

LEGEND

- 1 ITEM 204 - SUBGRADE COMPACTION
- 2 ITEM 301 - 6" ASPHALT CONCRETE BASE, PG64-22
- 3 ITEM 304 - 6" AGGREGATE BASE
- 4 ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE (@ 0.05 GAL./SQ.YD.)
- 5 ITEM 856 - 1 1/4" - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448) PG64-22
- 6 ITEM 441 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)
- 7 ITEM 411 - 8" STABILIZED CRUSHED AGGREGATE
- 8 ITEM 606 - GUARDRAIL, TYPE MGS
- 9 ITEM 659 - SEEDING AND MULCHING
- 10 ITEM 526 - REINFORCED CONCRETE APPROACH SLAB (T-12")

ROUNDING

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

UTILITIES

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

CABLE:
TIME WARNER CABLE
3760 INTERCHANGE DRIVE
COLUMBUS, OHIO 43204
PHONE: (614) 481-5262
ATTN: RAY MAURER

ELECTRIC:
AMERICAN ELECTRIC POWER CO.
850 TECH CENTER DRIVE
GAHANNA, OHIO 43230
PHONE: (614) 883-6831
ATTN: PAUL PAXTON

PHONE:
AT&T (OHIO)
160 N 6TH STREET RM 106
ZANESVILLE, OH 43701
PHONE: (740) 454-3552
ATTN: BARRETT TAMASOVICH

WATER:
VILLAGE OF ROSEVILLE
107 N MAIN STREET
ROSEVILLE, OHIO 43777
PHONE: (740) 697-7315 EXT. 103
ATTN: JEFF SLACK

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.

ELEVATION DATUM

ALL ELEVATIONS ARE BASED ON NAVD 88 DATUM.

WORK LIMITS

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

CLEARING AND GRUBBING

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

DEMOLITION DEBRIS

THE CONTRACTOR SHALL TAKE PRECAUTIONS TO AVOID AND/OR LIMIT DEMOLITION DEBRIS FROM ENTERING THE STREAM. ANY MATERIAL THAT DOES FALL INTO THE STREAM SHALL BE REMOVED WITHIN 72 HOURS.

ENDANGERED SPECIES HABITAT - INDIANA BAT AND NORTHERN LONG-EARED BAT

THIS PROJECT IS WITHIN THE RANGE OF THE FEDERALLY ENDANGERED INDIANA BAT (MYOTIS SODALIS) AND THE NORTHERN LONG-EARED BAT (MYOTIS SEPTENTRIONALIS). THE ROOSTING HABITAT FOR THESE SPECIES 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 OR SNAGS WILL BE PERFORMED ONLY AFTER SEPTEMBER 30 AND BEFORE APRIL 1. PRIOR TO ANY REHABILITATION/REMOVAL, THE UNDERSIDE OF THE EXISTING BRIDGES SHALL BE CAREFULLY EXAMINED FOR THE PRESENCE OF BATS, ESPECIALLY FROM APRIL 1 TO SEPTEMBER 30. IF ANY BATS ARE FOUND ROOSTING ON THE UNDERSIDE OF A BRIDGE, THE UNITED STATES FISH AND WILDLIFE SERVICE, ECOLOGICAL SERVICES DIVISION, THE ODOT OFFICE OF ENVIRONMENTAL SERVICES AND ODOT DISTRICT 5 ENVIRONMENTAL SECTION SHALL BE CONTACTED OR PROVIDED WITH INFORMATION.

SEEDING AND MULCHING

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

659, SEEDING AND MULCHING	225 SY
659, REPAIR SEEDING AND MULCHING (225) X (0.05) = 11.25 SY	12 SY
659, COMMERCIAL FERTILIZER [(225) X (1 TON/7410 SY)] = 0.03 TON	0.03 TON
659, LIME (225) X (1 ACRE/4840 SY) = 0.05 ACRE	0.1 ACRE
659, WATER [(225) X (0.0054 M GAL/SY)] = 1.2 M GAL	2 M GAL

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.

CONTRACTOR'S USE OF RIGHT-OF-WAY

THE CONTRACTOR SHALL NOT USE OR ENTER ANY AREA OUTSIDE OF THE RIGHT-OF-WAY LIMITS THAT ARE SHOWN ON THE PLANS.

BANK STABILIZATION

BANK STABILIZATION WILL BE LIMITED TO WITHIN 50 FEET UPSTREAM AND DOWNSTREAM OF THE EXISTING STRUCTURE. BANK STABILIZATION WILL BE LIMITED TO REGRADING OF THE BANKS FROM TOE-OF-SLOPE (INSTREAM) TO THE TOP OF BANK AND WILL INCLUDE PLACEMENT OF ROCK CHANNEL PROTECTION WHERE REQUIRED. THIS EXCLUDES WORK SUCH AS WIDENING, DEEPENING OR RELOCATION. THE EXTENT OF SUCH STABILIZATION WILL BE KEPT TO A MINIMUM.

TRAFFIC CONTROL

ITEM 626 - BARRIER REFLECTOR, TYPE A IS INCLUDED IN THE PLANS FOR TRAFFIC CONTROL AND SAFETY MEASURES. BARRIER REFLECTORS SHALL BE PLACED ON ALL GUARDRAIL RUNS INCLUDING ANCHOR ASSEMBLIES AND BRIDGE TERMINAL ASSEMBLIES. AN ESTIMATED QUANTITY OF ITEM 626 - BARRIER REFLECTOR - 8 EACH HAS BEEN CARRIED TO THE GENERAL SUMMARY.

SECTION 404-WATERWAY PERMIT

A PRE-CONSTRUCTION NOTIFICATION HAS BEEN SUBMITTED TO THE US ARMY CORPS OF ENGINEERS. NO WORK MAY OCCUR IN ELK RUN BELOW THE ORDINARY HIGH WATER ELEVATION OF WILLS CREEK UNTIL THE SECTION 404 PERMIT HAS BEEN ISSUED BY THE US ARMY CORPS OF ENGINEERS. THE ANTICIPATED PERMIT ISSUANCE DATE IS MAY 15, 2016.

CONSTRUCTION NOISE

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

GROUND MOUNTED SIGNS

COUNTY WILL REMOVE ALL GROUND MOUNTED SIGNS ONCE ROAD CLOSURE BEGINS, AND WILL REINSTALL SIGNS ONCE ROAD IS OPENED TO TRAFFIC.

ITEM 611 - 12" CONDUIT, TYPE B, AS PER PLAN

CONTRACTOR TO FIELD VERIFY THE LOCATION AND ELEVATION OF THE EXISTING 12" STORM SEWER, AND THE TIE-IN LOCATION SHOWN ON THE PLANS. THE CONTRACTOR SHALL INSTALL TWO 22.5 FITTINGS TO ACHIEVE THE OUTLET LOCATION SHOWN ON THE PLANS, OR APPROVED BY THE ENGINEER. OUTLET INVERT ELEVATION TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR AND ENGINEER.

ALL LABOR, MATERIALS, AND INCIDENTALS REQUIRED TO TIE-IN AND INSTALL 12" STORM SERWER SHALL BE PAID FOR AS:

611, 12" CONDUIT, TYPE B, AS PER PLAN	40 FT
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CENTERLINE REFERENCES C.R. 7						
STATION	OFFSET (FT.)	SIDE	NORTHING	EASTING	ELEVATION	DESCRIPTION
0+00.00			657487.515	2089743.400		P.I.
0+71.76	1.544	RT.	657506.145	2089812.721	735.085	P.K. SET IN ROAD
1+38.29	1.666	RT.	657524.673	2089876.619	735.732	P.K. SET IN ROAD
1+93.12			657541.685	208928.945		P.I.
2+41.09			657555.982	2089974.552	733.251	P.K. SET IN ROAD

ITEM 614 - MAINTAINING TRAFFIC

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN STANDARD 48"x30" ROAD CLOSED SIGNS, ADVANCED WARNING SIGNS, SIGN SUPPORTS, BARRICADES, GATES AND LIGHTS AS SHOWN ON SCD MT-101.60 AT THE LOCATIONS SHOWN DURING PERIODS IN WHICH THE AFFECTED ROADS ARE CLOSED TO TRAFFIC.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN SIGNS AND SIGN SUPPORTS, AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND TYPE 3 BARRICADES OF THE TYPE AND LOCATION AS SHOWN ON THE PLANS.

ALL WORK AND TRAFFIC DEVICES SHALL BE IN ACCORDANCE WITH CMS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

DETOUR NOTIFICATION

THE CONTRACTOR SHALL ADVISE THE COUNTY EIGHTEEN (18) DAYS IN ADVANCE OF WHEN THE DETOUR ROUTE SHOULD BE IN EFFECT. THE CONTRACTOR 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, SHALL BE FURNISHED, ERECTED, MAINTAINED, AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR.

DETOUR SIGNAGE

THE CONTRACTOR SHALL ERECT AND MAINTAIN DETOUR SIGNAGE AND ADVANCED NOTICE SIGNS.

THIS WORK SHALL BE PAID UNDER THE LUMP SUM PAY ITEM 614 - DETOUR SIGNING, AS PER PLAN

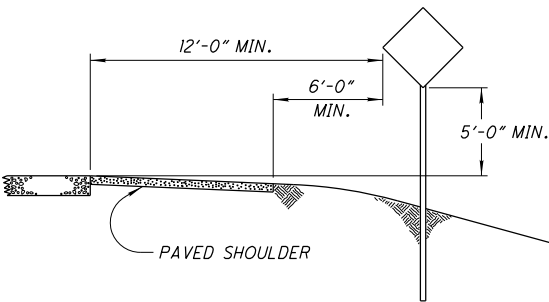
DETOUR LIMITATION

THE MAXIMUM LENGTH OF TIME FOR THE DETOUR ROUTE TO BE IN EFFECT SHALL THIRTY (30) CONSECUTIVE DAYS. CONSTRUCTION WORK MAY BE PERFORMED BEFORE AND AFTER THE DETOUR LIMITATION DATES, BUT THERE SHALL BE NO RESTRICTIONS 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 IN ACCORDANCE WITH 108.07 TO BE ASSESSED. THE CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS OF 108.07 OF THE DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

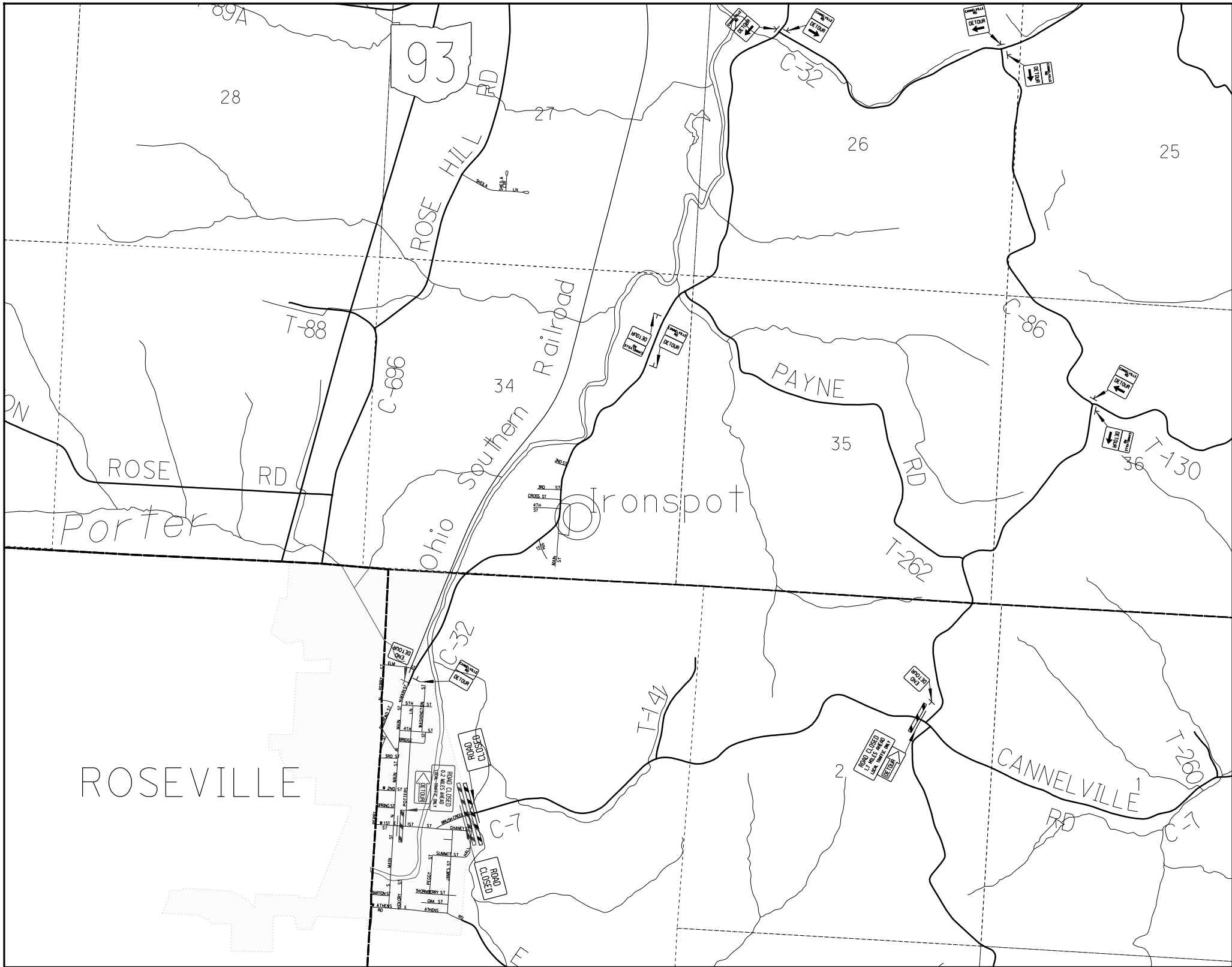
DUST CONTROL

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

ITEM 616 - WATER 2 M GAL



RURAL SIGN DETAIL



SIGN KEY

CANNELVILLE RD

DETOUR

CANNELVILLE RD

DETOUR

←

CANNELVILLE RD

DETOUR

→

ROAD CLOSED
X.X MILES AHEAD
LOCAL TRAFFIC ONLY

← DETOUR

ROAD CLOSED
X.X MILES AHEAD
LOCAL TRAFFIC ONLY

DETOUR →

ROAD CLOSED

M4-8A (24"x18")

SPECIAL (30"x12")
M4-8 (30"x15")

SPECIAL (30"x12")
M4-9L (30"x24")

SPECIAL (30"x12")
M4-9R (30"x24")

R11-3a (60"x30")
M4-10L (48"x18")

R11-3a (60"x30")
M4-10R (48"x18")

R11-2 (48"x30")

LEGEND

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GATES AND BARRICADES
AS SHOWN ON SCD MT-101.60

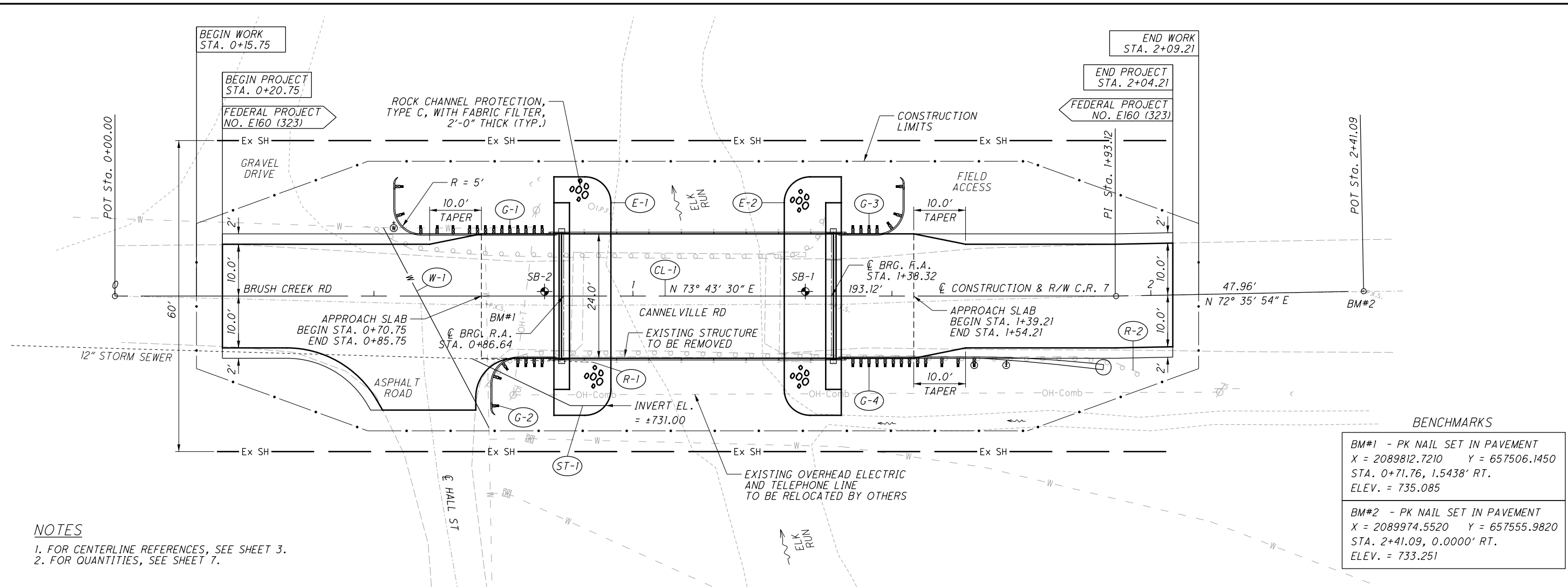
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TYPE 3 BARRICADE

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TYPICAL POST MOUNTED SIGN
(SEE RURAL SIGN DETAIL)

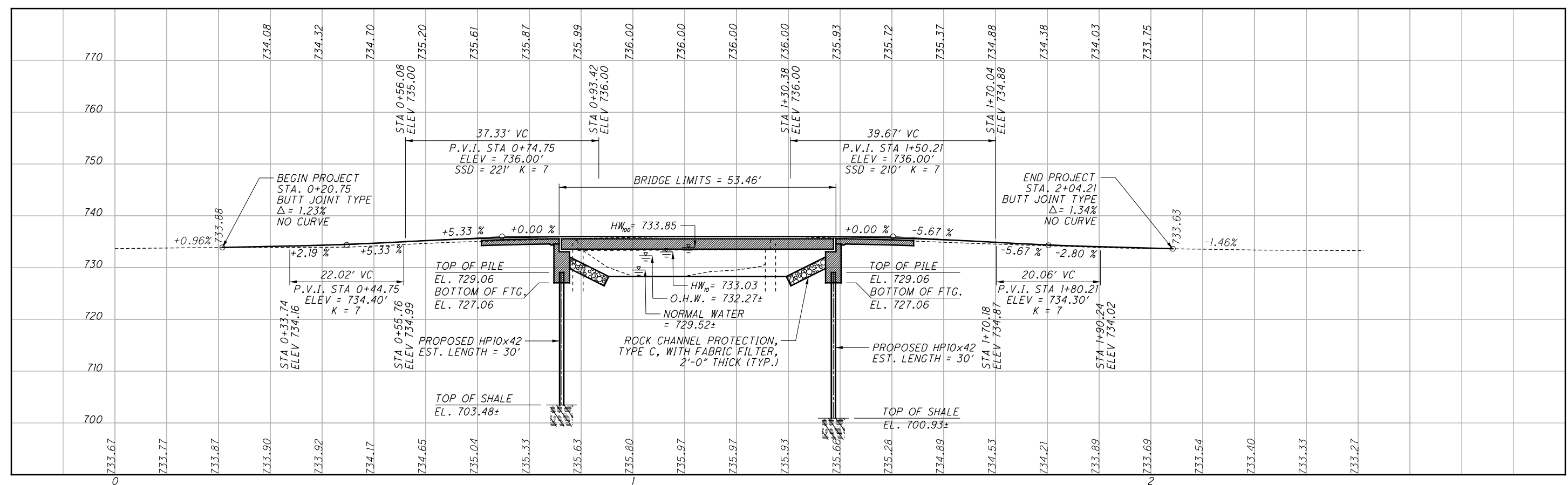
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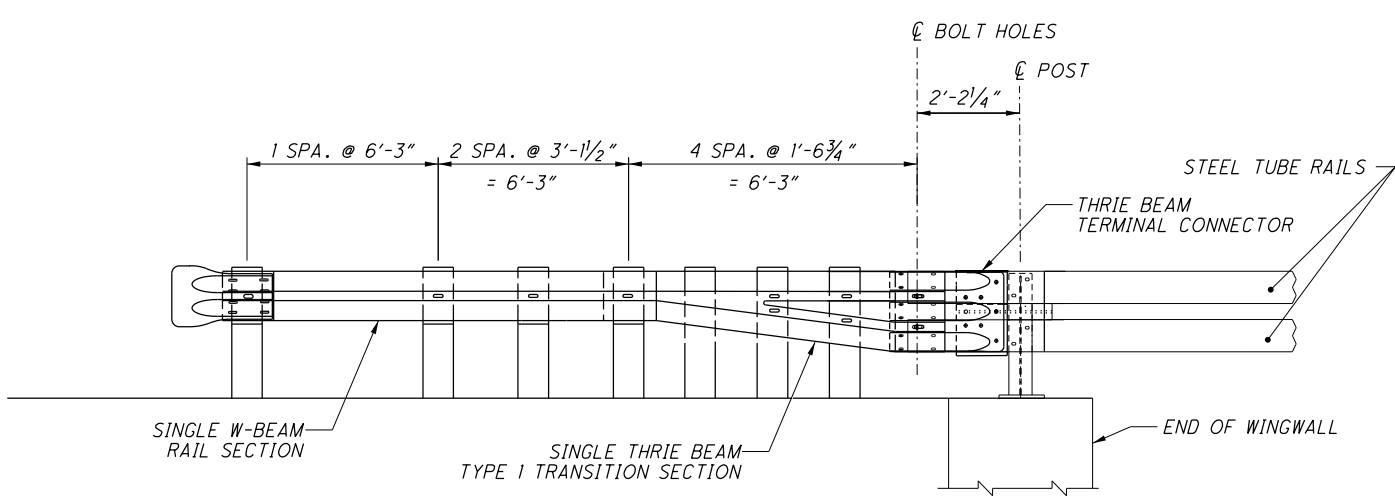
NOTES

