

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
FAI / LIC - 33 / 70
- VARIOUS
BRIDGE MAINTENANCE
FAIRFIELD & LICKING COUNTIES

PROJECT DESCRIPTION

VARIOUS MAINTENANCE REPAIRS ON BRIDGES ALONG US 33 AND IR 70.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA: N/A ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: N/A ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: N/A ACRES

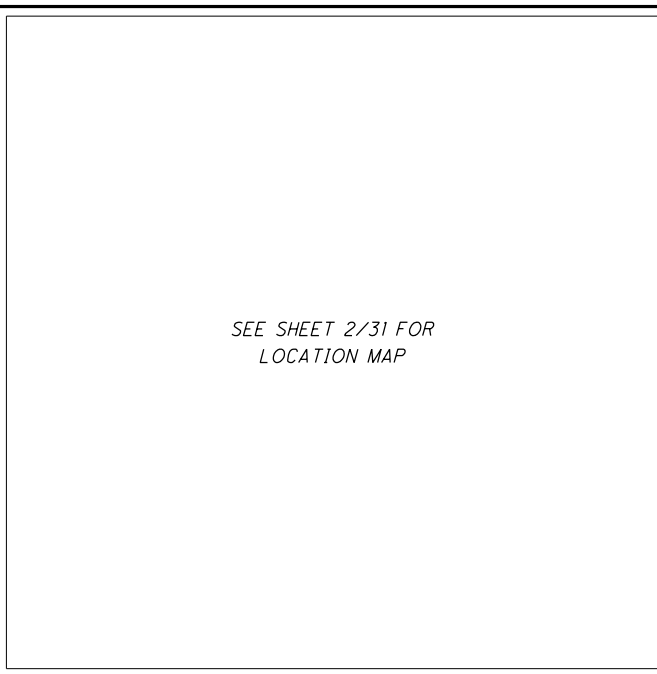
LIMITED ACCESS

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.

2016 SPECIFICATIONS

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

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.



LOCATION MAP

INDEX OF SHEETS:

TITLE SHEET 1
LOCATION MAP 2
GENERAL NOTES / DETAILS 3-7, 7A
GENERAL SUMMARY 8-10
STRUCTURE (SFN 2300710) 11-14
STRUCTURE (SFN 2301016) 15-17
STRUCTURE (SFN 2300850) 18 & 19
STRUCTURE (SFN 2301148) 20
STRUCTURE (SFN 2300869) 21
STRUCTURE (SFN 2300915 & 2300958) 22
STRUCTURE (SFN 4503538) 23-25
PLAN INSERT SHEETS 26-31

I:\ProjectData\FAI\06603\Design\Structures\06603_0877C\Sheets\06603_GT001.dgn_Sheet 6/11/2018 10:53:20 AM tgreenwa

UNDERGROUND UTILITIES
CONTACT BOTH SERVICES TWO WORKING DAYS BEFORE YOU DIG.

Call Before You Dig
1-800-362-2764

(Non-members must be called directly)
OIL & GAS PRODUCERS
UNDERGROUND PROTECTION SERVICE
1-800-925-0988

PLAN PREPARED BY:
OHIO DEPARTMENT
OF TRANSPORTATION
DISTRICT 5

ENGINEERS SEAL:
STRUCTURE

SIGNED:
DATE: 6-11-2018

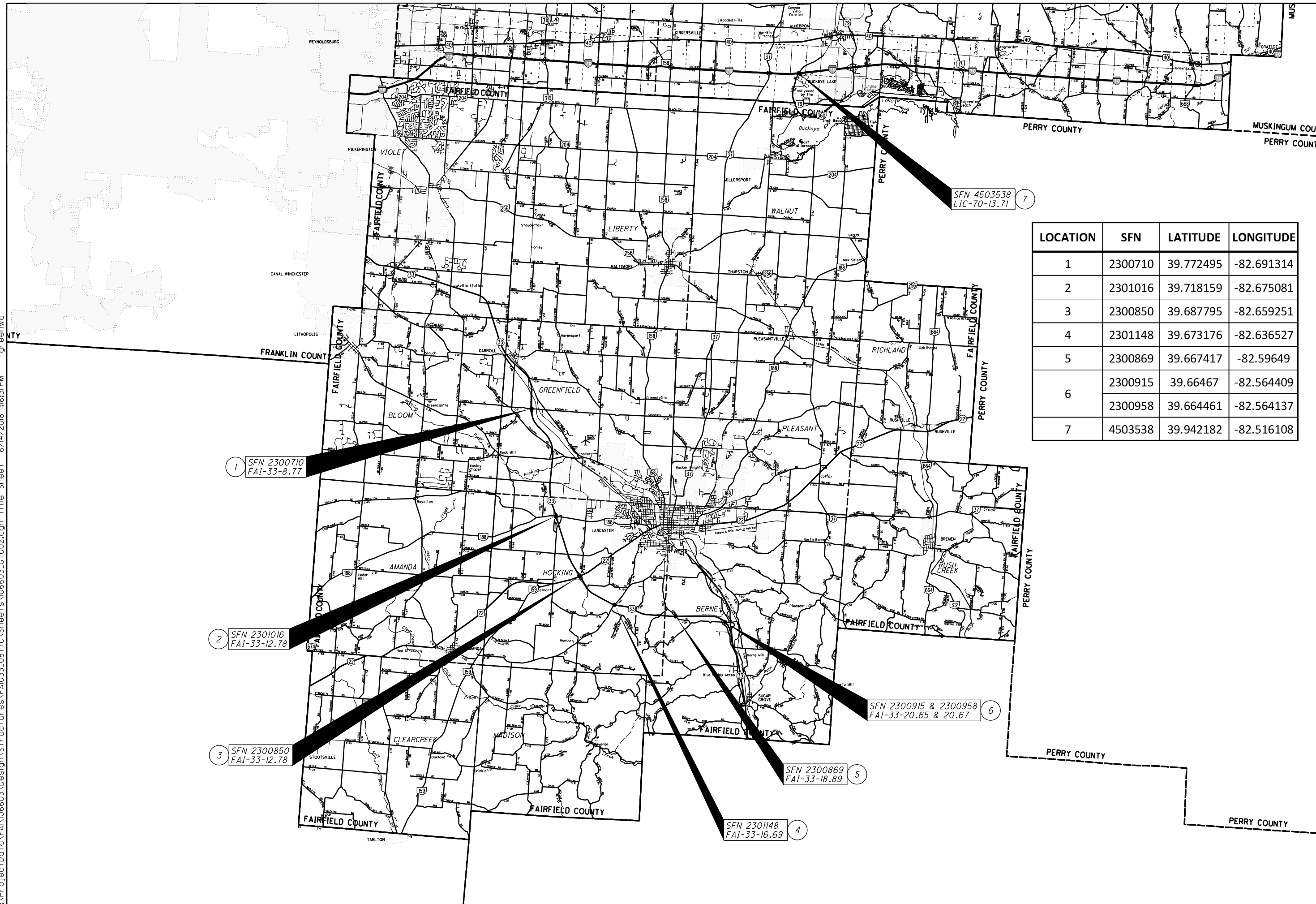
STANDARD CONSTRUCTION DRAWINGS				SUPPLEMENTAL SPECIFICATIONS		SPECIAL PROVISIONS	
CB-2.2	1-15-16	DM-4.4	1-15-16	MT-95.45	7-21-17	800	7-20-18
BP-2.5	7-19-13			MT-97.10	7-18-14	842	7-15-11
				MT-101.90	7-21-17		
				MT-105.10	7-19-13		
HW-2.1	7-21-17						
HW-2.2	7-21-17						

