING: HS25, CASE II, THE ALTERNATE MILITARY LOADING AND 60 PSF FUTURE WEARING SURFACE
SKEW: 52°-23'-30"± R.F.
WEARING SURFACE: MONOLITHIC CONCRETE
APPROACH SLABS: AS-1-81 (30'-0" LONG)
ALIGNMENT: TANGENT
CROWN: 0.016
LATITUDE: N 41°-05'-48"
LONGITUDE: W 81°-39'-29"

BRIDGE LIMITS = 215.21'
P.V.I. STA. 402+50.00
EL. 1060.22
L.V.C. = 450'
A.D.S. = 69 M.P.H.
TOP OF SLOPE EL. 1050.14
TOP OF SLOPE EL. 1054.44
PROFILE GRADE
EX. GRADE
+2.96%
+0.81%
+2.96%
EXP.
P.V.C.
EL. 1044.80±
CRUSHED AGGREGATE SLOPE PROTECTION (TYP.)
2:1 NORMAL
1.9:1 NORMAL
48"ø DRILLED SHAFT ABOVE BEDROCK (TYP. AT PIERS)
36"ø DRILLED SHAFT INTO BEDROCK (TYP. AT PIERS)
HP12X53 STEEL "H" PILES DRIVEN TO BEDROCK EST. AVG. PAY LENGTH = 40' (TYP. AT ABUTS.)
EL. 1049.08±
EL. 1002.00
EL. 1004.00
TOP OF HARD SILTSTONE & SHALE @ B-6, EL. 1006.2±
TOP OF MODERATELY HARD TO HARD SILTSTONE & SHALE @ B-7, EL. 1007.4±
+08.79
+24.00
400+00
401+00
402+00
403+00
404+00

PROFILE ON ℄ N.B. LANES S.R.21

SCALE: 1:20

EM1482S_NB.DWG

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. • P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756-7302
CONSULTING ENGINEERS – SURVEYORS

DESIGNED JSK | DRAWN JAA | REVIEWED TLS | DATE 12-02
CHECKED KAA | REVISED | STRUCTURE FILE NUMBER 7701624

SUMMIT COUNTY
STA. 401+08.79
STA. 403+24.00

SITE PLAN (NORTHBOUND LANES)
BRIDGE NO. SUM-21-0758R
S.R.21 OVER WHEELING & LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)

1/25

171/223

B.M.: TOP OF I.P. IN MON. BOX STA. 399+99.72, 1.60' LT. ELEV. 1051.34

EX. LA-R/W

EXG R/W

CONST. LIMITS

℄ R/W W. & L.E. R.R.

44+00 N 50°25'57" E

EXISTING STRUCTURE (TO BE PARTIALLY REMOVED, TYP.)

EX. R/W

B-4

B-5

+62.27

+87.23

10'-0"

24'-0"

12'-0"

4'-0"

℄ S.B. LANES S.R.21

N 12°49'27" E

END APPROACH SLAB STA. 400+11.37

POINT OF MINIMUM VERTICAL CLEARANCE

16'-0"

2%

15+00

62°23'30"

34'-0"

55'-0"

18'-0"

1.6:1

1.9:1

1'-6"

BEGIN APPROACH SLAB STA. 402+26.40

12'-0"

+54.73

S-3

S-4

℄ R/W & CONSTR., S.R.21

N 12°49'27" E

399+00

400+00

401+00

402+00

403+00

℄ N.B. LANES S.R.21

N 12°49'27" E

STA. 401+72.09 ℄ R/W & CONSTR., S.R.21
= STA. 46+06.49 ℄ W. & L. E. R.R.

STA. 401+24.06 ℄ S.B. LANES S.R.21
= STA. 45+45.86 ℄ R/W W. & L. E. R.R.

CRUSHED AGGREGATE SLOPE PROTECTION (INCLUDED WITH ROADWAY QUANTITIES FOR PAYMENT, TYP.)

B-6

B-7

UNDERGROUND FIBER OPTICS CABLE

TEL

PLAN

CONST. LIMITS

1052.96 1053.82 1054.67 1055.50 1056.28 1057.03 1057.73 1058.39 1059.01 1059.59 1060.13 1060.63 1061.09 1061.50 1061.88 1062.23 1062.57

BRIDGE LIMITS = 215.03'

PROFILE GRADE

+11.37

+26.40

P.V.I. STA. 401+00.00
EL. 1059.80
L.V.C. = 310'
A.D.S. = 67 M.P.H.

TOP OF SLOPE EL. 1049.86

TOP OF SLOPE EL. 1055.17

+3.42%

+1.39%

EX. GRADE

P.V.C.

P.V.T.

EXP.

EL. 1044.91±

CRUSHED AGGREGATE SLOPE PROTECTION (TYP.)

2:1 NORMAL

1.9:1 NORMAL

EL. 1049.89±

HP12X53 STEEL "H" PILES DRIVEN TO BEDROCK (TYP.)
EST. AVG. PAY LENGTH
= 35' @ REAR ABUTMENT
= 40' @ FWD. ABUTMENT

48"ø DRILLED SHAFT ABOVE BEDROCK (TYP. AT PIERS)

36"ø DRILLED SHAFT INTO BEDROCK (TYP. AT PIERS)

1051.44 1052.20 1052.96 1053.63 1054.29 1054.95 1055.61 1056.47 1057.49 1058.06 1058.64 1059.23 1059.82 1060.34 1060.85 1061.37 1061.66 1061.93 1062.21

399+00 400+00 401+00 402+00 403+00

EL. 1000.00

TOP OF HARD SILTSTONE & SHALE @ B-4, EL. 1003.4±

EL. 1002.00

TOP OF HARD SILTSTONE & SHALE @ B-5, EL. 1006.4±

PROFILE ON ℄ S.B. LANES S.R.21

EM1482S_SB.DWG SCALE: 1:20

N

SURVEY DATUM: NAVD(88)

UTILITY: GAS LINE IS TO BE RELOCATED BY OWNER AS NEEDED.

(1) MINIMUM LATERAL CLEARANCE:
26'-7 3/4" – PROVIDED & EXISTING
25'-0" – REQUIRED

(2) MINIMUM LATERAL CLEARANCE:
18'-9 7/8" – PROVIDED & EXISTING
25'-0" – REQUIRED

(3) MINIMUM VERTICAL CLEARANCE:
23'-0" – PROVIDED
23'-0" – REQUIRED
22'-5" – EXISTING

LOCATIONS OF PULL BOX, 725.09, 24"
(4) STA. 399+27.88 ℄ S.B. LANES, 38.0' LT.
(5) STA. 402+19.88 ℄ S.B. LANES, 38.0' LT.

NOTATION:
N.B. = NORTHBOUND
S.B. = SOUTHBOUND

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

AVERAGE DAILY TRAFFIC: 29,200 (2004)
36,900 (2024)
AVERAGE DAILY TRUCK TRAFFIC: 4,430 (2024)

TRAFFIC COUNTS INCLUDE BOTH S.B. AND N.B. LANES

FOUNDATION INVESTIGATION LEGEND:
⊕–INDICATES CORE BORING LOCATION
B-4 @ STA. 400+39.61, 73.71' LT.
B-5 @ STA. 401+13.79, 76.53' LT.
B-6 @ STA. 402+27.86, 67.14' RT.
B-7 @ STA. 402+91.57, 81.38' RT.

⊕–INDICATES SOIL PROFILE LOCATION
S-3 @ STA. 400+23.10, 11.16' LT.
S-4 @ STA. 400+49.22, 11.71' RT.
S-5 @ STA. 403+91.32, 75.89' LT.
S-6 @ STA. 404+37.38, 66.18' RT.

EXISTING STRUCTURE

TYPE: CONTINUOUS NON-COMPOSITE STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS: 64'-0"±, 80'-0"±, 64'-0"± C/C BRGS.
ROADWAY: 45'-3"± TOE/TOE CONCRETE PARAPETS
LOADING: CF-2000(55)
SKEW: 52°-23'-30"± R.F.
WEARING SURFACE: BITUMINOUS OVER SDC OVERLAY
APPROACH SLABS: AS-1-47 (25'-0"± LONG)
ALIGNMENT: TANGENT
DATE BUILT: 1957
STRUCTURE FILE NO. 7701594

PROPOSED STRUCTURE

TYPE: NEW WIDENED COMPOSITE REINFORCED CONCRETE DECK ON EXTENDED MODIFIED "T" TYPE PIERS AND SEMI-INTEGRAL ABUTMENTS
SPANS: 64'-0"±, 80'-0"±, 64'-0"± C/C BRGS.
ROADWAY: 52'-0" TOE/TOE CONCRETE PARAPETS
LOADING: HS25, CASE II, THE ALTERNATE MILITARY LOADING AND 60 LBS./SQ. FT. FUTURE WEARING SURFACE
SKEW: 52°-23'-30"± R.F.
WEARING SURFACE: MONOLITHIC CONCRETE
APPROACH SLABS: AS-1-81 (30'-0" LONG)
ALIGNMENT: TANGENT
CROWN: 0.016
LATITUDE: N 41°-05'-48"
LONGITUDE: W 81°-39'-29"

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. P.O. BOX 3598
MANSFIELD, OHIO 44901
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CONSULTING ENGINEERS – SURVEYORS

DESIGNED	DRAWN	REVIEWED	DATE
JSK	JAA	TLS	12-02
CHECKED	REVISED	STRUCTURE FILE NUMBER	
KAA		7701594	

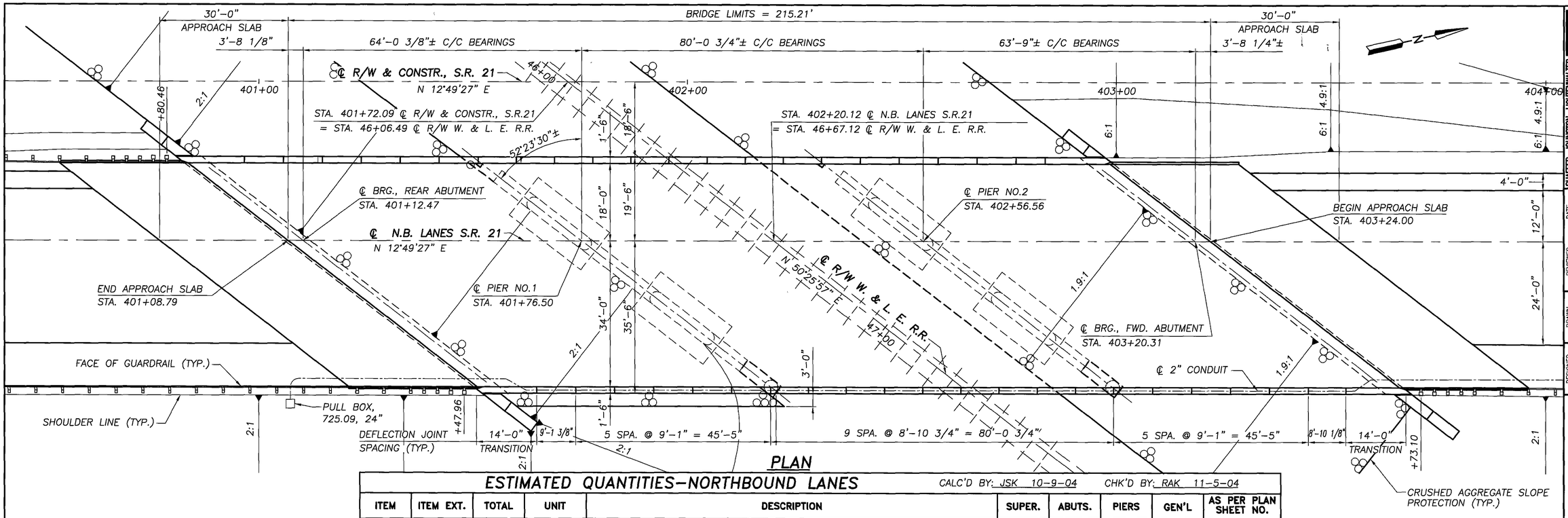
SUMMIT COUNTY
STA. 400+11.37
STA. 402+26.40

SITE PLAN (SOUTHBOUND LANES)
BRIDGE NO. SUM-21-0758L
S.R.21 OVER WHEELING & LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)

2/25

172/223



PLAN

ESTIMATED QUANTITIES–NORTHBOUND LANES

CALC'D BY: JSK 10-9-04 CHK'D BY: RAK 11-5-04

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUTS.	PIERS	GEN'L	AS PER PLAN SHEET NO.
202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LUMP	5/25
202	22900	228	SQ YD	APPROACH SLAB REMOVED		228			
503	11100	LUMP		COFFERDAMS, CRIBS AND SHEETING				LUMP	
503	21301	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN				LUMP	5/25
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP	
507	00200	765	FT	STEEL PILES HP12X53, FURNISHED		765			
507	00250	680	FT	STEEL PILES HP12X53, DRIVEN		680			
509	10000	131,304	POUND	EPOXY COATED REINFORCING STEEL	115,468	4954	10,882		
509	20001	1000	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN				1000	23/25
510	10000	645	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT		263	382		
511	43200	237	CU YD	CLASS C CONCRETE, PIER			237		
511	43500	105	CU YD	CLASS C CONCRETE, ABUTMENT INCLUDING FOOTING		105			
511	50001	444	CU YD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN	444				5/25
511	50101	67	CU YD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN	67				5/25
511	52000	LUMP		CLASS HP CONCRETE TEST SLAB	LUMP				
513	10241	54,704	POUND	STRUCTURAL STEEL MEMBERS, LEVEL 2, A572, AS PER PLAN	54,704				11/25 & 19/25
513	20000	3942	EACH	WELDED STUD SHEAR CONNECTORS	3942				
514	00050	14,163	SQ FT	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL*	14,163				
514	00056	14,163	SQ FT	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT*	14,163				
514	00060	16,474	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT*	16,474				
514	00066	16,474	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT*	16,474				
514	00504	21	MAN HOUR	GRINDING FINS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL*	21				
514	10000	9	EACH	FINAL INSPECTION REPAIR*	9				
516	14021	210	FT	SEMI–INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN		210			5/25
516	44001	14	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN, 1 7/8" x 1'–0" x 1'–7" WITH 2" x 1'–1" x 1'–8" LOAD PLATE			14		21/25
516	44101	14	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN, 2 7/16" x 9" x 1'–2" WITH 1 1/2" x 10" x 1'–5 1/2" LOAD PLATE		14			21/25
516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN	LUMP				5/25
518	21201	154	CU YD	POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN		154			11/25
518	40000	227	FT	6" PERFORATED CORRUGATED PLASTIC PIPE		227			
518	40010	69	FT	6" NON–PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS		69			
519	11101	50	SQ FT	PATCHING CONCRETE STRUCTURE, AS PER PLAN				50	23/25
524	94704	8	FT	DRILLED SHAFTS, 36" DIAMETER, INTO BEDROCK			8		
524	94902	48	FT	DRILLED SHAFTS, 48" DIAMETER, ABOVE BEDROCK			48		
526	30000	347	SQ YD	REINFORCED CONCRETE APPROACH SLAB (T=17")				347	
601	20000	1738	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION				1738	
603	00400	40	FT	4" CONDUIT, TYPE E				40	
625	25400	329	FT	CONDUIT, 2", 725.04	329				
625	30600	2	EACH	PULL BOX. 725.09, 24"				2	
864	10100	1385	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY–URETHANE)	547	66	772		

*SEE PROPOSAL NOTE

SCALE: 1:180

EM1482GP_NB.DWG

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909 S. MAIN ST. P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756-7302
CONSULTING ENGINEERS – SURVEYORS

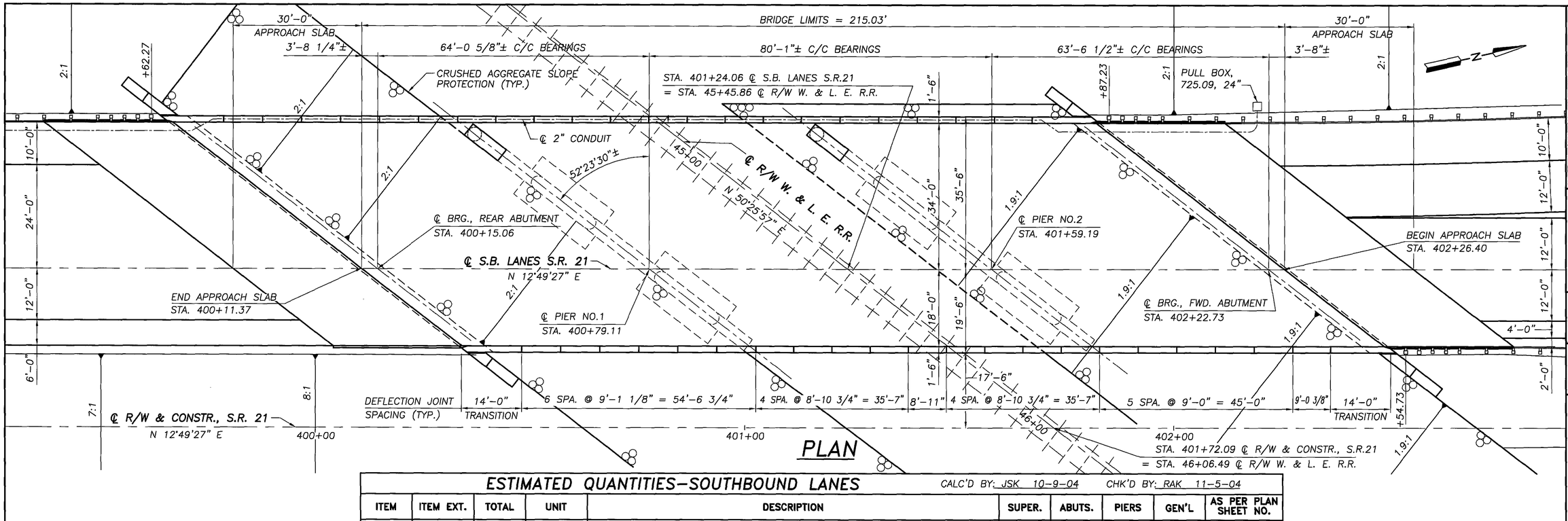
DESIGNED JSK | DRAWN JSK | REVIEWED TLS | DATE 10-04
CHECKED RAK | REVISED | STRUCTURE FILE NUMBER 7701624

GENERAL PLAN & ESTIMATED QUANTITIES (NORTHBOUND LANES)
BRIDGE NO. SUM-21-0758R
S.R.21 OVER WHEELING AND LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)

3/25

173/223



PLAN

ESTIMATED QUANTITIES–SOUTHBOUND LANES

CALC'D BY: JSK 10-9-04 CHK'D BY: RAK 11-5-04

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUTS.	PIERS	GEN'L	AS PER PLAN SHEET NO.
202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LUMP	5/25
202	22900	226	SQ YD	APPROACH SLAB REMOVED		226			
503	11100	LUMP		COFFERDAMS, CRIBS AND SHEETING				LUMP	
503	21301	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN				LUMP	5/25
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP	
507	00200	765	FT	STEEL PILES HP12X53, FURNISHED		765			
507	00250	675	FT	STEEL PILES HP12X53, DRIVEN		675			
509	10000	132,382	POUND	EPOXY COATED REINFORCING STEEL	115,738	5555	11,089		
509	20001	1000	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN				1000	23/25
510	10000	653	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT		269	384		
511	43200	239	CU YD	CLASS C CONCRETE, PIER			239		
511	43500	83	CU YD	CLASS C CONCRETE, ABUTMENT INCLUDING FOOTING		83			
511	50001	447	CU YD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN	447				5/25
511	50101	67	CU YD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN	67				5/25
511	52000	LUMP		CLASS HP CONCRETE TEST SLAB	LUMP				
513	10241	57,088	POUND	STRUCTURAL STEEL MEMBERS, LEVEL 2, A572, AS PER PLAN	57,088				11/25 & 19/25
513	20000	3945	EACH	WELDED STUD SHEAR CONNECTORS	3945				
514	00050	14,161	SQ FT	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL*	14,161				
514	00056	14,161	SQ FT	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT*	14,161				
514	00060	16,475	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT*	16,475				
514	00066	16,475	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT*	16,475				
514	00504	21	MAN HOUR	GRINDING FINS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL*	21				
514	10000	9	EACH	FINAL INSPECTION REPAIR*	9				
516	14021	210	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN		210			5/25
516	44001	14	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN, 1 7/8" x 1'-0" x 1'-7" WITH 2" x 1'-1" x 1'-8" LOAD PLATE			14		21/25
516	44101	14	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN, 2 7/16" x 9" x 1'-2" WITH 1 1/2" x 10" x 1'-5 1/2" LOAD PLATE		14			21/25
516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN	LUMP				5/25
518	21201	158	CU YD	POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN		158			11/25
518	40000	233	FT	6" PERFORATED CORRUGATED PLASTIC PIPE		233			
518	40010	69	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS		69			
519	11101	50	SQ FT	PATCHING CONCRETE STRUCTURE, AS PER PLAN				50	23/25
524	94704	8	FT	DRILLED SHAFTS, 36" DIAMETER, INTO BEDROCK			8		
524	94902	52	FT	DRILLED SHAFTS, 48" DIAMETER, ABOVE BEDROCK			52		
526	30000	347	SQ YD	REINFORCED CONCRETE APPROACH SLAB (T=17")				347	
601	20000	1750	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION				1750	
603	00400	40	FT	4" CONDUIT, TYPE E				40	
625	25400	324	FT	CONDUIT, 2", 725.04	324				
625	30600	2	EACH	PULL BOX, 725.09, 24"				2	
864	10100	1425	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	550	82	793		

*SEE PROPOSAL NOTE

SCALE: 1:180

EM1482GP_SB.DWG

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DESIGNED JSK | DRAWN JSK | REVIEWED TLS 10-04 | DATE | STRUCTURE FILE NUMBER 7701594
CHECKED RAK | REVISED

GENERAL PLAN & ESTIMATED QUANTITIES (SOUTHBOUND LANES)
BRIDGE NO. SUM-21-0758L
S.R.21 OVER WHEELING AND LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)

4/25

174/223

GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:
AS-1-81, REVISED 7-19-02
GSD-1-96, REVISED 7-19-02
HL-30.11, DATED 4-19-02
HL-30.32, DATED 4-19-02
SICD-1-96, REVISED 7-19-02

AND TO SUPPLEMENTAL SPECIFICATIONS:
864, DATED 7-11-00

DESIGN SPECIFICATIONS:
THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002, AND THE O.D.O.T. BRIDGE DESIGN MANUAL.

DESIGN LOADING:
HS25, CASE II AND THE ALTERNATE MILITARY LOADING.
FUTURE WEARING SURFACE (FWS) OF 60 psf.

DESIGN DATA:
CONCRETE CLASS HP - COMPRESSIVE STRENGTH 4500 psi (SUPERSTRUCTURE)
CONCRETE CLASS C - COMPRESSIVE STRENGTH 4000 psi (SUBSTRUCTURE)
STRUCTURAL STEEL -
A.S.T.M. A373 GRADE 33 - YIELD STRENGTH 33,000 psi. (EXISTING BEAMS & CROSS FRAMES)
A.S.T.M. A572/A709 GRADE 50 - YIELD STRENGTH 50,000 psi. (NEW BEAMS & CROSS FRAMES)
REINFORCING STEEL -
ASTM A615, A616 OR A617, GRADE 60 MINIMUM YIELD STRENGTH 60,000 psi
SPIRAL REINFORCEMENT MAY BE PLAIN BARS, A.S.T.M. A82 OR A615.
MINIMUM CONCRETE COVER - 2 INCHES UNLESS OTHERWISE NOTED.

DECK PROTECTION METHOD:
EPOXY COATED REINFORCING STEEL, 2 1/2" CONCRETE COVER AND SEALING OF CONCRETE SURFACES.

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

PROPOSED WORK:
DEMOLITION - STAGED REMOVAL OF CONCRETE DECK, SAFETY CURBS, CONCRETE PARAPETS, ABUTMENT BACKWALLS AND WINGWALLS, ABUTMENT AND PIER BEARINGS, END CROSS FRAMES, APPROACH SLABS, GUARDRAILS AND SPALLED PORTIONS OF ABUTMENT BREASTWALLS AND PIERS.

CONSTRUCTION - EXTEND CAP OF T-TYPE PIERS WITH DRILLED SHAFT-SUPPORTED COLUMNS. CONSTRUCT 3'-3" THICK REINFORCED CONCRETE CRASHWALLS BETWEEN PIER STEMS AND COLUMNS AT PIER NOS. 1 AND 2. DRIVE NEW HP12X53 STEEL "H" PILES TO SUPPORT PROPOSED ABUTMENT PILE CAP EXTENSIONS. JACK AND SUPPORT SUPERSTRUCTURE TO PROVIDE 23'-0" MINIMUM VERTICAL CLEARANCE. CONSTRUCT ABUTMENT PILE CAP EXTENSIONS AND NEW ABUTMENT AND PIER BRIDGE SEATS. INSTALL NEW ELASTOMERIC BEARINGS AT ABUTMENTS AND PIERS. REMOVE EXISTING PAINT AND RUST OFF EXISTING BEAMS AND CROSS FRAMES. CONSTRUCT NEW CONTINUOUS STEEL FASCIA BEAMS AND CROSS FRAMES. INSTALL WELDED STUD SHEAR CONNECTORS ON ALL BEAMS. CONSTRUCT NEW COMPOSITE CONCRETE DECK, BRIDGE PARAPETS AND END DIAPHRAGMS (AT ABUTMENTS). PAINT NEW AND EXISTING STEEL BEAMS, CROSS FRAMES AND LOAD PLATES AT BEARINGS. CONSTRUCT NEW CONCRETE APPROACH SLABS.

TRAFFIC - TO BE MAINTAINED DURING CONSTRUCTION. FOR MAINTENANCE OF TRAFFIC DETAILS, SEE SHEETS 14 THROUGH 70 OF 223 IN ROADWAY PLANS.

WORK SEQUENCE:
- CLOSE NORTHBOUND LANES AND DETOUR TRAFFIC TO SOUTHBOUND LANES (M.O.T.-PHASE 2).
- PERFORM FOLLOWING WORK SEQUENCE ITEMS FOR NORTHBOUND STRUCTURE ONLY:
- REMOVE EXISTING CONCRETE DECK, SAFETY CURBS, CONCRETE PARAPET, EXPANSION JOINTS, STEEL END CROSS FRAMES, BEARINGS, APPROACH SLABS AND PORTIONS OF ABUTMENTS.
- JACK AND SUPPORT EXISTING STEEL SUPERSTRUCTURE.
- CONSTRUCT DRILLED SHAFTS AND PIER CAP EXTENSIONS.
- CONSTRUCT CONCRETE CRASHWALLS AT PIER NOS. 1 AND 2.
- CONSTRUCT ABUTMENT PILE CAP EXTENSIONS.
- CONSTRUCT NEW ABUTMENT AND PIER BRIDGE SEATS.
- INSTALL NEW ELASTOMERIC BEARINGS AT ABUTMENTS AND PIERS.
- CONSTRUCT NEW FASCIA BEAMS AND CROSS FRAMES.
- CLEAN PAINT AND RUST OFF EXISTING BEAMS.
- INSTALL STUD SHEAR CONNECTORS ON ALL BEAMS.
- CONSTRUCT CONCRETE END DIAPHRAGMS AT ABUTMENTS.
- CONSTRUCT NEW CONCRETE DECK AND PARAPETS.
- CONSTRUCT ABUTMENT WINGWALLS AND APPROACH SLABS.
- INSTALL NEW GUARDRAILS AND OPEN REHABILITATED NORTHBOUND STRUCTURE TO TRAFFIC.
- CLOSE SOUTHBOUND LANES AND DETOUR TRAFFIC TO NORTHBOUND LANES (M.O.T.-PHASE 3).
- REPEAT PRECEDING WORK SEQUENCE ITEMS FOR SOUTHBOUND STRUCTURE ONLY.

ITEM 603, 4" CONDUIT, TYPE E:
AN ALLOWANCE OF 20 FEET OF 4" CONDUIT, TYPE E, HAS BEEN PROVIDED TO DRAIN EACH PULL BOX AS DIRECTED BY THE ENGINEER.

STRUCTURE EXCAVATION LIMITS:
STRUCTURE EXCAVATION LIMITS FOR THE PROPOSED STRUCTURE SHALL BE AS DEFINED IN 503.11 EXCEPT THAT THERE SHALL BE NO DEDUCTION FOR REMOVALS MADE AS PART OF 202. EXCAVATION OUTSIDE THESE LIMITS NECESSARY TO REMOVE PORTIONS OF THE EXISTING STRUCTURE IS INCLUDED IN 202 FOR PAYMENT.

ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN:
UNCLASSIFIED EXCAVATION SHALL BE IN ACCORDANCE WITH 503 EXCEPT THAT THE BACK- FILL MATERIAL BEHIND THE ABUTMENTS SHALL BE 203 MATERIAL PLACED IN 6" LIFTS AND COMPACTED IN ACCORDANCE WITH 304.05.

INSPECTION OF EXISTING STRUCTURAL STEEL: THE ENGINEER WILL VISUALLY INSPECT ALL EXISTING BUTT-WELDED SPLICES AND/OR TOP FLANGE COVER PLATE FILLET WELDS TO ENSURE THE WELDS, PLATES AND BEAMS ARE FREE OF DEFECTS AND CRACKS. IF NECESSARY, REMOVE ALL DECK SLAB HAUNCH FORMS IMMEDIATELY ADJACENT TO SUCH WELDS THAT MAY INTERFERE WITH THE ENGINEER'S INSPECTION. THE INSPECTION WILL NOT TAKE PLACE UNTIL THE TOP FLANGES ARE CLEANED ACCORDING TO 511.10, BUT IT WILL BE DONE BEFORE THE DECK SLAB REINFORCEMENT IS INSTALLED. THE DEPARTMENT WILL PAY FOR THE COST ASSOCIATED WITH THIS INSPECTION WITH ITEM 894, HIGH PERFORMANCE CONCRETE, FOR BRIDGE DECK WITH WARRANTY, AS PER PLAN. THE ENGINEER WILL REPORT ALL CRACKS FOUND TO THE OFFICE OF CONSTRUCTION ADMINISTRATION, BRIDGE CONSTRUCTION SPECIALIST, ALONG WITH SPECIFIC INFORMATION ON LOCATION OF THE CRACKS, LENGTH, AND DEPTH SO AN EVALUATION AND REPAIR OR REPLACEMENT RECOMMENDATION CAN BE MADE.

PILES TO BEDROCK: DRIVE PILES TO REFUSAL ON BEDROCK. THE DEPARTMENT WILL CONSIDER REFUSAL TO BE OBTAINED BY PENETRATING SOFT BEDROCK FOR SEVERAL INCHES TO A MINIMUM RESISTANCE OF 20 BLOWS PER INCH OR BY CONTACTING HARD BEDROCK AND THE PILE RECEIVING AT LEAST 20 BLOWS. SELECT THE HAMMER SIZE TO ACHIEVE THE REQUIRED DEPTH TO BEDROCK AND REFUSAL.

THE ULTIMATE BEARING VALUE IS 42 TONS PER PILE FOR THE NORTHBOUND REAR AND FORWARD ABUTMENT HP12x53 STEEL "H" PILES. THE ULTIMATE BEARING VALUE IS 40 TONS PER PILE FOR THE SOUTHBOUND REAR ABUTMENT HP12x53 STEEL "H" PILES AND 48 TONS PER PILE FOR THE SOUTHBOUND FORWARD ABUTMENT HP12x53 STEEL "H" PILES.

NORTHBOUND REAR AND FORWARD ABUTMENT PILES:
9 PILES 45 FT LONG, ORDER LENGTH (REAR)
8 PILES 45 FT LONG, ORDER LENGTH (FORWARD)

SOUTHBOUND ABUTMENT PILES:
9 PILES 40 FT LONG, ORDER LENGTH (REAR)
8 PILES 45 FT LONG, ORDER LENGTH (FORWARD)

ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN:
DESCRIPTION: THIS WORK SHALL CONSIST OF THE REMOVAL OF CONCRETE DECKS INCLUDING SAFETY CURBS, PARAPETS, DECK JOINTS AND OTHER APPURTENANCES FROM STEEL SUPPORTING SYSTEMS (BEAMS, CROSS FRAMES, ETC.) AND PORTIONS OF EXISTING SUBSTRUCTURES. CARE SHALL BE TAKEN DURING DECK AND SUBSTRUCTURE REMOVALS TO PROTECT PORTIONS OF SUCH SYSTEMS THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. IN THIS RESPECT, THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED.

PROTECTION OF TRAFFIC: PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING STRUCTURE, THE CONTRACTOR SHALL SUBMIT PLANS FOR THE PROTECTION OF TRAFFIC UNDER THE STRUCTURE TO THE DIRECTOR FOR APPROVAL. THESE PLANS SHALL INCLUDE PROVISIONS FOR ANY DEVICES AND STRUCTURES THAT MAY BE NECESSARY TO ENSURE SUCH PROTECTION. TEMPORARY VERTICAL CLEARANCES SPECIFIED ON THE PLANS OR IN THE PROPOSAL SHALL BE MAINTAINED AT ALL TIMES EXCEPT AS OTHERWISE APPROVED BY THE DIRECTOR.

PROTECTION OF STEEL SUPPORT SYSTEMS: BEFORE DECK SLAB CUTTING IS PERMITTED, THE OUTLINE OF PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK SHALL BE DRAWN ON THE SURFACE OF THE DECK. SMALL DIAMETER PILOT HOLES SHALL BE DRILLED 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2 INCHES OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. DURING CUTTING OF THE DECK SLAB, CARE SHALL BE TAKEN NOT TO DAMAGE STEEL MEMBERS THAT ARE TO BE INCORPORATED INTO THE PROPOSED STRUCTURE.

REMOVAL METHODS: CONCRETE MAY BE REMOVED BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNT CHISEL TYPE TOOLS. FOR REMOVALS OVER BRIDGE MEMBERS, A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS MAY BE USED AT THE APPROVAL OF THE ENGINEER. DUE TO THE POSSIBLE PRESENCE OF WELDED ATTACHMENTS TO EXISTING STRUCTURAL STEEL (FINISHING MACHINE, SCUPPER AND FORM SUPPORTS, ETC.), CARE SHALL BE TAKEN DURING DECK REMOVAL TO AVOID DAMAGING STRINGERS WHICH ARE TO REMAIN. STRINGERS DAMAGED BY THE CONTRACTOR'S REMOVAL OPERATIONS SHALL, AT NO COST TO THE PROJECT, BE REPLACED OR REPAIRED. PROPOSED REPAIRS, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER, SHALL BE SUBMITTED IN WRITING FOR REVIEW AND APPROVAL BY THE DIRECTOR.

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, SHALL BE LEFT IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THE JOINT SURFACE AND EXPOSED REINFORCEMENT SHALL BE THOROUGHLY CLEANED OF ALL DIRT, DUST, RUST OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH BUT ALL PACK AND LOOSE RUST SHALL BE REMOVED. EXISTING CONCRETE SURFACES AGAINST WHICH NEW CONCRETE WILL BE PLACED SHALL BE WET, BUT WITHOUT FREE WATER, AT THE TIME OF CONCRETE PLACEMENT.

SUBSTRUCTURE CONCRETE REMOVAL SHALL BE BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. HYDRAULIC HOE-RAM TYPE HAMMERS WILL NOT BE PERMITTED. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAT 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, HAMMERS NOT EXCEEDING 90 POUNDS MAY BE USED UPON THE APPROVAL OF THE ENGINEER. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

EXTRANEOUS MEMBERS: EXISTING EXTRANEOUS MEMBERS (I.E. FINISHING MACHINE AND FORM SUPPORTS, ETC., AND THE SUPPORT FOR SCUPPERS WHICH ARE TO BE REMOVED) ATTACHED BY WELDED CONNECTION TO THE DESIGNATED TENSION PORTIONS OF THE TOP FLANGES OF EXISTING STEEL MEMBERS SHALL BE REMOVED AND THE FLANGE SURFACES GROUND SMOOTH. GRINDING SHALL BE CAREFULLY DONE AND PARALLEL TO THE FLANGES.

LOADING LIMITATIONS: NO PART OF THE STRUCTURE SHALL BE SUBJECTED TO UNIT STRESSES THAT EXCEED 136.5% OF ALLOWABLE UNIT STRESSES AS DEFINED IN THE A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DUE EITHER TO DEMOLITION, ERECTION OR CONSTRUCTION METHODS, OR TO THE USE OR MOVEMENT OF DEMOLITION OR ERECTION EQUIPMENT ON OR ACROSS THE STRUCTURE. STRUCTURAL ANALYSIS COMPUTATIONS, BY AN OHIO REGISTERED PROFESSIONAL ENGINEER, SHOWING THE ALLOWABLE STRESSES AND THE MAXIMUM STRESSES PRODUCED BY THE CONTRACTOR'S METHODS OR EQUIPMENT SHALL BE SUBMITTED TO THE DIRECTOR FOR REVIEW AND APPROVAL AT LEAST TWO WEEKS PRIOR TO THE START OF THE WORK.

EXISTING END CROSS FRAME REMOVAL: THE EXISTING END CROSS FRAMES SHALL BE REMOVED AND WEB SURFACES GROUND SMOOTH. GRINDING SHALL BE CAREFULLY DONE IN THE HORIZONTAL DIRECTION.

PAYMENT: THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE BID, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK IN CONFORMANCE WITH THESE REQUIREMENTS, WITH PERTINENT PROVISIONS OF 202, AND TO THE SATISFACTION OF THE ENGINEER.

REMOVAL OF EXISTING STRUCTURE:
WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC, PORTIONS OF THE EXISTING STRUCTURE SHALL BE REMOVED AS PREVIOUSLY DESCRIBED.

ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN:
THIS WORK CONSISTS OF RAISING OR REPOSITIONING THE EXISTING STRUCTURE TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS.

SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH CMS 501.05.

IF, DURING THE JACKING OPERATIONS, DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, IMMEDIATELY CEASE THE JACKING OPERATION AND INSTALL SUPPORTS TO THE SATISFACTION OF THE ENGINEER. ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. THE BRIDGE BEARINGS SHALL BE FULLY SEATED AT ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUBMIT A REPAIR PLAN TO THE ENGINEER. THE DEPARTMENT WILL NOT PAY FOR THE REPAIR COSTS TO ENSURE FULL SEATING ON BEARINGS.

THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN:
INSTALL A 3 FOOT WIDE NEOPRENE SHEET AT LOCATIONS SHOWN IN THE PLANS. SECURE THE NEOPRENE SHEETING TO THE CONCRETE WITH 1 1/4" x #10 GAUGE (LENGTH x SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 1 INCH OUTSIDE DIAMETER, #10 GAUGE GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 9 INCHES. USE OF OTHER SIMILAR GALVANIZED DEVICES, WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 6 INCHES±, FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS, SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 6 INCHES±, FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF ROADWAY. FOR VERTICAL JOINTS, INSTALL TWO ADDITIONAL FASTENERS AT 6 INCHES, CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHOULD COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED, SHALL BE AT LEAST 1 FOOT IN LENGTH, OR 6 INCHES IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

THE NEOPRENE SHEETING SHALL BE 3/32" THICK GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003," BY E. I. DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY THE GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	A.S.T.M. METHOD	REQUIREMENT
THICKNESS, INCHES	D751	0.094" ± 0.01
BREAKING STRENGTH, GRAB, LBS., MINIMUM (LONG. x TRANS.)	D751	700 X 700
ADHESIVE STRIP, 1" WIDE x 2" LONG, LBS., MINIMUM	D751	9
BURST STRENGTH, PSI, MINIMUM	D751	1400
HEAT AGING, 70 HR, 212°F, 180° BEND WITHOUT CRACKING	D2136	NO CRACKING OF COATING
LOW TEMP. BRITTLENESS, 1 HR, -40°F, BEND AROUND 1/4" MANDREL	D2136	NO CRACKING OF COATING

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE TOTAL LENGTH OF JOINT TO BE SEALED BY THE NUMBER OF FEET.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.

ITEM 511, CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN &
ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN:
THE PROVISIONS OF 511 SHALL APPLY EXCEPT AS NOTED BELOW.

SLIPFORMING:
SLIPFORMING SHALL NOT BE ALLOWED FOR THIS PROJECT.

MIX OPTIONS:
MIX 4, AS PER PLAN, SHALL BE THE ONLY MIX OPTION FOR THESE ITEMS. THE FOLLOWING PROPORTIONS WILL BE USED AS A STARTING MIX DESIGN.

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)
MIX 4, AS PER PLAN (GGBF SLAG + MICROSILICA)

AGGREGATE TYPE	FINE AGG. (LBS.)	#8 COARSE AGG. (LBS.)	#57 COARSE AGG. (LBS.)	TOTAL (LBS.)	CEMENT CONTENT (LBS.)	GGBF SLAG (LBS.)	MICRO-SILICA (LBS.)	WATER TO CEMENTIOUS RATIO (MAX.)	AIR CONTENT ± 2%
GRAVEL	1245	360	1315	2920	400	170	30	0.42	7
LIMESTONE	1245	360	1335	2940	400	170	30	0.42	7
SLAG	1245	315	1155	2715	400	170	30	0.42	7

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.82, LIMESTONE SAND 2.68, LIMESTONE 2.85, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICROSILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER PER A.S.T.M. C127.

BASIS OF PAYMENT: PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

ITEM	EXTENSION	UNITS	DESCRIPTION
511	50001	CU. YD.	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN
511	50101	CU. YD.	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN

ITEM 864, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE):
THE CONCRETE SEALING MATERIAL SHALL BE THE "LIGHT NEUTRAL" COLOR MEETING FEDERAL COLOR STANDARD NO. 17778 AS PER THE DETAILS IN THE PLANS. FOR ADDITIONAL NOTES, SEE SUPPLEMENTAL SPECIFICATION 864.

GENERAL NOTES ARE CONTINUED ON SHEET 23 OF 25.

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(419) 756-7302
CONSULTING ENGINEERS - SURVEYORS

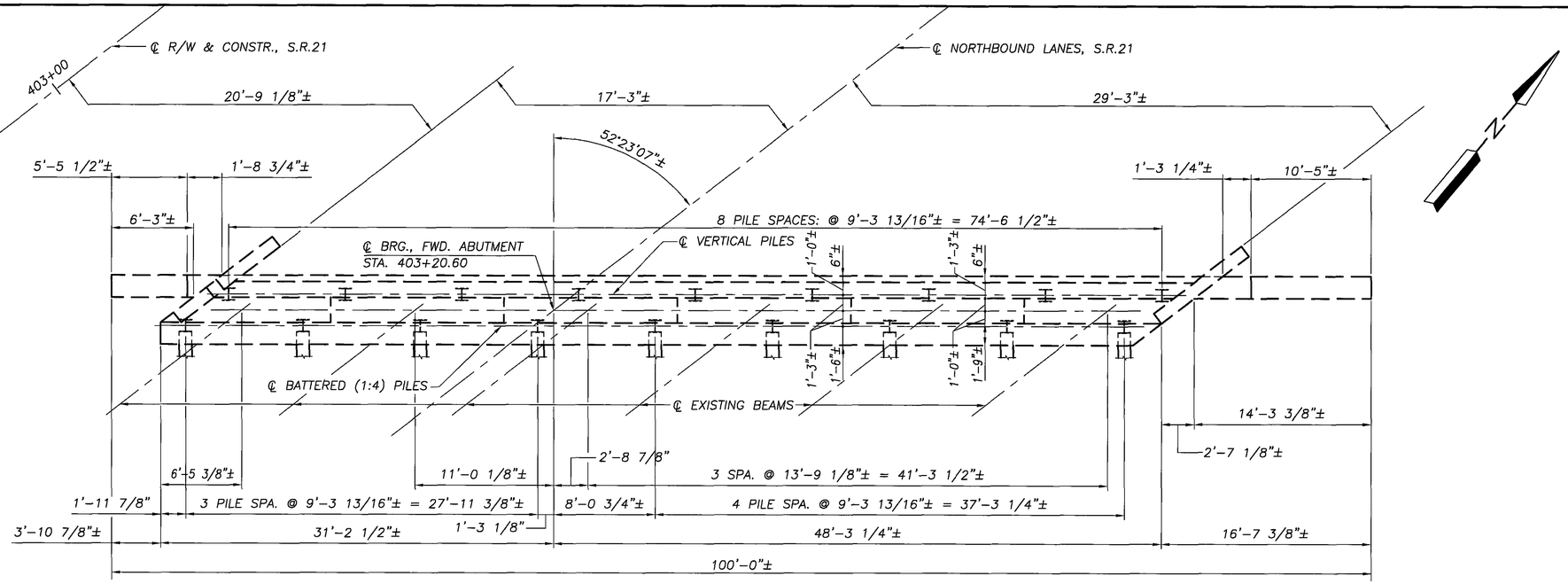
DESIGNED JSK
DRAWN JSK
CHECKED RAK
REVIEWED TLS 10-04
DATE
STRUCTURE FILE NUMBER
7701824 (NBL)
7701594 (SBL)
REVISED

GENERAL NOTES
BRIDGE NOS. SUM-21-07
S.R.21 OVER WHEELING AND LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)

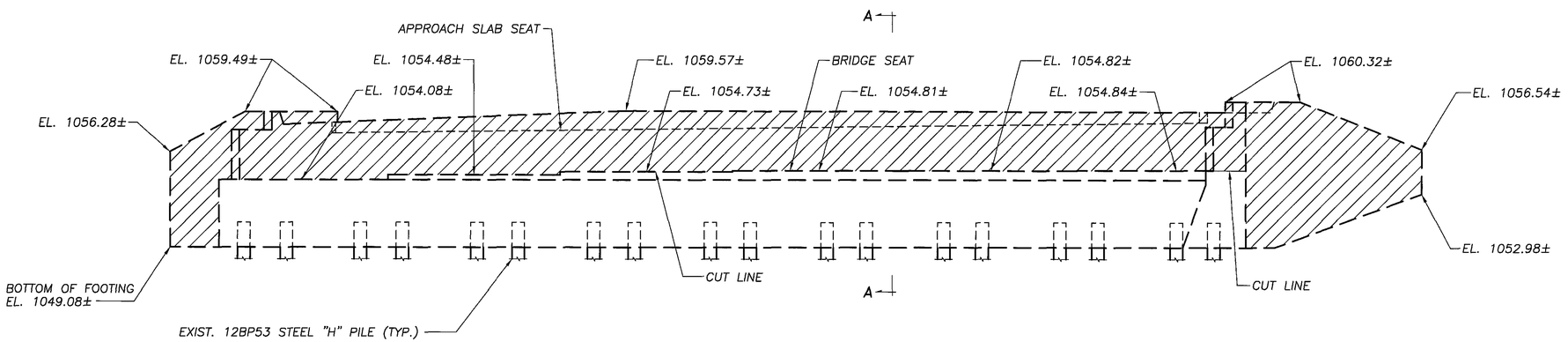
5/25
175/223

EM14826P_NOTES.DWG SCALE: 1:96



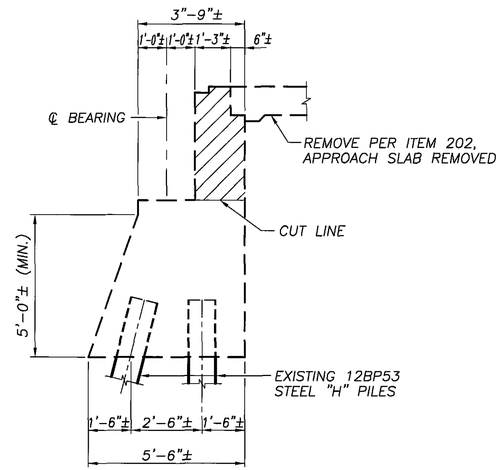
PLAN

FORWARD ABUTMENT NORTHBOUND LANES SHOWN,
OTHER ABUTMENTS SIMILAR



ELEVATION

LOOKING AHEAD



SECTION A-A

NOTES:

HATCHED AREAS INDICATE CONCRETE WHICH IS TO BE REMOVED, AS PER ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.

FOR ABUTMENT NOTES, SEE SHEET 11 OF 25.

FOR PIER REMOVAL DETAILS, SEE SHEETS 12 THROUGH 15 OF 25.

FOR END CROSS FRAME REMOVAL DETAILS, SEE SHEET 18 OF 25.

SCALE: 1:64

EM1482AB_REMOVALS.DWG

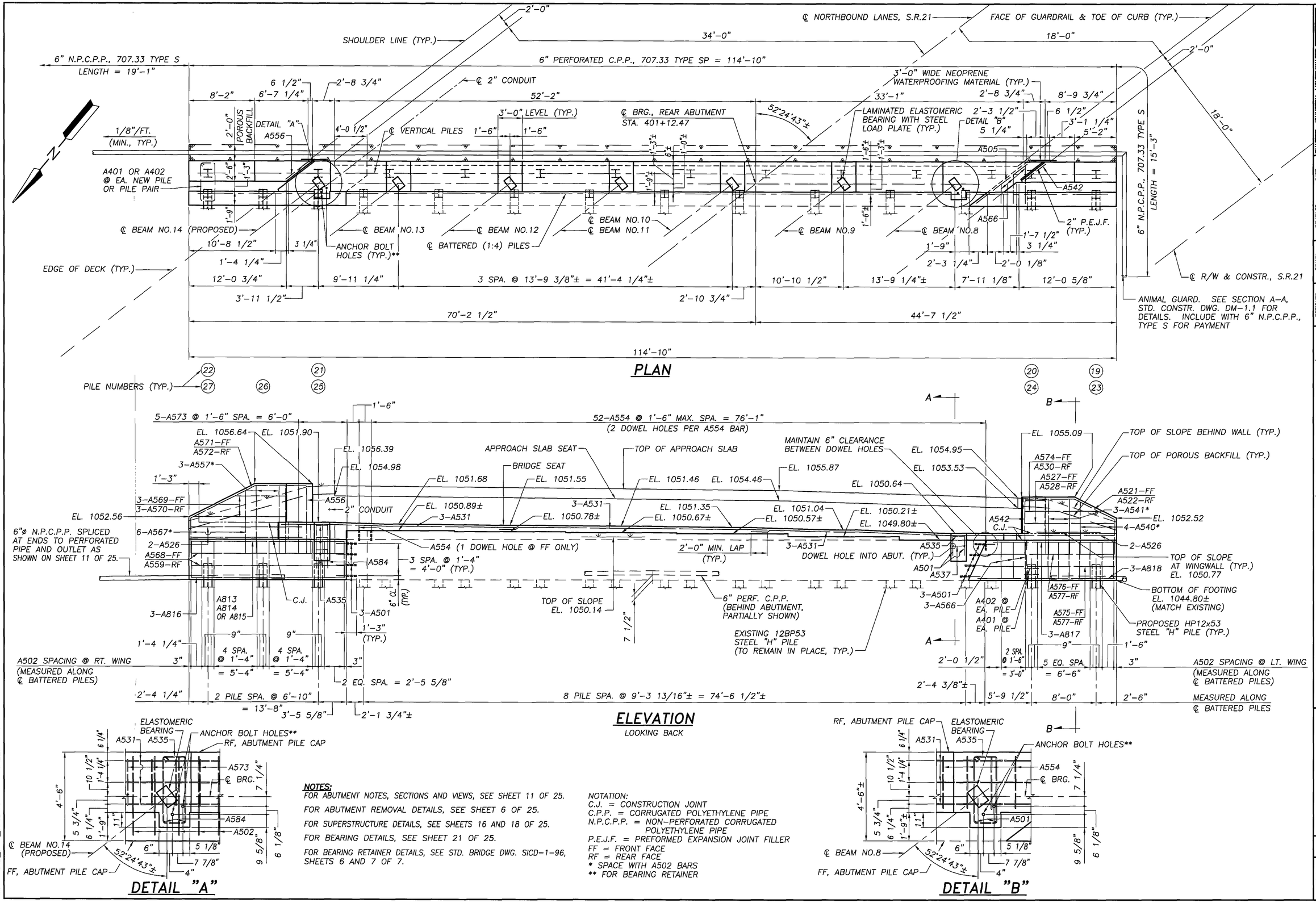
SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. - P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 526-2222
CONSULTING ENGINEERS - SURVEYORS

DESIGNED	DRAWN	REVIEWED	DATE
JSK	JAA	TLS	10-04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701624(NBL) 7701594(SBL)	

ABUTMENT REMOVALS

BRIDGE NOS. SUM-21-0758L&R
S.R.21 OVER WHEELING AND LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)



NOTES:

FOR ABUTMENT NOTES, SECTIONS AND VIEWS, SEE SHEET 11 OF 25.

FOR ABUTMENT REMOVAL DETAILS, SEE SHEET 6 OF 25.

FOR SUPERSTRUCTURE DETAILS, SEE SHEETS 16 AND 18 OF 25.

FOR BEARING DETAILS, SEE SHEET 21 OF 25.

FOR BEARING RETAINER DETAILS, SEE STD. BRIDGE DWG. SICD-1-96, SHEETS 6 AND 7 OF 7.

NOTATION:
C.J. = CONSTRUCTION JOINT
C.P.P. = CORRUGATED POLYETHYLENE PIPE
N.P.C.P.P. = NON-PERFORATED CORRUGATED POLYETHYLENE PIPE
P.E.J.F. = PREFORMED EXPANSION JOINT FILLER
FF = FRONT FACE
RF = REAR FACE
* SPACE WITH A502 BARS
** FOR BEARING RETAINER

EM1482AB_NBL_RA.DWG SCALE: 1:64

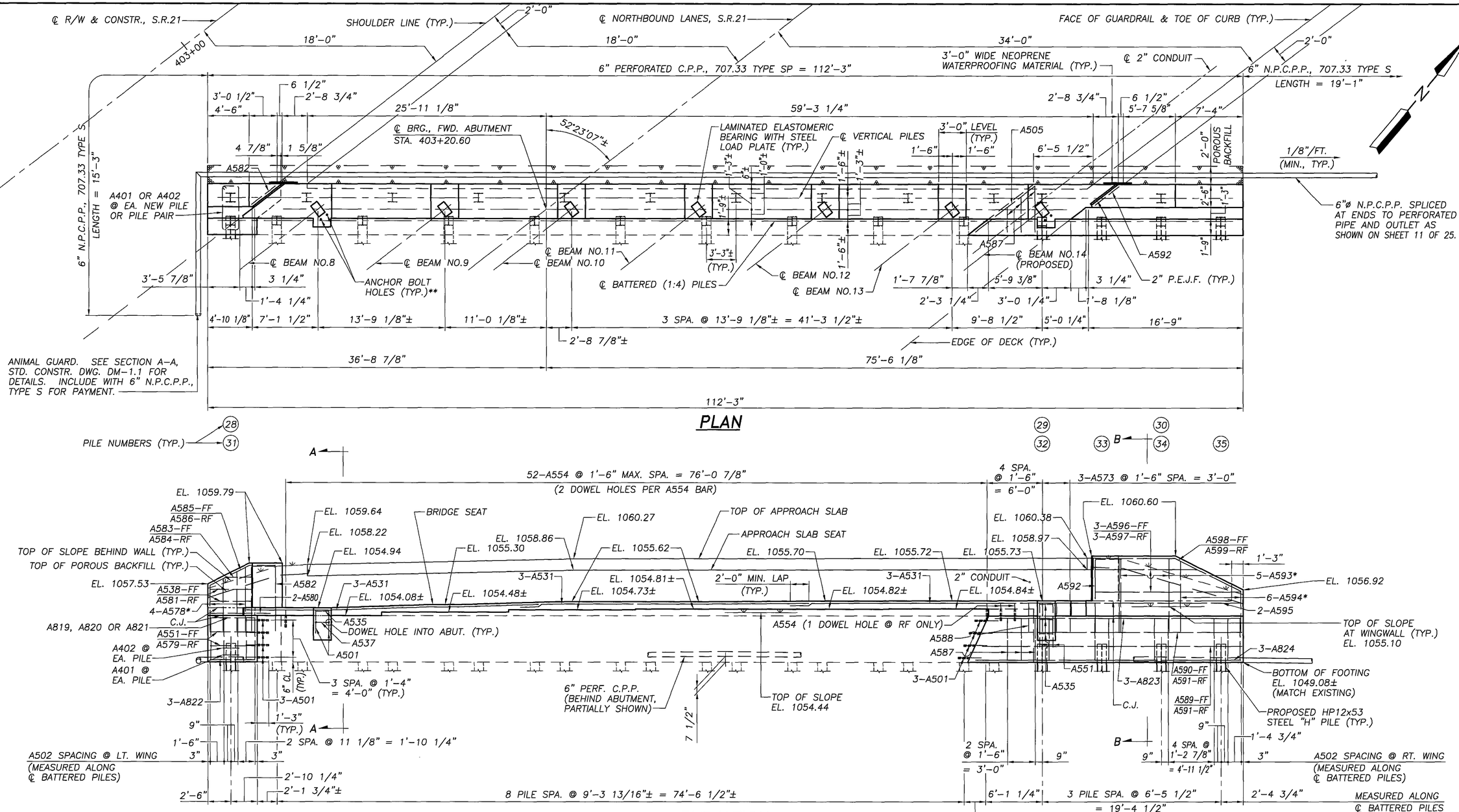
SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. - P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 522-3232
CONSULTING ENGINEERS - SURVEYORS

DESIGNED JSK
DRAWN JSK
CHECKED RAK
REVIEWED TLS
DATE 9-04
STRUCTURE FILE NUMBER 7701624
REVISED

REAR ABUTMENT DETAILS (NORTHBOUND LANES)

BRIDGE NO. SUM-21-0758R
S.R.21 OVER WHEELING AND LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)



NOTES:

FOR ABUTMENT NOTES, SECTIONS AND VIEWS, SEE SHEET 11 OF 25.

FOR ABUTMENT REMOVAL DETAILS, SEE SHEET 6 OF 25.

FOR SUPERSTRUCTURE DETAILS, SEE SHEETS 16 AND 18 OF 25.

FOR BEARING DETAILS, SEE SHEET 21 OF 25.

FOR BEARING RETAINER DETAILS, SEE STD. BRIDGE DWG. SICD-1-96, SHEETS 6 AND 7 OF 7.

NOTATION:
C.J. = CONSTRUCTION JOINT
C.P.P. = CORRUGATED POLYETHYLENE PIPE
N.P.C.P.P. = NON-PERFORATED CORRUGATED POLYETHYLENE PIPE
P.E.J.F. = PREFORMED EXPANSION JOINT FILLER
FF = FRONT FACE
RF = REAR FACE
* SPACE WITH A502 BARS
** FOR BEARING RETAINER

EM1482AB_NBL_FA.DWG SCALE: 1:64

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. - P.O. BOX 3598
MANSFIELD, OH 44907
(419) 756-7302
CONSULTING ENGINEERS - SURVEYORS

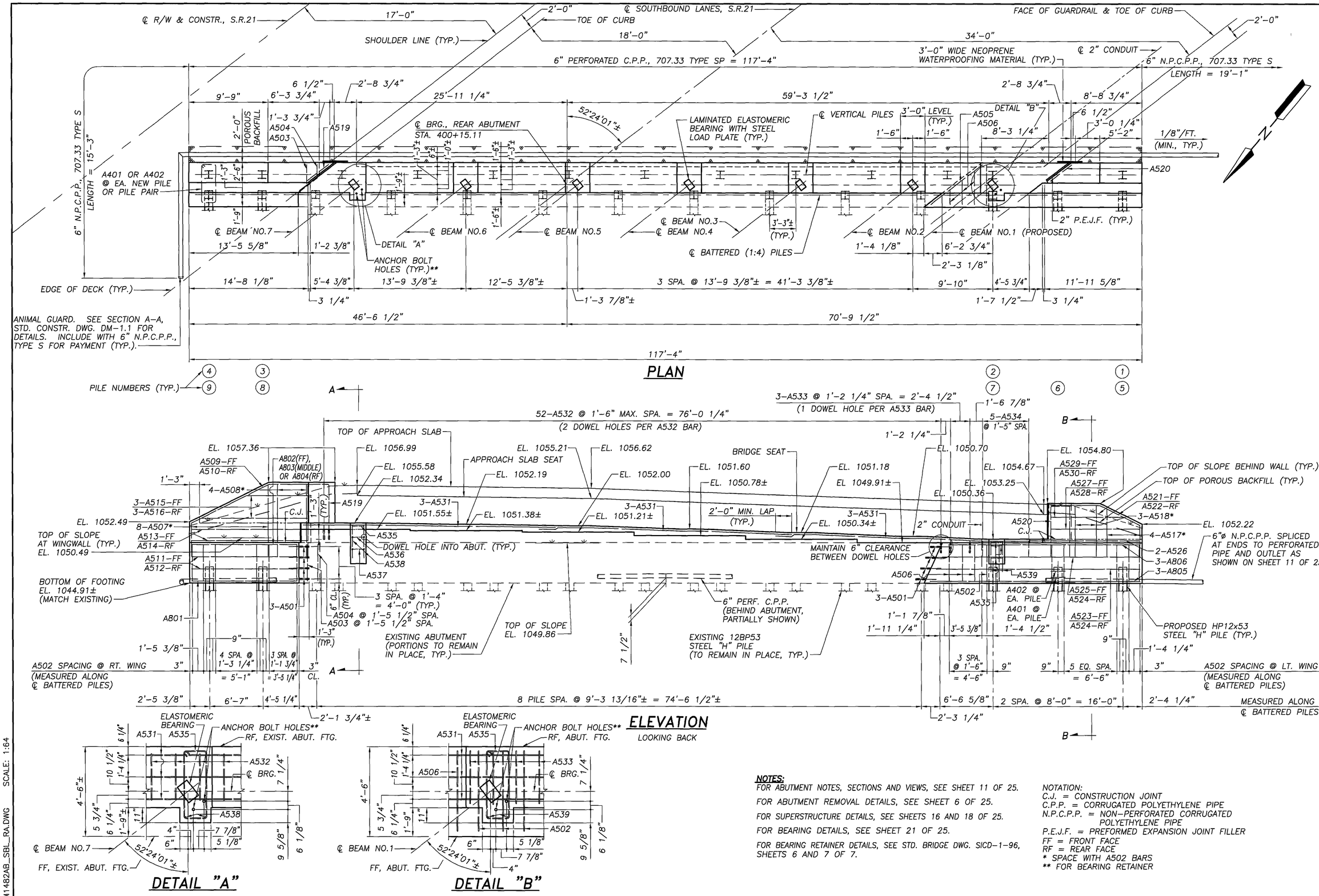
DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	9-04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701624	

FORWARD ABUTMENT DETAILS (NORTHBOUND LANES)

BRIDGE NO. SUM-21-0758R

S.R.21 OVER WHEELING AND LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)



NOTES:

FOR ABUTMENT NOTES, SECTIONS AND VIEWS, SEE SHEET 11 OF 25.

FOR ABUTMENT REMOVAL DETAILS, SEE SHEET 6 OF 25.

FOR SUPERSTRUCTURE DETAILS, SEE SHEETS 16 AND 18 OF 25.

FOR BEARING DETAILS, SEE SHEET 21 OF 25.

FOR BEARING RETAINER DETAILS, SEE STD. BRIDGE DWG. SICD-1-96, SHEETS 6 AND 7 OF 7.