1. FOR CENTERLINE REFERENCES, SEE SHEET 3.

2. FOR QUANTITIES, SEE SHEET 7.

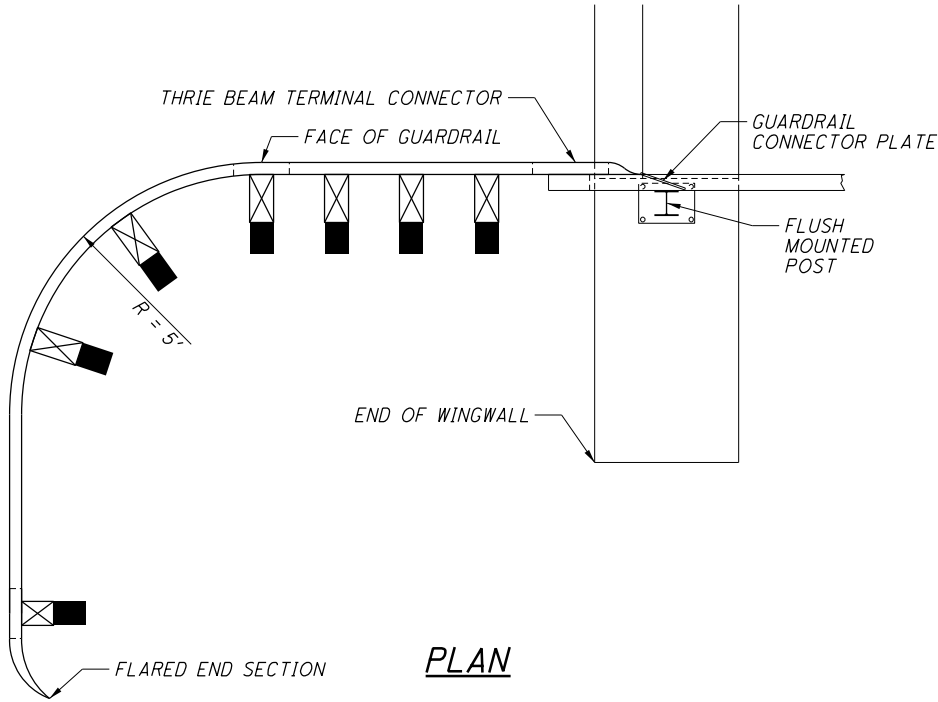


REF NO.	SHEET NO.	STATION		SIDE	22	202	601	606	606	606	606	611	642								
					PIPE REMOVED, 24" AND UNDER	GUARDRAIL REMOVED	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER	GUARDRAIL, TYPE MGS	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1, AS PER PLAN	ANCHOR ASSEMBLY, MGS TYPE A	12" CONDUIT, TYPE B, AS PER PLAN	CENTER LINE DOUBLE SOLID								
		FROM	TO		FT	FT	CY	FT	EACH	EACH	EACH	FT	MILE								
R-1	6	0+68.94	0+92.22	RT	25																
R-2	6	0+48.47	1+37.01	LT		55															
R-2	6	0+71.40	1+98.22	RT		70															
E-1	6	0+84.75	0+95.75	LT&RT			30														
E-2	6	1+29.21	1+40.21	LT&RT			30														
G-1	6	0+53.81	0+82.50	LT				12.5	1												
G-2	6	0+72.56	0+82.50	RT						1											
G-3	6	1+42.46	1+52.40	LT						1											
G-4	6	1+42.46	1+90.83	RT					1		1										
ST-1	6	0+68.94	0+94.75	RT								40									
CL-1	6	0+20.75	2+04.21	℄									0.04								
TOTALS CARRIED TO GENERAL SUMMARY					25	125	60	25	2	2	1	40	0.04								



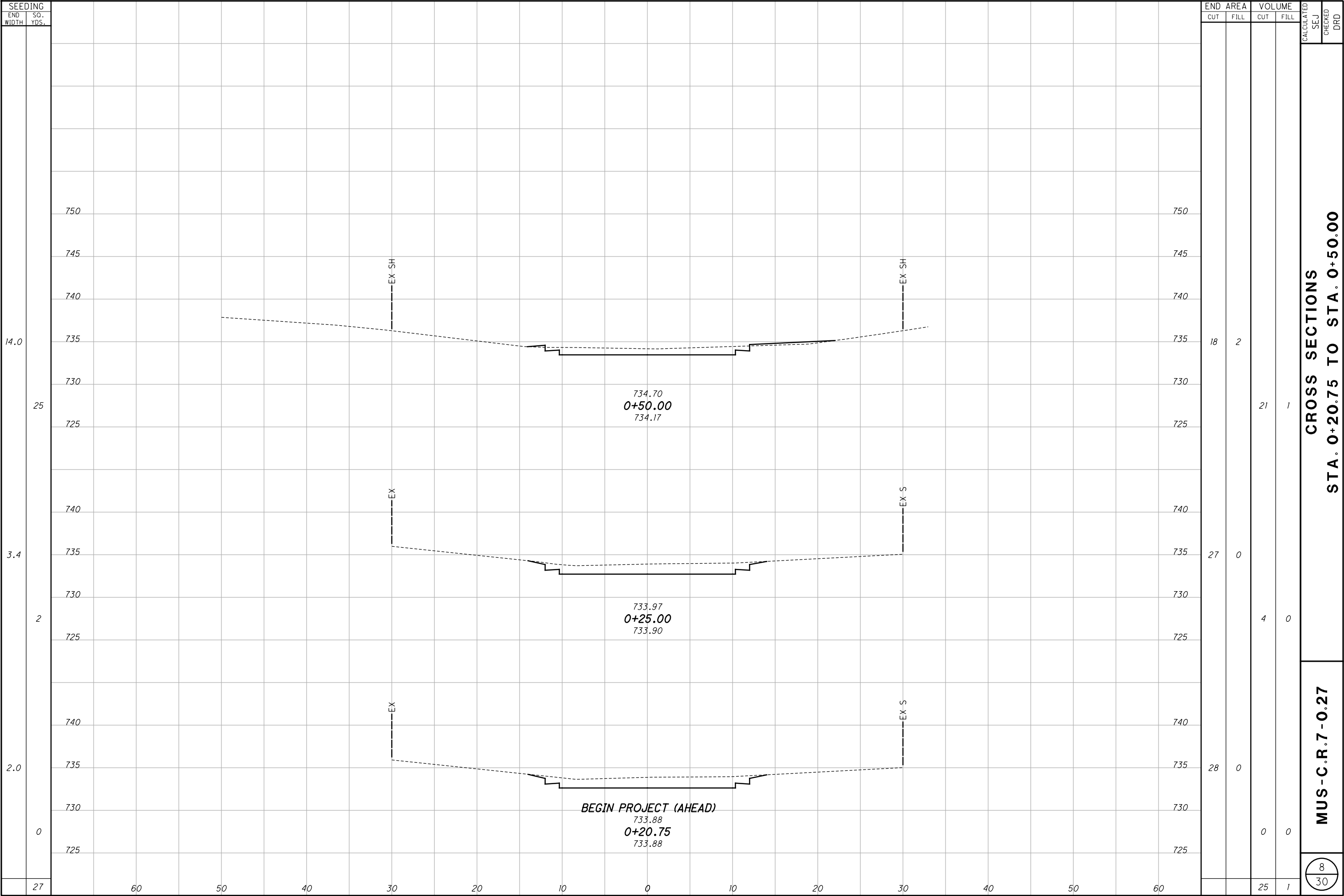
ELEVATION

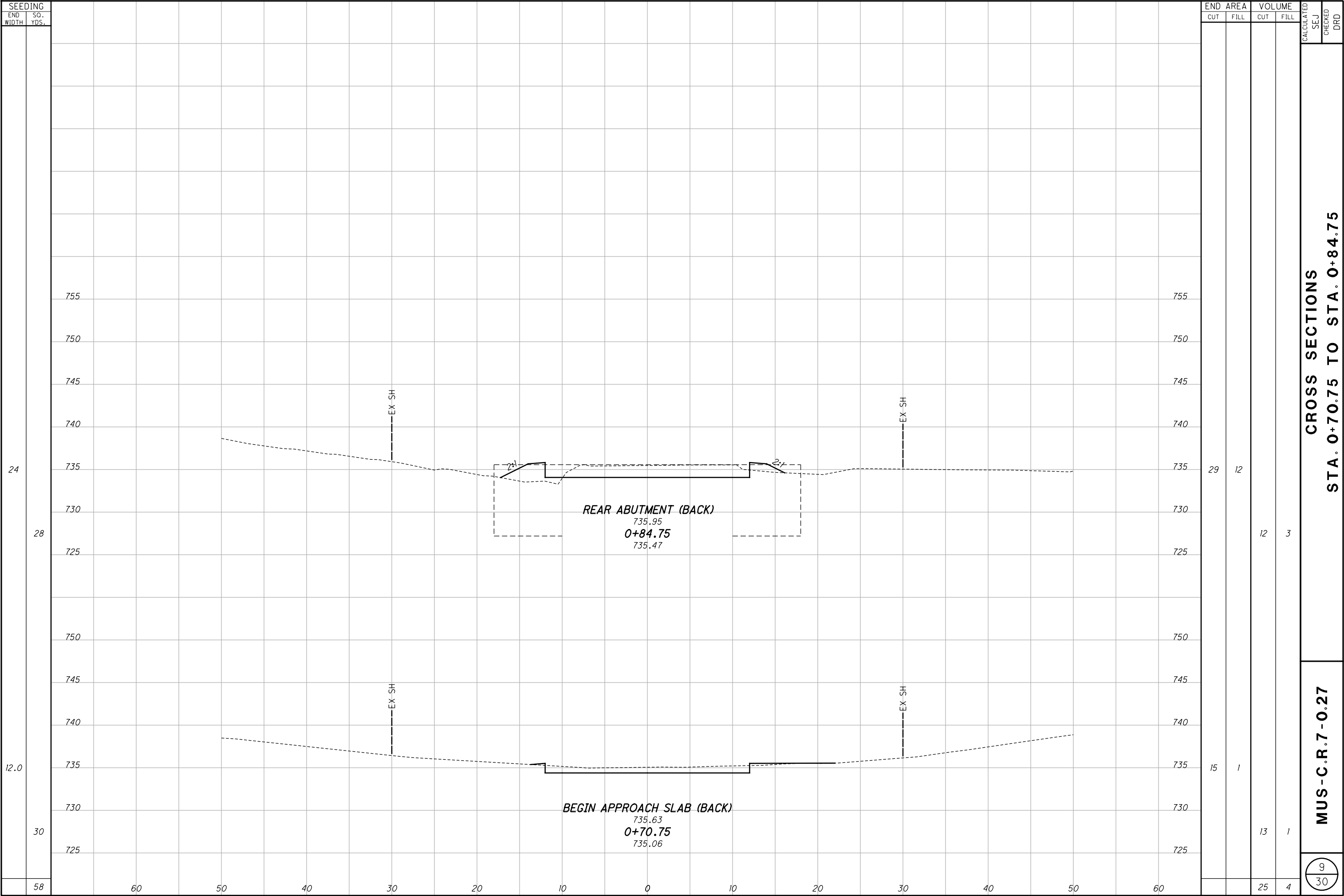
MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1,
AS PER PLAN DETAILS
NOT TO SCALE

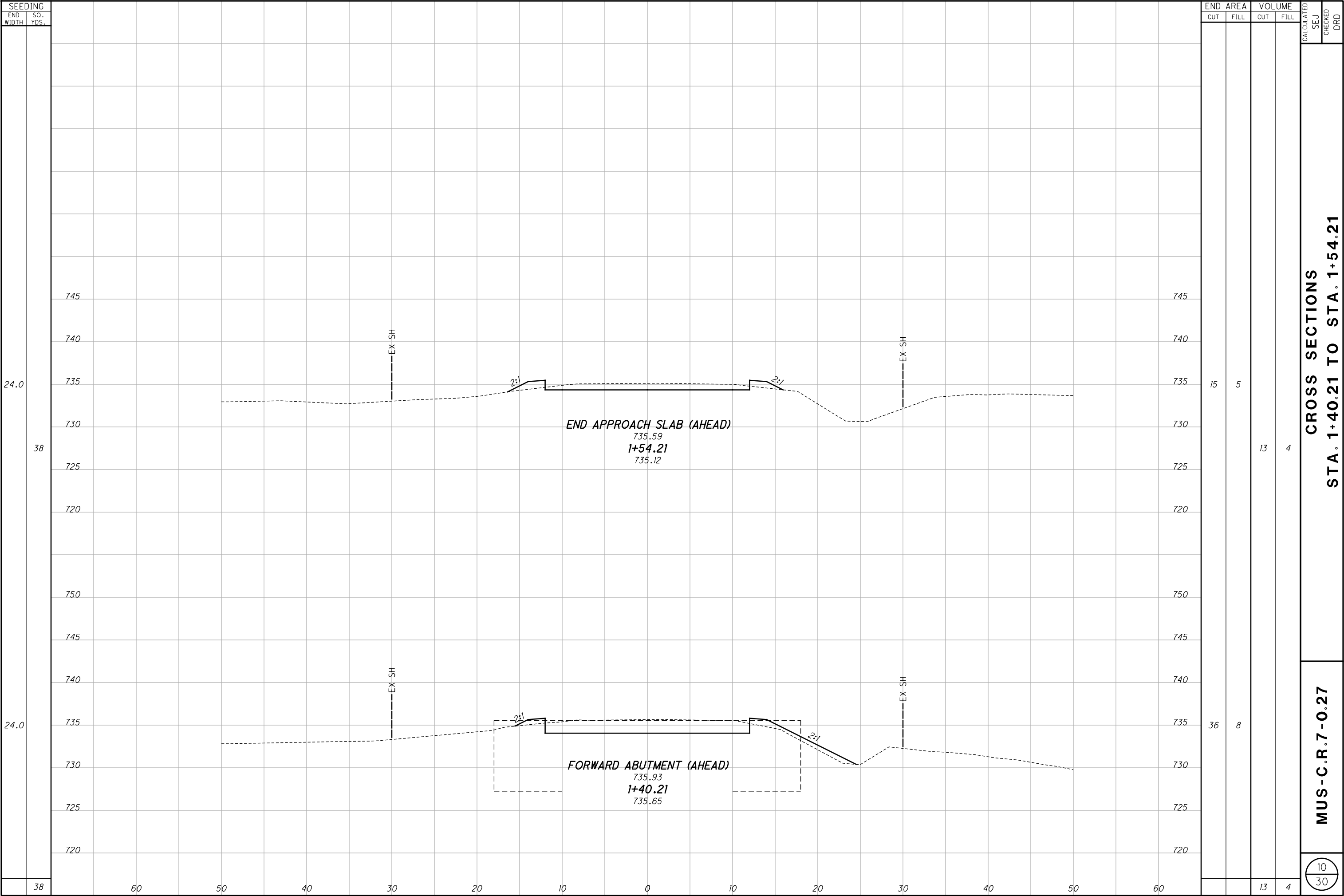


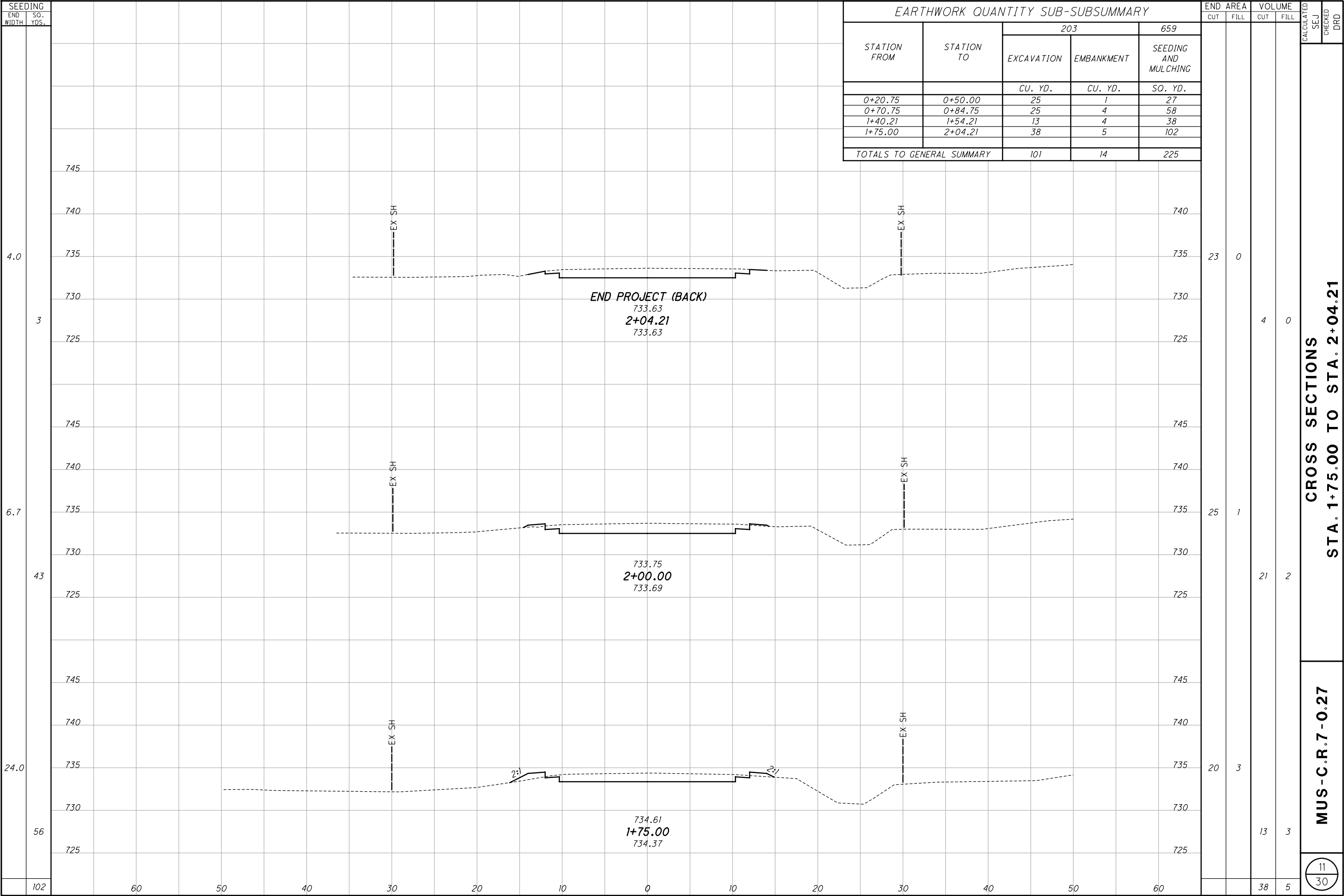
PLAN

NOTES
FOR ADDITIONAL DETAILS, SEE SCD MGS-3.1

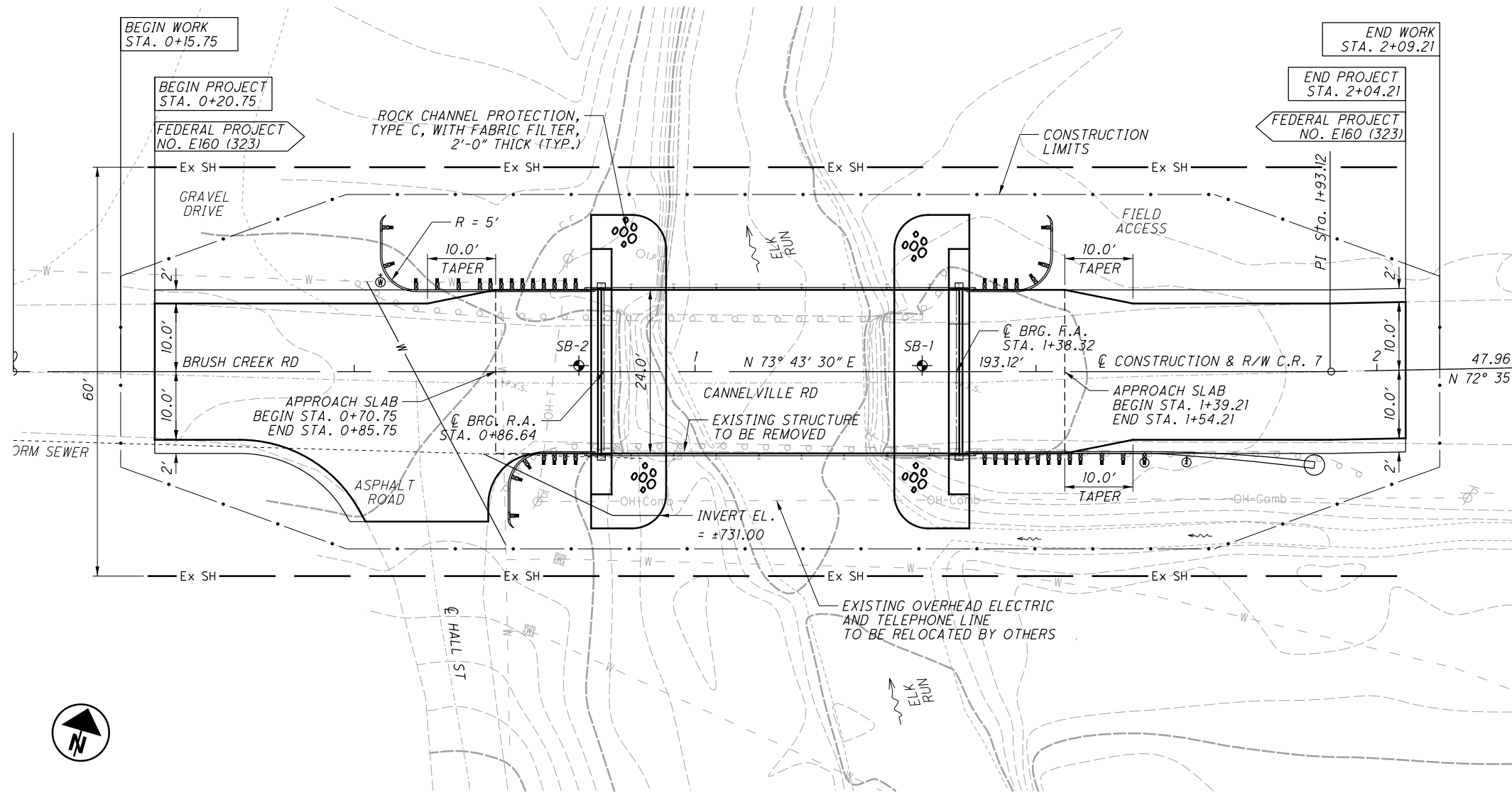






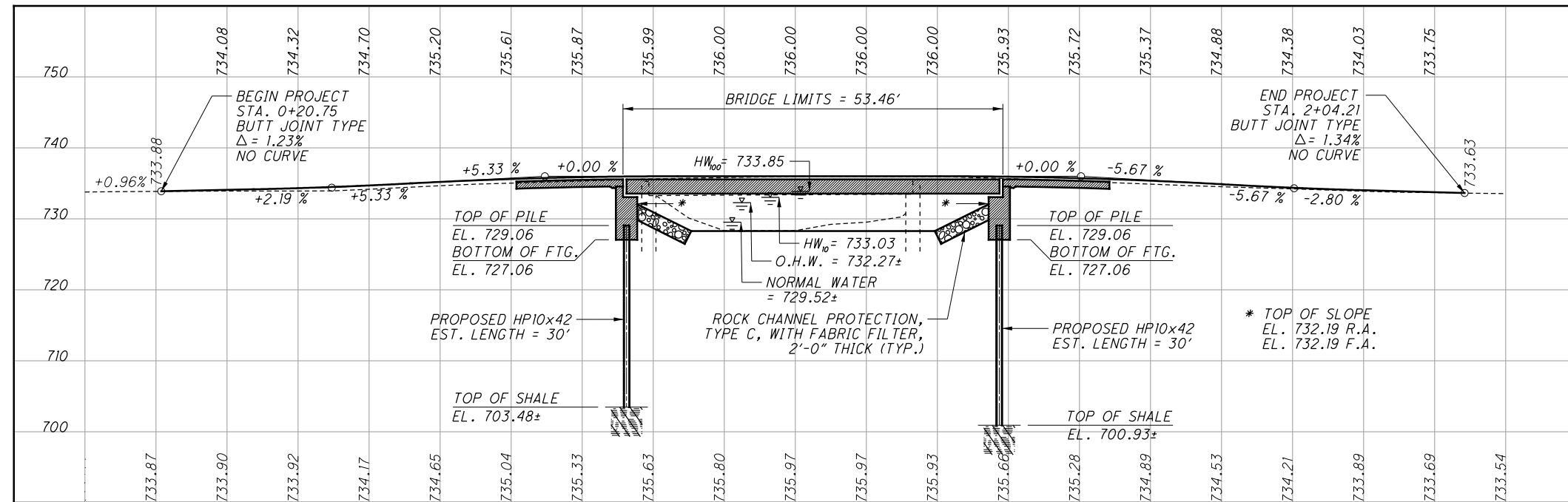


REVISED 7/14/16



PLAN

FOR BENCHMARK / MONUMENT INFORMATION
SEE ROADWAY PLAN SHEET 6.