APPROVED:
DATE: 6-8-18 DISTRICT DEPUTY DIRECTOR

APPROVED: _____
DATE: _____ DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO.	E180 (133)
CONSTRUCTION PROJECT NO.	106603
RAILROAD INVOLVEMENT	NONE
FAI / LIC - 33 / 70 - VARIOUS	1 / 31

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LOCATION	SFN	LATITUDE	LONGITUDE
1	2300710	39.772495	-82.691314
2	2301016	39.718159	-82.675081
3	2300850	39.687795	-82.659251
4	2301148	39.673176	-82.636527
5	2300869	39.667417	-82.59649
6	2300915	39.66467	-82.564409
	2300958	39.664461	-82.564137
7	4503538	39.942182	-82.516108

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 CMS SECTIONS 102.05 AND 105.02.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

ITEM 202 - REMOVAL MISC.: PORTIONS OF STRUCTURE REMOVED MSE WALL

THIS ITEM SHALL INCLUDE ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPERATELY LISTED FOR PLAYMENT. ITEM TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER. THE USE OF EXPOSIVES, HEADACHE BALLS AND/OR HOE-RAMS WILL NOT BE PERMITTED. THE METHODS OF REMOVAL AND WEIGHT OF HAMMER SHALL BE APPROVED BY THE ENGINEER. PERFORM ALL WORK IN A MANNER THAT WILL NOT CUT, ELONGATE OR DAMAGE THE EXISTING REINFORCING STEEL TO BE PRESERVED. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 35-POUND CLASS. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

ITEM 202 - REMOVAL MISC.: 1" PEJF WITH HOT APPLIED JOINT SEALER

THE CONTRACTOR IS TO REMOVE ALL PEJF MATERIAL AND HOT APPLIED JOINT SEALER FROM THE MOMENT SLAB AND CONCRETE ROADWAY PAVEMENT.

MEASUREMENT: THE REMOVAL OF THE 1" PEJF AND HOT APPLIED JOINT SEALER SHALL BE MEASURED PER FOOT, FOR THE LENGTH OF THE MOMENT SLAB THAT IS TO HAVE THE JEENE SEAL INSTALLED.

PAYMENT: SHALL BE PER ITEM 202 - REMOVAL MISC.: 1" PEJF WITH HOT APPLIED JOINT SEALER. THS SHALL INCLUDE ALL LABOR, MATERIALS AND INCIDENTALS NECESSARY TO REMOVE THIS MATERIAL AS SHOWN ON SHEET 5/31.

ITEM 255, FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS RRCM, AS PER PLAN

CONCRETE PAVEMENT REPAIRS SHALL CONFORM TO CMS 255, SCD BP-2.5, AND THE DETAILS BELOW. APPROXIMATE LOCATIONS ARE SHOWN IN THE PLANS AND ADDITIONAL LOCATIONS MAY BE NECESSARY. ALL CONCRETE PAVEMENT REPAIR LOCATIONS SHALL BE APPROVED BY THE ENGINEER BEFORE WORK MAY BEGIN.

TO EXPEDITE WORK, CLASS OCI CONCRETE WITH AN ACCELERATING ADMIXTURE SIKA RAPID-1 OR ANY APPROVED EQUIVALENT ADMIXTURE SHALL BE USED TO ACHIEVE 3,000 PSI COMPRESSIVE STRENGTH IN 12 HRS. USE A NON-CHLORIDE ACCELERATING ADMIXTURE AND PROVIDE DOCUMENTATION THAT THE MIX WILL PROVIDE THE STRENGTH IN THE SPECIFIED TIME.