NOTATION:
C.J. = CONSTRUCTION JOINT
C.P.P. = CORRUGATED POLYETHYLENE PIPE
N.P.C.P.P. = NON-PERFORATED CORRUGATED POLYETHYLENE PIPE
P.E.J.F. = PREFORMED EXPANSION JOINT FILLER
FF = FRONT FACE
RF = REAR FACE
* SPACE WITH A502 BARS
** FOR BEARING RETAINER

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. - P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756-7302
CONSULTING ENGINEERS - SURVEYORS

DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	9-04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701594	

REAR ABUTMENT DETAILS (SOUTHBOUND LANES)

BRIDGE NO. SUM-21-0758L

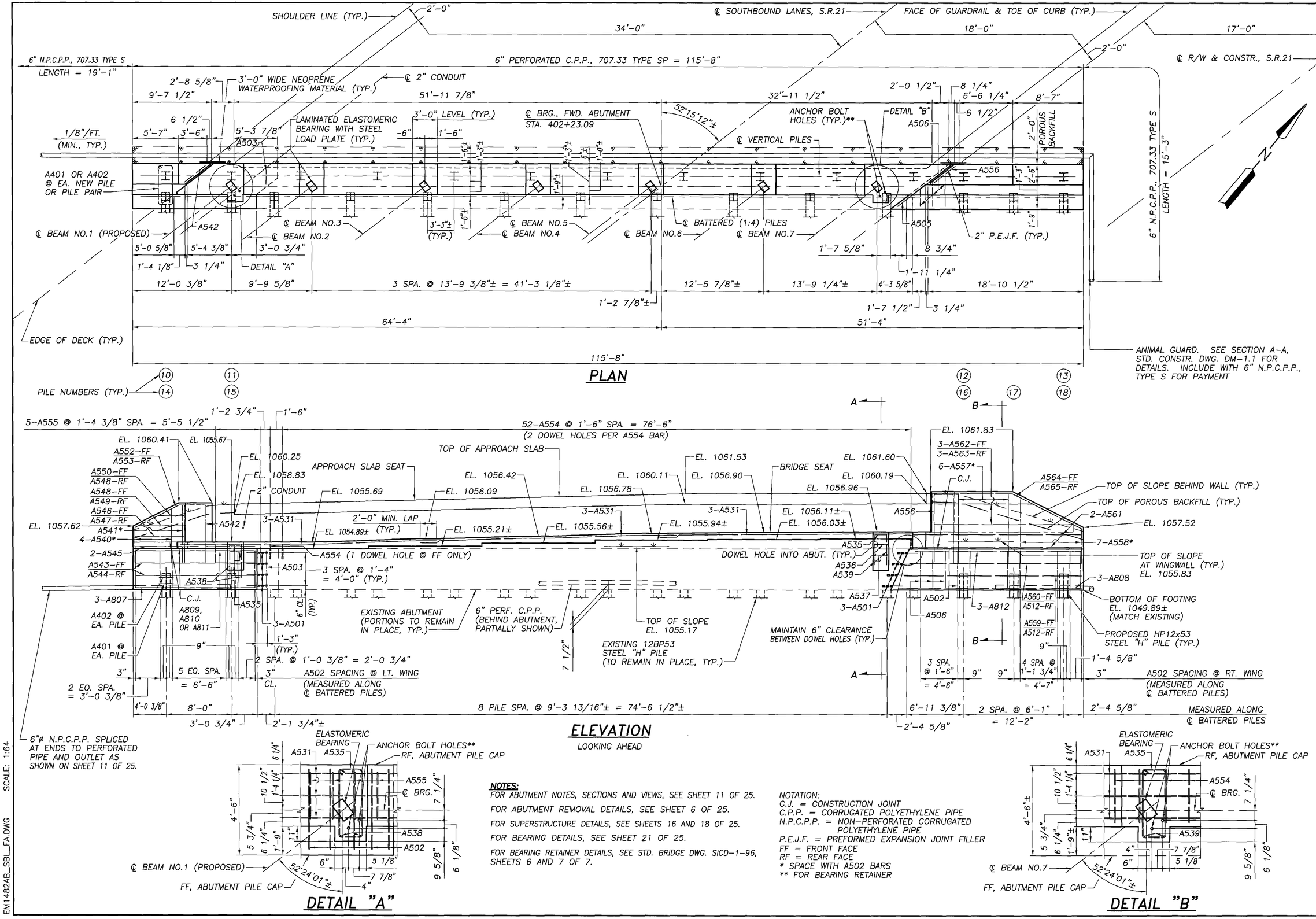
S.R.21 OVER WHEELING AND LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)

9/25

179/223

EM11482AB_SBL_RA.DWG SCALE: 1:64



NOTES:

FOR ABUTMENT NOTES, SECTIONS AND VIEWS, SEE SHEET 11 OF 25.

FOR ABUTMENT REMOVAL DETAILS, SEE SHEET 6 OF 25.

FOR SUPERSTRUCTURE DETAILS, SEE SHEETS 16 AND 18 OF 25.

FOR BEARING DETAILS, SEE SHEET 21 OF 25.

FOR BEARING RETAINER DETAILS, SEE STD. BRIDGE DWG. SICD-1-96, SHEETS 6 AND 7 OF 7.

NOTATION:
C.J. = CONSTRUCTION JOINT
C.P.P. = CORRUGATED POLYETHYLENE PIPE
N.P.C.P.P. = NON-PERFORATED CORRUGATED POLYETHYLENE PIPE
P.E.J.F. = PREFORMED EXPANSION JOINT FILLER
FF = FRONT FACE
RF = REAR FACE
* SPACE WITH A502 BARS
** FOR BEARING RETAINER

SCALE: 1:64

EM1482AB_SBL_FA.DWG

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. - P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756-7400
CONSULTING ENGINEERS - SURVEYORS

DESIGNED JSK | DRAWN JSK | REVIEWED TLS | DATE 9-04
CHECKED RAK | REVISED | STRUCTURE FILE NUMBER 7701594

FORWARD ABUTMENT DETAILS (SOUTHBOUND LANES)

BRIDGE NO. SUM-21-0758L
S.R.21 OVER WHEELING AND LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)

10/25

180/223

ABUTMENT NOTES:

POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN, 2 FEET THICK SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO 1 FOOT BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE ENDS OF THE WINGWALLS.

ABUTMENT DIAPHRAGM CONCRETE, STEEL SUPERSTRUCTURE: PLACE THE CONCRETE ENCASING THE STRUCTURAL STEEL MEMBERS WITH THE DECK CONCRETE OR AT LEAST 48 HOURS BEFORE PLACEMENT OF THE DECK CONCRETE.

ABUTMENT CONCRETE ABOVE THE BRIDGE SEAT CONSTRUCTION JOINT SHALL NOT BE PLACED UNTIL THE CONCRETE END DIAPHRAGMS HAVE BEEN CAST.

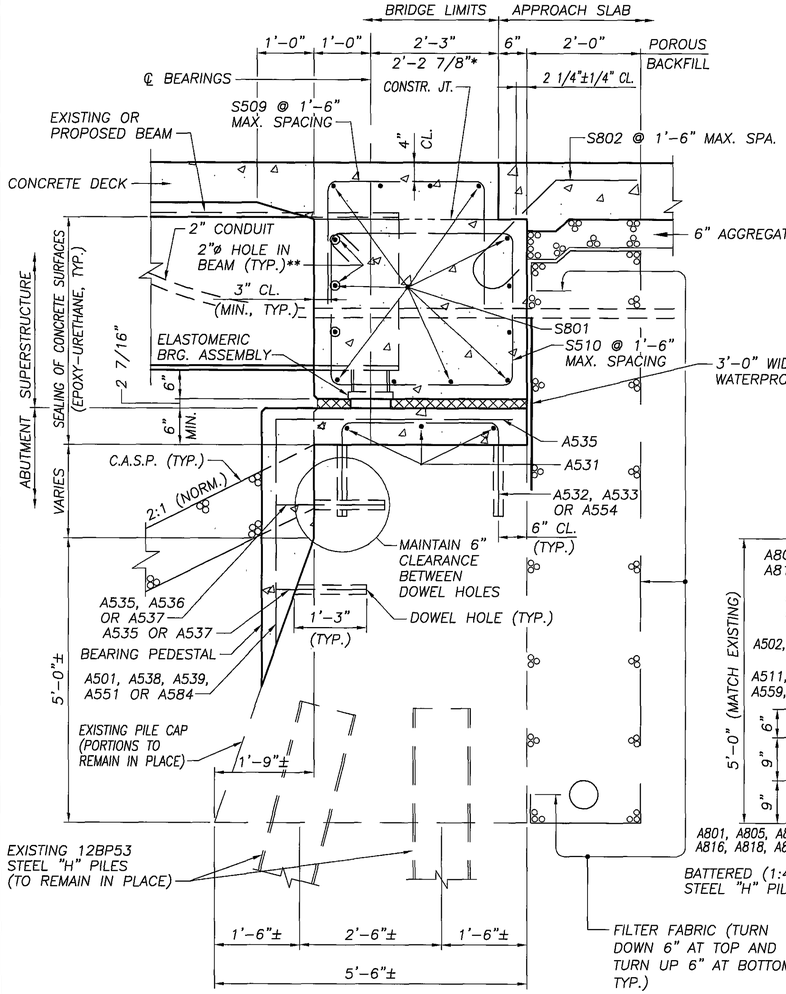
REINFORCING STEEL: SEE SHEETS 24 & 25 OF 25.

FOR SUPERSTRUCTURE AND BEARING DETAILS, SEE SHEETS 16 THRU 18, 21 AND 22 OF 25.

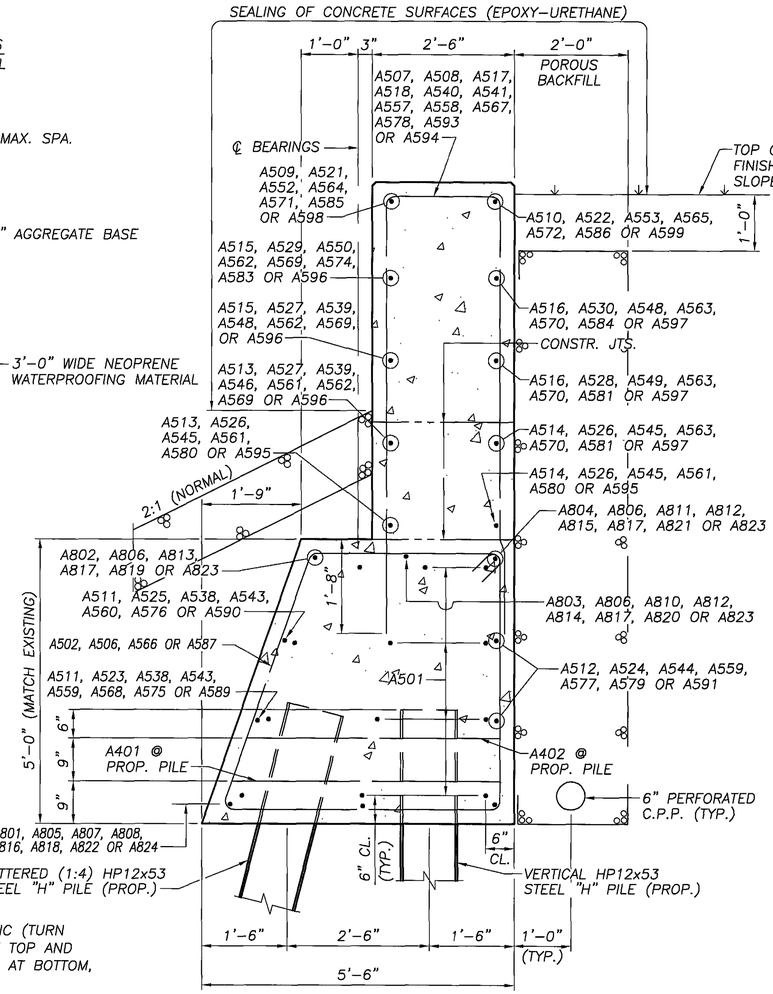
FOR SEMI-INTEGRAL ABUTMENT DETAILS, SEE BRIDGE STD. DWG. SICD-1-96, SHEETS 1 THROUGH 3 OF 7.

ALL REINFORCING STEEL CLEARANCES AT ABUTMENTS ARE 3" UNLESS NOTED.

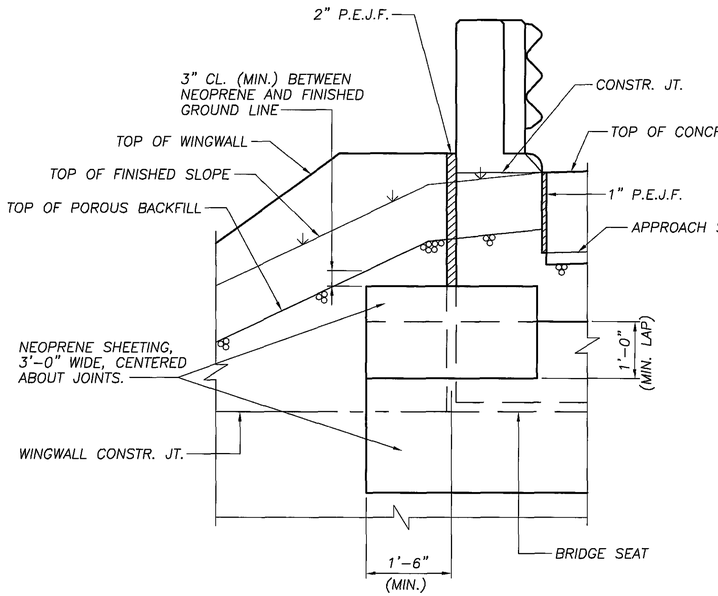
NOTATION:
C.P.P. = CORRUGATED POLYETHYLENE PIPE
N.P.C.P.P. = NON-PERFORATED CORRUGATED POLYETHYLENE PIPE
C.A.S.P. = CRUSHED AGGREGATE SLOPE PROTECTION
P.E.J.F. = PREFORMED EXPANSION JOINT FILLER
* AT FORWARD ABUTMENT, SOUTHBOUND LANES
** INCLUDE WITH ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL 2, AS PER PLAN, FOR PAYMENT.



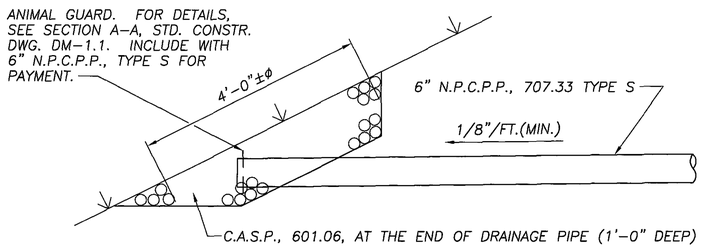
SECTION A-A



SECTION B-B



VIEW E-E



TERMINATION OF 6" N.P.C.P.P. DETAIL

EM1482AB_SECTIONS.DWG SCALE: 1:16

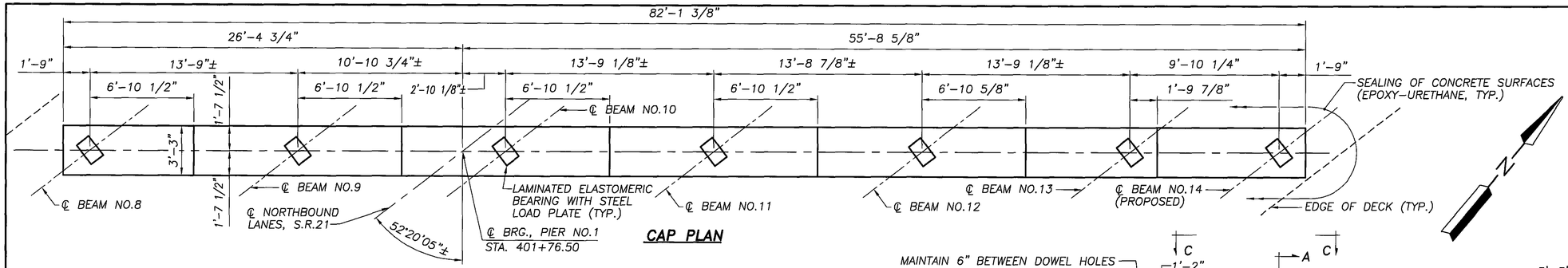
SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756-7302
CONSULTING ENGINEERS - SURVEYORS

DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	10-04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701624 (NBL)	
		7701594 (SBL)	

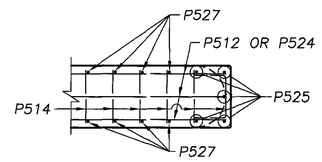
ABUTMENT SECTIONS & NOTES

BRIDGE NOS. SUM-21-0758L&R
S.R.21 OVER WHEELING AND LAKE ERIE RAILROAD

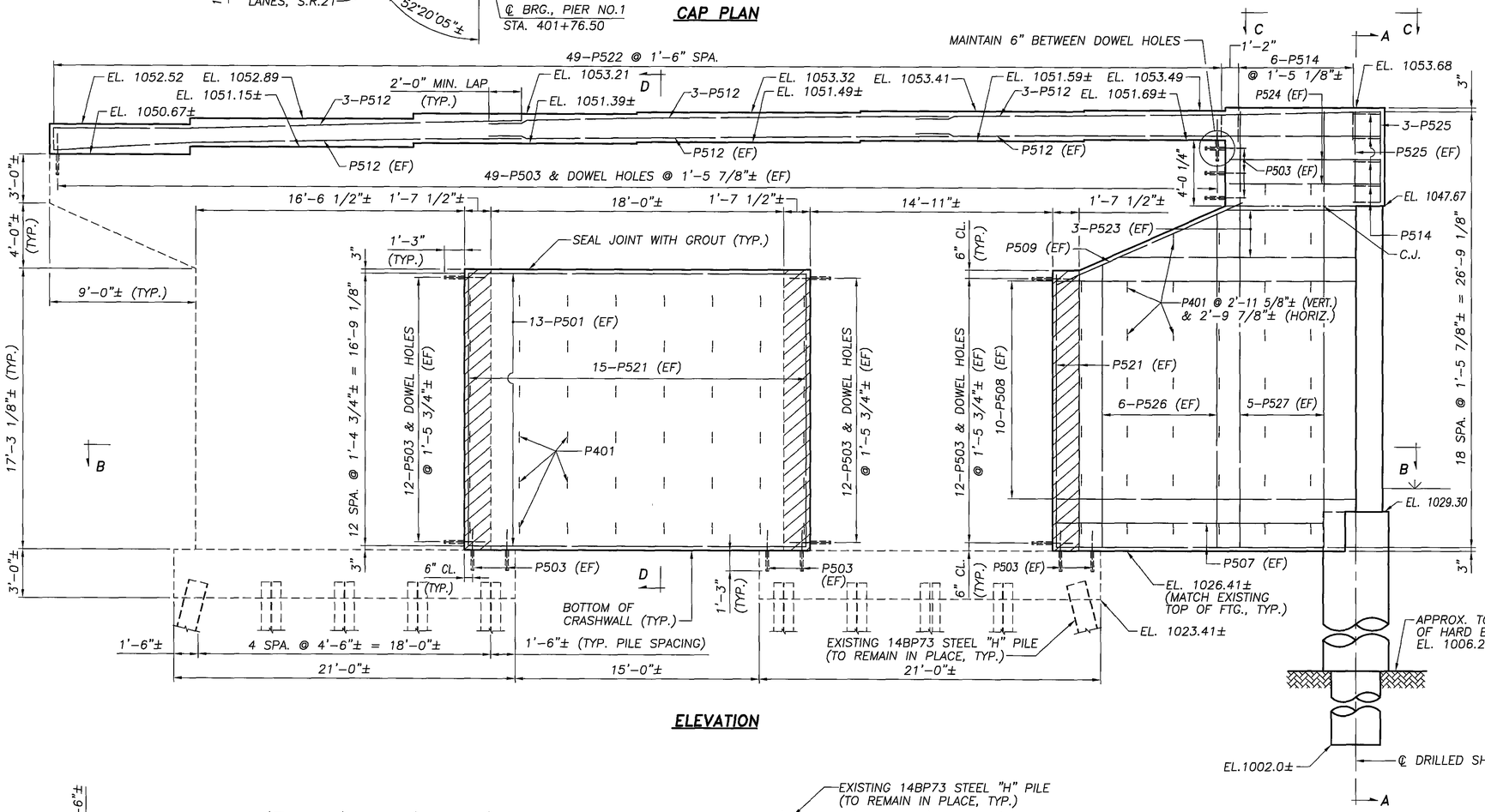
SUM-21-(5.69)(7.58)(7.78)



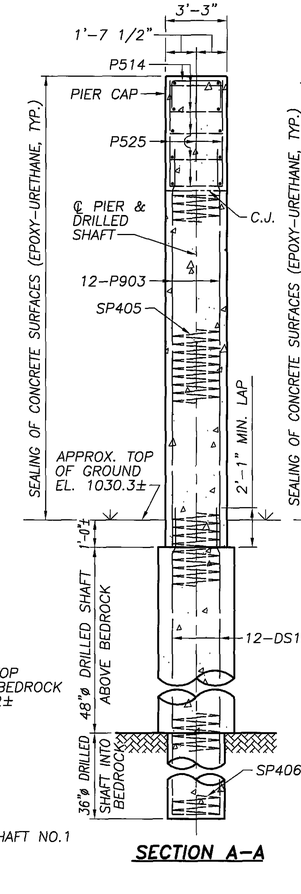
CAP PLAN



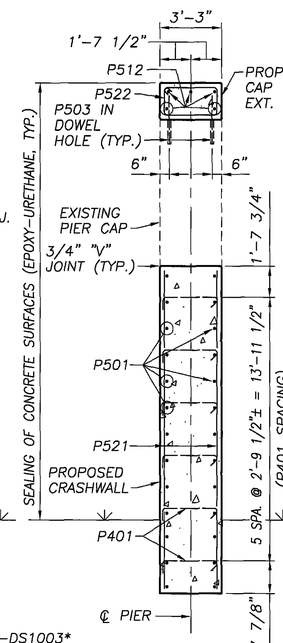
VIEW C-C



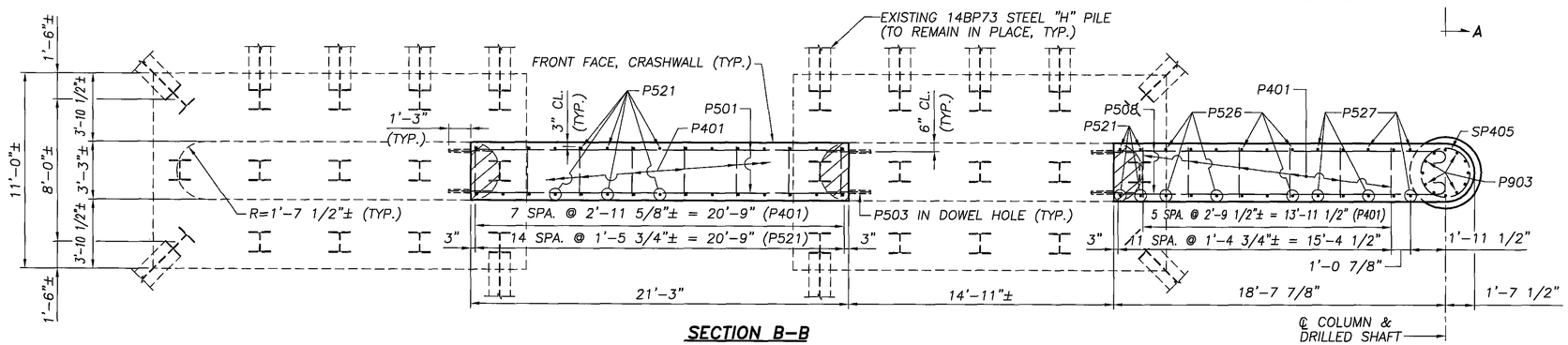
ELEVATION



SECTION A-A



SECTION D-D



SECTION B-B

PIER NOTES:

HATCHED AREAS INDICATE CONCRETE WHICH IS TO BE REMOVED, AS PER ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN. EXISTING REINFORCING STEEL IS TO REMAIN IN PLACE.

FOR ELASTOMERIC BEARING DETAILS, SEE SHEET 21 OF 25.

ALL REINFORCING STEEL CLEARANCES AT PIERS ARE 3", UNLESS NOTED.

REINFORCING STEEL: SEE SHEET 24 OF 25.

NOTATION:
EF = EACH FACE
C.J. = CONSTRUCTION JOINT
* – INCLUDE WITH ITEM 524, DRILLED SHAFTS, FOR PAYMENT.
INDICATES REMOVALS

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. – P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756-7302
CONSULTING ENGINEERS – SURVEYORS

DESIGNED	DRAWN	REVIEWED	DATE
JSK	KAA	TLS	10-04
CHECKED	REVISED	STRUCTURE FILE NUMBERS	
RAK	12/20/02	7701624	

PIER NO.1 DETAILS (NORTHBOUND LANES)

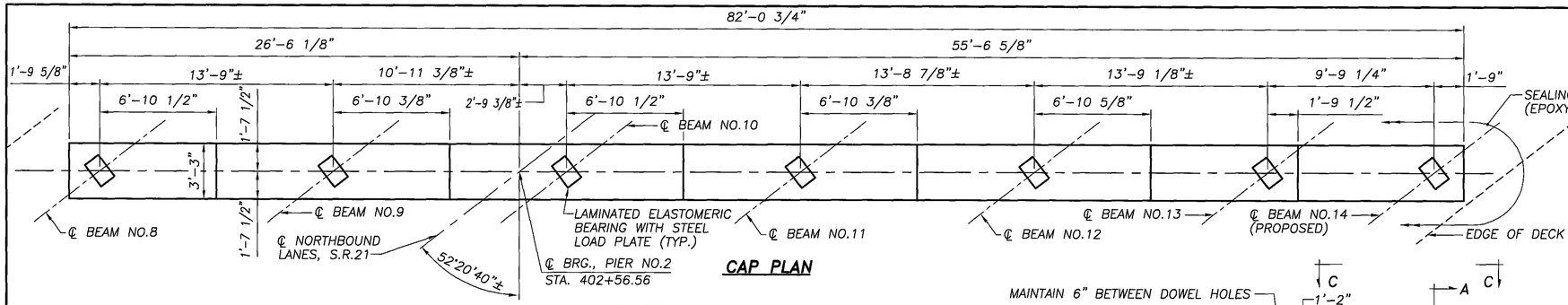
BRIDGE NO. SUM-21-0758R
S.R.21 OVER WHEELING & LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)

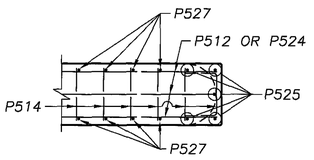
12/25

182/223

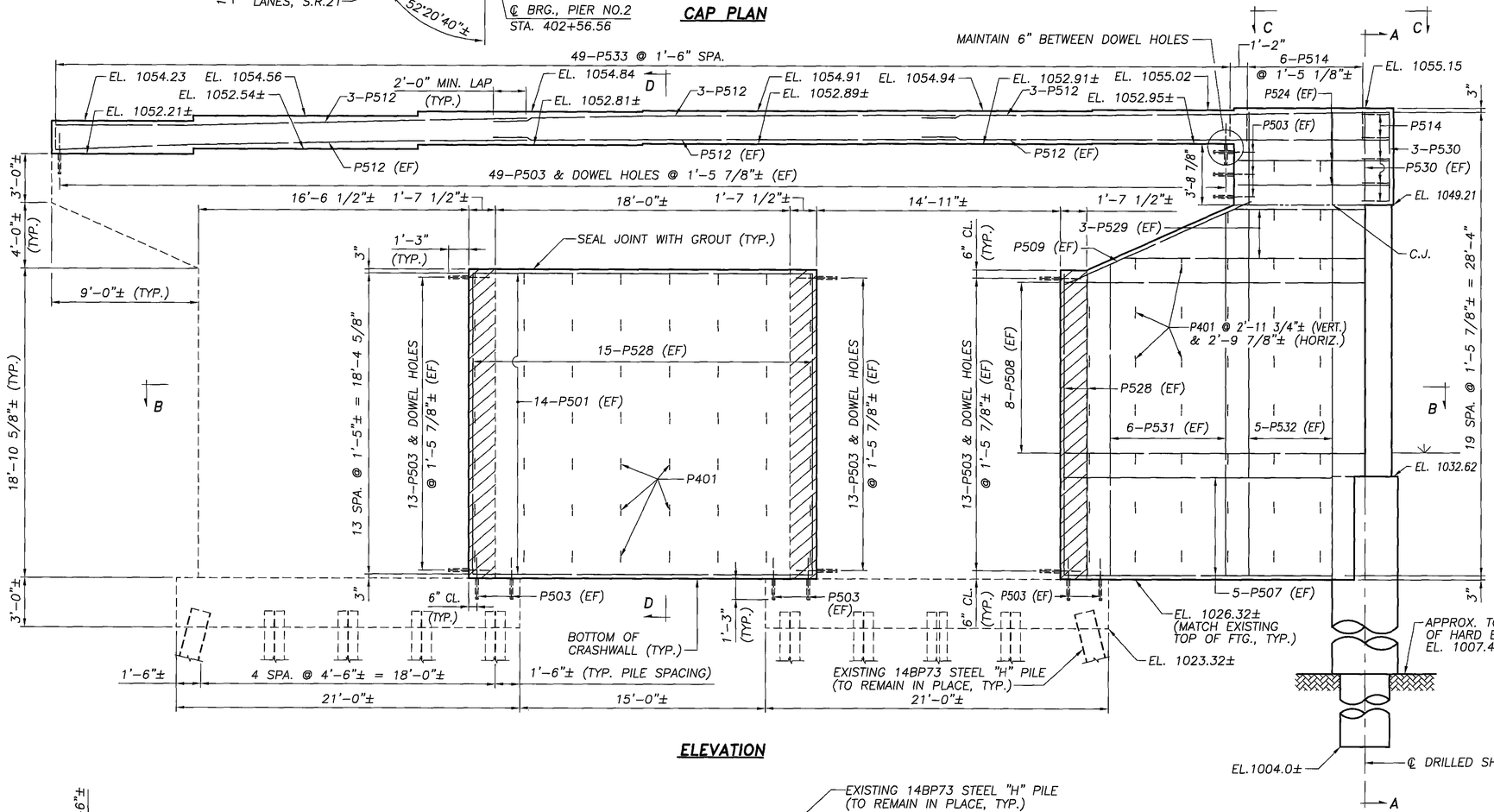
EM1482PR_NBL_P1.DWG SCALE: 1:48



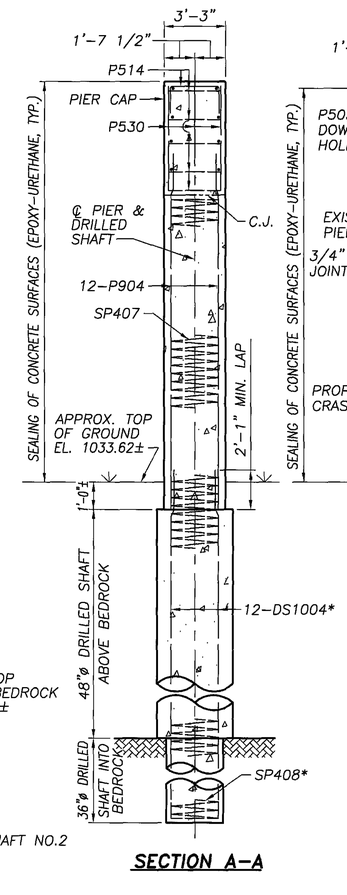
CAP PLAN



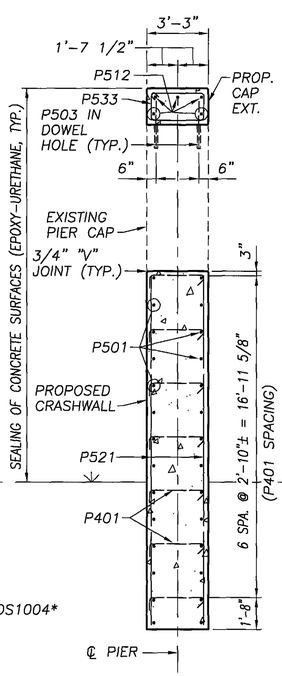
SECTION C-C



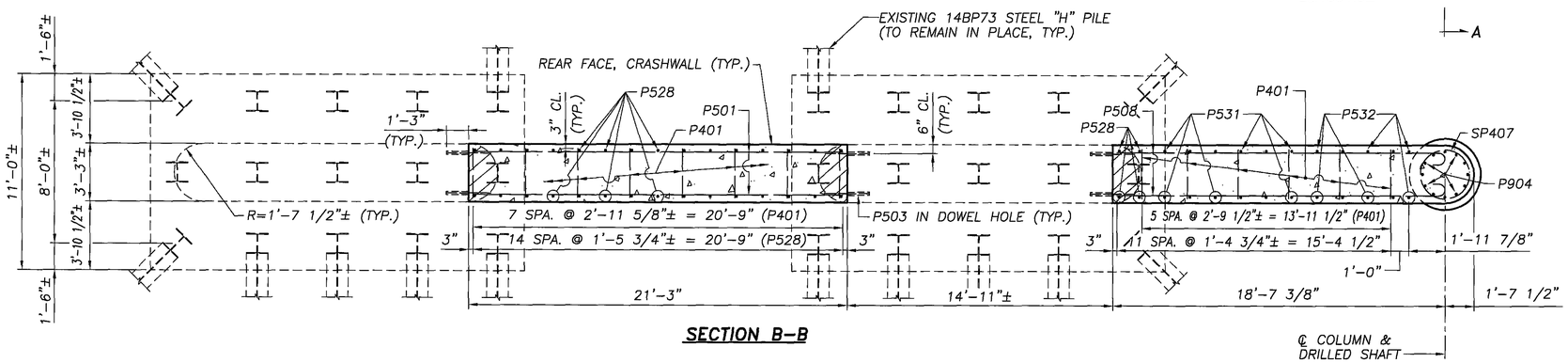
ELEVATION



SECTION A-A



SECTION D-D



SECTION B-B

PIER NOTES:

HATCHED AREAS INDICATE CONCRETE WHICH IS TO BE REMOVED, AS PER ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN. EXISTING REINFORCING STEEL IS TO REMAIN IN PLACE.

FOR ELASTOMERIC BEARING DETAILS, SEE SHEET 21 OF 25.

ALL REINFORCING STEEL CLEARANCES AT PIERS ARE 3", UNLESS NOTED.

REINFORCING STEEL: SEE SHEET 24 OF 25.

NOTATION:
EF = EACH FACE
C.J. = CONSTRUCTION JOINT
* – INCLUDE WITH ITEM 524, DRILLED SHAFTS, FOR PAYMENT.
INDICATES REMOVALS

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. – P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756-7302
CONSULTING ENGINEERS – SURVEYORS

DESIGNED	DRAWN	REVIEWED	DATE
JSK	KAA	TLS	10-04
CHECKED	REVISED	STRUCTURE FILE NUMBERS	
RAK	12/20/02	7701624	

PIER NO.2 DETAILS (NORTHBOUND LANES)

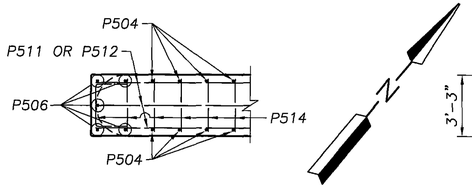
BRIDGE NO. SUM-21-0758R
S.R.21 OVER WHEELING & LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)

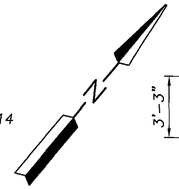
13/25

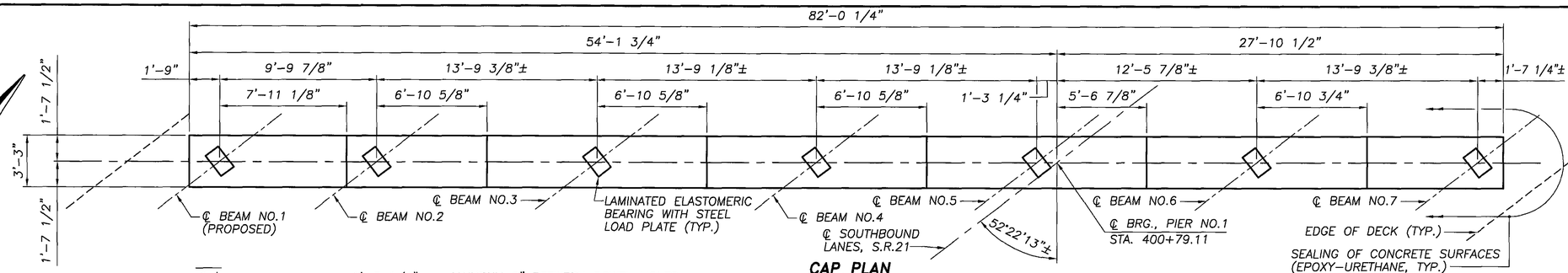
183/223

EM1482PR_NBL_P2.DWG SCALE: 1:48

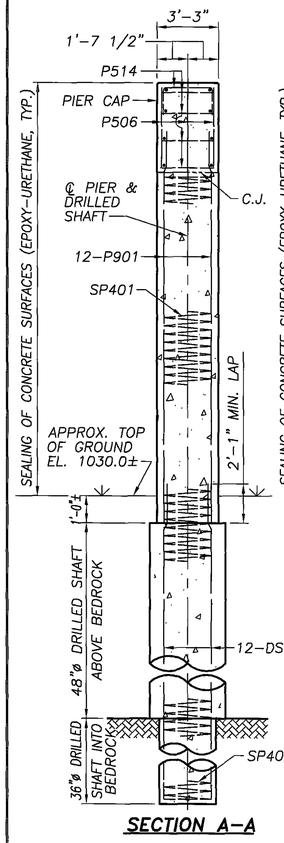


VIEW C–C

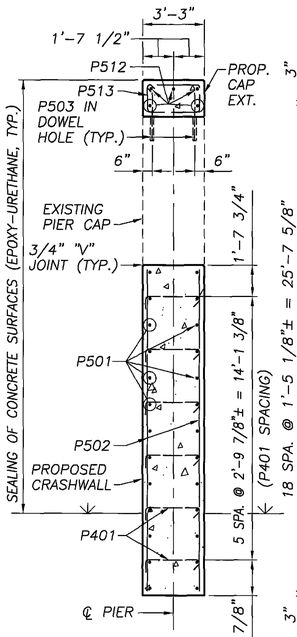




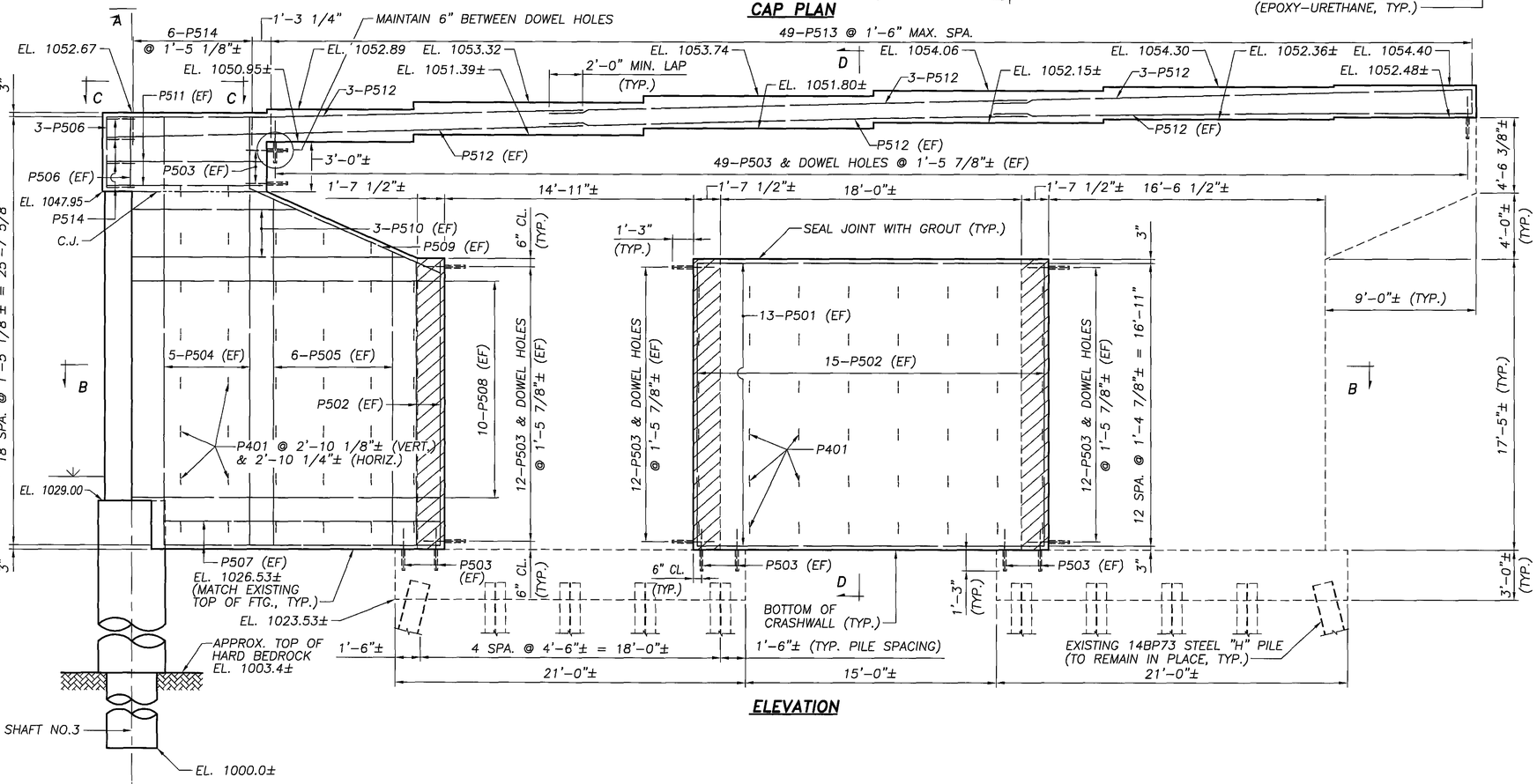
CAP PLAN



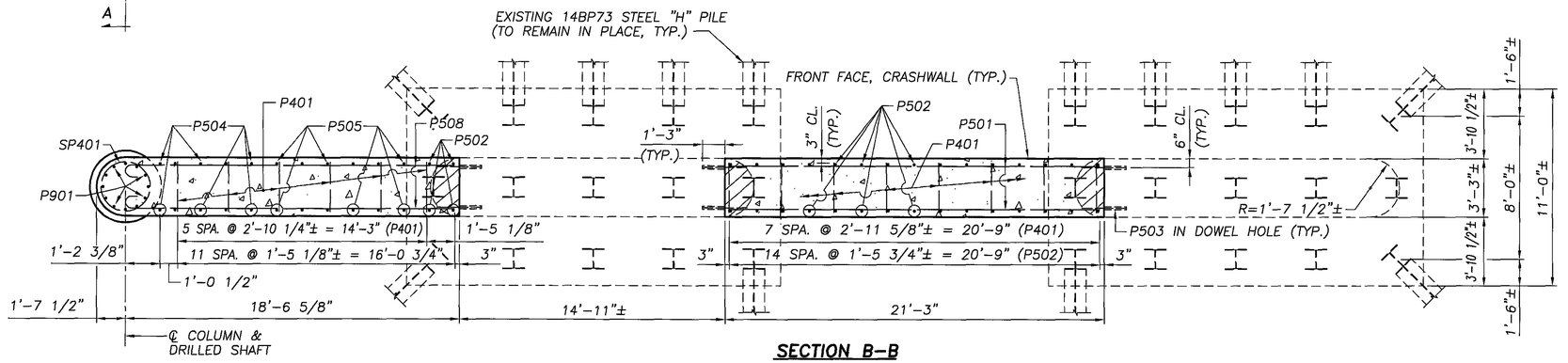
SECTION A–A



SECTION D–D



ELEVATION



SECTION B–B

PIER NOTES:

HATCHED AREAS INDICATE CONCRETE WHICH IS TO BE REMOVED, AS PER ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN. EXISTING REINFORCING STEEL IS TO REMAIN IN PLACE.

FOR ELASTOMERIC BEARING DETAILS, SEE SHEET 21 OF 25.

ALL REINFORCING STEEL CLEARANCES AT PIERS ARE 3", UNLESS NOTED.

REINFORCING STEEL: SEE SHEET 25 OF 25.

NOTATION:
EF = EACH FACE
C.J. = CONSTRUCTION JOINT
* – INCLUDE WITH ITEM 524, DRILLED SHAFTS, FOR PAYMENT.
INDICATES REMOVALS

EM1482PR_SBL_P1.DWG SCALE: 1:48

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. – P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756-7302
CONSULTING ENGINEERS – SURVEYORS

DESIGNED JSK
DRAWN KAA
CHECKED RAK
REVISED 12/20/02
REVIEWED TLS
DATE 10–04
STRUCTURE FILE NUMBERS 7701594

PIER NO.1 DETAILS (SOUTHBOUND LANES)

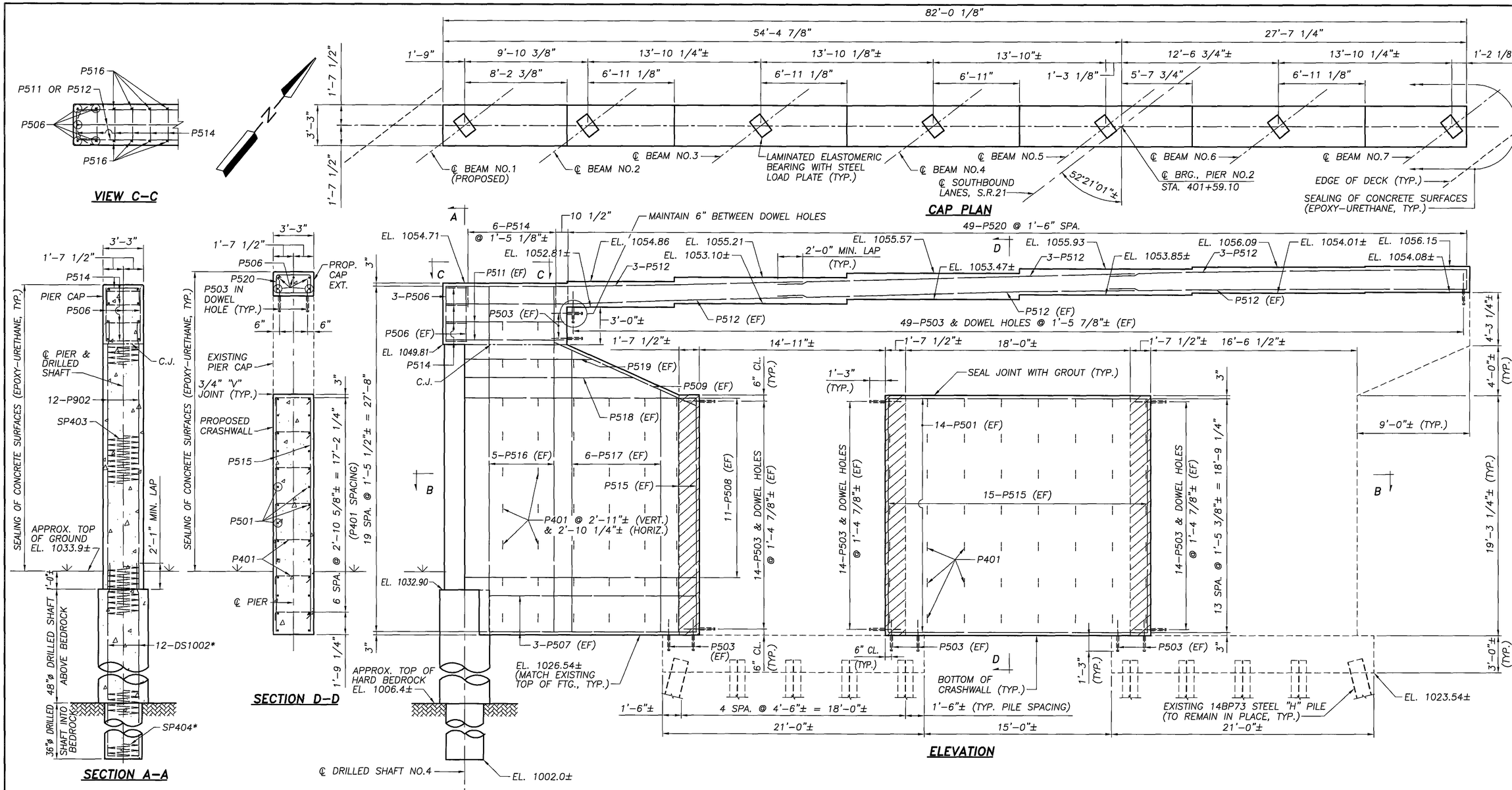
BRIDGE NO. SUM–21–0758L

S.R.21 OVER WHEELING & LAKE ERIE RAILROAD

SUM–21–(5.69)(7.58)(7.78)

14/25

184/223



PIER NOTES:

HATCHED AREAS INDICATE CONCRETE WHICH IS TO BE REMOVED, AS PER ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN. EXISTING REINFORCING STEEL IS TO REMAIN IN PLACE.

FOR ELASTOMERIC BEARING DETAILS, SEE SHEET 21 OF 25.

ALL REINFORCING STEEL CLEARANCES AT PIERS ARE 3", UNLESS NOTED.

REINFORCING STEEL: SEE SHEET 25 OF 25.

NOTATION:
EF = EACH FACE
C.J. = CONSTRUCTION JOINT
* – INCLUDE WITH ITEM 524, DRILLED SHAFTS, FOR PAYMENT.
INDICATES REMOVALS

EM1482PR_SBL_P2.DWG SCALE: 1:48

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(419) 756-7302
CONSULTING ENGINEERS – SURVEYORS

DESIGNED JSK | DRAWN KAA | REVIEWED TLS | DATE 10-04
CHECKED RAK | REVISED 12/20/02 | STRUCTURE FILE NUMBERS 7701594

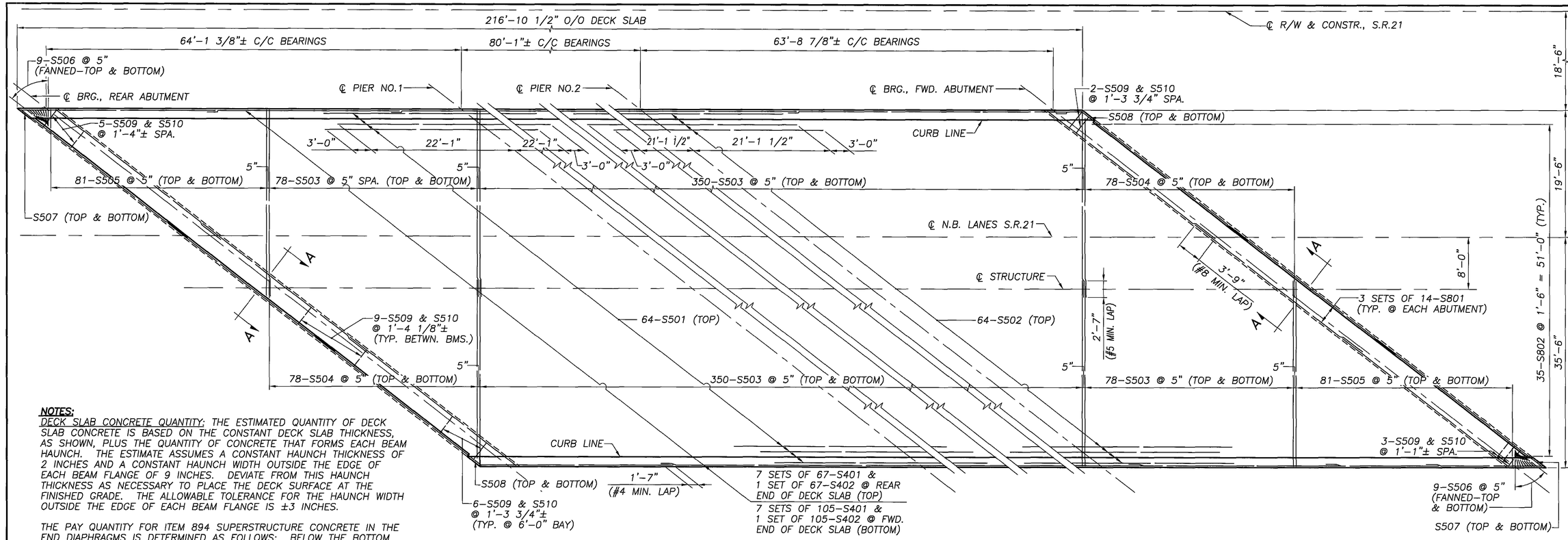
PIER NO.2 DETAILS (SOUTHBOUND LANES)

BRIDGE NO. SUM-21-0758L
S.R.21 OVER WHEELING & LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)

15/25

185/223



NOTES:

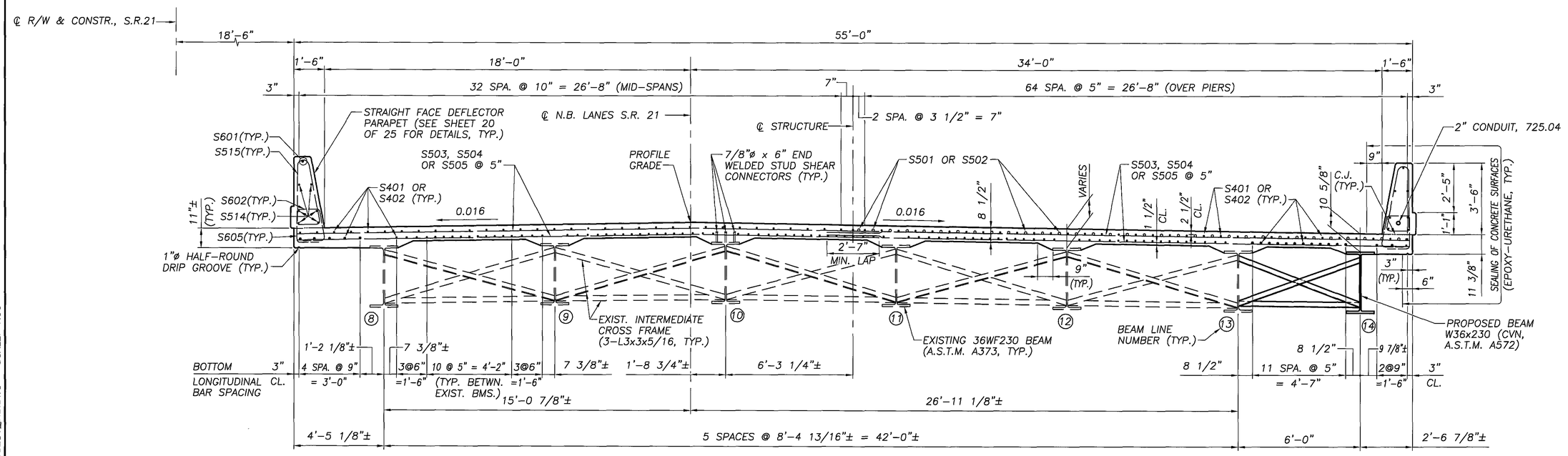
DECK SLAB CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 2 INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE IS ±3 INCHES.

THE PAY QUANTITY FOR ITEM 894 SUPERSTRUCTURE CONCRETE IN THE END DIAPHRAGMS IS DETERMINED AS FOLLOWS: BELOW THE BOTTOM OF THE TOP BEAM FLANGE, ABOVE THE BRIDGE SEAT CONSTRUCTION JOINT AND BETWEEN THE DECK FASCIAS.

FOR SUPERSTRUCTURE NOTES, SEE SHEET 21 OF 25.

FOR END DIAPHRAGM DETAILS, SEE SECTION A-A, SHEET 11 OF 25.

SLAB PLAN



TRANSVERSE SECTION

EM1482S1_NB.DWG SCALE: 1:96

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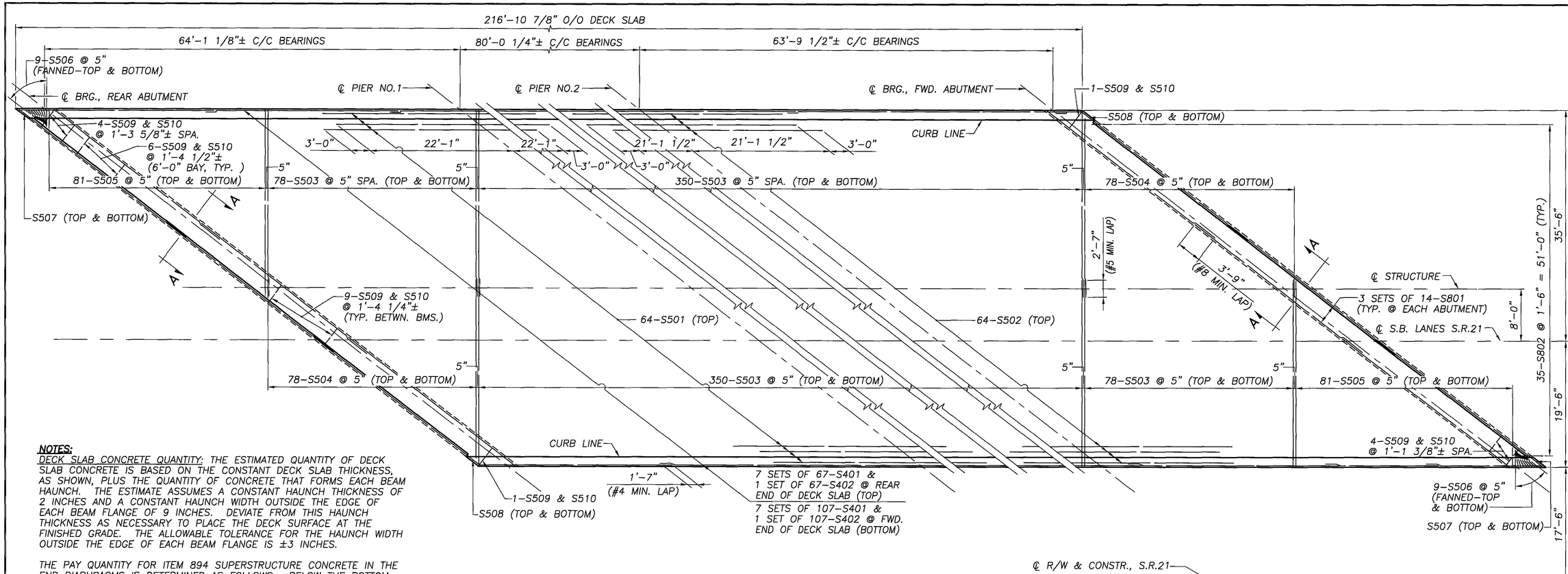
JSK	JAA	TLS	10-04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701624	

SLAB PLAN & TRANSVERSE SECTION (NORTHBOUND LANES)
BRIDGE NO. SUM-21-0758R
S.R.21 OVER WHEELING AND LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)

16/25

186/223



SLAB PLAN

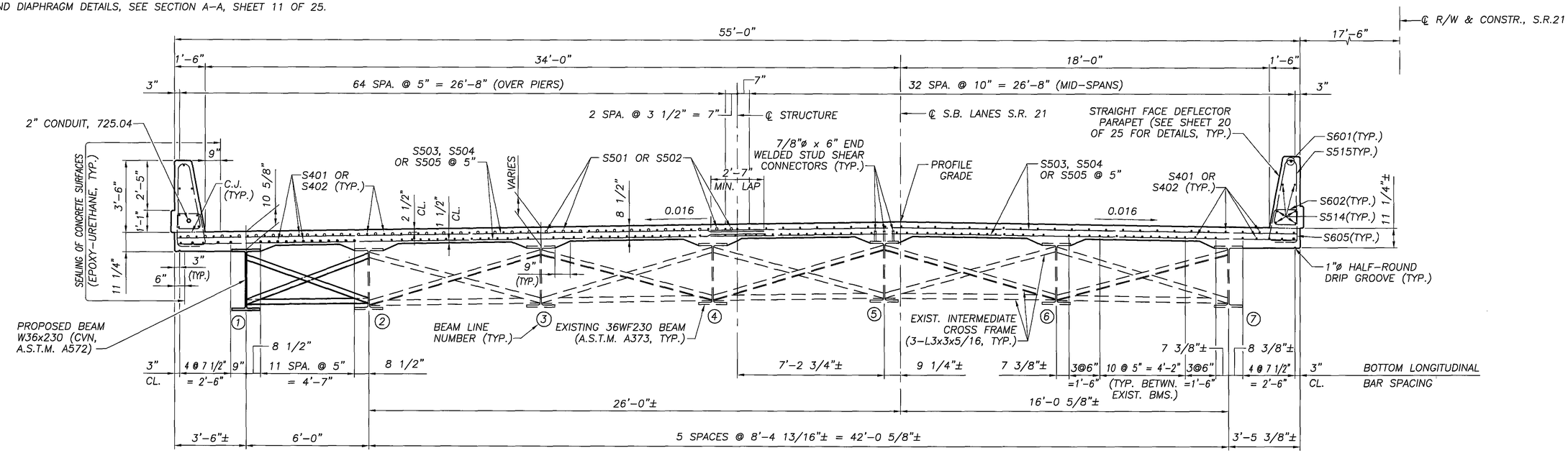
NOTES:

DECK SLAB CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 2 INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE IS ±3 INCHES.

THE PAY QUANTITY FOR ITEM 894 SUPERSTRUCTURE CONCRETE IN THE END DIAPHRAGMS IS DETERMINED AS FOLLOWS: BELOW THE BOTTOM OF THE TOP BEAM FLANGE, ABOVE THE BRIDGE SEAT CONSTRUCTION JOINT AND BETWEEN THE DECK FASCIAS.

FOR SUPERSTRUCTURE NOTES, SEE SHEET 21 OF 25.

FOR END DIAPHRAGM DETAILS, SEE SECTION A-A, SHEET 11 OF 25.



TRANSVERSE SECTION

SLAB PLAN & TRANSVERSE SECTION (SOUTHBOUND LANES)
BRIDGE NO. SUM-21-0758L
S.R.21 OVER WHEELING AND LAKE ERIE RAILROAD

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CONSULTING ENGINEERS - SURVEYORS

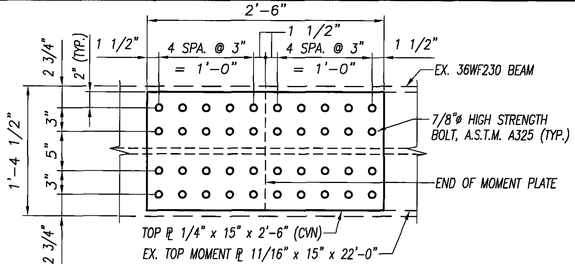
DESIGNED	DRAWN	REVIEWED	DATE
JSK	JAA	TLS	10-04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701594	

SUM-21-(5.69)(7.58)(7.78)

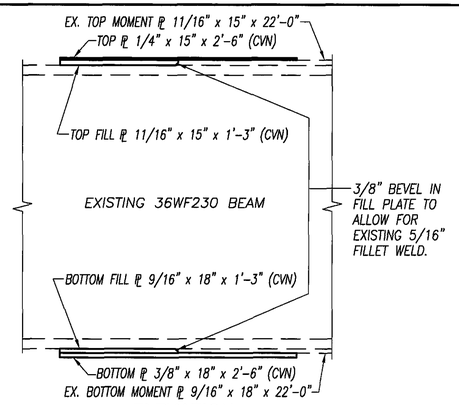
17/25

187/223

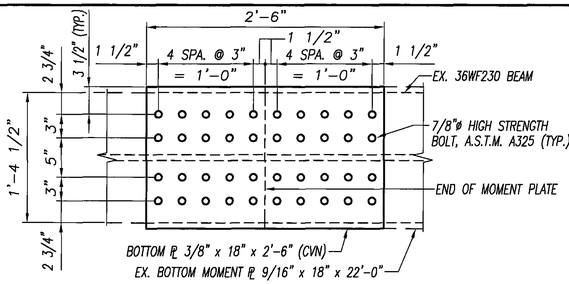
EM1482S1_SB.DWG SCALE: 1:96



TOP FLANGE SPLICE

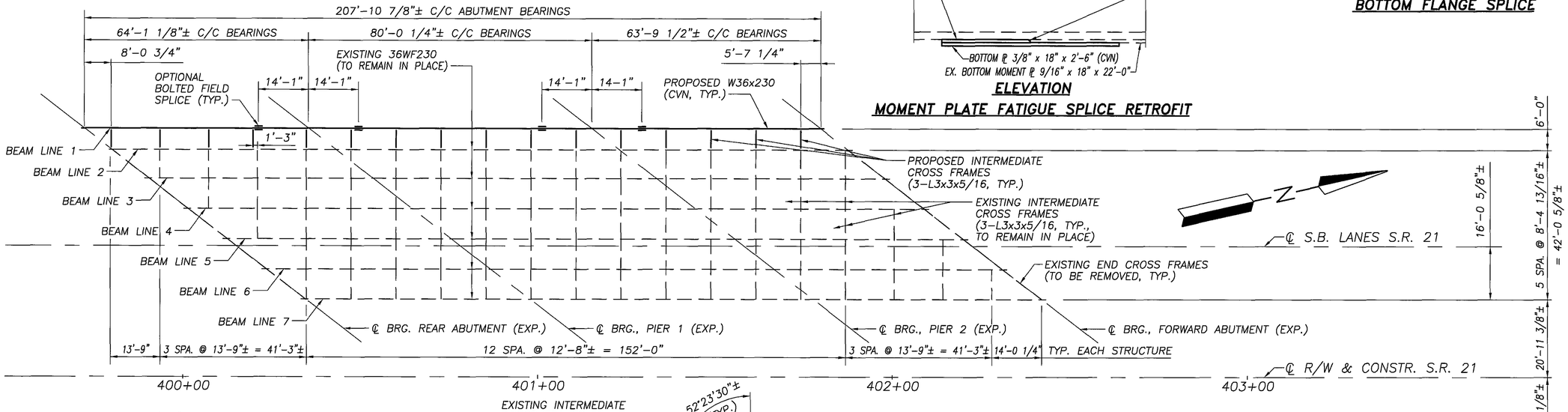


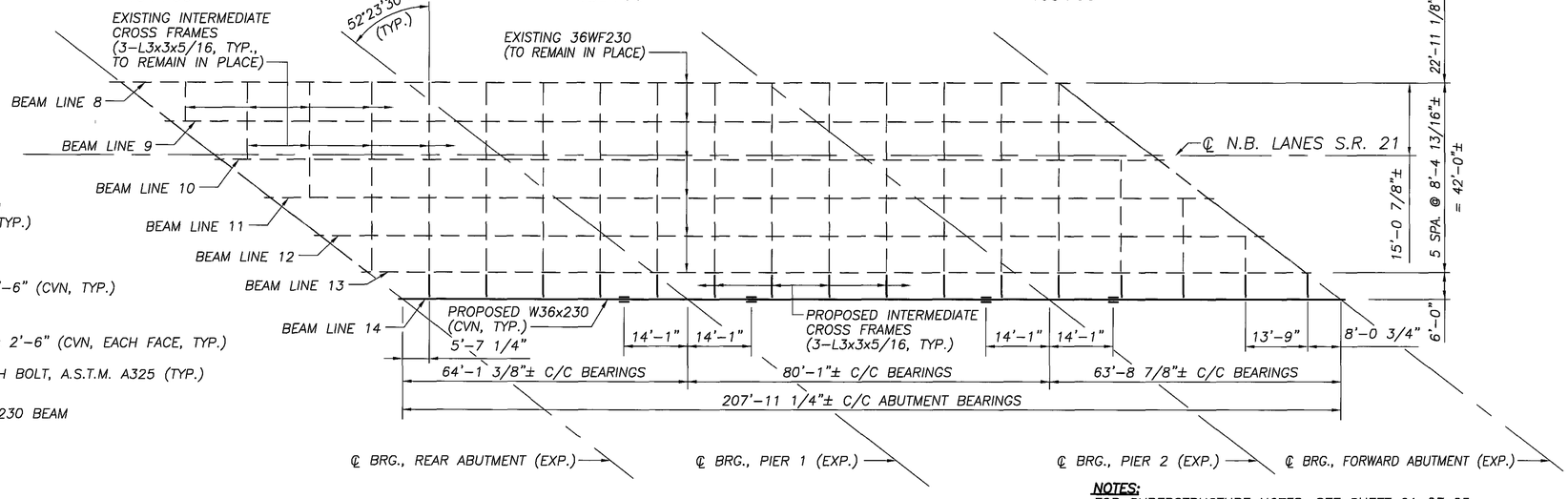
ELEVATION



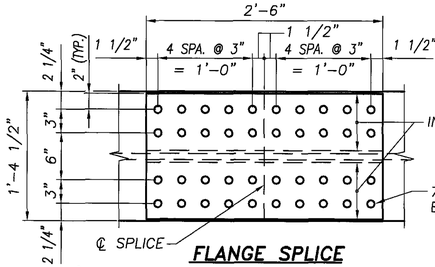
BOTTOM FLANGE SPLICE

MOMENT PLATE FATIGUE SPLICE RETROFIT

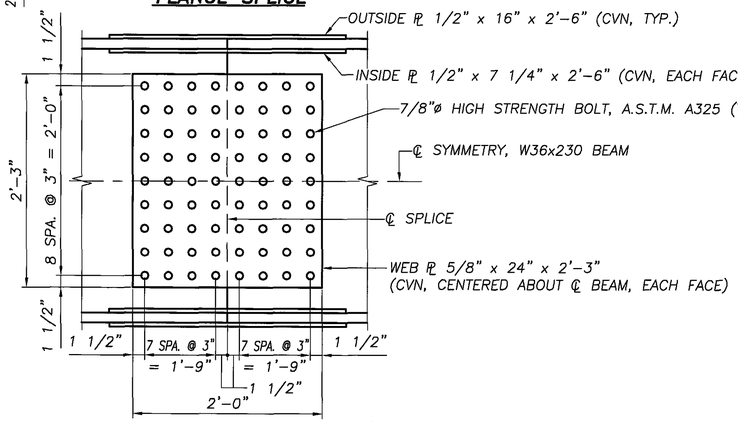




FRAMING PLAN



FLANGE SPLICE



WEB SPLICE

BOLTED FIELD SPLICE DETAIL

NOTES:

FOR SUPERSTRUCTURE NOTES, SEE SHEET 21 OF 25.