PROFILE ALONG C CONSTRUCTION C.R. 45

NOTES

- EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS AND MATCH EXISTING SLOPES.
- FLUSH MOUNT GUARDRAIL POST STATIONING AS FOLLOWS:
STA. 0+86.25 - LEFT REAR
STA. 0+86.25 - RIGHT REAR
STA. 1+38.71 - LEFT FORWARD
STA. 1+38.71 - RIGHT FORWARD
MEASURED ALONG WINGWALL AT FACE OF GUARDRAIL POST.

LEGEND

- ORIGINAL SOIL BORING LOCATION

TRAFFIC DATA

DESIGN TRAFFIC:
2016 ADT = 707 2016 ADTT = 10
2036 ADT = 760 2036 ADTT = 10
DIRECTIONAL DISTRIBUTION = 50%

HYDRAULIC DATA

DRAINAGE AREA = 4.69 SQ. MILES
Q (25) = 1130 V (25) = 7.22 FT/S
Q (100) = 1550 V (100) = 8.07 FT/S

EXISTING STRUCTURE

TYPE: SINGLE SPAN STEEL BEAM BRIDGE WITH CONCRETE DECK,
ON STONE/CONCRETE ABUTMENTS

SPANS: 38'-0" ± C/C BEARINGS
ROADWAY: 18'-6" ± F/F GUARDRAIL
LOADING: S-17
SKEW: NONE
APPROACH SLABS: NONE
ALIGNMENT: TANGENT
CROWN: 0.0156 (±) FT/FT
STRUCTURAL FILE NUMBER: 6036082
DATE BUILT: UNKNOWN
DISPOSITION: STRUCTURE TO BE REPLACED

PROPOSED STRUCTURE

TYPE: PRE-FABRICATED SINGLE SPAN A709 GALV. STEEL
TUB GIRDER BRIDGE WITH SPS PANEL DECKING,
SUPPORTED ON CAPPED PILE ABUTMENTS

SPANS: 51'-8 1/4" C/C BEARINGS
ROADWAY: 24'-0" F/F GUARDRAIL
LOADING: HL-93
SKEW: NONE
APPROACH SLABS: 15'-0" LONG (AS-1-15)
ALIGNMENT: TANGENT
CROWN: 0.0156 FT/FT
COORDINATES: LATITUDE N 39°48'16"
LONGITUDE W 82°04'05"

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

AS-1-15 REVISED 7-17-15
EXJ-2-81 REVISED 7-19-02
TST-1-99 REVISED 1-17-14

AND TO THE FOLLOWING STANDARD SUPPLEMENTAL SPECIFICATIONS:

800 REVISED 1/15/16
832 REVISED 1/17/14
846 REVISED 4/17/15

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 6TH EDITION 2012, AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

OPERATIONAL IMPORTANCE: A LOAD MODIFIER OF 1.0 HAS BEEN ASSUMED FOR THE DESIGN OF THIS STRUCTURE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 1.3.5 AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

DESIGN LOADING: HL-93

FUTURE WEARING SURFACE: 0.060 KSF

DESIGN DATA

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4.0 KSI (SUBSTRUCTURE)

REINFORCING STEEL - ASTM A615 OR A996 GRADE 60 - MIN. YIELD STRENGTH 60 KSI

STRUCTURAL STEEL - ASTM A709 GRADE 50 GALVANIZED PER CMS 711.02, YIELD STRENGTH 50 KSI (UNLESS NOTED OTHERWISE)

STEEL H-PILES - ASTM A572 - YIELD STRENGTH 50 KSI

DECK PROTECTION METHOD

TYPE 3 WATERPROOFING
ASPHALT WEARING SURFACE
STEEL DRIP PLATE

MONOLITHIC WEARING SURFACE

ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK

UTILITY LINES

THE UTILITY COMPANIES SHALL BORE ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES. THE CONTRACTOR AND UTILITIES ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN

THE BACKFILL MATERIAL BEHIND THE ABUTMENTS/WINGWALLS FOR THE CONSTRUCTION OF THE APPROACH EMBANKMENT BETWEEN STA. 0+70.75 TO 0+85.75 AND 1+39.21 TO 1+54.21 SHALL BE:

BELOW THE DRAIN PIPE - SHALL CONFORM TO 203.02.R
ABOVE THE DRAIN PIPE - SHALL BE TYPE B GRANULAR MATERIAL, 703.16.C,
PLACED AND COMPACTED IN 6" LIFTS AS PER 503.08

ITEM 511 - CLASS QC1 CONCRETE, ABUTMENT, AS PER PLAN

THE CONTRACTOR SHALL INSTALL A METAL BENCHMARK DISK ON TOP OF NORTHEAST WINGWALL. THE DISK SHALL BE PLACED CAREFULLY ON A LEVELED SECTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE AN ELEVATION OF THE BENCHMARK, WHICH SHALL BE VERIFIED BY A PROFESSIONAL SURVEYOR. THE ELEVATION MEASURED SHALL USE NAVD 88 DATUM. THE DISK SHALL BE PROVIDED BY THE MUSKINGUM COUNTY ENGINEER. PAYMENT FOR ALL OTHER MATERIALS, LABOR AND INCIDENTALS NECESSARY TO INSTALL THE BENCHMARK DISK SHALL BE INCLUDED IN THIS PAY ITEM. IF THE METAL BENCHMARK IS DISTURBED PRIOR TO THE COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL SUPPLY A NEW DISK, RESET AND VERIFY ITS ELEVATION AT NO ADDITIONAL COST TO THE COUNTY.

ASPHALT CONCRETE WEARING COURSE

ASPHALT CONCRETE WEARING COURSE SHALL CONSIST OF A VARIABLE THICKNESS OF ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448) AND A FINAL UNIFORM 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448) PG64-22.

PLACE THE INTERMEDIATE COURSE AT A VARIABLE THICKNESS OF 1 3/4" @ EDGE AND 4" @ C, PARALLEL TO AND 1 1/4" BELOW FINAL PAVEMENT SURFACE ELEVATION. THE FINAL UNIFORM 1 1/4" SURFACE COURSE SHALL BE PLACED CONTINUOUSLY WITH THE ROADWAY PAVEMENT.

ESTIMATED QUANTITIES					CALCULATED: SEJ DATE: 3/17/16		CHECKED: DRD DATE: 3/17/16	SPEC & AS PER PLAN BRIDGE SHEET NO.
ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	ABUTS.	SUPER	GEN'L	
202	11002	LS		STRUCTURE REMOVED, OVER 20 FOOT SPAN			LS	
202	23500	90	SY	WEARING COURSE REMOVED			90	
503	11100	LS		COFFERDAMS AND EXCAVATION BRACING			LS	
503	21301	LS		UNCLASSIFIED EXCAVATION, AS PER PLAN			LS	2 / 19
505	11100	LS		PILE DRIVING EQUIPMENT MOBILIZATION			LS	
507	00100	350	FT	STEEL PILES HP10X42, FURNISHED	350			
507	00150	300	FT	STEEL PILES HP10X42, DRIVEN	300			
507	93300	10	EACH	STEEL POINTS OR SHOES	10			
509	10000	4298	LB	EPOXY COATED REINFORCING STEEL	4298			
511	45511	58	CY	CLASS QC1 CONCRETE, ABUTMENT, AS PER PLAN	58			2 / 19
512	10100	50	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	50			
512	33011	140	SY	TYPE 3 WATERPROOFING, AS PER PLAN			140	2 / 19
516	44101	8	EACH	3"x9"x20" ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE 1 1/2"x10"x46", (NEOPRENE), AS PER PLAN		8		2 / 19
516	10901	48	FT	ELASTOMERIC COMPRESSION SEAL, AS PER PLAN			48	12 / 19
518	21200	22	CY	POROUS BACKFILL WITH FILTER FABRIC	22			
518	40000	72	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	72			
518	40011	40	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN	40			2 / 19
526	10000	80	SY	REINFORCED CONCRETE APPROACH SLAB (T=12")			80	
SPECIAL	53000200	LS		STRUCTURE, MISC.: PRE-FABRICATED SUPERSTRUCTURE		LS		2 / 19
846	00100	48	FT	POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM, AS PER PLAN			48	5 / 19

ITEM SPECIAL - STRUCTURE, MISC.: PRE-FABRICATED SUPERSTRUCTURE

THIS ITEM SHALL CONSIST OF FABRICATING, FURNISHING, TRANSPORTING, ERECTING AND INSTALLING IN PLACE THE COMPLETE PRE-FABRICATED SUPERSTRUCTURE, INCLUDING ALL FRAMING, TST RAILINGS, FLOOR SYSTEM, AND ALL INCIDENTALS, IN ACCORDANCE WITH THE DETAILS SHOWN IN THE PLANS AND THESE SPECIFICATIONS. THE STEEL FABRICATOR SHALL PROVIDE THE ENGINEER WITH SHOP DRAWINGS.

BRIDGE TST RAILING SHALL BE PRE-ASSEMBLED ON THE BRIDGE AS SHOWN IN THE PLANS BY THE STEEL FABRICATOR PRIOR TO DELIVERY. ALL ITEMS REQUIRED IN SCD TST-1-99 SHALL BE PAID FOR IN THIS ITEM.

SEPARATE PAYMENT WILL BE MADE FOR SUBSTRUCTURE ITEMS LISTED ON THE ESTIMATED QUANTITIES SHEET. HOWEVER, ALL OTHER WORK OR ITEMS NECESSARY TO PROVIDE THE COMPLETED IN-PLACE SUPERSTRUCTURE ARE INCIDENTAL TO AND INCLUDED FOR PAYMENT WITH THIS ITEM.

THESE SPECIFICATIONS ARE FOR A FULLY FABRICATED, CLEAR SPAN TUB GIRDER STRUCTURE OF BENT STEEL CONSTRUCTION WITH SPS DECKING, AS SHOWN ON THE PLANS. STRUCTURE SHALL HAVE GALVANIZED COATING SYSTEM PER CMS 711.02 FOR ALL SUPERSTRUCTURE STEEL (EXCLUDING THE SPS PANELS) AND PAID FOR UNDER BID ITEM:

ITEM SPECIAL - STRUCTURE, MISC.: PRE-FABRICATED SUPERSTRUCTURE

ITEM 512 - TYPE 3 WATERPROOFING, AS PER PLAN

WATERPROOFING MEMBRANE SHALL BE "MEL-DEK" WATERPROOFING SYSTEM SUPPLIED BY:

W.R. MEADOWS, INC
P.O. BOX 338, HAMPSHIRE, IL 60140-0338
PHONE NO. 847-214-2100

A DIFFERENT WATERPROOFING SYSTEM MAY BE USED IF APPROVED BY THE ENGINEER.

ITEM 518 - 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN

ANIMAL GUARDS SHALL BE PROVIDED AT THE OUTLET OF THE DRAINAGE PIPES. THE STEEL BOLTS OR RODS FOR THE ANIMAL GUARDS SHALL BE GALVANIZED PER CMS 711.02. SEE STANDARD DRAWING DM-1.1 FOR ADDITIONAL DETAILS AND NOTES, THE ANIMAL GUARDS AND CRUSHED AGGREGATE SLOPE PROTECTION, 601.06, AT END OF DRAINAGE PIPE (12" DEEP) ARE INCIDENTAL TO ITEM 518, 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN.

PILES TO BEDROCK

PILES TO BEDROCK: DRIVE PILES TO REFUSAL ON BEDROCK. THE DEPARTMENT WILL CONSIDER REFUSAL TO BE OBTAINED BY PENETRATING WEAK BEDROCK FOR SEVERAL INCHES TO A MINIMUM RESISTANCE OF 20 BLOWS PER INCH OR BY CONTACTING STRONG BEDROCK AND THE PILE RECEIVING AT LEAST 20 BLOWS. SELECT THE HAMMER SIZE TO ACHIEVE THE REQUIRED DEPTH TO BEDROCK AND REFUSAL.

THE TOTAL FACTORED LOAD IS 92.5 KIPS PER PILE FOR THE HP10x42 ABUTMENT PILES.

10 PILES 35 FEET LONG, ORDER LENGTH

PILE SPLICES

IN LIEU OF USING FULL PENETRATION, BUTT WELDS SPECIFIED IN CMS 507.09 TO SPLICE STEEL H-PILES, THE CONTRACTOR MAY USE A MANUFACTURED H-PILE SPLICER. FURNISH SPLICERS FROM THE FOLLOWING MANUFACTURER:

ASSOCIATED PILE AND FITTING CORPORATION
8 WOOD HOLLOW RD. PLAZA 1
PARSIPPANY, NEW JERSEY 07054

INSTALL AND WELD THE SPLICER TO THE PILE SECTIONS IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN ASSEMBLY PROCEDURE SUPPLIED TO THE ENGINEER BEFORE THE WELDING IS PERFORMED.

PLAN ABBREVIATIONS

ABUT.	ABUTMENT	MAX.	MAXIMUM
BRG.	BEARING	MIN.	MINIMUM
C	CENTERLINE	N.F.	NEAR FACE
c/c	CENTER TO CENTER	P	PLATE
C.J.	CONSTRUCTION JOINT	R.A.	REAR ABUTMENT
DIA.	DIAMETER	SPA.	SPACE, SPACES, SPACED
EL.	ELEVATION	STA.	STATION
E.F.	EACH FACE	THK.	THICK
F.A.	FORWARD ABUTMENT	TYP.	TYPICAL
F.F.	FAR FACE	U.N.O.	UNLESS NOTED OTHERWISE
FWD.	FORWARD		

REVISED 7/14/16

MUSKINGUM COUNTY
ENGINEER'S OFFICE

POULE DAVE
COUNTY ENGINEER
155 REHL ROAD
ZANESVILLE, OHIO 43701

MCEO

DESIGNED
DRD

CHECKED
DRD

DRAWN
SEJ

REVIEWED

DATE

STRUCTURE FILE NUMBER
6036090

BRIDGE NO. MUS-007-0027
OVER ELK RUN

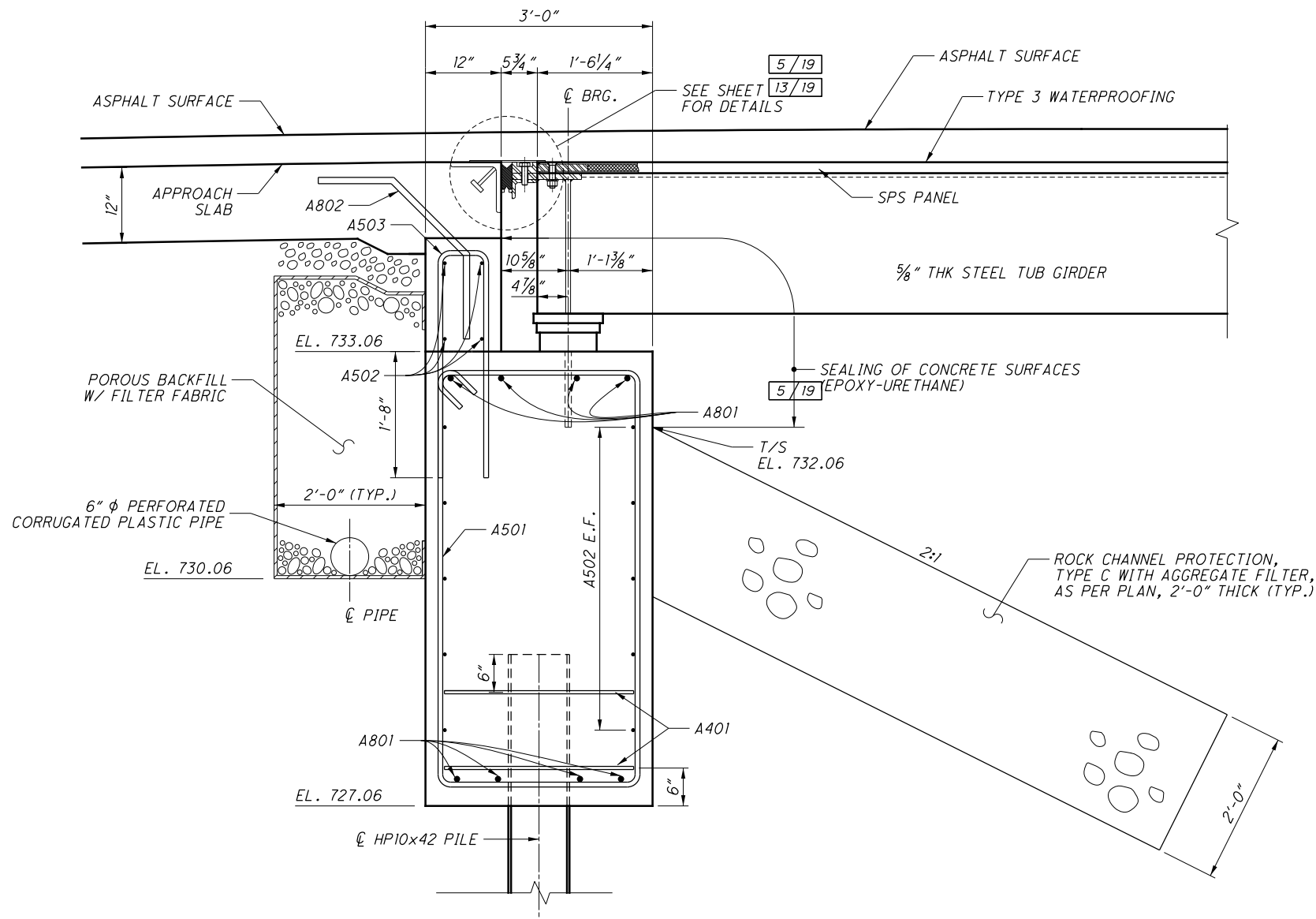
MUS-C.R.7-0.27

PID No. 102574

2 / 19

13 / 30

REVISED 7/14/16



TYPICAL ABUTMENT SECTION
AT ϕ OF CONSTRUCTION

BEARING PAD NOTES

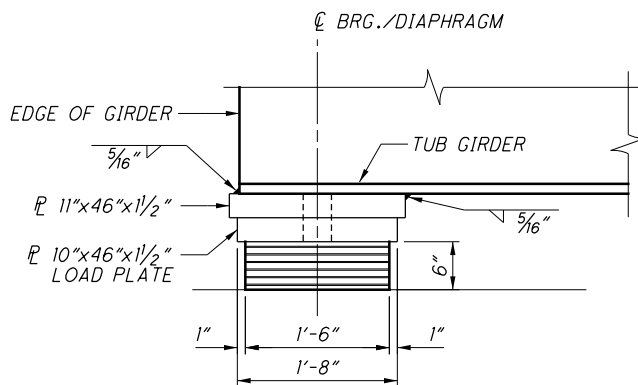
- MATERIALS:**
ALL ELASTOMER FOR BEARINGS SHALL BE 50 DUROMETER. THE STEEL LOAD PLATE SHALL BE ASTM A572, GRADE 50 GALV. THE $\frac{1}{2}$ " PLATE MAY BE ASTM A709, GRADE 36. SHOP WELD TO GIRDER PRIOR TO GALVANIZING.
- WELDING:**
THE STEEL LOAD PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMERIC DURING THE MOLDING PROCESS. NO FIELD WELDING IS PERMITTED.
- 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 $\frac{1}{6}$ OF THE BEARING HEIGHT AT 60°F±10°F, RAISE THE BEAMS OR GIRDERS 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 1, SECTION 14.7.6 (METHOD A) OF THE AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES.
- BASIS OF PAYMENT:**
THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, TESTING, STEEL PLATES, AND INSTALLATION AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS. PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE FOR ITEM 516, ELASTOMERIC BEARING, AS PER PLAN.

BEARINGS HAVE BEEN DESIGNED FOR THE FOLLOWING REACTIONS:

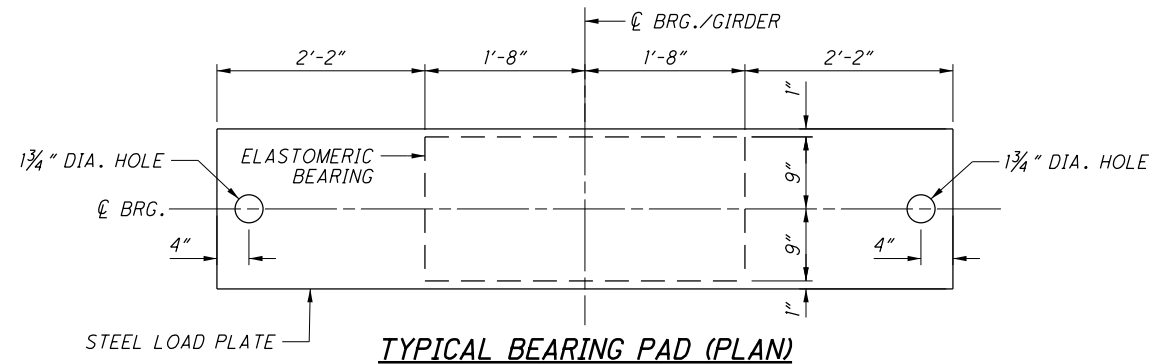
	MAX. DEAD LOAD	LIVE LOAD	TOTAL
ABUTMENTS	27 KIPS	39.2 KIPS	75.5 KIPS

LOADS ARE UNFACTORED, LIVE LOAD DOES NOT INCLUDE IMPACT.

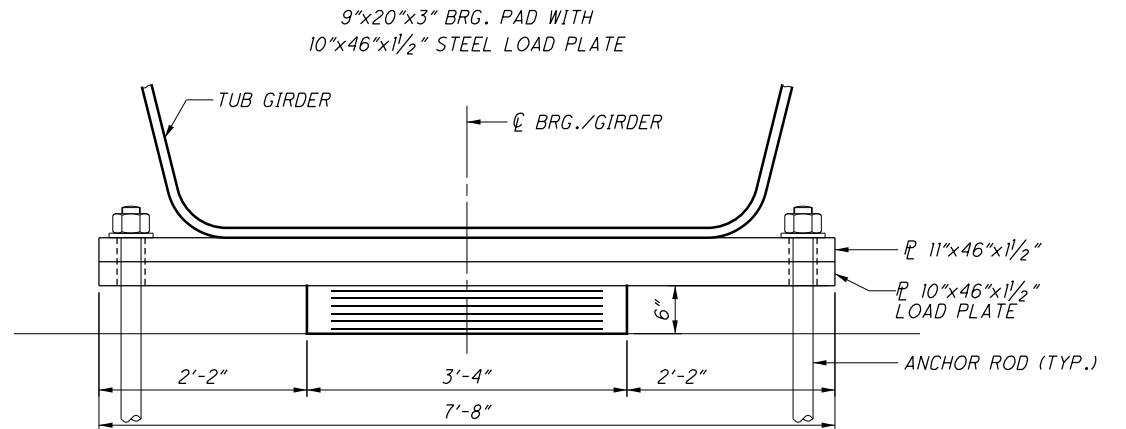
$$\begin{aligned} 2 \text{ EXTERIOR LAYERS, } t_e @ 0.275" &= 0.550" \\ 5 \text{ INTERIOR LAYERS, } t_i @ 0.400" &= 2.000" \\ 6 \text{ STEEL LAMINATES, } t_s @ 0.075" &= 0.450" \\ T &= 3.000" \end{aligned}$$



TYPICAL BEARING PAD (SIDE)



TYPICAL BEARING PAD (PLAN)

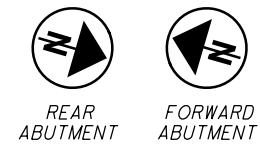


TYPICAL BEARING PAD (FRONT)

DETAIL A
END TREATMENT OF 6" ϕ NON-PERFORATED CORRUGATED PLASTIC PIPE

NOTES

- BRIDGE SEAT REINFORCING, SETTING ANCHORS: ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES.
- SEALING OF BEAM SEATS: IF THE BEAM SEATS ARE SEALED WITH AN EPOXY SEALER PRIOR TO SETTING BEARINGS, DO NOT APPLY SEALER TO THE CONCRETE SURFACES UNDER THE PROPOSED BEARING LOCATIONS. IF THESE LOCATIONS ARE SEALED, REMOVE THE SEALER TO THE SATISFACTION OF THE ENGINEER PRIOR TO SETTING THE BEARINGS. THE COUNTY WILL NOT PAY FOR THIS REMOVAL.
- POROUS BACKFILL WITH FILTER FABRIC, 2 FEET THICK SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO 1 FOOT BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE WINGWALLS.
- LAP SPLICE LENGTHS:
#5 BAR = 33 INCHES, U.N.O.
#8 BAR = 87 INCHES, U.N.O.