AT LEAST 5 DAYS PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A SCHEDULE OF REPAIR WORK ITEMS TO BE COMPLETED. THE SCHEDULE SHALL INCLUDE A BREAKDOWN OF ALL MAJOR WORK ACTIVITIES ON AN HOURLY BASIS. REPAIR WORK SHALL NOT BEGIN UNTIL THE SCHEDULE IS APPROVED BY THE ENGINEER.

THE CONTRACTOR SHALL CONTINUE THE WET CURE WITH BURLAP AS PER CMS 705.05 FOR THE MAXIMUM NUMBER OF HOURS POSSIBLE DURING THE PERMITTED LANE CLOSURE. THE CLOCK STARTS FOR THE WET CURE WHEN THE CONCRETE PLACEMENT IS COMPLETE.

TRAFFIC WILL NOT BE PERMITTED ON THE FINISHED CONCRETE SURFACE UNTIL AFTER COMPLETION OF A 12 HOUR MINIMUM WET CURE AND AFTER TWO TEST BEAMS HAVE ATTAINED AN AVERAGE MODULUS OF RUPTURE OF 400 PSI.

PAYMENT FOR ALL OF THE ABOVE DESCRIBED LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS WILL BE MADE AT THE CONTRACT PRICE BID FOR ITEM 255, FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS RRCM, AS PER PLAN

ITEM 511 - CLASS OCI CONCRETE, MISC.: MSE WALL REPAIR

IN ADDITION TO THE WORK ITEMS REQUIRED IN 511, THIS ITEM WILL INCLUDE THE DEVELOPMENT, DELIVERY AND PLACEMENT OF A SPECIAL CONCRETE MIX DESIGN AS DESCRIBED IN THE FOLLOWING NOTE:

PROVIDE A CONCRETE MIX WITH THE FOLLOWING PROPERTIES:

MINIMUM CEMENT CONTENT OF NO MICROSILICA	800 LB/CU.YD.
MAXIMUM COARSE AGGREGATE SIZE	8
MAXIMUM WATER/CEMENT RATIO	0.38
COARSE TO FINE AGGREGATE RATIO TO PRODUCE SELF CONSOLIDATING CONCRETE	
MINIMUM 12 HOUR STRENGTH	2500 PSI
MINIMUM 3 DAY STRENGTH	4000 PSI
MINIMUM 28 DAY STRENGTH	5500 PSI
MINIMUM AIR CONTENT	7% ±2%
MINIMUM SPREAD	24"

PROVIDE A CONCRETE MIX AT A SLUMP THAT ALLOWS THE CONCRETE MIX TO BE PUMPED THROUGH AN ACCESS HOLE(S) IN THE FACE OF A VERTICAL FORMS), SELF CONSOLIDATED, AND THEN PRESSURIZED, FILLING THE FORMWORK TIGHT TO THE UNDERSIDE OF THE DECK SLAB. THE FINAL CONCRETE MIX WILL BE A SELF CONSOLIDATING ADMIXTURE.

SUBMIT THE MIX DESIGN AND TEST RESULTS TO THE ENGINEER FOR REVIEW AND ACCEPTANCE.

ACCESS HOLES MAY BE PROVIDED AT A MINIMUM SPACING OF 6 FEET. USE THE ACCESS HOLES TO DELIVER THE CONCRETE. IF MULTIPLE ACCESS HOLES ARE UTILIZED, THOSE NOT USED FOR FINAL CONCRETE DELIVERY SHALL BE BLOCKED PRIOR TO PRESSURE FILLING THE UPPER PORTION OF THE FORMWORK. DRILL 1" BREATHING/MONITORING HOLES IN THE VERTICAL FORMS WITHIN 6 INCHES OF THE TOP OF THE FORMS (BOTTOM OF THE DECK) SPACED BETWEEN 3 AND 5 FEET AND ELSEWHERE THROUGHOUT THE FORMWORK AS DIRECTED BY THE ENGINEER.

PUMP THE CONCRETE INTO THE FORMS UNTIL FULL AND ALL AIR VOIDS ARE DETERMINED TO HAVE BEEN ELIMINATED. THE ENGINEER WILL USE THE 1 INCH BREATHING/MONITORING HOLES DRILLED INTO THE VERTICAL FORMS TO DETERMINE WHEN THE AIR VOIDS HAVE BEEN ELIMINATED, (I.E. WHEN CONCRETE SEEPS FROM THE BREATHING/MONITORING HOLES).

ASSURE THE CONCRETE HAS COMPLETELY FILLED THE FORMS UP TO THE BOTTOM OF THE DECK BEFORE MOVING OPERATIONS TO ANOTHER POUR. USE VIBRATION EQUIPMENT TO HELP CONSOLIDATE THE CONCRETE MIX.

THE CONTRACTOR SHALL PROVIDE FORMWORK TO WITHSTAND THE PRESSURE REQUIRED TO PLACE CONCRETE BY THIS PUMPING/PRESSURIZATION METHOD.

DURING THE CONCRETE OPERATIONS, ASSURE THE REPRESENTATIVES OF THE READY MIX PRODUCER AND THE CHEMICAL ADMIXTURE MANUFACTURER ARE ON SITE TO DETERMINE ANY ADJUSTMENTS REQUIRED TO COMPLETE THE CONCRETE PLACEMENT.