FOR BEAM ELEVATION DETAILS, SEE SHEET 19 OF 25.

FOR DEFLECTION AND CAMBER TABLES, SEE SHEET 22 OF 25.

FOR STRUCTURAL STEEL AND CROSS FRAME DETAILS, SEE BRIDGE STANDARD DRAWING GSD-1-96.

CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.

REMOVAL OF END CROSS FRAMES TO BE INCLUDED WITH ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN, FOR PAYMENT.

EM148252.DWG SCALE: 1:96

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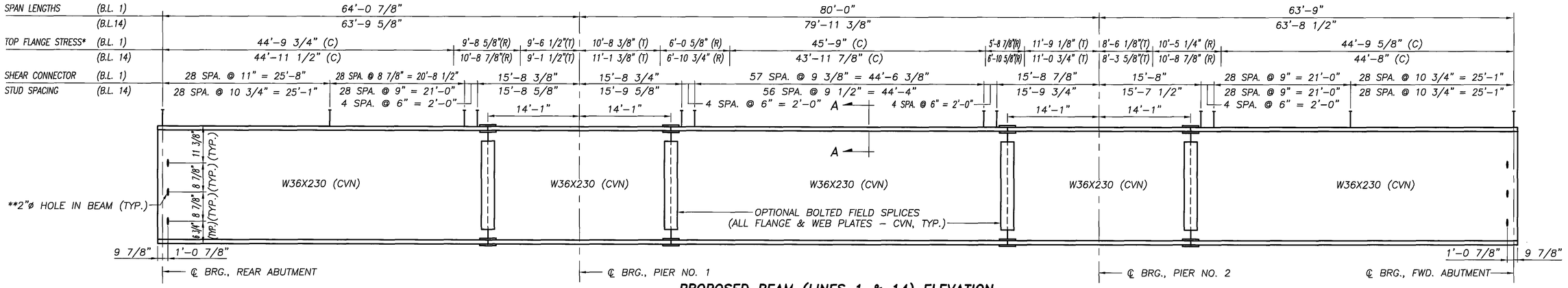
DESIGNED	DRAWN	REVIEWED	DATE
RAK	JAA	TLS	10-04
CHECKED	REVISED	STRUCTURE FILE NUMBER 7701624 (NBL) 7701594 (SBL)	
JSK			

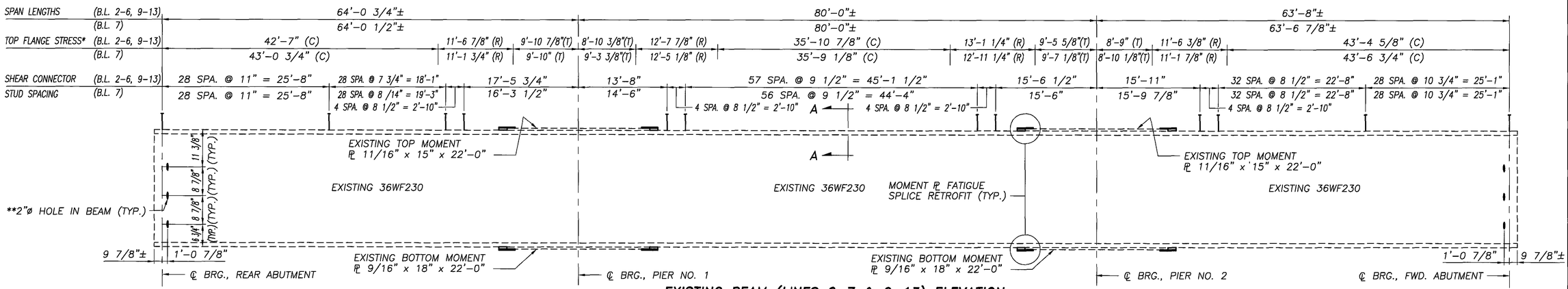
FRAMING PLAN & SPLICE DETAILS

BRIDGE NOS. SUM-21-0758L&R
S.R.21 OVER WHEELING & LAKE ERIE RAILROAD

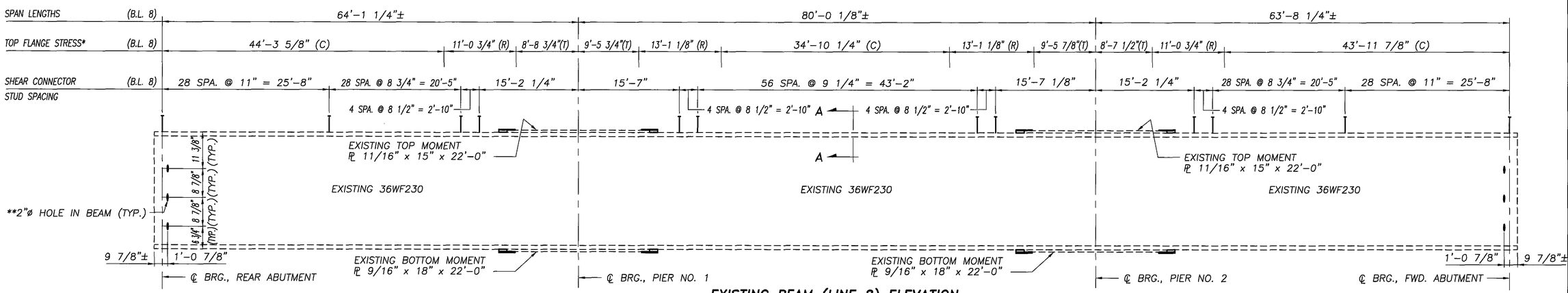
SUM-21-(5.69)(7.58)(7.78)



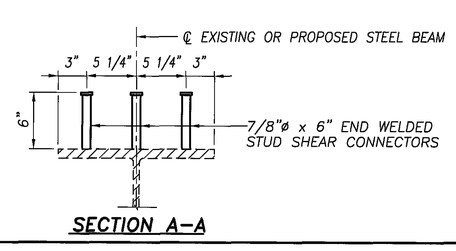
PROPOSED BEAM (LINES 1 & 14) ELEVATION



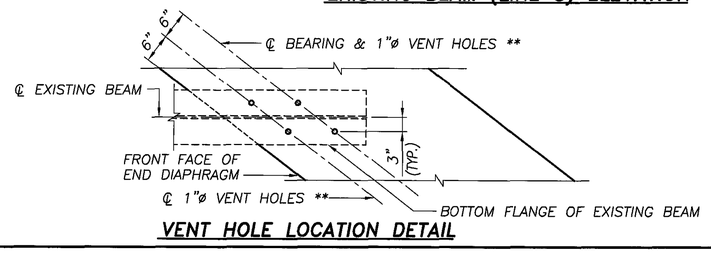
EXISTING BEAM (LINES 2-7 & 9-13) ELEVATION



EXISTING BEAM (LINE 8) ELEVATION



SECTION A–A



VENT HOLE LOCATION DETAIL

NOTES:

FOR SUPERSTRUCTURE NOTES, SEE SHEET 21 OF 25.
FOR END DIAPHRAGM DETAILS, SEE SHEET 11 OF 25.
FOR MOMENT PLATE AND BOLTED FIELD SPLICE DETAILS, SEE SHEET 18 OF 25.
B.L. = BEAM LINE
CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
* C = COMPRESSION
R = REVERSAL
T = TENSION
** INCLUDE WITH ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL 2, AS PER PLAN, FOR PAYMENT.

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DESIGNED RAK | DRAWN JAA | REVIEWED TLS | DATE 10-04 | CHECKED JSK | REVISED

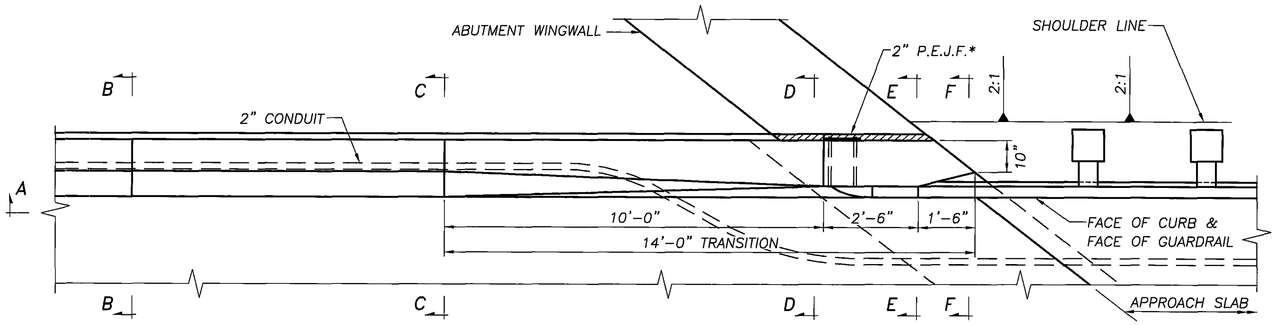
STRUCTURE FILE NUMBER
7701624 (NBL)
7701954 (SBL)

BEAM ELEVATIONS

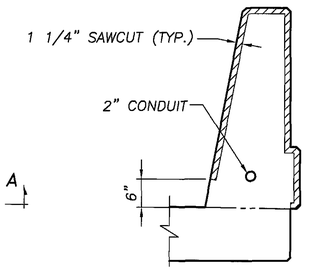
BRIDGE NOS. SUM-21-0758L&R
S.R.21 OVER WHEELING & LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)

EM1482S4.DWG SCALE: 1:96



PART PLAN AT TRANSITION



SECTION B–B

(SECTION THROUGH SAWCUT)
SAWCUT PERIMETER = 7'-6"

NOTES:

CONTROL JOINTS FOR CONCRETE PARAPETS:
THE JOINTS SHALL BE CONSTRUCTED BY SAWING 1 1/4 INCH DEEP ALONG THE PERIMETER OF THE PARAPET AS SOON AS THE SAW CAN BE OPERATED WITHOUT DAMAGING THE CONCRETE.

THE USE OF AN EDGE GUIDE, FENCE, OR JIG IS REQUIRED TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF 1/4 INCH.

THE PERIMETER OF THE DEFLECTION CONTROL JOINT SHALL BE SEALED WITH A CAULKING MATERIAL TO A MINIMUM DEPTH OF 1 INCH CONFORMING TO FEDERAL SPECIFICATION TT–S–00227E. THE BOTTOM 1/2 INCH OF THE OUTSIDE FACE OF THE PARAPET SHOULD BE LEFT UNSEALED TO ALLOW ANY WATER WHICH MAY ENTER THE JOINT TO ESCAPE.

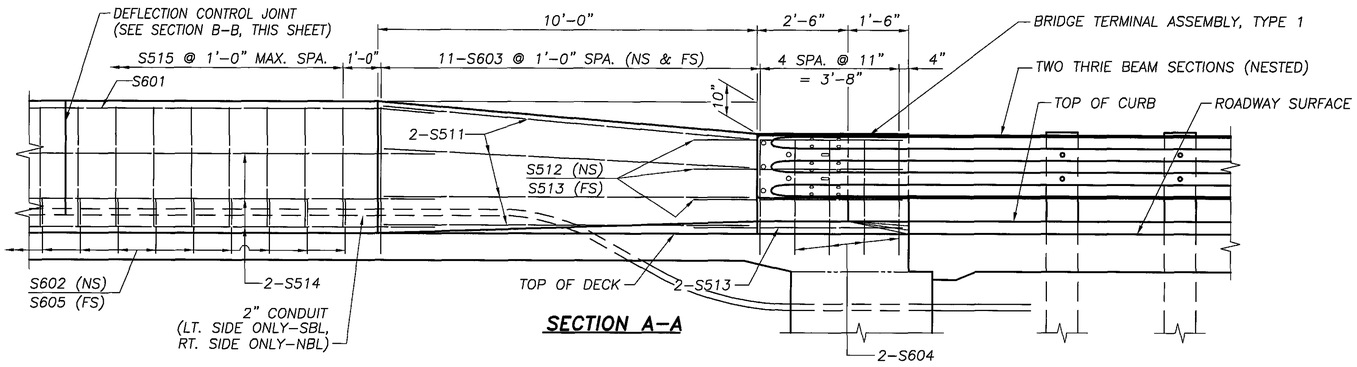
QUANTITIES OF CONCRETE, DEFLECTION JOINT SAWCUT AND CAULKING MATERIAL FOR PARAPET ARE INCLUDED WITH ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN, FOR PAYMENT.

FOR BRIDGE TERMINAL ASSEMBLY, TYPE 1, DETAILS, SEE STANDARD ROADWAY CONSTRUCTION DRAWING GR–3.1.

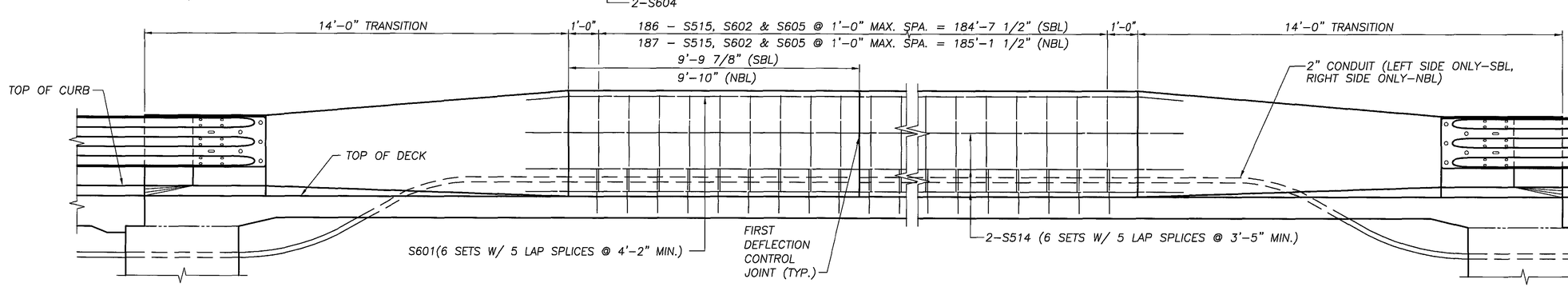
FOR PARAPET DEFLECTION CONTROL JOINT SPACING, SEE SHEETS 3 & 4 OF 25.

FOR CONDUIT LOCATION DETAILS, SEE STD. CONSTR. DWG. HL–30.32.

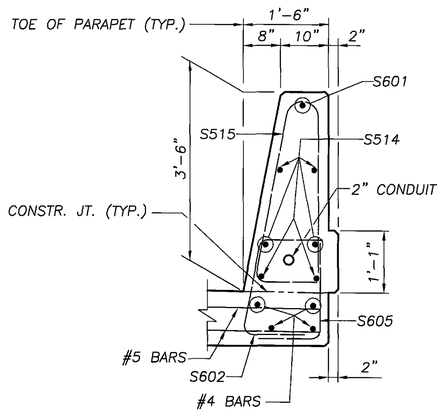
NOTATION:
FS = FAR SIDE
NS = NEAR SIDE
NBL = NORTHBOUND LANES
SBL = SOUTHBOUND LANES
* INCLUDE WITH ABUTMENT CONCRETE FOR PAYMENT.



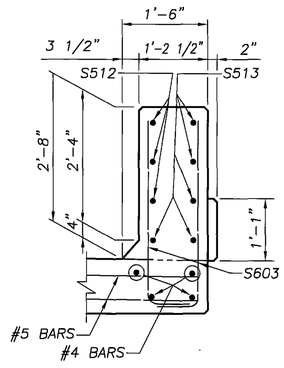
SECTION A–A



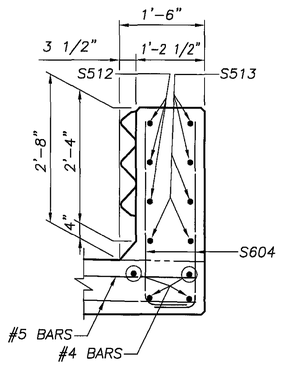
PARAPET ELEVATION



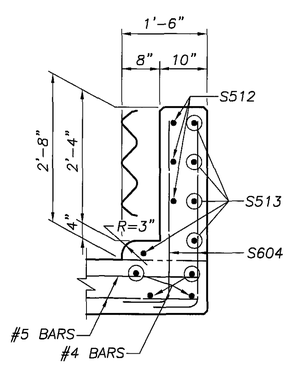
SECTION C–C



SECTION D–D



SECTION E–E



SECTION F–F

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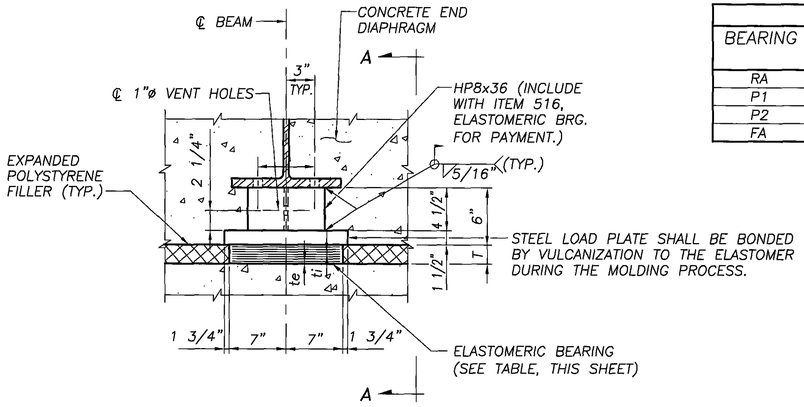
RAK	JAA	TLS	10–04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JSK		7701624 (NBL) 7701594 (SBL)	

PARAPET DETAILS
BRIDGE NOS. SUM–21–0758L&R
S.R.21 OVER WHEELING & LAKE ERIE RAILROAD

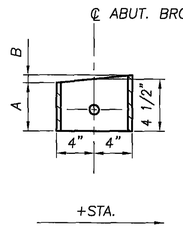
SUM–21–(5.69)(7.58)(7.78)

EM1482PAR.DWG SCALE: 1:96

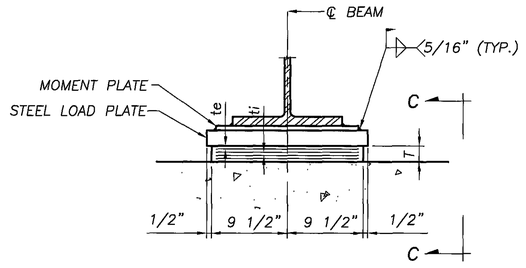


ELEVATION OF LAMINATED ELASTOMERIC EXPANSION BEARING AT ABUTMENTS

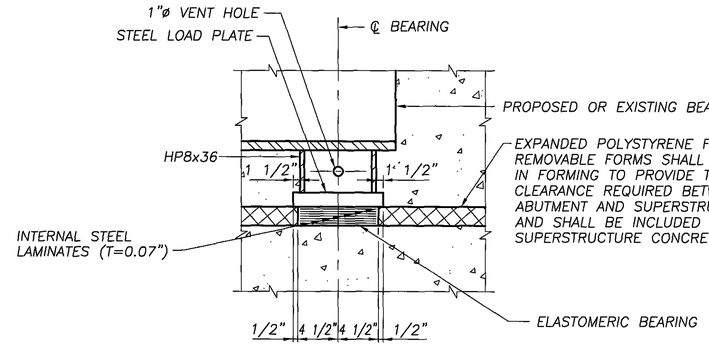
BEVEL DIMENSIONS								
BEARING	NORTHBOUND LANES				SOUTHBOUND LANES			
	A	B	C	D	A	B	C	D
RA	4 3/8"	1/4"			4 3/8"	1/4"		
P1			1 7/8"	1/4"			1 13/16"	3/8"
P2			1 7/8"	1/4"			1 7/8"	1/4"
FA	4 7/16"	1/8"			4 7/16"	1/8"		



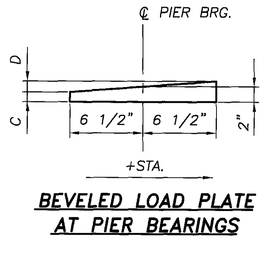
BEVELED TOP OF HP8x36 AT ABUTMENT BEARINGS



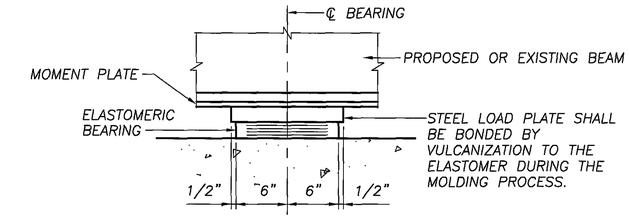
ELEVATION OF LAMINATED ELASTOMERIC EXPANSION BEARING AT PIERS



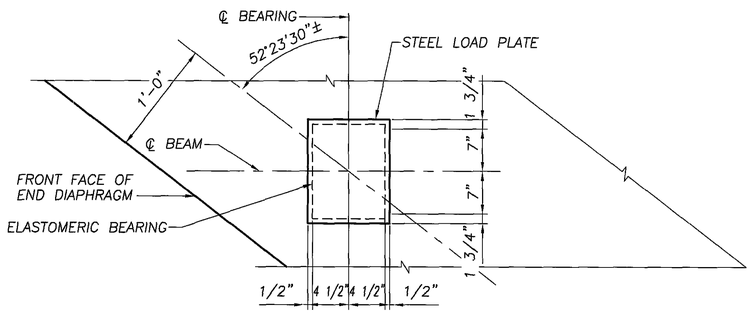
VIEW A–A



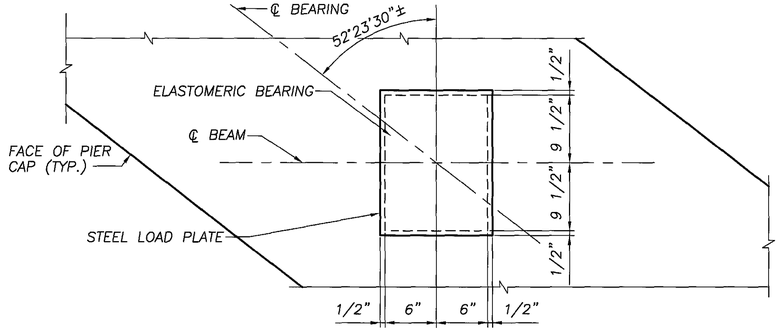
BEVELED LOAD PLATE AT PIER BEARINGS



VIEW C–C



PLAN VIEW – ABUTMENT EXPANSION BEARING



PLAN VIEW – PIER EXPANSION BEARING

BEARING DESIGN LOADS

	ABUTMENTS	PIERS
DEAD LOAD	74.28K	148.99K
LIVE LOAD	62.58K	75.93K
TOTAL	105.16K	224.92K

ELASTOMERIC BEARING DATA	ABUTMENTS	PIERS
STEEL LOAD PLATE (T x L x W)	1 1/2" x 10" x 1'-5 1/2"	2" x 1'-1" x 1'-8"
LAMINATED ELASTOMERIC BRG. (T x L x W)	2 7/16" x 9" x 1'-2"	1 7/8" x 1'-0" x 1'-7"
NUMBER OF STEEL LAMINATES	7	4
EXTERIOR ELASTOMER THICKNESS, te	0.19"	0.25"
INTERIOR ELASTOMER THICKNESS, ti	0.26"	0.35"
NUMBER OF INTERIOR ELASTOMER LAYERS	6	3

SUPERSTRUCTURE NOTES:

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN:
BEARING ANCHOR RODS: AT THE OPTION OF THE CONTRACTOR, THE BEARING ANCHOR RODS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST IN PLACE.

BEARING REPOSITIONING: IF THE STEEL IS ERECTED AT AN AMBIENT TEMPERATURE HIGHER THAN 80°F OR LOWER THAN 40°F AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/6 OF THE BEARING HEIGHT AT 60°F±10°F, RAISE THE BEAMS TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 60°F±10°F.

ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.6 (METHOD A) OF THE A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, TESTING, ANCHOR RODS AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516, ELASTOMERIC BEARINGS WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN, EACH.

BEARING RETAINERS SHALL BE FABRICATED FROM L8x4x1/2 OF A.S.T.M. A572/A709 GRADE 50 STEEL. POLYSTYRENE FILLER MATERIAL SHALL MEASURE 5" HIGH x 8" WIDE x 2'-0" LONG AND SHALL BE PLACED PER DETAILS SHOWN ON STANDARD BRIDGE DRAWING SICD-1-96, SHEET 6 OF 7.

WELD ATTACHMENT OF SUPPORTS FOR THE CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION." DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION." FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE AT LEAST 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER THAN 3/4" THICK.

FOR STRUCTURAL STEEL AND CROSSFRAME DETAILS, SEE BRIDGE STANDARD DRAWING GSD-1-96.

THE PAY QUANTITY FOR ITEM 894 SUPERSTRUCTURE CONCRETE IN THE END DIAPHRAGMS SHALL BE DETERMINED AS FOLLOWS: BELOW THE BOTTOM OF THE TOP BEAM FLANGE, ABOVE THE BRIDGE SEAT CONSTRUCTION JOINT AND BETWEEN THE DECK FASCIAS.

REINFORCING STEEL: SEE SHEETS 24 & 25 OF 25.

WELDING: CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300°F AS DETERMINED BY USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.

THE 2" DIAMETER HOLES IN THE BEAMS' ENDS AND 1" DIAMETER VENT HOLES SHALL BE FIELD DRILLED. FLAME CUTTING OF HOLES IS NOT PERMITTED. INCLUDE WITH ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL 2, AS PER PLAN, FOR PAYMENT.

EM1482SSDWG SCALE: 1:96

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DESIGNED RAK
DRAWN JAA
CHECKED JSK
REVIEWED TLS 10-04
REVISED
DATE
STRUCTURE FILE NUMBER 7701524 (NBL) 7701594 (SBL)

BEARING DETAILS & SUPERSTRUCTURE NOTES

BRIDGE NOS. SUM-21-0758L&R
S.R. 21 OVER WHEELING & LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)

21/25

191/223

DEAD LOAD DEFLECTION AND CAMBER–BEAM LINE 1 (PROPOSED)

	SPAN 1					SPAN 2					SPAN 3					
SPAN POINT	℄ BRG., RA	1/4	1/2	3/4	SPLICE	℄ BRG., P1	SPLICE	1/4	1/2	3/4	SPLICE	℄ BRG., P2	SPLICE	1/4	1/2	3/4	℄ BRG., FA
DEFLECTION DUE TO STEEL WEIGHT	0	1/16"	1/16"	1/16"	1/16"	0	1/16"	1/16"	1/8"	1/16"	1/16"	0	0	1/16"	1/16"	1/16"	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	1/4"	1/4"	1/16"	1/16"	0	3/16"	5/16"	1/2"	1/4"	1/8"	0	1/8"	1/8"	5/16"	1/4"	0
ADJUSTMENT REQUIRED FOR VERTICAL CURVE	0	5/16"	3/8"	5/16"	1/4"	0	3/8"	1/2"	5/8"	1/2"	3/8"	0	1/4"	5/16"	3/8"	5/16"	0
REQUIRED SHOP CAMBER	0	5/8"	11/16"	7/16"	3/8"	0	5/8"	7/8"	1 1/4"	13/16"	9/16"	0	3/8"	1/2"	3/4"	5/8"	0

DEAD LOAD DEFLECTION–BEAM LINES 2–6 & 9–13 (EXISTING)

	SPAN 1					SPAN 2					SPAN 3					
SPAN POINT	℄ BRG., RA	1/4	1/2	3/4	SPLICE	℄ BRG., P1	SPLICE	1/4	1/2	3/4	SPLICE	℄ BRG., P2	SPLICE	1/4	1/2	3/4	℄ BRG., FA
DEFLECTION DUE TO STEEL WEIGHT	0	1/16"	1/16"	0	0	0	0	1/16"	1/8"	1/16"	1/16"	0	0	1/16"	1/16"	1/16"	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	3/16"	3/16"	1/16"	1/16"	0	3/16"	1/4"	7/16"	1/4"	1/8"	0	1/8"	1/8"	5/16"	1/4"	0
TOTAL DEAD LOAD DEFLECTION	0	1/4"	1/4"	1/16"	1/16"	0	3/16"	5/16"	9/16"	5/16"	3/16"	0	1/8"	3/16"	3/8"	5/16"	0

DEAD LOAD DEFLECTION–BEAM LINE 7 (EXISTING)

	SPAN 1					SPAN 2					SPAN 3					
SPAN POINT	℄ BRG., RA	1/4	1/2	3/4	SPLICE	℄ BRG., P1	SPLICE	1/4	1/2	3/4	SPLICE	℄ BRG., P2	SPLICE	1/4	1/2	3/4	℄ BRG., FA
DEFLECTION DUE TO STEEL WEIGHT	0	1/16"	1/16"	0	0	0	1/16"	1/16"	1/16"	1/16"	1/16"	0	0	0	1/16"	1/16"	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	3/16"	1/4"	1/8"	1/16"	0	1/8"	3/16"	7/16"	3/16"	1/8"	0	1/8"	1/8"	5/16"	1/4"	0
TOTAL DEAD LOAD DEFLECTION	0	1/4"	5/16"	1/8"	1/16"	0	3/16"	1/4"	1/2"	1/4"	3/16"	0	1/8"	1/8"	3/8"	5/16"	0

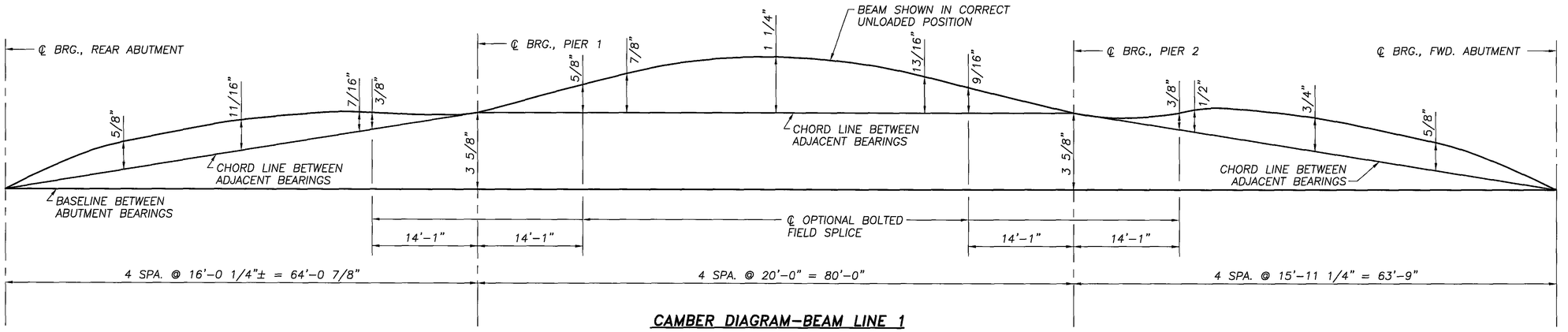
DEAD LOAD DEFLECTION–BEAM LINE 8 (EXISTING)

	SPAN 1					SPAN 2					SPAN 3					
SPAN POINT	℄ BRG., RA	1/4	1/2	3/4	SPLICE	℄ BRG., P1	SPLICE	1/4	1/2	3/4	SPLICE	℄ BRG., P2	SPLICE	1/4	1/2	3/4	℄ BRG., FA
DEFLECTION DUE TO STEEL WEIGHT	0	1/16"	1/16"	1/16"	0	0	1/16"	1/16"	1/16"	1/16"	1/16"	0	0	1/16"	1/16"	1/16"	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	5/16"	5/16"	1/8"	1/8"	0	1/8"	3/16"	7/16"	3/16"	1/8"	0	1/8"	1/8"	5/16"	5/16"	0
TOTAL DEAD LOAD DEFLECTION	0	3/8"	3/8"	3/16"	1/8"	0	3/16"	1/4"	1/2"	1/4"	3/16"	0	1/8"	3/16"	3/8"	3/8"	0

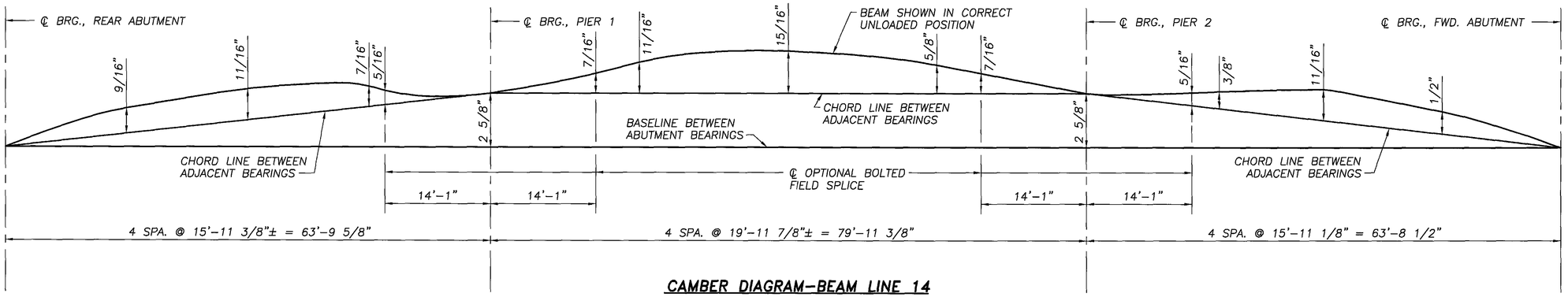
DEAD LOAD DEFLECTION AND CAMBER–BEAM LINE 14 (PROPOSED)

	SPAN 1					SPAN 2					SPAN 3					
SPAN POINT	℄ BRG., RA	1/4	1/2	3/4	SPLICE	℄ BRG., P1	SPLICE	1/4	1/2	3/4	SPLICE	℄ BRG., P2	SPLICE	1/4	1/2	3/4	℄ BRG., FA
DEFLECTION DUE TO STEEL WEIGHT	0	1/16"	1/16"	1/16"	0	0	1/16"	1/16"	1/8"	1/16"	1/16"	0	0	1/16"	1/16"	1/16"	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	1/4"	5/16"	1/8"	1/8"	0	1/8"	1/4"	3/8"	1/4"	1/8"	0	1/8"	1/8"	5/16"	1/4"	0
ADJUSTMENT REQUIRED FOR VERTICAL CURVE	0	1/4"	5/16"	1/4"	3/16"	0	1/4"	3/8"	7/16"	5/16"	1/4"	0	3/16"	3/16"	5/16"	3/16"	0
REQUIRED SHOP CAMBER	0	9/16"	11/16"	7/16"	5/16"	0	7/16"	11/16"	15/16"	5/8"	7/16"	0	5/16"	3/8"	11/16"	1/2"	0

NOTATION:
FA = FORWARD ABUTMENT
P1 = PIER NO.1
P2 = PIER NO.2
RA = REAR ABUTMENT



CAMBER DIAGRAM–BEAM LINE 1



CAMBER DIAGRAM–BEAM LINE 14

EM1482S3.DWG

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CONSULTING ENGINEERS – SURVEYORS

DESIGNED RAK | DRAWN KAA | REVIEWED TLS | DATE 10/04
CHECKED JSK | REVISED | STRUCTURE FILE NUMBER 7701594 (SBL)

DEAD LOAD DEFLECTION AND CAMBER TABLES & CAMBER DIAGRAMS
BRIDGE NOS. SUM–21–0758L&R
S.R.21 OVER WHEELING AND LAKE ERIE RAILROAD

SUM–21–(5.69)(7.58)(7.78)

22/25

192/223

SOUTHBOUND LANES

SCREED TABLE

POINT		SPAN 1 ℄ BRG., RA	1/4	1/2	3/4	SPLICE	SPAN 2 ℄ BRG., P1	SPLICE	1/4	1/2	3/4	SPLICE	SPAN 3 ℄ BRG., P2	SPLICE	1/4	1/2	3/4	℄ BRG., FA
LEFT CURB LINE	STA.	399+70.91	399+86.93	400+02.96	400+18.98	400+20.98	400+35.06	400+49.14	400+55.01	400+75.02	400+95.02	401+00.95	401+15.03	401+29.11	401+30.97	401+46.92	401+62.86	401+78.81
	ELEV.	1054.82	1055.35	1055.85	1056.31	1056.37	1056.77	1057.18	1057.35	1057.89	1058.37	1058.51	1058.82	1059.15	1059.19	1059.55	1059.87	1060.16
BEAM LINE 1	STA.	399+73.61	399+89.56	400+05.58	400+21.60	400+23.54	400+37.62	400+51.70	400+57.62	400+77.62	400+97.62	401+03.53	401+17.61	401+31.69	401+33.56	401+49.50	401+65.44	401+81.62
	ELEV.	1054.94	1055.46	1055.96	1056.42	1056.48	1056.87	1057.28	1057.45	1057.99	1058.47	1058.60	1058.91	1059.24	1059.28	1059.64	1059.96	1060.25
BEAM LINE 2	STA.	399+81.40	399+97.34	400+13.36	400+29.38	400+31.32	400+45.40	400+59.48	400+65.40	400+85.40	401+05.40	401+11.31	401+25.39	401+39.47	401+41.34	401+57.28	401+73.22	401+89.39
	ELEV.	1055.28	1055.80	1056.28	1056.74	1056.79	1057.19	1057.58	1057.75	1058.28	1058.75	1058.88	1059.19	1059.50	1059.55	1059.89	1060.20	1060.49
BEAM LINE 3	STA.	399+92.25	400+08.27	400+24.29	400+40.31	400+42.23	400+56.31	400+70.39	400+76.32	400+96.33	401+16.34	401+22.22	401+36.30	401+50.38	401+52.25	401+68.19	401+84.14	402+00.30
	ELEV.	1055.76	1056.26	1056.74	1057.18	1057.24	1057.62	1058.01	1058.17	1058.68	1059.14	1059.26	1059.56	1059.87	1059.91	1060.24	1060.55	1060.81
BEAM LIKE 4	STA.	400+03.14	400+19.16	400+35.18	400+51.20	400+53.13	400+67.21	400+81.29	400+87.22	401+07.23	401+27.24	401+33.13	401+47.21	401+61.29	401+63.13	401+79.05	401+94.96	402+10.88
	ELEV.	1056.23	1056.72	1057.18	1057.62	1057.67	1058.04	1058.42	1058.58	1059.08	1059.52	1059.64	1059.93	1060.23	1060.26	1060.59	1060.88	1061.13
BEAM LINE 5	STA.	400+14.04	400+30.06	400+46.07	400+62.09	400+64.02	400+78.10	400+92.18	400+98.10	401+18.10	401+38.10	401+44.02	401+58.10	401+72.18	401+74.01	401+89.92	402+05.83	402+21.74
	ELEV.	1056.69	1057.17	1057.62	1058.05	1058.10	1058.46	1058.83	1058.98	1059.46	1059.89	1060.01	1060.29	1060.57	1060.61	1060.92	1061.20	1061.44
℄ S.B. LANES	STA.	400+15.06	400+31.07	400+47.09	400+63.10	400+65.03	400+79.11	400+93.19	400+99.11	401+19.10	401+39.10	401+45.01	401+59.09	401+73.17	401+75.00	401+90.91	402+06.82	402+22.73
& CROWN LINE	ELEV.	1056.73	1057.21	1057.66	1058.09	1058.13	1058.50	1058.86	1059.01	1059.50	1059.92	1060.04	1060.32	1060.61	1060.64	1060.95	1061.23	1061.47
BEAM LINE 6	STA.	400+24.95	400+40.96	400+56.98	400+72.99	400+74.92	400+89.00	401+03.08	401+09.00	401+29.00	401+49.00	401+54.92	401+69.00	401+83.08	401+84.90	402+00.80	402+16.70	402+32.60
	ELEV.	1056.90	1057.37	1057.81	1058.22	1058.27	1058.62	1058.98	1059.13	1059.60	1060.01	1060.13	1060.39	1060.67	1060.71	1061.01	1061.27	1061.50
BEAM LINE 7	STA.	400+35.87	400+51.88	400+67.90	400+83.91	400+85.84	400+99.92	401+14.00	401+19.92	401+39.92	401+59.91	401+65.83	401+79.91	401+93.99	401+95.81	402+11.70	402+27.60	402+43.49
	ELEV.	1057.08	1057.54	1057.97	1058.37	1058.42	1058.75	1059.10	1059.24	1059.70	1060.10	1060.21	1060.47	1060.74	1060.77	1061.06	1061.31	1061.53
RIGHT CURB LINE	STA.	400+38.43	400+54.44	400+70.45	400+86.45	400+88.38	401+02.46	401+16.54	401+22.45	401+42.45	401+62.44	401+68.35	401+82.43	401+96.51	401+98.32	402+14.21	402+30.09	402+45.98
	ELEV.	1057.12	1057.58	1058.01	1058.40	1058.45	1058.78	1059.13	1059.27	1059.72	1060.12	1060.23	1060.49	1060.75	1060.78	1061.07	1061.32	1061.54

NORTHBOUND LANES

SCREED TABLE

POINT		SPAN 1 ℄ BRG., RA	1/4	1/2	3/4	SPLICE	SPAN 2 ℄ BRG., P1	SPLICE	1/4	1/2	3/4	SPLICE	SPAN 3 ℄ BRG., P2	SPLICE	1/4	1/2	3/4	℄ BRG., FA
LEFT CURB LINE	STA.	400+89.03	401+05.07	401+21.11	401+37.14	401+39.10	401+53.18	401+67.26	401+73.19	401+93.21	402+13.22	402+19.15	402+33.23	402+47.31	402+49.16	402+65.09	402+81.02	402+96.95
	ELEV.	1055.07	1055.51	1055.92	1056.30	1056.35	1056.67	1057.01	1057.15	1057.61	1058.01	1058.13	1058.40	1058.68	1058.72	1059.03	1059.31	1059.55
BEAM LINE 8	STA.	400+92.89	401+08.92	401+24.94	401+40.97	401+42.91	401+56.99	401+71.07	401+76.99	401+97.00	402+17.00	402+22.92	402+37.00	402+51.08	402+52.92	402+68.85	402+84.77	403+00.69
	ELEV.	1055.22	1055.66	1056.07	1056.44	1056.49	1056.81	1057.14	1057.28	1057.74	1058.14	1058.25	1058.52	1058.80	1058.84	1059.14	1059.42	1059.66
BEAM LINE 9	STA.	401+03.81	401+19.83	401+35.85	401+51.86	401+53.80	401+67.88	401+81.96	401+87.88	402+07.89	402+27.89	402+33.81	402+47.89	402+61.97	402+63.82	402+79.74	402+95.67	403+11.59
	ELEV.	1055.64	1056.06	1056.46	1056.83	1056.87	1057.20	1057.53	1057.67	1058.11	1058.50	1058.60	1058.86	1059.13	1059.17	1059.47	1059.74	1059.97
℄ N.B. LANES	STA.	401+12.43	401+28.45	401+44.47	401+60.48	401+62.42	401+76.50	401+90.58	401+96.52	402+16.53	402+36.55	402+42.48	402+56.56	402+70.64	402+72.50	402+88.44	403+04.37	403+20.31
& CROWN LINE	ELEV.	1055.97	1056.38	1056.77	1057.14	1057.18	1057.50	1057.82	1057.96	1058.39	1058.77	1058.88	1059.13	1059.40	1059.43	1059.73	1059.99	1060.22
BEAM LINE 10	STA.	401+14.74	401+30.75	401+46.75	401+62.76	401+64.68	401+78.76	401+92.84	401+98.76	402+18.77	402+38.77	402+44.69	402+58.77	402+72.85	402+74.70	402+90.63	403+06.55	403+22.48
	ELEV.	1056.00	1056.41	1056.80	1057.16	1057.20	1057.52	1057.84	1057.98	1058.41	1058.79	1058.89	1059.15	1059.41	1059.44	1059.74	1060.00	1060.22
BEAM LINE 11	STA.	401+25.67	401+41.67	401+57.66	401+73.66	401+75.57	401+89.65	402+03.73	402+09.65	402+29.66	402+49.66	402+55.58	402+69.66	402+83.74	402+85.59	403+01.52	403+17.45	403+33.38
	ELEV.	1056.13	1056.54	1056.92	1057.27	1057.32	1057.62	1057.94	1058.07	1058.49	1058.86	1058.97	1059.21	1059.47	1059.50	1059.78	1060.03	1060.26
BEAM LINE 12	STA.	401+36.60	401+52.58	401+68.57	401+84.55	401+86.45	402+00.53	402+14.61	402+20.53	402+40.53	402+60.53	402+66.45	402+80.53	402+94.61	402+96.47	403+12.40	403+28.34	403+44.27
	ELEV.	1056.27	1056.66	1057.03	1057.38	1057.42	1057.72	1058.03	1058.16	1058.57	1058.93	1059.03	1059.27	1059.52	1059.55	1059.82	1060.07	1060.28
BEAM LINE 13	STA.	401+47.54	401+63.51	401+79.48	401+95.45	401+97.34	402+11.42	402+25.50	402+31.42	402+51.43	402+71.43	402+77.35	402+91.43	403+05.51	403+07.37	403+23.31	403+39.25	403+55.19
	ELEV.	1056.40	1056.78	1057.15	1057.48	1057.52	1057.82	1058.12	1058.24	1058.64	1058.99	1059.09	1059.32	1059.56	1059.59	1059.86	1060.09	1060.30
BEAM LINE 14	STA.	401+55.42	401+71.37	401+87.32	402+03.27	402+05.14	402+19.22	402+33.30	402+39.21	402+59.20	402+79.18	402+85.09	402+99.17	403+13.25	403+15.10	403+31.03	403+46.95	403+62.88
	ELEV.	1056.49	1056.87	1057.23	1057.56	1057.60	1057.88	1058.17	1058.30	1058.69	1059.03	1059.13	1059.35	1059.59	1059.62	1059.88	1060.11	1060.31
RIGHT CURB LINE	STA.	401+56.65	401+72.63	401+88.60	402+04.58	402+06.47	402+20.55	402+34.63	402+40.57	402+60.59	402+80.60	402+86.54	403+00.62	403+14.70	403+16.58	403+32.53	403+48.49	403+64.44
	ELEV.	1056.50	1056.89	1057.24	1057.57	1057.61	1057.89	1058.18	1058.31	1058.70	1059.04	1059.14	1059.36	1059.60	1059.63	1059.88	1060.11	1060.31

NOTES:

SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED REMAINING DEAD LOAD DEFLECTIONS.

NOTATION:
FA = FORWARD ABUTMENT
P1 = PIER NO.1
P2 = PIER NO.2
RA = REAR ABUTMENT

GENERAL NOTES (CONT'D.)

DRILLED SHAFTS:
THE DESIGN LOAD TO BE SUPPORTED BY THE DRILLED SHAFT ON SHEET 12 OF 25 IS 175 TONS, ON SHEET 13 OF 25 IS 185 TONS, ON SHEET 14 OF 25 IS 177 TONS AND ON SHEET 15 OF 25 IS 187 TONS. THIS LOAD IS RESISTED BY SHAFT ADHESION WITHIN A PORTION OF THE BEDROCK SOCKET AND ALSO BY SHAFT END BEARING. THE ALLOWABLE BEDROCK SOCKET ADHESION IS 244 TONS, ASSUMED TO ACT ALONG THE BOTTOM 3 FEET OF THE BEDROCK SOCKET. THE ALLOWABLE END BEARING PRESSURE IS 25 TONS PER SQUARE FOOT. THE REINFORCING STEEL SHALL BE EPOXY COATED ACCORDING TO 709.00.

ITEM 514, FIELD PAINTING OF STRUCTURAL STEEL:
ALL EXISTING STEEL SHALL BE CLEANED AND PAINTED WITH A PRIME, INTERMEDIATE AND FINISH COAT OF PAINT IN THE FIELD USING SYSTEM OZEU. NEW STEEL SHALL BE PAINTED WITH AN INTERMEDIATE AND FINISH COAT OF PAINT IN THE FIELD PER 514.02. THE COST OF THIS WORK SHALL BE INCLUDED WITH SEVERAL FIELD PAINTING OF STRUCTURAL STEEL ITEMS FOR PAYMENT. THE COLOR OF THE FINISH COAT SHALL BE FEDERAL STANDARD NO. 595B–15526 (BLUE).

PAINTING OF 513 STEEL:
NEW STEEL SHALL BE SHOP PRIMED, WHICH IS TO BE INCLUDED IN THE COST OF ITEM 513.

ITEM 519, PATCHING CONCRETE STRUCTURE, AS PER PLAN: PRIOR TO THE SURFACE CLEANING SPECIFIED IN 519.04 AND WITHIN 24 HOURS OF PLACING PATCHING MATERIAL, BLAST CLEAN ALL SURFACES TO BE PATCHED INCLUDING EXPOSED REINFORCING STEEL. ACCEPTABLE METHODS INCLUDE HIGH–PRESSURE WATER BLASTING WITH OR WITHOUT ABRASIVES IN THE WATER, ABRASIVE BLASTING WITH CONTAINMENT OR VACUUM ABRASIVE BLASTING.

AN ALLOWANCE OF 50 SQUARE FEET FOR EACH STRUCTURE IS TO BE PAID FOR AT THE CONTRACT PRICE FOR PATCHING OF CONCRETE STRUCTURES. AREAS HAVING LOOSE OR DISINTEGRATED CONCRETE WHICH ARE TO BE REPAIRED SHALL BE SPECIFIED BY THE ENGINEER.

EXISTING STRUCTURE VERIFICATION:
DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK, BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO C.M.S. SECTIONS 102.05, 105.02 AND 513.02/863.07. CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PRE–BID EXAMINATION OF THE EXISTING STRUCTURE BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

ITEM 509, REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN:
ANY EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION SHALL BE REPLACED WITH NEW REINFORCING STEEL. ANY EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND AND ARE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS SHALL BE REPLACED WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT THE CONTRACTOR'S COST. ALL WORK SHALL BE TO THE SATISFACTION OF THE ENGINEER.

AN ALLOWANCE OF 1000 POUNDS FOR EACH STRUCTURE IS TO BE PAID FOR AT THE CONTRACT PRICE TO PROVIDE FOR REPLACEMENT REINFORCING STEEL SPECIFIED BY THE ENGINEER DUE TO CORROSION AND SHALL INCLUDE PLACEMENT, DOWELING, BENDING, SUPPORTING, TIE WIRES AND TYING OF THAT SPECIFIED REINFORCING STEEL.

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. – P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756–7302
CONSULTING ENGINEERS – SURVEYORS

DESIGNED RAK | DRAWN KAA | CHECKED JSK | REVIEWED TLS | DATE 10–04 | REVISED

STRUCTURE FILE NUMBER
7701624 (NBL)
7701594 (SBL)

SCREED ELEVATIONS & GENERAL NOTES (CONTINUED)

BRIDGE NOS. SUM–21–0758L&R
S.R.21 OVER WHEELING & LAKE ERIE RAILROAD

SUM–21–(5.69)(7.58)(7.78)

EM1482S6.DWG SCALE: 1:96

GRADE 60 EPOXY COATED REINFORCING STEEL – SUPERSTRUCTURE

MARK	NUMBER LP	NUMBER RP	NUMBER TOTAL	LENGTH	WEIGHT (LBS.)	TYPE	DIMENSIONS A	B	C	I.R.	INC.
S401			1204	30'–0"	24,128	STR.					
S402			172	17'–6"	2011	STR.					
S501			64	47'–2"	3148	STR.					
S502			64	45'–3"	3021	STR.					
S503			1712	28'–7"	51,039	STR.					
			4	2'–10"							
S504			SERIES	TO	4935	STR.					3 3/4"
			OF 78	27'–6"							
			4	2'–10"							
S505			SERIES	TO	5294	STR.					3 3/4"
			OF 81	28'–6"							
S506			36	2'–6"	94	STR.					
S507			4	1'–11"	8	STR.					
S508			4	2'–4"	10	STR.					
S509			112	8'–0"	935	6	2'–9"	2'–9"	2'–9"		
S510			112	11'–10"	1382	7	3'–3"	2'–5"			
S511	16	16	32	10'–0"	334	STR.					
S512	6	6	12	5'–6"	69	3	1'–8"	2'–5"	1'–5"		
S513	10	10	20	5'–6"	115	STR.					
S514	36	36	72	34'–9"	2610	STR.					
S515	187	187	374	7'–5"	2893	1	1'–1"	3'–2"	3'–0"	2 3/4"	
S601	6	6	12	35'–6"	640	STR.					
S602	187	187	374	3'–7"	2013	5	1'–1"	1'–8"			
	4	4	8	4'–2"				3'–3"			
S603	SERIES	SERIES	SERIES	TO	606	4	1'–1"	TO			1"
	OF 11	OF 11	OF 11	5'–0"				4'–1"			
S604	16	16	32	4'–2"	200	4	1'–1"	3'–3"			
S605	187	187	374	2'–8"	1498	4	1'–1"	1'–8"			
S801			84	32'–5"	7270	STR.					
S802			70	6'–6"	1215	10	4'–3"	1'–5"			
				TOTAL	115,468						

GRADE 60 EPOXY COATED REINFORCING STEEL – PIERS

MARK	NUMBER P1	NUMBER P2	NUMBER TOTAL	LENGTH	WEIGHT (LBS.)	TYPE	DIMENSIONS A	B	C	N	INC.
P401	90	102	192	3'–9"	481	11	2'–9"				
SP405	1		1	18'–5"	632	12	2'–9"	4 1/2"		52	
SP406	1		1	27'–1"	①	12	2'–9"	4 1/2"		75	
SP407		1	1	16'–7"	569	12	2'–9"	4 1/2"		47	
SP408		1	1	28'–5"	①	12	2'–9"	4 1/2"		79	
P501	26	28	54	20'–9"	1169	STR.					
P503	188	194	382	2'–6"	996	STR.					
P507	4	10	14	16'–6"	241	STR.					
P508	20	16	36	19'–0"	713	2	18'–5"				
P509	2	2	4	12'–6"	52	STR.					
P512	15	15	30	28'–7"	894	STR.					
P514	11	11	22	5'–10"	134	6	2'–9"	1'–8"	1'–8"		
P521	30		30	16'–9"	524	STR.					
P522	49		49	8'–6"	434	7	2'–9"	1'–3"			
	2		2	8'–7"			8'–0"				
P523	SERIES		SERIES	TO	74	2	TO				3'–3"
	OF 3		OF 3	15'–1"			14'–6"				
P524	4	4	8	9'–3"	77	STR.					
P525	5		5	5'–6"	29	STR.					
	2		2	17'–4"							
P526	SERIES		SERIES	TO	237	STR.					7 1/2"
	OF 6		OF 6	20'–6"							
P527	10		10	26'–9"	279	STR.					
P528		34	34	18'–5"	653	STR.					
		2	2	8'–7"			8'–0"				
P529		SERIES	SERIES	TO	75	2	TO				3'–4"
		OF 3	OF 3	15'–3"			14'–8"				
P530		5	5	5'–5"	28	STR.					
		2	2	19'–0"							
P531		SERIES	SERIES	TO	258	STR.					7 1/2"
		OF 6	OF 6	22'–2"							
P532		10	10	28'–4"	296	STR.					
P533		49	49	9'–0"	460	7	2'–9"	1'–6"			
P903	12		12	20'–3"	826	STR.					
P904		12	12	18'–5"	751	STR.					
DS1003	12		12	29'–2"	①	STR.					
DS1004		12	12	30'–6"	①	STR.					
				TOTAL	10,882						

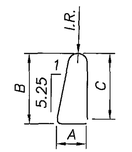
GRADE 60 EPOXY COATED REINFORCING STEEL – ABUTMENTS

MARK	NUMBER RA	NUMBER FA	NUMBER TOTAL	LENGTH	WEIGHT (LBS.)	TYPE	DIMENSIONS A	B	C	D	INC.
A401	5	5	10	13'–4"	89	7	1'–9"	4'–8"			
A402	5	5	10	12'–10"	86	7	1'–9"	4'–5"			
A501	26	24	50	2'–6"	130	STR.					
A502	23	22	45	18'–0"	845	8	1'–7"	3'–4"	4'–11"	4'–6"	
A505	1	1	2	24'–0"	50	8	2'–7"	5'–5"	8'–0"	4'–6"	
A521	1		1	11'–7"	12	9	6'–1"	4'–11"	2'–6"		
A522	1		1	9'–0"	9	9	3'–6"	4'–11"	2'–6"		
A526	6		6	13'–9"	86	STR.					
A527	1		1	11'–0"	11	STR.					
A528	1		1	8'–5"	9	STR.					
A530	1		1	6'–4"	7	STR.					
A531	9	9	18	31'–2"	585	STR.					
A535	4	4	8	11'–8"	97	7	1'–5"	4'–2"			
A537	1	1	2	4'–6"	9	6	1'–5"	1'–8"	1'–8"		
A538		2	2	4'–1"	9	STR.					
	1		1	10'–3"				4'–3"	4'–3"		
A540	SERIES		SERIES	TO	52	6	2'–0"	TO	TO		9"
	OF 4		OF 4	14'–9"				6'–6"	6'–6"		
A541	3		3	15'–9"	49	6	2'–0"	7'–0"	7'–0"		
A551		4	4	4'–9"	20	STR.					
A554	52	54	106	6'–2"	682	6	2'–9"	1'–10"	1'–10"		
A556	1		1	19'–8"	21	6	3'–3"	8'–4"	8'–4"		
A557	3		3	18'–5"	58	6	2'–0"	8'–4"	8'–4"		
A559	2		2	21'–6"	45	STR.					
	1		1	13'–0"				9"	2'–5"		
A566	SERIES		SERIES	TO	48	8	1'–7"	TO	TO	4'–6"	1'–2"
	OF 3		OF 3	17'–7"				3'–1"	4'–9"		
	1		1	10'–3"				4'–3"	4'–3"		
A567	SERIES		SERIES	TO	86	6	2'–0"	TO	TO		8 1/4"
	OF 6		OF 6	17'–1"				7'–8"	7'–8"		
A568	2		2	19'–0"	40	STR.					
	1		1	6'–3"							
A569	SERIES		SERIES	TO	28	STR.					2'–6 1/2"
	OF 3		OF 3	11'–4"							
	1		1	8'–10"							
A570	SERIES		SERIES	TO	36	STR.					2'–6 1/2"
	OF 3		OF 3	13'–11"							
A571	1		1	12'–8"	13	9	3'–10"	7'–11"	4'–0"		
A572	1		1	15'–3"	16	9	6'–5"	7'–11"	4'–0"		
A573	5	3	8	10'–0"	83	6	3'–3"	3'–6"	3'–6"		
A574	1		1	9'–1"	9	STR.					
A575	1		1	16'–4"	17	STR.					
A576	1		1	15'–8"	16	STR.					
A577	2		2	10'–9"	22	STR.					
		1	1	11'–9"				5'–0"	5'–0"		
A578		SERIES	SERIES	TO	57	6	2'–0"	TO	TO		8"
		OF 4	OF 4	15'–9"				7'–0"	7'–0"		
A579		2	2	7'–5"	15	STR.					
A580		2	2	6'–7"	14	STR.					
A581		2	2	7'–1"	15	STR.					
A582		1	1	17'–3"	18	6	3'–3"	7'–2"	7'–2"		
A583		1	1	2'–9"	3	STR.					
A584	2	1	3	5'–4"	17	STR.					
A585		1	1	4'–11"	5	9	2"	4'–3"	2'–2"		
A586		1	1	7'–6"	8	9	2'–9"	4'–3"	2'–2"		
		1	1	13'–5"				1'–0"	2'–7"		
A587		SERIES	SERIES	TO	49	8	1'–7"	TO	TO	4'–6"	1'–1 1/2"
		OF 3	OF 3	17'–11"				3'–3"	4'–10"		
A588		1	1	8'–6"	9	6	2'–9"	3'–0"	3'–0"		
A589		1	1	27'–10"	29	STR.					
A590		1	1	27'–3"	28	STR.					
A591		2	2	22'–4"	47	STR.					
A592		1	1	18'–10"	20	6	3'–3"	7'–11"	7'–11"		
A593		5	5	17'–7"	92	6	2'–0"	7'–11"	7'–11"		
		1	1	10'–5"				4'–4"	4'–4"		
A594		SERIES	SERIES	TO	86	6	2'–0"	TO	TO		8"
		OF 6	OF 6	17'–1"				7'–8"	7'–8"		
A595		2	2	18'–6"	39	STR.					
		1	1	11'–0"							
A596		SERIES	SERIES	TO	42	STR.					2'–4 1/2"
		OF 3	OF 3	15'–9"							
		1	1	8'–5"							
A597		SERIES	SERIES	TO	34	STR.					2'–4 1/2"
		OF 3	OF 3	13'–2"							
A598		1	1	16'–6"	17	9	8'–7"	7'–1"	3'–7"		
A599		1	1	13'–11"	15	9	6'–0"	7'–1"	3'–7"		
A813	1		1	19'–0"	51	STR.					
A814	1		1	21'–3"	57	STR.					
A815	1		1	21'–7"	58	STR.					