The diagram illustrates the cross-section of a bridge structure, including the approach slab, backwall, and pile foundation. Key dimensions and components are labeled as follows:

- Top of Wall:** EL. 735.81
- Top of C.J.:** EL. 733.06
- Top of HPI0x42:** EL. 729.06
- Base of Wall:** EL. 727.06
- Approach Slab:** 12" thick, 16-A802, 15 SPA. @ 1'-6" = 22'-6" (PLACE BAR PARALLEL TO ROADWAY).
- Backwall:** EL. 734.56, 3-A504, 2 SPA. @ 1'-6".
- Beam Seat & C.J.:** EL. 733.06, 4-A801.
- T/S EL.:** 732.06, 16-A503, 15 SPA. @ 1'-6" = 22'-6".
- Pile Foundation:** 5 - HPI0x42 PILES SPA. @ 7'-0" = 28'-0". Each pile has 4-A801 reinforcement.
- Reinforcement Details:**
 - 3-A504, 2 SPA. @ 1'-6" (Top of Wall)
 - 4-A801 (Top of C.J.)
 - 16-A503, 15 SPA. @ 1'-6" = 22'-6" (T/S EL. = 732.06)
 - 24-A501, 23 SPA. @ 1'-6" = 34'-6" (T/S EL. = 732.06)
 - 4-A801 (Pile Reinforcement)
 - 1 R.A., 10 F.A. (Pile 1)
 - 2 R.A., 9 F.A. (Pile 2)
 - 3 R.A., 8 F.A. (Pile 3)
 - 4 R.A., 7 F.A. (Pile 4)
 - 5 R.A., 6 F.A. (Pile 5)
- Other Labels:** 1" PEJF, PROFILE GRADE (ASPHALT SURFACE), A505, A401 EACH PILE, 4'-0" (Pile Spacing), 5'-0" (Pile Spacing).

ELEVATION

ITEM 846 - POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM.
AS PER PLAN

THIS ITEM WILL BE USED TO SEAL THE EXPANSION/CONTRACTION JOINTS AS PER THESE DETAILS AND THE MANUFACTURER'S REQUIREMENTS USING A POLYMER-MODIFIED ASPHALT SYSTEM. THE PRIME CONTRACTOR WILL OBTAIN SERVICES OF ONE OF THE FOLLOWING APPROVED APPLICATORS WHO WILL FURNISH AND INSTALL THE NEW BRIDGE EXPANSION JOINT SYSTEM AFTER ALL PAVING ON THE AFFECTED BRIDGE(S) HAS BEEN COMPLETED.

PRODUCT NAME	SUPPLIER	ADDRESS	PHONE NO.
THORMA-JOINT	DYNAMIC SURFACE APPLICATIONS, LTD	373 VILLAGE RD. PENNSDALE, PA 17756	(570) 546-6041
MATRIX 502	CRAFCO INC.	420 N. ROOSEVELT AVE. CHANDLER, AZ 85226	(800) 528-8242
EXPANDEX JOINT SYSTEM	WATSON-BOWMAN ACME	95 PINEVIEW DR. AMHERST, NY 14228	(716) 691-7566
APJ ASPHALTIC PLUG EXPANSION JOINT	WYOMING EQUIPMENT SALES	281 SIXTH STREET P.O. BOX 287 WEST WYOMING, PA 18644	(570) 693-2810

MATERIALS:

BRIDGING PLATE:

STAINLESS STEEL 1/4" THICK PLATE, 12" WIDE

BINDER:

TYPE: POLYMER MODIFIED ASPHALT
SOFTENING POINT: 180 DEGREES F. MIN.
FLOW: 3 mm. MAX. AT 140 DEGREES F.
PENETRATION: 9 mm. MAX. AT 77 DEGREES F.
1 mm. MIN. AT 0 DEGREES F.
ASTM D 3407
DUCTILITY: 40 cm. MIN. ASTM D 113
RESILIENCE: 60% MIN. AT 77 DEGREES F.
TENSILE ADHESION: 700% MIN.
SPECIFIC GRAVITY: 1.10 * 0.05
POURING TEMP: 350 - 390 DEGREES F.

AGGREGATE:

TYPE: CRUSHED, DOUBLE WASHED, AND DRIED GRANITE OR BASALT
GRADATION: THE GRADATION OF THE AGGREGATE VARIES BY MANUFACTURER AND WILL BE AS PER THE MANUFACTURER'S RECOMMENDATIONS FOR THE SYSTEM BEING USED ON THIS PROJECT.

NOTE: PRIOR TO PLACEMENT OF ANY PORTION OF THE JOINT SYSTEM, THE PROJECT ENGINEER MUST HAVE CERTIFIED TEST DATA MEETING ALL THE MINIMUM REQUIREMENTS OF ALL THE MATERIALS OF THE JOINT SYSTEM.

INSTALLATION PROCEDURES:

SAWING AND SURFACE PREPARATION:

AFTER ALL PAVING OPERATIONS ARE COMPLETE, THE OVERLAY IS TO BE TRANSVERSELY SAW CUT FULL DEPTH NO LESS THAN TWO INCHES DEEP (20" CENTERED OVER JOINT OPENING, UNLESS OTHERWISE NOTED). REMOVE ALL MATERIAL, INCLUDING WATER-PROOFING MATERIAL, BETWEEN SAW CUTS. THOROUGHLY CLEAN AND DRY EXPOSED CONCRETE, STEEL, AND CUT SURFACES USING COMPRESSED AIR AND A HOT COMPRESSED AIR (HCA) LANCE. THE LANCE MUST PRODUCE A FLAME RETARDED AIR STREAM TEMPERATURE OF 3000 DEGREES F. AT VELOCITY OF 3,000 FEET PER SECOND WITH 15 PSIG CHAMBER PRESSURE. IF THERE IS AN INTER- RUPTION DUE TO WEATHER OR OTHER CAUSES, THE OPERATION WILL BE REPEATED WITH THE HCA LANCE IMMEDIATELY BEFORE THE BINDER COAT OPERATION. ALSO, 6 INCHES OF THE ROAD SURFACE ON EITHER SIDE OF THE JOINT WILL BE DRIED SO THAT A SUITABLE SURFACE FOR BITUMEN ADHESION IS OBTAINED. THE HOT COMPRESSED AIR (HCA) LANCE MUST BE USED WITH CAUTION, AS THE SPS DECKING SHALL NOT BE HEATED BEYOND 350 DEGREES F.

BOND BREAKER:

SPREAD BINDER OVER SURFACE AREA WHERE THE METAL BRIDGING PLATE WILL BE PLACED. CENTER THE BRIDGING PLATE OVER THE EXISTING JOINT AND BED INTO THE HOT BINDER. BUTT JOINT THE BRIDGING PLATES TO ACCOMMODATE THE ENTIRE JOINT LENGTH. SEAL BUTT JOINTS WITH HOT BINDER AND ALLOW BINDER TO SETUP BEFORE NEXT OPERATION.

BINDER COAT:

SEAL ALL PREPARED, EXPOSED SURFACES OF THE JOINT WITH BINDER. POUR THE HOT BINDER OVER THE FLOOR AREA OF THE JOINT AND SPREAD TO COAT ALL EXPOSED SURFACES. THE BINDER WILL BE A MINIMUM OF 1/2" THICK ON THE BOTTOM OF THE JOINT CAVITY, WITH POOLS OF GREATER THICKNESS WHERE SURFACE IRREGULARITIES EXIST. THE BINDER APPLICATION TEMPERATURE WILL BE BETWEEN 350 AND 390 DEGREES F. THE BINDER WILL NOT BE ALLOWED TO BE HEATED ABOVE 410 DEGREES F. NOR ALLOWED TO EXCEED 390 DEGREES F. FOR MORE THAN 1 HOUR. A DOUBLE JACKETED OIL METER WILL BE USED TO HEAT THE BINDER. THE MELTER WILL BE EQUIPPED WITH A CONTINUOUS AGITATION SYSTEM, TEMPERATURE CONTROLS, AND A CALIBRATED THERMOMETER. ALSO A SYSTEM FOR ACCURATELY MEASURING THE WEIGHTS OF THE BINDER AND THE AGGREGATE WILL BE REQUIRED.

BUILD-UP OF JOINT LAYERS:

AGGREGATE PREPARATION:

HEAT THE AGGREGATE TO A TEMPERATURE OF 275 TO 325 DEGREES F., WITH A SUITABLE ROTATING DRUM WITH ATTACHED HEAT SOURCE OR A HOT COMPRESSED AIR LANCE, TO REMOVE DUST AND MOISTURE.

AGGREGATE PROPORTION AND LAYER THICKNESS:

MIX THE AGGREGATE WITH THE BINDER SUCH THAT THE MINIMUM AGGREGATE CONTENT BY WEIGHT WILL BE 68%. THE HEATED AGGREGATE AND BINDER WILL BE COMBINED IN LAYERS, UNLESS PATENTED INSTALLATION REQUIRES DIFFERENTLY, NOT LESS THAN 3/4 OF AN INCH NOR EXCEEDING 2 1/2" INCHES. THE THICKNESS OF EACH LAYER CAN BE VARIED WITHIN THESE LIMITS, TO ACHIEVE THE REQUIRED JOINT THICKNESS (MIN. 2 INCHES). THE OBJECTIVE IS TO COAT EACH STONE AND FILL THE VOIDS WHILE AVOIDING AN EXCESS OF BINDER. THIS WILL ACHIEVE THE MAXIMUM CONTENT OF STONE CONSISTENT WITH ALL STONES BEING COATED WITH BINDER. RAKE THE MIXTURE TO MIX AND LEVEL.

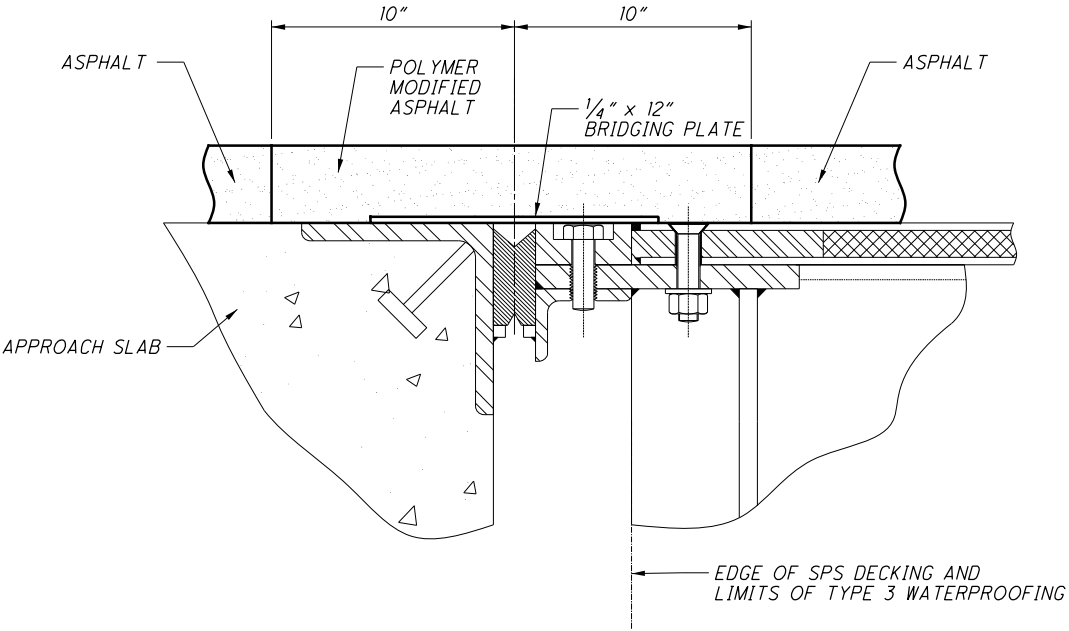
THE TOP LAYER THICKNESS WILL VARY BETWEEN 1/2 INCH AND ONE (1) INCH. IN PREPARING THE TOP LAYER, THE RATION OF AGGREGATE TO BINDER WILL BE APPROXIMATELY 6:1 BY WEIGHT. OVERFILL THE TOP LAYER AND COMPACT TO THE LEVEL OF THE ADJACENT SURFACES USING A ROLLER OR VIBRATORY PLATE COMPACTOR. IMMEDIATELY AFTER COMPLETION OF THE COMPACTION, POUR SUFFICIENT BINDER OVER THE JOINT TO FILL THE SURFACE VOIDS AND COAT THE SURFACE STONE. DUST THE FINISHED JOINT WITH A FINE, DRY AGGREGATE TO PREVENT TACKINESS.

TESTING:

CERTIFICATION WILL BE SUPPLIED FOR EACH PROJECT SHOWING BINDER COMPLIANCE WITH REQUIRED PROPERTIES. A ONE QUART SAMPLE OF BINDER WILL BE RETRIEVED FROM EACH BRIDGE FOR FURTHER TESTING BY THE O.D.O.T. OFFICE OF MATERIALS MANAGEMENT.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT:

THE DEPARTMENT WILL MEASURE THE JOINT BY THE NUMBER OF FEET AND WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE AS: ITEM 846 - POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM, AS PER PLAN.



TYPICAL EXPANSION JOINT AT ABUTMENT

REVISED 7/14/16

MUS-C.R. 7-0.27
PID No. 102574

POLYMER MODIFIED ASPHALT EXPANSION JOINT STSYEM
BRIDGE NO. MUS-007-0027
OVER ELK RUN

REVIEWED
DATE
STRUCTURE FILE NUMBER
6036090

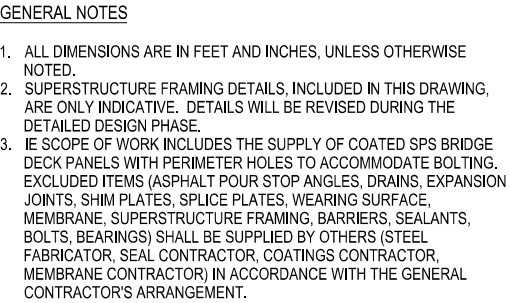
DRAWN
SEJ
REVISED

DESIGNED
DRD
CHECKED
DRD

MAKINGHAM COUNTY
ENGINEER'S OFFICE

DOUG DAVIS
COUNTY ENGINEER
135 REH ROAD
ZANESVILLE, OHIO 43701

MCEO



1. STEEL FOR SPS PANELS SHALL CONFORM TO GRADE ASTM A709 GR.50.
2. POLYURETHANE ELASTOMER CORE: PROPRIETARY, TWO COMPONENT COMPACT POLYURETHANE SYSTEM, SPECIFICALLY PRODUCED AS AN ENGINEERED CORE FOR SANDWICH PANEL SYSTEMS.
3. THERE SHALL BE NO SUBSTITUTIONS OF MATERIALS AND/OR SIZES WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER AND INTELLIGENT ENGINEERING.

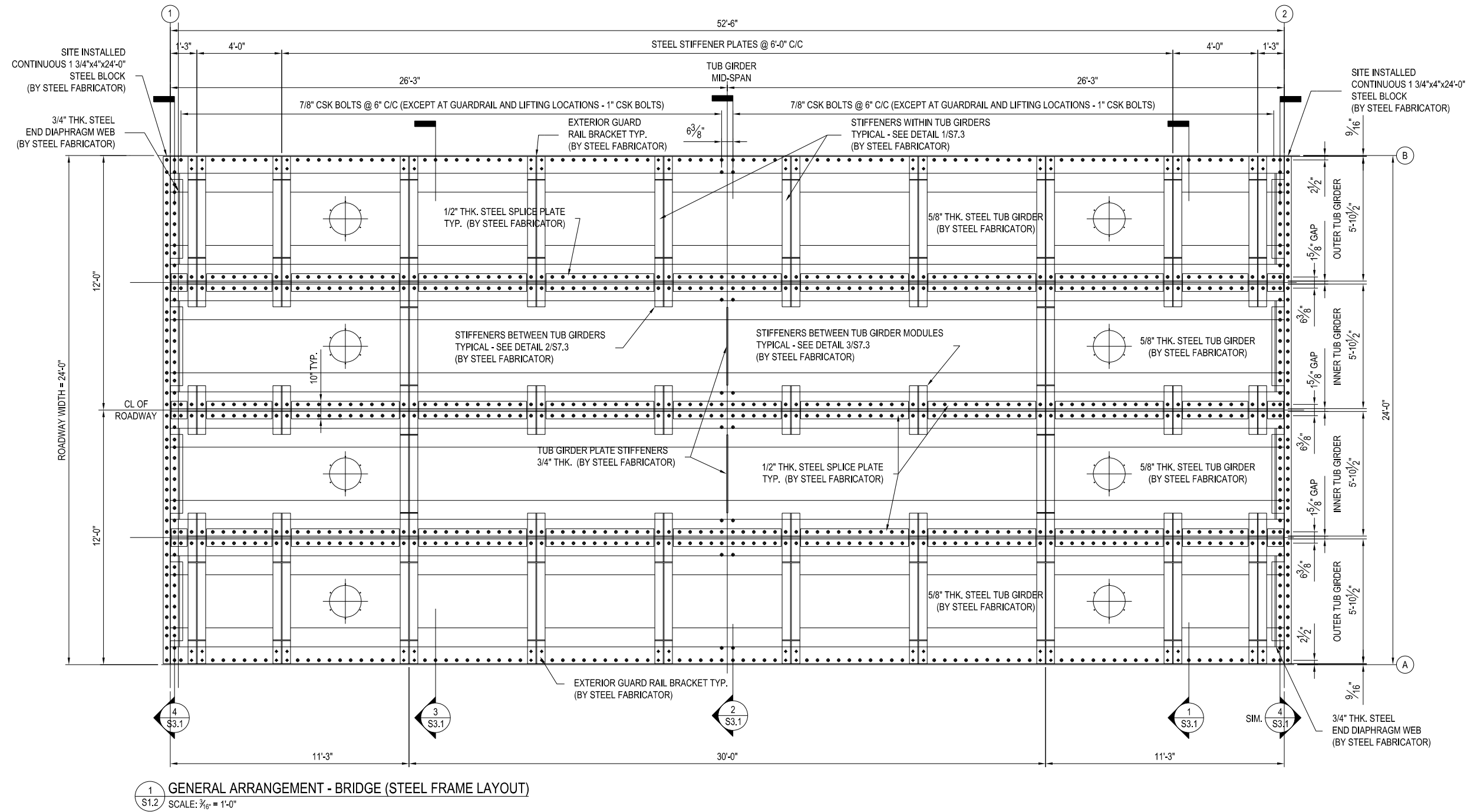
1. SPS FABRICATION SHALL PROCEED ON THE BASIS OF APPROVED CONSTRUCTION DRAWINGS ONLY.
2. ALL FILLET WELD SIZES INDICATED ARE LEG LENGTHS. DO NOT INCREASE WELD SIZES BEYOND THOSE SPECIFIED ON DRAWINGS.
3. ALL WELDS SHALL CONFORM TO THE WORKMANSHIP REQUIREMENTS OF AWS D1.5, "BRIDGE WELDING CODE". FOR SPS PANELS, CONDUCT 100% VISUAL INSPECTION OF FILLET WELDS IN ACCORDANCE WITH CLAUSE 6.26.1 PART D WELD ACCEPTANCE CRITERIA.
4. AVERAGE BOND STRENGTH BETWEEN ELASTOMER AND STEEL IN SPS PANELS SHALL BE GREATER THAN 1160PSI.
5. SPS CAVITIES SHALL BE CLEAN, DRY, FREE OF GRIT/SHOT, GREASE AND OTHER CONTAMINANTS AND DEBRIS, THEN SEALED AND MADE AIRTIGHT PRIOR TO ELASTOMER INJECTION.
6. FABRICATION OF SPS PANELS SHALL STRICTLY FOLLOW ALL REQUIREMENTS AND PROVISIONS CONTAINED IN THE 'SPS QUALITY ASSURANCE' DOCUMENTS PREPARED BY THE ENGINEER AND INTELLIGENT ENGINEERING.
7. ALL SIDES OF SPS PANELS ARE TO BE ZINC METALIZED AS PER AWS C2.23M/C2.23:2003, NACE NO. 12, SSPC-CS 23 AVERAGING 7-12 MIL COATING THICKNESS WITH A MAX OF 20 MILS.
8. THE FAYING SURFACES BETWEEN THE SPS DECK PANELS, THE HOT-DIP GALVANIZED TUB GIRDERS AND SPLICE PLATES SHALL BE ROUGHENED BY WIRE BRUSHING AFTER GALVANIZING TO ACHIEVE A MINIMUM SURFACE CONDITION FACTOR OF 0.33 SIMILAR TO CLASS C SURFACE AS PER AASHTO LRFD 2012 CL 6.13.2.8.
9. ALL OTHER STEEL MEMBERS, GUARDRAILS, BRACKETS, STIFFENERS, BOLTS, SPLICE PLATES AND OTHER PLATES SHALL BE HOT-DIP GALVANIZED.

1. THE DESIGN OF THE SPS PANEL IS IN ACCORDANCE WITH THE AASHTO LRFD 2012 BRIDGE DESIGN SPECIFICATIONS 6TH EDITION .
2. THE DESIGN VEHICULAR LOADING SELECTED FOR THE SPS PANELS IS THE HL-93.