A PROPOSED FORM PUMPING SYSTEM MEETING ALL REQUIEMENTS OF THIS ITEM MUST BE SUBMITTED AND ACCEPTED BY THE PROJECT ENGINEER PRIOR TO THE INSTALLATION OF ANY FORMWORK. A TEST AREA ON THE FIRST BRIDGE MSE WALL TO BE DONE SHALL BE USED TO DETERMINE THE PERFORMANCE OF THE PROPOSED PUMPING SYSTEM. UPON COMPLETING THE TEST SECTION, THE PROJECT ENGINEER SHALL INSPECT THE AREA FOR THE PRESENCE OF AIR VOIDS TO ENSURE THAT ALL AREAS ARE FILLED. UPON APPROVAL OF THE TEST AREA BY THE PROJECT ENGINEER, THE CONTRACTOR MAY USE THE APPROVED FORM PUMPING SYSTEM.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITY OF SQUARE FEET.

PAYMENT WILL INCLUDE FORMWORK, DEVELOPMENT AND PLACEMENT OF THE SELF CONSOLIDATING CONCRETE MIX, EXCAVATION AND ALL OTHER INCIDENTAL WORK PERTAINING TO THIS ITEM.

ITEM 516 - JOINT SEALER, AS PER PLAN

AFTER ALL LOOSE CONCRETE HAS BEEN REMOVED, CLEANED AND FILL JOINTS WITH FOAM BACKER ROD OR EXPANDING FOAM. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS FOR APPLICATION. IF USING EXPANDING FOAM, USE A FOAM THAT CAN BE APPLIED IN COLD WEATHER. REPAIRED, SEAL ALL CRACKS AND JOINTS WITH DECK-O-SEAL GUN GRADE-JOINT SEALANT OR AN APPROVED EQUAL. THE COLOR SHALL BE A LIGHT TAN. APPROVED MANUFACTURER'S APPLICATION METHODS SHALL BE FOLLOWED DURING SURFACE PREPARATION AND APPLICATION FOR MAXIMUM EFFECTIVENESS.

DECK-O-SEAL
P.O. BOX 397
HAMPSHIRE, IL 60140
PHONE: 800-542-7665

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 516 - JOINT SEALER, AS PER PLAN, FT., AND SHALL INCLUDE ALL LABOR, EQUIPMENT, AND INCIDENTALS REQUIRED TO COMPLETE THE WORK DESCRIBED.

ITEM 516 - 2" DEEP JOINT SEALER, AS PER PLAN

THE CONTRACTOR SHALL PLACE A 1" x 2" DEEP JOINT SEALER AS PER 705.04 AT THE LOCATIONS SHOWN IN THE PLANS. THE CONTRACTOR SHALL SAW CUT A CHANNEL FOR THE JOINT SEALER. THE COST FOR THE SAW CUTTING THE CHANNEL FOR THE JOINT SEALER SHALL BE INCLUDED FOR PAYMENT WITH ITEM 516, 2" SEALER, AS PER PLAN.

ITEM 516-STRUCTURAL JOINT OR JOINT SEALER, MISC: 1" PRECOMPRESSED FOAM JOINT SEAL

DESCRIPTION: THIS WORK WILL CONSIST OF THE INSTALLATION OF A 1" PRECOMPRESSED FOAM JOINT BETWEEN THE PARAPET OR MOMENT SLAB JOINTS. THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER. THE PRECOMPRESSED FOAM JOINT FILLER SHALL FILL THE GAP ALONG THE PARAPET OR MOMENT SLAB JOINTS.

PAYMENT: MEASUREMENT OF THE EXPANSION JOINT FOR PAYMENT PURPOSES SHALL BE ALONG THE JOINT BETWEEN THE MOMENT SLAB AND CONCRETE PAVEMENT. PAYMENT SHALL BE PER FOOT OF ITEM 516 - STRUCTURAL JOINT OR JOINT SEALER, MISC: 1" PRECOMPRESSED FOAM JOINT SEAL AS PROVIDED BY EMSEAL JOINT SYSTEM LTD., 25 BRIDLE LANE, WESTBOROUGH, MA 01581, (800) 526-8365. ALL LABOR, MATERIALS AND INCIDENTALS NEEDED TO CONSTRUCT THE JOINT AS SHOWN.

ITEM 516-STRUCTURAL JOINT OR JOINT SEALER, MISC: 2" PRECOMPRESSED FOAM JOINT SEAL

DESCRIPTION: THIS WORK WILL CONSIST OF THE INSTALLATION OF A 2" PRECOMPRESSED FOAM JOINT BETWEEN THE PARAPET OR MOMENT SLAB JOINTS. THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER. THE PRECOMPRESSED FOAM JOINT FILLER SHALL FILL THE GAP ALONG THE PARAPET OR MOMENT SLAB JOINTS.

PAYMENT: MEASUREMENT OF THE EXPANSION JOINT FOR PAYMENT PURPOSES SHALL BE ALONG THE JOINT BETWEEN THE MOMENT SLAB AND CONCRETE PAVEMENT. PAYMENT SHALL BE PER FOOT OF ITEM 516 - STRUCTURAL JOINT OR JOINT SEALER, MISC: 2" PRECOMPRESSED FOAM JOINT SEAL AS PROVIDED BY EMSEAL JOINT SYSTEM LTD., 25 BRIDLE LANE, WESTBOROUGH, MA 01581, (800) 526-8365. ALL LABOR, MATERIALS AND INCIDENTALS NEEDED TO CONSTRUCT THE JOINT AS SHOWN.