GRADE 60 EPOXY COATED REINFORCING STEEL – ABUTMENTS

MARK	NUMBER RA	NUMBER FA	NUMBER TOTAL	LENGTH	WEIGHT (LBS.)	TYPE	DIMENSIONS A	B	C	D	INC.
	1		1	19'–0"							
A816	SERIES		SERIES	TO	163	STR.					1'–3 1/2"
	OF 3		OF 3	21'–7"							
	1		1	10'–9"							
A817	SERIES		SERIES	TO	103	STR.					2'–1 1/2"
	OF 3		OF 3	15'–0"							
	1		1	10'–9"							
A818	SERIES		SERIES	TO	111	STR.					3'–1"
	OF 3		OF 3	16'–11"							
A819		1	1	5'–0"	13	STR.					
A820		1	1	7'–1"	19	STR.					
A821		1	1	7'–5"	20	STR.					
		1	1	4'–10"							
A822		SERIES	SERIES	TO	49	STR.					1'–3 1/2"
		OF 3	OF 3	7'–5"							
		1	1	22'–4"							
A823		SERIES	SERIES	TO	196	STR.					2'–1 1/2"
		OF 3	OF 3	26'–7"							
		1	1	22'–4"							
A824		SERIES	SERIES	TO	80	STR.					3'–1"
		OF 3	OF 3	28'–6"							
				TOTAL	4954						

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST LETTER IDENTIFIES THE BAR LOCATION. THE NEXT TWO DIGITS FOR A FOUR–DIGIT NUMBER OR THE NEXT DIGIT FOR A THREE–DIGIT NUMBER INDICATES THE BAR SIZE DESIGNATION. THE REMAINING DIGITS INDICATE THE SEQUENCE NUMBER.
EXAMPLE: A501
A = LOCATION OF THE BAR IN THE STRUCTURE (ABUTMENT)
5 = BAR SIZE DESIGNATION (#5, 5/8"ø)
01 = SEQUENCE NUMBER
BAR DIMENSIONS SHOWN ARE OUT–TO–OUT UNLESS NOTED. ALL REINFORCING STEEL IS TO BE EPOXY COATED. STRAIGHT BARS ARE INDICATED BY "STR."



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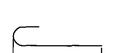
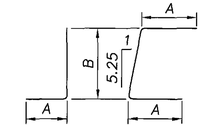


TYPE 2

TYPE 3



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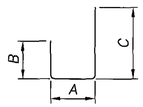

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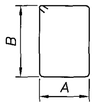

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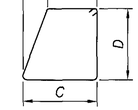

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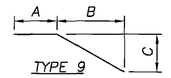

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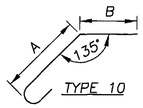
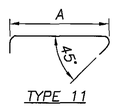
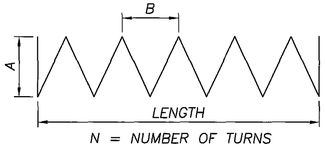


TYPE 10



TYPE 11



TYPE 12

NOTATION:
FA = FORWARD ABUTMENT
P1 = PIER NO.1
P2 = PIER NO.2
P3 = PIER NO.3
RA = REAR ABUTMENT
LP = LEFT PARAPET
RP = RIGHT PARAPET
I.R. = INSIDE RADIUS
INC. = INCREMENT
① – INCLUDE WITH ITEM 524, DRILLED SHAFT, 48" DIAMETER, ABOVE BEDROCK, FOR PAYMENT.

SCALE: 1:96

EM1482REBAR.DWG

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. – P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756–7502
CONSULTING ENGINEERS – SURVEYORS

DESIGNED JSK | DRAWN KAA | REVIEWED TLS | DATE 10–04
CHECKED RAK | REVISED | STRUCTURE FILE NUMBER 7701624

REINFORCING STEEL (NORTHBOUND LANES)
BRIDGE NO. SUM–21–0758R
S.R.21 OVER WHEELING AND LAKE ERIE RAILROAD

SUM–21–(5.69)(7.58)(7.78)

GRADE 60 EPOXY COATED REINFORCING STEEL – SUPERSTRUCTURE

MARK	NUMBER LP	NUMBER RP	NUMBER TOTAL	LENGTH	WEIGHT (LBS.)	TYPE	DIMENSIONS A	B	C	I.R.	INC.
S401			1218	30'–0"	24,409	STR.					
S402			174	17'–6"	2034	STR.					
S501			64	47'–2"	3148	STR.					
S502			64	45'–3"	3021	STR.					
S503			1712	28'–7"	51,039	STR.					
			4	2'–10"							
S504			SERIES	TO	4935	STR.					3 3/4"
			OF 78	27'–6"							
			4	2'–10"							
S505			SERIES	TO	5294	STR.					3 3/4"
			OF 81	28'–6"							
S506			36	2'–6"	94	STR.					
S507			4	1'–11"	8	STR.					
S508			4	2'–4"	10	STR.					
S509			112	8'–0"	935	6	2'–9"	2'–9"	2'–9"		
S510			112	11'–10"	1382	7	3'–3"	2'–5"			
S511	16	16	32	10'–0"	334	STR.					
S512	6	6	12	5'–6"	69	3	1'–8"	2'–5"	1'–5"		
S513	10	10	20	5'–6"	115	STR.					
S514	36	36	72	34'–9"	2610	STR.					
S515	186	186	372	7'–5"	2878	1	1'–1"	3'–2"	3'–0"	2 3/4"	
S601	6	6	12	35'–6"	640	STR.					
S602	186	186	372	3'–7"	2002	5	1'–1"	1'–8"			
	4	4	8	4'–2"				3'–3"			
S603	SERIES	SERIES	SERIES	TO	606	4	1'–1"	TO			1"
	OF 11	OF 11	OF 11	5'–0"				4'–1"			
S604	16	16	32	4'–2"	200	4	1'–1"	3'–3"			
S605	186	186	372	2'–8"	1490	4	1'–1"	1'–8"			
S801			84	32'–5"	7270	STR.					
S802			70	6'–6"	1215	10	4'–3"	1'–5"			
			TOTAL		115,738						

GRADE 60 EPOXY COATED REINFORCING STEEL – PIERS

MARK	NUMBER P1	NUMBER P2	NUMBER TOTAL	LENGTH	WEIGHT (LBS.)	TYPE	DIMENSIONS A	B	C	N	INC.
P401	91	108	199	3'–9"	498	11	2'–9"				
SP401	1		1	19'–0"	652	12	2'–9"	4 1/2"		54	
SP402	1		1	28'–9"	①	12	2'–9"	4 1/2"		80	
SP403		1	1	16'–11"	580	12	2'–9"	4 1/2"		48	
SP404		1	1	30'–8"	①	12	2'–9"	4 1/2"		85	
P501	26	28	54	20'–9"	1169	STR.					
P502	34		34	16'–11"	600	STR.					
P503	186	198	384	2'–6"	1001	STR.					
P504	10		10	25'–7"	267	STR.					
	2		2	17'–7"							
P505	SERIES		SERIES	TO	240	STR.					7 1/2"
	OF 6		OF 6	20'–9"						4 1/2"	
P506	5	5	10	4'–2"	43	STR.				4 1/2"	
P507	4	6	10	16'–6"	172	STR.				4 1/2"	
P508	20	22	42	19'–0"	832	2	18'–5"				
P509	2	2	4	12'–6"	52	STR.					
	2		2	10'–5"			9'–10"				
P510	SERIES		SERIES	TO	86	2	TO				3'–3"
	OF 3		OF 3	16'–11"			16'–4"				
P511	4	4	8	9'–4"	78	STR.					
P512	15	15	30	28'–7"	894	STR.					
P513	49		49	8'–10"	451	7	2'–9"	1'–5"			
P514	10	10	20	5'–10"	122	6	2'–9"	1'–8"	1'–8"		
P515		34	34	18'–10"	668	STR.					
P516		10	10	27'–8"	289	STR.					
		2	2	19'–5"							
P517		SERIES	SERIES	TO	263	STR.					7 1/2"
		OF 6	OF 6	22'–7"							
P518		2	2	14'–1"	29	2	13'–6"				
P519		2	2	10'–10"	23	2	10'–3"				
P520		49	49	9'–2"	468	7	2'–9"	1'–7"			
P901	12		12	20'–9"	847	STR.					
P902		12	12	18'–9"	765	STR.					
DS1001	12		12	30'–10"	①	STR.					
DS1002		12	12	32'–9"	①	STR.					
				TOTAL	11,089						

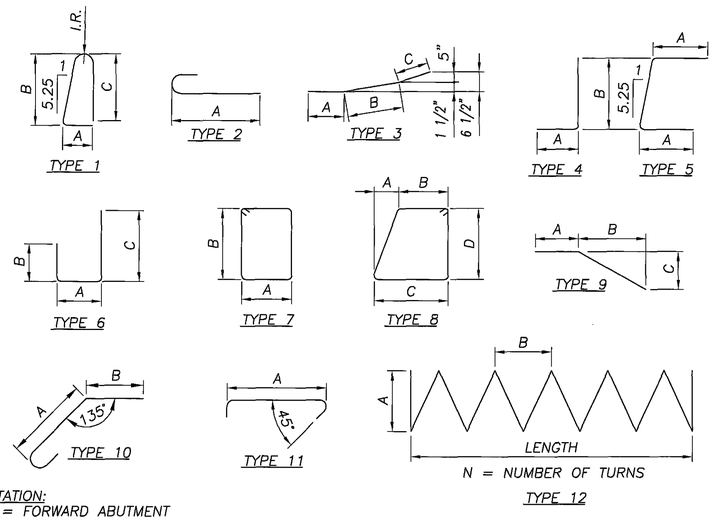
GRADE 60 EPOXY COATED REINFORCING STEEL – ABUTMENTS

MARK	NUMBER RA	NUMBER FA	NUMBER TOTAL	LENGTH	WEIGHT (LBS.)	TYPE	DIMENSIONS A	B	C	D	INC.
A401	5	5	10	13'–4"	89	7	1'–9"	4'–8"			
A402	5	5	10	12'–10"	86	7	1'–9"	4'–5"			
A501	24	24	48	2'–6"	125	STR.					
A502	26	25	51	18'–0"	957	8	1'–7"	3'–4"	4'–11"	4'–6"	
A503	1	1	2	14'–2"	30	7	2'–4"	4'–6"			
A504	1		1	12'–2"	13	7	1'–4"	4'–6"			
A505	1	1	2	23'–8"	49	8	2'–7"	5'–5"	8'–0"	4'–6"	
	1	1	2	11'–10"				2"	1'–10"		
A506	SERIES	SERIES	SERIES	TO	89	8	1'–7"	TO	TO	4'–6"	1'–2"
	OF 3	OF 3	OF 3	16'–6"				2'–6"	4'–2"		
	1		1	10'–1"				4'–2"	4'–2"		
A507	SERIES		SERIES	TO	123	6	2'–0"	TO	TO		8"
	OF 8		OF 8	19'–5"				8'–10"	8'–10"		
A508	4		4	19'–7"	82	6	2'–0"	8'–11"	8'–11"		
A509	1		1	15'–4"	16	9	4'–10"	9'–6"	4'–9"		
A510	1		1	18'–0"	19	9	7'–5"	9'–6"	4'–9"		
A511	2		2	13'–0"	27	STR.					
A512	2	2	4	15'–10"	66	STR.					
A513	2		2	14'–4"	30	STR.					
A514	2		2	16'–11"	35	STR.					
	1		1	7'–7"							
A515	SERIES		SERIES	TO	32	STR.					2'–9 1/2"
	OF 3		OF 3	13'–2"							
	1		1	10'–2"							
A516	SERIES		SERIES	TO	41	STR.					2'–9 1/2"
	OF 3		OF 3	15'–9"							
	1		1	9'–5"				3'–10"	3'–10"		
A517	SERIES		SERIES	TO	48	6	2'–0"	TO	TO		8 1/4"
	OF 4		OF 4	13'–7"				5'–11"	5'–11"		
A518	3		3	14'–5"	45	6	2'–0"	6'–4"	6'–4"		
A519	1		1	19'–0"	20	6	3'–3"	8'–11"	7'–1"		
A520	1		1	15'–8"	16	6	3'–3"	6'–4"	6'–4"		
A521	1		1	11'–7"	12	9	6'–1"	4'–11"	2'–6"		
A522	1		1	9'–0"	9	9	3'–6"	4'–11"	2'–6"		
A523	1		1	24'–11"	26	STR.					
A524	2		2	19'–4"	40	STR.					
A525	1		1	24'–3"	25	STR.					
A526	2		2	13'–9"	29	STR.					
A527	1		1	11'–0"	11	STR.					
A528	1		1	8'–5"	9	STR.					
A529	1		1	8'–11"	9	STR.					
A530	1		1	6'–4"	7	STR.					
A531	9	9	18	31'–2"	585	STR.					
A532	52		52	6'–0"	325	6	2'–9"	1'–9"	1'–9"		
	1		1	5'–11"				1'–6"	1'–11"		
A533	SERIES		SERIES	TO	19	6	2'–9"	TO	TO		1"
	OF 3		OF 3	6'–3"				1'–8"	2'–1"		
A534	5		5	6'–10"	36	6	3'–3"	1'–11"	1'–11"		
A535	4	4	8	11'–8"	97	7	1'–5"	4'–2"			
A536	1	1	2	5'–0"	10	6	1'–5"	1'–11"	1'–11"		
A537	1	1	2	4'–6"	9	6	1'–5"	1'–8"	1'–8"		
A538	2	2	4	4'–1"	17	STR.					
A539	2	2	4	3'–9"	16	STR.					
		1	1	10'–3"				4'–3"	4'–3"		
A540		SERIES	SERIES	TO	52	6	2'–0"	TO	TO		9"
		OF 4	OF 4	14'–9"				6'–6"	6'–6"		
A541		1	1	15'–9"	16	6	2'–0"	7'–0"	7'–0"		
A542		1	1	17'–0"	18	6	3'–3"	7'–0"	7'–0"		
A543		2	2	14'–7"	30	STR.					
A544		2	2	17'–2"	36	STR.					
A545		2	2	7'–8"	16	STR.					
A546		1	1	6'–0"	6	STR.					
A547		1	1	8'–7"	9	STR.					
A548		2	2	5'–8"	12	STR.					
A549		1	1	8'–3"	9	STR.					
A550		1	1	3'–2"	3	STR.					
A552		1	1	6'–8"	7	9	8"	5'–5"	2'–8"		
A553		1	1	9'–3"	10	9	3'–3"	5'–5"	2'–8"		
A554		53	53	6'–2"	341	6	2'–9"	1'–10"	1'–10"		
A555		5	5	7'–4"	38	6	3'–3"	2'–2"	2'–2"		
A556		1	1	19'–8"	21	6	3'–3"	8'–4"	8'–4"		
A557		6	6	18'–5"	115	6	2'–0"	8'–4"	8'–4"		
		1	1	10'–1"				4'–2"	4'–2"		
A558		SERIES	SERIES	TO	101	6	2'–0"	TO	TO		7 1/2"
		OF 7	OF 7	17'–7"				7'–11"	7'–11"		
A559		1	1	21'–6"	22	STR.					
A560		1	1	20'–10"	22	STR.					
A561		4	4	20'–7"	86	STR.					

GRADE 60 EPOXY COATED REINFORCING STEEL – ABUTMENTS

MARK	NUMBER RA	NUMBER FA	NUMBER TOTAL	LENGTH	WEIGHT (LBS.)	TYPE	DIMENSIONS A	B	C	D	INC.
		1	1	9'–5"							
A562		SERIES	SERIES	TO	37	STR.					2'–5 1/2"
		OF 3	OF 3	14'–4"							
		1	1	12'–0"							
A563		SERIES	SERIES	TO	45	STR.					2'–5 1/2"
		OF 3	OF 3	16'–11"							
A564		1	1	18'–11"	20	9	9'–7"	8'–4"	4'–3"		
A565		1	1	16'–4"	17	9	7'–0"	8'–4"	4'–3"		
	1		1	12'–11"							
A801	SERIES		SERIES	TO	114	STR.					1'–3 1/2"
	OF 3		OF 3	15'–6"							
A802	1		1	13'–1"	35	STR.					
A803	1		1	15'–3"	41	STR.					
A804	1		1	15'–6"	41	STR.					
	1		1	19'–4"							
A805	SERIES		SERIES	TO	180	STR.					3'–1"
	OF 3		OF 3	25'–6"							
	1		1	19'–4"							
A806	SERIES		SERIES	TO	172	STR.					2'–1 1/2"
	OF 3		OF 3	23'–7"							
		1	1	14'–7"							
A807		SERIES	SERIES	TO	127	STR.					1'–3 1/2"
		OF 3	OF 3	17'–2"							
		1	1	15'–11"							
A808		SERIES	SERIES	TO	152	STR.					3'–1"
		OF 3	OF 3	22'–1"							
A809		1	1	14'–7"	39	STR.					
A810		1	1	16'–10"	45	STR.					
A811		1	1	17'–2"	46	STR.					
		1	1	15'–11"							
A812		SERIES	SERIES	TO	145	STR.					2'–1 1/2"
		OF 3	OF 3	20'–2"							
			TOTAL	5555							

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST LETTER IDENTIFIES THE BAR LOCATION. THE NEXT TWO DIGITS FOR A FOUR–DIGIT NUMBER OR THE NEXT DIGIT FOR A THREE–DIGIT NUMBER INDICATES THE BAR SIZE DESIGNATION. THE REMAINING DIGITS INDICATE THE SEQUENCE NUMBER.
EXAMPLE: A501
A = LOCATION OF THE BAR IN THE STRUCTURE (ABUTMENT)
5 = BAR SIZE DESIGNATION (#5, 5/8"ø)
01 = SEQUENCE NUMBER
BAR DIMENSIONS SHOWN ARE OUT–TO–OUT UNLESS NOTED. ALL REINFORCING STEEL IS TO BE EPOXY COATED. STRAIGHT BARS ARE INDICATED BY "STR."



NOTATION:
FA = FORWARD ABUTMENT
P1 = PIER NO.1
P2 = PIER NO.2
P3 = PIER NO.3
RA = REAR ABUTMENT
LP = LEFT PARAPET
RP = RIGHT PARAPET
I.R. = INSIDE RADIUS
INC. = INCREMENT
① – INCLUDE WITH ITEM 524, DRILLED SHAFT, 48" DIAMETER, ABOVE BEDROCK, FOR PAYMENT.

EM1482REBAR.DWG SCALE: 1:96

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. – P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756–7302
CONSULTING ENGINEERS – SURVEYORS

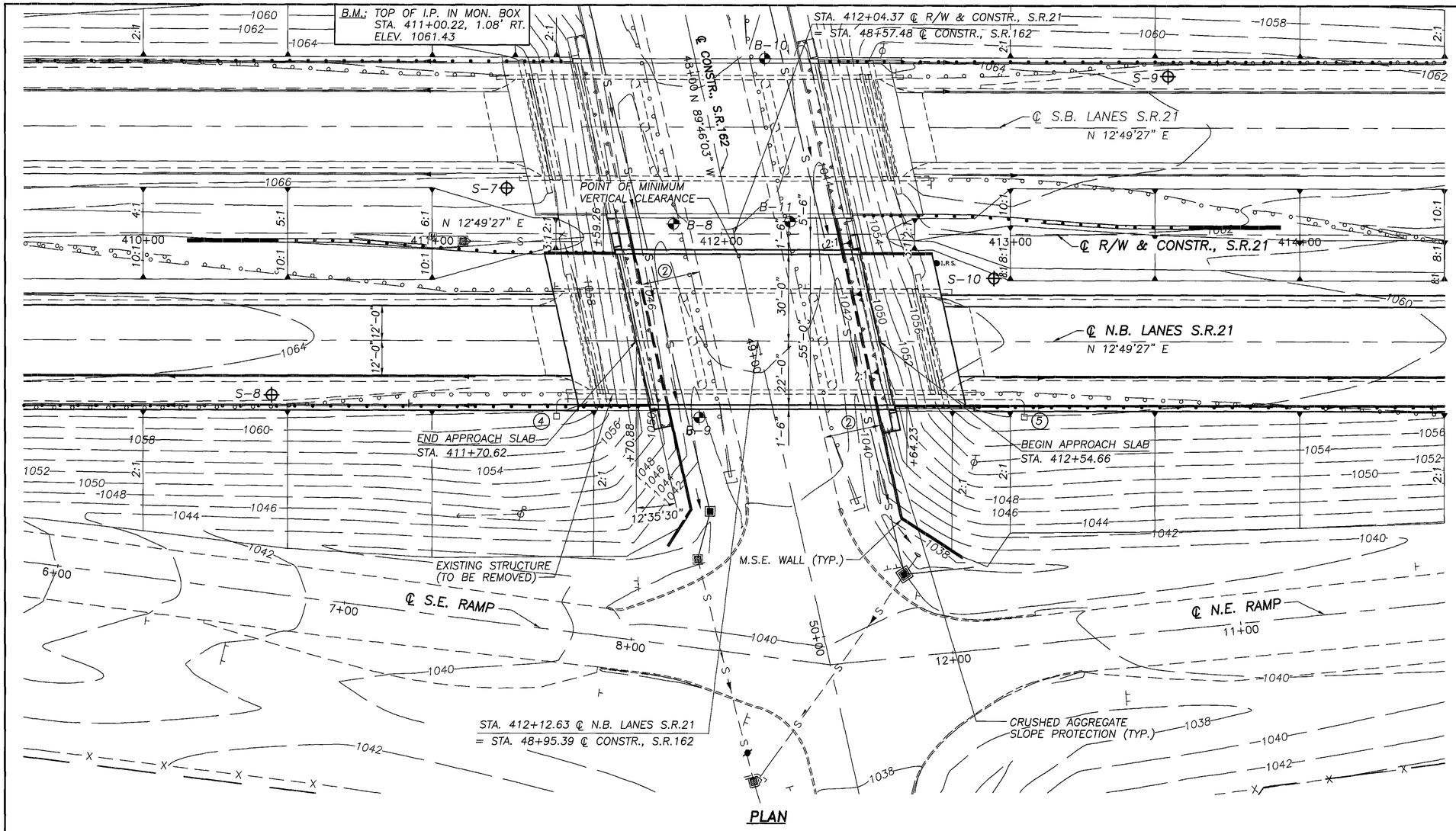
DESIGNED JSK | DRAWN KAA | REVIEWED TLS | DATE 10–04
CHECKED RAK | REVISED | STRUCTURE FILE NUMBER 7701594

REINFORCING STEEL (SOUTHBOUND LANES)
BRIDGE NO. SUM–21–0758L
S.R.21 OVER WHEELING AND LAKE ERIE RAILROAD

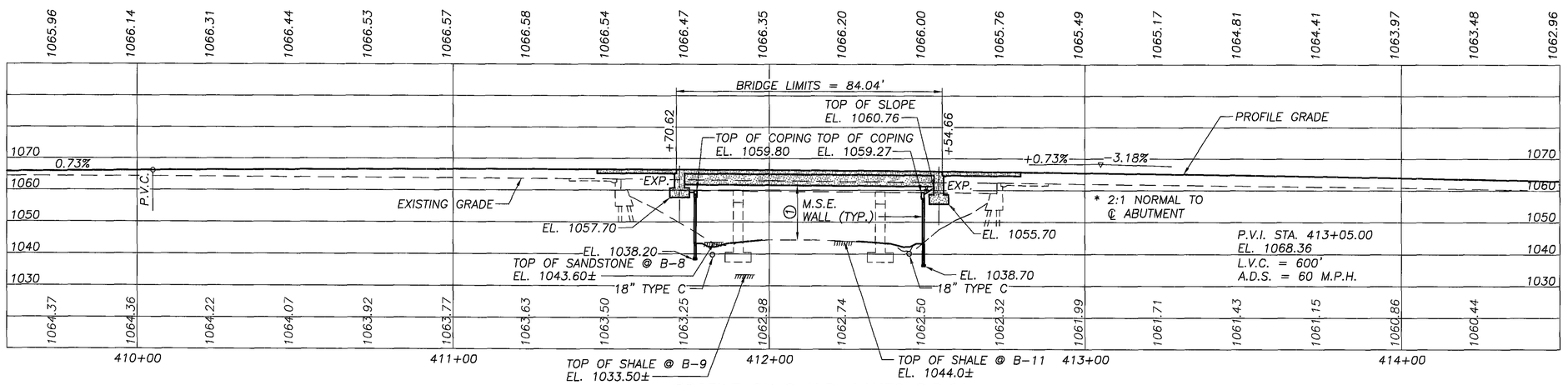
SUM–21–(5.69)(7.58)(7.78)

25/25

195/223



PLAN



PROFILE ON ℄ N.B. LANES S.R.21

EM1484S_NB.DWG SCALE: 1:20

(1) MINIMUM VERTICAL CLEARANCE:
16'-6 1/2" – PROVIDED
16'-6" – REQUIRED
14'-4 EXISTING

(2) MINIMUM HORIZONTAL CLEARANCE
20'-5 3/8" – PROVIDED
12'-0" – REQUIRED

(3) MINIMUM HORIZONTAL CLEARANCE
19'-10" – PROVIDED
12'-0" – REQUIRED

LOCATIONS OF PULL BOX, 725.09, 24"

(4) STA. 411+44.10 ℄ N.B. LANES, 26.0' RT.

(5) STA. 413+04.87 ℄ N.B. LANES, 26.0' RT.

UTILITIES: TELEPHONE AND ELECTRICAL LINES ARE TO BE RELOCATED BY OWNERS AS REQUIRED.

NOTATION:
N.B. = NORTHBOUND
S.B. = SOUTHBOUND
M.S.E.= MECHANICALLY-STABILIZED EARTH

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

AVERAGE DAILY TRAFFIC: 29,200 (2004)
36,900 (2024)
AVERAGE DAILY TRUCK TRAFFIC: 4,430 (2024)

TRAFFIC COUNTS INCLUDE BOTH S.B. AND N.B. LANES

FOUNDATION INVESTIGATION LEGEND:
⊕ –INDICATES BORING LOCATION
B-8 @ STA. 411+83.45, 3.44' LT.
B-9 @ STA. 411+92.39, 63.34' RT.
B-10 @ STA. 412+14.97, 60.55' LT.
B-11 @ STA. 412+23.75, 4.33' LT.

⊕ –INDICATES SOIL PROFILE LOCATION
S-7 @ STA. 411+25.74, 15.83' LT.
S-8 @ STA. 410+44.45, 55.80' RT.
S-9 @ STA. 413+54.48, 54.62' LT.
S-10 @ STA. 412+94.33, 15.22' RT.

EXISTING STRUCTURE

BRIDGE NO. SUM-21-0778R
TYPE: CONTINUOUS NONCOMPOSITE STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS: 36'-0"±, 45'-0"±, 36'-0"± C/C BRGS.
ROADWAY: 33'-6"± TOE/TOE CONCRETE PARAPETS
LOADING: CF-2000(55)
SKEW: 12°-35'-30"± R.F.
WEARING SURFACE: BITUMINOUS OVER SDC OVERLAY
APPROACH SLABS: AS-1-47 (15'-0"± LONG)
ALIGNMENT: TANGENT
DATE BUILT: 1957
STRUCTURE FILE NOS.: 7701683

PROPOSED STRUCTURE

TYPE: NEW COMPOSITE STEEL BEAM WITH REINFORCED CONCRETE DECK AND NEW SEMI-INTEGRAL ABUTMENTS WITH M.S.E. WALLS
SPAN: 82'-0" C/C BRGS.
ROADWAY: 52'-0" TOE/TOE CONCRETE PARAPETS
LOADING: HS25, CASE II, THE ALTERNATE MILITARY LOADING AND 60 PSF FUTURE WEARING SURFACE (FWS)
SKEW: 12°-35'-30" R.F.
WEARING SURFACE: MONOLITHIC CONCRETE
APPROACH SLABS: AS-1-81 (25'-0" LONG)
ALIGNMENT: TANGENT
CROWN: 0.016
LATITUDE: N 41°-05'-58"
LONGITUDE: W 81°-39'-26"

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. P.O. BOX 3598
MANSFIELD, OHIO 44901
(419) 756-7302
CONSULTING ENGINEERS – SURVEYORS

DESIGNED JSK
DRAWN JAA
REVIEWED TLS
DATE 5-03
CHECKED KAA
REVISED
STRUCTURE FILE NUMBERS 7701691

SUMMIT COUNTY
STA. 411+70.62
STA. 412+54.66

SITE PLAN (NORTHBOUND LANES)
BRIDGE NO. SUM-21-0778R
S.R.21 OVER S.R.162 (COPLEY ROAD)

SUM-21-(5.69)(7.58)(7.78)

1/18

196/223

B.M.: TOP OF I.P. IN MON. BOX
STA. 411+00.22, 1.08' RT.
ELEV. 1061.43

STA. 411+96.11 ℄ S.B. LANES S.R.21
= STA. 48+19.57 ℄ CONSTR., S.R.162

12°35'30"

POINT OF MINIMUM VERTICAL CLEARANCE

BEGIN APPROACH SLAB
STA. 412+38.13

℄ S.B. LANES S.R.21
N 12°49'27" E

℄ R/W & CONSTR., S.R.21

N 12°49'27" E

℄ N.B. LANES S.R.21
N 12°49'27" E

END APPROACH SLAB
STA. 411+54.09

EXISTING STRUCTURE
(TO BE REMOVED)

STA. 412+04.37 ℄ R/W & CONSTR., S.R.21
= STA. 48+57.48 ℄ CONSTR., S.R.162

M.S.E. WALL (TYP.)

℄ CONSTR., S.R.162
N 89°46'03" W

CRUSHED AGGREGATE SLOPE
PROTECTION (TYP.)

B-8 B-9 B-10 B-11

S-7 S-8 S-9 S-10

I.P.S.

410+00 411+00 412+00 413+00 414+00 6+00 7+00 8+00 50+00 11+00 12+00

PLAN

1068.86 1068.88 1026.05 1069.20 1069.21 1069.24 1069.23 1069.18 1069.09 1068.95 1068.78 1068.57 1068.31 1068.02 1067.69 1067.31 1066.89 1066.44 1065.94 1065.40

BRIDGE LIMITS = 84.04'

TOP OF SLOPE
EL. 1063.35

+54.09 +38.13

TOP OF COPING EL. 1062.32 TOP OF COPING EL. 1061.78

P.V.C. STA. 410+05.00
P.V.C.

+0.66% +0.66% -3.17%

PROFILE GRADE

EXP. EXP.

EXISTING GRADE

① M.S.E. WALL (TYP.)

* 2:1 NORMAL TO ℄ ABUTMENT

EL. 1060.20 EL. 1040.70 EL. 1058.20 EL. 1041.20

18" TYPE C 18" TYPE C

TOP OF SHALE @ B-11
EL. 1044.0±

P.V.I. STA. 413+00.00
EL. 1070.84
L.V.C. = 590'
A.D.S. = 60 M.P.H.

1070 1060 1050 1040 1030

1067.30 1067.27 1067.10 1066.93 1066.75 1066.59 1066.53 1066.36 1066.11 1065.85 1065.64 1065.42 1065.14 1064.84 1064.55 1064.26 1063.97 1063.67 1063.25

410+00 411+00 412+00 413+00 414+00

TOP OF SANDSTONE @ B-8
EL. 1043.60±

TOP OF SHALE @ B-10
EL. 1039.90±

PROFILE ON ℄ S.B. LANES S.R.21

SCALE: 1:20

EM1484S_SB.DWG

(1) MINIMUM VERTICAL CLEARANCE:
16'-6 1/2" – PROVIDED
16'-6" – REQUIRED
14'-4 EXISTING

(2) MINIMUM HORIZONTAL CLEARANCE
20'-2 7/8" – PROVIDED
12'-0" – REQUIRED

(3) MINIMUM HORIZONTAL CLEARANCE
20'-0 3/4" – PROVIDED
12'-0" – REQUIRED

LOCATIONS OF PULL BOX, 725.09, 24"

(4) STA. 411+16.39 ℄ S.B. LANES, 26.0' LT.

(5) STA. 412+78.17 ℄ S.B. LANES, 26.0' LT.

UTILITIES: TELEPHONE AND ELECTRICAL LINES ARE TO BE RELOCATED BY OWNERS AS REQUIRED.

NOTATION:
N.B. = NORTHBOUND
S.B. = SOUTHBOUND
M.S.E.= MECHANICALLY-STABILIZED EARTH

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

AVERAGE DAILY TRAFFIC: 29,200 (2004)
36,900 (2024)
AVERAGE DAILY TRUCK TRAFFIC: 4,430 (2024)

TRAFFIC COUNTS INCLUDE BOTH S.B. AND N.B. LANES

FOUNDATION INVESTIGATION LEGEND:
✥ –INDICATES BORING LOCATION
B-8 @ STA. 411+83.45, 3.44' LT.
B-9 @ STA. 411+92.39, 63.34' RT.
B-10 @ STA. 412+14.97, 60.55' LT.
B-11 @ STA. 412+23.75, 4.33' LT.

⊕ –INDICATES SOIL PROFILE LOCATION
S-7 @ STA. 411+25.74, 15.83' LT.
S-8 @ STA. 410+44.45, 55.80' RT.
S-9 @ STA. 413+54.48, 54.62' LT.
S-10 @ STA. 412+94.33, 15.22' RT.

EXISTING STRUCTURE

BRIDGE NO. SUM-21-0778L
TYPE: CONTINUOUS NON-COMPOSITE STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS: 36'-0"±, 45'-0"±, 36'-0"± C/C BRGS.
ROADWAY: 33'-6"± TOE/TOE CONCRETE PARAPETS
LOADING: CF-2000(55)
SKEW: 12°-35'-30"± R.F.
WEARING SURFACE: BITUMINOUS OVER SDC OVERLAY
APPROACH SLABS: AS-1-47 (15'-0"± LONG)
ALIGNMENT: TANGENT
DATE BUILT: 1957
STRUCTURE FILE NOS.: 7701659

PROPOSED STRUCTURE

TYPE: NEW COMPOSITE STEEL BEAM WITH REINFORCED CONCRETE DECK AND NEW SEMI-INTEGRAL ABUTMENTS WITH M.S.E. WALLS
SPAN: 82'-0" C/C BRGS.
ROADWAY: 52'-0" TOE/TOE CONCRETE PARAPETS
LOADING: HS25, CASE II, THE ALTERNATE MILITARY LOADING AND 60 PSF FUTURE WEARING SURFACE (FWS)
SKEW: 12°-35'-30" R.F.
WEARING SURFACE: MONOLITHIC CONCRETE
APPROACH SLABS: AS-1-81 (25-0" LONG)
ALIGNMENT: TANGENT
CROWN: 0.016
LATITUDE: N 41°-05'-58"
LONGITUDE: W 81°-39'-26"

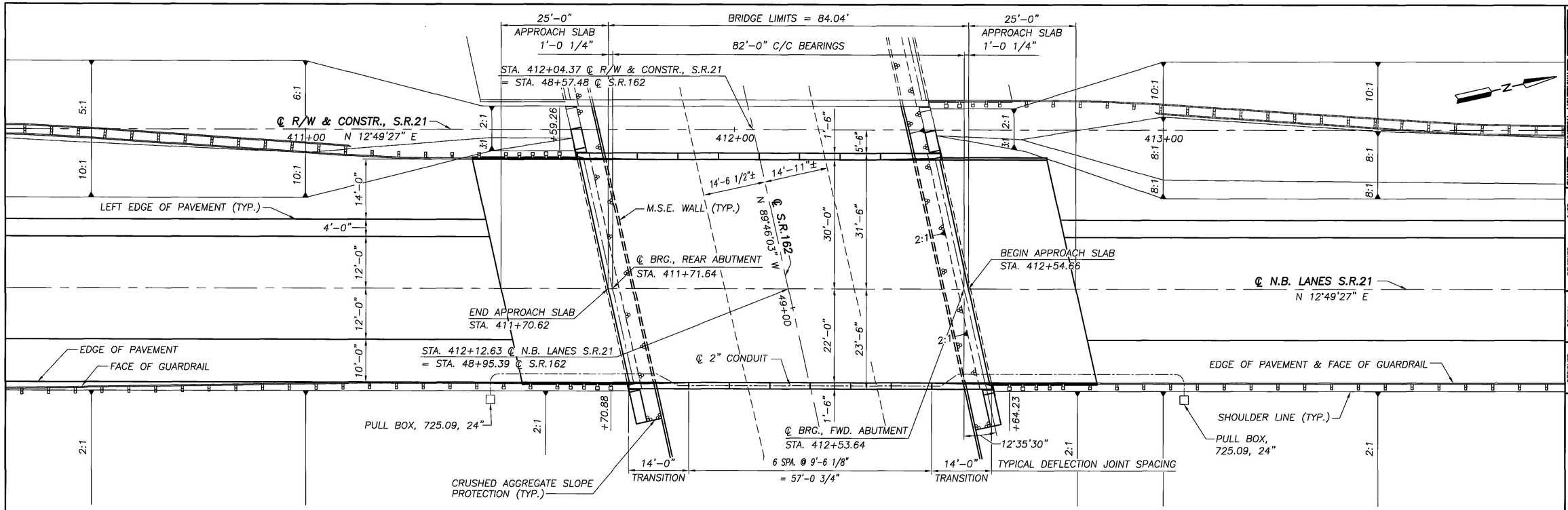
SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756-7302
CONSULTING ENGINEERS – SURVEYORS

DESIGNED JSK | DRAWN JAA | REVIEWED TLS | DATE 5-03
CHECKED KAA | REVISED | STRUCTURE FILE NUMBERS 7701667

SUMMIT COUNTY
STA. 411+54.09
STA. 412+38.13

SITE PLAN (SOUTHBOUND LANES)
BRIDGE NO. SUM-21-0778L
S.R.21 OVER S.R.162 (COPLEY ROAD)

SUM-21-(5.69)(7.58)(7.78)



PLAN

FOR INFORMATION ONLY
ESTIMATED QUANTITIES–NORTHBOUND LANES–INCLUDED WITH M.S.E. WALL

CALC'D BY: JSK 10–1–04 CHK'D BY: RAK 10–7–04

ITEM	TOTAL	UNIT	DESCRIPTION
*203	674	CU YD	EMBANKMENT
*203	4085	CU YD	SELECT GRANULAR EMBANKMENT
*503	5186	CU YD	UNCLASSIFIED EXCAVATION, INCLUDING SHALE
*511	15	CU YD	CONCRETE, MISC.: M.S.E. COPING
*511	5	CU YD	CONCRETE, MISC.: LEVELING PAD
*518	522	FT	6" PERFORATED CORRUGATED PLASTIC PIPE
*518	22	FT	6" NON–PERFORATED CORRUGATED PLASTIC PIPE
*864	430	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY–URETHANE)
*	3982	SQ FT	PRECAST WALL PANELS
*	769	SQ FT	WIRE FACED M.S.E. WALL FOR STAGED CONSTRUCTION

* INCLUDED FOR PAYMENT WITH ITEM "SPECIAL – REINFORCED EARTH WALL" OR ITEM "SPECIAL – RETAINED EARTH WALL" OR ITEM "SPECIAL – MSE PLUS RETAINING WALL."

THESE ITEMS ARE CONSIDERED APPROXIMATE. THE CONTRACTOR SHALL PERFORM CALCULATIONS BASED ON SELECTED WALL TYPE WHEN DETERMINING A UNIT PRICE BID FOR ITEM SPECIAL FOR THE M.S.E. WALL.

ESTIMATED QUANTITIES–NORTHBOUND LANES

CALC'D BY: JSK 10–1–04 CHK'D BY: RAK 10–7–04

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUTS.	GEN'L	AS PER PLAN SHEET NO.
202	11003	LUMP		STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN			LUMP	5/18
202	22900	92	SQ YD	APPROACH SLAB REMOVAL		92		
503	11100	LUMP		COFFERDAMS, CRIBS AND SHEETING			LUMP	
503	21301	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN			LUMP	5/18
509	10000	48,202	POUND	EPOXY COATED REINFORCING STEEL	41,853	6349		
511	43501	132	CU YD	CLASS C CONCRETE, ABUTMENT INCLUDING FOOTING, AS PER PLAN		132		5/18
511	50001	177	CU YD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN	177			5/18
511	50101	26	CU YD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN	26			5/18
511	52000	LUMP		CLASS HP CONCRETE TEST SLAB	LUMP			
513	10221	137,152	POUND	STRUCTURAL STEEL MEMBERS, LEVEL 1, A588, AS PER PLAN	137,152			15/18
513	20000	1224	EACH	WELDED STUD SHEAR CONNECTORS	1224			
516	14021	137	FT	SEMI–INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN		137		5/18
516	44001	16	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE),		16		15/18
				AS PER PLAN, 1 9/16" x 9 1/2" x 1'–4" WITH 1 1/2" x 10 1/2" x 1'–5" LOAD PLATE				
518	21201	47	CU YD	POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN		47		11/18
518	40000	141	FT	6" PERFORATED CORRUGATED PLASTIC PIPE		141		
518	40010	6	FT	6" NON–PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS		6		
526	25000	289	SQ YD	REINFORCED CONCRETE APPROACH SLAB (T=15")			289	
601	20000	39	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION			39	
603	00400	40	FT	4" CONDUIT, TYPE E			40	
625	25400	192	FT	CONDUIT, 2", 725.04	192			
625	30600	2	EACH	PULL BOX, 725.09, 24"			2	
864	10100	287	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY–URETHANE)	228	59		
SPECIAL	61013600	LUMP		REINFORCED EARTH WALL *				
SPECIAL	61013800	LUMP		RETAINED EARTH WALL *				
SPECIAL	61014200	LUMP		MSE PLUS RETAINING WALL *				

* SEE M.S.E WALL SPECIAL PROVISIONS. CONTRACTOR SHALL BID ON ANY ONE OF THE THREE TYPES LISTED.

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909 S. MAIN ST. P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756–7302
CONSULTING ENGINEERS – SURVEYORS

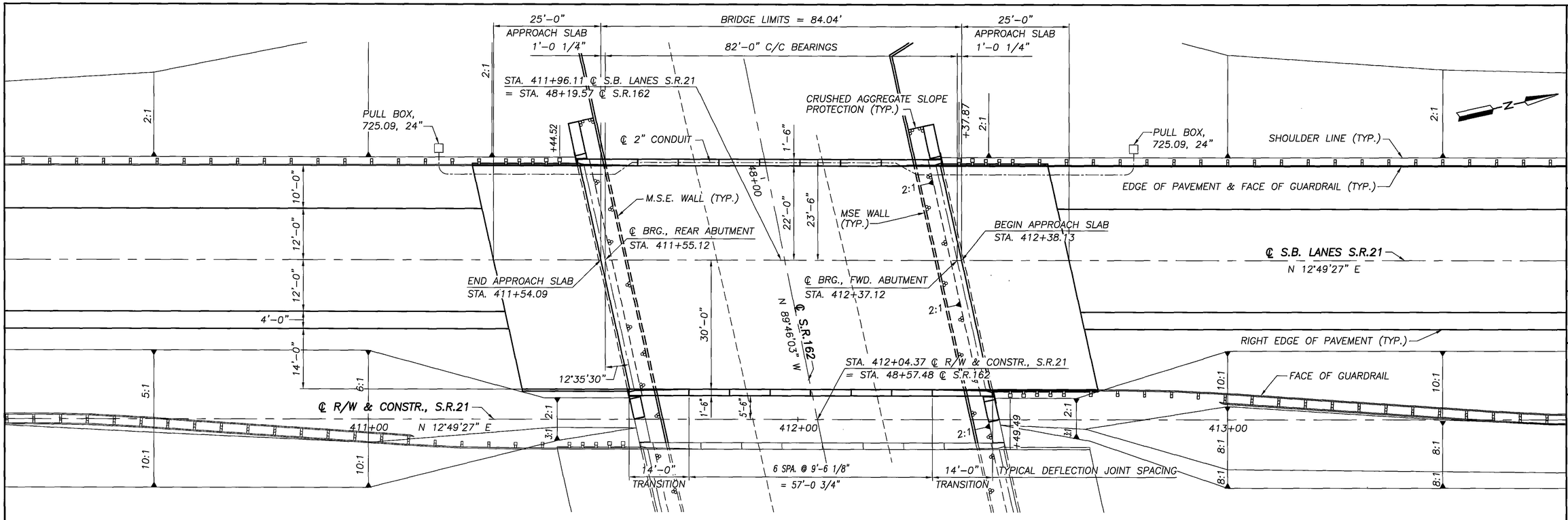
DESIGNED JSK | DRAWN JSK | REVIEWED TLS | DATE 10–04
CHECKED RAK | REVISED | STRUCTURE FILE NUMBER 7701691

GENERAL PLAN & ESTIMATED QUANTITIES (NORTHBOUND LANES)
BRIDGE NO. SUM–21–0778R
SUM–21–(5.69)(7.58)(7.78) S.R.162 (COPLEY ROAD) OVER S.R.21
5/25
5/25

3 / 18

198 / 223

EM14844GP_NB.DWG SCALE: 1:180



PLAN

FOR INFORMATION ONLY

ESTIMATED QUANTITIES–SOUTHBOUND LANES–INCLUDED WITH M.S.E. WALL

CALC'D BY: JSK 10–1–04 CHK'D BY: RAK 10–7–04

ITEM	TOTAL	UNIT	DESCRIPTION
*203	675	CU YD	EMBANKMENT
*203	3154	CU YD	SELECT GRANULAR EMBANKMENT
*503	4641	CU YD	UNCLASSIFIED EXCAVATION, INCLUDING SHALE
*511	12	CU YD	CONCRETE, MISC.: M.S.E. COPING
*511	4	CU YD	CONCRETE, MISC.: LEVELING PAD
*518	375	FT	6" PERFORATED CORRUGATED PLASTIC PIPE
*864	330	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY–URETHANE)
*	3068	SQ FT	PRECAST WALL PANELS

* INCLUDED FOR PAYMENT WITH ITEM "SPECIAL – REINFORCED EARTH WALL" OR ITEM "SPECIAL – RETAINED EARTH WALL" OR ITEM "SPECIAL – MSE PLUS RETAINING WALL."

THESE ITEMS ARE CONSIDERED APPROXIMATE. THE CONTRACTOR SHALL PERFORM CALCULATIONS BASED ON SELECTED WALL TYPE WHEN DETERMINING A UNIT PRICE BID FOR ITEM SPECIAL FOR THE M.S.E. WALL.

ESTIMATED QUANTITIES–SOUTHBOUND LANES

CALC'D BY: JSK 10–1–04 CHK'D BY: RAK 10–7–04

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUTS.	GEN'L	AS PER PLAN SHEET NO.
202	11003	LUMP		STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN			LUMP	5/18
202	22900	92	SQ YD	APPROACH SLAB REMOVAL		92		
503	11100	LUMP		COFFERDAMS, CRIBS AND SHEETING			LUMP	
503	21301	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN			LUMP	5/18
509	10000	48,510	POUND	EPOXY COATED REINFORCING STEEL	41,853	6657		
511	43501	138	CU YD	CLASS C CONCRETE, ABUTMENT INCLUDING FOOTING, AS PER PLAN		138		5/18
511	50001	177	CU YD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN	177			5/18
511	50101	26	CU YD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN	26			5/18
511	52000	LUMP		CLASS HP CONCRETE TEST SLAB	LUMP			
513	10221	137,152	POUND	STRUCTURAL STEEL MEMBERS, LEVEL 1, A588, AS PER PLAN	137,152			15/18
513	20000	1224	EACH	WELDED STUD SHEAR CONNECTORS	1224			
516	14021	137	FT	SEMI–INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN		137		5/18
516	44001	16	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN, 1 9/16" x 9 1/2" x 1'–4" WITH 1 1/2" x 10 1/2" x 1'–5" LOAD PLATE		16		15/18
518	21201	47	CU YD	POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN		47		11/18
518	40000	141	FT	6" PERFORATED CORRUGATED PLASTIC PIPE		141		
518	40010	6	FT	6" NON–PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS		6		
526	25000	289	SQ YD	REINFORCED CONCRETE APPROACH SLAB (T=15")			289	
601	20000	39	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION			39	
603	00400	40	FT	4" CONDUIT, TYPE E			40	
625	25400	192	FT	CONDUIT, 2", 725.04	192			
625	30600	2	EACH	PULL BOX, 725.09, 24"			2	
864	10100	289	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY–URETHANE)	289	61		
SPECIAL	61013600	LUMP		REINFORCED EARTH WALL *				
SPECIAL	61013800	LUMP		RETAINED EARTH WALL *				
SPECIAL	61014200	LUMP		MSE PLUS RETAINING WALL *				

* SEE M.S.E WALL SPECIAL PROVISIONS. CONTRACTOR SHALL BID ON ANY ONE OF THE THREE TYPES LISTED.

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MANSFIELD, OHIO 44907
(419) 756-7302
CONSULTING ENGINEERS – SURVEYORS

DESIGNED JSK | DRAWN JSK | REVIEWED TLS 10–04 | DATE

CHECKED RAK | REVISED | STRUCTURE FILE NUMBER 7701667

GENERAL PLAN & ESTIMATED QUANTITIES (SOUTHBOUND LANES)
BRIDGE NO. SUM–21–0778L
S.R.21 OVER S.R.162 (COPLEY ROAD)

SUM–21–(5.69)(7.58)(7.78)

EM11484GP_SB.DWG SCALE: 1:180

GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:
AS-1-81, REVISED 7-19-02
GSD-1-96, REVISED 7-19-02
HL-30.11, DATED 4-19-02
HL-30.32, DATED 4-19-02
SICD-1-96, REVISED 7-19-02

AND TO SUPPLEMENTAL SPECIFICATIONS:
864, DATED 7-11-00

DESIGN SPECIFICATIONS:
THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002, AND THE O.D.O.T. BRIDGE DESIGN MANUAL.

DESIGN LOADING:
HS25, CASE II AND THE ALTERNATE MILITARY LOADING.
FUTURE WEARING SURFACE OF 60 psf.

DESIGN DATA:
CONCRETE CLASS HP - COMPRESSIVE STRENGTH 4500 psi (SUPERSTRUCTURE)
CONCRETE CLASS C - COMPRESSIVE STRENGTH 4000 psi (SUBSTRUCTURE)

STRUCTURAL STEEL - A.S.T.M. A588/A709 GRADE 50W - YIELD STRENGTH 50,000 psi.
REINFORCING STEEL - ASTM A615, A616 OR A617, GRADE 60 MINIMUM YIELD STRENGTH 60,000 psi

MINIMUM CONCRETE COVER - 2 INCHES UNLESS OTHERWISE NOTED.

DECK PROTECTION METHOD:
EPOXY COATED REINFORCING STEEL, 2 1/2" CONCRETE COVER AND SEALING OF CONCRETE SURFACES.

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

ITEM 603, 4" CONDUIT, TYPE E:
AN ALLOWANCE OF 20 FEET OF 4" CONDUIT, TYPE E, HAS BEEN PROVIDED TO DRAIN EACH PULL BOX AS DIRECTED BY THE ENGINEER.

STRUCTURE EXCAVATION LIMITS:
STRUCTURE EXCAVATION LIMITS FOR THE PROPOSED STRUCTURE SHALL BE AS DEFINED IN 503.11 EXCEPT THAT THERE SHALL BE NO DEDUCTION FOR REMOVALS MADE AS PART OF 202. EXCAVATION OUTSIDE THESE LIMITS NECESSARY TO REMOVE PORTIONS OF THE EXISTING STRUCTURE IS INCLUDED IN 202 FOR PAYMENT.

ITEM 511, CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN &
ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN:
THE PROVISIONS OF 511 SHALL APPLY EXCEPT AS NOTED BELOW.

SLIPFORMING:
SLIPFORMING SHALL NOT BE ALLOWED FOR THIS PROJECT.

MIX OPTIONS:
MIX 4, AS PER PLAN, SHALL BE THE ONLY MIX OPTION FOR THESE ITEMS. THE FOLLOWING PROPORTIONS WILL BE USED AS A STARTING MIX DESIGN.

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)
MIX 4, AS PER PLAN (GGBF SLAG + MICROSILICA)

AGGREGATE TYPE	FINE AGG. (LBS.)	#8 COARSE AGG. (LBS.)	#57 COARSE AGG. (LBS.)	TOTAL (LBS.)	CEMENT CONTENT (LBS.)	GGBF SLAG (LBS.)	MICRO-SILICA (LBS.)	WATER TO CEMENTIOUS RATIO (MAX.)	AIR CONTENT ± 2%
GRAVEL	1245	360	1315	2920	400	170	30	0.42	7
LIMESTONE	1245	360	1335	2940	400	170	30	0.42	7
SLAG	1245	315	1155	2715	400	170	30	0.42	7

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.82, LIMESTONE SAND 2.68, LIMESTONE 2.85, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICROSILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER PER A.S.T.M. C127.

BASIS OF PAYMENT: PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

ITEM	EXTENSION	UNITS	DESCRIPTION
511	50001	CU. YD.	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN
511	50101	CU. YD.	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN

ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN:
UNCLASSIFIED EXCAVATION SHALL BE IN ACCORDANCE WITH 503 EXCEPT THAT THE BACK-FILL MATERIAL BEHIND THE ABUTMENTS SHALL BE 203 MATERIAL PLACED IN 6" LIFTS AND COMPACTED IN ACCORDANCE WITH 304.05.

ITEM 864, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE):
THE CONCRETE SEALING MATERIAL SHALL BE THE "LIGHT NEUTRAL" COLOR MEETING FEDERAL COLOR STANDARD NO. 17778 AS PER THE DETAILS IN THE PLANS. FOR ADDITIONAL NOTES, SEE SUPPLEMENTAL SPECIFICATION 864.

REMOVAL OF EXISTING STRUCTURE:
WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC, THE EXISTING STRUCTURE SHALL BE REMOVED.

ITEM 202, STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN:
PROTECTION OF TRAFFIC: PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURE, SUBMIT PLANS FOR THE PROTECTION OF VEHICULAR AMD PEDESTRIAN TRAFFIC ADJACENT TO AND/OR UNDER THE STRUCTURE TO THE DIRECTOR AT LEAST 30 DAYS BEFORE CONSTRUCTION BEGINS. THESE PLANS SHALL INCLUDE PROVISIONS FOR ANY DEVICES AND STRUCTURES THAT MAY BE NECESSARY TO ENSURE SUCH PROTECTION. MAINTAIN THE TEMPORARY VERTICAL CLEARANCES SPECIFIED ON THE PLANS OR IN THE PROPOSAL AT ALL TIMES EXCEPT AS OTHERWISE APPROVED BY THE DIRECTOR. ALL COSTS ASSOCIATED WITH THIS TRAFFIC PROTECTION WILL BE INCLUDED WITH ITEM 202 FOR PAYMENT.

REMOVE ABUTMENT PILING TO ONE FOOT BELOW THE BOTTOM ELEVATION OF THE REINFORCED SOIL MASS.

FOUNDATION BEARING PRESSURE:
ABUTMENT FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM BEARING PRESSURE OF 1.52 TONS PER SQUARE FOOT. THE ALLOWABLE BEARING PRESSURE IS 2 TONS PER SQUARE FOOT.

ITEM 511, CLASS C CONCRETE, ABUTMENT INCLUDING FOOTING, AS PER PLAN:
IN ADDITION TO THE REQURIEMENTS OF ITEM 511, INSTALL A REFERENCE MONUMENT AT EACH END OF EACH SPREAD FOOTING FOR BOTH REAR AND FORWARD ABUTMENTS FOR BOTH NORTHBOUND (N.B.) AND SOUTHBOUND (S.B.) STRUCTURES. THE REFERENCE MONUMENT SHALL CONSIST OF A #8, OR LARGER, EPOXY COATED REINFORCING BAR EMBEDDED AT LEAST 6" INTO THE FOOTING AND EXTENDED VERTICALLY 4 TO 6 INCHES ABOVE THE TOP OF THE FOOTING. INSTALL A 6 INCH DIAMETER, SCHEDULE 40, PLASTIC PIPE AROUND THE REFERENCE MONUMENT. CENTER THE PIPE ON THE REFERENCE MONUMENT AND PLACE THE PIPE VERTICAL WITH ITS TOP AT THE FINISHED GRADE. THE PIPE SHALL HAVE A REMOVABLE, SCHEDULE 40, PLASTIC CAP. PERMANENTLY ATTACH THE BOTTOM OF THE PIPE TO THE TOP OF THE FOOTING.

ESTABLISH A BENCHMARK TO DETERMINE THE ELEVATIONS OF THE REFERENCE MONUMENTS AT VARIOUS MONITORING PERIODS THROUGHOUT THE LENGTH OF THE CONSTRUCTION PROJECT. THE BENCHMARK SHALL BE THE SAME THROUGHOUT THE PROJECT AND SHALL BE INDEPENDENT OF ALL STRUCTURES.

RECORD THE ELEVATION OF EACH REFERENCE MONUMENT AT EACH MONITORING PERIOD SHOWN IN THE TABLES TO THE RIGHT.

THE ORIGINAL COMPLETED TABLES WILL BECOME PART OF THE DISTRICT'S PROJECT PLAN RECORDS. SEND A COPY OF THE COMPLETED TABLES TO THE OFFICE OF STRUCTURAL ENGINEERING.

ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN:
INSTALL A 3 FOOT WIDE STRIP, 3/32" THICK, GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT AT LOCATIONS SHOWN IN THE PLANS. SECURE THE 3 FOOT WIDE NEOPRENE SHEETING TO THE CONCRETE WITH 1 1/4" x #10 GAUGE (LENGTH X SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 1 INCH OUTSIDE DIAMETER, #10 GAUGE GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 9 INCHES. USE OF OTHER SIMILAR GALVANIZED DEVICES WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE, WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 6 INCHES, ±, FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS, SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 6 INCHES, ±, FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF ROADWAY. FOR VERTICAL JOINTS, INSTALL TWO ADDITIONAL FASTENERS AT 6 INCHES, CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHOULD COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED, SHALL BE AT LEAST 1 FOOT IN LENGTH, OR 6 INCHES IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

THE NEOPRENE SHEETING SHALL BE 3/32" THICK GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003," BY E. I. DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY THE GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	A.S.T.M. METHOD	REQUIREMENT
THICKNESS, INCHES	D751	0.094 ± 0.01
BREAKING STRENGTH, GRAB , LBS., MINIMUM (LONG. X TRANS.)	D751	700 X 700
ADHESIVE STRIP, 1" WIDE X 2" LONG, LBS., MINIMUM	D751	9
BURST STRENGTH, PSI, MINIMUM	D751	1400
HEAT AGING, 70 HR, 212°F, 180° BEND WITHOUT CRACKING	D2136	NO CRACKING OF COATING
LOW TEMPERATURE BRITTLENESS, 1 HR, -40°F, BEND AROUND 1/4" MANDREL	D2136	NO CRACKING OF COATING

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE TOTAL LENGTH OF JOINT TO BE SEALED BY THE NUMBER OF FEET.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.

PROJECT NUMBER:	MAXIMUM BEARING PRESSURE: 1.52 TSF	
BRIDGE NUMBER: SUM-21-0778R	STRUCTURE FILE NUMBER: 7701691	
BENCHMARK LOCATION:		
FOOTING LOCATION: REAR ABUTMENT		
MONITORING PERIOD	LEFT MONUMENT	RIGHT MONUMENT
AFTER FOOTING CONCRETE IS PLACED		
BEFORE PLACEMENT OF SUPERSTRUCTURE MEMBERS		
BEFORE DECK PLACEMENT		
AFTER DECK PLACEMENT		
PROJECT COMPLETION		

PROJECT NUMBER:	MAXIMUM BEARING PRESSURE: 1.52 TSF	
BRIDGE NUMBER: SUM-21-0778R	STRUCTURE FILE NUMBER: 7701691	
BENCHMARK LOCATION:		
FOOTING LOCATION: FORWARD ABUTMENT		
MONITORING PERIOD	LEFT MONUMENT	RIGHT MONUMENT
AFTER FOOTING CONCRETE IS PLACED		
BEFORE PLACEMENT OF SUPERSTRUCTURE MEMBERS		
BEFORE DECK PLACEMENT		
AFTER DECK PLACEMENT		
PROJECT COMPLETION		

PROJECT NUMBER:	MAXIMUM BEARING PRESSURE: 1.52 TSF	
BRIDGE NUMBER: SUM-21-0778L	STRUCTURE FILE NUMBER: 7701667	
BENCHMARK LOCATION:		
FOOTING LOCATION: REAR ABUTMENT		
MONITORING PERIOD	LEFT MONUMENT	RIGHT MONUMENT
AFTER FOOTING CONCRETE IS PLACED		
BEFORE PLACEMENT OF SUPERSTRUCTURE MEMBERS		
BEFORE DECK PLACEMENT		
AFTER DECK PLACEMENT		
PROJECT COMPLETION		

PROJECT NUMBER:	MAXIMUM BEARING PRESSURE: 1.52 TSF	
BRIDGE NUMBER: SUM-21-0778L	STRUCTURE FILE NUMBER: 7701667	
BENCHMARK LOCATION:		
FOOTING LOCATION: FORWARD ABUTMENT		
MONITORING PERIOD	LEFT MONUMENT	RIGHT MONUMENT
AFTER FOOTING CONCRETE IS PLACED		
BEFORE PLACEMENT OF SUPERSTRUCTURE MEMBERS		
BEFORE DECK PLACEMENT		
AFTER DECK PLACEMENT		
PROJECT COMPLETION		

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
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(419) 756-7302
CONSULTING ENGINEERS - SURVEYORS

DESIGNED JSK | DRAWN JSK | REVIEWED TLS | DATE 10-04
CHECKED RAK | REVISED | STRUCTURE FILE NUMBER 7701691 (NBL) 7701667 (SBL)

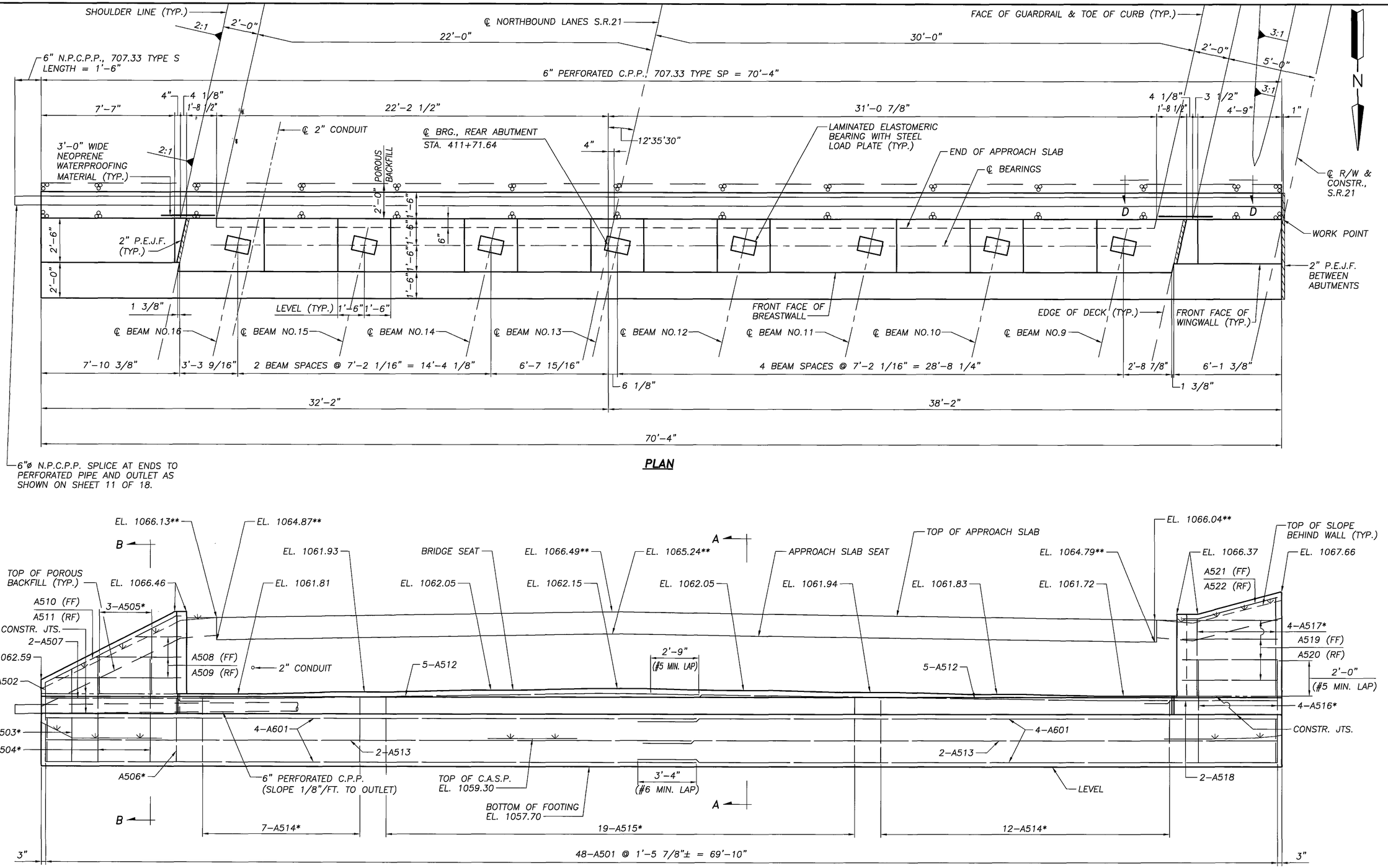
GENERAL NOTES
BRIDGE NOS. SUM-21-0778L&R
S.R.21 OVER S.R.162 (COPLEY ROAD)

SUM-21-(5.69)(7.58)(7.78)

5/18

200/223

EM1484GP_NB.DWG SCALE: 1:1.44



PLAN

ELEVATION

LOOKING BACK

NOTES:

FOR ABUTMENT NOTES AND SECTIONS, SEE SHEETS 10 AND 11 OF 18.