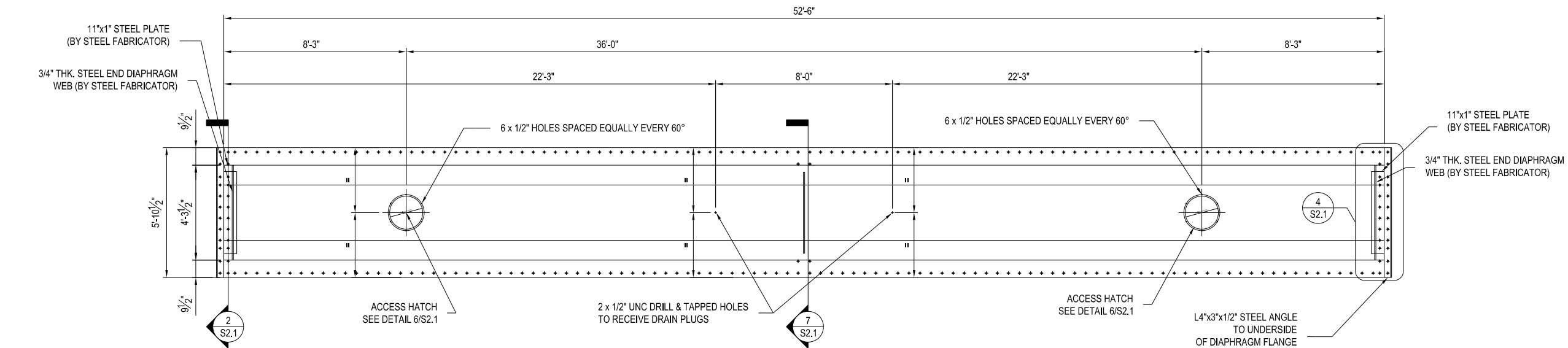
1. SPS PANELS SHALL NOT BE MODIFIED (CUT, BENT, FORCED OR CORED), OR ATTACHED TO (USING WELDS, BOLTS, SCREWS OR NAILS), UNLESS SUCH DETAILS, METHODS AND PROCEDURES ARE CLEARLY SHOWN AND SPECIFIED ON THE PROJECT DRAWINGS PREPARED BY INTELLIGENT ENGINEERING. ANY ADDITIONAL MODIFICATIONS OR ATTACHMENTS NOT SHOWN ON DRAWINGS SHALL BE EXECUTED ONLY IF AND AS APPROVED IN WRITING BY THE ENGINEER AND INTELLIGENT ENGINEERING.
2. "STEEL INSTALLER" SHALL BE RESPONSIBLE FOR, AND TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THAT SPS PANELS ARE:
 - a. STORED PROPERLY & PROTECTED AGAINST ANY DAMAGE AND WEATHER CONDITIONS, ONCE DELIVERED TO SITE.
 - b. HANDLED AND ERECTED WITHOUT CAUSING DAMAGE TO THE PANELS OR ANY COATINGS.
 - c. BOLTED DOWN TO SUPPORT STRUCTURE.
 - d. ALL BOLTING SHALL BE ACCOMPLISHED TO ACHIEVE "SLIP IN SERVICE", UNLESS NOTED OTHERWISE.
3. ALL PRELOADED BOLTS SHALL BE:
 - a. HIGH STRENGTH BOLTS GRADE A325, GALVANIZED TYPE 1 BOLT, WITH HEXAGONAL OR COUNTERSUNK HEAD AS INDICATED ON DRAWINGS.

2 ELEVATION VIEW - BRIDGE
S1.1 SCALE: $\frac{3}{16}" = 1'-0"$

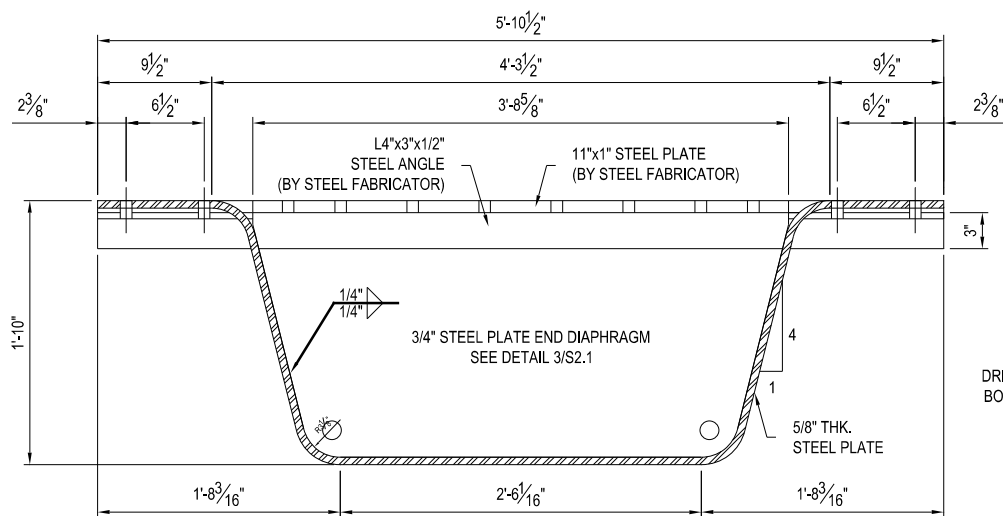
TOTAL NUMBER OF SPS 8-28-8 PANELS:	8
TOTAL AREA OF SPS 8-28-8 PANELS:	1260 ft ²



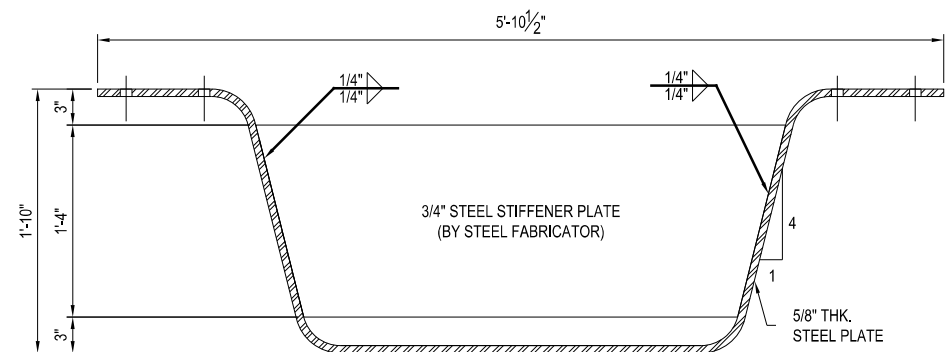
REVISED 7/14/16



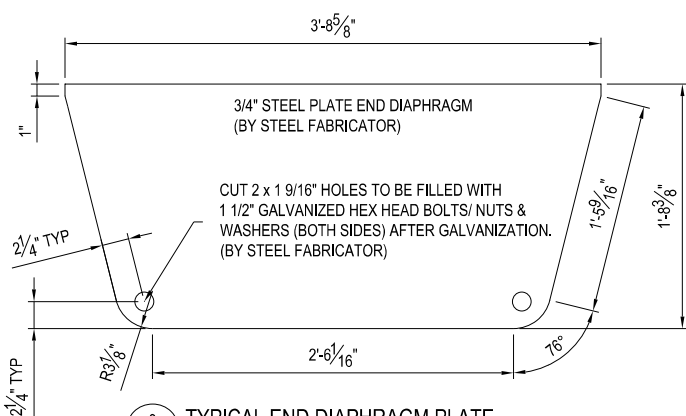
1 PLAN VIEW - TYPICAL INTERNAL STEEL TUB GIRDER MODULE
S2.1 PLATE STIFFENERS OMITTED FOR CLARITY
SCALE: 3/16" = 1'-0"



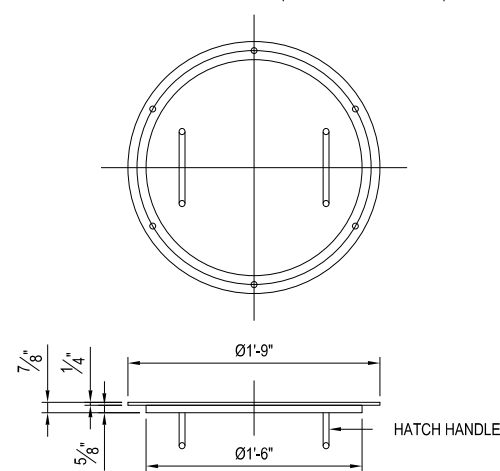
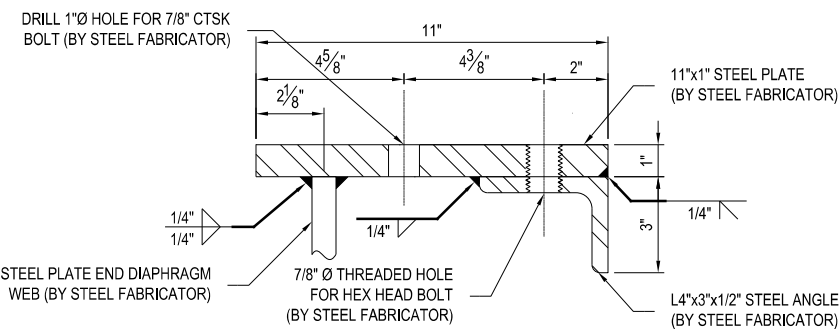
2 TYPICAL MODULE @ END DIAPHRAGMS
S2.1 SCALE 3/4" = 1'-0"



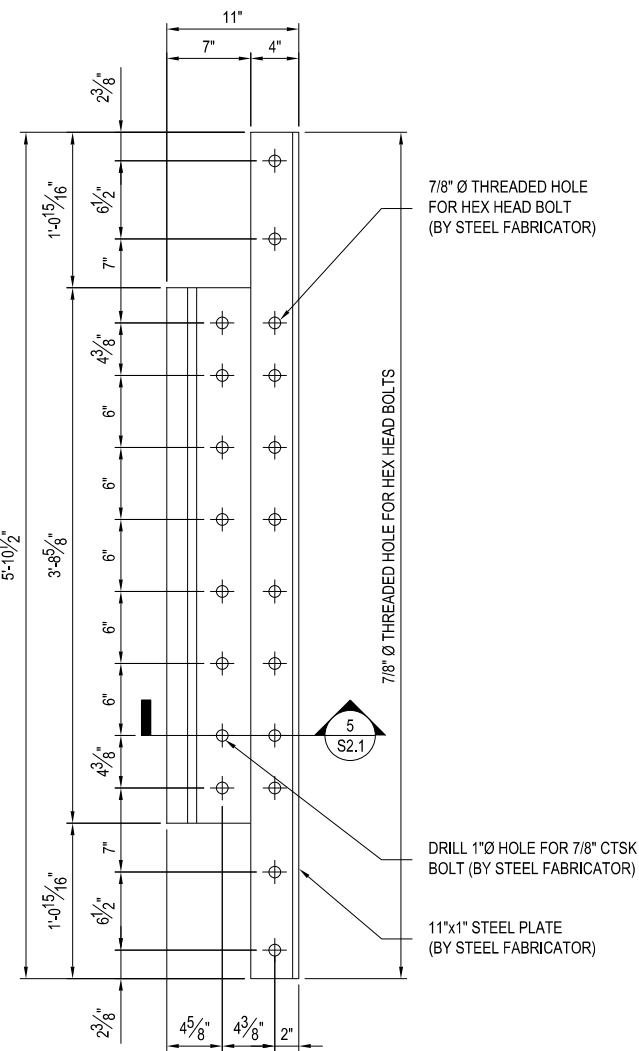
7 TYPICAL STIFFENER PLATE @ MID SPAN
S2.1 SCALE 3/4" = 1'-0"



3 TYPICAL END DIAPHRAGM PLATE
S2.1 SCALE 3/4" = 1'-0"

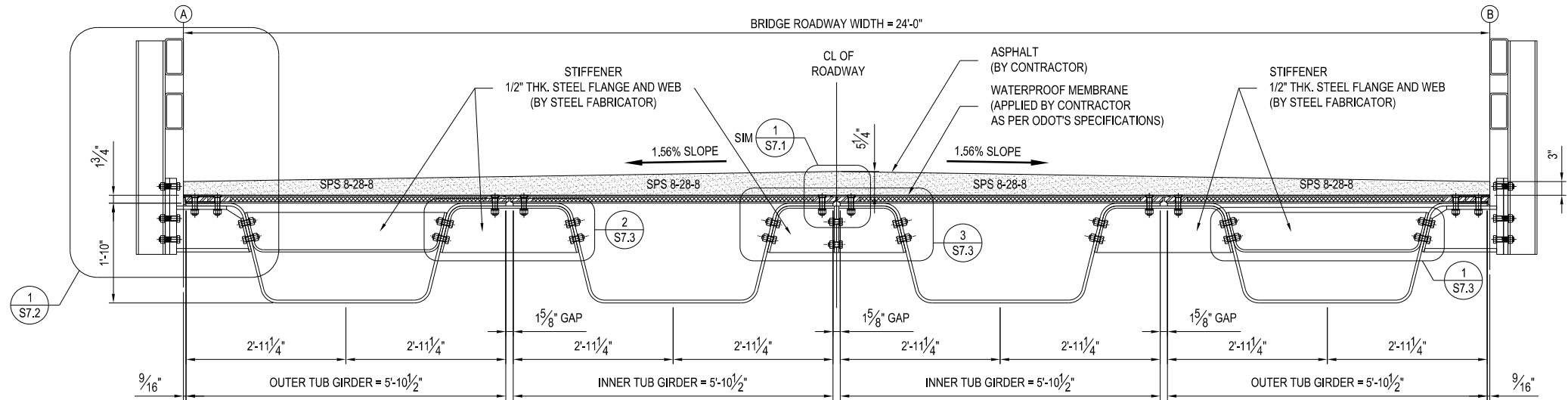


6 TYPICAL ACCESS HATCH
S2.1 SCALE 3/4" = 1'-0"

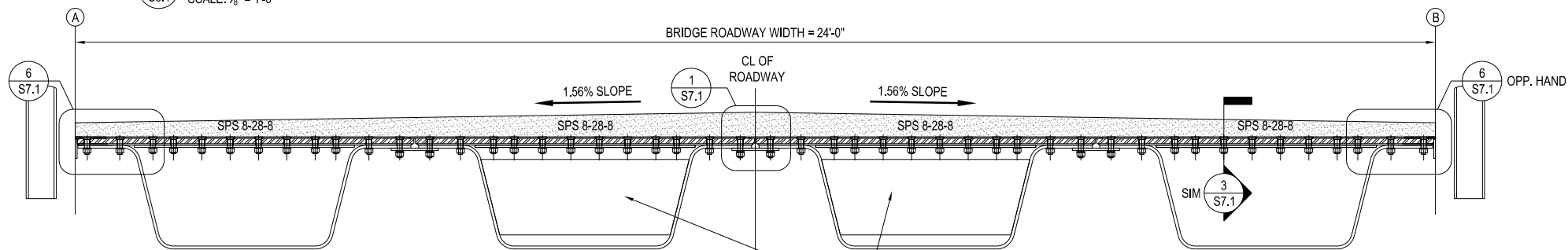


4 TYPICAL STEEL END PLATES
S2.1 SCALE 3/4" = 1'-0"

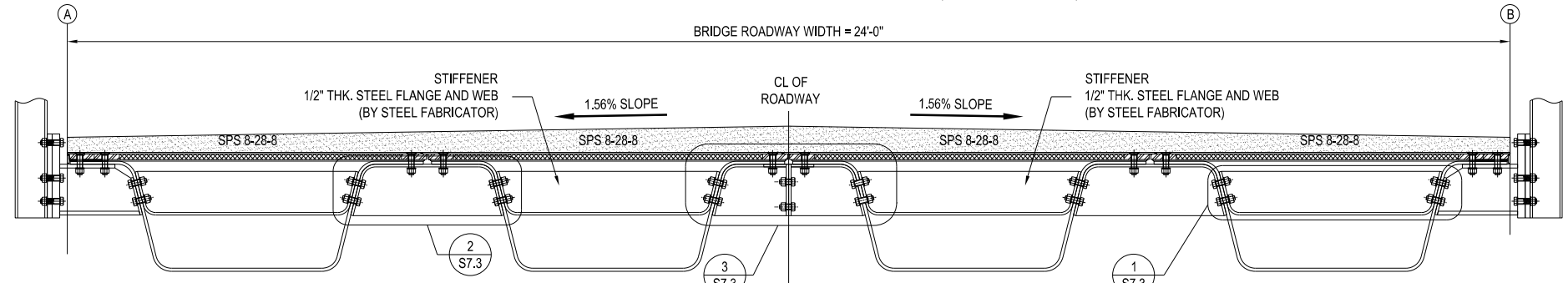
REVISED 7/14/16



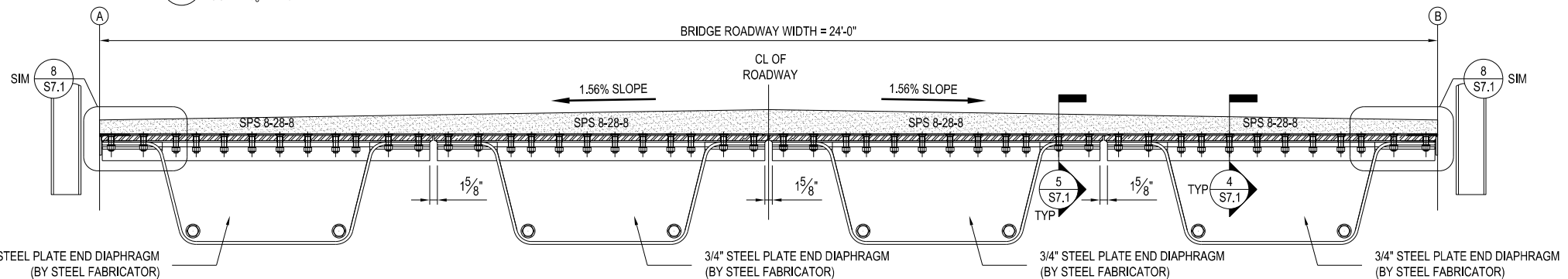
1
S3.1
TYPICAL CROSS SECTION OF BRIDGE @ OUTER STIFFENERS
SCALE: 3/8" = 1'-0"



2
S3.1
CROSS SECTION OF BRIDGE @ SPS MID-SPLICE
SCALE: 3/8" = 1'-0"

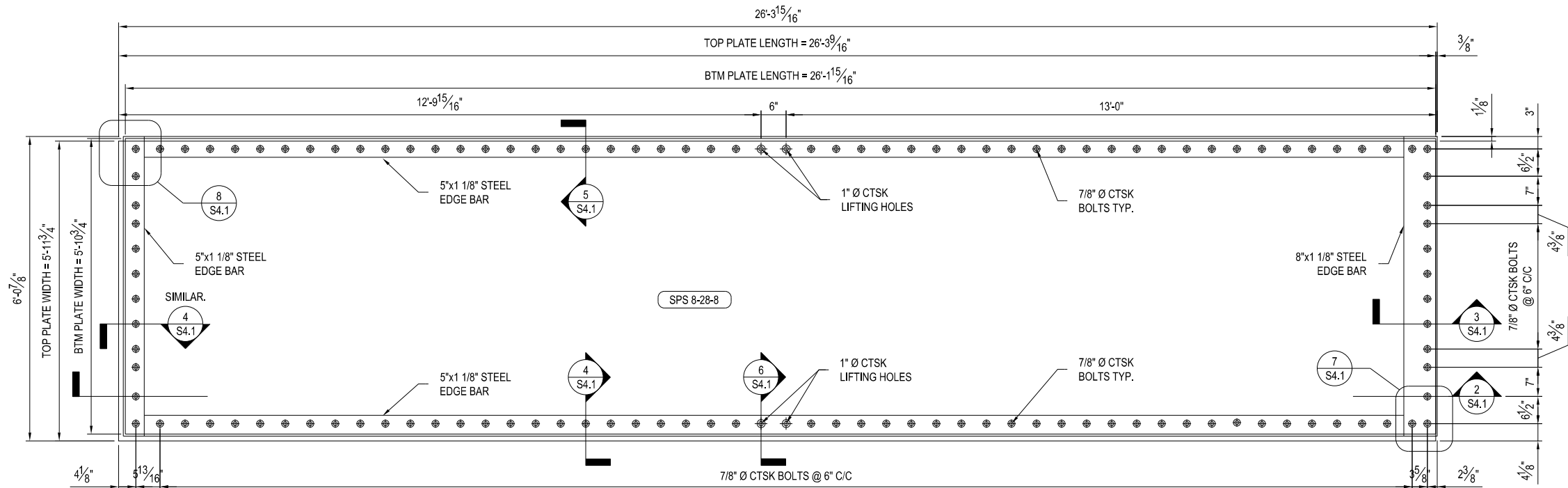


3
S3.1
CROSS SECTION OF BRIDGE @ INNER STIFFENERS
SCALE: 3/8" = 1'-0"

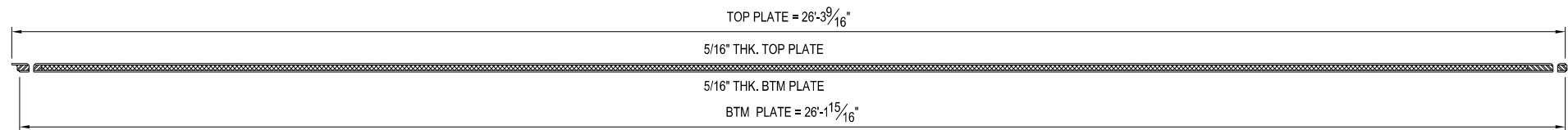


4
S3.1
CROSS SECTION OF BRIDGE @ ABUTMENT
SCALE: 3/8" = 1'-0"

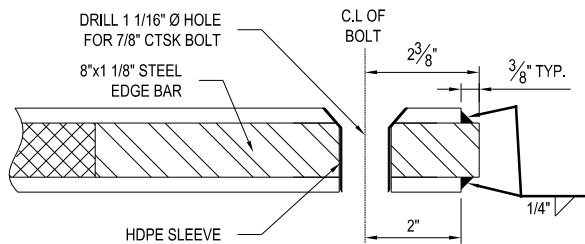
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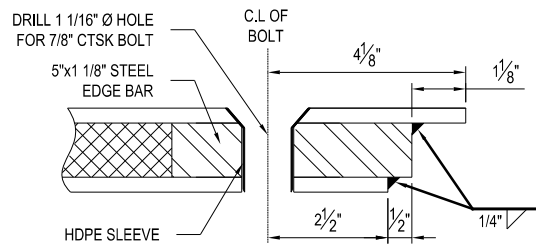
1 INTERIOR SPS PANEL (8-28-8)
SCALE: 3/8" = 1'-0"



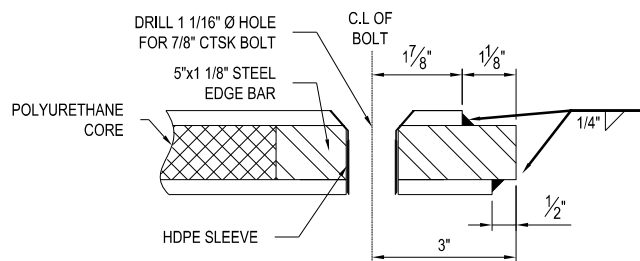
2 SECTION SPS PANEL (8-28-8)
SCALE: 3/8" = 1'-0"



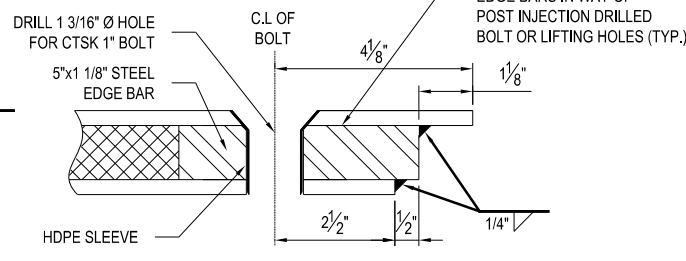
3 EDGE DETAIL
SCALE: 3" = 1'-0"