ITEM 609 - COMBINATION CURB AND GUTER, TYPE 4, AS PER PLAN

THIS ITEM SHALL INCLUDE ALL EXCAVATION THAT IS TO BE DONE TO INSTALL THE COMBINATION CURB AND GUTTER, TYPE 4, AS PER PLAN AND SHALL INCLUDE ANY SAW CUTTING AND REMOVAL OF EXISTING CONCRETE/ASPHALT PAVEMENT AND CURB TO THE SUBBASE.

PAYMENT FOR ALL OF THE ABOVE DESCRIBED LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS WILL BE MADE AT THE CONTRACT PRICE BID FOR ITEM 609, COMBINATION CURB AND GUTER, TYPE 4, AS PER PLAN.

ITEM 613 - LOW STRENGTH MORTAR BACKFILL (LSM), TYPE 2, AS PER PLAN

THIS ITEM APPLIES TO ALL AREAS BENEATH THE PROPOSED LOCATIONS OF ALL ITEM 516 - STRUCTURAL JOINT OR JOINT SEALER, MISC.: 1" PRECOMPRESSED FOAM JOINT SEAL AND 2" PRECOMPRESSED FOAM JOINT SEAL ITEM IN THIS PLAN.

AFTER THE 1" PEJF HAS BEEN REMOVED FROM THE MOMENT SLAB AND PRIOR TO THE PRECOMPRESSED SEAL BEING INSTALLED THE FIELD ENGINEER IS TO INSPECT THE OPEN JOINT AND VERIFY THAT THERE IS NO VISIBLE VOID UNDER THE MOMENT SLAB. IF A VOID HAS BEEN IDENTIFIED THE CONTRACTOR IS TO BACKFILL.

AFTER A VOID HAS BEEN IDENTIFIED ON THE OUTSIDE OF THE MSE WALL, FILL ALL OPEN JOINTS WITH A FOAM BACKER ROD OR EXPANDING FOAM. USE A FOAM THAT CAN BE APPLIED IN COLD WEATHER, SUCH AS HILTI CF511 FILLER FOAM.

SEAL THE JOINTS BY APPLYING A SILICONE SEALANT TO THE FOAM IN THE JOINTS. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS FOR APPLICATIONS. USE A SEALANT THAT CAN BE APPLIED IN COLD WEATHER, SUCH AS DOW CORNING 790 SILICONE BUILDING SEALANT. THIS SEALANT ALSO COMES IN A VARIETY OF COLORS TO MATCH OR COMPLEMENT THE COLOR OF THE MSE WALL FACING PANELS.

THE CONTRACTOR WILL BE ALLOWED TO CORE A FOUR INCH DIAMETER MAXIMUM ACCESS HOLE(S) THRU THE EXISTING MOMENT SLAB AS NEEDED. THE HOLES SHALL NOT BE PLACED ANY CLOSER THAN 1 FOOT FROM THE EDGE OF THE MOMENT SLAB AND TWO FEET FROM AN ADJACENT CORE HOLE.

ALL CORE HOLES SHALL BE FILLED WITH CLASS OC2 CONCRETE WITH AN ACCELERATING ADMIXTURE SIKA RAPID-1 OR ANY APPROVED EQUIVALENT ADMIXTURE SHALL BE USED TO ACHIEVE 3,000 PSI COMPRESSIVE STRENGTH IN 12 HRS. USE A NON-CHLORIDE ACCELERATING ADMIXTURE AND PROVIDE DOCUMENTATION THAT THE MIX WILL PROVIDE THE STRENGTH IN THE SPECIFIED TIME.

PAYMENT FOR ALL THE ABOVE WORK DESCRIBED LABOR, EQUIPMENT, AND MATERIALS WILL BE MADE AT THE CONTRACT PRICE BID ITEM 613 - LOW STRENGTH MORTAR BACKFILL (LSM) TYPE 2, AS PER PLAN

ITEM 842 - CORRECTING ELEVATION OF CONCRETE APPROACH SLABS WITH HIGH DENSITY POLYURETHANE

THIS WORK CONSISTS OF CORRECTING THE ELEVATION OF CONCRETE MOMENT SLABS USING HIGH DENSITY POLYURETHANE (HDP). FOR THE LOCATIONS PROVIDED REMOVE ANY COMPRESSION SEAL, FOREIGN MATERIAL, AND DEBRIS FROM THE EXISTING JOINT OPENING AND PRIOR TO INSTALLING THE JEENE SEAL.

PAYMENT FOR ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 842 - CORRECTING ELEVATION OF CONCRETE APPROACH SLABS WITH HIGH DENSITY POLYURETHANE.

A QUANTITY OF 500 LBS. HAS BEEN CARRIED TO THE GENERAL SUMMARY.

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DESIGNED		REVIEWED		DATE		DESIGN AGENCY	
TAG	JDR	TAG	JDR	6/11/18		OHIO DEPARTMENT OF	TRANSPORTATION DISTRICT 5
CHECKED		STRUCTURE		FILE NUMBER			
BRIDGE NOTES				PID No. 106603			
FAI/LIC-33/70-VARIOUS				3			
				31			

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ITEM 614 MAINTAINING TRAFFIC

DO NOT EXCEED THE PERMITTED LANE CLOSURE TIMES POSTED ON THE DEPARTMENT'S PERMITTED LANE CLOSURE WEB SITE OR THE LANE VALUE CONTRACT TABLE UNLESS OTHERWISE DIRECTED BY THE ENGINEER. SUBMIT A LANE CLOSURE APPLICATION REQUEST FORM TO THE ENGINEER IN WRITING, THREE (3) WORKING DAYS IN ADVANCE OF THE LANE(S) CLOSURES UNLESS OTHERWISE DIRECTED BY THE ENGINEER. NO LANE CLOSURES WILL BE PERMITTED DURING HOLIDAYS OR SPECIAL EVENTS, SEE SPECIAL EVENTS/HOLIDAY NOTE.