FOR SUPERSTRUCTURE AND DETAILS, SEE SHEETS 12 OF 18 THROUGH 16 OF 18.

NOTATION:
C.P.P. = CORRUGATED POLYETHYLENE PIPE
N.P.C.P.P. = NON-PERFORATED CORRUGATED POLYETHYLENE PIPE
P.E.J.F. = PREFORMED EXPANSION JOINT FILLER
FF = FRONT FACE
RF = REAR FACE
C.A.S.P. = CRUSHED AGGREGATE SLOPE PROTECTION
* SPACE WITH A501 BARS
** ELEVATION TAKEN AT END OF APPROACH SLAB

EM1484RA_NB.DWG SCALE: 1:32

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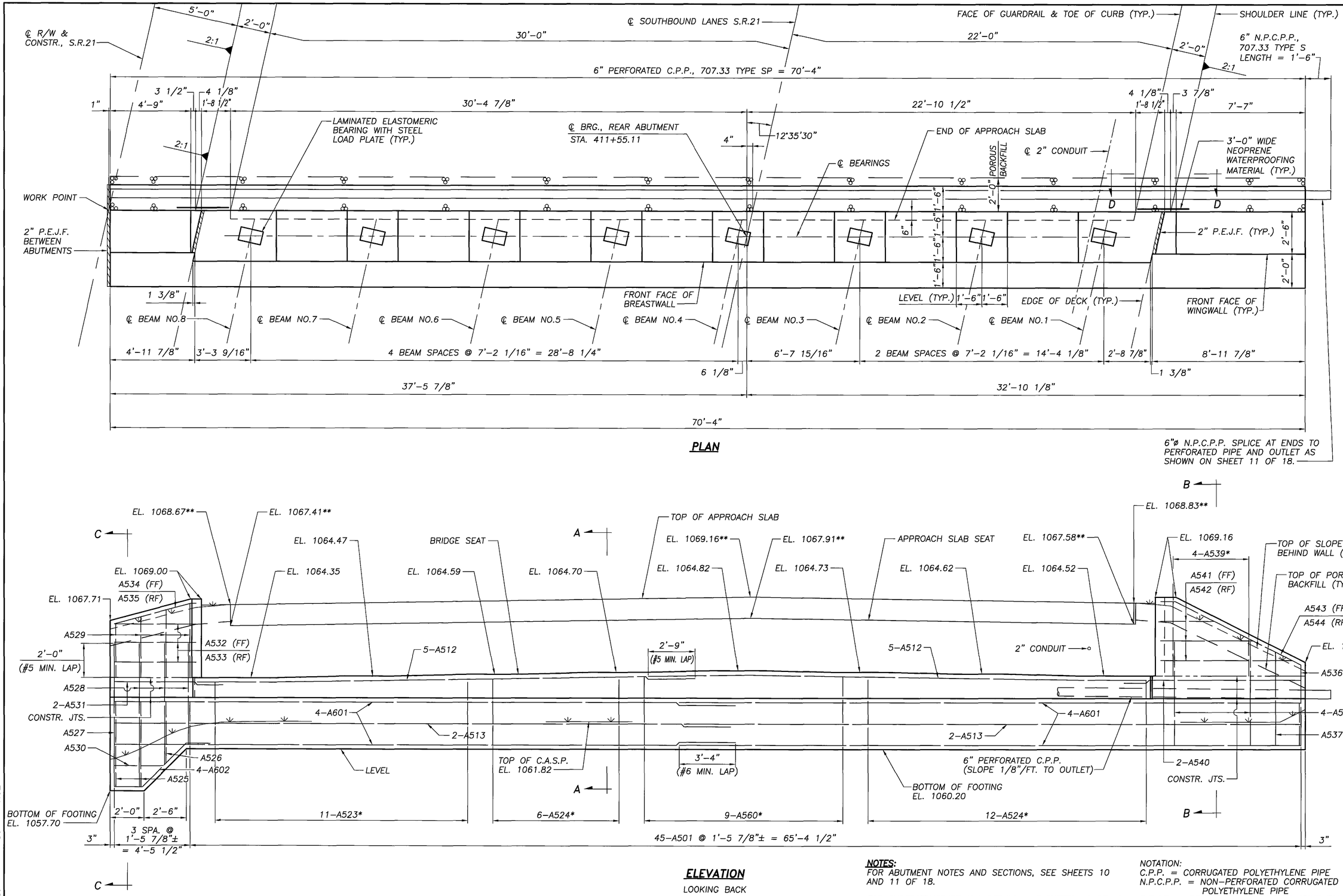
DRAWN JSK
REVIEWED TLS
DATE 10-04
CHECKED RAK
REVISED
STRUCTURE FILE NUMBER 7701691

REAR ABUTMENT DETAILS (NORTHBOUND LANES)

BRIDGE NO. SUM-21-0778R
S.R.21 OVER S.R.162 (COPLEY ROAD)

SUM-21-(5.69)(7.58)(7.78)



PLAN

ELEVATION
LOOKING BACK

NOTES:
FOR ABUTMENT NOTES AND SECTIONS, SEE SHEETS 10 AND 11 OF 18.

FOR SUPERSTRUCTURE AND DETAILS, SEE SHEETS 12 OF 18 THROUGH 16 OF 18.

NOTATION:
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RF = REAR FACE
C.A.S.P. = CRUSHED AGGREGATE SLOPE PROTECTION
* SPACE WITH A501 BARS
** ELEVATION TAKEN AT END OF APPROACH SLAB

SCALE: 1:32

EM1484RA_SB.DWG

REAR ABUTMENT DETAILS (SOUTHBOUND LANES)
BRIDGE NO. SUM–21–0778L
S.R.21 OVER S.R.162 (COPLEY ROAD)

DESIGNED JSK
DRAWN JSK
REVIEWED TLS
DATE 10–04
CHECKED RAK
REV'SED
STRUCTURE FILE NUMBER 7701667

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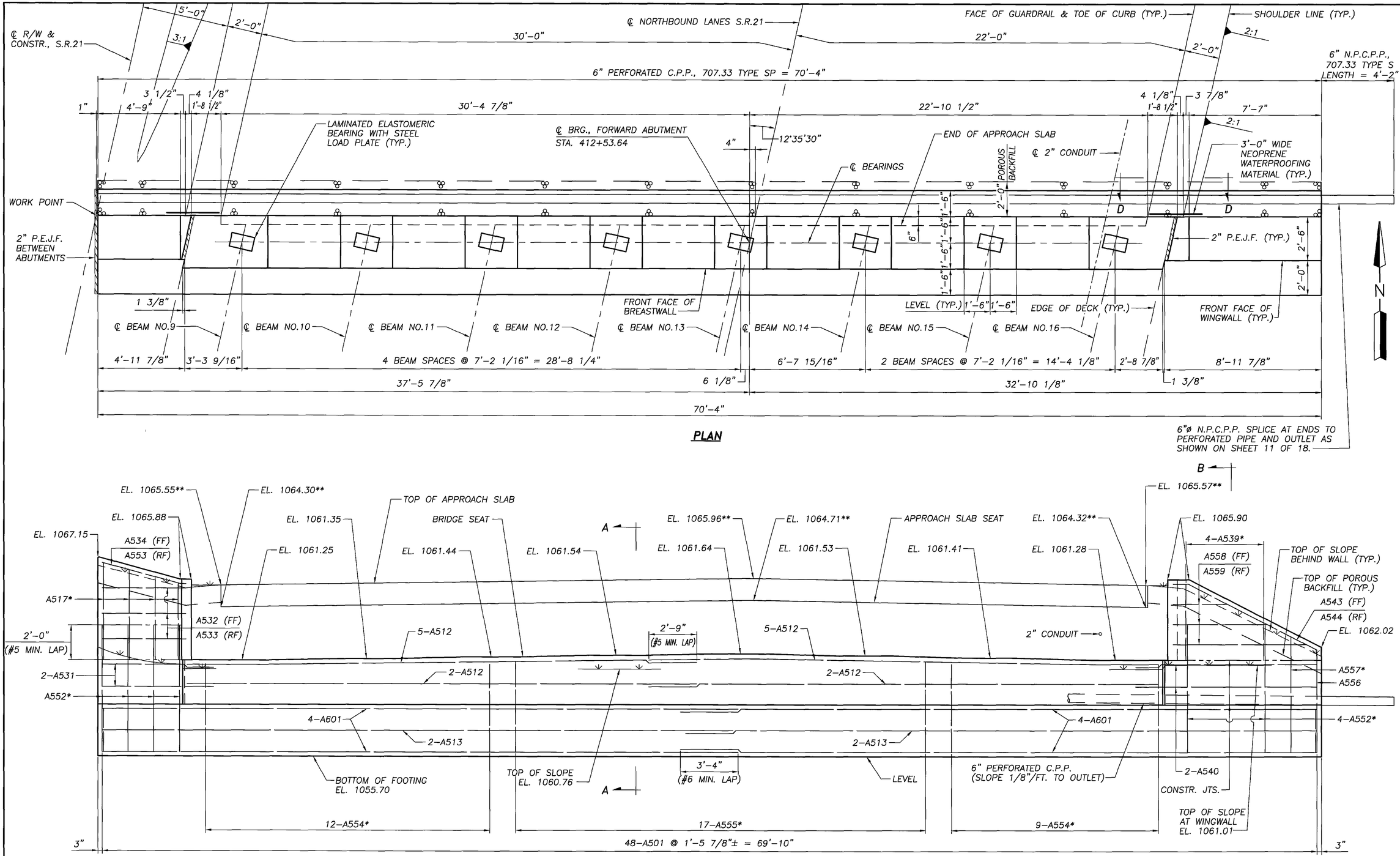
SUM–21–(5.69)(7.58)(7.78)



PLAN

ELEVATION

LOOKING AHEAD

NOTES:

FOR ABUTMENT NOTES AND SECTIONS, SEE SHEETS 10 AND 11 OF 18.

FOR SUPERSTRUCTURE DETAILS, SEE SHEETS 12 OF 18 THROUGH 16 OF 18.

NOTATION:
C.P.P. = CORRUGATED POLYETHYLENE PIPE
N.P.C.P.P. = NON–PERFORATED CORRUGATED POLYETHYLENE PIPE
P.E.J.F. = PREFORMED EXPANSION JOINT FILLER
FF = FRONT FACE
RF = REAR FACE
** SPACE WITH A501 BARS*
*** ELEVATION TAKEN AT END OF APPROACH SLAB*

EM1484FA_NB.DWG SCALE: 1:32

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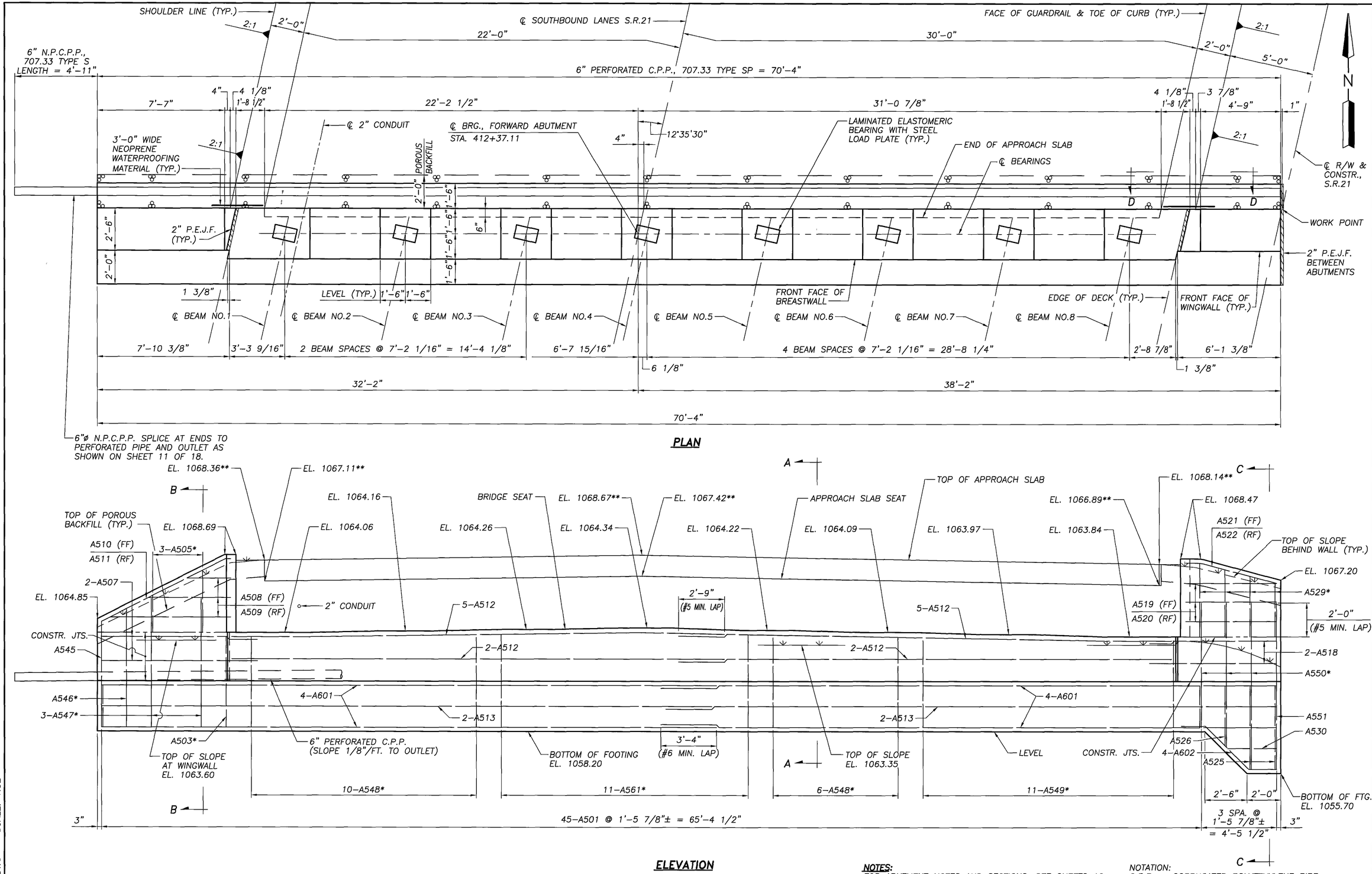
DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	10–04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701691	

FORWARD ABUTMENT DETAILS (NORTHBOUND LANES)
BRIDGE NO. SUM–21–0778R
S.R.21 OVER S.R.162 (COPLEY ROAD)

SUM–21–(5.69)(7.58)(7.78)



ELEVATION

LOOKING AHEAD

NOTES:

FOR ABUTMENT NOTES AND SECTIONS, SEE SHEETS 10 AND 11 OF 18.

FOR SUPERSTRUCTURE DETAILS, SEE SHEETS 12 OF 18 THROUGH 16 OF 18.

NOTATION:
C.P.P. = CORRUGATED POLYETHYLENE PIPE
N.P.C.P.P. = NON-PERFORATED CORRUGATED POLYETHYLENE PIPE
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* SPACE WITH A501 BARS
** ELEVATION TAKEN AT END OF APPROACH SLAB

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REVIEWED TLS 10-04
DATE
CHECKED RAK
REVISED
STRUCTURE FILE NUMBER 7701667

FORWARD ABUTMENT DETAILS (SOUTHBOUND LANES)

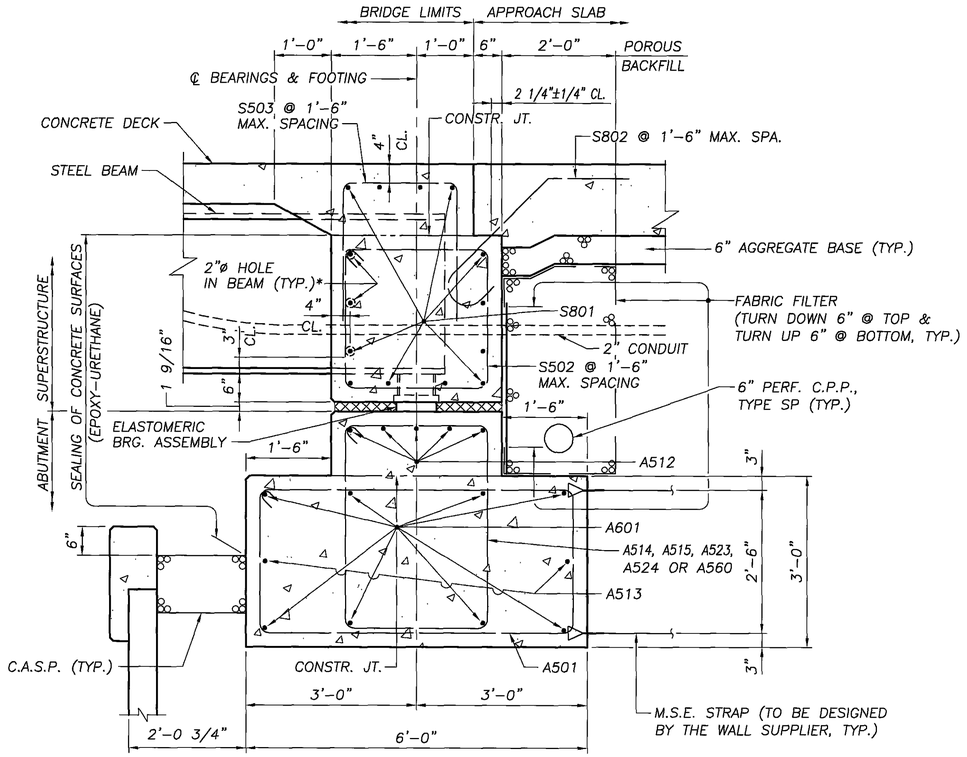
BRIDGE NO. SUM-21-0778L
S.R.21 OVER S.R.162 (COPLEY ROAD)

SUM-21-(5.69)(7.58)(7.78)

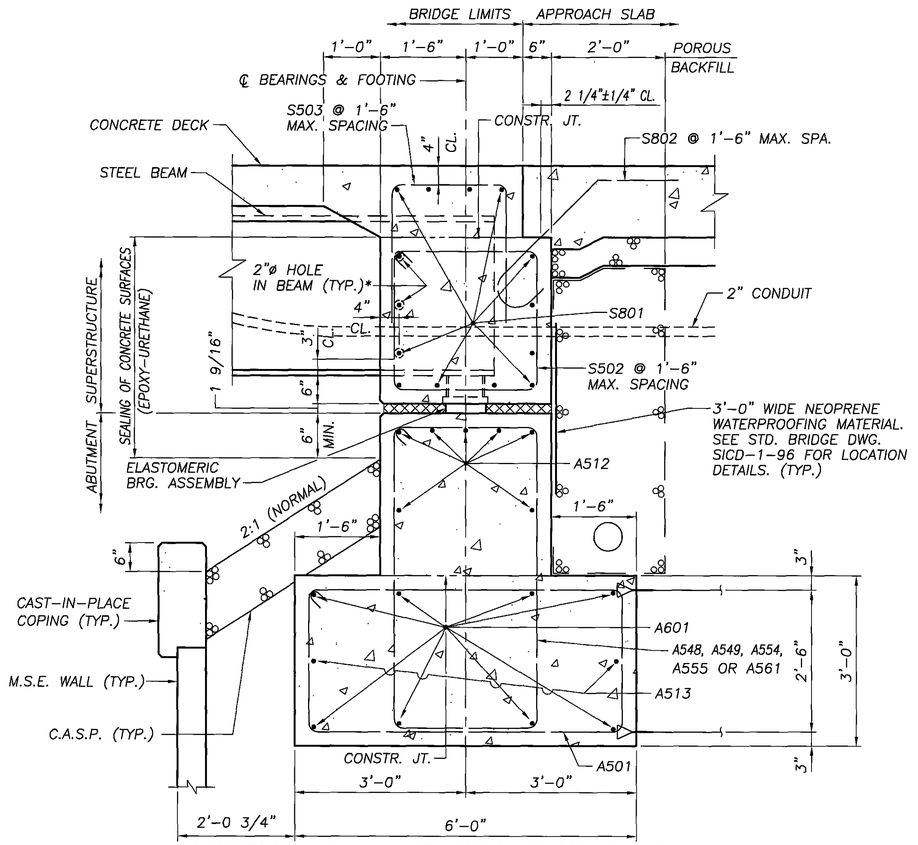
9/18

204/223

EM1484FA_SB.DWG SCALE: 1:32



SECTION A-A AT REAR ABUTMENT



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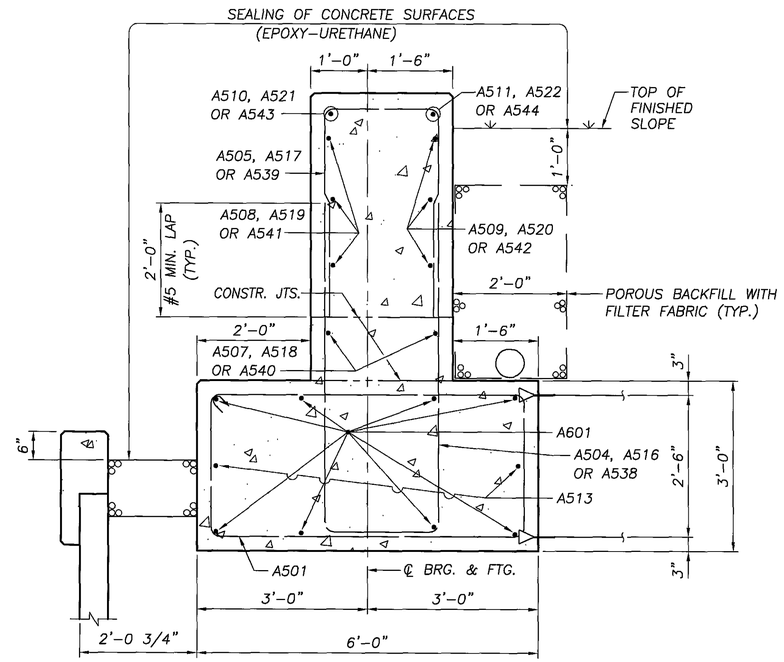
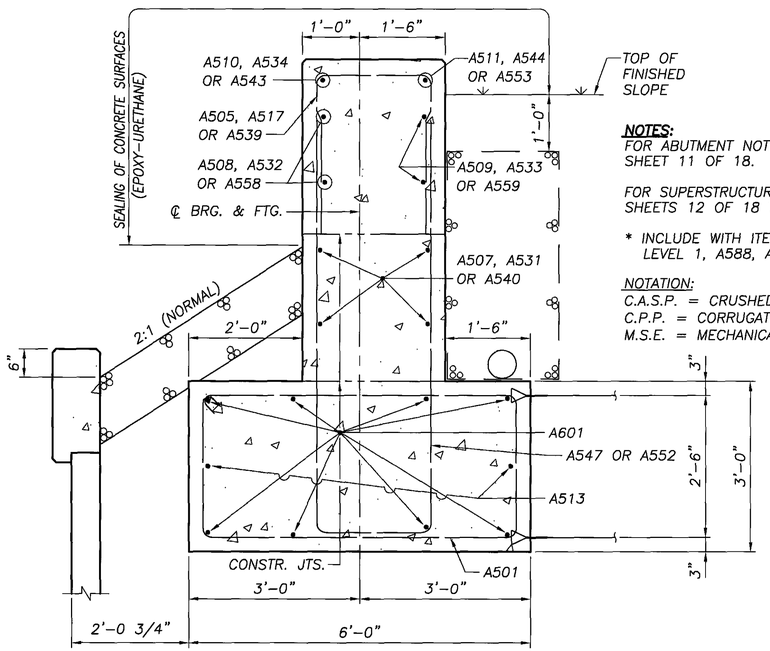


SECTION B-B AT REAR ABUTMENT



SECTION B-B AT FORWARD ABUTMENT

NOTES:

FOR ABUTMENT NOTES AND SECTION C-C, SEE SHEET 11 OF 18.

FOR SUPERSTRUCTURE AND BEARING DETAILS, SEE SHEETS 12 OF 18 THROUGH 16 OF 18.

** INCLUDE WITH ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL 1, A588, AS PER PLAN FOR PAYMENT.*

NOTATION:

C.A.S.P. = CRUSHED AGGREGATE SLOPE PROTECTION
C.P.P. = CORRUGATED POLYETHYLENE PIPE
M.S.E. = MECHANICALLY-STABILIZED EARTH

EM1484AB_SECT.DWG SCALE: 1:16

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DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	10-04
CHECKED	REVISED	STRUCTURE FILE NUMBERS	
RAK		7701891 (NBL) 7701667 (SBL)	

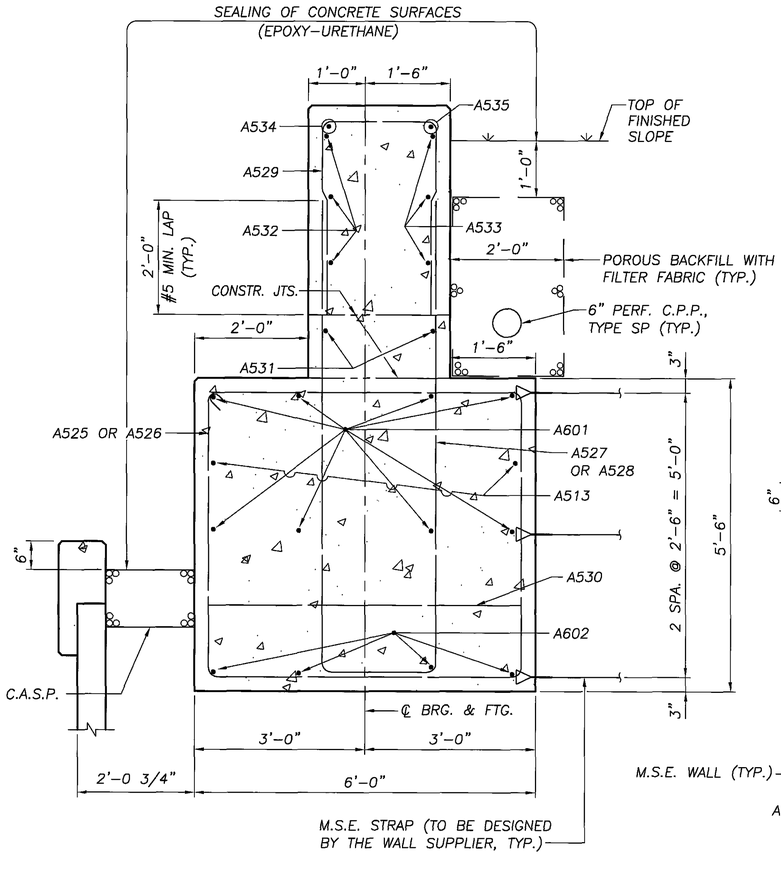
ABUTMENT SECTIONS

BRIDGE NOS. SUM-21-07778L&R
S.R.21 OVER S.R.162 (COPLEY ROAD)

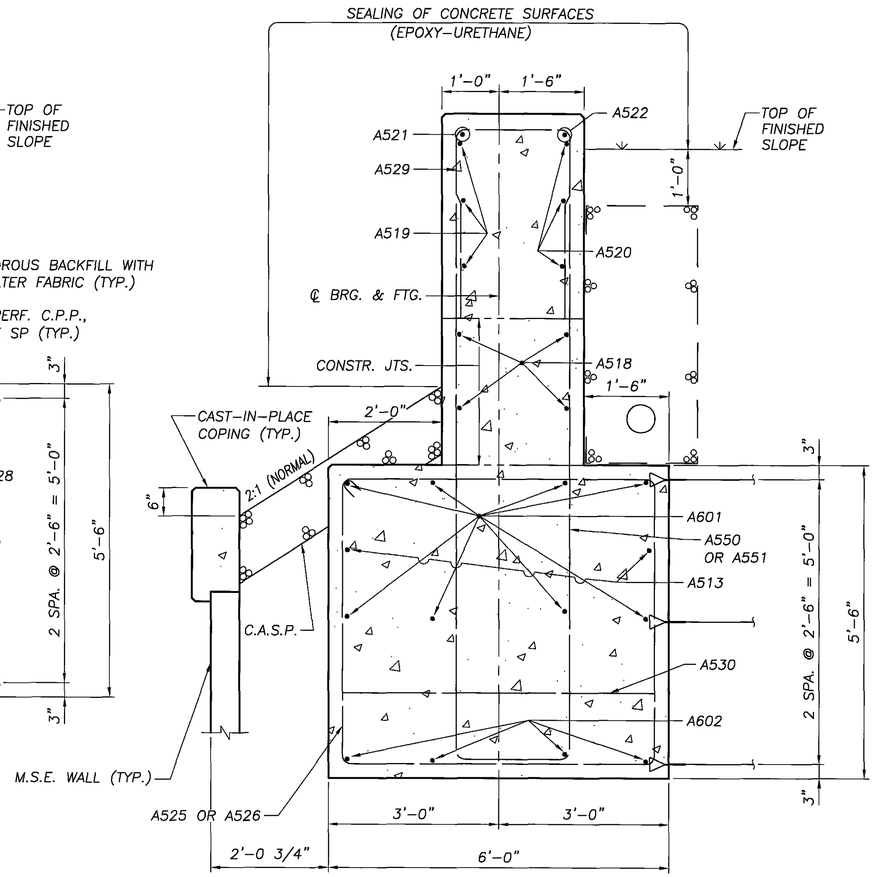
SUM-21-(5.69)(7.58)(7.78)

10/18

205
223



SECTION C–C AT REAR ABUTMENT



SECTION C–C AT FORWARD ABUTMENT

ABUTMENT NOTES:

POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN, 2'–0" THICK SHALL EXTEND UPWARD TO THE PLANE OF THE SUBGRADE, TO 1'–0" BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE ENDS OF THE WING WALLS. GEOTEXTILE FABRIC SHALL CONFORM WITH 712.09, TYPE A AND SHALL BE INCLUDED WITH POROUS BACKFILL FOR PAYMENT. MATERIAL SHALL BE ACCORDING TO 518.02 AND SHALL BE NO. 57 GRAVEL.

ABUTMENT CONCRETE ABOVE THE BRIDGE SEAT CONSTRUCTION JOINT SHALL NOT BE PLACED UNTIL THE CONCRETE END DIAPHRAGMS HAVE BEEN CAST.

NOTATION:
C.A.S.P. = CRUSHED AGGREGATE SLOPE PROTECTION
C.P.P. = CORRUGATED POLYETHYLENE PIPE
M.S.E. = MECHANICALLY–STABILIZED EARTH

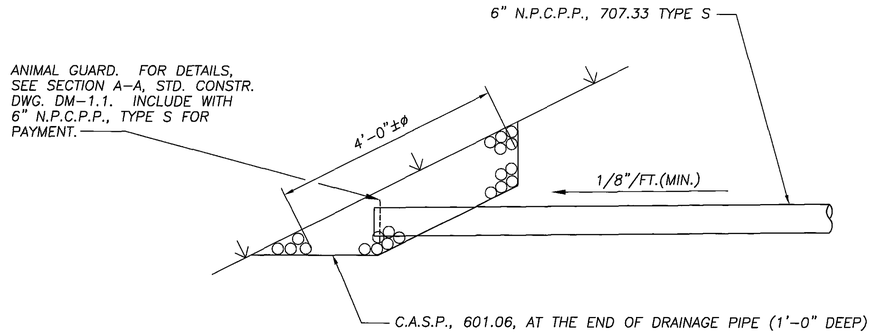
REINFORCING STEEL: SEE SHEETS 17 AND 18 OF 18.

FOR SUPERSTRUCTURE AND BEARING DETAILS, SEE SHEETS 12 THROUGH 15 OF 18.

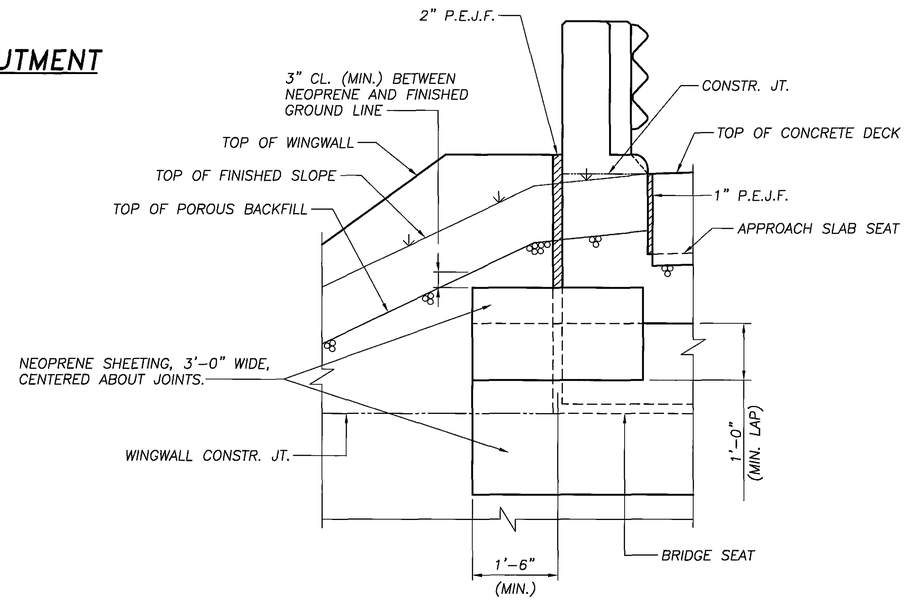
FOR SEMI–INTEGRAL ABUTMENT DETAILS, SEE STANDARD BRIDGE DRAWING SICD–1–96.

ALL REINFORCING STEEL CLEARANCES AT ABUTMENTS ARE 3" UNLESS NOTED.

ABUTMENT DIAPHRAGM CONCRETE, STEEL SUPERSTRUCTURE:
PLACE THE CONCRETE ENCASING THE STRUCTURAL STEEL MEMBERS WITH THE DECK CONCRETE OR AT LEAST 48 HOURS BEFORE PLACEMENT OF THE DECK CONCRETE.



TERMINATION OF 6" N.P.C.P.P. DETAIL



VIEW D–D

EM1484AB_SECT.DWG SCALE: 1:16

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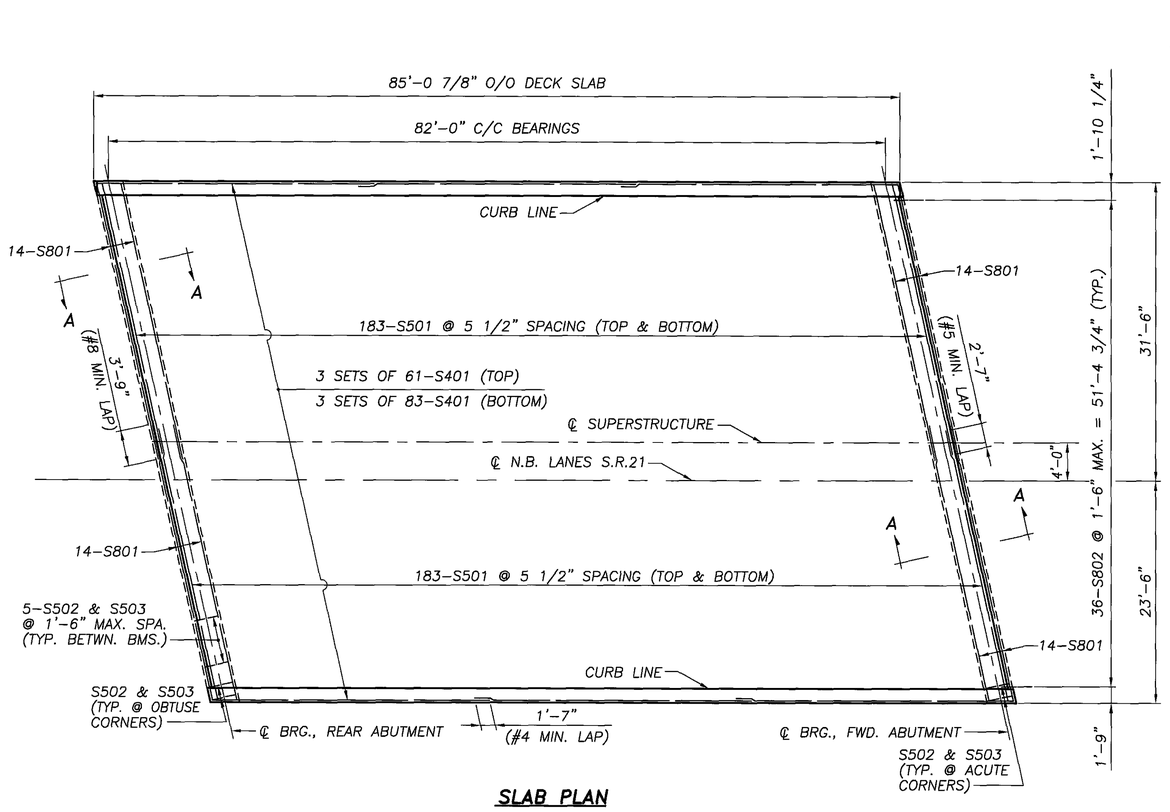
DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	10–04
CHECKED	REVISED	STRUCTURE FILE NUMBERS	
RAK		7701691 (NBL) 7701667 (SBL)	

ABUTMENT SECTIONS & NOTES
BRIDGE NOS. SUM–21–0778L&R
S.R.21 OVER S.R.162 (COPLEY ROAD)

SUM–21–(5.69)(7.58)(7.78)

11/18

206/223



SLAB PLAN

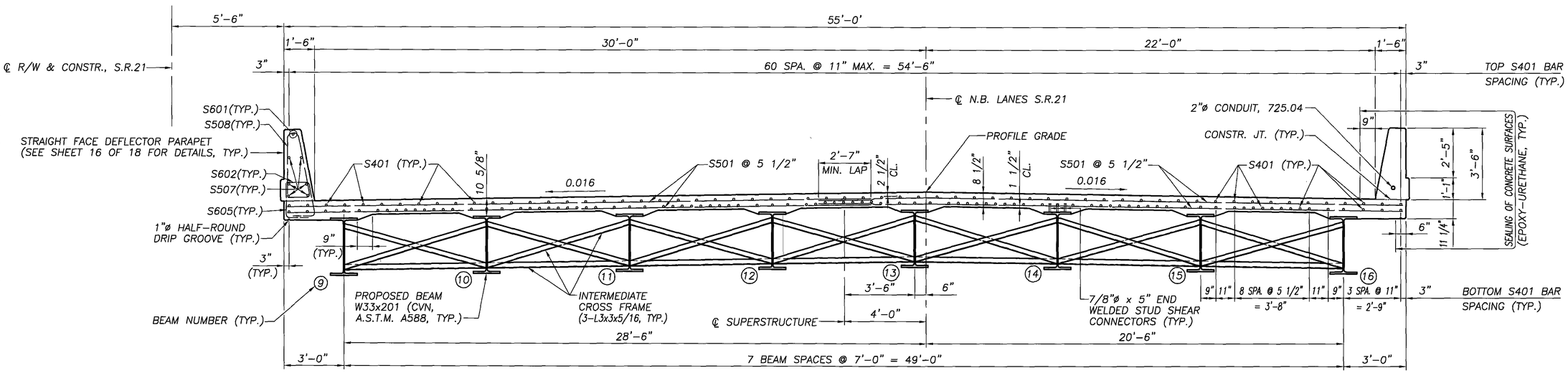
NOTES:

DECK SLAB CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 2 INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE IS ±3 INCHES.

THE HAUNCH THICKNESS IS MEASURED AT THE CENTERLINE OF THE BEAM, FROM THE SURFACE OF THE DECK TO THE TOP OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS.

FOR SUPERSTRUCTURE NOTES, SEE SHEET 15 OF 18.

FOR END DIAPHRAGM DETAILS, SEE SECTION A-A, SHEET 10 OF 18.



TRANSVERSE SECTION

S.R.21 (NORTHBOUND LANES) OVER S.R.162 (COPLEY ROAD)

EM1484S1_NB.DWG SCALE: 1:96

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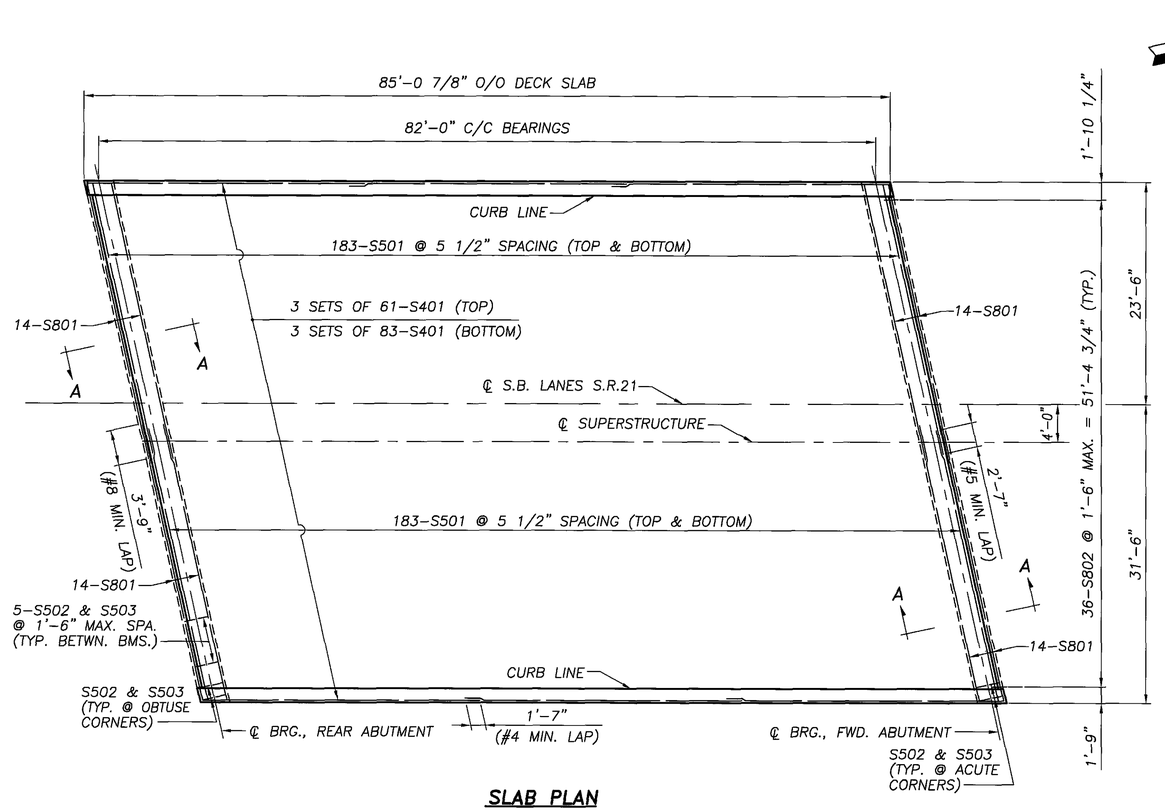
DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	10-04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701691	

SLAB PLAN & TRANSVERSE SECTION (NORTHBOUND LANES)
BRIDGE NO. SUM-21-0778R
S.R.21 OVER S.R.162 (COPLEY ROAD)

SUM-21-(5.69)(7.58)(7.78)



SLAB PLAN

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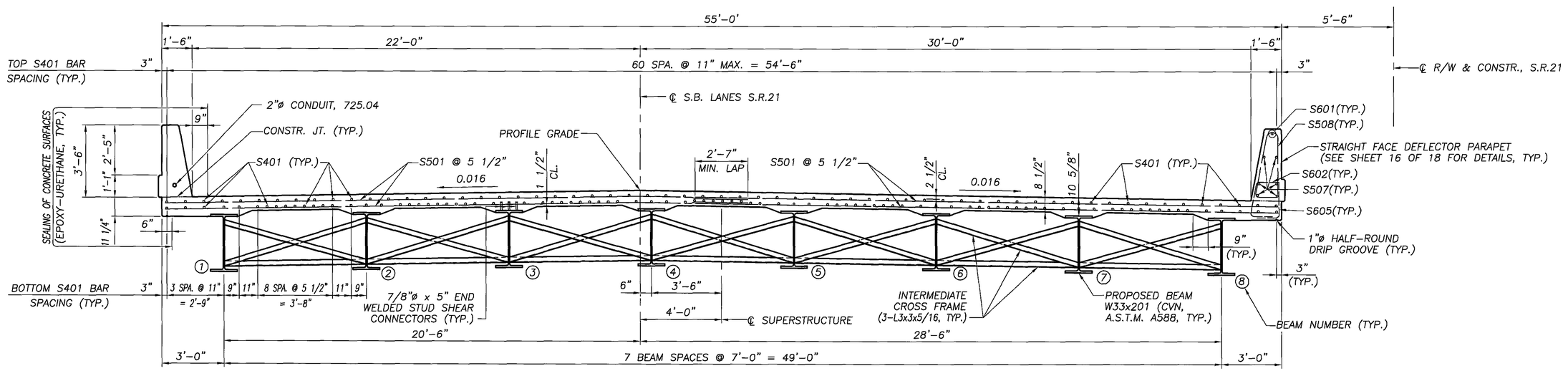
THE HAUNCH THICKNESS IS MEASURED AT THE CENTERLINE OF THE BEAM, FROM THE SURFACE OF THE DECK TO THE TOP OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS.

FOR SUPERSTRUCTURE NOTES, SEE SHEET 15 OF 18.

FOR END DIAPHRAGM DETAILS, SEE SECTION A-A, SHEET 10 OF 18.



TRANSVERSE SECTION

S.R.21 (SOUTHBOUND LANES) OVER S.R.162 (COPLEY ROAD)

EM1484S1_SB.DWG SCALE: 1:96

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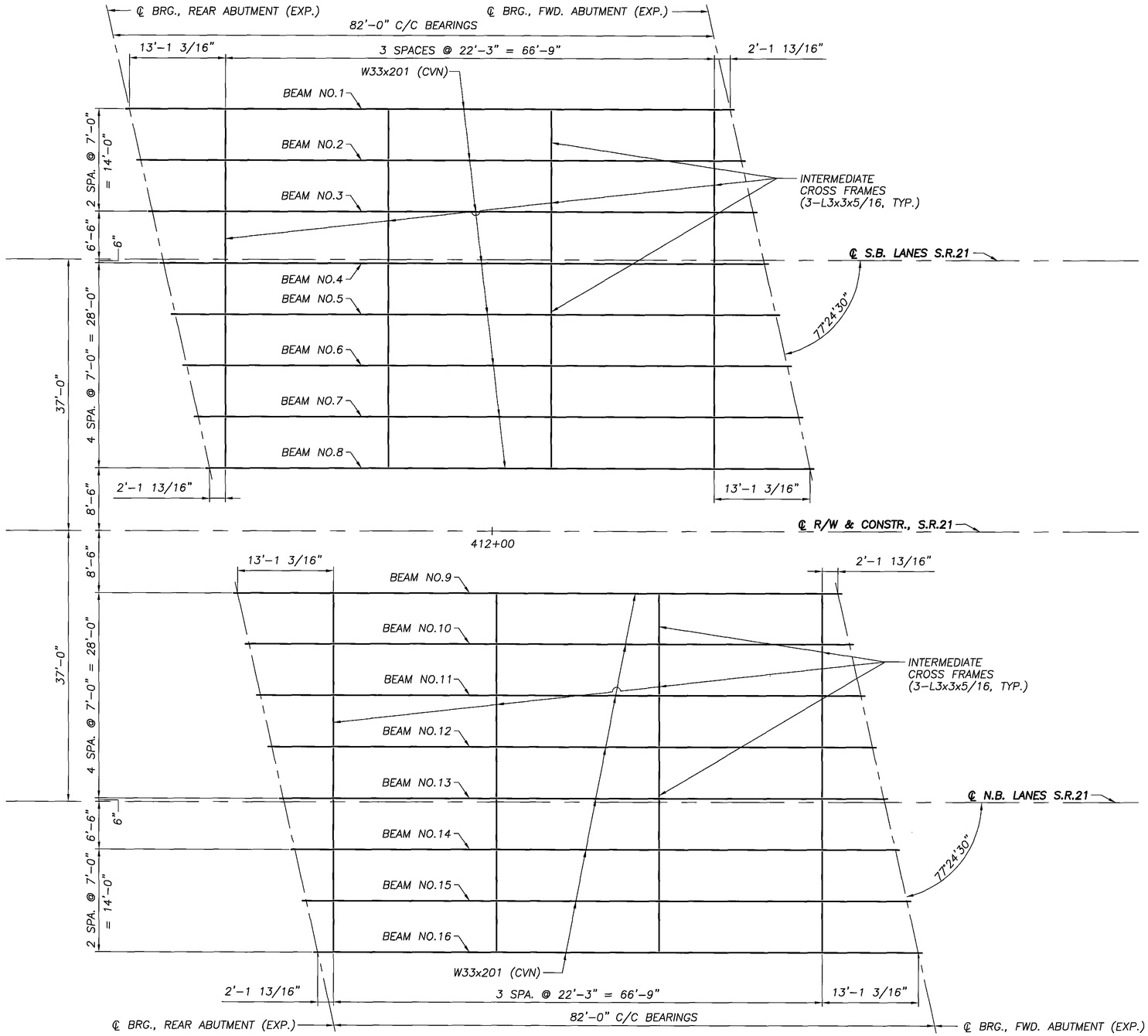
DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	10-04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701667	

SLAB PLAN & TRANSVERSE SECTION (SOUTHBOUND LANES)

BRIDGE NO. SUM-21-0778L
S.R.21 OVER S.R.162 (COPLEY ROAD)

SUM-21-(5.69)(7.58)(7.78)



FRAMING PLAN

NOTES:
FOR DEFLECTION AND CAMBER TABLE, DIAGRAM AND SUPERSTRUCTURE NOTES, SEE SHEET 15 OF 18.

CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.

EM1484S2.DWG SCALE: 1:96

SHAFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
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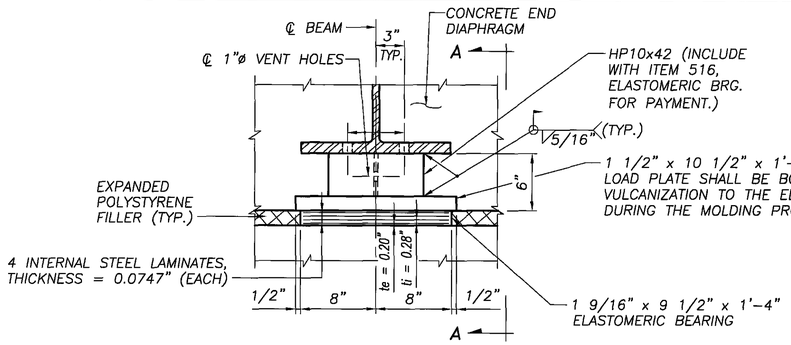
(419) 756-2302
CONSULTING ENGINEERS - SURVEYORS

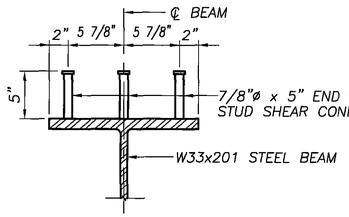
DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	10-04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701691(NBL) 7701667(SBL)	

FRAMING PLAN
BRIDGE NOS. SUM-21-0778L&R
S.R.21 OVER S.R.162 (COPLEY ROAD)

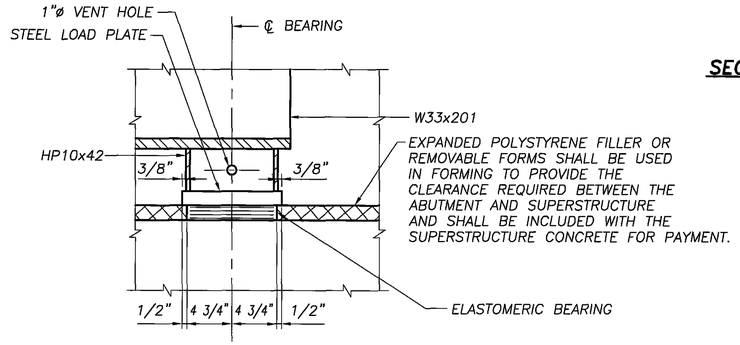
SUM-21-(5.69)(7.58)(7.78)



ELEVATION OF LAMINATED ELASTOMERIC EXPANSION BEARING AT ABUTMENTS

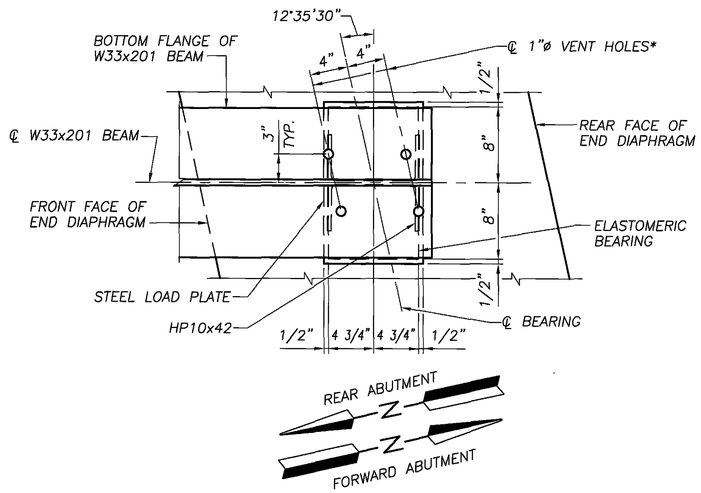


SECTION B–B

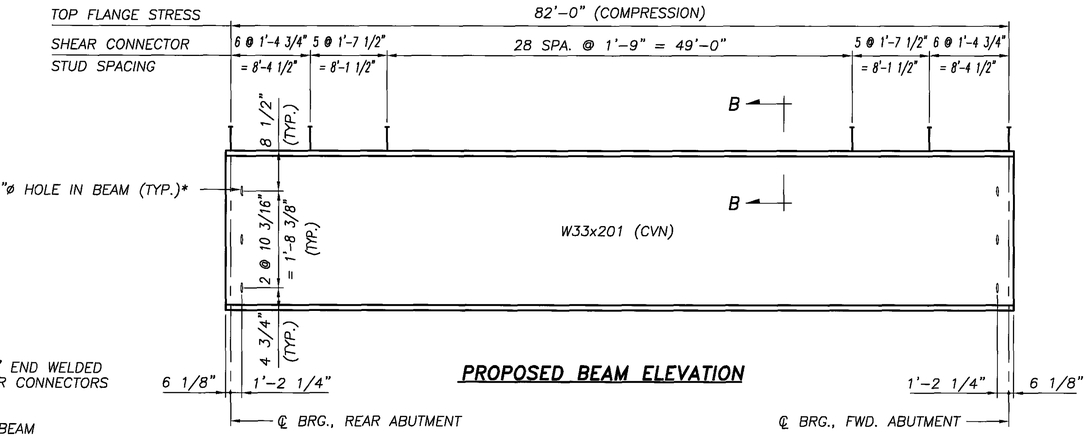


SECTION A–A

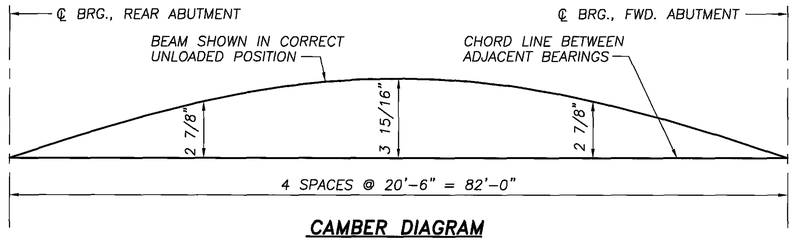
BEARING DESIGN LOADS	
DEAD LOAD	75.54 K
LIVE LOAD	62.65 K
TOTAL	138.19 K



PLAN VIEW – ABUTMENT EXPANSION BEARING



PROPOSED BEAM ELEVATION



CAMBER DIAGRAM

DEFLECTION AND CAMBER					
SPAN POINT	℄ BRG., RA	1/4	1/2	3/4	℄ BRG., FA
DEFLECTION DUE TO STEEL WEIGHT	0	1/2"	5/8"	1/2"	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	1 7/8"	2 11/16"	1 7/8"	0
ADJUSTMENT REQUIRED FOR VERTICAL CURVE	0	1/2"	5/8"	1/2"	0
REQUIRED SHOP CAMBER	0	2 7/8"	3 15/16"	2 7/8"	0

SUPERSTRUCTURE NOTES:

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN:
BEARING ANCHOR RODS: AT THE OPTION OF THE CONTRACTOR, THE BEARING ANCHOR RODS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST IN PLACE.

BEARING REPOSITIONING: IF THE STEEL IS ERECTED AT AN AMBIENT TEMPERATURE HIGHER THAN 80°F OR LOWER THAN 40°F AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/6 OF THE BEARING HEIGHT AT 60°F±10°F, RAISE THE BEAMS TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 60°F±10°F.

ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.6 (METHOD A) OF THE A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, TESTING, ANCHOR RODS AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516, ELASTOMERIC BEARINGS WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN, EACH.

* INCLUDE WITH ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL 1, A588, AS PER PLAN FOR PAYMENT.

FOR SCREED ELEVATIONS, SEE SHEETS 17 AND 18 OF 18.

WELD ATTACHMENT OF SUPPORTS FOR THE CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION." DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION." FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE AT LEAST 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER THAN 3/4" THICK.

FOR STRUCTURAL STEEL AND CROSS FRAME DETAILS, SEE STANDARD BRIDGE DRAWING GSD–1–96.

THE PAY QUANTITY FOR ITEM 511 SUPERSTRUCTURE CONCRETE IN THE END DIAPHRAGMS SHALL BE DETERMINED AS FOLLOWS: BELOW THE BOTTOM OF THE TOP BEAM FLANGE, ABOVE THE BRIDGE SEAT CONSTRUCTION JOINT AND BETWEEN THE DECK FASCIAS.

A HAUNCH WIDTH OF 9" SHALL BE USED. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12".

REINFORCING STEEL: SEE SHEETS 17 AND 18 OF 18.

CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.

FOR END DIAPHRAGM DETAILS, SEE SHEET 10 OF 18.

EM1484S3.DWG SCALE: 1:96

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CONSULTING ENGINEERS — SURVEYORS

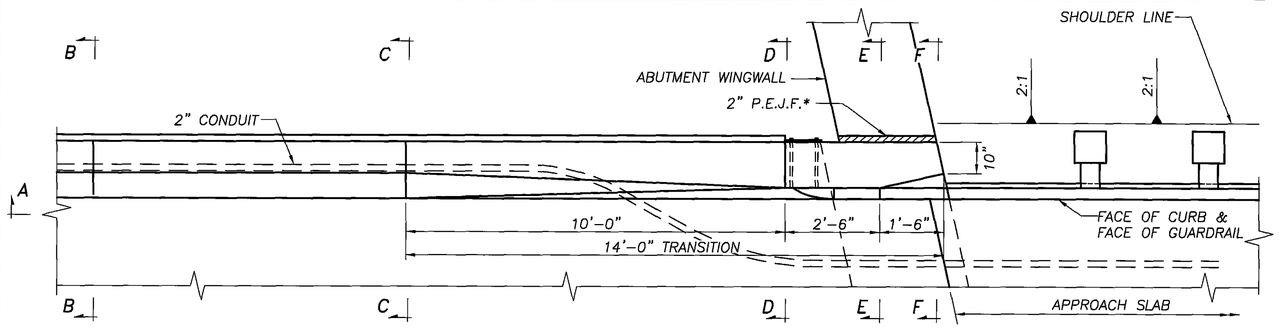
DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	10-04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701667(SBL)	

BEAM & BEARING DETAILS & SUPERSTRUCTURE NOTES
BRIDGE NOS. SUM-21-0778L&R
S.R.21 OVER S.R.162 (COPLEY ROAD)

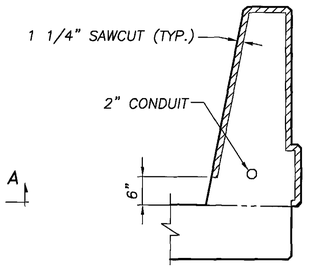
SUM-21-(5.69)(7.58)(7.78)

15/18

210/223

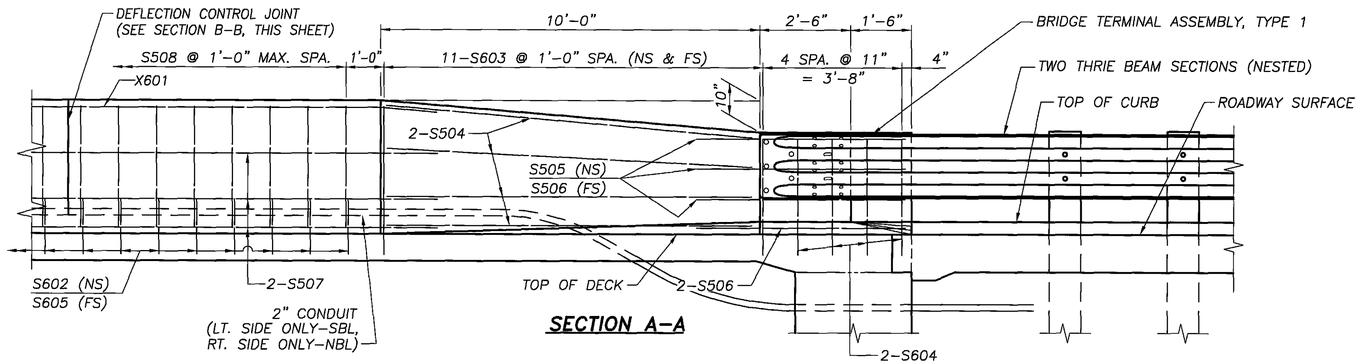


PART PLAN AT TRANSITION

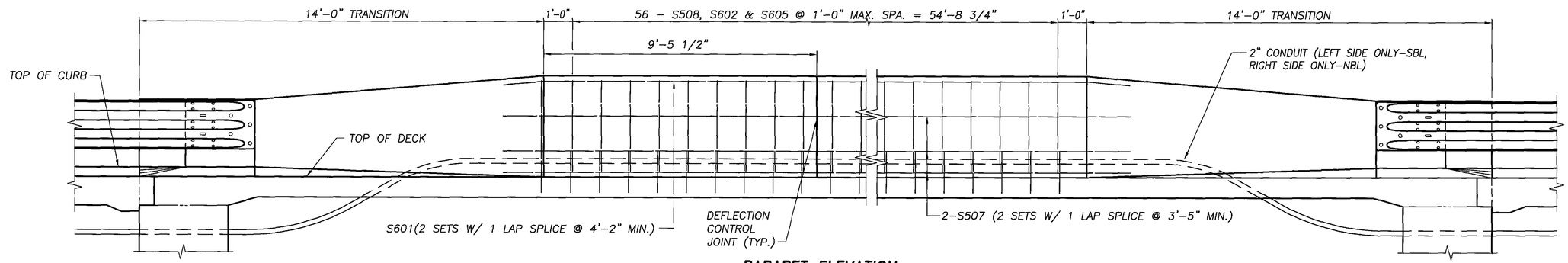


SECTION B–B

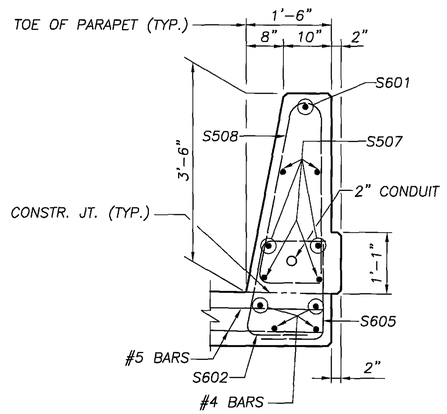
(SECTION THROUGH SAWCUT)
SAWCUT PERIMETER = 7'-6"



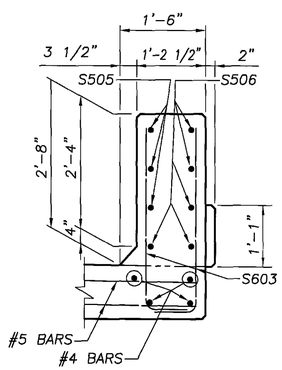
SECTION A–A



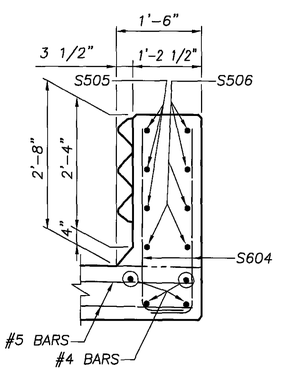
PARAPET ELEVATION



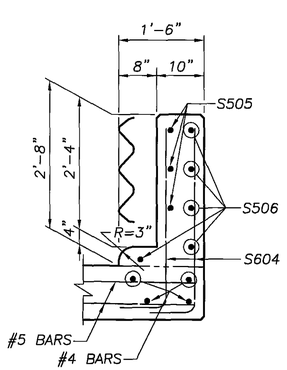
SECTION C–C



SECTION D–D



SECTION E–E



SECTION F–F

EM1484PAR.DWG SCALE: 1:96

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CONSULTING ENGINEERS — SURVEYORS

DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	10–04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		7701691(NBL) 7701667(SBL)	

PARAPET DETAILS

BRIDGE NOS. SUM–21–0778L&R
S.R.21 OVER S.R.162 (COPLEY ROAD)

SUM–21–(5.69)(7.58)(7.78)

16/18

211
223

NOTES:

CONTROL JOINTS FOR CONCRETE PARAPETS:

THE JOINTS SHALL BE CONSTRUCTED BY SAWING 1 1/4 INCH DEEP ALONG THE PERIMETER OF THE PARAPET AS SOON AS THE SAW CAN BE OPERATED WITHOUT DAMAGING THE CONCRETE.