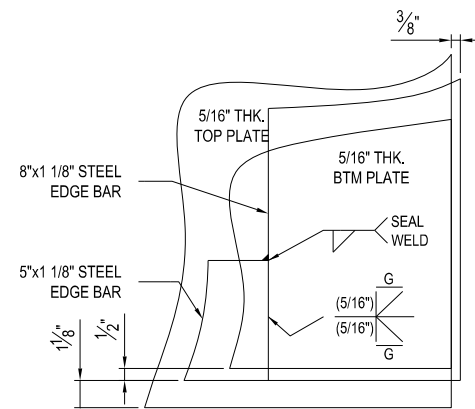
4 EDGE DETAIL
SCALE: 3" = 1'-0"



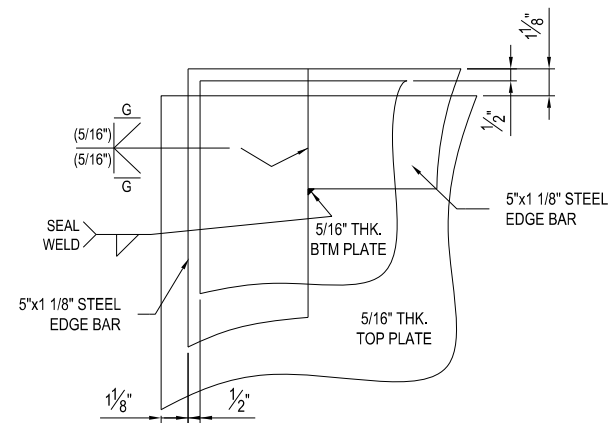
5 EDGE DETAIL
SCALE: 3" = 1'-0"



6 EDGE DETAIL
SCALE: 3" = 1'-0"



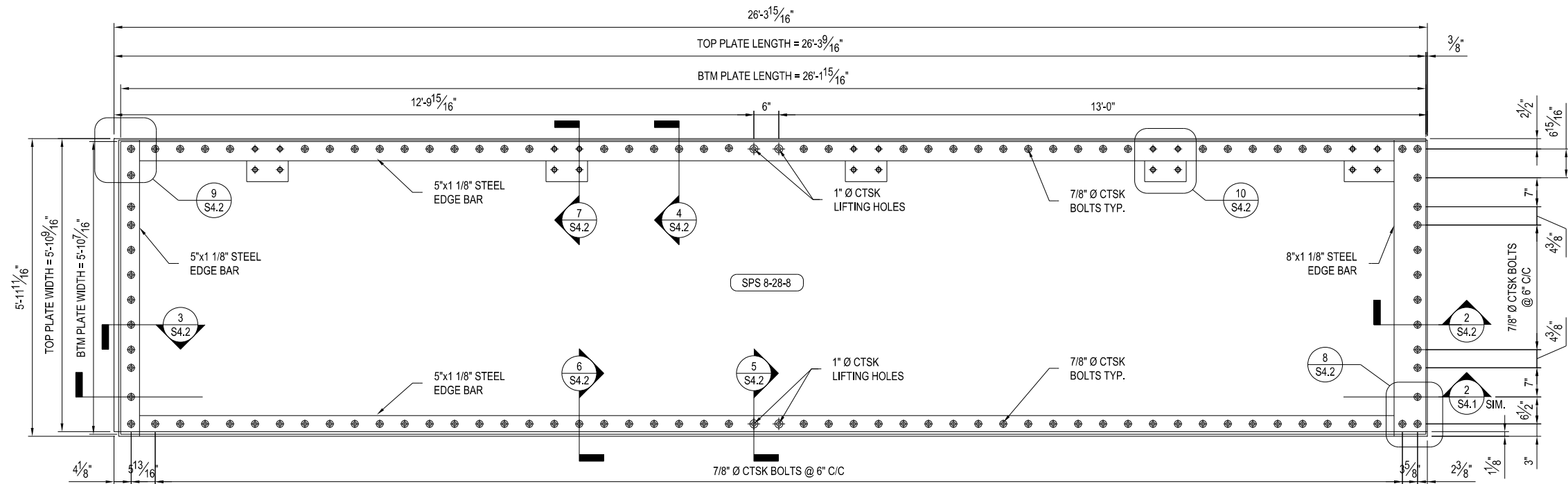
7 SPS CONNECTION @ CORNER
SCALE: 1-1/2" = 1'-0"



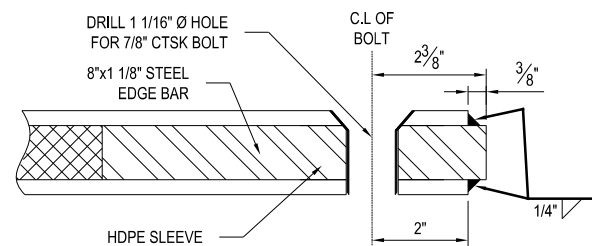
8 SPS CONNECTION @ CORNER
SCALE: 1-1/2" = 1'-0"

SHEET REFERENCE NUMBER - S4.1

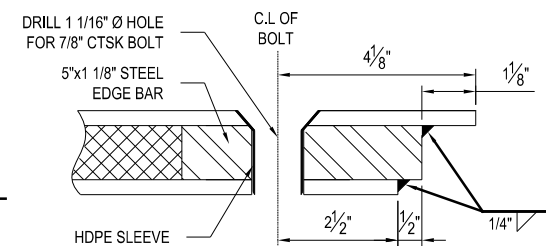
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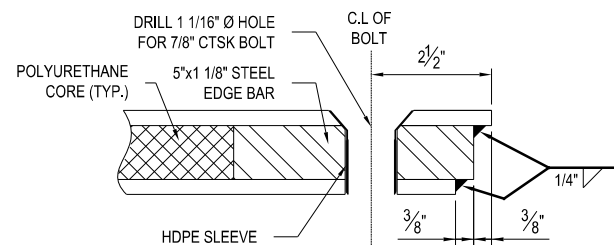
1 EXTERIOR SPS PANEL (8-28-8)
SCALE: 3/8" = 1'-0"



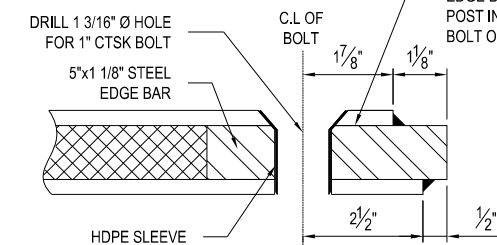
2 EDGE DETAIL
SCALE: 3" = 1'-0"



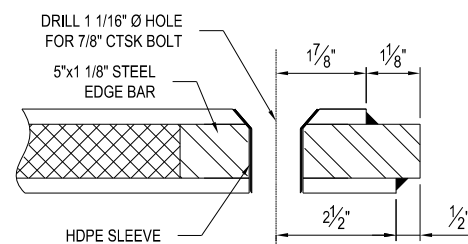
3 EDGE DETAIL
SCALE: 3" = 1'-0"



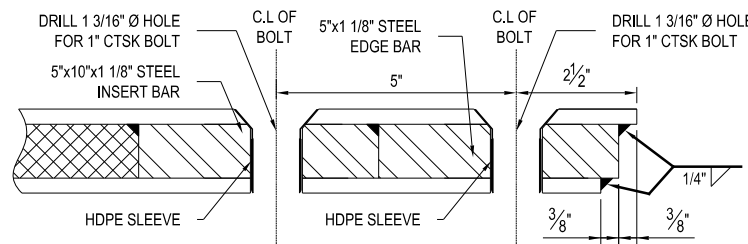
4 EDGE DETAIL
SCALE: 3" = 1'-0"



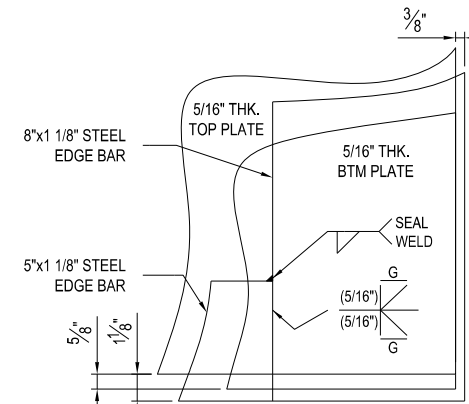
5 EDGE DETAIL
SCALE: 3" = 1'-0"



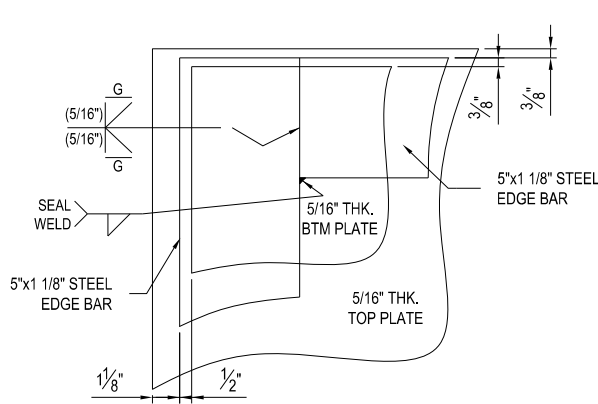
6 EDGE DETAIL
SCALE: 3" = 1'-0"



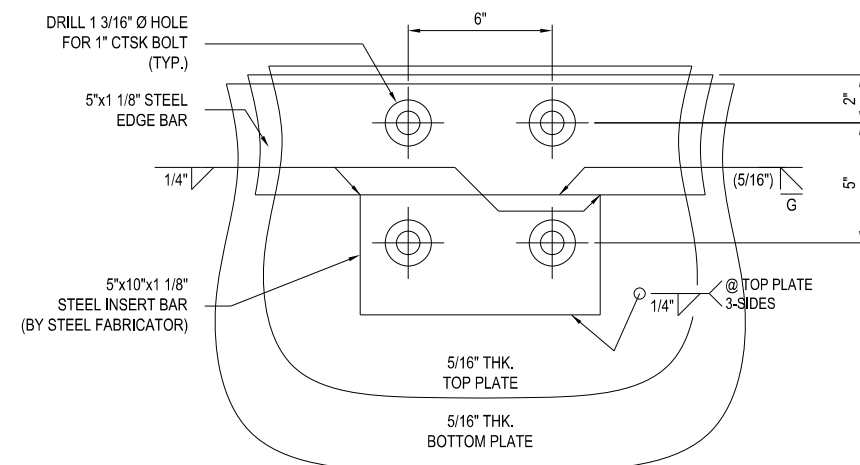
7 EDGE DETAIL
SCALE: 3" = 1'-0"



8 SPS CONNECTION @ CORNER
SCALE: 1-1/2" = 1'-0"



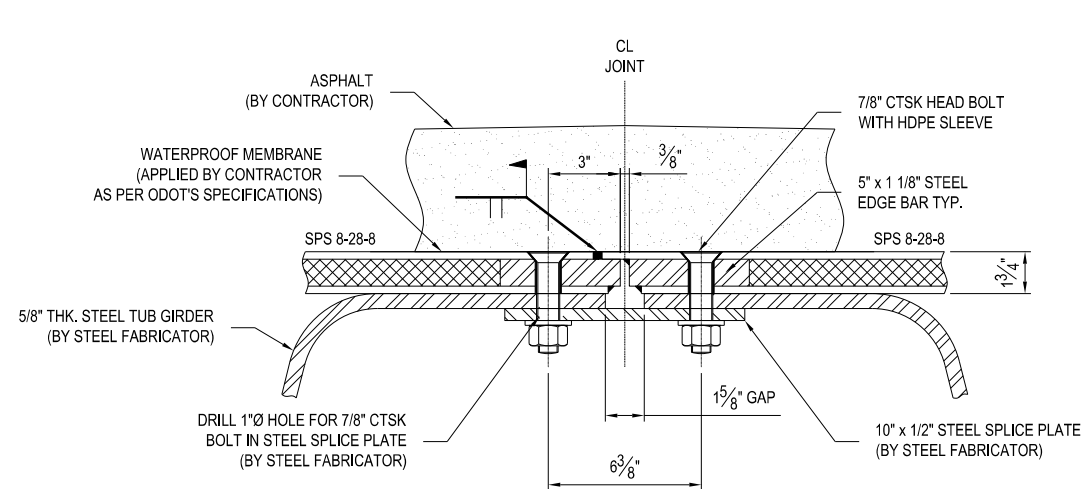
9 SPS CONNECTION @ CORNER
SCALE: 1-1/2" = 1'-0"



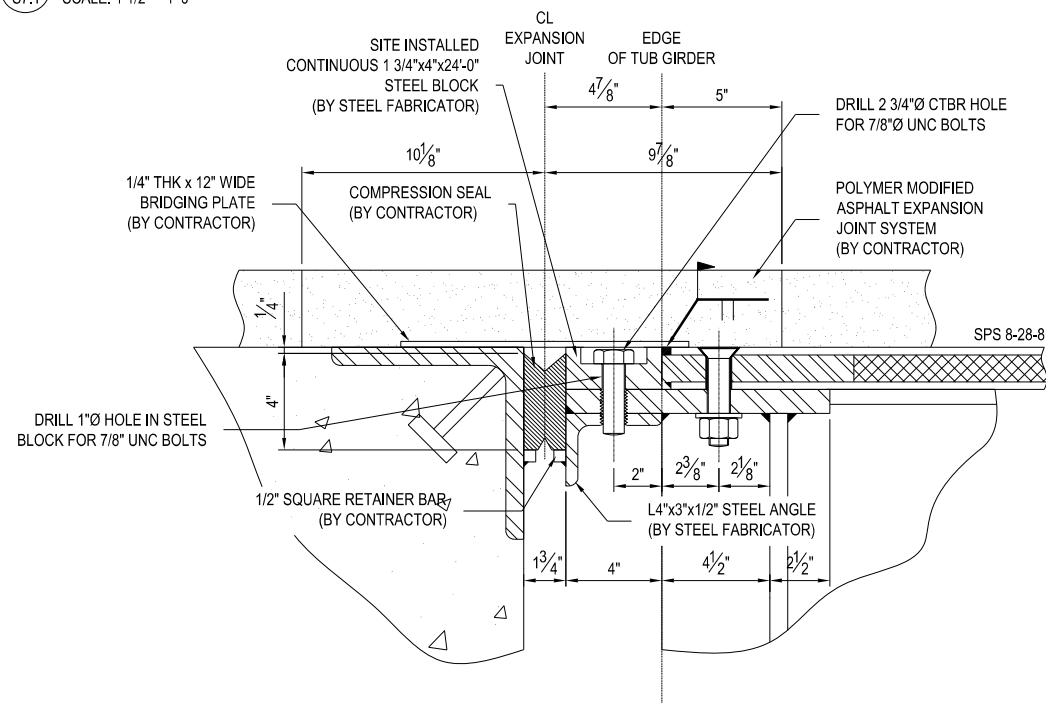
10 INSERT BAR @ GUARDRAIL CONNECTION
SCALE: 1-1/2" = 1'-0"

SHEET REFERENCE NUMBER - S4.2

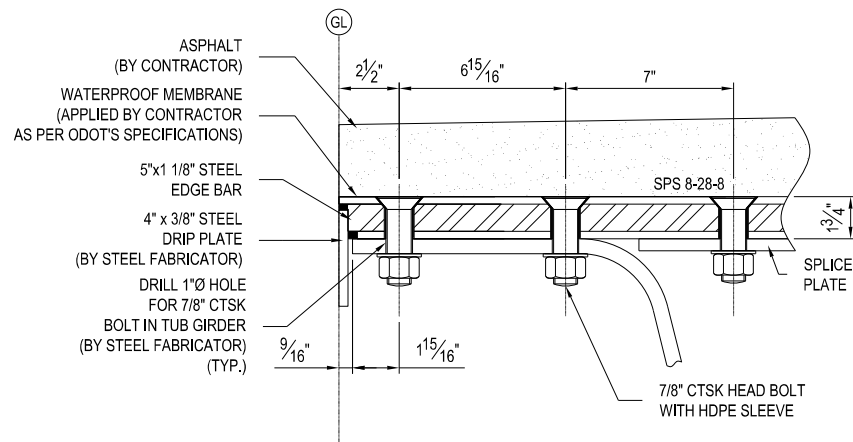
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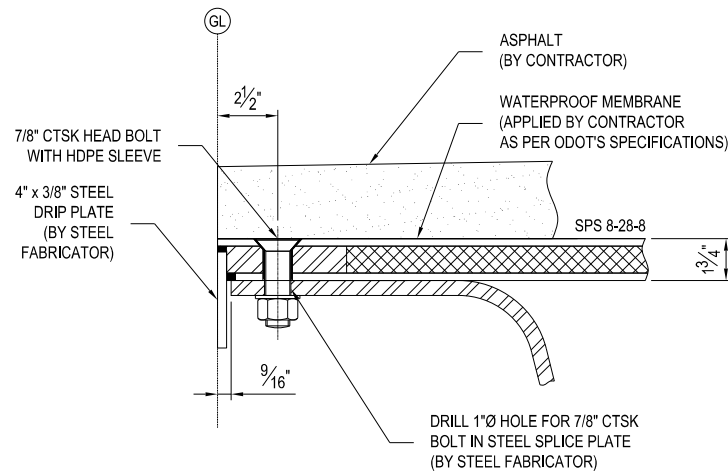
1 SPS CONNECTION DETAIL AT JOINT
SCALE: 1 1/2" = 1'-0"



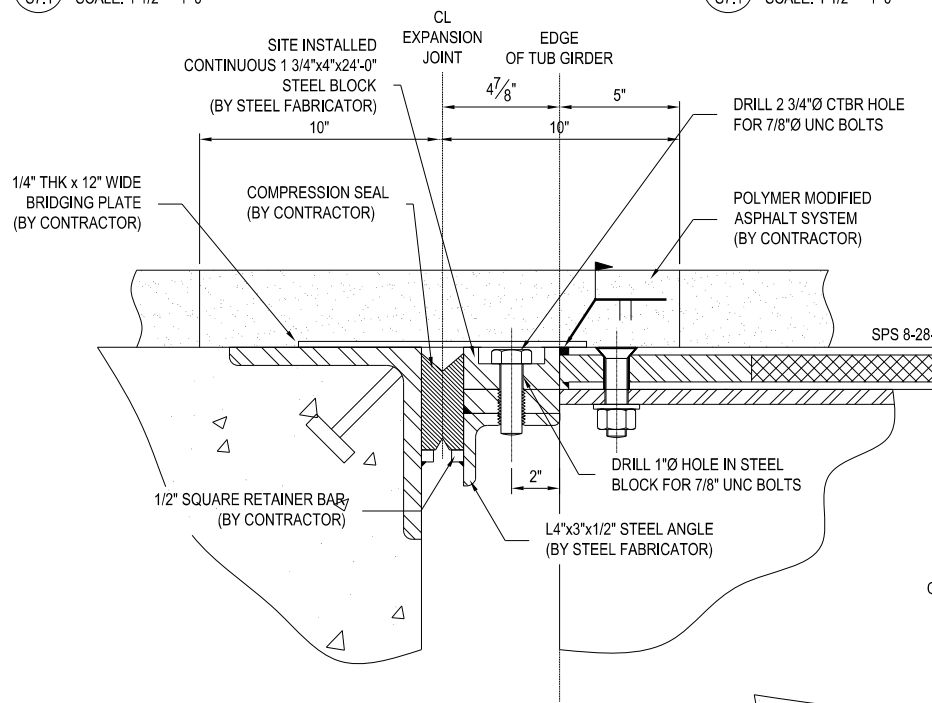
4 ABUTMENT CONNECTION DETAIL AT DIAPHRAGM
SCALE: 1 1/2" = 1'-0"



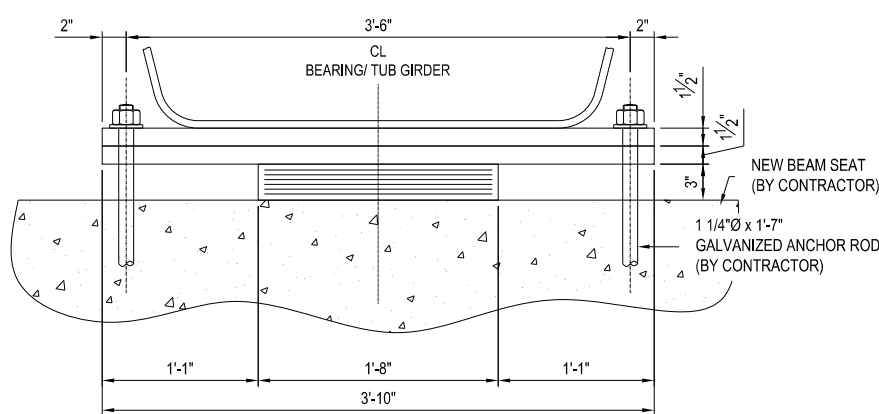
6 DETAIL OF BRIDGE EDGE @ SPS SPLICE
SCALE: 1 1/2" = 1'-0"



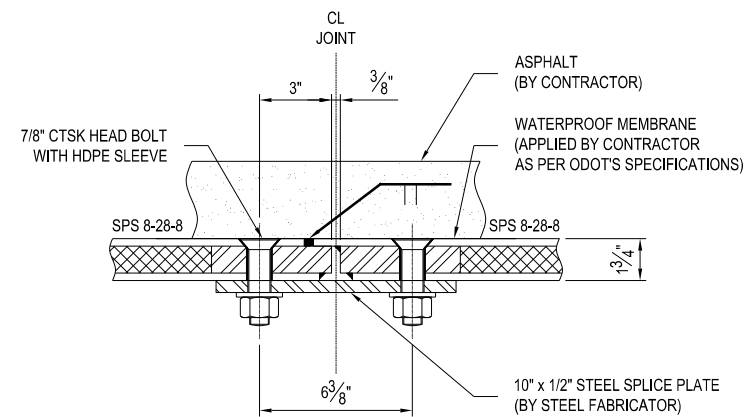
2 SPS CONNECTION DETAIL AT BRIDGE EDGE
SCALE: 1 1/2" = 1'-0"



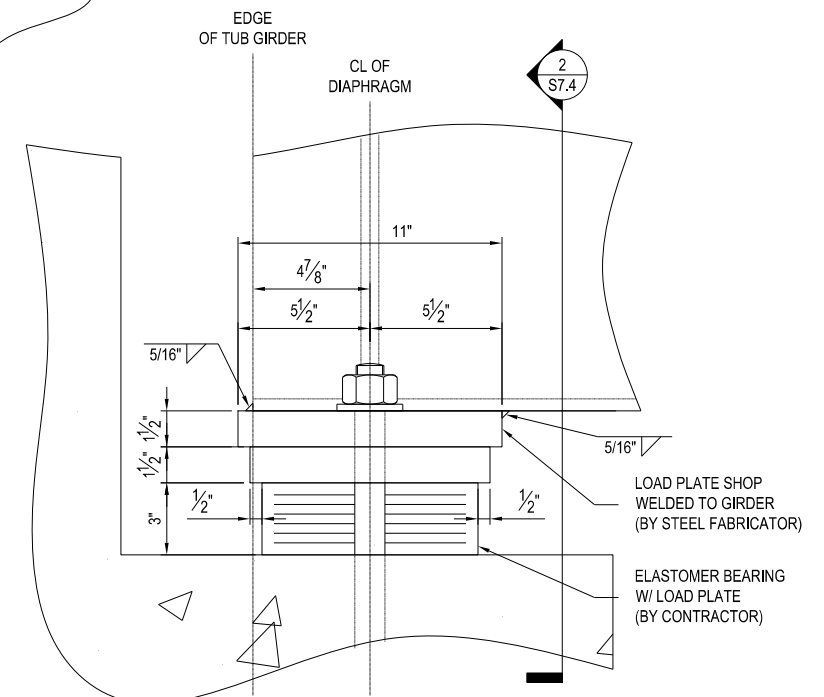
5 ABUTMENT CONNECTION DETAIL
SCALE: 1 1/2" = 1'-0"