FOR BRIDGE:

FAI-33-0877, FAI-188-0940, FAI-33-1505, FAI-33-1669, FAI-33-18.89, FAI-33-2065, FAI-33-2067

A MINIMUM OF 1 LANE OF TRAFFIC ON THE BRIDGE SHALL BE MAINTAINED AT ALL TIMES ON U.S. 33 BY USE OF THE EXISTING PAVEMENT AND STANDARD DRAWINGS DRAWING MT-95.30 CLOSING THE RIGHT OR LEFT LANES AS NEEDED OR DIRECTED BY THE ENGINEER.

PLACE AN UNOCCUPIED SHADOW VEHICLE EQUIPPED WITH A TRUCK-MOUNTED ATTENUATOR (TMA) WHENEVER MAINTAINING TRAFFIC ACCORDING TO STANDARD DRAWING MT-95.30 OR AS DIRECTED BY THE ENGINEER. EQUIP THE VEHICLES WITH A 360 DEGREE ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE FROM A MINIMUM DISTANCE OF 1 QUARTER MILE.

PERFORM ALL WORK AND SUPPLY ALL TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH CMS 614 AND LATEST VERSION OF 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.

ITEM 623 CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN

SURVEY INFORMATION IS NOT AVAILABLE FOR THIS PROJECT. IN ORDER TO ENSURE PROPER CATCH BASIN GRATE ELEVATION, THE CONTRACTOR SHALL SURVEY THE CURRENT CURBLINE ELEVATIONS AND PROVIDE A COPY OF THIS INFORMATION TO THE PROJECT ENGINEER. THE CONTRACTOR SHALL THEN PLACE THE CATCH BASIN GRATE ELEVATION 2 INCHES BELOW THE CURBLINE ORIGINAL ELEVATION. ALL WORK RELATING TO THIS ITEM SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 623 CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN.

NOTICE TO DE-ENERGIZING TOWER LIGHTING

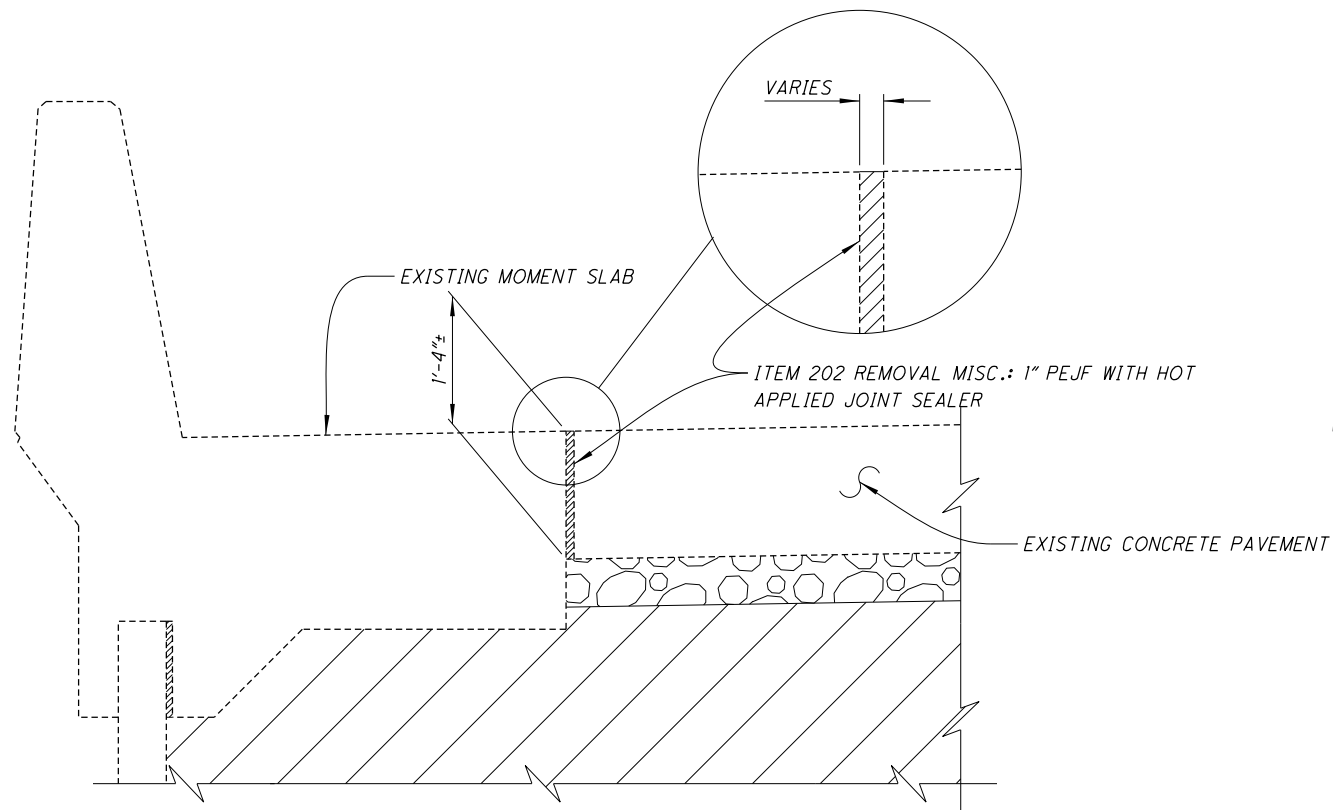
THE CONTRACTOR SHALL NOTIFY BRIAN BOSCH AT 740-323-5182 A MINIMUM OF SEVEN DAYS PRIOR TO BEGINNING ANY EXCAVATION IN THE VICINITY OF THE TOWER LIGHTING. ANY DAMAGES DONE TO THE TOWER LIGHTING CIRCUITS BY THE CONTRACTOR SHALL BE FIXED/REPLACED IMMEDIATELY WITH ANY COST ASSOCIATED SHALL BEBORNE BY THE CONTRACTOR.