THE USE OF AN EDGE GUIDE, FENCE, OR JIG IS REQUIRED TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF 1/4 INCH.

THE PERIMETER OF THE DEFLECTION CONTROL JOINT SHALL BE SEALED WITH A CAULKING MATERIAL TO A MINIMUM DEPTH OF 1 INCH CONFORMING TO FEDERAL SPECIFICATION TT–S–00227E. THE BOTTOM 1/2 INCH OF THE OUTSIDE FACE OF THE PARAPET SHOULD BE LEFT UNSEALED TO ALLOW ANY WATER WHICH MAY ENTER THE JOINT TO ESCAPE.

QUANTITIES OF CONCRETE, DEFLECTION JOINT SAWCUT AND CAULKING MATERIAL FOR PARAPET ARE INCLUDED WITH ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN, FOR PAYMENT.

FOR BRIDGE TERMINAL ASSEMBLY, TYPE 1, DETAILS, SEE STANDARD CONSTRUCTION DRAWING GR–3.1.

FOR PARAPET DEFLECTION CONTROL JOINT SPACING, SEE SHEETS 3 AND 4 OF 18.

FOR CONDUIT LOCATION DETAILS, SEE STD. CONSTR. DWG. HL–30.32.

NOTATION:
FS = FAR SIDE
NS = NEAR SIDE
NBL = NORTHBOUND LANES
SBL = SOUTHBOUND LANES
** – INCLUDE WITH ABUTMENT CONCRETE FOR PAYMENT.*

SCREED TABLE – NORTHBOUND LANES

SPAN POINT		℄ BRG., RA	1/4	1/2	3/4	℄ BRG., FA
LT. CURB LINE	STA.	411+64.94	411+85.44	412+05.94	412+26.44	412+46.94
	ELEV.	1066.02	1066.10	1066.06	1065.87	1065.55
℄ BEAM NO.9	STA.	411+65.27	411+85.77	412+06.27	412+26.77	412+47.27
	ELEV.	1066.05	1066.13	1066.08	1065.89	1065.57
℄ BEAM NO.10	STA.	411+66.84	411+87.34	412+07.84	412+28.34	412+48.84
	ELEV.	1066.15	1066.23	1066.19	1065.99	1065.67
℄ BEAM NO.11	STA.	411+68.40	411+88.90	412+09.40	412+29.90	412+50.40
	ELEV.	1066.26	1066.34	1066.29	1066.09	1065.77
℄ BEAM NO.12	STA.	411+69.96	411+90.46	412+10.96	412+31.46	412+51.96
	ELEV.	1066.37	1066.44	1066.39	1066.19	1065.87
℄ BEAM NO.13	STA.	411+71.53	411+92.08	412+12.53	412+33.03	412+53.53
	ELEV.	1066.47	1066.55	1066.50	1066.29	1065.96
℄ NBL	STA.	411+71.64	411+92.14	412+12.64	412+33.14	412+53.64
	ELEV.	1066.48	1066.55	1066.50	1066.30	1065.97
℄ BEAM NO.14	STA.	411+73.09	411+93.59	412+14.09	412+34.59	412+55.09
	ELEV.	1066.37	1066.44	1066.39	1066.18	1065.85
℄ BEAM NO.15	STA.	411+74.66	411+95.16	412+15.66	412+36.16	412+56.66
	ELEV.	1066.25	1066.32	1066.27	1066.06	1065.73
℄ BEAM NO.16	STA.	411+76.22	411+96.72	412+17.22	412+37.72	412+58.22
	ELEV.	1066.14	1066.20	1066.15	1065.93	1065.60
RT. CURB LINE	STA.	411+76.55	411+97.05	412+17.55	412+38.05	412+58.55
	ELEV.	1066.11	1066.18	1066.12	1065.91	1065.57

SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED REMAINING DEAD LOAD DEFLECTIONS.

GRADE 60 EPOXY COATED REINFORCING STEEL – ABUTMENTS

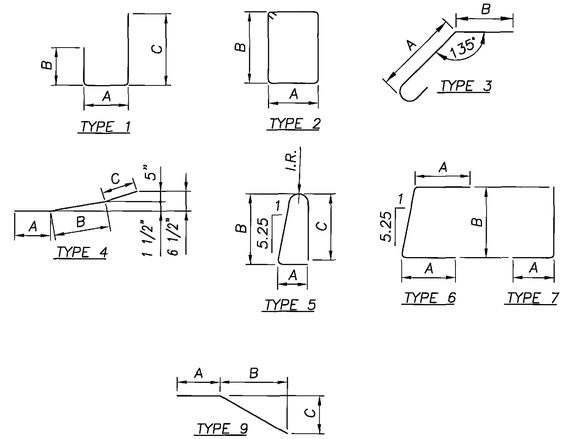
MARK	NUMBER RA	NUMBER FA	NUMBER TOTAL	LENGTH	WEIGHT (LBS.)	TYPE	DIMENSIONS A	B	C	INC.
A501	48	48	96	16'-7"	1660	2	5'-6"	2'-6"		
A502	1		1	13'-7"	14	2	2'-0"	4'-6"		
A503	1		1	15'-1"	16	2	2'-0"	5'-3"		
A504	3		3	13'-7"	43	1	2'-0"	5'-11"	5'-11"	
	1		1	6'-1"				2'-2"	2'-2"	
A505	SERIES		SERIES	TO	24	1	2'-0"	TO	TO	9"
	OF 3		OF 3	9'-1"				3'-8"	3'-8"	
A506	1		1	11'-8"	12	2	2'-0"	3'-7"		
A507	2		2	9'-4"	19	STR.				
	1		1	2'-1"						
A508	SERIES		SERIES	TO	14	STR.				2'-3 1/2"
	OF 3		OF 3	6'-8"						
	1		1	2'-7"						
A509	SERIES		SERIES	TO	15	STR.				2'-3"
	OF 3		OF 3	7'-1"						
A510	1		1	8'-1"	8	STR.				
A511	1		1	8'-7"	9	9	3"	7'-5"	3'-9"	
A512	10	14	24	29'-4"	734	STR.				
A513	4	4	8	36'-4"	303	STR.				
A514	19		19	12'-7"	249	2	2'-6"	3'-6"		
A515	19		19	12'-10"	254	2	2'-6"	3'-8"		
A516	4		4	13'-5"	56	1	2'-0"	5'-10"	5'-10"	
	1	1	2	10'-5"				4'-4"	4'-4"	
A517	SERIES	SERIES	SERIES	TO	97	1	2'-0"	TO	TO	5"
	OF 4	OF 4	OF 4	12'-11"				5'-7"	5'-7"	
A518	2		2	7'-7"	16	STR.				
A519	4		4	5'-4"	22	STR.				
A520	4		4	4'-11"	21	STR.				
A521	1		1	5'-6"	6	9	10"	4'-6"	1'-2 1/2"	
A522	1		1	5'-1"	5	9	5"	4'-6"	1'-2 1/2"	
A531		4	4	6'-5"	27	STR.				
A532		3	3	4'-4"	14	STR.				
A533		3	3	4'-10"	15	STR.				
A534		1	1	4'-6"	5	STR.				
		1	1	6'-1"				2'-2"	2'-2"	
A539		SERIES	SERIES	TO	34	1	2'-0"	TO	TO	8 3/4"
		OF 4	OF 4	10'-5"				4'-4"	4'-4"	
A540		4	4	10'-5"	43	STR.				
A543		1	1	9'-2"	10	9	10"	7'-5"	3'-9"	
A544		1	1	8'-9"	9	9	5"	7'-5"	3'-9"	
A552		8	8	16'-5"	137	1	2'-0"	7'-4"	7'-4"	
A553		1	1	5'-0"	5	9	4"	4'-6"	1'-2"	
A554		21	21	15'-8"	343	2	2'-6"	5'-1"		
A555		17	17	16'-0"	284	2	2'-6"	5'-3"		
A556		1	1	16'-4"	17	2	2'-0"	5'-11"		
A557		1	1	17'-10"	19	2	2'-0"	6'-8"		
		1	1	3'-1"						
A558		SERIES	SERIES	TO	17	STR.				2'-3"
		OF 3	OF 3	7'-7"						
		1	1	2'-8"						
A559		SERIES	SERIES	TO	15	STR.				2'-3"
		OF 3	OF 3	7'-2"						
A601	16	16	32	36'-7"	1758	STR.				
				TOTAL	6349					

GRADE 60 EPOXY COATED REINFORCING STEEL – SUPERSTRUCTURE

MARK	NUMBER LP	NUMBER RP	NUMBER TOTAL	LENGTH	WEIGHT (LBS.)	TYPE	DIMENSIONS A	B	C	I.R.	INC.
S401			432	29'-4"	8465	STR.					
S501			732	29'-4"	22,395	STR.					
S502			78	6'-7"	536	1	2'-0"	2'-5"			
S503			78	10'-4"	841	2	2'-6"	2'-5"			
S504	16	16	32	10'-0"	334	STR.					
S505	6	6	12	5'-6"	69	4	1'-8"	2'-5"	1'-5"		
S506	10	10	20	5'-6"	115	STR.					
S507	12	12	24	32'-2"	805	STR.					
S508	56	56	112	7'-5"	866	5	1'-1"	3'-2"	3'-0"	2 3/4"	
S601	2	2	4	32'-11"	198	STR.					
S602	56	56	112	3'-7"	603	6	1'-1"	1'-8"			
	4	4	8	4'-2"				3'-3"			
S603	SERIES	SERIES	SERIES	TO	606	7	1'-1"	TO			1"
	OF 11	OF 11	OF 11	5'-0"				4'-1"			
S604	16	16	32	4'-2"	200	7	1'-1"	3'-3"			
S605	56	56	112	2'-7"	434	7	1'-1"	1'-8"			
S801			56	29'-11"	4473	STR.					
S802			72	4'-9"	913	3	2'-5"	1'-5"			
				TOTAL	41,853						

NOTATION:
FA = FORWARD ABUTMENT
I.R. = INSIDE RADIUS
INC. = INCREMENT
LP = LEFT PARAPET
NBL = NORTHBOUND LANES
RA = REAR ABUTMENT
RP = RIGHT PARAPET

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST LETTER IDENTIFIES THE BAR LOCATION. THE NEXT DIGIT INDICATES THE BAR SIZE DESIGNATION. THE REMAINING DIGITS INDICATE THE SEQUENCE NUMBER.
EXAMPLE: A501
A = LOCATION OF THE BAR IN THE STRUCTURE (ABUTMENT)
5 = BAR SIZE DESIGNATION (#5, 5/8"ø)
01 = SEQUENCE NUMBER
BAR DIMENSIONS SHOWN ARE OUT-TO-OUT UNLESS NOTED. ALL REINFORCING STEEL IS TO BE EPOXY COATED. STRAIGHT BARS ARE INDICATED BY "STR."



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CONSULTING ENGINEERS — SURVEYORS

DESIGNED JSK | DRAWN JAA | REVIEWED TLS | DATE 10-04
CHECKED RAK | REVISED | STRUCTURE FILE NUMBER 7701691

SCREED ELEVATIONS & REINFORCING STEEL (NORTHBOUND LANES)
BRIDGE NO. SUM-21-0778R
S.R.21 OVER S.R.162 (COPLEY ROAD)

SUM-21-(5.69)(7.58)(7.78)

17/18

212/223

EM1484REBAR.DWG SCALE: 1:96

SCREED TABLE – SOUTHBOUND LANES

SPAN POINT		℄ BRG., RA	1/4	1/2	3/4	℄ BRG., FA
LT. CURB LINE	STA.	411+50.20	411+70.70	411+91.20	412+11.70	412+32.20
	ELEV.	1068.82	1068.90	1068.87	1068.68	1068.37
℄ BEAM NO.1	STA.	411+50.53	411+71.03	411+91.53	412+12.03	412+32.53
	ELEV.	1068.84	1068.92	1068.89	1068.70	1068.39
℄ BEAM NO.2	STA.	411+52.09	411+72.59	411+93.09	412+13.59	412+34.09
	ELEV.	1068.95	1069.03	1068.99	1068.80	1068.49
℄ BEAM NO.3	STA.	411+53.66	411+74.16	411+94.66	412+15.16	412+35.66
	ELEV.	1069.05	1069.13	1069.09	1068.90	1068.58
℄ SBL	STA.	411+55.11	411+75.61	411+96.11	412+16.61	412+37.11
	ELEV.	1069.15	1069.23	1069.19	1068.99	1068.68
℄ BEAM NO.4	STA.	411+55.22	411+75.72	411+96.22	412+16.72	412+37.22
	ELEV.	1069.14	1069.22	1069.18	1068.99	1068.67
℄ BEAM NO.5	STA.	411+56.79	411+77.29	411+97.79	412+18.29	412+38.79
	ELEV.	1069.03	1069.10	1069.06	1068.86	1068.54
℄ BEAM NO.6	STA.	411+58.35	411+78.85	411+99.35	412+19.85	412+40.35
	ELEV.	1068.91	1068.99	1068.94	1068.74	1068.42
℄ BEAM NO.7	STA.	411+59.91	411+80.41	412+00.91	412+21.41	412+41.91
	ELEV.	1068.79	1068.87	1068.82	1068.62	1068.29
℄ BEAM NO.8	STA.	411+61.48	411+81.98	412+02.48	412+22.98	412+43.48
	ELEV.	1068.68	1068.75	1068.70	1068.49	1068.17
RT. CURB LINE	STA.	411+61.81	411+82.31	412+43.51	412+64.01	412+84.51
	ELEV.	1068.65	1068.72	1068.36	1068.10	1067.72

SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED REMAINING DEAD LOAD DEFLECTIONS.

GRADE 60 EPOXY COATED REINFORCING STEEL – ABUTMENTS

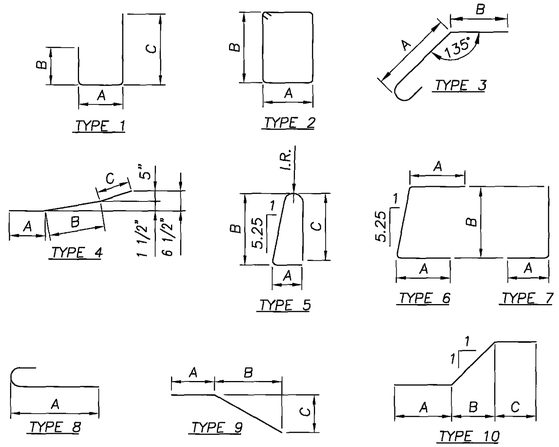
MARK	NUMBER RA	NUMBER FA	TOTAL	LENGTH	WEIGHT (LBS.)	TYPE	DIMENSIONS A	B	C	INC.
A501	45	45	90	16'–7"	1557	2	5'–6"	2'–6"		
A503		1	1	15'–1"	16	2	2'–0"	5'–3"		
		1	1	6'–1"				2'–2"	2'–2"	
A505		SERIES	SERIES	TO	24	1	2'–0"	TO	TO	9"
		OF 3	OF 3	9'–1"				3'–8"	3'–8"	
A507		4	4	9'–4"	39	STR.				
		1	1	2'–1"						
A508		SERIES	SERIES	TO	14	STR.				2'-3 1/2"
		OF 3	OF 3	6'–8"						
		1	1	2'–7"						
A509		SERIES	SERIES	TO	15	STR.				2'–3"
		OF 3	OF 3	7'–1"						
A510		1	1	8'–1"	8	STR.				
A511		1	1	8'–7"	9	9	3"	7'–5"	3'–9"	
A512	10	14	24	29'–4"	734	STR.				
A513	4	4	8	36'–4"	303	STR.				
A515	11		11	12'–10"	147	2	2'–6"	3'–8"		
A518		4	4	7'–7"	32	STR.				
A519		3	3	5'–4"	17	STR.				
A520		3	3	4'–11"	15	STR.				
A521		1	1	5'–6"	6	9	10"	4'–6"	1'-2 1/2"	
A522		1	1	5'–1"	5	9	5"	4'–6"	1'-2 1/2"	
A523				NOT USED						
A524	18		18	13'–2"	247	2	2'–6"	3'–10"		
A525	2	2	4	21'–7"	90	2	5'–6"	5'–0"		
A526	1	1	2	18'–8"	39	2	5'–6"	3'–7"		
A527	1		1	18'–7"	19	1	2'–0"	8'–5"	8'–5"	
	1		1	13'–7"				5'–11"	5'–11"	
A528	SERIES		SERIES	TO	50	1	2'–0"	TO	TO	1'–3"
	OF 3		OF 3	18'–7"				8'–5"	8'–5"	
	1	1	2	8'–1"				3'–2"	3'–2"	
A529	SERIES	SERIES	SERIES	TO	77	1	2'–0"	TO	TO	4 3/4"
	OF 4	OF 4	OF 4	10'–5"				4'–4"	4'–4"	
A530	1		1	17'–5"	18	2	5'–6"	2'–11"		
A531	2		2	6'–5"	18	STR.				
A532	3		3	4'–4"	14	STR.				
A533	3		3	4'–10"	15	STR.				
A534	1		1	4'–6"	5	STR.				
A535	1		1	4'–11"	5	9	3"	4'–6"	1'–3"	
A536	1		1	14'–1"	15	2	2'–0"	4'–9"		
A537	1		1	15'–7"	16	2	2'–0"	5'–6"		
A538	4		4	13'–11"	58	1	2'–0"	6'–1"	6'–1"	
	1		1	6'–1"				2'–2"	2'–2"	
A539	SERIES		SERIES	TO	34	1	2'–0"	TO	TO	8 3/4"
	OF 4		OF 4	10'–5"				4'–4"	4'–4"	
A540	2		2	10'–5"	22	STR.				
	1		1	3'–2"						
A541	SERIES		SERIES	TO	17	STR.				2'-3 1/2"
	OF 3		OF 3	7'–9"						
	1		1	2'–8"						
A542	SERIES		SERIES	TO	16	STR.				2'-3 1/2"
	OF 3		OF 3	7'–3"						
A543	1		1	9'–2"	10	9	10"	7'–5"	3'–9"	
A544	1		1	8'–9"	9	9	5"	7'–5"	3'–9"	
A545		1	1	17'–0"	18	2	2'–0"	6'–3"		
A546		1	1	18'–6"	19	2	2'–0"	7'–0"		
A547		3	3	17'–1"	53	1	2'–0"	7'–8"	7'–8"	
A548		16	16	16'–2"	270	2	2'–6"	5'–4"		
A549		11	11	15'–11"	183	2	2'–6"	5'–2"		
		1	1	16'–7"				7'–5"	7'–5"	
A550		SERIES	SERIES	TO	60	1	2'–0"	TO	TO	1'–3"
		OF 3	OF 3	21'–7"				9'–11"	9'–11"	
A551		1	1	21'–7"	23	1	2'–0"	9'–11"	9'–11"	
A560	9		9	13'–6"	127	2	2'–6"	4'–0"		
A561		11	11	16'–6"	189	2	2'–6"	5'–6"		
A601	16	16	32	36'–7"	1758	STR.				
A602	4	4	8	6'–5"	77	10	1'–7"	2'–6"	1'–5"	
				TOTAL	6657					

GRADE 60 EPOXY COATED REINFORCING STEEL – SUPERSTRUCTURE

MARK	NUMBER LP	NUMBER RP	TOTAL	LENGTH	WEIGHT (LBS.)	TYPE	DIMENSIONS A	B	C	I.R.	INC.
S401			432	29'–4"	8465	STR.					
S501			732	29'–4"	22,395	STR.					
S502			78	6'–7"	536	1	2'–0"	2'–5"			
S503			78	10'–4"	841	2	2'–6"	2'–5"			
S504	16	16	32	10'–0"	334	STR.					
S505	6	6	12	5'–6"	69	4	1'–8"	2'–5"	1'–5"		
S506	10	10	20	5'–6"	115	STR.					
S507	12	12	24	32'–2"	805	STR.					
S508	56	56	112	7'–5"	866	5	1'–1"	3'–2"	3'–0"	2 3/4"	
S601	2	2	4	32'–11"	198	STR.					
S602	56	56	112	3'–7"	603	6	1'–1"	1'–8"			
	4	4	8	4'–2"				3'–3"			
S603	SERIES	SERIES	SERIES	TO	606	7	1'–1"	TO			1"
	OF 11	OF 11	OF 11	5'–0"				4'–1"			
S604	16	16	32	4'–2"	200	7	1'–1"	3'–3"			
S605	56	56	112	2'–7"	434	7	1'–1"	1'–8"			
S801			56	29'–11"	4473	STR.					
S802			72	4'–9"	913	3	2'–5"	1'–5"			
				TOTAL	41,853						

NOTATION:
FA = FORWARD ABUTMENT
I.R. = INSIDE RADIUS
INC. = INCREMENT
LP = LEFT PARAPET
RA = REAR ABUTMENT
RP = RIGHT PARAPET
SBL = SOUTHBOUND LANES

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST LETTER IDENTIFIES THE BAR LOCATION. THE NEXT DIGIT INDICATES THE BAR SIZE DESIGNATION. THE REMAINING DIGITS INDICATE THE SEQUENCE NUMBER.
EXAMPLE: A501
A = LOCATION OF THE BAR IN THE STRUCTURE (ABUTMENT)
5 = BAR SIZE DESIGNATION (#5, 5/8"ø)
01 = SEQUENCE NUMBER
BAR DIMENSIONS SHOWN ARE OUT–TO–OUT UNLESS NOTED. ALL REINFORCING STEEL IS TO BE EPOXY COATED.
STRAIGHT BARS ARE INDICATED BY "STR."



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(419) 755-7300
CONSULTING ENGINEERS – SURVEYORS

DESIGNED JSK | DRAWN JAA | REVIEWED TLS | DATE 10–04

CHECKED RAK | REVISED | STRUCTURE FILE NUMBER 7701667

SCREED ELEVATIONS & REINFORCING STEEL (SOUTHBOUND LANES)

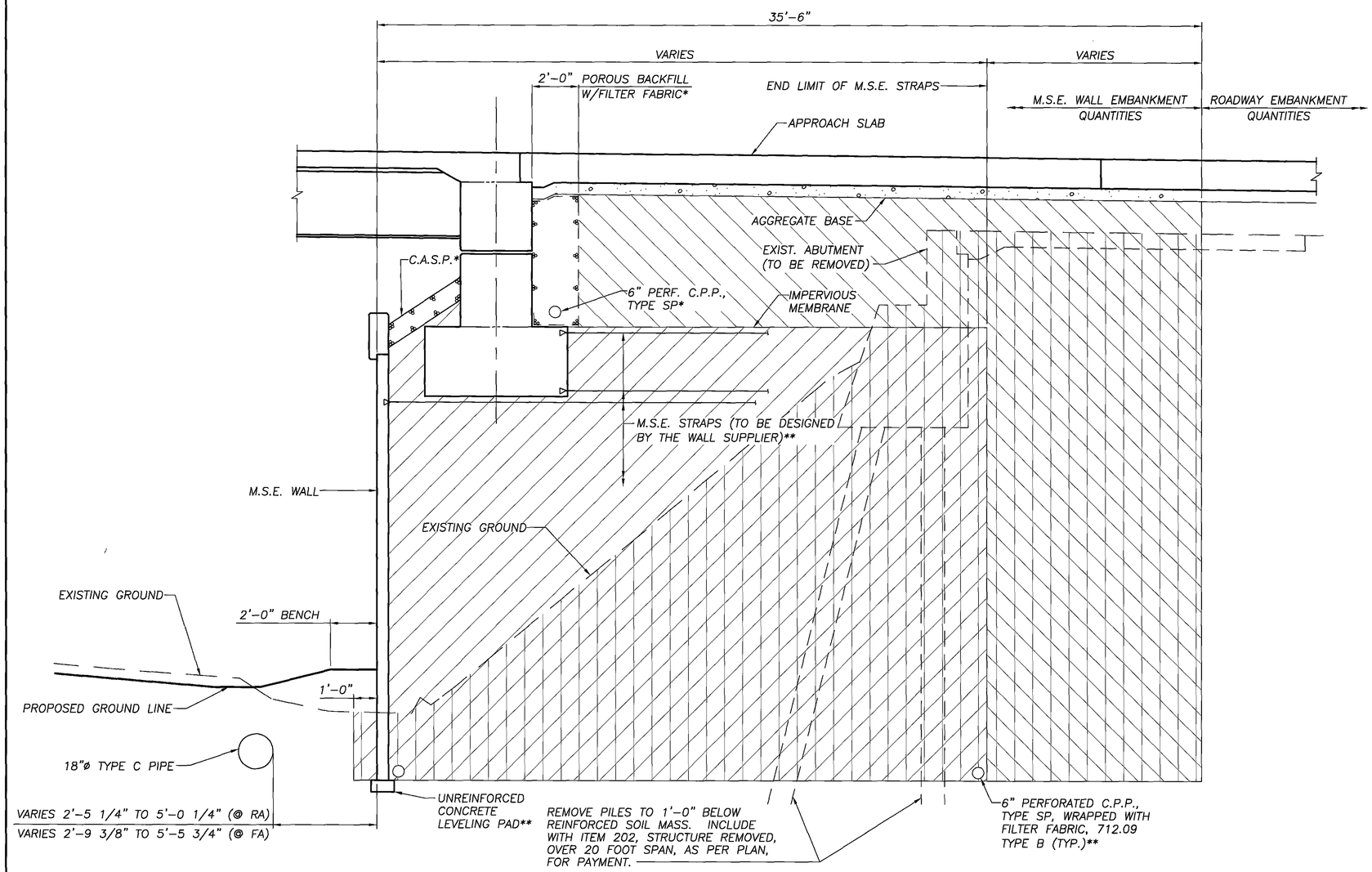
BRIDGE NO. SUM–21–0778L
S.R.21 OVER S.R.162 (COPLEY ROAD)

SUM–21–(5.69)(7.58)(7.78)

18/18

213/223

EM1484REBAR.DWG SCALE: 1:96



M.S.E. TYPICAL WALL SECTION

FORWARD ABUTMENT SHOWN,
REAR ABUTMENT SIMILAR

SUPERSTRUCTURE LOADS	
DEAD LOAD	630 KIPS
LIVE LOAD	239 KIPS
LONGITUDINAL LOAD	12 KIPS

ITEM SPECIAL, M.S.E. WALL

DESIGN SPECIFICATIONS:
THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002, AND THE O.D.O.T. BRIDGE DESIGN MANUAL.

DESIGN LOADING:
HS25, CASE II AND THE ALTERNATE MILITARY LOADING.
FUTURE WEARING SURFACE (FWS) OF 60 psf.

DESIGN SUBMITTALS:
THE CONTRACTOR IS HEREBY NOTIFIED THAT THE M.S.E. RETAINING WALL SHALL BE DESIGNED IN ACCORDANCE WITH THE DESIGN SPECIFICATIONS. AFTER THE AWARD OF THE CONTRACT, THE CONTRACTOR SHALL SUBMIT M.S.E. RETAINING WALL DETAIL DESIGNS (4 SETS), DESIGN CALCULATIONS (2 SETS) AND SHOP DRAWINGS PER 501.05 TO THE DIRECTOR. THE PLANS FOR THE RETAINING WALLS SHALL BE PREPARED BY AN O.D.O.T. APPROVED PROPRIETARY WALL SUPPLIER. THE PLANS SHALL BE SUBMITTED EIGHT WEEKS PRIOR TO THE BEGINNING OF CONSTRUCTION OF THE WALLS AND THE CONTRACTOR SHALL ALLOW FOUR WEEKS FOR THE REVIEW BY O.D.O.T.

ALLOWABLE BEARING PRESSURE FOR THE DESIGN OF THE M.S.E. WALLS IS TWO TONS PER SQUARE FOOT. IN ORDER TO ATTAIN THIS BEARING CAPACITY AT THE NORTHBOUND LANES REAR ABUTMENT AND THE SOUTHBOUND LANES FORWARD ABUTMENT, EXCAVATE EXISTING SOILS DOWN TO THE DECOMPOSED SHALE AND REPLACE WITH GRANULAR EMBANKMENT.

MAXIMUM ALLOWABLE DIFFERENTIAL SETTLEMENT IS ONE INCH.

FOR GRANULAR EMBANKMENT MATERIAL, THE VALUE FOR THE ANGLE OF INTERNAL FRICTION FOR DESIGN PURPOSES SHALL NOT EXCEED 30 DEGREES, THE UNIT WEIGHT SHALL NOT BE LESS THAN 120 POUNDS PER CUBIC FOOT AND THE SOIL COHESION SHALL BE ZERO.

ARCHITECTURAL FINISH:
THE ARCHITECTURAL FINISH FOR THE M.S.E. WALL PANELS USED ON THIS PROJECT SHALL BE ASHLAR STONE WITH A MAXIMUM RELIEF OF 1 5/8 INCH.

SEALING OF CONCRETE SURFACES (EPOXY-URETHANE):
SURFACES OF THE M.S.E. WALL, INCLUDING M.S.E WALL PANELS AND COPINGS SHALL BE SEALED WITH "LIGHT NEUTRAL" COLOR MEETING FEDERAL COLOR STANDARD 17778 PER SUPPLEMENTAL SPECIFICATION 864. THE SURFACE AREA PAY QUANTITY IS BASED ON A FLAT SURFACE.

METHOD OF MEASUREMENT:
THE QUANTITY SHALL BE SQUARE FEET OF M.S.E. WALL.

THIS ITEM INCLUDES ALL UNCLASSIFIED EXCAVATION, INCLUDING SHALE, EMBANKMENT, GRANULAR EMBANKMENT, LEVELING PAD, M.S.E. WALL PANELS AND STRAPS, COPING, DRAINAGE ITEMS AND SEALING TO COMPLETE THIS ITEM.

INCLUDE IMPERVIOUS MEMBRANE WITH ITEM 203, GRANULAR EMBANKMENT, FOR PAYMENT. SEE M.S.E. WALL PLANS FOR DRAINAGE REQUIREMENTS.

STRUCTURE EXCAVATION LIMITS FOR THE PROPOSED STRUCTURE ARE AS DEFINED IN 503.11 EXCEPT THAT THERE IS NO DEDUCTION FOR REMOVALS MADE AS PART OF 202. EXCAVATION OUTSIDE THESE LIMITS NECESSARY TO REMOVE THE EXISTING STRUCTURE IS INCLUDED IN 202 FOR PAYMENT.

COPINGS:
PLACE CONSTRUCTION JOINTS IN COPING TO ALIGN WITH EVERY OTHER PANEL JOINT. REINFORCING STEEL SHALL BE DISCONTINUOUS AT CONSTRUCTION JOINTS.

THE CONTRACTOR IS RESPONSIBLE FOR COMPLETING THE COPING REINFORCING DETAILING AND ASSOCIATED BAR LIST BASED ON THE PLAN REQUIREMENTS. PAYMENT FOR THE COPING CONCRETE AND REINFORCING IS INCLUDED WITH THE UNIT PRICE BID FOR THE M.S.E. WALLS.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

NOTATION:
C.A.S.P. = CRUSHED AGGREGATE SLOPE PROTECTION
C.P.P. = CORRUGATED POLYETHYLENE PIPE
M.S.E. = MECHANICALLY-STABILIZED EARTH
FA = FORWARD ABUTMENT
RA = REAR ABUTMENT
* INCLUDED WITH BRIDGE QUANTITIES FOR PAYMENT.
** INCLUDED WITH ITEM SPECIAL, M.S.E. WALL, FOR PAYMENT.

ITEM 203, EMBANKMENT

ITEM 203, SELECT GRANULAR EMBANKMENT

ITEM 503, UNCLASSIFIED EXCAVATION, INCLUDING SHALE WITH ITEM 203, EMBANKMENT RETURNED

ITEM 503, UNCLASSIFIED EXCAVATION, INCLUDING SHALE WITH ITEM 203, SELECT GRANULAR EMBANKMENT RETURNED

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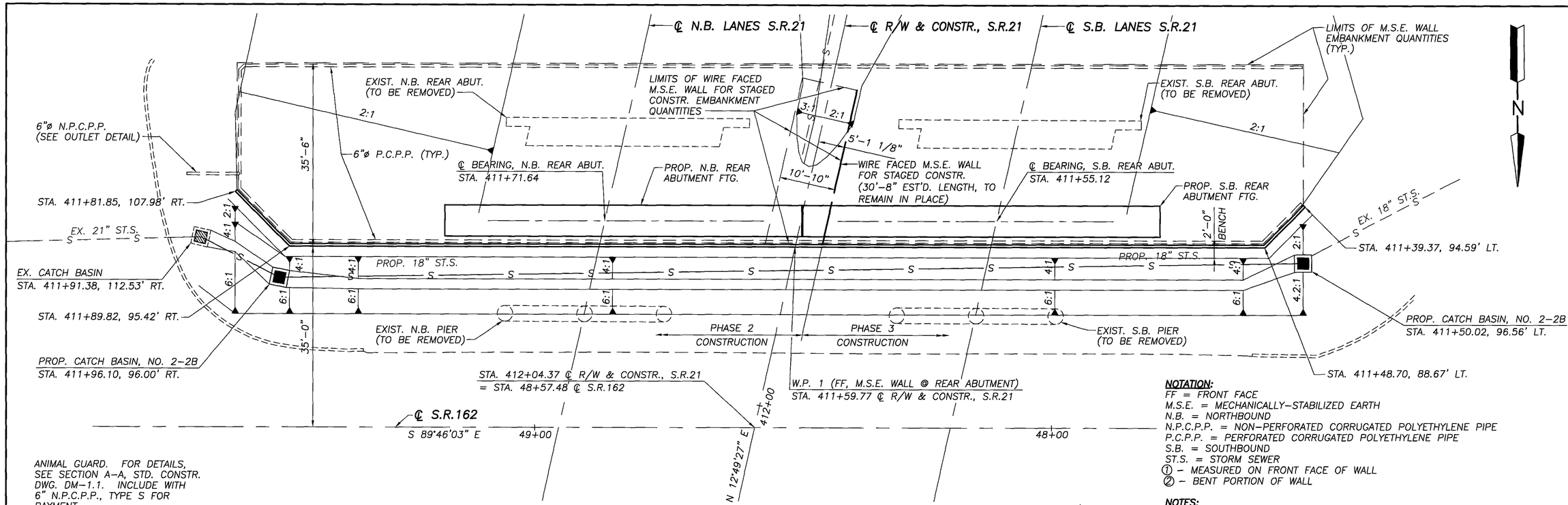
(419) 756-7302
CONSULTING ENGINEERS - SURVEYORS

DESIGNED JSK | DRAWN JSK | REVIEWED TLS 10-04 (DATE) | CHECKED RAK | REVISED | STRUCTURE FILE NUMBER N/A

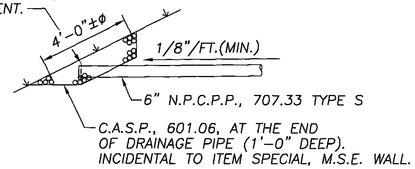
M.S.E. WALL GENERAL NOTES & TYPICAL SECTION
BRIDGE NOS. SUM-21-0778L&R
S.R.21 OVER S.R.162 (COPLEY ROAD)

SUM-21-(5.69)(7.58)(7.78)

EM1484MSE_TYP_SECT.DWG SCALE: 1:32

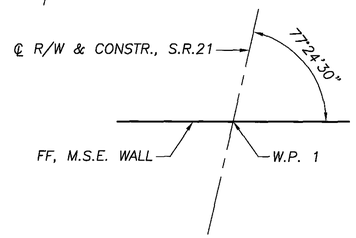


ANIMAL GUARD. FOR DETAILS, SEE SECTION A-A, STD. CONSTR. DWG. DM-1.1. INCLUDE WITH 6" N.P.C.P.P., TYPE S FOR PAYMENT.



6" N.P.C.P.P. OUTLET DETAIL

PLAN



NOTATION:
FF = FRONT FACE
M.S.E. = MECHANICALLY-STABILIZED EARTH
N.B. = NORTHBOUND
N.P.C.P.P. = NON-PERFORATED CORRUGATED POLYETHYLENE PIPE
P.C.P.P. = PERFORATED CORRUGATED POLYETHYLENE PIPE
S.B. = SOUTHBOUND
ST.S. = STORM SEWER
① - MEASURED ON FRONT FACE OF WALL
② - BENT PORTION OF WALL

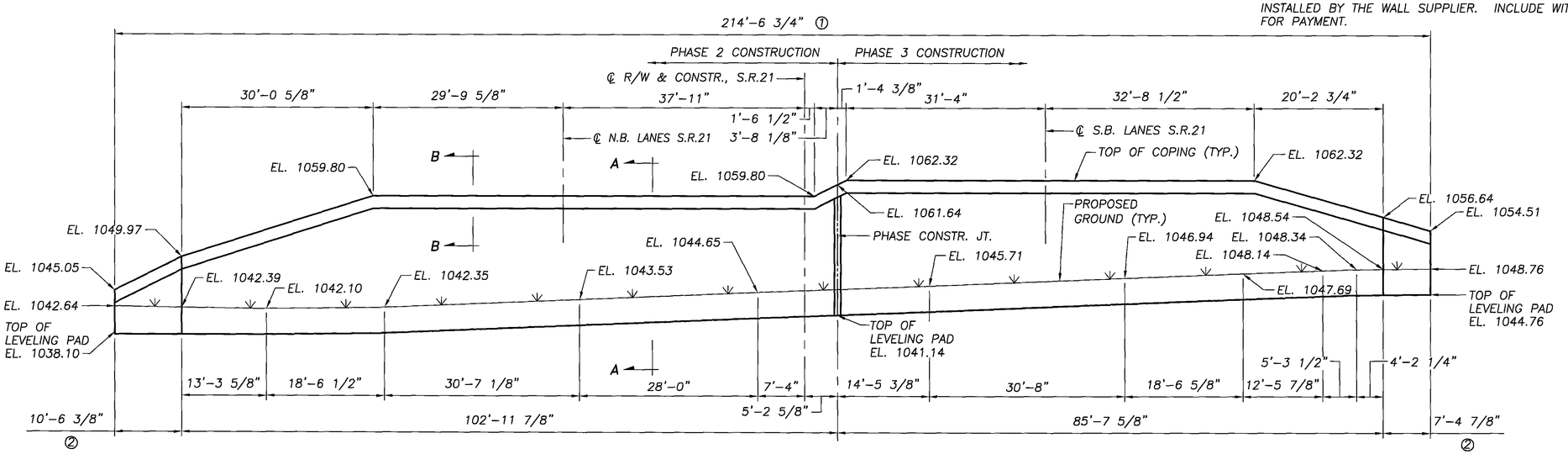
NOTES:
ALL STATIONING ON THIS SHEET IS REFERENCED TO ℄ R/W & CONSTR., S.R.21, UNLESS OTHERWISE NOTED.

FOR SECTIONS A-A AND B-B, SEE SHEET 4 OF 4.

ACTUAL LEVELING PAD STEPS AND WIDTHS TO BE DETERMINED BY WALL SUPPLIER. THE MAXIMUM NUMBER OF STEPS FOR THE WALL ON THIS SHEET IS SIX.

6" DIA. PERFORATED AND NON-PERFORATED PIPE SHALL BE SLOPED A MINIMUM OF 1/8" PER FOOT TO DRAIN. INCLUDE WITH ITEM SPECIAL, M.S.E. WALL, FOR PAYMENT.

WIRE FACED M.S.E. WALL FOR STAGED CONSTRUCTION TO BE DESIGNED AND INSTALLED BY THE WALL SUPPLIER. INCLUDE WITH ITEM SPECIAL, M.S.E. WALL, FOR PAYMENT.



M.S.E. WALL ELEVATION
(LOOKING BACK)

SCALE: 1"=20'

EM1484MSESITE_RA.DWG

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909 S. MAIN ST., P.O. BOX 3598, MANSFIELD, OHIO 44907
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CONSULTING ENGINEERS - SURVEYORS

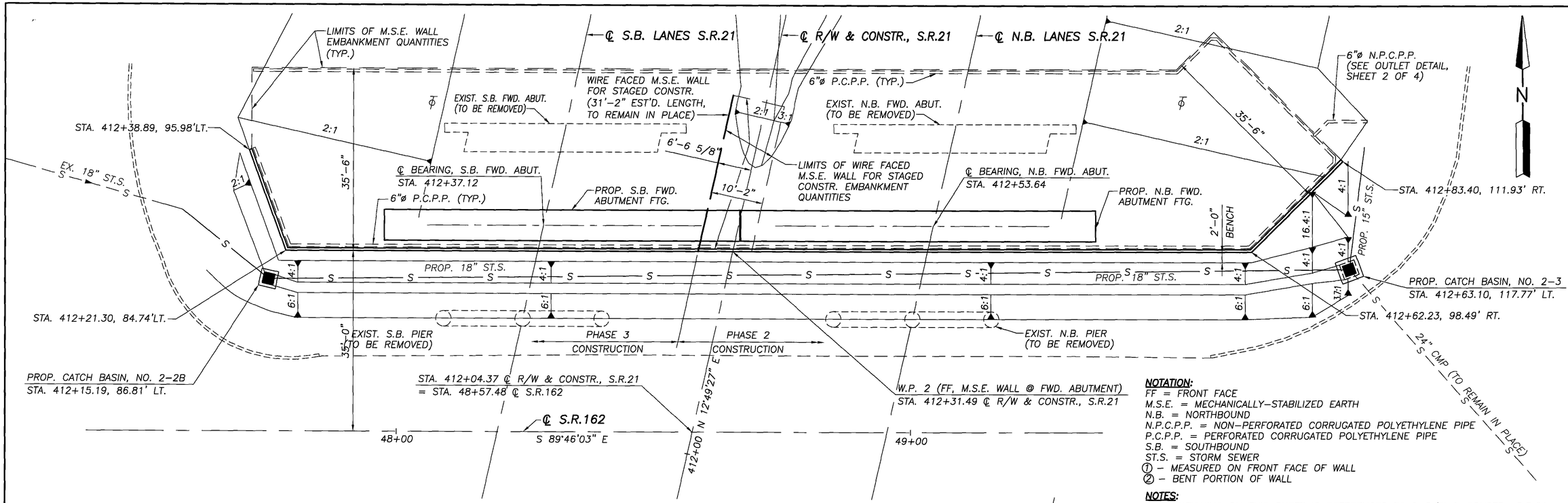
DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	10-04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		N/A	

M.S.E. WALL AT REAR ABUTMENTS
BRIDGE NOS. SUM-21-0778L&R
S.R.21 OVER S.R.162 (COPLEY ROAD)

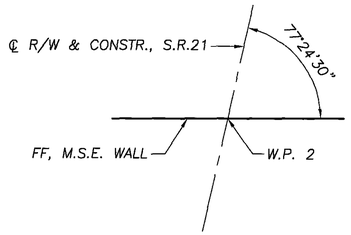
SUM-21-(5.69)(7.58)(7.78)

2/4

215
223



PLAN



NOTATION:
FF = FRONT FACE
M.S.E. = MECHANICALLY-STABILIZED EARTH
N.B. = NORTHBOUND
N.P.C.P.P. = NON-PERFORATED CORRUGATED POLYETHYLENE PIPE
P.C.P.P. = PERFORATED CORRUGATED POLYETHYLENE PIPE
S.B. = SOUTHBOUND
ST.S. = STORM SEWER
① - MEASURED ON FRONT FACE OF WALL
② - BENT PORTION OF WALL

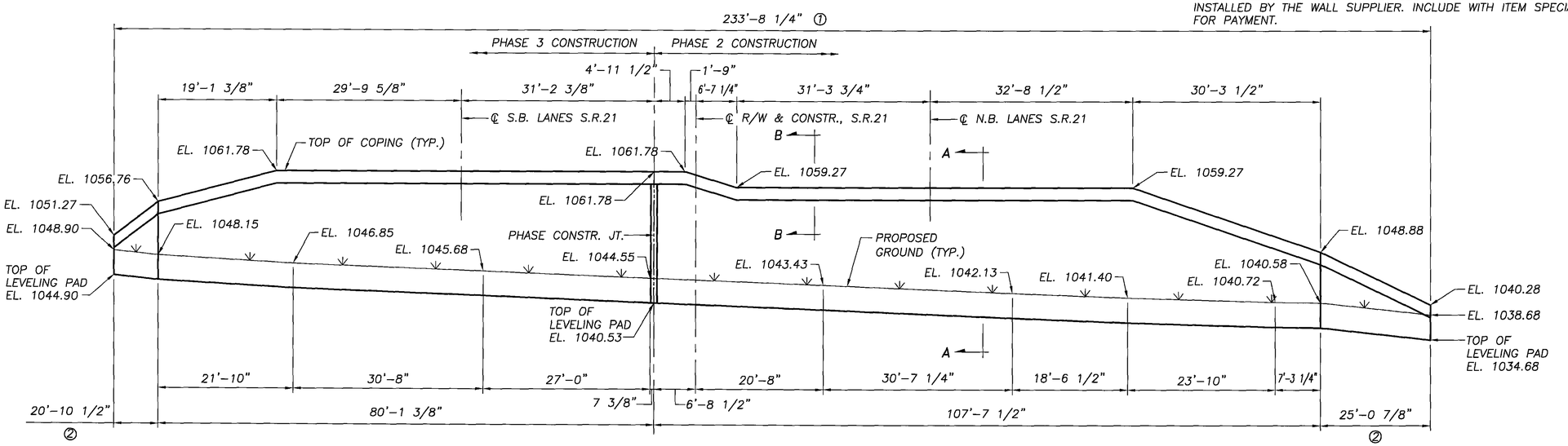
NOTES:
ALL STATIONING ON THIS SHEET IS REFERENCED TO ℄ R/W & CONSTR., S.R.21, UNLESS OTHERWISE NOTED.

FOR SECTIONS A-A AND B-B, SEE SHEET 4 OF 4.

ACTUAL LEVELING PAD STEPS AND WIDTHS TO BE DETERMINED BY WALL SUPPLIER. THE MAXIMUM NUMBER OF STEPS FOR THE WALL ON THIS SHEET IS SIX.

6" DIA. PERFORATED AND NON-PERFORATED PIPE SHALL BE SLOPED A MINIMUM OF 1/8" PER FOOT TO DRAIN. INCLUDE WITH ITEM SPECIAL, M.S.E. WALL, FOR PAYMENT.

WIRE FACED M.S.E. WALL FOR STAGED CONSTRUCTION TO BE DESIGNED AND INSTALLED BY THE WALL SUPPLIER. INCLUDE WITH ITEM SPECIAL, M.S.E. WALL, FOR PAYMENT.



M.S.E. WALL ELEVATION
(LOOKING AHEAD)

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CONSULTING ENGINEERS - SURVEYORS

DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	10-04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		N/A	

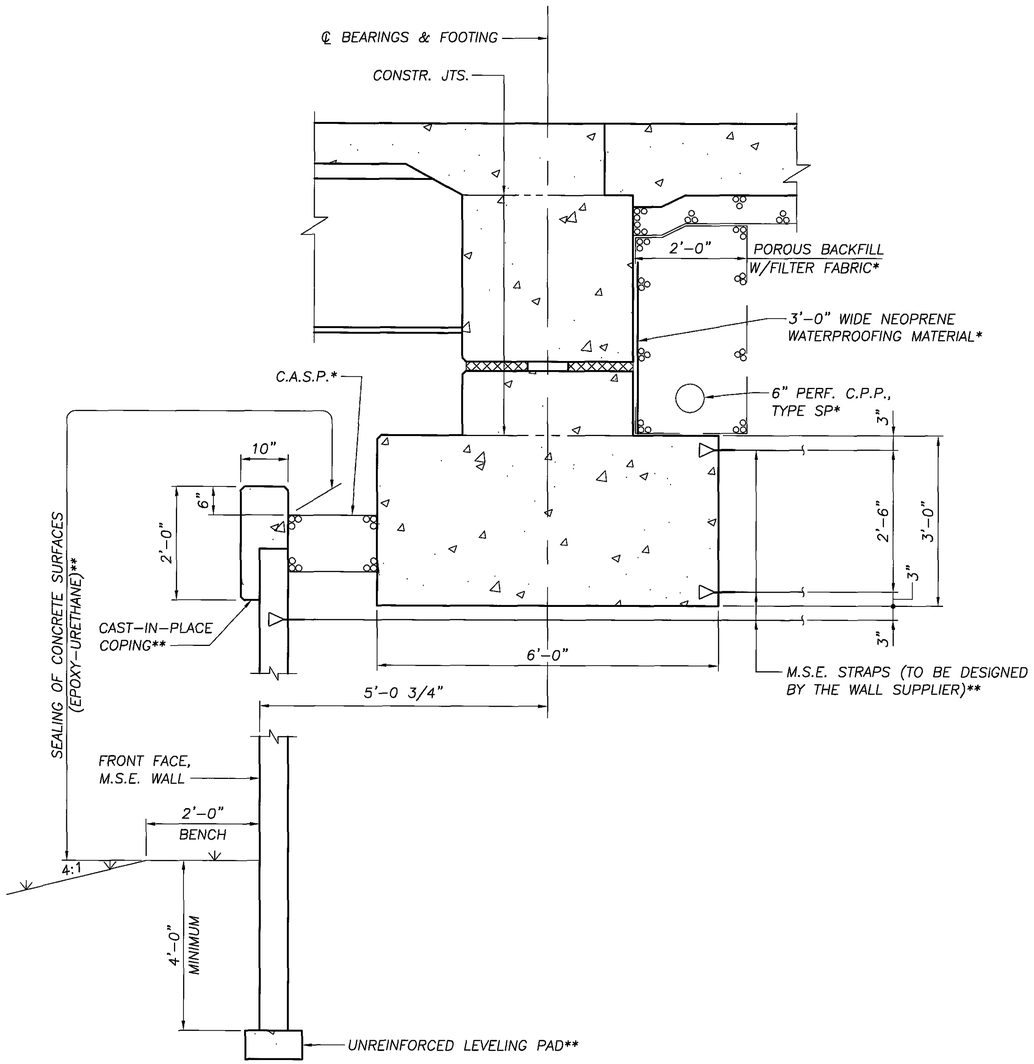
M.S.E. WALL AT FORWARD ABUTMENTS
BRIDGE NOS. SUM-21-0778L&R
S.R.21 OVER S.R.162 (COPLEY ROAD)

SUM-21-(5.69)(7.58)(7.78)

3/4

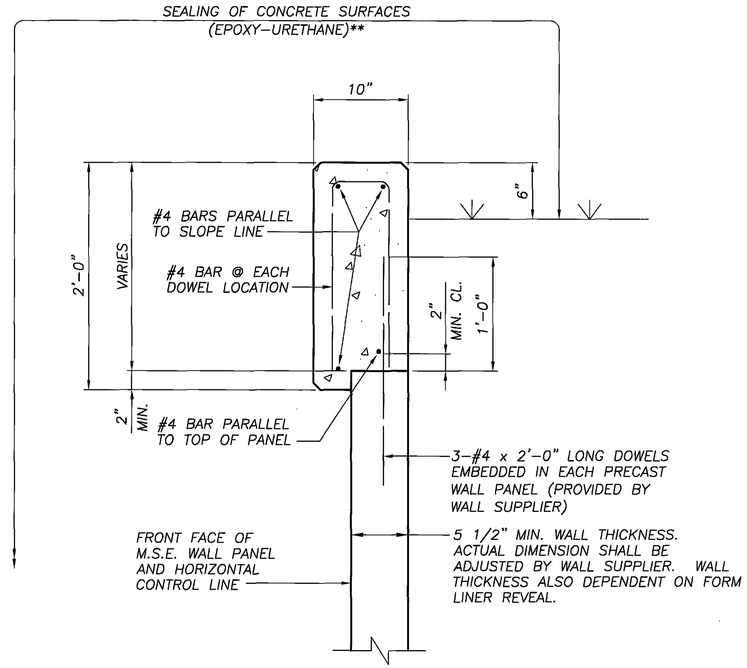
216/223

EM1484MSESITE_FA.DWG SCALE: 1"=20'



SECTION A–A

REAR ABUTMENT SHOWN,
FORWARD ABUTMENT SIMILAR



SECTION B–B

REAR ABUTMENT SHOWN,
FORWARD ABUTMENT SIMILAR

NOTES:
ATTACH M.S.E. STRAPS TO ABUTMENT FOOTING BEFORE FOOTING CONCRETE IS PLACED. POST–INSTALLATION ANCHORS ARE PROHIBITED.

* INCLUDED WITH BRIDGE QUANTITIES.

** INCLUDED WITH ITEM SPECIAL, M.S.E. WALL.

NOTATION:
C.A.S.P. = CRUSHED AGGREGATE SLOPE PROTECTION
C.P.P. = CORRUGATED POLYETHYLENE PIPE
M.S.E. = MECHANICALLY–STABILIZED EARTH

EM1484MSE_SECT.DWG SCALE: 1:16

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. – P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756–7302
CONSULTING ENGINEERS – SURVEYORS

DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	10–04
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		N/A	

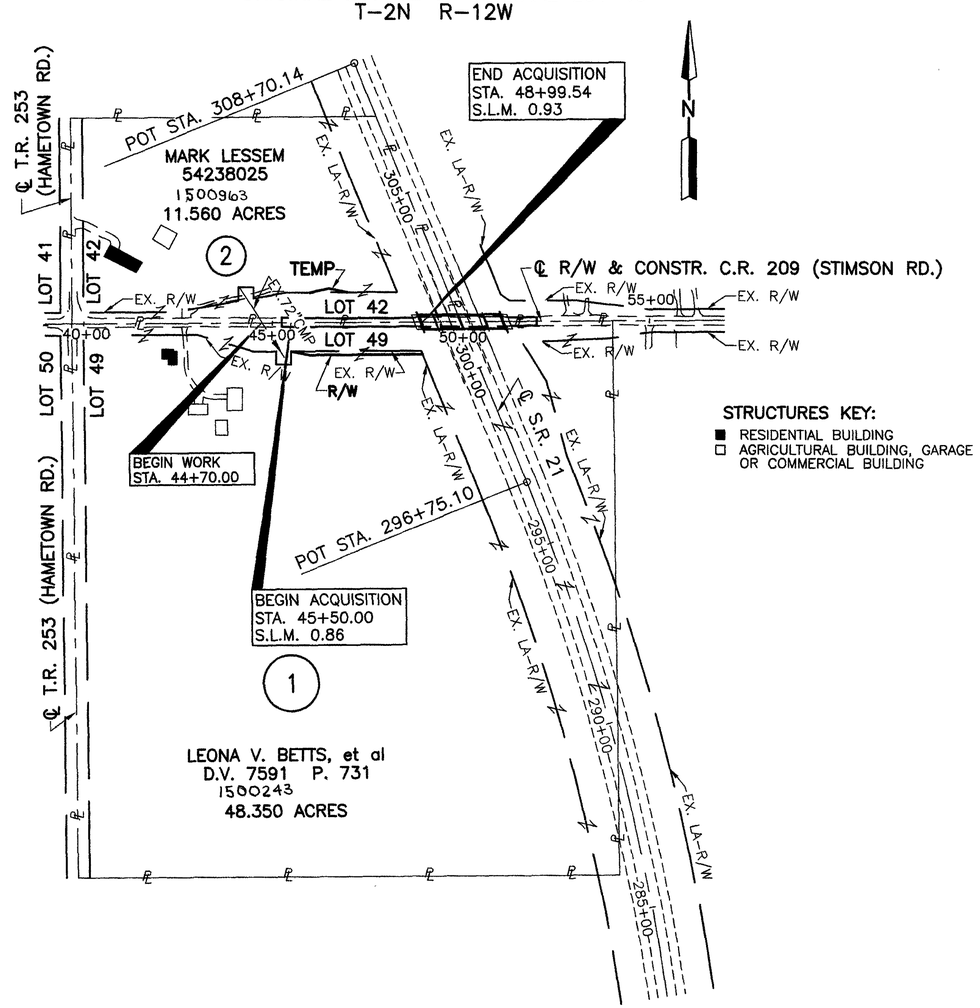
M.S.E. WALL SECTIONS & NOTES

BRIDGE NOS. SUM–21–0778L&R
S.R.21 OVER S.R.162 (COPLEY ROAD)

SUM–21–(5.69)(7.58)(7.78)

PROPERTY MAP
SUM-21-(5.69)(7.58)(7.78)

SUMMIT COUNTY, OHIO
COPLEY TOWNSHIP
ORIGINAL LOT 42 & ORIGINAL LOT 49
T-2N R-12W



STRUCTURES KEY:
- ■ RESIDENTIAL BUILDING
- □ AGRICULTURAL BUILDING, GARAGE OR COMMERCIAL BUILDING

CONVENTIONAL SIGNS

County Line
Township Line
Lot Line
Corporation Line
Fence Line (existing) (proposed)
Center Line
Trees, Stumps, (to be removed)
Utility Poles: Telephone, Power, Light
Underground Telephone
Limited Access (only) LA
Right of Way (only) R/W
Limited Access & Right of Way LA-R/W
Existing Right of Way
Property Line (in existing fence)
Railroad or
Guardrail (existing) (proposed)
Work Limits (Construction Limits) W.L.

UTILITY OWNERS

OIL & GAS
MARATHON ASHLAND PIPELINE, LLC
P.O. BOX 429
8930 MAPLEHURST DRIVE
EAST SPARTA, OHIO 44626
330-866-5525 EXT. 21

TELEPHONE
VERIZON COMMUNICATIONS
6223 NORWALK ROAD
MEDINA, OHIO 44256
330-722-9588

ELECTRIC
OHIO EDISON DISTRIBUTION
1910 WEST MARKET STREET
BUILDING 1
AKRON, OHIO 44313
330-384-4714

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

UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

ALL TEMPORARY PARCELS TO BE OF 6 MONTHS DURATION.

GRANTEE: ALL RIGHT OF WAY IS ACQUIRED IN THE NAME OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION.

NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE.

SUMMARY OF ADDITIONAL RIGHT OF WAY

TOTAL NO. OF OWNERS = 4 | TOTAL NO. OF TOTAL TAKES = 0 | TOTAL NO. OF OWNERS WITH STRUCTURES = 0 | TOTAL NO. OF OWNERS WITH PERSONALTY ITEMS (P)= 0

PARCEL NO.	OWNER	AUDITOR'S PARCEL	TYPE FUND	OWNERS RECORD BOOK	OWNERS RECORD PAGE	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUCTURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	SHEET NO.	REMARKS AND PERSONALTY	AS ACQUIRED BOOK	AS ACQUIRED PAGE
1SH	LEONA V. BETTS et al	1500243	STATE	7591	731	48.350	11.210	0.074	0.000	0.074	NO	-----	37.066	2			
2T	MARC LESSEM	1500963	STATE	54238025		11.560	3.205	0.012	0.000	0.012	NO	8.355	-----	2	GRADING		

REV.	DATE	DESCRIPTION
TWW	3/10/03	REVISE AUDITOR'S PARCEL No. 1 and 2

DATE OF COMPLETION: 12-23-02

HORIZONTAL SCALE IN FEET: 0, 200, 400

FEDERAL PROJECT NO.

P.I.D. NO. 13837

STATE JOB NO. 044680

R/W DESIGNER R.L.S.

R/W REVIEWER K.A.A.

PROPERTY MAP AND SUMMARY OF ADDITIONAL RIGHT OF WAY SUM-21-5.69 (STIMSON RD.)

SUM-21-(5.69)(7.58)(7.78)

1/6

218
223

EM1481P.DWG 1"=200'

SUMMIT COUNTY, OHIO
COPLEY TWP.
ORIGINAL LOT 42 &
ORIGINAL LOT 49
T-2N R-12W

2

MARK LESSEM
54238025
1500963
11.560 ACRES

OVERGROWN/SMALL TREES & BRUSH

2T

95.00' LT. 44+10.00
95.00' LT. 44+50.00
65.00' LT. 44+50.00
80.00' LT. 45+40.00
80.00' LT. 46+00.00
N 78°13'40" E T 50.99'
100.00'
S 89°32'16" W
90.00' LT. 46+50.00
S 79°09'09" E T 50.99'
80.00' LT. 47+00.00
80.00' LT. 48+32.82

EX. 24" CMP
EX. R/W
CONST. LIMITS
EX. 72" CMP
4" GASOLINE LINE
GASOLINE LINE MARKER
58.33' LT. 44+10.00
WOVEN WIRE FENCE

ORIGINAL LOT 42
ORIGINAL LOT 49
℄ R/W & CONSTR. C.R. 209 (STIMSON RD.)
N 89° 32' 16" E
44+00 45+00 46+00 47+00 48+00 49+00

MONUMENT FOUND
STA. 308+70.14, ℄
EX. LA-R/W
℄ SOUTHBOUND LANES
℄ NORTHBOUND LANES
℄ S.R. 21
EX. C.B.
EX. 33" CMP
S 22° 28' 44" E 179.58'
P.V. 46, PGS. 198-203
4-6" PINES
4" PINE
6" PINE
3-6" PINES
104.50'
12" ASH
℄ 48+95.50
16" ASH
S 00° 27' 44" E 75.00'
STA. 301+30.56 S.R. 21=
STA. 50+00.00 C.R. 209
12" ELM & 2-4" & 2-6" PINES
EX. LA-R/W
10.79'

BEGIN WORK
STA. 44+70.00

75.00' RT. 44+50.00
75.00' RT. 45+10.00
110.00' RT. 45+10.00
FALLOW

BEGIN ACQUISITION
STA. 45+50.00
S.L.M. 0.86

75.00' RT. 45+50.00
110.00' RT. 45+50.00
85.00' RT. 46+00.00
I.P.S.
50.99'
N 79°09'09" W
16" ELM
N 89°32'16" E 345.49'
S 89°32'16" W 299.54'
R/W

1SH

75.00' RT. 48+95.50
85.00' RT. 48+99.54
P.S.
S 22° 28' 44" E

END ACQUISITION
STA. 48+99.54
S.L.M. 0.93

1

LEONA V. BETTS, et al
D.V. 7591 P. 731
1500243
40.490 ACRES
FALLOW

MONUMENT FOUND
STA. 296+75.10, ℄ S.R. 21

REMOVE ALL FENCE WITHIN THE CONSTRUCTION LIMITS UNDER 201 - CLEARING AND GRUBBING.

BASIS FOR BEARINGS

GRID BEARING AS PER THE OHIO STATE PLANE COORDINATE SYSTEM NORTH ZONE (3401) NAD83(95)

NOTE: EXISTING RIGHT OF WAY LOCATION AND WIDTH DETERMINED FROM:
- RIGHT OF WAY PLANS FOR SUM-21-4.31
- PLAT VOLUME 46, PAGES 198-203

MONUMENT LEGEND

M	MONUMENT FOUND
M	MONUMENT ASSEMBLY SET, SEE SHEET NO. FOR LOCATIONS.
O I.P.F.	IRON PIN FOUND
● I.P.S.	3/4"X30" REINFORCING BAR SET W/1 1/2" ALUMINUM CAP STAMPED "ODOT R/W, S.J.L. INC. 7052"
	RAILROAD SPIKE FOUND
	RAILROAD SPIKE SET
° P.K.F.	P.K. NAIL FOUND
° P.K.S.	P.K. NAIL SET
◎	CONCRETE MONUMENT FOUND

REV.	DATE	DESCRIPTION
TWW	3/10/03	REVISE AUDITOR'S PARCEL No. 1 and 2

DATE OF COMPLETION: 12-23-02

N

HORIZONTAL SCALE IN FEET
0 20 40

R/W DESIGNER R.L.S.
R/W REVIEWER K.A.A.