2 BEARING PAD ABUTMENT DETAIL
SCALE: 3/4" = 1'-0"



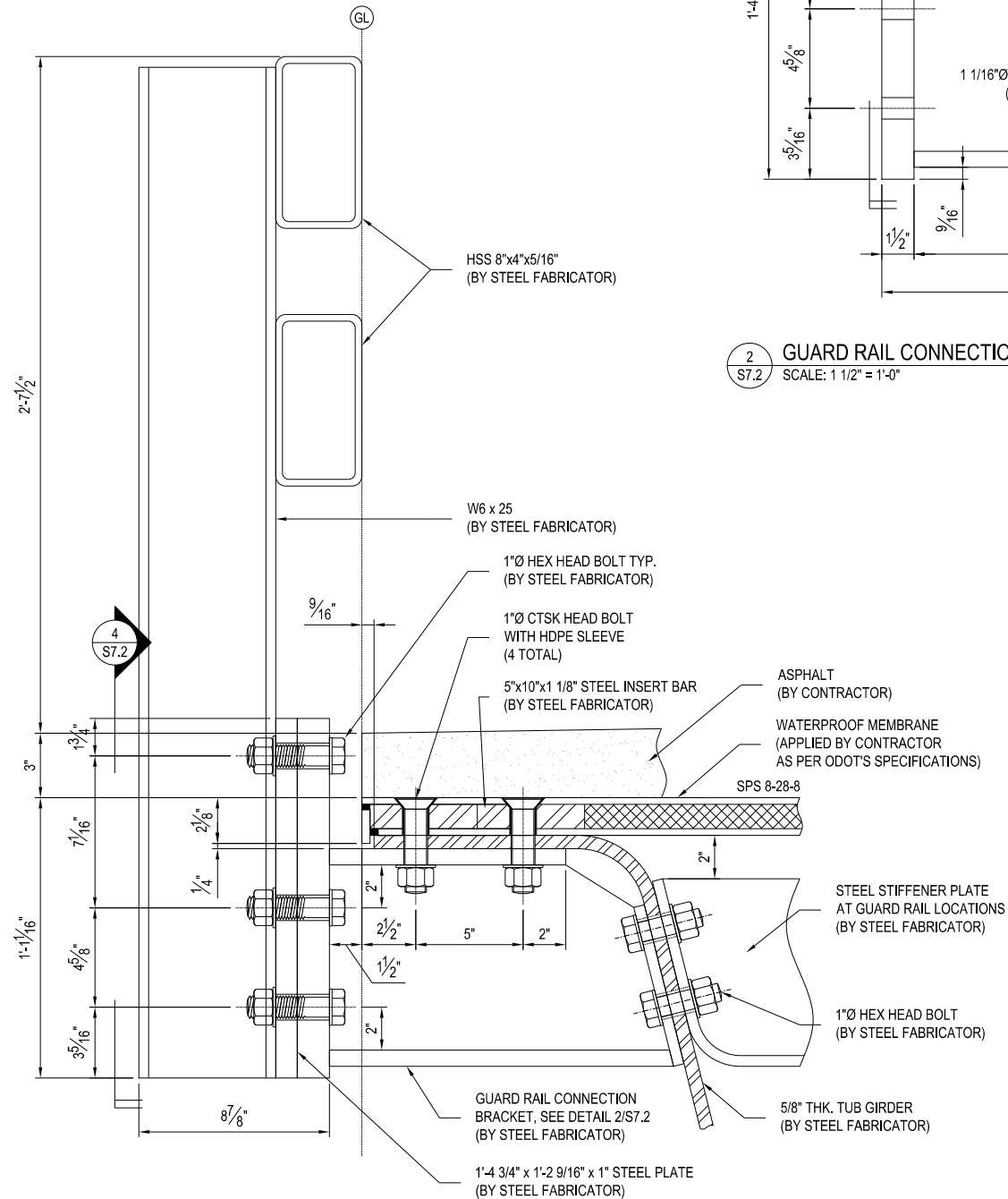
3 SPS CONNECTION DETAIL AT MID-SPAN SPLICE
SCALE: 1 1/2" = 1'-0"



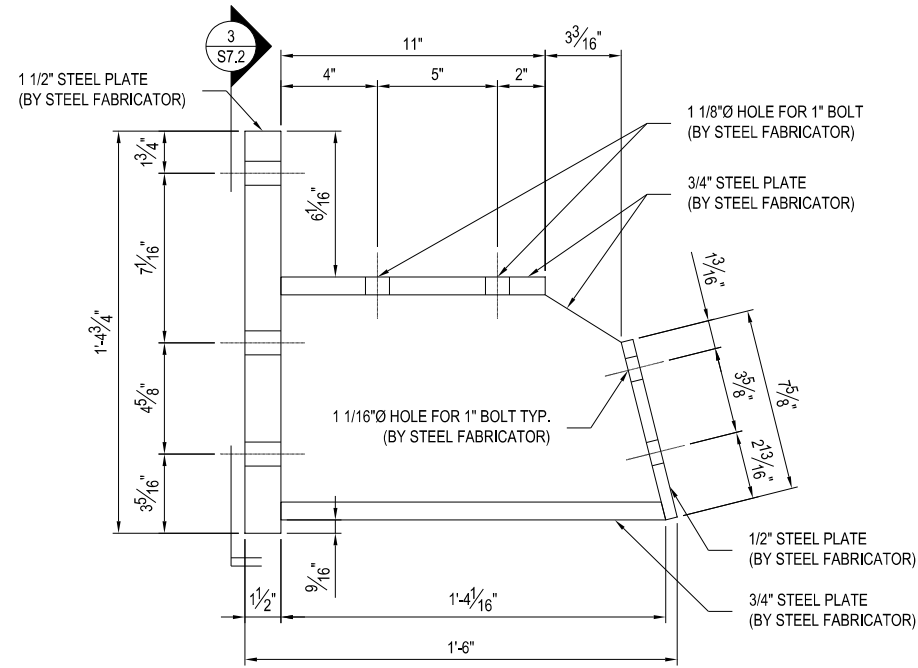
8 BEARING PAD ABUTMENT DETAIL
SCALE: 1 1/2" = 1'-0"

SHEET REFERENCE NUMBER - S7.1

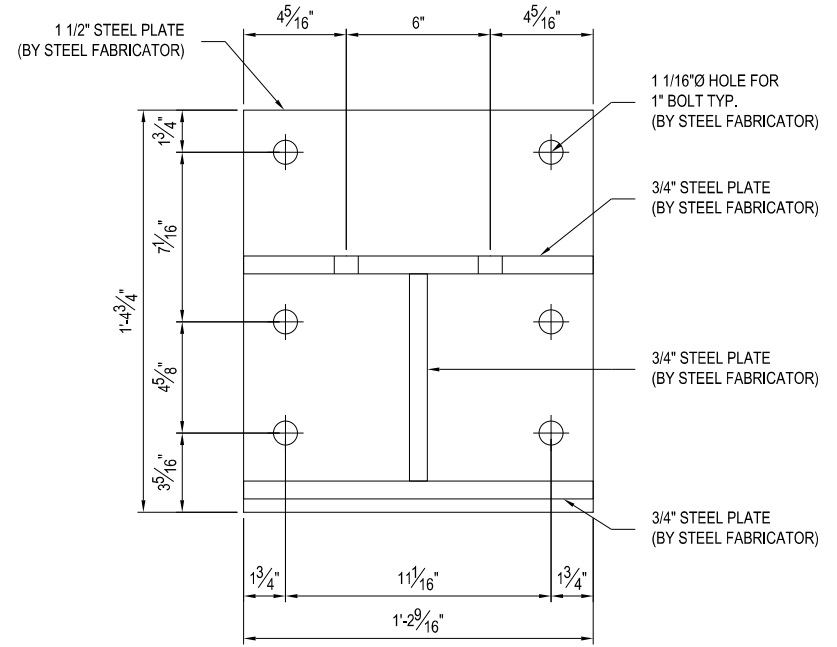
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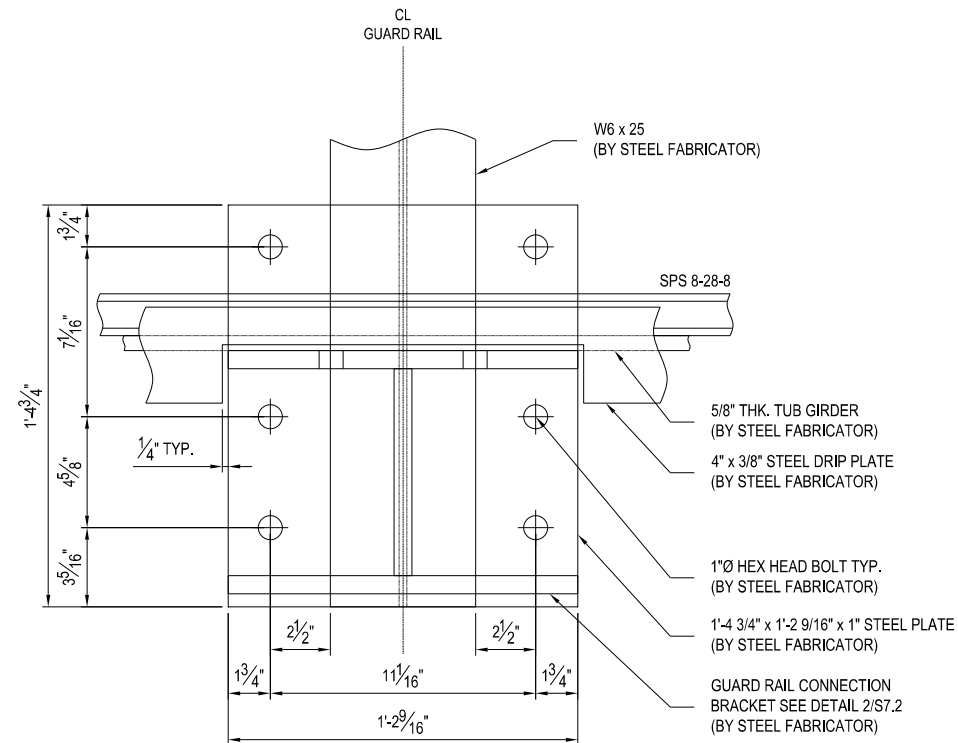
1
S7.2
TYPICAL CONNECTION DETAIL AT GUARD RAIL
SCALE: 1 1/2" = 1'-0"



2
S7.2
GUARD RAIL CONNECTION BRACKET
SCALE: 1 1/2" = 1'-0"

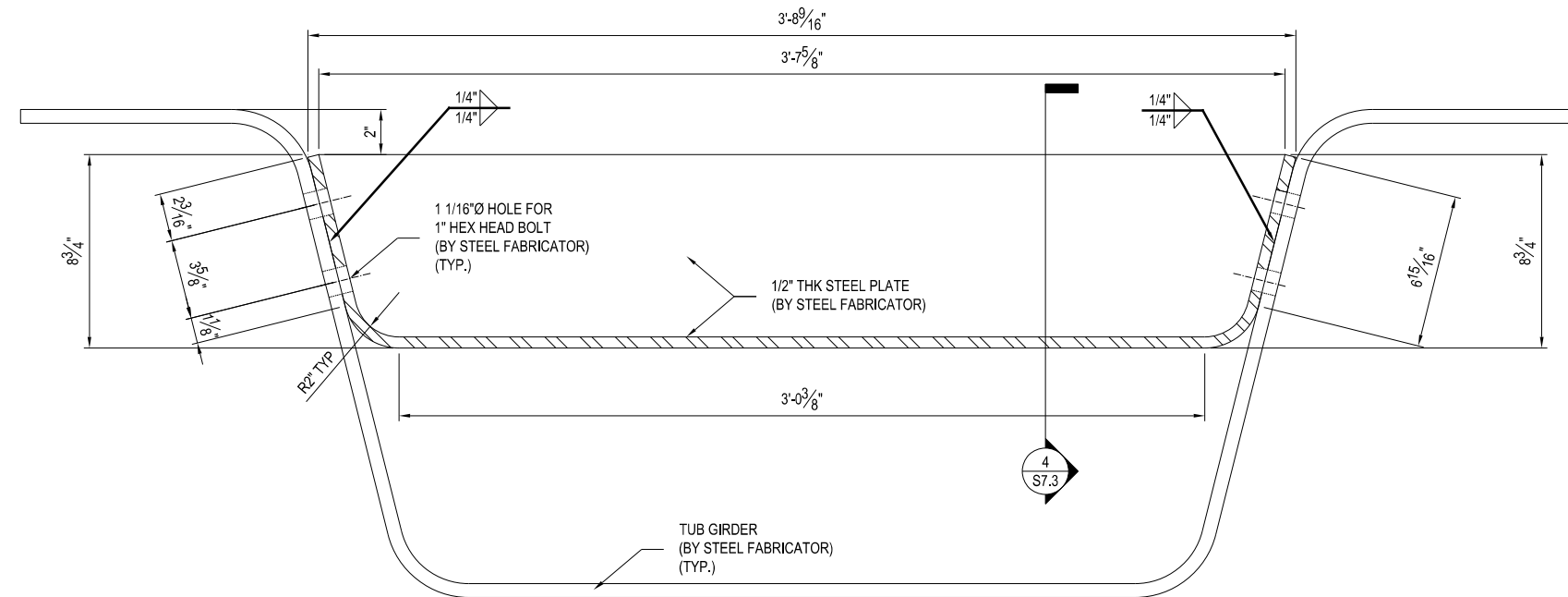


3
S7.2
GUARD RAIL CONNECTION BRACKET
SCALE: 1 1/2" = 1'-0"

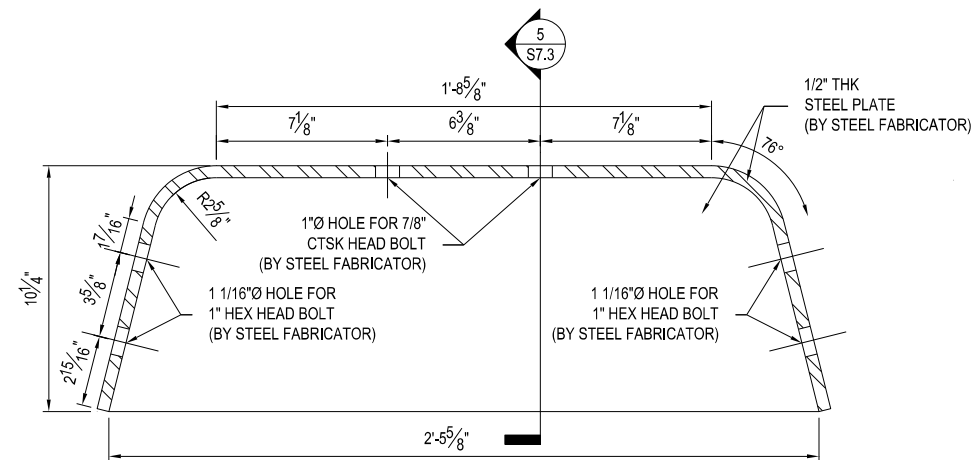


4
S7.2
TYPICAL CONNECTION DETAIL AT GUARD RAIL
SCALE: 1 1/2" = 1'-0"

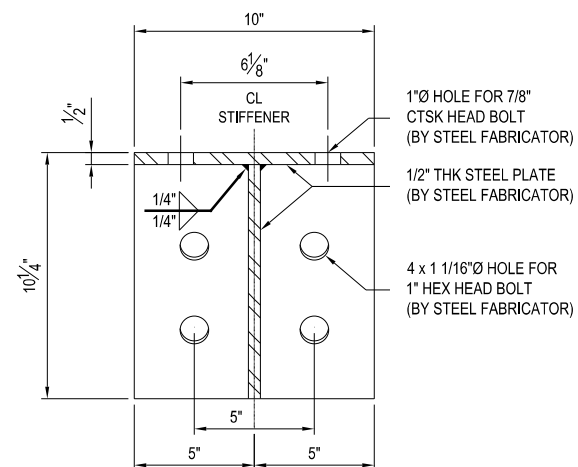
SHEET REFERENCE NUMBER - S7.2



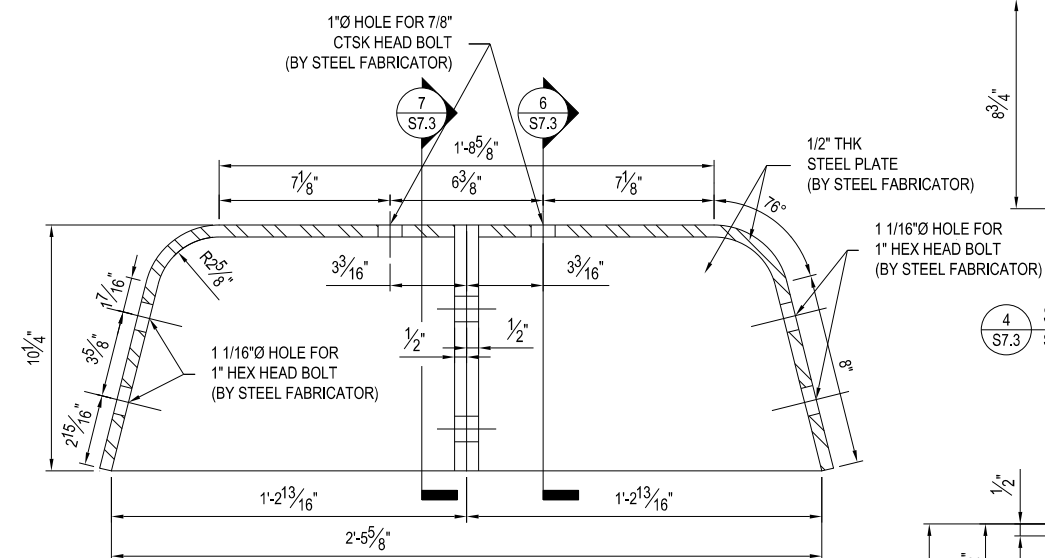
1 TYPICAL INTERNAL TUB GIRDER STIFFENER
S7.3 SCALE: 1 1/2" = 1'-0"



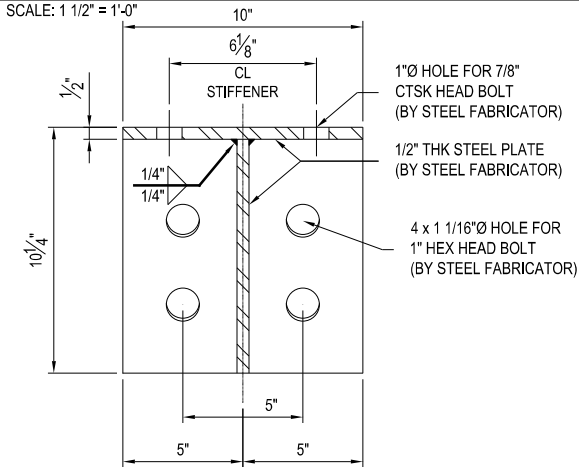
2 TYPICAL STIFFENER BETWEEN TUB GIRDERS WITHIN A MODULE
S7.3 SCALE: 1 1/2" = 1'-0"



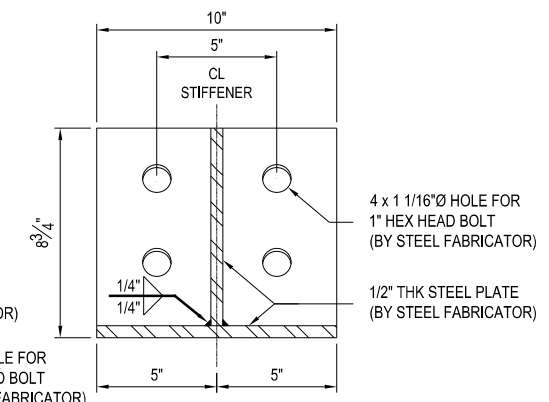
5 SECTION THRU STIFFENER
S7.3 SCALE: 1 1/2" = 1'-0"



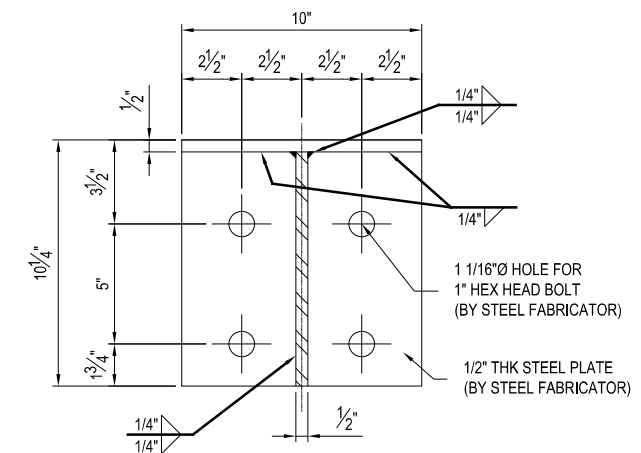
3 TYPICAL STIFFENER BETWEEN TWO MODULES @ BRIDGE CENTRE LINE
S7.3 SCALE: 1 1/2" = 1'-0" 10"