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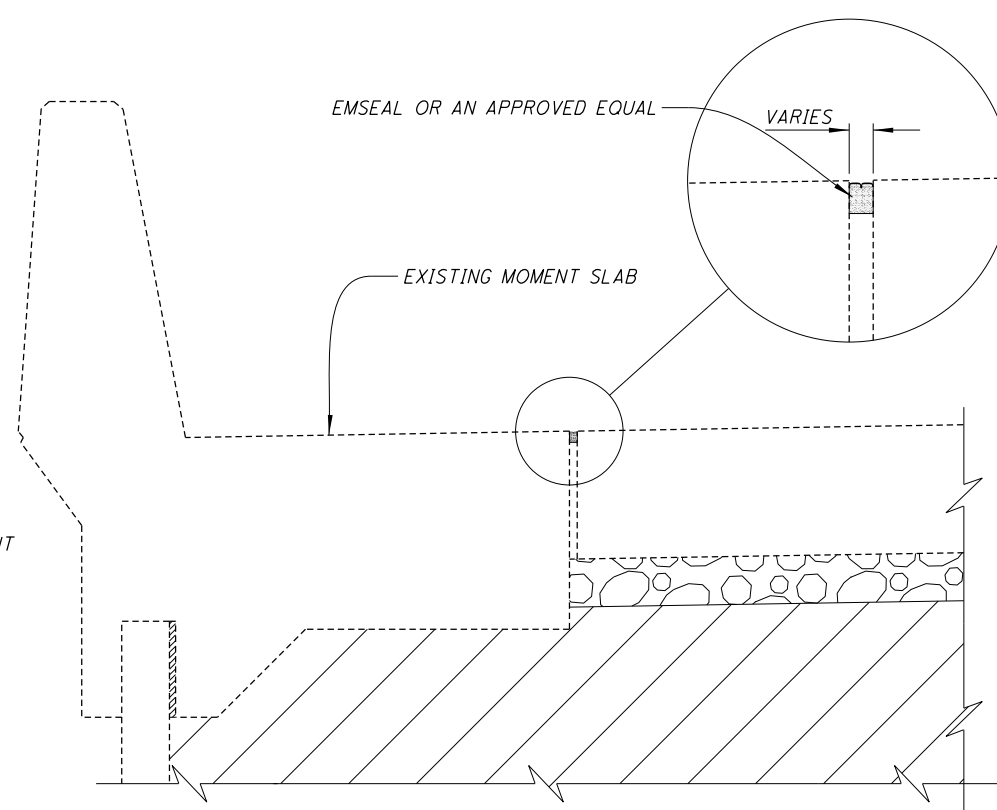
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STRUCTURE	FILE NUMBER