P.I.D. NO 13837

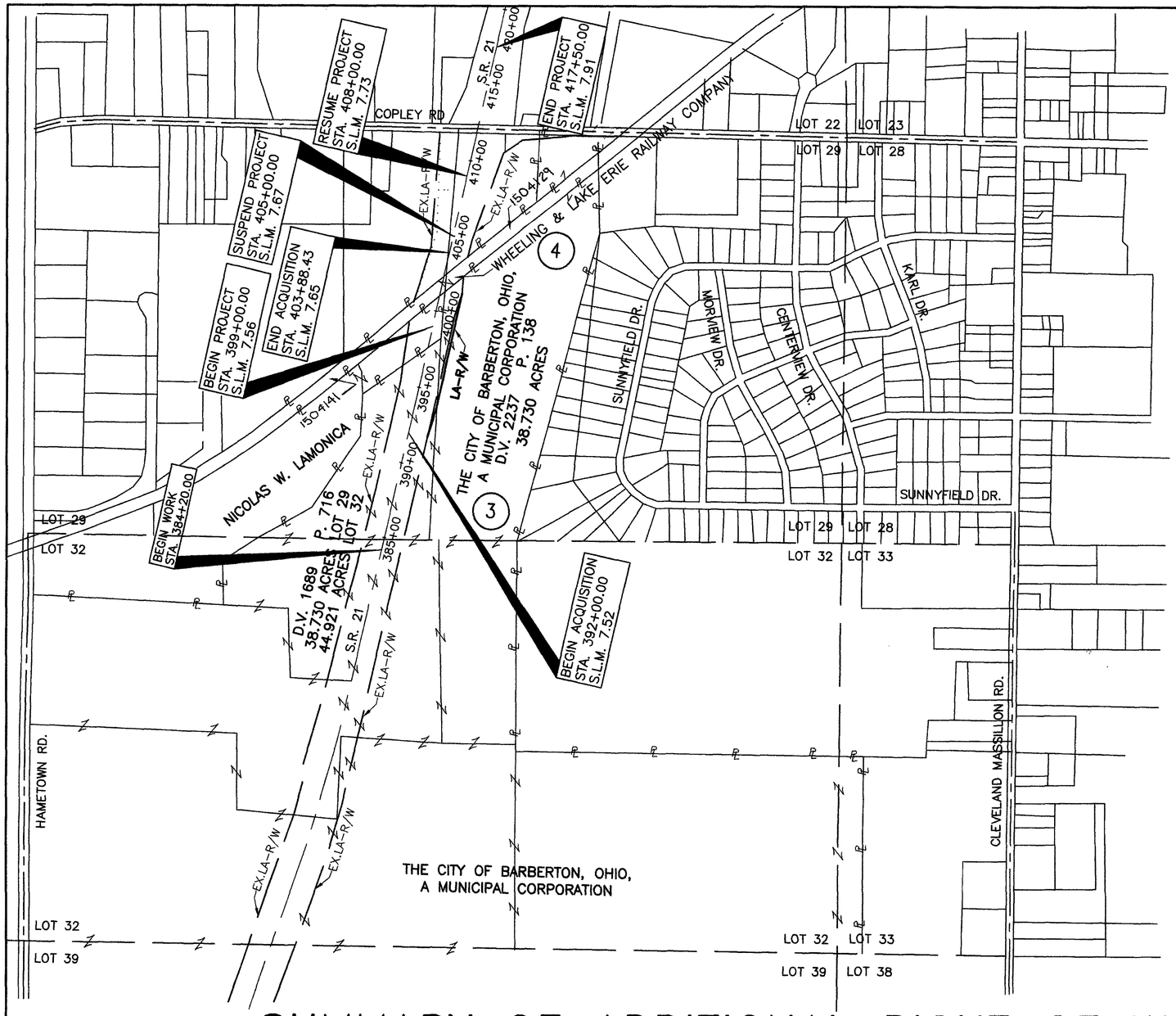
RIGHT OF WAY PLAN SUM-21-5.69 (STIMSON RD.)
STA. 44+00.00 TO STA. 50+00.00

SUM-21-(5.69)(7.58)(7.78)

2 / 6

219 / 223

EM1481RW.DWG 1:20 scale



PROPERTY MAP

SUM-21-(5.69)(7.58)(7.78)

SUMMIT COUNTY, OHIO
COPLEY TOWNSHIP
ORIGINAL LOT 29
T-2N R-12W

CONVENTIONAL SIGNS

County Line
Township Line
Lot Line
Corporation Line
Fence Line (existing) (proposed)
Center Line
Trees, Stumps (to be removed)
Utility Poles: Telephone, Power, Light
Underground Telephone
Limited Access (only) LA
Right of Way (only) R/W
Limited Access & Right of Way LA-R/W
Existing Right of Way Ex. R/W
Property Line (in existing fence)
Railroad
Guardrail (existing) (proposed)
Work Limits (Construction Limits) W.L.

STRUCTURES KEY:

- ■ RESIDENTIAL BUILDING
- □ AGRICULTURAL BUILDING, GARAGE OR COMMERCIAL BUILDING

UTILITY OWNERS

TELEPHONE/COMMUNICATIONS
WILLIAMS COMMUNICATIONS
161 TARBELL ROAD
AKRON, OHIO 44303
330-256-4035

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

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ALL TEMPORARY PARCELS TO BE OF 6 MONTHS DURATION.

GRANTEE: ALL RIGHT OF WAY IS ACQUIRED IN THE NAME OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION.

NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE.

SUMMARY OF ADDITIONAL RIGHT OF WAY

TOTAL NO. OF OWNERS = 4 TOTAL NO. OF TOTAL TAKES = 0 TOTAL NO. OF OWNERS WITH STRUCTURES = 0 TOTAL NO. OF OWNERS WITH PERSONALTY ITEMS (P)= 0

PARCEL NO.	OWNER	AUDITOR'S PARCEL	TYPE FUND	OWNERS RECORD BOOK	OWNERS RECORD PAGE	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUCTURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	SHEET NO.	REMARKS AND PERSONALTY	AS ACQUIRED BOOK	AS ACQUIRED PAGE
3LA	THE CITY OF BARBERTON, OHIO,	1500573	STATE	1689	716	60.936	0.000	0.056	0.000	0.056	NO	-----	84.407	2 & 3			
	A MUNICIPAL CORPORATION			2237	138	38.730	0.146	0.211	0.000	0.211							
					TOTAL	-----	0.146	0.267	0.000	0.267		-----	-----		RECORD AREA: 16.013 AC. IN LOT 29 & 44.921 AC. IN LOT 32		
4SH	WHEELING & LAKE ERIE RAILWAY COMPANY	1504141	STATE	613	17	5.470	-----	0.249	0.242	0.007	NO	-----	-----	4			
		1504129				2.820	-----	0.200	0.193	0.007		-----	-----				
					TOTAL	-----	-----	0.449	0.435	0.014		-----	-----				
4T								0.242	0.000	0.242				4	GRADING		
4T-1								0.152	0.000	0.152				4	GRADING		

REV.	DATE	DESCRIPTION
TWW	3/10/03	REVISE AUDITOR'S PARCEL No. 3 and 4

DATE OF COMPLETION: 12-23-02

N

HORIZONTAL SCALE IN FEET 0 400 800

FEDERAL PROJECT NO.

P.I.D. NO. 13837

STATE JOB NO. 044680

R/W DESIGNER R.L.S.

R/W REVIEWER K.A.A.

PROPERTY MAP AND SUMMARY OF ADDITIONAL RIGHT OF WAY SUM-21-7.58

SUM-21-(5.69)(7.58)(7.78)

3/6

220/223

EM1482P.DWG 1"=200'

SUMMIT COUNTY, OHIO
COPLEY TWP.
ORIGINAL LOT 29
T–2N R–12W

RESUME WORK
STA. 372+15.00

THE CITY OF BARBERTON, OHIO,
A MUNICIPAL CORPORTATION
D.V. 1689 P.716
60.934 ACRES

OVERGROWN/SMALL TREES & BRUSH

NICHOLAS W. LAMONICA

EX. R/W
WOVEN WIRE FENCE
EX. R/W
EX. R/W
CONST. LIMITS
CONST. LIMITS
CONST. LIMITS
℄ SOUTHBOUND LANES
CONST. LIMITS

MONUMENT FOUND
@ STA. 388+44.41, ℄
355.59'

℄
STA. 392+00.00

392+00
393+00
394+00
395+00
396+00

℄ R/W & CONSTR. S.R.21
N 12°49'27" E
P.V. 46, PGS. 198–203

℄ NORTHBOUND LANES

CONST. LIMITS
CONST. LIMITS
CONST. LIMITS

125.00'
S 77°10'33" E

MATCH LINE STA. 397+00 SEE SHEET NO. 3

BEGIN ACQUISITION
STA. 392+00.00
S.L.M. 7.52

CONST. LIMITS
EX. R/W
I.P.S.
125.00' RT.
392+00.00
200.56'
S 17°06'48" W
LA–R/W
WOVEN WIRE FENCE
N 12°49'27" E
800.00'
CONST. LIMITS
EX. R/W
I.P.S.
140.00' RT.
394+00.00
LA–R/W
750.00'
S 12°49'27" W
CONST. LIMITS
EX. R/W
LA–R/W
3LA

3

OVERGROWN/SMALL TREES & BRUSH

THE CITY OF BARBERTON, OHIO,
A MUNICIPAL CORPORTATION
D.V. 2237 P.138
38.73 ACRES

REMOVE ALL FENCE WITHIN THE CONSTRUCTION LIMITS UNDER 201 – CLEARING AND GRUBBING.

BASIS FOR BEARINGS

GRID BEARING AS PER THE OHIO STATE PLANE COORDINATE SYSTEM NORTH ZONE (3401) NAD83(95)

NOTE: EXISTING RIGHT OF WAY LOCATION AND WIDTH DETERMINED FROM:
– RIGHT OF WAY PLANS FOR SUM–21–4.31
– PLAT VOLUME 46, PAGES 198–203

MONUMENT LEGEND

Ⓜ	MONUMENT FOUND
Ⓜ	MONUMENT ASSEMBLY SET, SEE SHEET NO. FOR LOCATIONS.
○ I.P.F.	IRON PIN FOUND
● I.P.S.	3/4"X30" REINFORCING BAR SET W/1 1/2" ALUMINUM CAP STAMPED "ODOT R/W, S.J.L. INC. 7052"
⌀	RAILROAD SPIKE FOUND
⌀	RAILROAD SPIKE SET
○ P.K.F.	P.K. NAIL FOUND
• P.K.S.	P.K. NAIL SET
◎	CONCRETE MONUMENT FOUND

REV.	DATE	DESCRIPTION

DATE OF COMPLETION: 12–23–02

HORIZONTAL SCALE IN FEET
0 20 40

R/W DESIGNER R.L.S.
R/W REVIEWER K.A.A.

P.I.D. NO 13837

RIGHT OF WAY PLAN SUM–21–7.58
STA. 392+00.00 TO STA. 397+00.00

SUM–21–(5.69)97.58)(7.78)

4 / 6

221 / 223

EM1482RW1.DWG 1:20 scale

SUM–21–(5.69)(7.58)(7.78)

SUMMIT COUNTY, OHIO
COPLEY TWP.
ORIGINAL LOT 29
T–2N R–12W

NICHOLAS W. LAMONICA

GERALD K. WIRTH

EX. R/W

EX. LA–R/W

WOVEN WIRE FENCE

CONST. LIMITS

43+00 ℄ R/W WHEELING & LAKE ERIE RAILWAY COMPANY

UNDERGROUND FIBER OPTICS CABLE

WHEELING & LAKE ERIE RAILWAY COMPANY

44+00

STA. 401+72.09 ℄ S.R. 21 =
STA. 46+06.49 ℄ WHEELING & LAKE ERIE RW. CO.

RESUME PROJECT
STA. 399+00.00
S.L.M. 7.56

OVERGROWN/SMALL TREES & BRUSH

FIBER OPTIC MARKER

TEL

4

R/W

14" ASH

S 50°25'57" W

37°36'30"

33'

47'

46+00

℄ SOUTHBOUND LANES

MONUMENT FOUND
@ STA. 399+99.72, 1.60' LT.

℄ R/W & CONSTR. S.R.21

N 12°49'27" E

P.V. 46, PGS. 198–203

398+00 399+00 400+00 401+00 402+00

MONUMENT FOUND
@ STA. 411+00.22, 1.08' RT.

MATCH LINE STA. 397+00 SEE SHEET NO. 2

℄ NORTHBOUND LANES

47+00

D.V. 1689 P.716
60.934 ACRES

N 12°49'27" E
800.00'

WOVEN WIRE FENCE

750.00'
S 12°49'27" W

LA–R/W

N 18°32'05" E
150.75'

I.P.S.

108.38'
S 04°52'08" W

140.00' RT.
401+50.00

125.00' RT.
402+57.34

3LA

3

125.00'
400+00.00

OVERGROWN/SMALL TREES & BRUSH

THE CITY OF BARBERTON, OHIO,
A MUNICIPAL CORPORTATION
D.V. 2237 P.138
38.73 ACRES

BASIS FOR BEARINGS

GRID BEARING AS PER THE OHIO STATE PLANE COORDINATE SYSTEM NORTH ZONE (3401) NAD83(95)

NOTE: EXISTING RIGHT OF WAY LOCATION AND WIDTH DETERMINED FROM:
– RIGHT OF WAY PLANS FOR SUM–21–4.31
– PLAT VOLUME 46, PAGES 198–203

REMOVE ALL FENCE WITHIN THE CONSTRUCTION LIMITS UNDER 201 – CLEARING AND GRUBBING.

MONUMENT LEGEND

M	MONUMENT FOUND
M	MONUMENT ASSEMBLY SET, SEE SHEET NO. FOR LOCATIONS.
○ I.P.F.	IRON PIN FOUND
● I.P.S.	3/4"X30" REINFORCING BAR SET W/1 1/2" ALUMINUM CAP STAMPED "ODOT R/W, S.J.L. INC. 7052"
⌀	RAILROAD SPIKE FOUND
⌀	RAILROAD SPIKE SET
○ P.K.F.	P.K. NAIL FOUND
• P.K.S.	P.K. NAIL SET
◎	CONCRETE MONUMENT FOUND

REV.	DATE	DESCRIPTION

DATE OF COMPLETION: 12–23–02

HORIZONTAL SCALE IN FEET 0 20 40

R/W DESIGNER R.L.S.

R/W REVIEWER K.A.A.

P.I.D. NO 13837

RIGHT OF WAY PLAN SUM–21–7.58
STA. 397+00.00 TO STA. 402+00.00

SUM–21–(5.69)(7.58)(7.78)

5 / 6

222 / 223

EM1482RW2.DWG 1:20 scale

SUMMIT COUNTY, OHIO
COPLEY TWP.
ORIGINAL LOT 29
T–2N R–12W

NICHOLAS W. LAMONICA

155.00' LT.
398+93.86 S.R.21
47.00' RT.
42+91.49 RR.

℄ R/W WHEELING & LAKE ERIE RAILWAY COMPANY

N 12°49'27" E
131.09'

EXEX. R/W

155.00' LT.
400+24.95 S.R.21
33.00' LT.
43+95.34 RR.

WHEELING & LAKE ERIE RAILWAY COMPANY
CP-00027-01-004.000
O.R.V. 613 P. 17
5.470 ACRES

74.50' LT.
401+29.45 S.R.21
33.00' LT.
45+27.25 RR.

EX. LA–R/W
WOVEN WIRE FENCE
EX. LA–R/W

CONST. LIMITS
WOVEN WIRE FENCE
74.50' LT.
399+98.36 S.R.21
47.00' RT.
44+23.40 RR.
72.25 LT.
401+01.29 S.R.21
47.00' RT.
44+27.09 RR.

131.91'
4T
131.91'
4
CONST. LIMITS
CONST. LIMITS
12" MAPLE
12" ELM
14" MAPLE
18" MAPLE
CONST. LIMITS
72.25' LT.
401+32.38 S.R.21
33.00' LT.
45+30.94 RR.

END ACQUISITION
STA. 403+88.43
S.L.M. 7.65

STA. 401+72.09 ℄S.R. 21=
STA. 46+06.49 ℄ WHEELING & LAKE ERIE RW. CO.

14" ASH

3.69'
FIBER OPTIC MARKER
TEL
EX. R/W
I.P.S.
N 12°49'27" E 131.09'
R/W
S 12°49'27" W 131.09'
I.P.S.
3.69'
CONST. LIMITS
45+00
UNDERGROUND FIBER OPTICS CABLE
APPROXIMATE LOCATION EX. GAS LINE
N 77°10'33" W
74.50'
S 50°25'57" W
244.16'
37°36'30"
N 50°25'57" E
244.16'
15"

MONUMENT FOUND
@ STA. 388+44.41, ℄
1153.95'
℄
399+98.36
MONUMENT FOUND
@ STA. 399+99.72, 1.60' LT.
399+00
400+00
401+00
N 12°49'27" E
46+00
4SH
402+00
℄ R/W & CONSTR. S.R.21
403+00
EX. CB.
404+00
MONUMENT FOUND
@ STA. 411+00.22, 1.08' RT.

℄ NORTHBOUND LANES

RESUME PROJECT
STA. 399+00.00
S.L.M. 7.56

3.69'
S 50°25'57" W
47+00
N 12°49'27" E 131.09'
R/W
N 12°49'27" E 131.09'
I.P.S.
CONST. LIMITS
WHISTLE POST
EX. R/W
I.P.S.
3.69'
72.25' RT.
403+19.95 S.R.21
74.50' RT.
403+22.88 S.R.21
33.00' LT.
47+67.72 RR.
33.00' LT.
47+71.41 RR.
12" PINE
CONST. LIMITS
EX. LA–R/W

72.25' RT.
401+88.86 S.R.21
74.50' RT.
401+91.78 S.R.21
47.00' RT.
46+63.87 RR.
47.00' RT.
46+67.56 RR.
82.75'
4T–1
82.75'
APPROXIMATE LOCATION EX. GAS LINE
FIBER OPTIC MARKER
TEL
CONST. LIMITS
48+00
131.09'
S 12°49'27" W
WOVEN WIRE FENCE
EX. LA–R/W
CONST. LIMITS
CONST. LIMITS
EX. LA–R/W
LA–R/W
LA–R/W
EX. LA–R/W
125.00' RT.
402+57.34 S.R.21
47.00' RT.
47+50.31 RR.
GAS VENT
CP-00021-03-002.000
O.R.V. 11182 P. 80
2.280 ACRES
NICK J. PLEVRIS &
EMILIA PLEVRIS
33'
47'
49+00
EX. R/W
125.00' RT.
403+88.43 S.R.21
33.00' LT.
48+54.16 RR.

3

THE CITY OF BARBERTON, OHIO,
A MUNICIPAL CORPORTATION
D.V. 2237 P.138
38.73 ACRES

OVERGROWN/SMALL TREES & BRUSH

REMOVE ALL FENCE WITHIN THE CONSTRUCTION LIMITS UNDER 201 – CLEARING AND GRUBBING.

MONUMENT LEGEND

[M]	MONUMENT FOUND
[M]	MONUMENT ASSEMBLY SET, SEE SHEET NO. FOR LOCATIONS.
○ I.P.F.	IRON PIN FOUND
● I.P.S.	3/4"X30" REINFORCING BAR SET W/1 1/2" ALUMINUM CAP STAMPED "ODOT R/W, S.J.L. INC. 7052"
⌀	RAILROAD SPIKE FOUND
⌀	RAILROAD SPIKE SET
○ P.K.F.	P.K. NAIL FOUND
• P.K.S.	P.K. NAIL SET
◎	CONCRETE MONUMENT FOUND

BASIS FOR BEARINGS

GRID BEARING AS PER THE OHIO STATE PLANE COORDINATE SYSTEM NORTH ZONE (3401) NAD83(95)

NOTE: EXISTING RIGHT OF WAY LOCATION AND WIDTH DETERMINED FROM:
- RIGHT OF WAY PLANS FOR SUM–21–4.31
- PLAT VOLUME 46, PAGES 198–203

PARCEL NO.	EASEMENT REQUIRED	TOTAL AREA	AREA OF OVERLAP	
			HIGHWAY	TEMPORARY
4SH	HIGHWAY	0.249 AC.	0.242 AC.	——
4T	TEMPORARY	0.242 AC.	——	——
4T–1	TEMPORARY	0.152 AC.	——	——

REV.	DATE	DESCRIPTION
		DATE OF COMPLETION: 12–23–02

HORIZONTAL SCALE IN FEET
0 20 40

R/W DESIGNER R.L.S.
R/W REVIEWER K.A.A.

RAILROAD PLAT SUM–21–7.58
WHEELING AND LAKE ERIE RAILROAD

SUM–21–(5.69)(7.58)(7.78)

6 / 6

223 / 223

EM1482W3.DWG 1:20 scale

GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE GLACIATED, GENTLY ROLLING ALLEGHENY PLATEAU, AT ELEVATIONS RANGING FROM 1048.8 TO 1078.6 FEET. THE EXISTING BRIDGE SUM-21-0569 OVERPASSES SR-21 ALONG STIMSON ROAD (CR-209) IN COPLEY TOWNSHIP, SUMMIT COUNTY, OHIO. THE WISCONSIN ICE SHEET PASSED OVER THE AREA, LEAVING A LAYER OF DRIFT RANGING FROM 50 TO 200 FEET IN THICKNESS.

EXPLORATION

THE EXPLORATION CONSISTED OF FIVE (5) DRIVE SAMPLE-CORE BORINGS MADE BY MEANS OF A MECHANICALLY POWERED HOLLOW-STEM ROTARY AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED IN LATER JANUARY 2003.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

THREE (3) STRUCTURE TEST BORINGS NOTED AS B-1 THROUGH B-3 NEXT TO THE EXISTING BRIDGE PIERS WERE ADVANCED FOR BRIDGE STRUCTURE WIDENING PURPOSE. TWO (2) TEST BORINGS NOTED AS S-1 AND S-2 WERE ADVANCED ALONG STIMSON ROAD FOR PAVEMENT DESIGN PURPOSE.

THE THREE STRUCTURAL TEST BORINGS WERE ADVANCED DIRECTLY THROUGH THE SUBGRADE SOILS OUTSIDE THE ROADWAY PAVEMENT AREAS IN THE VICINITY OF PROPOSED ADDITIONAL PIER LOCATIONS. NINE (9) INCHES OF ASPHALT PAVEMENT AND SIX (6) INCHES OF BASE MATERIAL CONSISTING OF CINDERS, SLAG, AND GRAVEL WAS FOUND IN THE ROADWAY BORING S-1. SIX (6) INCHES OF ASPHALT WITH FOUR (4) INCHES OF BASE MATERIAL SIMILAR TO THAT IN S-1 WAS FOUND IN TEST BORING S-2. TOPSOIL WAS NOT ENCOUNTERED IN ANY OF THE TEST BORINGS DRILLED FOR THIS BRIDGE.

IN STRUCTURE BORINGS, SOILS ENCOUNTERED WERE SANDY SILT (A-4A), SILT AND CLAY (A-6A), COARSE AND FINE SAND (A-3A), GRAVEL AND/OR STONE FRAGMENTS WITH SAND (A-1-B), AND GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT (A-2-4). BEDROCK WAS ENCOUNTERED IN ALL THREE STRUCTURE TEST BORINGS.

IN TEST BORING B-1, GRAY DECOMPOSED SHALE WAS FOUND BETWEEN THE DEPTHS OF 14.0 AND 21.7 (OR ELEV. 1034.9 AND 1027.2) FEET. GRAY, MODERATELY HARD WEATHERED SHALE WAS FOUND BETWEEN THE DEPTHS OF 21.7 AND 23.0 (OR ELEV. 1027.2 AND 1025.9) FEET. GRAY, HARD SILTY SHALE WAS ENCOUNTERED AT 23.0 (OR ELEV. 1025.9) FEET. TEST BORING WAS TERMINATED IN SILTY SHALE AT A DEPTH OF 35.0 (OR ELEV. 1013.9) FEET.

IN TEST BORING B-2, BROWN, HARD, VERY FINE-GRAIN SANDSTONE WAS FOUND BETWEEN THE DEPTHS OF 15.2 AND 18.5 (OR ELEV. 1036.9 AND 1033.6) FEET. GRAY, SOFT TO MODERATELY HARD SILTY SHALE WAS ENCOUNTERED BETWEEN THE DEPTHS OF 18.5 AND 24.3 (OR ELEV. 1033.6 AND 1027.8) FEET. SOME HARD THIN SANDSTONE INTERBEDS RANGING FROM ONE TO THREE INCHES IN THICKNESS WERE ENCOUNTERED IN THIS LAYER. GRAY, HARD SILTY SHALE WAS FOUND AT A DEPTH OF 24.3 (OR ELEV. 1027.8) FEET. TEST BORING WAS TERMINATED IN SILTY SHALE AT A DEPTH OF 32.0 (OR ELEV. 1020.1) FEET.

IN TEST BORING B-3, BROWN/GRAY TO LIGHT GRAY, HARD SANDSTONE WAS FOUND BETWEEN THE DEPTHS OF 8.8 AND 20.0 (OR ELEV. 1042.6 AND 1031.4) FEET. THE SANDSTONE CHANGED FROM A MEDIUM-GRAIN TO A VERY FINE-GRAIN AT 18.5 (OR ELEV. 1032.9) FEET. BORING WAS TERMINATED IN SANDSTONE AT DEPTH OF 20.0 (OR ELEV. 1031.4) FEET.

THE OVERALL CONSISTENCY OF THE COHESIVE SOILS FOR THE STRUCTURAL TEST BORINGS WAS FOUND TO RANGE FROM "SOFT" TO "HARD," BUT WAS PREDOMINANTLY "MEDIUM STIFF." THE OVERALL RELATIVE DENSITY OF NON-COHESIVE SOILS WAS FOUND TO RANGE FROM "MEDIUM DENSE" TO "VERY DENSE," BUT WAS PREDOMINANTLY "MEDIUM DENSE." ACCORDING TO THE ELEVATION INFORMATION, TOP OF ROCK BETWEEN TEST BORINGS B-1 THROUGH B-3 IS GENERALLY SLOPING WESTWARD.

UNCONFINED COMPRESSIVE STRENGTH TEST WAS PERFORMED ON THREE (3) ROCK CORE SAMPLES OBTAINED FROM TEST BORINGS B-1, B-2 AND B-3. UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORES WAS FOUND TO RANGE FROM 4091 TO 5018 PSI. ROCK POINT LOAD TESTING WAS PERFORMED IN ORDER TO ESTIMATE STRENGTH OF SHORT ROCK CORE SECTIONS. THE ESTIMATED COMPRESSIVE STRENGTH WAS FOUND TO BE 9436 PSI.

IN ROADWAY TEST BORINGS S-1 AND S-2, SANDY SILT (A-4A) AND SILT AND CLAY (A-6A) WERE ENCOUNTERED. BOTH ROADWAY TEST BORINGS WERE TERMINATED AT A DEPTH OF 10.0 FEET WITHOUT ENCOUNTERING BEDROCK.

THE OVERALL CONSISTENCY OF THE COHESIVE SOILS FOR THE ROADWAY TEST BORINGS WAS FOUND TO RANGE FROM "MEDIUM STIFF" TO "VERY STIFF." NON-COHESIVE SOILS WERE NOT ENCOUNTERED IN THE ROADWAY TEST BORINGS.

NO WATER WAS ENCOUNTERED IN THE ROADWAY BORINGS. FREE WATER WAS ENCOUNTERED IN ALL THE STRUCTURAL TEST BORINGS RANGING FROM ELEVATIONS 1042.5 TO 1048.9 FEET, DURING DRILLING OPERATION. WATER WAS ENCOUNTERED UPON COMPLETION OF DRILLING OPERATIONS IN THE STRUCTURAL TEST BORINGS RANGING FROM ELEVATIONS 1039.9 TO 1049.4 FEET.

FOR SPECIFIC SUBSURFACE CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS THAT FORM A PART OF THESE PLANS.

SYMBOLS OF ROCK TYPES

COAL	WEATHERED SANDSTONE
WEATHERED MUDSTONE	SANDSTONE
MUDSTONE	LEACHED DOLOMITE
WEATHERED SHALE	DOLOMITE
SHALE	LEACHED LIMESTONE
CLAYSTONE	LIMESTONE
SILTSTONE	BOULDERS or COBBLES

PARTICLE SIZE DEFINITIONS

12.0 IN.	3.0 IN.	0.0787 IN.		0.0165 IN.	0.0029 IN.	0.0002 IN.
BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
			No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE	

NOTES

ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATIONS SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF MATERIALS MANAGEMENT AT 1600 WEST BROAD STREET, THE OFFICE OF ROADWAY ENGINEERING OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET, COLUMBUS, OHIO 43223.

GENERAL INFORMATION

DRIVE SAMPLES

DRIVE SAMPLE BORINGS ARE MADE BY MEANS OF A MECHANICALLY-POWERED, ROTARY-TYPE DRILL RIG EMPLOYING A 2.0 in O.D., 1.4 in I.D., SPLIT-SPOON SAMPLER, AT CONTINUOUS, 2.5 ft AND/OR 5.0 ft DEPTH INTERVALS, DRIVEN BY MEANS OF A 140 lb HAMMER WITH A FREE FALL OF 2.5 ft. THE NUMBER OF BLOWS REQUIRED TO DRIVE THE SAMPLER THREE 0.5 ft INCREMENTS IS CONSIDERED THE STANDARD PENETRATION TEST.

PRESS SAMPLES

PRESS SAMPLES ARE TAKEN BY MEANS OF MECHANICALLY POWERED, ROTARY-TYPE DRILL RIG, EMPLOYING A 3 in O.D. THIN-WALL PRESS SAMPLING TUBE. THE PRESS SAMPLING TUBE IS ADVANCED BY CONTINUOS UNIFORM PRESSURE APPLIED BY THE DRILL RIG.

CORE BORINGS

CORE BORINGS ARE MADE BY MEANS OF A MECHANICALLY-POWERED, ROTARY-TYPE DRILL RIG, EMPLOYING AN NX, NW AND/OR HX CORE BARREL WITH AN INDUSTRIAL DIAMOND CUTTING HEAD.

SAMPLING AND TESTING

THE BORING LOG SHEETS SHOW A GRAPHIC PLOT OF THE INFORMATION OBTAINED, INCLUDING DEPTH AND ELEVATION OF THE SAMPLE, TYPE OF SAMPLE, NUMBER OF BLOWS FOR THE STANDARD PENETRATION TEST IN THREE 0.5 ft INCREMENTS, AND A SAMPLE DESCRIPTION BASED ON LABORATORY TEST RESULTS, UTILIZING THE ODOT CLASSIFICATION SYSTEM. RESULTS OF STRENGTH AND CONSOLIDATION TESTING, IF PERFORMED ON UNDISTURBED SAMPLES, APPEAR GRAPHICALLY ON SEPARATE ENCLOSURES. ROCK SAMPLES ARE DISPLAYED ON THE LOG SHEETS, INCLUDING DEPTH AND ELEVATION OF THE SAMPLE, AMOUNT OF RECOVERY, AND A VISUAL CLASSIFICATION BASED ON THE TYPE, COLOR, DEGREE OF HARDNESS, GRAIN SIZE, DETERIORATION, BEDDING, ACID REACTION, AND OTHER QUALIFYING FACTORS.

AT DEPTHS WHERE MATERIALS ARE BOULDERY OR GRAVELY TO THE EXTENT THAT A SAMPLER CANNOT BE UTILIZED, A WASH SAMPLE IS PROCURED AND VISUALLY CLASSIFIED, IN ORDER TO DETERMINE THE GENERAL CHARACTERISTIC OF THE MATERIAL. THESE SAMPLES ARE NOT CONSIDERED SUFFICIENTLY REPRESENTATIVE TO WARRANT LABORATORY TESTING.

LEGEND

- AUGER BORING LOCATION–PLAN VIEW.
- PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION–PLAN VIEW.
- TR — TOP OF ROCK
- CAPPED PILE
- FOOTING
- FOOTING ON PILE
- ST — SHELBY TUBE
- SS — SPLIT SPOON
- HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN.
- X/Y/Z — FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST.
  - X = NO. OF BLOWS FOR FIRST 0.5 ft
  - Y = NO. OF BLOWS FOR SECOND 0.5 ft
  - Z = NO. OF BLOWS FOR THIRD 0.5 ft
- W — INDICATES FREE WATER ELEVATION
- INDICATES STATIC WATER ELEVATION

J&L LABORATORIES, INC.
GEOTECHNICAL CONSULTING & TESTING
215 RAINBOW STREET
WADSWORTH, OH 44281-1444

DRAWN	REVIEW-1	DATE	CALCULATED	CHECKED
LLC	BR	04/02/03	--	JX

J&L PROJECT	REVIEW-2
JL03382	SB

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE SUM-21-0569
CR 209 (STIMSON ROAD) OVER SR 21

SUM-21-(5.69)(7.58)(7.78)

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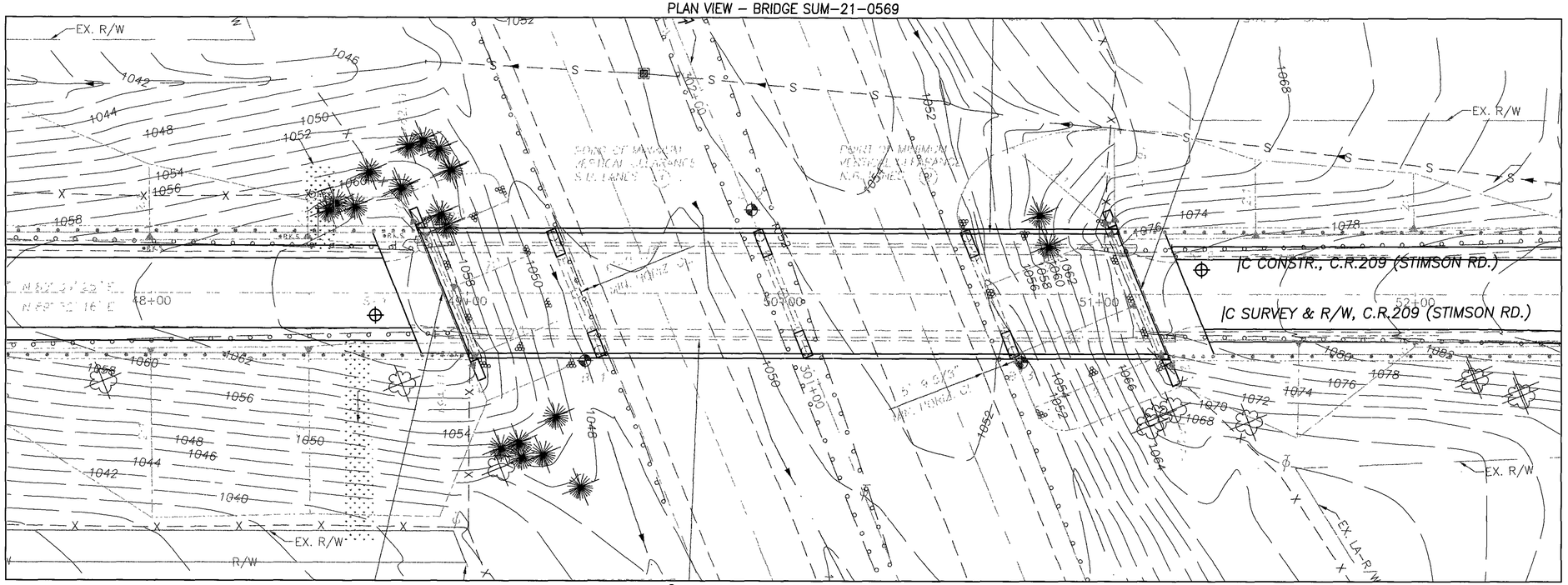
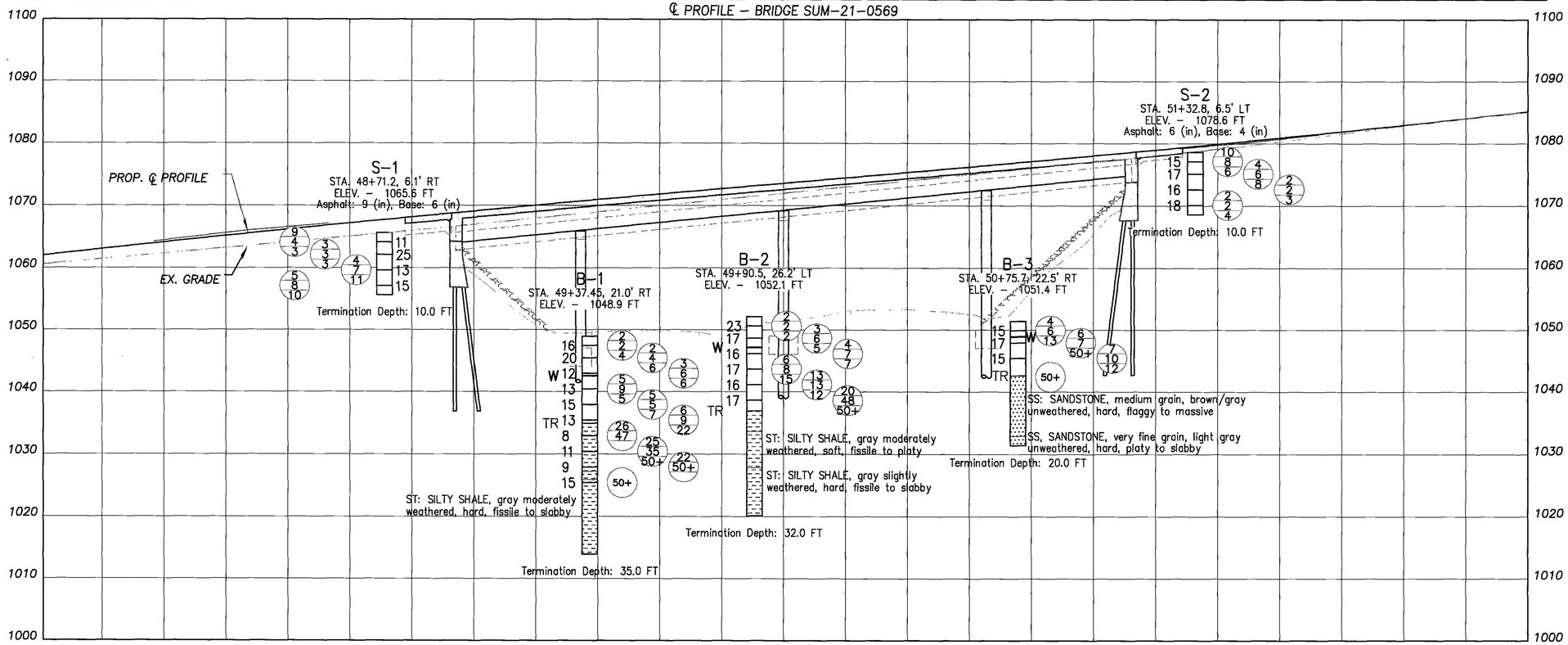
PLAN VIEW – BRIDGE SUM-21-0569



℄ PROFILE – BRIDGE SUM-21-0569



PLAN AND PROFILE DATA PROVIDED BY SJL & ASSOCIATES, INC. ON 03/14/2003 AND 12/17/2004

HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 10'

DRAWN	REVIEWED	DATE	CALCULATED
LLC	SB	04/02/03	--
J&L PROJECT	**REVIEWED-2**	**REVISED**	**CHECKED**
JL03382	BR	12/18/04	JX

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE SUM-21-0569
CR 209 (STIMSON ROAD) OVER SR 21

SUM-21-(5.69)(7.58)(7.78)

2 / 3

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LOG OF BORING

Date Started: 1/24/03
Date Completed: 1/24/03
Boring No.: B-1

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1048.9 (ft)
Water Elev.: 1042.5 (ft)
Station & Offset: 49+37.5, 21.0' RT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1048.9	0.0														
1045.4		2-2-4			A6a: Brown, medium stiff SILT AND CLAY, some sand, little gravel, odorless, no reaction with HCl, moist. (FILL)	1	–	–	–	–	–	–	–	16	VISUAL
	5.0	2-4-6			A4a: Dark gray, stiff SANDY SILT, little clay, gravel and sandstone fragments, odorless, no reaction with HCl, moist.	2	11	10	23	*	56	28	9	20	A-4a
1042.5		3-6-6			A-1-b: Brown, medium dense GRAVEL AND SILTSTONE FRAGMENTS WITH SAND, moist.	3	13	40	24	*	23	–	–	12	A-1-b
1040.4						4	11	18	29	*	42	NP	NP	13	A-4a
	10.0	5-9-5			A-4a: Brown, stiff SANDY SILT, little siltstone fragments, little to trace clay, no reaction with HCl, moist.	5	–	–	–	–	–	–	–	15	VISUAL
		5-5-7													
1034.9		6-9-22				6	–	–	–	–	–	–	–	13	VISUAL
	15.0				DxSh: DECOMPOSED SHALE, clayey, gray, soft.	7	–	–	–	–	–	–	–	8	VISUAL
		26-47													
	20.0	25-23-50/5"				8	–	–	–	–	–	–	–	11	VISUAL
1027.2		22-50/5"				9	–	–	–	–	–	–	–	9	VISUAL
1025.9					WxSh: WEATHERED SHALE, silty, gray, moderately hard.										
	25.0	50/5"				10	–	–	–	–	–	–	–	15	VISUAL
		69%	10.0	0.0	Sh: SILTY SHALE, gray, moderately weathered, hard, fissile to slabby.										
	30.0														
1013.9	35.0														

TERMINATION DEPTH: 35.0 (ft)

LOG OF BORING

Date Started: 1/23/03
Date Completed: 1/23/03
Boring No.: B-2

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1052.1 (ft)
Water Elev.: 1047.1 (ft)
Station & Offset: 49+90.5, 26.2' LT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1052.1	0.0														
1049.1		2-2-2			A6a: Brown, soft SILT AND CLAY, some sand, trace gravel, moist. (FILL)	1	9	8	20	*	63	30	11	23	A-6a
1047.6	5.0	3-6-5			A6a: Black/gray, stiff SILT AND CLAY, some sand, trace gravel, moist.	2	–	–	–	–	–	–	–	17	VISUAL
		4-7-7			A3a: Brown, medium dense COARSE AND FINE SAND, little fines, trace gravel, odorless, no reaction with HCl, moist.	3	–	–	–	–	–	–	–	16	VISUAL
	10.0	6-8-15				4	0	40	42	*	18	–	–	17	A-3a
		13-13-12				5	–	–	–	–	–	–	–	16	VISUAL
1038.1					A-1-b: Brown, very dense SANDSTONE FRAGMENTS WITH SAND, moist.										
1036.9	15.0	20-48-50/3"				6	10	46	24	*	20	–	–	17	A-1-b
		25%	10.0	0.0	SS: FINE GRAIN SANDSTONE, brown, slightly weathered, hard, platy to flaggy.										
1033.6	20.0	0%			Sh: SILTY SHALE, gray, moderately weathered, soft to mederately hard, fissile to platy.										
1027.8	25.0	59%			Sh: SILTY SHALE, gray, slightly weathered, hard, fissile to slabby.										
	30.0		5.0	0.0											
1020.1															

TERMINATION DEPTH: 32.0 (ft)

LOG OF BORING

Date Started: 1/23/03
Date Completed: 1/23/03
Boring No.: B-3

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1051.4 (ft)
Water Elev.: 1048.9 (ft)
Station & Offset: 50+75.7, 22.5' RT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1051.4	0.0														
1048.4		4-6-13			A3a: Brown, medium dense COARSE AND FINE SAND, some sandstone fragments, little fines, odorless, moist to wet.	1T	–	–	–	–	–	–	–	15	VISUAL
						1B	27	2	54	*	17	–	–	15	A-3a
1046.4	5.0	6-7-50/4"			A-4a: Brown, stiff SANDY SILT, some clay, trace gravel and sandstone fragments, moist.	2T	5	4	6	*	85	27	8	17	A-4a
1044.9					A-2-4: Brown, medium dense GRAVEL AND SANDSTONE FRAGMENTS WITH SAND AND SILT	2B	47	9	12	*	32	–	–	9	A-2-4
		7-10-12				3T	–	–	–	–	–	–	–	15	VISUAL
1042.6					A-6a: Brown and gray, very stiff SILT AND CLAY, some sand, little fragments, moist.	3B	–	–	–	–	–	–	–	14	VISUAL
	10.0	50/2"				4	–	–	–	–	–	–	–	–	VISUAL
		94%	10.0	0.0	SS: SANDSTONE, medium grain, brown/gray, some quartz gravel inclusions, unweathered, hard, flaggy to massive.										
1032.9	15.0														
1031.4	20.0	85%			SS: SANDSTONE, very fine grain, light gray, some quartz gravel inclusions, hard, platy to slabby.										

TERMINATION DEPTH: 20.0 (ft)

LOG OF BORING

Date Started: 1/23/03
Date Completed: 1/23/03
Boring No.: S-1

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1065.6 (ft)
Water Elev.: Not Encountered
Station & Offset: 48+71.2, 6.1' RT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1065.6	0.0														
1064.3					Asphalt: 9 (in), Base: 6 (in)										
		9-4-3			A-4a: Brown, medium stiff SANDY SILT, some clay, trace gravel, moist. (Possible FILL)	1T	–	–	–	–	–	–	–	11	VISUAL
1062.1						1B	5	4	13	46	32	29	9	21	A-4a
		3-3-3			A-6a: Brown, medium stiff SILT AND CLAY, little sand, trace gravel, moist.	2	6	5	11	43	35	33	15	25	A-6a
1060.1	5.0														
		4-7-11			A6a: Brown, very stiff SILT AND CLAY, some sand, little gravel, moist.	3	–	–	–	–	–	–	–	13	VISUAL
		5-8-10				4	16	11	20	*	53	28	12	15	A-6a
1055.6	10.0														

TERMINATION DEPTH: 10.0 (ft)

LOG OF BORING

Date Started: 1/23/03
Date Completed: 1/23/03
Boring No.: S-2

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1078.6 (ft)
Water Elev.: Not Encountered
Station & Offset: 51+32.8, 6.5' LT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1078.6	0.0														
1077.8					Asphalt: 6 (in), Base: 4 (in)										
		10-8-6			A6a: Brown, stiff SILT AND CLAY, some sand, little gravel, odorless, no reaction with HCl, homogeneous soil structure, moist.	1	13	9	17	34	27	27	11	15	A-6a
		4-6-8				2	–	–	–	–	–	–	–	17	VISUAL
1073.1	5.0														
		2-2-3			A4a: Brown, medium stiff SANDY SILT, some clay, trace gravel and siltstone fragments, moist.	3	5	10	25	*	60	27	10	16	A-4a
1068.6	10.0	2-2-4				4	–	–	–	–	–	–	–	18	VISUAL

TERMINATION DEPTH: 10.0 (ft)

UNCONFINED COMPRESSIVE STRENGTH OF TESTED ROCK

TEST BORING	ELEVATION (FT)	COMPRESSIVE STRENGTH (PSI)	TEST METHOD*
B-1	1016.7	5018	UC
B-2	1035.3	4873	UC
B-2	1030.4 TO 1020.6	9436	PL
B-3	1040.5	4091	UC

NOTE:
- UC=UNCONFINED COMPRESSIVE STRENGTH TEST.
- PL – POINT LOAD TEST

J&L LABORATORIES, INC.
GEOTECHNICAL CONSULTING & TESTING
215 RAINBOW STREET
WADSWORTH, OH 44281-1444

CALCULATED: --
CHECKED: JX
DATE: 04/02/03
REVIEW-1: SB
REVIEW-2: BR
DRAWN: LLC
J&L PROJECT: JL03382

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE SUM-21-0569
CR 209 (STIMSON ROAD) OVER SR 21

SUM-21-(5.69)(7.58)(7.78)

3 / 3

P:\03382 - SUM-21-(5.69)(7.58)(7.78)\drawings\03382 - Plan & Profile (0569).dwg, Logs (1), 01/10/2005 07:32:44 AM

GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE GLACIATED, GENTLY ROLLING ALLEGHENY PLATEAU, AT AN ELEVATION OF APPROXIMATELY 1029 FEET. THE EXISTING BRIDGES SUM-21-0758 (L/R) OVERPASSES WHEELING & LAKE ERIE RAILROAD ALONG SR-21 IN COPLEY TOWNSHIP, SUMMIT COUNTY, OHIO. THE WISCONSIN ICE SHEET PASSED OVER THE AREA, LEAVING A LAYER OF DRIFT RANGING FROM 50 TO 200 FEET IN THICKNESS.

EXPLORATION

THE EXPLORATION CONSISTED OF EIGHT (8) DRIVE SAMPLE-CORE BORINGS MADE BY MEANS OF A MECHANICALLY POWERED HOLLOW-STEM ROTARY AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED IN LATER JANUARY 2003.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

A TOTAL OF EIGHT (8) TEST BORINGS WERE ADVANCED FOR THIS PROJECT. FOUR (4) STRUCTURE TEST BORINGS, B-4 THROUGH B-7 NEXT TO THE EXISTING BRIDGE PIERS WERE ADVANCED FOR BRIDGE STRUCTURE WIDENING PURPOSE. FOUR (4) TEST BORINGS NOTED AS S-3 THROUGH S-6 WERE ADVANCED IN THE VICINITY OF PROPOSED WIDENING LANES ALONG SR-21 FOR PAVEMENT DESIGN PURPOSE.

TEST BORINGS B-4 AND B-6 WERE ADVANCED DIRECTLY THROUGH SUBGRADE. TEST BORING B-5 WAS ADVANCED THROUGH 4 INCHES OF TOPSOIL AND B-7 WAS ADVANCED THROUGH 6 INCHES OF CRUSHED LIMESTONE. ALL STRUCTURAL BORINGS WERE ADVANCED AT UNDERPASS RAILROAD LEVEL.

IN STRUCTURE BORINGS, SOILS ENCOUNTERED PREDOMINANTLY WERE SANDY SILT (A-4A). SILT AND CLAY (A-6A), SILT (A-4B), COARSE AND FINE SAND (A-3A), GRAVEL AND STONE FRAGMENTS (A-1-A), GRAVEL AND STONE FRAGMENTS WITH SAND (A-1-B), AND GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT (A-2-4) WERE ALSO ENCOUNTERED. BEDROCK WAS ENCOUNTERED IN ALL FOUR STRUCTURE BORINGS.

IN TEST BORING B-4, GRAY, SOFT, DECOMPOSED SHALE WAS FOUND BETWEEN DEPTHS OF 21.0 AND 26.5 (OR ELEV. 1008.9 AND 1003.4) FEET. GRAY INTERBEDDED SILTSTONE AND SHALE WAS FOUND BETWEEN THE DEPTHS OF 26.5 AND 38.0 (OR ELEV. 1003.4 AND 991.9) FEET. THE INTERBEDDED SILTSTONE AND SHALE WAS SLIGHTLY WEATHERED, HARD, AND FISSILE TO SLABBY. A 4-INCH SANDSTONE SEAM WAS ENCOUNTERED AT 34.6 (OR ELEV. 995.3) FEET. THREE (3) INCH SANDSTONE SEAMS WERE ENCOUNTERED AT 33.6 (OR ELEV. 996.3) AND 37.8 (OR ELEV. 992.1) FEET. TEST BORING WAS TERMINATED IN INTERBEDDED SILTSTONE AND SHALE AT 38.0 (OR ELEV. 991.9) FEET.

IN TEST BORING B-5, GRAY, SOFT, DECOMPOSED SHALE WAS FOUND BETWEEN THE DEPTHS OF 23.0 AND 26.0 (OR ELEV. 1009.4 AND 1006.4) FEET. GRAY INTERBEDDED SILTSTONE AND SHALE; SLIGHTLY WEATHERED, HARD, FISSILE TO SLABBY, WAS FOUND BETWEEN DEPTHS OF 26.0 AND 47.5 (OR ELEV. 1006.4 AND 984.9) FEET. THIS SILTSTONE AND SHALE CONTAINED VERY FINE GRAIN 6 INCHES THICK SANDSTONE SEAMS AT 35.9 AND 36.8 (OR ELEV. 996.5 AND 995.6) FEET, WITH AN 8-INCH THICK SEAM OF SANDSTONE AT 43.8 (OR ELEV. 988.6) FEET. TEST BORING WAS TERMINATED IN INTERBEDDED SILTSTONE AND SHALE AT 47.5 (OR ELEV. 984.9) FEET.

IN TEST BORING B-6, GRAY, SOFT, DECOMPOSED SHALE WAS FOUND BETWEEN THE DEPTHS OF 17.0 AND 23.5 (OR ELEV. 1012.7 AND 1006.2) FEET. GRAY INTERBEDDED SILTSTONE AND SHALE; SLIGHTLY WEATHERED, HARD, FISSILE TO FLAGGY, WAS FOUND BETWEEN DEPTHS OF 23.5 AND 34.3 (OR ELEV. 1006.2 AND 995.4) FEET. THIS SILTSTONE AND SHALE CONTAINED SOME VERTICAL FRACTURES. TEST BORING WAS TERMINATED IN INTERBEDDED SILTSTONE AND SHALE AT 34.3 (OR ELEV. 995.4) FEET.

IN TEST BORING B-7, GRAY, SOFT, DECOMPOSED SHALE WAS FOUND BETWEEN THE DEPTHS OF 21.0 AND 21.8 (OR ELEV. 1008.2 AND 1007.4) FEET. GRAY INTERBEDDED SILTSTONE AND SHALE; MODERATELY WEATHERED, MODERATELY HARD, FISSILE TO SLABBY, WAS FOUND BETWEEN DEPTHS OF 21.8 AND 33.5 (OR ELEV. 1007.4 AND 995.7) FEET. THIS SILTSTONE AND SHALE CONTAINED VERY FINE GRAIN 5-INCH THICK SANDSTONE SEAMS AT 30.7 AND 32.2 (OR ELEV. 998.5 AND 997.0) FEET. TEST BORING WAS TERMINATED IN INTERBEDDED SILTSTONE AND SHALE AT 33.5 (OR ELEV. 995.7) FEET.

UNCONFINED COMPRESSIVE STRENGTH TEST WAS PERFORMED ON TWO (2) ROCK CORE SAMPLES OBTAINED FROM TEST BORINGS B-4 AND B-7. UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORES WAS FOUND TO BE 10793 AND 5284 PSI. ROCK POINT LOAD TEST WAS PERFORMED TO ESTIMATE STRENGTH OF SHORT ROCK CORE SECTIONS OBTAINED FROM TEST BORINGS B-5 AND B-6. THE ESTIMATED COMPRESSIVE STRENGTH WAS FOUND TO BE 9420 AND 10107 PSI.

THE OVERALL CONSISTENCY OF THE COHESIVE SOILS WAS FOUND TO RANGE FROM "MEDIUM STIFF" TO "HARD," BUT WAS PREDOMINATELY "STIFF." THE OVERALL RELATIVE DENSITY OF NON-COHESIVE SOILS WAS FOUND TO RANGE FROM "MEDIUM DENSE" TO "DENSE."

THE ROADWAY BORINGS S-3 AND S-4 WERE ADVANCED THROUGH TOPSOIL, 5 AND 6 INCHES IN THICKNESS RESPECTIVELY. TEST BORINGS S-5 AND S-6 WERE ADVANCED THROUGH 4 INCHES OF ASPHALT PAVEMENT IN THE SHOULDER AREAS. BENEATH THE ASPHALT IN S-5 AND S-6 WAS 12-INCH THICK BASE CONSISTING OF CINDERS, SLAG, AND GRAVEL.

IN ROADWAY TEST BORINGS S-3 AND S-4, SANDY SILT (A-4A) WAS ENCOUNTERED. IN TEST BORINGS S-5 AND S-6, COARSE AND FINE SAND (A-3A) AND FINE SAND (A-3) WERE ENCOUNTERED. ALL ROADWAY TEST BORINGS WERE TERMINATED AT 10.0 FEET WITHOUT ENCOUNTERING BEDROCK.

FOR THE ROADWAY BORINGS THE OVERALL CONSISTENCY OF THE COHESIVE SOILS WAS FOUND TO RANGE FROM "STIFF" TO "VERY STIFF," A FAIRLY EQUAL SPREAD. THE OVERALL RELATIVE DENSITY OF NON-COHESIVE SOILS WAS FOUND TO RANGE FROM "LOOSE" TO "VERY DENSE."

WATER WAS NOT ENCOUNTERED IN ANY OF THE ROADWAY TEST BORINGS, BUT WAS ENCOUNTERED IN ALL OF THE STRUCTURAL TEST BORINGS. WATER LEVEL WAS FOUND TO RANGE FROM ELEVATIONS OF 1011.9 TO 1029.9 FEET DURING DRILLING OPERATION. WATER LEVELS ENCOUNTERED UPON COMPLETION OF DRILLING OPERATION RANGED FROM ELEVATIONS OF 1022.3 TO 1028.2 FEET.

FOR SPECIFIC SUBSURFACE CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS THAT FORM A PART OF THESE PLANS.

SYMBOLS OF ROCK TYPES

	COAL		WEATHERED SANDSTONE
	WEATHERED MUDSTONE		SANDSTONE
	MUDSTONE		LEACHED DOLOMITE
	WEATHERED SHALE		DOLOMITE
	SHALE		LEACHED LIMESTONE
	CLAYSTONE		LIMESTONE
	SILTSTONE		BOULDERS or COBBLES

PARTICLE SIZE DEFINITIONS

12.0 IN.	3.0 IN.	0.0787 IN.		0.0165 IN.		0.0029 IN.	0.0002 IN.
BOULDERS	COBBLES	GRAVEL	COARSE SAND		FINE SAND		SILT / CLAY
			No. 10 SIEVE	No. 40 SIEVE		No. 200 SIEVE	

NOTES

ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATIONS SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF MATERIALS MANAGEMENT AT 1600 WEST BROAD STREET, THE OFFICE OF ROADWAY ENGINEERING OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET, COLUMBUS, OHIO 43223.

LEGEND

⊕	AUGER BORING LOCATION–PLAN VIEW.
⊕	PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION–PLAN VIEW.
TR	TOP OF ROCK
	CAPPED PILE
	FOOTING
	FOOTING ON PILE
ST	SHELBY TUBE
SS	SPLIT SPOON
⊢	HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN.
X/Y/Z	FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST. X = NO. OF BLOWS FOR FIRST 0.5 ft; Y = NO. OF BLOWS FOR SECOND 0.5 ft; Z = NO. OF BLOWS FOR THIRD 0.5 ft
W	INDICATES FREE WATER ELEVATION
▼	INDICATES STATIC WATER ELEVATION

GENERAL INFORMATION

DRIVE SAMPLES

DRIVE SAMPLE BORINGS ARE MADE BY MEANS OF A MECHANICALLY–POWERED, ROTARY–TYPE DRILL RIG EMPLOYING A 2.0 in O.D., 1.4 in I.D., SPLIT–SPOON SAMPLER, AT CONTINUOUS, 2.5 ft AND/OR 5.0 ft DEPTH INTERVALS, DRIVEN BY MEANS OF A 140 lb HAMMER WITH A FREE FALL OF 2.5 ft. THE NUMBER OF BLOWS REQUIRED TO DRIVE THE SAMPLER THREE 0.5 ft INCREMENTS IS CONSIDERED THE STANDARD PENETRATION TEST.

PRESS SAMPLES

PRESS SAMPLES ARE TAKEN BY MEANS OF MECHANICALLY POWERED, ROTARY–TYPE DRILL RIG, EMPLOYING A 3 in O.D. THIN–WALL PRESS SAMPLING TUBE. THE PRESS SAMPLING TUBE IS ADVANCED BY CONTINUOS UNIFORM PRESSURE APPLIED BY THE DRILL RIG.

CORE BORINGS

CORE BORINGS ARE MADE BY MEANS OF A MECHANICALLY–POWERED, ROTARY–TYPE DRILL RIG, EMPLOYING AN NX, NW AND/OR HX CORE BARREL WITH AN INDUSTRIAL DIAMOND CUTTING HEAD.

SAMPLING AND TESTING

THE BORING LOG SHEETS SHOW A GRAPHIC PLOT OF THE INFORMATION OBTAINED, INCLUDING DEPTH AND ELEVATION OF THE SAMPLE, TYPE OF SAMPLE, NUMBER OF BLOWS FOR THE STANDARD PENETRATION TEST IN THREE 0.5 ft INCREMENTS, AND A SAMPLE DESCRIPTION BASED ON LABORATORY TEST RESULTS, UTILIZING THE ODOT CLASSIFICATION SYSTEM. RESULTS OF STRENGTH AND CONSOLIDATION TESTING, IF PERFORMED ON UNDISTURBED SAMPLES, APPEAR GRAPHICALLY ON SEPARATE ENCLOSURES. ROCK SAMPLES ARE DISPLAYED ON THE LOG SHEETS, INCLUDING DEPTH AND ELEVATION OF THE SAMPLE, AMOUNT OF RECOVERY, AND A VISUAL CLASSIFICATION BASED ON THE TYPE, COLOR, DEGREE OF HARDNESS, GRAIN SIZE, DETERIORATION, BEDDING, ACID REACTION, AND OTHER QUALIFYING FACTORS.

AT DEPTHS WHERE MATERIALS ARE BOULDERY OR GRAVELY TO THE EXTENT THAT A SAMPLER CANNOT BE UTILIZED, A WASH SAMPLE IS PROCURED AND VISUALLY CLASSIFIED, IN ORDER TO DETERMINE THE GENERAL CHARACTERISTIC OF THE MATERIAL. THESE SAMPLES ARE NOT CONSIDERED SUFFICIENTLY REPRESENTATIVE TO WARRANT LABORATORY TESTING.