6 SECTION THRU STIFFENER
S7.3 SCALE: 1 1/2" = 1'-0"

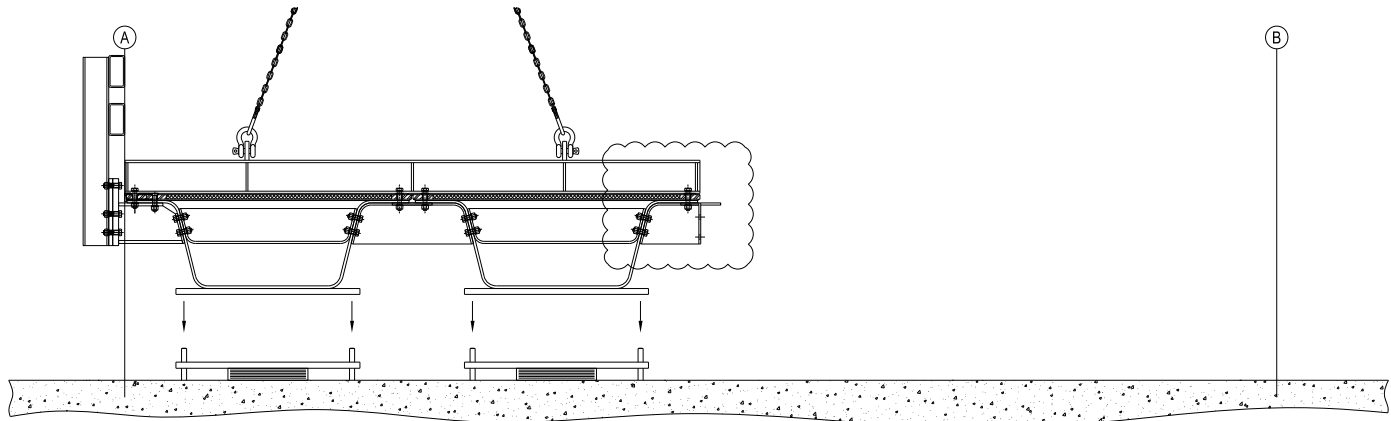


4 SECTION THRU STIFFENER
S7.3 SCALE: 1 1/2" = 1'-0"

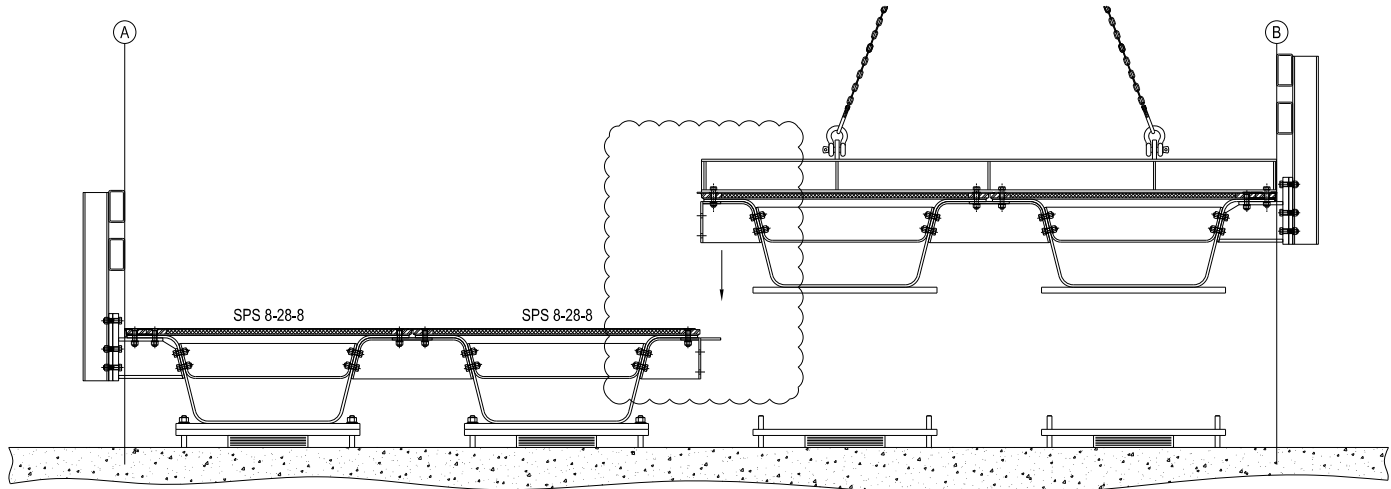


7 SECTION THRU STIFFENER
S7.3 SCALE: 1 1/2" = 1'-0"

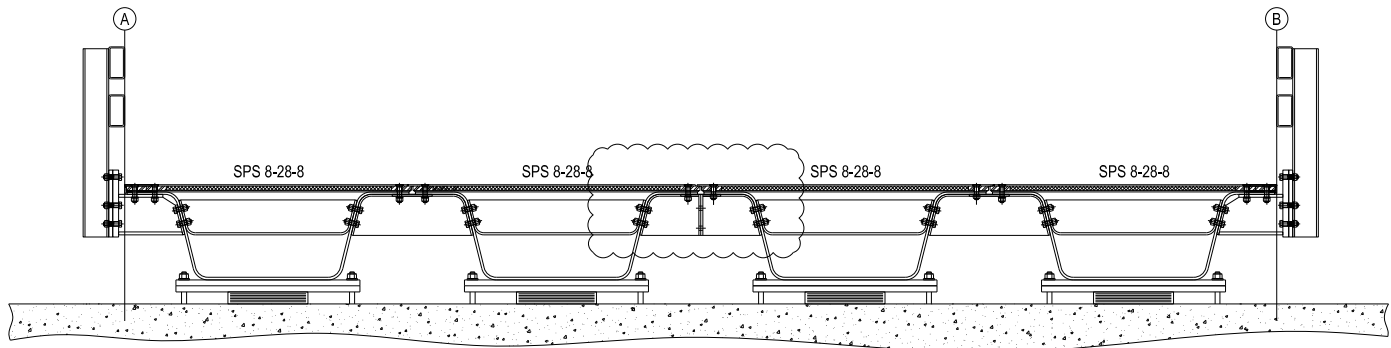
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1 ASSEMBLY ARRANGEMENT - FIRST MODULE
S8.1 SCALE: 3/8" = 1'-0"



2 ASSEMBLY ARRANGEMENT - SECOND MODULE
S8.1 SCALE: 3/8" = 1'-0"

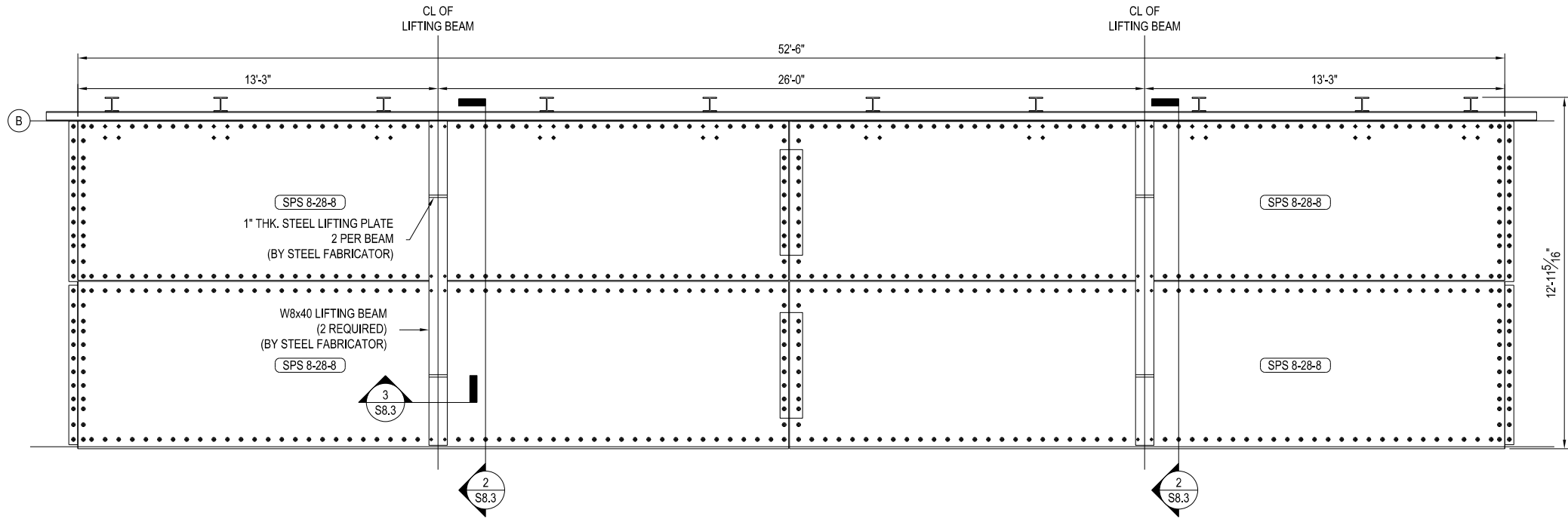


3 ASSEMBLY ARRANGEMENT - COMPLETE BRIDGE
S8.1 SCALE: 1/4" = 1'-0"

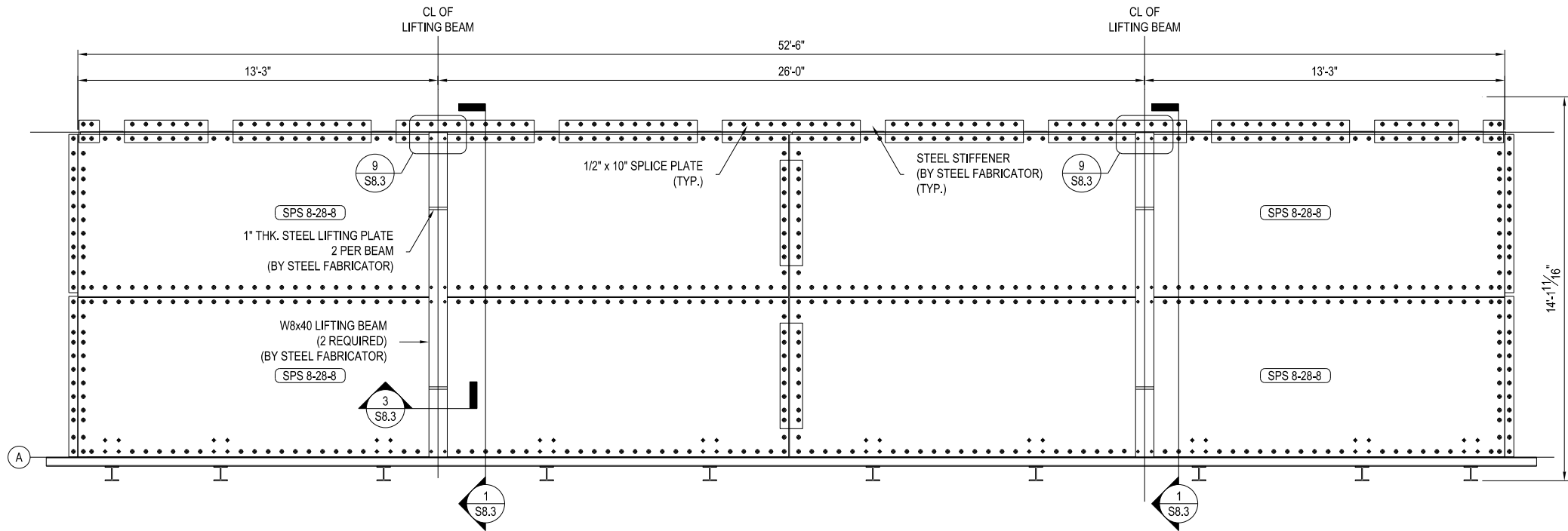
ADDITIONAL ERECTION NOTES:

1. THE WEIGHT OF THE HEAVIER MODULE FOR ERECTION IS 31 TONS.
2. LIFTING ANGLES OF THE CHAINS MUST BE $\geq 70^\circ$ WITH RESPECT TO THE HORIZONTAL PLANE.
3. THE LIFTING BEAM & ATTACHMENTS WERE DESIGNED FOR A SINGLE PICK POINT AT THE CENTER OF THE MODULE. ANY OTHER LIFTING ARRANGEMENTS MUST BE APPROVED IN WRITING BY THE ENGINEER AND INTELLIGENT ENGINEERING.
4. THE W8x40 LIFTING BEAMS MUST BE BOLTED TO THE MODULES DURING TRANSPORTATION.
5. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO ENSURE THAT THE SPS PANELS ARE HANDLED AND ERECTED WITHOUT CAUSING DAMAGE TO THE PANELS OR COATINGS.
6. ALL LIFTING BEAMS TO BE REMOVED AFTER INSTALLATION AND THE BOLT HOLES TO BE FILLED WITH 1"Ø A325 CTSK BOLTS WITH HDPE SLEEVES.

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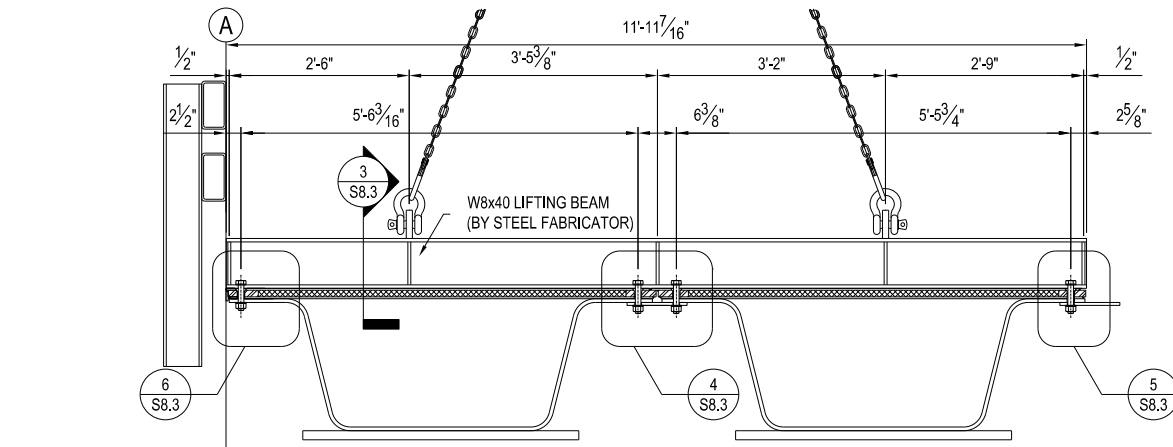


1 LIFTING ARRANGEMENT - SECOND MODULE
S8.2 SCALE: 3/16" = 1'-0"

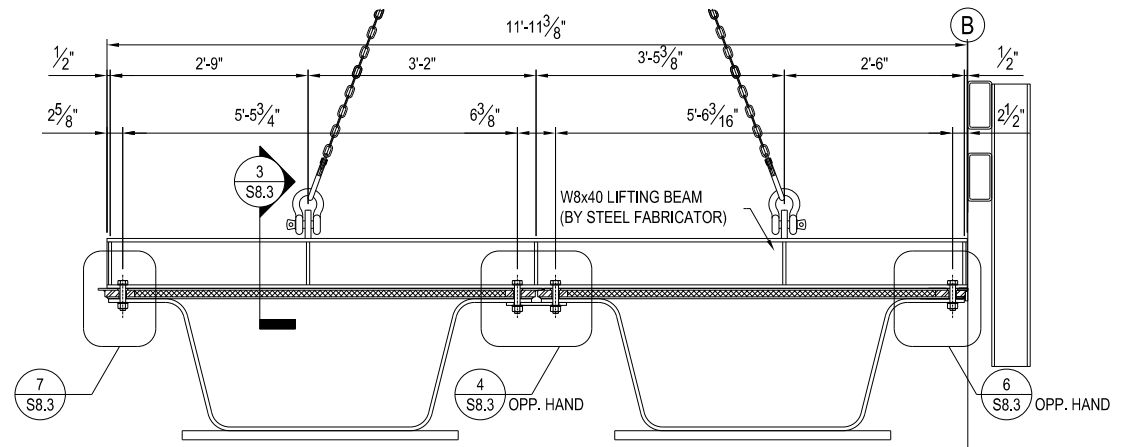


2 LIFTING ARRANGEMENT - FIRST MODULE
S8.2 SCALE: 3/16" = 1'-0"

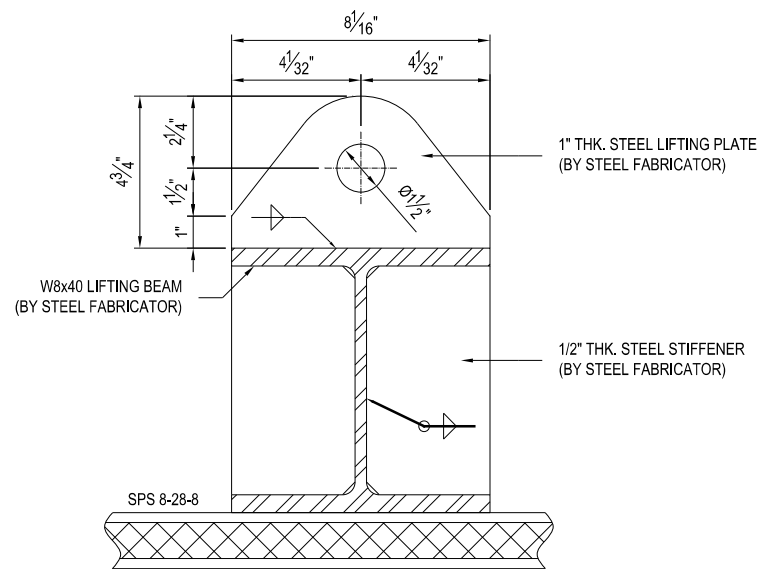
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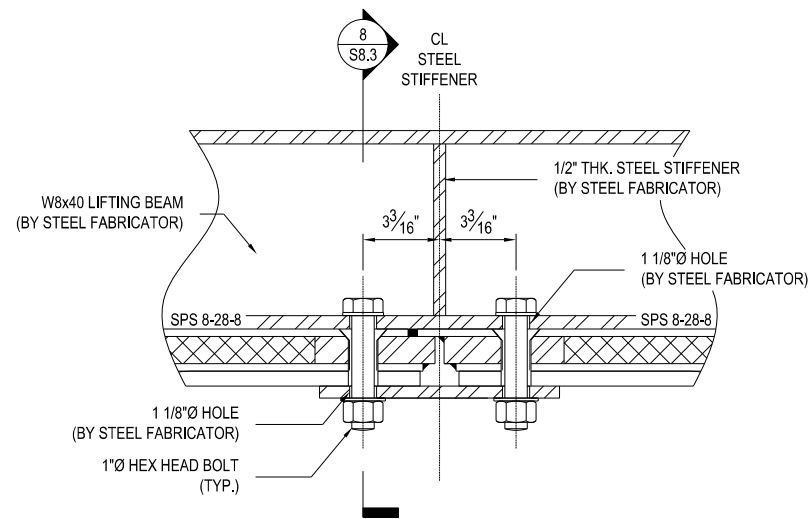
1 LIFTING ARRANGEMENT - FIRST MODULE (2 LOCATIONS)
S8.3 SCALE: 3/8" = 1'-0"



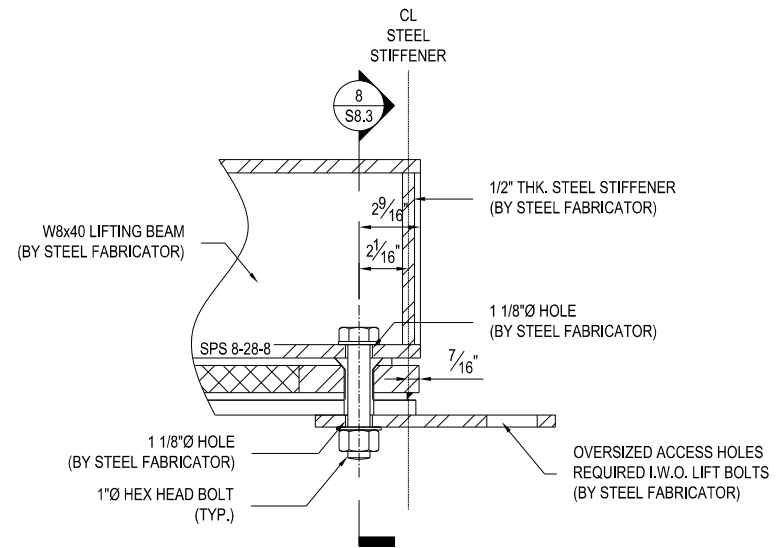
2 LIFTING ARRANGEMENT - SECOND MODULE (2 LOCATIONS)
S8.3 SCALE: 3/8" = 1'-0"



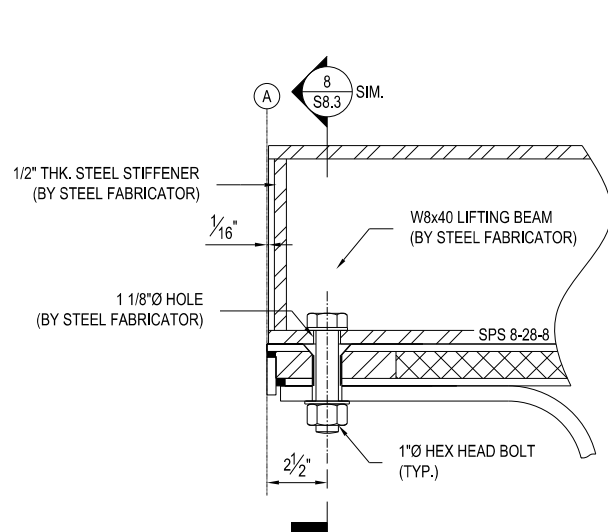
3 LIFTING PLATE DETAIL
S8.3 SCALE: 2" = 1'-0"



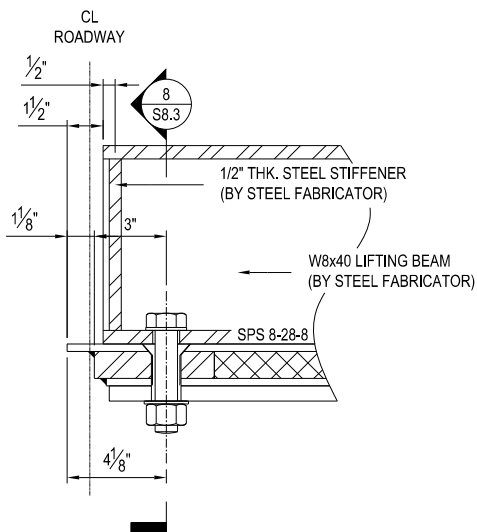
4 DETAIL @ LIFTING BEAM MODULE CENTER
S8.3 SCALE: 1 1/2" = 1'-0"



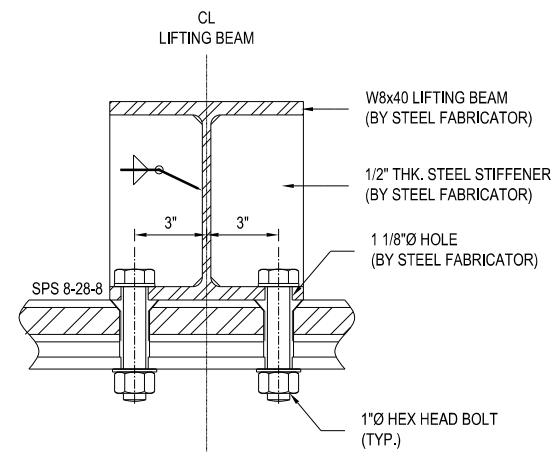
5 DETAIL @ LIFTING BEAM MODULE EDGE
S8.3 SCALE: 1 1/2" = 1'-0"



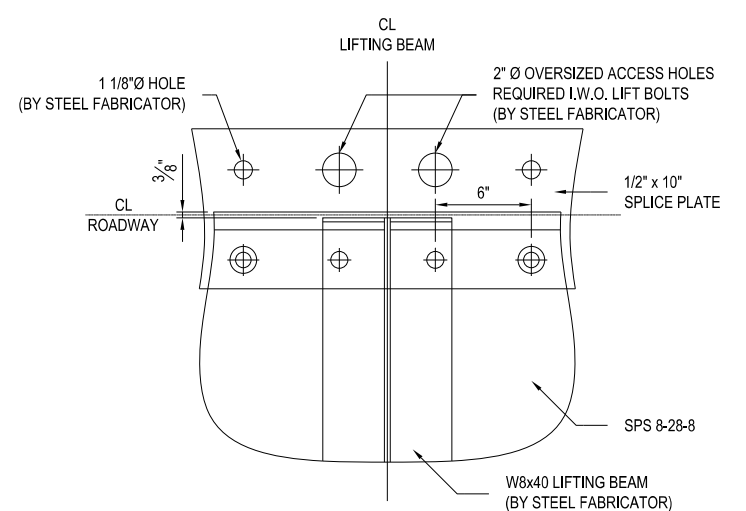
6 DETAIL @ LIFTING BEAM MODULE EDGE
S8.3 SCALE: 1 1/2" = 1'-0"



7 DETAIL @ LIFTING BEAM MODULE EDGE
S8.3 SCALE: 1 1/2" = 1'-0"



8 LIFTING BEAM BOLTING DETAIL
S8.3 SCALE: 1 1/2" = 1'-0"



9 LIFTING PLATE DETAIL
S8.3 SCALE: 2" = 1'-0"

SHEET REFERENCE NUMBER - S8.3

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT GDT - 5/14/15 14:15 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\CANNELVILLE ROAD_BRIDGE.GPJ

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT GDT - 5/14/15 14:15 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\CANNELVILLE ROAD BRIDGE.GPJ

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ABUTMENT TOTAL	4298
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