J&L LABORATORIES, INC.
GEOTECHNICAL CONSULTING & TESTING
215 RAINBOW STREET
WADSWORTH, OH 44281–1444

DRAWN	REVIEW–1	DATE	CALCULATED
LLC	SB	04/02/03	– –

J&L PROJECT	REVIEW–2		CHECKED
JL03382	BR		JX

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE SUM–21–0758 L&R
SR 21 OVER THE WHEELING AND LAKE ERIE RAILROAD

SUM–21–(5.69)(7.58)(7.78)

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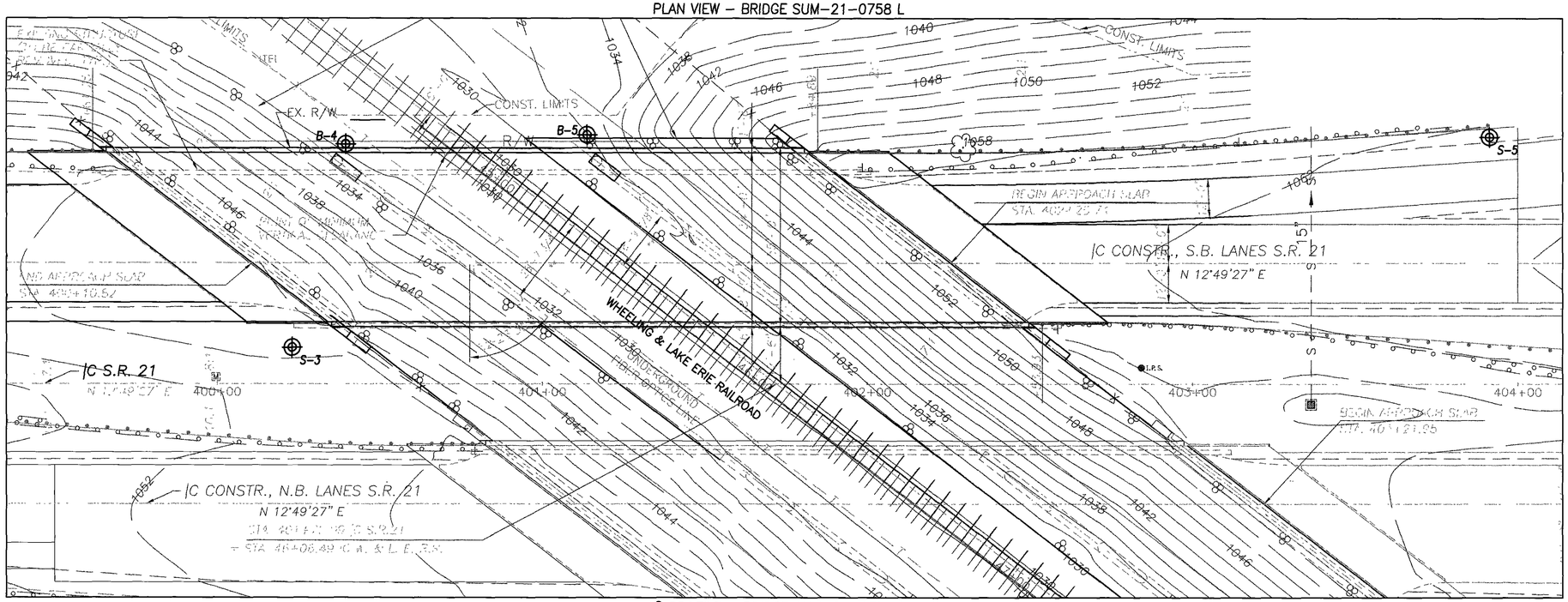
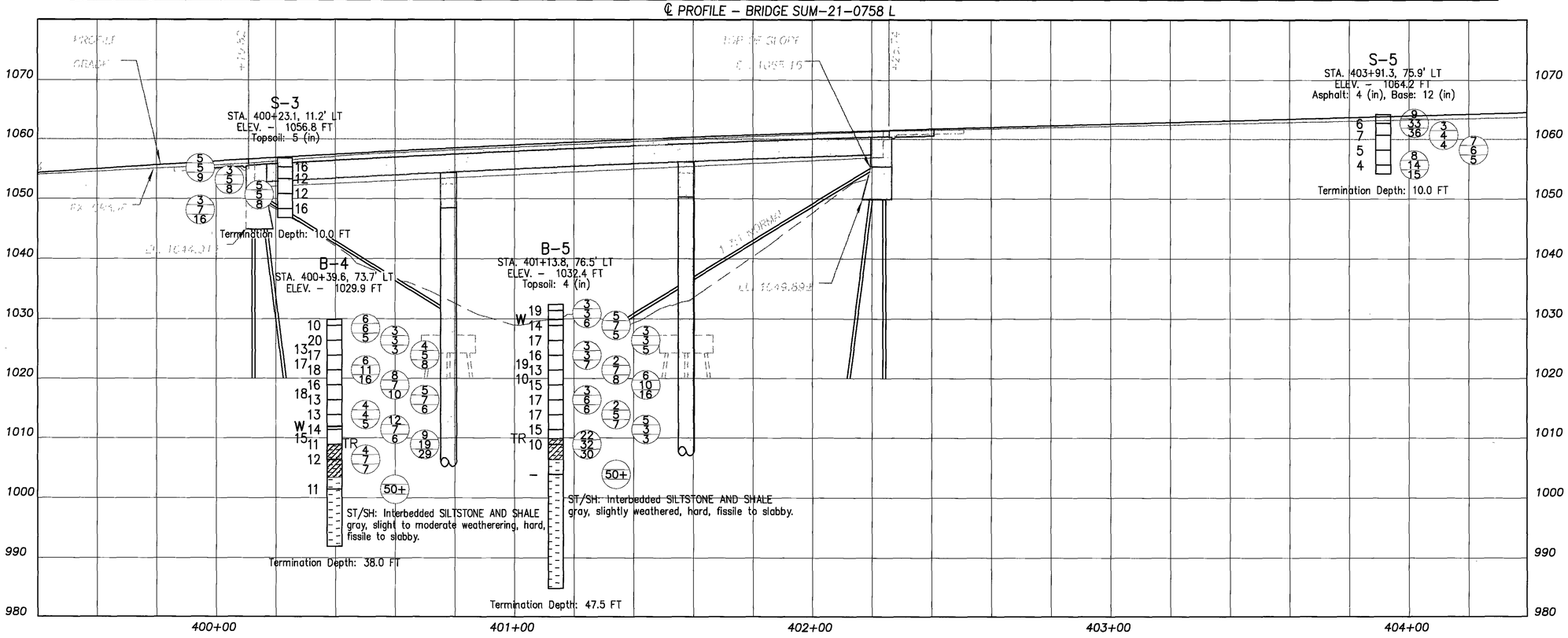
PLAN VIEW – BRIDGE SUM–21–0758 L



℄ PROFILE – BRIDGE SUM–21–0758 L



PLAN AND PROFILE DATA PROVIDED BY SJL & ASSOCIATES, INC. ON 03/14/2003 AND 12/17/2004

HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 10'

CALCULATED	– –
CHECKED	JX
DATE	04/02/03
REVISED	12/18/04
REVIEWED	SB
REVIEWED–2	BR
DRAWN	LLC
J&L PROJECT	JL03382

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE SUM–21–0758 L
SR 21 OVER THE WHEELING AND LAKE ERIE RAILROAD

SUM–21–(5.69)(7.58)(7.78)

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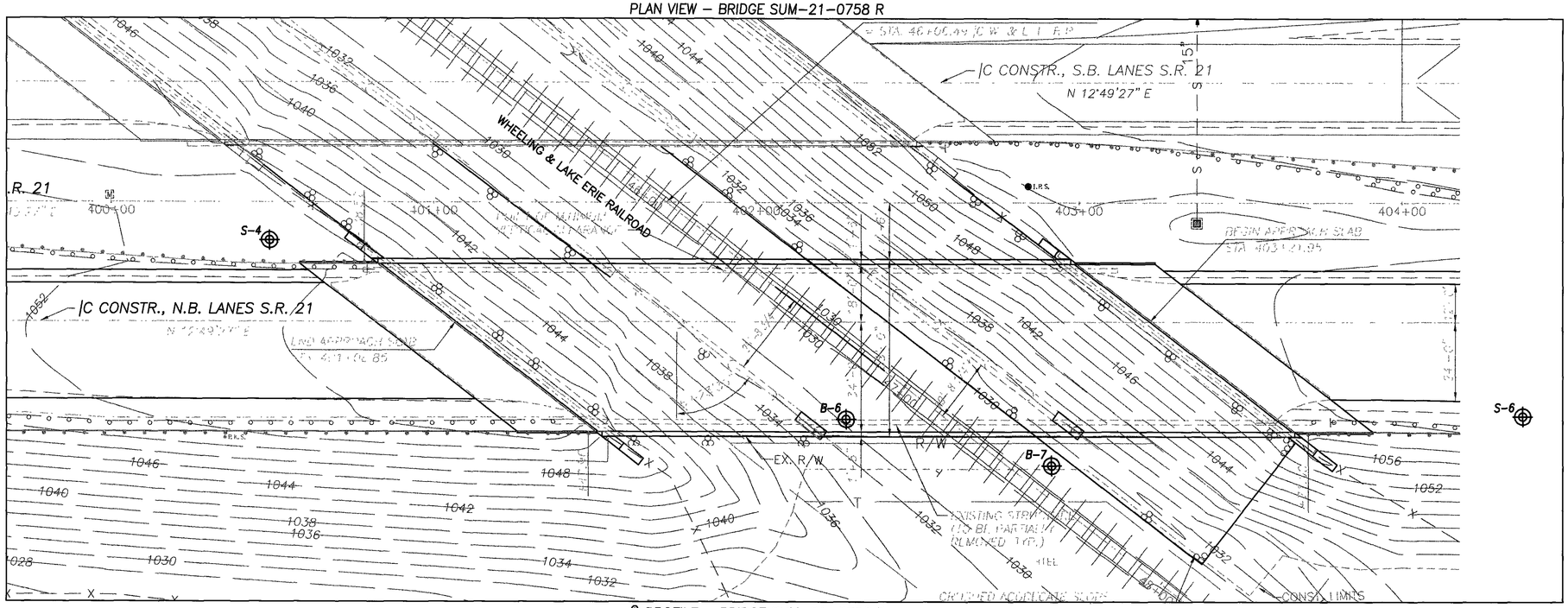
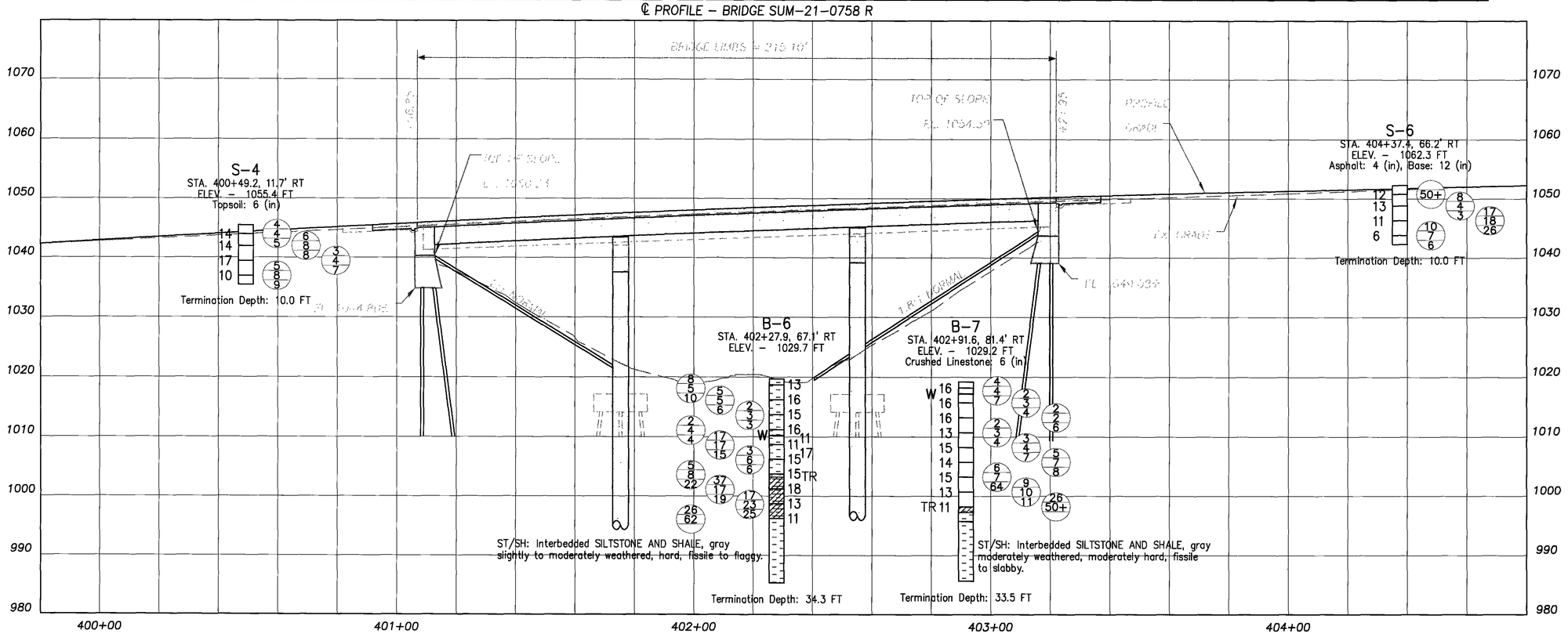
PLAN VIEW – BRIDGE SUM–21–0758 R



℄ PROFILE – BRIDGE SUM–21–0758 R



PLAN AND PROFILE DATA PROVIDED BY SJL & ASSOCIATES, INC. ON 03/14/2003 AND 12/18/2004

HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 10'

DRAWN	REVIEWED	DATE	CALCULATED
LLC	SB	04/02/03	—
JML PROJECT	REVIEWED-2	REVISED	CHECKED
JL03382	BR	12/18/04	JX

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE SUM–21–0758 R
SR 21 OVER THE WHEELING AND LAKE ERIE RAILROAD

SUM–21–(5.69)(7.58)(7.78)

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Date Started: 1/21/03
Date Completed: 1/21/03
Boring No.: B-4

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1029.9 (ft)
Water Elev.: 1011.9 (ft)
Station & Offset: 400+39.6, 73.7' LT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1029.9	0.0														
		6-6-5			A4a: Brown, stiff to medium stiff SANDY SILT, some gravel, little to trace clay, trace organics, weak reaction with HCl, moist.	1	–	–	–	–	–	–	–	10	VISUAL
	5.0	3-3-3				2T	24	20	17	*	39	–	–	20	A-4a
						2B	–	–	–	–	–	–	–	13	VISUAL
1023.4		4-5-8				3T	–	–	–	–	–	–	–	17	VISUAL
					A-6a: Brown, stiff to very stiff SILT AND CLAY, some sand, trace gravel and siltstone fragments, no reaction with HCl, moist.	3B	–	–	–	–	–	–	–	17	VISUAL
	10.0	6-11-16				4	7	9	13	*	71	32	11	18	A-6a
1019.4															
		8-7-10			A-4a: Gray/brown, very stiff SANDY SILT, little to trace clay, siltstone fragments, moist.	5T	–	–	–	–	–	–	–	16	VISUAL
1016.9						5B	8	5	9	*	78	23	5	18	A-4a
	15.0	5-7-6			A-4a: Brown to gray, stiff SANDY SILT, little siltstone fragments, trace clay, weak to no reaction with HCl, moist.	6	–	–	–	–	–	–	–	13	VISUAL
		4-4-5				7	14	11	26	*	49	22	6	13	A-4a
1011.9															
1010.2	20.0	12-7-6			A-1-b: Gray, medium dense SANDSTONE FRAGMENTS WITH SAND, wet.	8T	25	34	31	*	10	–	–	14	A-1-b
1008.9						8B	–	–	–	–	–	–	–	15	VISUAL
		9-19-29			A-6b: Gray, stiff SILTY CLAY, some to little sand, trace shale fragments, moist.	9	–	–	–	–	–	–	–	11	VISUAL
	25.0	4-7-7			DxSh: DECOMPOSED SHALE, silty, gray, soft.	10	–	–	–	–	–	–	–	12	VISUAL
1003.4															
					ST/Sh: INTERBEDDED SILTSTONE AND SHALE, gray, slightly weathered, hard, fissile to slabby.										
	30.0	50/3"				11	–	–	–	–	–	–	–	11	VISUAL
		29%	8.0	0.0											
	35.0														
991.9															

TERMINATION DEPTH: 38.0 (ft)

Date Started: 1/22/03
Date Completed: 1/22/03
Boring No.: B-5

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1032.4 (ft)
Water Elev.: 1029.9 (ft)
Station & Offset: 401+13.8, 76.5' LT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1032.4	0.0														
1032.1		3-3-6			TOPSOIL: 4 (in)										
					A-4a: Brown, stiff SANDY SILT, some clay, trace gravel, odorless, no reaction with HCl, homogeneous soil structure, moist.	1	9	11	14	*	66	29	9	19	A-4a
	5.0	5-7-5				2	–	–	–	–	–	–	–	14	VISUAL
1026.3															
		3-3-5			A-4b: Gray, medium stiff SILT, some clay, little sand, trace siltstone fragments, odorless, no reaction with HCl, moist.	3	6	5	10	*	79	NP	NP	17	A-4a
1022.9	10.0	3-3-7				4T	–	–	–	–	–	–	–	16	VISUAL
					A-6a: Brown, stiff SILT AND CLAY, little gravel and sand, odorless, moist.	4B	12	3	7	*	78	35	11	19	A-6a
1020.9		2-7-8				5T	–	–	–	–	–	–	–	13	VISUAL
					A-2-4: Brown, medium dense SANDSTONE FRAGMENTS WITH SAND AND SILT, trace clay, odorless, no reaction with HCl, moist.	5B	–	–	–	–	–	–	–	10	VISUAL
	15.0	6-10-16				6	21	24	25	*	30	–	–	15	A-2-6
1016.7															
		3-6-6			A-6a: Gray, stiff to medium stiff SILT AND CLAY, little sand and shale fragments, odorless, no reaction with HCl, moist.	7	13	12	7	*	68	34	15	17	A-6a
	20.0	2-5-7				8	–	–	–	–	–	–	–	17	VISUAL
		5-3-3				9	–	–	–	–	–	–	–	15	VISUAL
1009.4															
	25.0	22-32-30			DxSh: DECOMPOSED SHALE, gray, soft.	10	–	–	–	–	–	–	–	10	VISUAL
1006.4															
					ST/Sh: INTERBEDDED SILTSTONE AND SHALE, gray, slightly weathered, hard, fissile to slabby.										
	30.0	50/1"				11	–	–	–	–	–	–	–	–	VISUAL
		36%	10.0	0.0											
	35.0														
	40.0		8.3	0.2											
	45.0														
984.9															

TERMINATION DEPTH: 47.5 (ft)

Date Started: 1/21/03
Date Completed: 1/21/03
Boring No.: B-6

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1029.7 (ft)
Water Elev.: 1020.2 (ft)
Station & Offset: 402+27.9, 67.1' RT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1029.7	0.0														
		8-5-10			A-4a: Brown, stiff SANDY SILT, some gravel, sandstone and siltstone fragments, trace clay, no reaction with HCl, moist.	1	27	20	14	*	39	–	–	13	A-4a
1026.4															
	5.0	5-5-6			A-4b: Gray, stiff to medium stiff SILT, some clay, little sand, trace gravel, odorless, no reaction with HCl, moist.	2	–	–	–	–	–	–	–	16	VISUAL
		2-3-3				3	6	6	11	52	25	NP	NP	15	A-4b
1020.2															
	10.0	2-4-4				4T	–	–	–	–	–	–	–	16	VISUAL
1017.7					A-1-b: Gray, loose to medium dense GRAVEL AND SANDSTONE FRAGMENTS WITH SAND, wet.	4B	53	13	10	*	24	–	–	11	A-1-b
		17-17-15				5T	40	27	22	*	11	–	–	11	A-1-b
1016.2					A-3a: Gray, dense COARSE AND FINE SAND, little sandstone fragments, wet.	5B	17	4	58	*	21	–	–	17	A-3a
	15.0	3-6-6				6	21	10	10	*	59	31	13	15	A-6a
1012.7					A-6a: Gray, stiff SILT AND CLAY, some siltstone fragments and sand, moist.	7	–	–	–	–	–	–	–	15	VISUAL
		5-8-22			DxSh: DECOMPOSED SHALE, silty, gray, soft.	8	–	–	–	–	–	–	–	18	VISUAL
	20.0	37-17-19				9	–	–	–	–	–	–	–	13	VISUAL
		17-23-25				10	–	–	–	–	–	–	–	11	VISUAL
1006.2		26-62													
	25.0				ST/Sh: INTERBEDDED SILTSTONE AND SHALE, gray, slightly to moderately weathered, hard, fissile to flaggy.											
		0%	9.3	0.0											
	30.0														
995.4															

TERMINATION DEPTH: 34.3 (ft)

Date Started: 1/22/03
Date Completed: 1/22/03
Boring No.: B-7

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1029.2 (ft)
Water Elev.: 1027.2 (ft)
Station & Offset: 402+91.6, 81.4' RT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1029.2	0.0														
1028.7		4-4-7			CRUSHED LIMESTONE: 6 (in)										
					A-1-a: Brown, medium dense GRAVEL AND SILTSTONE FRAGMENTS, some sand, little fines, no reaction with HCl, wet.	1	61	18	9	*	12	–	–	16	A-1-a
1025.9		2-3-4				2	–	–	–	–	–	–	–	16	VISUAL
	5.0				A-4a: Gray, medium stiff SANDY SILT, little to some clay, trace gravel, siltstone and sandstone fragments, moist.	3	10	8	17	*	65	21	5	16	A-4a
		2-2-6				4	–	–	–	–	–	–	–	13	VISUAL
	10.0	2-3-4				5	–	–	–	–	–	–	–	15	VISUAL
1017.7						6	–	–	–	–	–	–	–	14	VISUAL
		3-4-7			A-4a: Gray, stiff to very stiff SANDY SILT, and siltstone and shale fragments, trace clay, moist.										
		5-7-8													
	15.0														
		6-7-64				7	38	6	12	*	44	–	–	15	A-4a
		9-10-11				8	–	–	–	–	–	–	–	13	VISUAL
	20.0														
1008.2															
1007.4		26-50/4"			DxSh: DECOMPOSED SHALE, silty, gray, soft.	9	–	–	–	–	–	–	–	11	VISUAL
					ST/Sh: INTERBEDDED SILTSTONE AND SHALE, gray, moderately weathered, moderately hard, fissile to slabby.										
	25.0	18%	10.0	0.0											
	30.0														
995.7															

TERMINATION DEPTH: 33.5 (ft)

J&L LABORATORIES, INC.
GEOTECHNICAL CONSULTING & TESTING
215 RAINBOW STREET
WADSWORTH, OH 44281-1444

CALCULATED: --
CHECKED: JX
DATE: 04/02/03
REVIEW-1: SB
REVIEW-2: BR
DRAWN: LLC
J&L PROJECT: JL03382

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE SUM-21-0758 L&R
SR 21 OVER THE WHEELING AND LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)

4 / 5

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LOG OF BORING

Date Started: 1/28/03
Date Completed: 1/28/03
Boring No.: S-3

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1056.8 (ft)
Water Elev.: Not Encountered
Station & Offset: 400+23.1, 11.2' LT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics								
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1056.8	0.0														
1056.4		5-5-9			TOPSOIL: 5 (in) A-4a: Brown, stiff to very stiff SANDY SILT, little gravel and clay, odorless, no reaction with HCl, moist. (FILL)	1	20	18	13	34	15	–	–	16	A-4a
	5.0	3-5-8				2	–	–	–	–	–	–	–	12	VISUAL
		5-5-8				3	–	–	–	–	–	–	–	12	VISUAL
1046.8	10.0	3-7-16				4	–	–	–	–	–	–	–	16	VISUAL

TERMINATION DEPTH: 10.0 (ft)

LOG OF BORING

Date Started: 1/28/03
Date Completed: 1/28/03
Boring No.: S-4

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1055.4 (ft)
Water Elev.: Not Encountered
Station & Offset: 400+49.2, 11.7' RT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics								
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1055.4	0.0														
1054.9		4-4-5			TOPSOIL: 6 (in) A-4a: Brown, stiff to very stiff SANDY SILT, little gravel and clay, odorless, no reaction with HCl, moist.	1	18	17	17	28	20	–	–	14	A-4a
	5.0	6-8-8				2	–	–	–	–	–	–	–	14	VISUAL
		3-4-7				3	–	–	–	–	–	–	–	17	VISUAL
1045.4	10.0	5-8-9				4	–	–	–	–	–	–	–	10	VISUAL

TERMINATION DEPTH: 10.0 (ft)

LOG OF BORING

Date Started: 1/28/03
Date Completed: 1/28/03
Boring No.: S-5

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1064.2 (ft)
Water Elev.: Not Encountered
Station & Offset: 403+91.3, 75.9' LT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics								
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1064.2	0.0														
1062.9		9-33-36			TOPSOIL: Asphalt – 4 (in), BASE: 12 (in) A-3a: Brown, dense COARSE AND FINE SAND, little sandstone fragments and fines, moist.	1	19	21	43	*	17	–	–	6	A-3a
1061.2	5.0	3-4-4			A-3: Brown, loose to medium dense FINE SAND, little coarse sand, trace sandstone fragements and fines, moist.	2	10	18	67	*	5	–	–	7	A-3
		7-6-5				3	–	–	–	–	–	–	–	5	VISUAL
1054.2	10.0	8-14-15				4	–	–	–	–	–	–	–	4	VISUAL

TERMINATION DEPTH: 10.0 (ft)

LOG OF BORING

Date Started: 1/24/03
Date Completed: 1/24/03
Boring No.: S-6

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1062.3 (ft)
Water Elev.: Not Encountered
Station & Offset: 404+37.4, 66.2' RT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics								
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1062.3	0.0														
1061.0		50/4"			PAVEMENT: Asphalt – 4 (in), BASE: 12 (in) A-3a: Brown, very dense COARSE AND FINE SAND, some gravel and fines, moist.	1	–	–	–	–	–	–	–	12	VISUAL
1059.8	5.0	8-4-3			A-3a: Brown, loose to dense COARSE AND FINE SAND, some gravel, little silt and clay, no reaction with HCl, moist. (Possible FILL)	2	23	17	35	14	11	–	–	13	A-4a
		17-18-26				3	–	–	–	–	–	–	–	11	VISUAL
1052.3	10.0	10-7-6				4	–	–	–	–	–	–	–	6	VISUAL

TERMINATION DEPTH: 10.0 (ft)

UNCONFINED COMPRESSIVE STRENGTH OF TESTED ROCK			
TEST BORING	ELEVATION (FT)	COMPRESSIVE STRENGTH (PSI)	TEST METHOD*
B-4	995.3	10793	UC
B-5	1003.4 TO 993.4	9420	PL
B-6	1004.7 TO 998.8	10107	PL
B-7	998.4	5284	UC

NOTE:
- UC=UNCONFINED COMPRESSIVE STRENGTH TEST.
- PL – POINT LOAD TEST

J&L LABORATORIES, INC.
GEOTECHNICAL CONSULTING & TESTING
215 RAINBOW STREET
WADSWORTH, OH 44281-1444

CALCULATED --
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REVIEW-1 SB
REVIEW-2 BR
DRAWN LLC
J&L PROJECT JL03382

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE SUM-21-0758 L&R
SR 21 OVER THE WHEELING AND LAKE ERIE RAILROAD

SUM-21-(5.69)(7.58)(7.78)

5 / 5

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GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE GLACIATED, GENTLY ROLLING ALLEGHENY PLATEAU, AT AN ELEVATION OF APPROXIMATELY 1046 FEET. THE EXISTING BRIDGES SUM-21-0778 (L/R) OVERPASSES COPLEY ROAD (SR-162) ALONG SR-21 IN COPLEY TOWNSHIP, SUMMIT COUNTY, OHIO. THE WISCONSIN ICE SHEET PASSED OVER THE AREA, LEAVING A LAYER OF DRIFT RANGING FROM 50 TO 200 FEET IN THICKNESS.

EXPLORATION

THE EXPLORATION CONSISTED OF EIGHT (8) DRIVE SAMPLE-CORE BORINGS MADE BY MEANS OF A MECHANICALLY POWERED HOLLOW-STEM ROTARY AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED IN JANUARY 2003.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

A TOTAL OF EIGHT (8) TEST BORINGS WERE ADVANCED FOR THIS PROJECT. FOUR (4) STRUCTURE TEST BORINGS, B-8 THROUGH B-11 NEXT TO THE EXISTING BRIDGE PIERS WERE ADVANCED FOR BRIDGE STRUCTURE WIDENING PURPOSE. FOUR (4) TEST BORINGS NOTED AS S-7 AND S-10 WERE ADVANCED IN THE VICINITY OF PROPOSED WIDENING LANES ALONG SR-21 FOR PAVEMENT DESIGN PURPOSE.

STRUCTURE TEST BORINGS B-8 AND B-11 AND ROADWAY TEST BORINGS S-8 AND S-9 WERE ADVANCED THROUGH ASPHALT PAVEMENT IN ROADWAY AREAS. THICKNESS OF ASPHALT WAS FOUND TO BE 3 INCHES IN TEST BORINGS B-8 AND B-11. A GRANULAR BASE OF 6 INCHES WAS ENCOUNTERED IN BOTH TEST BORINGS. TEST BORINGS S-8 AND S-9 HAD ASPHALT THICKNESSES OF 4 INCHES AND 5 INCHES, RESPECTIVELY. 8 INCHES OF GRANULAR BASE MATERIAL WAS FOUND IN TEST BORING S-8 IN TEST BORING S-9, PAVEMENT IS OVERLYING A LAYER OF GRANULAR SOIL. IN THE TEST BORINGS ADVANCED OUTSIDE THE ROADWAY PAVEMENT AREAS, TOPSOIL LAYERS OF 6 INCHES AND 7 INCHES WERE ENCOUNTERED IN TEST BORINGS S-7 AND S-10, RESPECTIVELY. TOPSOIL WAS NOT ENCOUNTERED IN TEST BORINGS B-9 AND B-10. SIX (6) INCHES OF STANDING WATER ABOVE THE SOIL SUBGRADE WAS FOUND IN TEST BORING B-9. B-10 WAS ADVANCED DIRECTLY THROUGH SUBGRADE.

IN STRUCTURE BORINGS, SOILS ENCOUNTERED WERE SANDY SILT (A-4a), SILT AND CLAY (A-6A), COARSE AND FINE SAND (A-3a), AND GRAVEL AND STONE FRAGMENTS WITH SAND, SILT AND CLAY (A-2-6) WERE ENCOUNTERED IN THE STRUCTURE TEST BORINGS. BEDROCK WAS ENCOUNTERED IN ALL FOUR, STRUCTURE TEST BORINGS AT RELATIVELY SHALLOW DEPTHS.

IN TEST BORING B-8, GRAY, SOFT DECOMPOSED SHALE WAS FOUND BETWEEN THE DEPTHS OF 5.7 AND 14.0 (OR ELEV. 1040.3 AND 1032.0) FEET. GRAY, HARD INTERBEDDED SILTSTONE AND SHALE WAS FOUND BETWEEN THE DEPTHS OF 14.0 AND 26.5 (OR ELEV. 1032.0 AND 1019.5) FEET. THERE WERE FOUR (4) GRAY, HARD, VERY FINE-GRAIN SANDSTONE SEAMS RANGING FROM 2 TO 7 INCHES IN THICKNESS FOUND BETWEEN THE DEPTHS OF 22.5 (OR ELEV. 1023.5) AND 25.7 (OR ELEV. 1020.3) FEET. TEST BORING WAS TERMINATED IN INTERBEDDED SILTSTONE AND SHALE AT 26.5 (OR ELEV. 1019.5) FEET.

IN TEST BORING B-9, A LAYER OF GRAY, SOFT DECOMPOSED SHALE WAS FOUND BETWEEN THE DEPTHS OF 9.5 AND 10.8 (OR ELEV. 1033.5 AND 1032.2) FEET. GRAY, HARD INTERBEDDED SILTSTONE AND SHALE WAS FOUND BETWEEN THE DEPTHS OF 10.8 AND 25.0 (OR ELEV. 1032.2 AND 1018.0) FEET. A 4-INCH GRAY, HARD VERY FINE-GRAIN SANDSTONE SEAM WAS FOUND AT 16.9 (OR ELEV. 1026.1) FEET. A 5-INCH GRAY, HARD VERY FINE-GRAIN SANDSTONE SEAM WAS FOUND AT 19.6 (OR ELEV 1023.4) FEET. TEST BORING WAS TERMINATED IN INTERBEDDED SILTSTONE AND SHALE AT 25.0 (OR ELEV 1018.0) FEET.

IN TEST BORING B-10, GRAY, SOFT DECOMPOSED SHALE WAS FOUND BETWEEN THE DEPTHS OF 7.5 TO 17.5 (OR ELEV. 1039.9 AND 1029.9) FEET GRAY, HARD INTERBEDDED SILTSTONE AND SHALE WAS FOUND BETWEEN THE DEPTHS OF 17.5 AND 23.5 (OR ELEV. 1029.9 AND 1023.9) FEET. VERTICAL FRACTURES WERE FOUND THROUGHOUT THIS LAYER. A LAYER OF GRAY, HARD INTERBEDDED VERY FINE-GRAIN SANDSTONE AND SHALE WAS FOUND BETWEEN THE DEPTHS OF 23.5 AND 28.5 (OR ELEV. 1023.9 AND 1018.9) FEET. BORING WAS TERMINATED IN INTERBEDDED SANDSTONE AND SHALE AT 28.5 (OR ELEV. 1018.9) FEET.

IN TEST BORING B-11, GRAY, SOFT DECOMPOSED SHALE WAS FOUND BETWEEN THE DEPTHS OF 1.4 AND 13.0 (OR ELEV. 1044.0 AND 1032.4) FEET. GRAY, HARD INTERBEDDED SILTSTONE AND SHALE WAS FOUND BETWEEN THE DEPTHS OF 13.0 AND 22.0 (OR ELEV. 1032.4 AND 1023.4) FEET. VERTICAL FRACTURES WERE FOUND THROUGHOUT THIS LAYER. GRAY, HARD INTERBEDDED VERY FINE-GRAIN SANDSTONE AND SHALE WERE FOUND BETWEEN THE DEPTHS OF 22.0 AND 26.5 (OR ELEV. 1023.4 AND 1018.9) FEET. TEST BORING WAS TERMINATED IN INTERBEDDED, VERY FINE SANDSTONE AND SHALE AT 26.5 (OR ELEV 1018.9) FEET.

UNCONFINED COMPRESSIVE STRENGTH TEST WAS PERFORMED ON ONE (1) ROCK CORE SAMPLE OBTAINED FROM TEST BORINGS B-9. THE SAMPLE WAS FOUND TO HAVE AN UNCONFINED COMPRESSIVE STRENGTH OF 10423 PSI. ROCK POINT LOAD TEST WAS PERFORMED TO ESTIMATE STRENGTH OF SHORT ROCK CORE SECTIONS OBTAINED FROM TEST BORINGS B-8, B-9, B-10, AND B-11. THE ESTIMATED COMPRESSIVE STRENGTH WAS FOUND TO RANGE FROM 8838 TO 10237 PSI.

FOR THE STRUCTURE BORINGS, THE OVERALL CONSISTENCY OF THE COHESIVE SOILS FOR THE STRUCTURAL TEST BORINGS WAS FOUND TO RANGE FROM "STIFF" TO "VERY STIFF." THE OVERALL RELATIVE DENSITY OF NON-COHESIVE SOILS WAS FOUND TO RANGE FROM "VERY LOOSE" TO "VERY DENSE."

THE ROADWAY BORINGS S-7 AND S-10 WERE ADVANCED THROUGH TOPSOIL, 6 AND 7 INCHES IN THICKNESS RESPECTIVELY. TEST BORING S-8 WAS ADVANCED THROUGH 4 INCHES OF ASPHALT PAVEMENT WITH AN UNERLYING 8 INCHES OF GRAVEL BASE MATERIAL. S-9 WAS ADVANCED THROUGH 5 INCHES OF ASPHALT.

IN ROADWAY TEST BORINGS S-7 AND S-8, SANDY SILT (A-4A) WAS ENCOUNTERED PREDOMINANTLY. COARSE AND FINE SAND (A-3A) AND SANDSTONE FRAGMENTS WITH SAND (A-1-B) WERE ALSO FOUND IN TEST BORINGS S-7 AND S-8. IN TEST BORINGS S-9 AND S-10, NON-COHESIVE SOILS WERE PREDOMINANT. COARSE AND FINE SAND (A-3A), SANDSTONE FRAGMENTS WITH SAND (A-1-B), AND FINE SAND (A-3) WERE ALL ECOUNTERED ABOVE THE COHESIVE SOILS OF SANDY SILT (A-4A) AND SILT (A-4B). ALL ROADWAY TEST BORINGS WERE TERMINATED AT A DEPTH OF 10.0 FEET WITHOUT ENCOUNTERING BEDROCK.

THE OVERALL CONSISTENCY OF THE COHESIVE SOILS FOR THE ROADWAY TEST BORINGS WAS FOUND TO RANGE FROM "MEDIUM STIFF" TO "VERY STIFF." THE OVERALL RELATIVE DENSITY OF NON-COHESIVE SOILS WAS FOUND TO EVENLY RANGE FROM "MEDIUM DENSE" TO "VERY DENSE."

WATER WAS NOT ENCOUNTERED IN ANY OF THE ROADWAY TEST BORINGS, BUT WAS ENCOUNTERED IN ALL OF THE STRUCTURAL TEST BORINGS RANGING FROM ELEVATIONS 1032.9 TO 1047.4 FEET, DURING DRILLING OPERATION. WATER WAS ENCOUNTERED UPON COMPLETION OF DRILLING OPERATION IN THE STRUCTURAL TEST BORINGS RANGING FROM ELEVATIONS 1036.7 TO 1047.4 FEET.

FOR SPECIFIC SUBSURFACE CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS THAT FORM A PART OF THESE PLANS.

SYMBOLS OF ROCK TYPES

COAL		WEATHERED SANDSTONE	
WEATHERED MUDSTONE		SANDSTONE	
MUDSTONE		LEACHED DOLOMITE	
WEATHERED SHALE		DOLOMITE	
SHALE		LEACHED LIMESTONE	
CLAYSTONE		LIMESTONE	
SILTSTONE		BOULDERS or COBBLES	

PARTICLE SIZE DEFINITIONS

12.0 IN.	3.0 IN.	0.0787 IN.	0.0165 IN.	0.0029 IN.	0.0002 IN.
BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT / CLAY
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE	

NOTES

ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATIONS SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF MATERIALS MANAGEMENT AT 1600 WEST BROAD STREET, THE OFFICE OF ROADWAY ENGINEERING OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET, COLUMBUS, OHIO 43223.

GENERAL INFORMATION

DRIVE SAMPLES

DRIVE SAMPLE BORINGS ARE MADE BY MEANS OF A MECHANICALLY-POWERED, ROTARY-TYPE DRILL RIG EMPLOYING A 2.0 in O.D., 1.4 in I.D., SPLIT-SPOON SAMPLER, AT CONTINUOUS, 2.5 ft AND/OR 5.0 ft DEPTH INTERVALS, DRIVEN BY MEANS OF A 140 lb HAMMER WITH A FREE FALL OF 2.5 ft. THE NUMBER OF BLOWS REQUIRED TO DRIVE THE SAMPLER THREE 0.5 ft INCREMENTS IS CONSIDERED THE STANDARD PENETRATION TEST.

PRESS SAMPLES

PRESS SAMPLES ARE TAKEN BY MEANS OF MECHANICALLY POWERED, ROTARY-TYPE DRILL RIG, EMPLOYING A 3 in O.D. THIN-WALL PRESS SAMPLING TUBE. THE PRESS SAMPLING TUBE IS ADVANCED BY CONTINUOS UNIFORM PRESSURE APPLIED BY THE DRILL RIG.

CORE BORINGS

CORE BORINGS ARE MADE BY MEANS OF A MECHANICALLY-POWERED, ROTARY-TYPE DRILL RIG, EMPLOYING AN NX, NW AND/OR HX CORE BARREL WITH AN INDUSTRIAL DIAMOND CUTTING HEAD.

SAMPLING AND TESTING

THE BORING LOG SHEETS SHOW A GRAPHIC PLOT OF THE INFORMATION OBTAINED, INCLUDING DEPTH AND ELEVATION OF THE SAMPLE, TYPE OF SAMPLE, NUMBER OF BLOWS FOR THE STANDARD PENETRATION TEST IN THREE 0.5 ft INCREMENTS, AND A SAMPLE DESCRIPTION BASED ON LABORATORY TEST RESULTS, UTILIZING THE ODOT CLASSIFICATION SYSTEM. RESULTS OF STRENGTH AND CONSOLIDATION TESTING, IF PERFORMED ON UNDISTURBED SAMPLES, APPEAR GRAPHICALLY ON SEPARATE ENCLOSURES. ROCK SAMPLES ARE DISPLAYED ON THE LOG SHEETS, INCLUDING DEPTH AND ELEVATION OF THE SAMPLE, AMOUNT OF RECOVERY, AND A VISUAL CLASSIFICATION BASED ON THE TYPE, COLOR, DEGREE OF HARDNESS, GRAIN SIZE, DETERIORATION, BEDDING, ACID REACTION, AND OTHER QUALIFYING FACTORS.

AT DEPTHS WHERE MATERIALS ARE BOULDERY OR GRAVELY TO THE EXTENT THAT A SAMPLER CANNOT BE UTILIZED, A WASH SAMPLE IS PROCURED AND VISUALLY CLASSIFIED, IN ORDER TO DETERMINE THE GENERAL CHARACTERISTIC OF THE MATERIAL. THESE SAMPLES ARE NOT CONSIDERED SUFFICIENTLY REPRESENTATIVE TO WARRANT LABORATORY TESTING.

LEGEND

⊕	AUGER BORING LOCATION–PLAN VIEW.
⊕	PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION–PLAN VIEW.
TR	TOP OF ROCK
	CAPPED PILE
	FOOTING
	FOOTING ON PILE
ST	SHELBY TUBE
SS	SPLIT SPOON
⊢	HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN.
X/Y/Z	FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST. X = NO. OF BLOWS FOR FIRST 0.5 ft; Y = NO. OF BLOWS FOR SECOND 0.5 ft; Z = NO. OF BLOWS FOR THIRD 0.5 ft
W	INDICATES FREE WATER ELEVATION
▼	INDICATES STATIC WATER ELEVATION

J&L LABORATORIES, INC.
GEOTECHNICAL CONSULTING & TESTING
215 RAINBOW STREET
WADSWORTH, OH 44281-1444

DRAWN	REVIEW-1	DATE	CALCULATED
LLC	SB	04/02/03	--

J&L PROJECT	REVIEW-2		CHECKED
JLO3382	BR		JX

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE SUM-21-0778 L&R
SR 21 OVER SR 162 (COPLEY SOAD)

SUM-21-(5.69)(7.58)(7.78)

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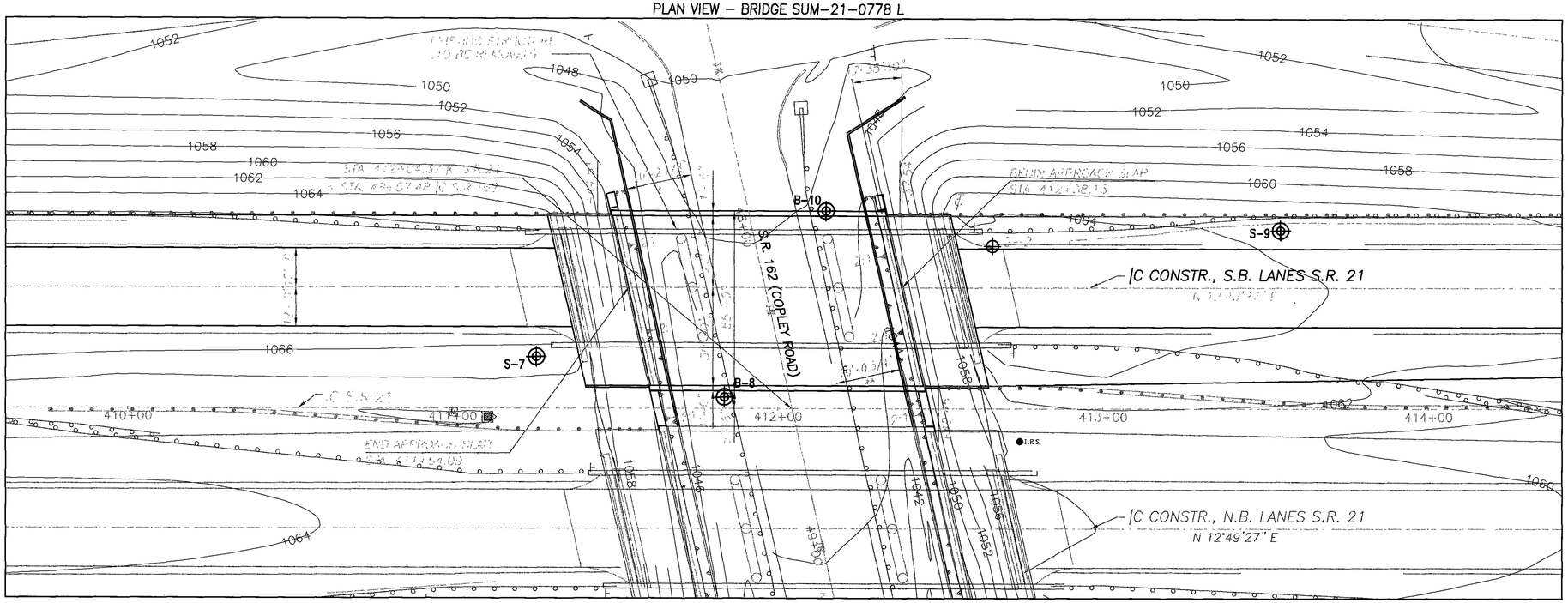
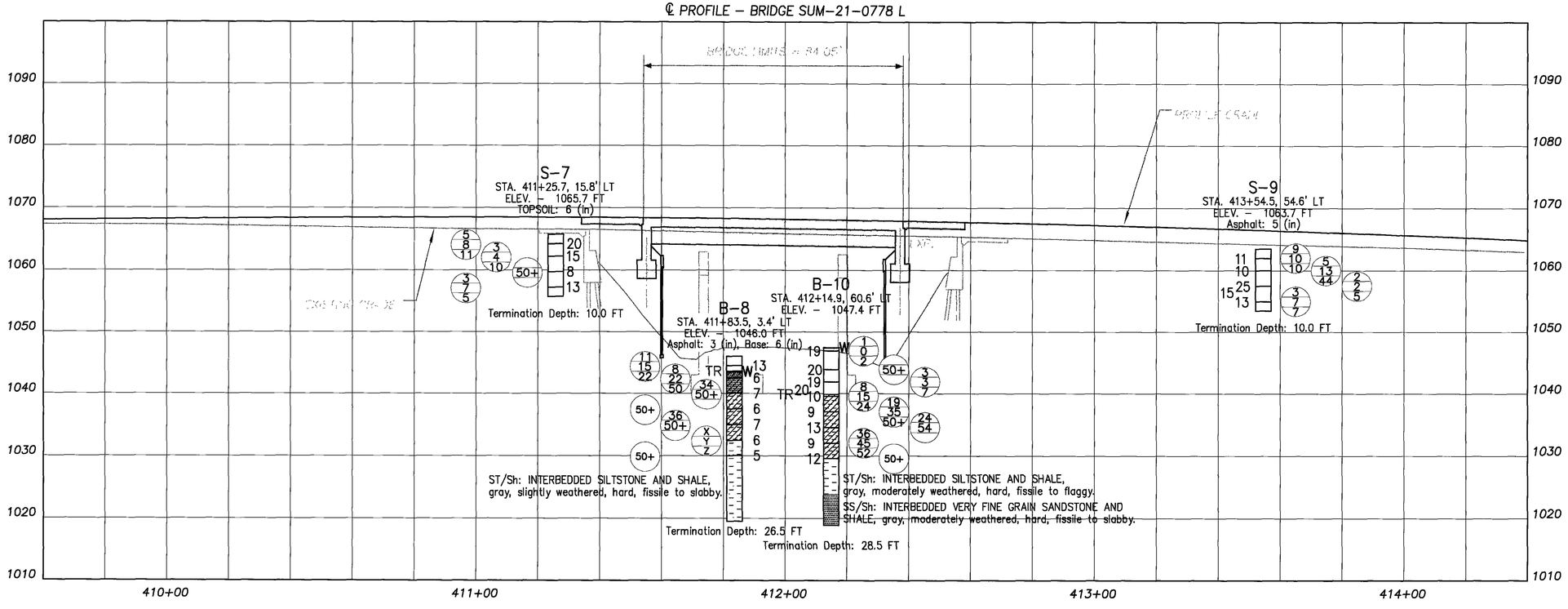
PLAN VIEW – BRIDGE SUM-21-0778 L



℄ PROFILE – BRIDGE SUM-21-0778 L



PLAN AND PROFILE DATA PROVIDED BY SJL & ASSOCIATES, INC. ON 03/14/2003 AND 12/17/2004

HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 10'

DRAWN	REVIEWED	DATE	CALCULATED
LLC	SB	04/02/03	--
J&L PROJECT	REVIEWED-2	REVISED	CHECKED
JL03382	BR	12/19/04	JX

STRUCTURE FOUNDATION PLAN
BRIDGE SUM-21-0778 L
SR 21 OVER SR 162 (COPLEY ROAD)

SUM-21-(5.69)(7.58)(7.78)

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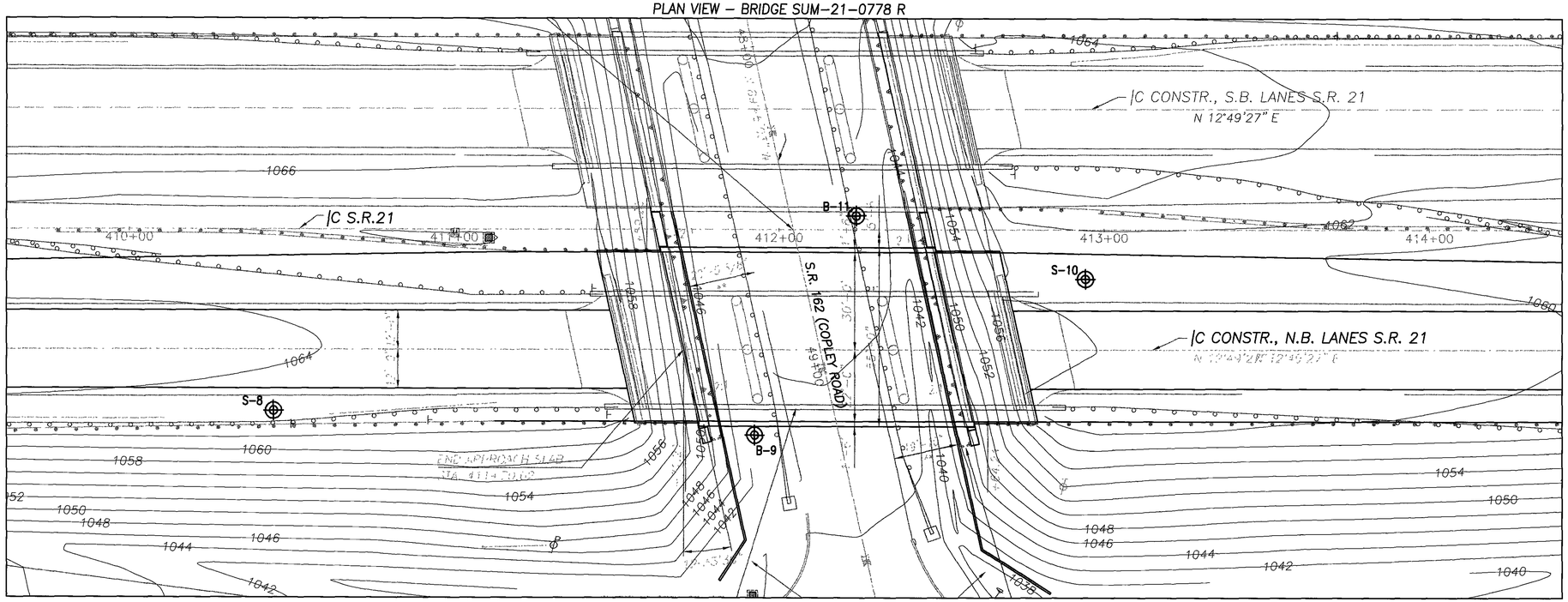
PLAN VIEW – BRIDGE SUM-21-0778 R



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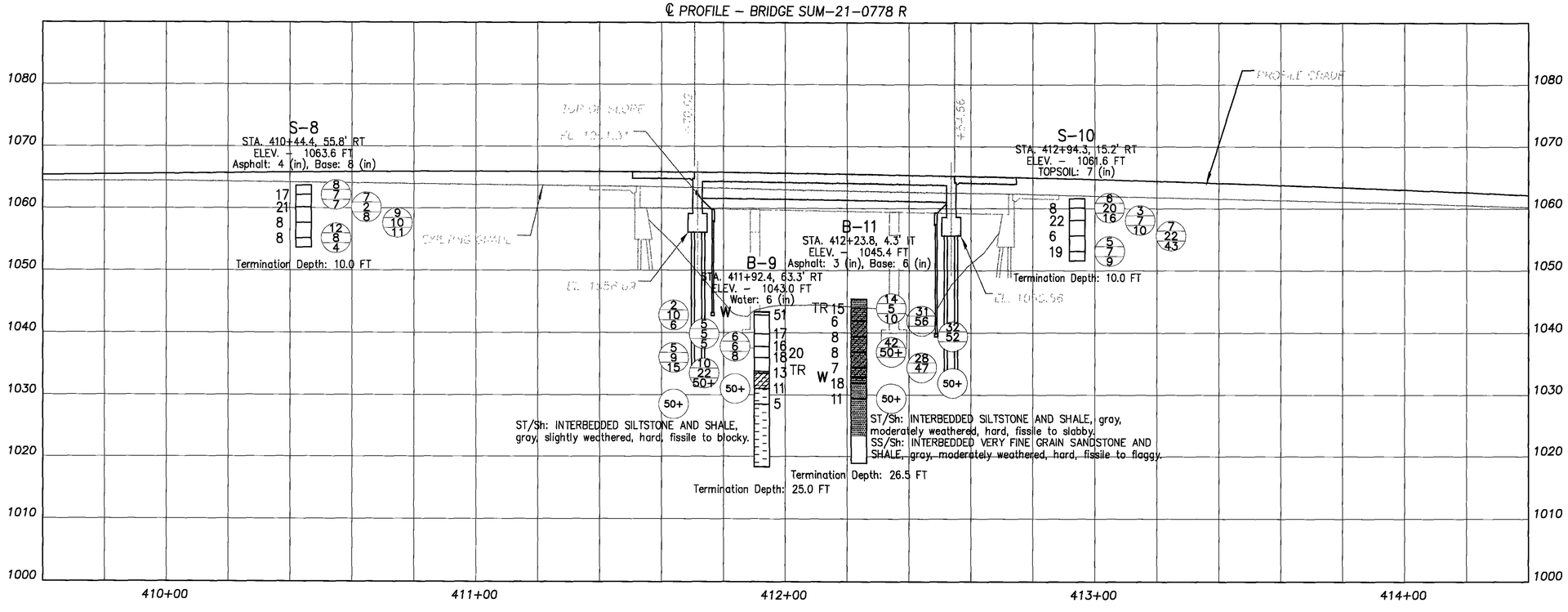

PLAN AND PROFILE DATA PROVIDED BY SJL & ASSOCIATES, INC. ON 03/14/2003 AND 12/17/2004

HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 10'

DRAWN	REVIEWED	DATE	CALCULATED
LLC	SB	04/02/03	– –
J&L PROJECT	REVIEWED-2	REVISED	CHECKED
JL03382	BR	12/19/04	JX

STRUCTURE FOUNDATION PLAN
BRIDGE SUM-21-0778 R
SR 21 OVER SR 162 (COPLEY ROAD)

SUM-21-(5.69)(7.58)(7.78)

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LOG OF BORING

Date Started: 1/20/03
Date Completed: 1/20/03
Boring No.: B-8

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1046.0 (ft)
Water Elev.: 1043.5 (ft)
Station & Offset: 411+83.5' 3.4' LT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1046.0	0.0														
1045.2		11-15-22			PAVEMENT: Asphalt 3 (in), BASE 6 (in)	1	29	14	42	8	7	–	–	13	A-3a
1043.6					A-3a: Brown, dense COARSE AND FINE SAND, some siltstone/sandstone fragments, moist.										
1040.3	5.0	8-22-50			DxSS: DECOMPOSED SANDSTONE, fine grain, brown, soft.	2	–	–	–	–	–	–	–	6	VISUAL
		34-50/5"			DxSh: DECOMPOSED SHALE, silty, gray, soft.	3	–	–	–	–	–	–	–	7	VISUAL
	10.0	54/6"				4	49	14	6	*	31	–	–	6	A-2-4
		36-50/5"				5	–	–	–	–	–	–	–	7	VISUAL
1032.0	15.0	50/6"				6	–	–	–	–	–	–	–	6	VISUAL
		50/1"			ST/Sh: INTERBEDDED SILTSTONE AND SHALE, gray, slightly weathered, hard, fissile to slabby.	7	–	–	–	–	–	–	–	5	VISUAL
	20.0	43%	9.7	0.3											
	25.0														
1019.5															

TERMINATION DEPTH: 26.5 (ft)

LOG OF BORING

Date Started: 1/17/03
Date Completed: 1/17/03
Boring No.: B-10

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1047.4 (ft)
Water Elev.: 1047.4 (ft)
Station & Offset: 412+14.9, 60.6' LT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1047.4	0.0														
1045.4		1-0-2			A-2-6: Black, very loose SANDSTONE AND SILTSTONE FRAG WITH SAND, SILT & CLAY, wet.	1	21	7	39	13	20	–	–	19	A-2-6
		56/6"			A-3a: Brown, very dense COARSE AND FINE SAND, little to some sandstone frag, wet.	2	13	7	68	*	12	–	–	20	A-3a
1041.9	5.0	3-3-7			A-4a: Gray, stiff SANDY SILT, and clay, trace siltstone fragments, odorless, no reaction with HCl, homogeneous soil, moist.	3T	23	10	46	7	14	–	–	19	A-3a
1039.9						3B	5	3	9	39	44	NP	NP	20	A-4a
		8-15-24				4	–	–	–	–	–	–	–	10	VISUAL
	10.0	19-35-50/5"			DxSh: DECOMPOSED SHALE, silty, gray, soft.	5	–	–	–	–	–	–	–	9	VISUAL
		24-54				6	–	–	–	–	–	–	–	13	VISUAL
	15.0	36-45-52				7	33	11	4	*	52	–	–	9	A-4a
1029.9		50/5"				8	–	–	–	–	–	–	–	12	VISUAL
	20.0	33%	10.0	0.0	ST/Sh: INTERBEDDED SILTSTONE AND SHALE, gray, moderately weathered, hard, fissile to flaggy.										
1023.9															
	25.0	45%			SS/Sh: INTERBEDDED VERY FINE GRAIN SANDSTONE AND SHALE, gray, moderately weathered, hard, fissile to slabby.										
1018.9															

TERMINATION DEPTH: 28.5 (ft)

LOG OF BORING

Date Started: 1/17/03
Date Completed: 1/17/03
Boring No.: B-9

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1043.0 (ft)
Water Elev.: 1043.0 (ft)
Station & Offset: 411+92.4, 63.3' RT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1043.0	0.0														
1040.5		2-10-6			A-4a: Black, stiff SANDY SILT, some gravel and sandstone fragments, little organics, wet.	1	–	–	–	–	–	–	–	51	VISUAL
	5.0	5-5-5			A-2-6: Brown, loose to medium dense GRAVEL AND SANDSTONE FRAGMENTS WITH SAND, SILT AND CLAY, wet.	2	41	16	8	19	16	32	13	17	A-2-6
		6-6-8				3T	–	–	–	–	–	–	–	16	VISUAL
1035.8		5-9-15				3B	–	–	–	–	–	–	–	20	VISUAL
					A-6a: Brown/gray, very stiff SILT AND CLAY, little siltstone fragments, trace sand, moist.	4	11	6	3	44	36	38	15	18	A-6a
1033.5	10.0	10-22-50/4"			DxSh: DECOMPOSED SHALE, silty, gray, soft.	5	–	–	–	–	–	–	–	13	VISUAL
1032.2		50/3"				6	48	17	6	*	29	–	–	11	A-2-4
	15.0	50/3"			ST/Sh: INTERBEDDED SILTSTONE AND SHALE, gray, slightly weathered, hard, fissile to blocky.	7	–	–	–	–	–	–	–	5	VISUAL
		21%	10.0	0.0											
	20.0														
	25.0														
1018.0															

TERMINATION DEPTH: 25.0 (ft)

LOG OF BORING

Date Started: 1/20/03
Date Completed: 1/20/03
Boring No.: B-11

Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers

Surface Elev.: 1045.4 (ft)
Water Elev.: 1032.9 (ft)
Station & Offset: 412+23.8, 4.3' LT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1045.4	0.0														
1044.6					PAVEMENT: Asphalt 3 (in), BASE 6 (in)										
1044.0		14-5-10			A-4a: Brown, stiff SANDY SILT, some clay, little siltstone fragments, odorless, moderate reaction with HCl, moist.	1	18	19	19	24	20	26	9	15	A-4a
	5.0	31-56			DxSh: DECOMPOSED SHALE, silty, gray, soft.	2	–	–	–	–	–	–	–	6	VISUAL
		32-52				3	–	–	–	–	–	–	–	8	VISUAL
		42-50/2"				4	38	9	5	*	48	–	–	8	A-4a
	10.0	28-47				5	–	–	–	–	–	–	–	7	VISUAL
1032.4															
	15.0	50/5"			ST/Sh: INTERBEDDED SILTSTONE AND SHALE, gray, moderately weathered, hard, fissile to slabby.	6	68	12	5	*	15	–	–	18	A-1-a
		50/3"				7	–	–	–	–	–	–	–	11	VISUAL
	20.0	24%	10.0	0.0											
1023.4															
	25.0	21%			SS/Sh: INTERBEDDED VERY FINE GRAIN SANDSTONE AND SHALE, gray, moderately weathered, hard, fissile to flaggy.										
1018.9															

TERMINATION DEPTH: 26.5 (ft)

J&L LABORATORIES, INC.
GEOTECHNICAL CONSULTING & TESTING
215 RAINBOW STREET
WADSWORTH, OH 44281-1444

CALCULATED -- | CHECKED JX
DATE 04/02/03
REVIEW-1 SB | REVIEW-2 BR
DRAWN LLC | J&L PROJECT JL03382

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE SUM-21-0778 L&R
SR 21 OVER SR 162 (COPLEY ROAD)

SUM-21-(5.69)(7.58)(7.78)

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LOG OF BORING

Date Started: 1/28/03
Date Completed: 1/28/03
Boring No.: S-7
Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers
Surface Elev.: 1065.7 (ft)
Water Elev.: Not Encountered
Station & Offset: 411+25.7, 15.8' LT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1065.7	0.0														
1065.2		5-8-11			TOPSOIL: 6 (in) A-4a: Brown, very stiff to stiff SANDY SILT, some gravel and sandstone fragments, little clay, no reaction with HCl, moist. (FILL)	1	–	–	–	–	–	–	–	20	VISUAL
	5.0	3-4-10				2	23	10	26	26	15	–	–	15	A-4a
1059.7		50/6"			A-1-b: Dark brown, very dense SANDSTONE FRAGMENTS WITH SAND, some fines, moist.	3	–	–	–	–	–	–	–	8	VISUAL
1057.2		3-7-5			A-4a: Dark brown, stiff SANDY SILT, little clay, trace gravel, moist. (Possible FILL)	4	–	–	–	–	–	–	–	13	VISUAL
1055.7	10.0														

TERMINATION DEPTH: 10.0 (ft)

LOG OF BORING

Date Started: 2/7/03
Date Completed: 2/7/03
Boring No.: S-8
Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers
Surface Elev.: 1063.6 (ft)
Water Elev.: Not Encountered
Station & Offset: 410+44.4, 55.8' RT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1063.6	0.0														
1062.6		8-7-7			PAVEMENT: Asphalt 4 (in), BASE 8 (in) A-4a: Brown, very stiff to stiff SANDY SILT, little siltstone fragment and clay, no reaction with HCl, moist. (Possible FILL)	1	19	34	11	21	15	22	8	17	A-4a
	5.0	7-2-8				2	–	–	–	–	–	–	–	21	VISUAL
1058.1		9-10-11			A-3a: Brown, medium dense COARSE AND FINE SAND, some sandstone fragments, trace fines, no reaction with HCl, moist.	3	–	–	–	–	–	–	–	8	VISUAL
1053.6	10.0	12-8-4				4	–	–	–	–	–	–	–	8	VISUAL

TERMINATION DEPTH: 10.0 (ft)

LOG OF BORING

Date Started: 2/7/03
Date Completed: 2/7/03
Boring No.: S-9
Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers
Surface Elev.: 1063.7 (ft)
Water Elev.: Not Encountered
Station & Offset: 413+54.5, 54.6' LT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1063.7	0.0														
1063.3		9-10-10			PAVEMENT: Asphalt 5 (in) A-3a: Brown, medium dense COARSE AND FINE SAND, some gravel, moist. (FILL)	1	27	18	37	11	7	–	–	11	A-3a
1060.7	5.0	5-13-44			A-1-b: Brown, very dense SANDSTONE FRAGMENTS WITH SAND, trace fines, moist.	2	–	–	–	–	–	–	–	10	VISUAL
1057.7		2-2-5			A-4a: Black, medium stiff SANDY SILT, little clay, trace gravel and organics, v. moist.	3T	–	–	–	–	–	–	–	25	VISUAL
1056.7						3B	–	–	–	–	–	–	–	15	VISUAL
1053.7	10.0	3-7-7			A-3a: Brown, medium dense COARSE AND FINE SAND, some sandstone fragments, moist.	4	–	–	–	–	–	–	–	13	VISUAL

TERMINATION DEPTH: 10.0 (ft)

LOG OF BORING

Date Started: 1/24/03
Date Completed: 1/24/03
Boring No.: S-10
Sampler Type: Split Spoon, (SS)
Sampler Dia.: 2.0 in
Auger Type: 3.25" HSA Augers
Surface Elev.: 1061.6 (ft)
Water Elev.: Not Encountered
Station & Offset: 412+94.3, 15.2' RT

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1061.6	0.0														
1061.0		6-20-16			TOPSOIL: 7 (in) A-3: Brown, dense FINE SAND, and sandstone fragments, trace fines, moist. (FILL)	1	36	7	49	*	8	–	–	8	A-3
1058.1	5.0	3-7-10			A-4b: Brown very stiff SILT, some clay, trace sand and gravel, moist. (FILL)	2	2	3	7	56	32	31	10	22	A-4b
1056.1		7-22-43			A-1-b: Brown, very dense SANDSTONE FRAGMENTS WITH SAND, trace fines, moist.	3	–	–	–	–	–	–	–	6	VISUAL
1053.6	10.0	5-7-9			A-4a: Dark brown, very stiff SANDY SILT, little clay and sandstone fragments, moist.	4	17	6	26	34	17	27	6	19	A-4a
1051.6															

TERMINATION DEPTH: 10.0 (ft)

UNCONFINED COMPRESSIVE STRENGTH OF TESTED ROCK

TEST BORING	ELEVATION (FT)	COMPRESSIVE STRENGTH (PSI)	TEST METHOD*
B-8	1029.5 TO 1020.7	8838	PL
B-9	1026.1	10423	UC
B-9	1026.0 TO 1023.5	9809	PL
B-10	1022.7 TO 1028.9	10237	PL
B-11	1020.1 TO 1028.9	9171	PL

NOTE:
- UC=UNCONFINED COMPRESSIVE STRENGTH TEST.
- PL – POINT LOAD TEST

J&L LABORATORIES, INC.
GEOTECHNICAL CONSULTING & TESTING
215 RAINBOW STREET
WADSWORTH, OH 44281-1444

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STRUCTURE FOUNDATION INVESTIGATION
BRIDGE SUM-21-0778 L&R
SR 21 OVER SR 162 (COPLEY ROAD)

SUM-21-(5.69)(7.58)(7.78)

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