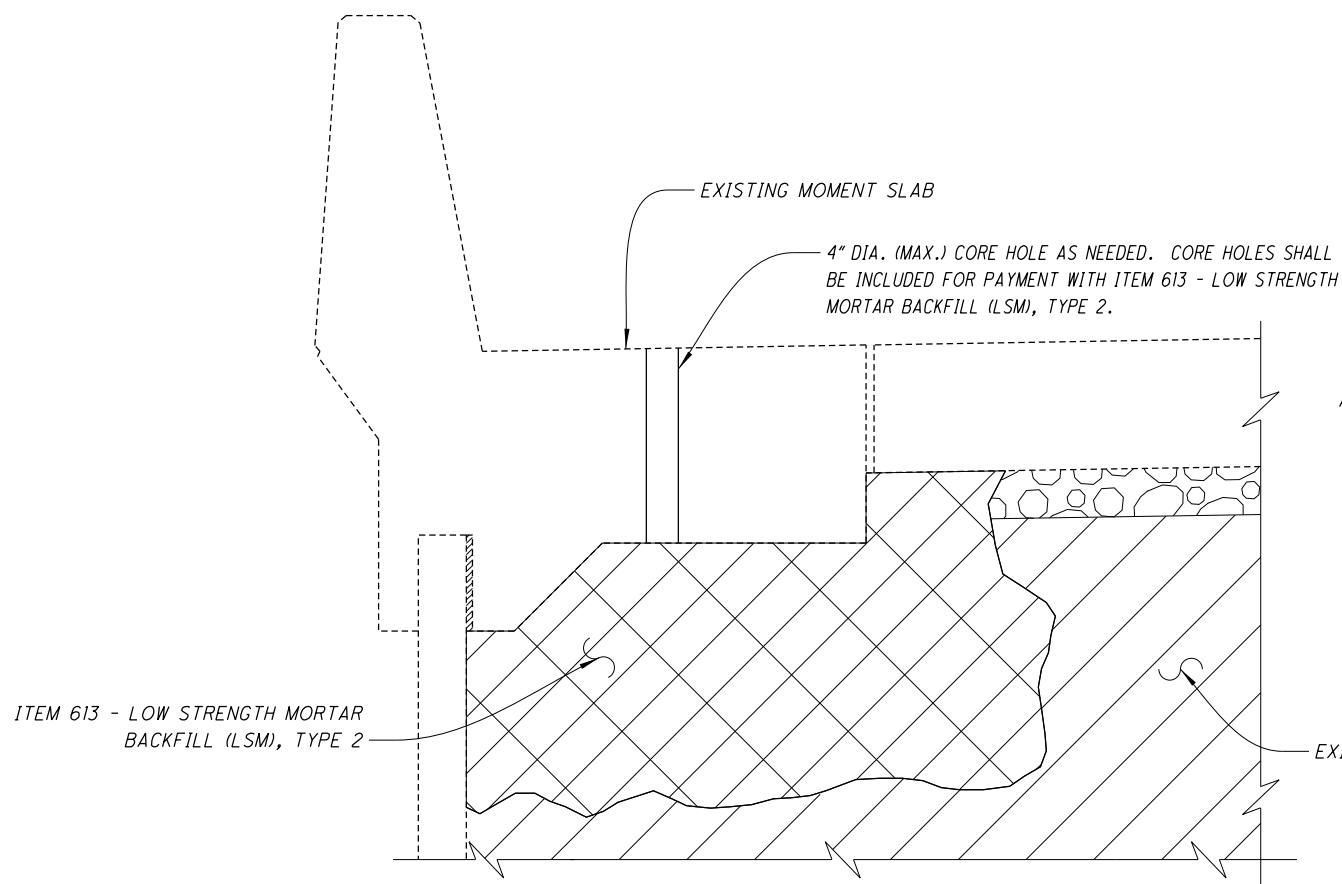
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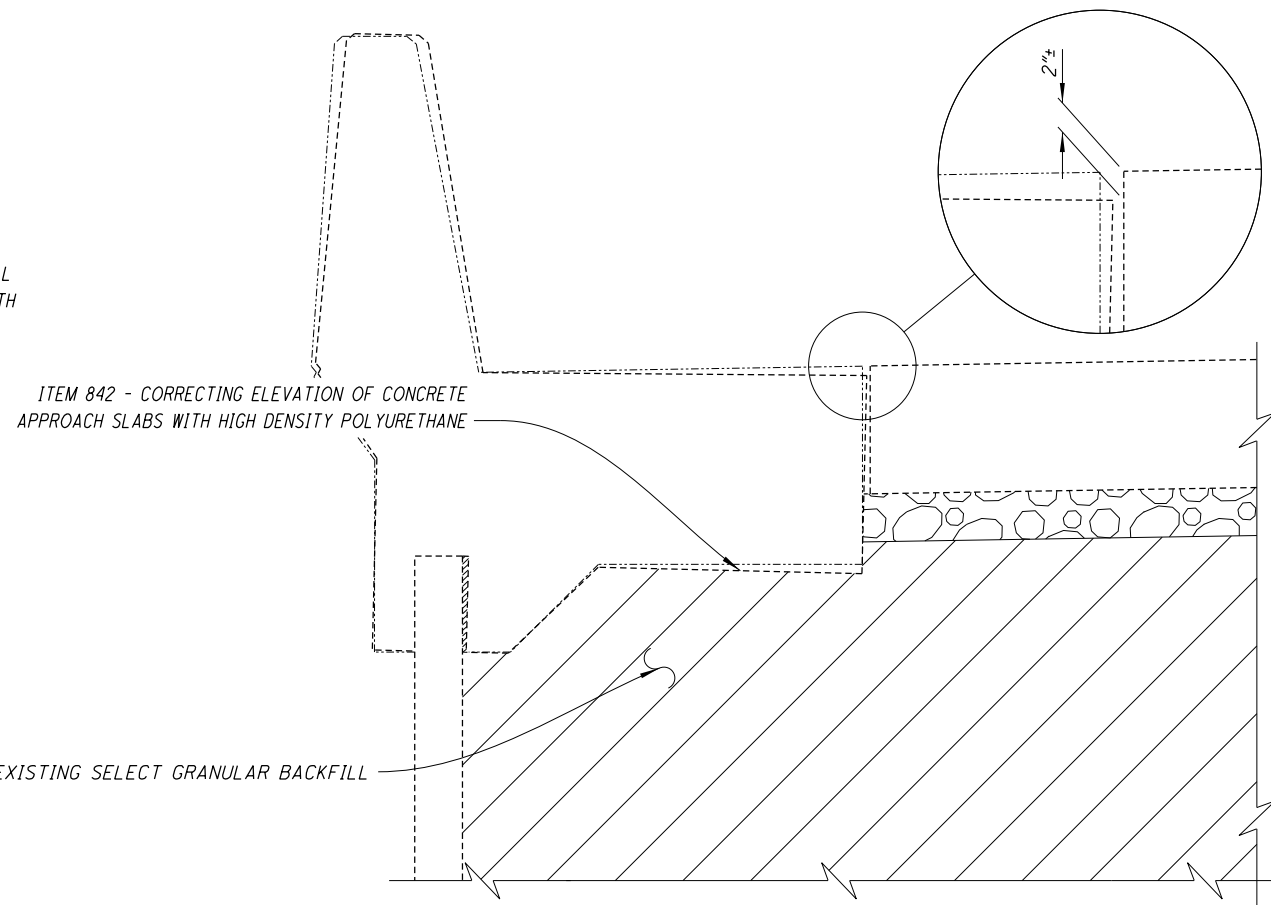
PREPARING EXISTING FOR ITEM 516



PROPOSED ITEM 516 (FOLLOWING ITEM 613 AND/OR ITEM 842)



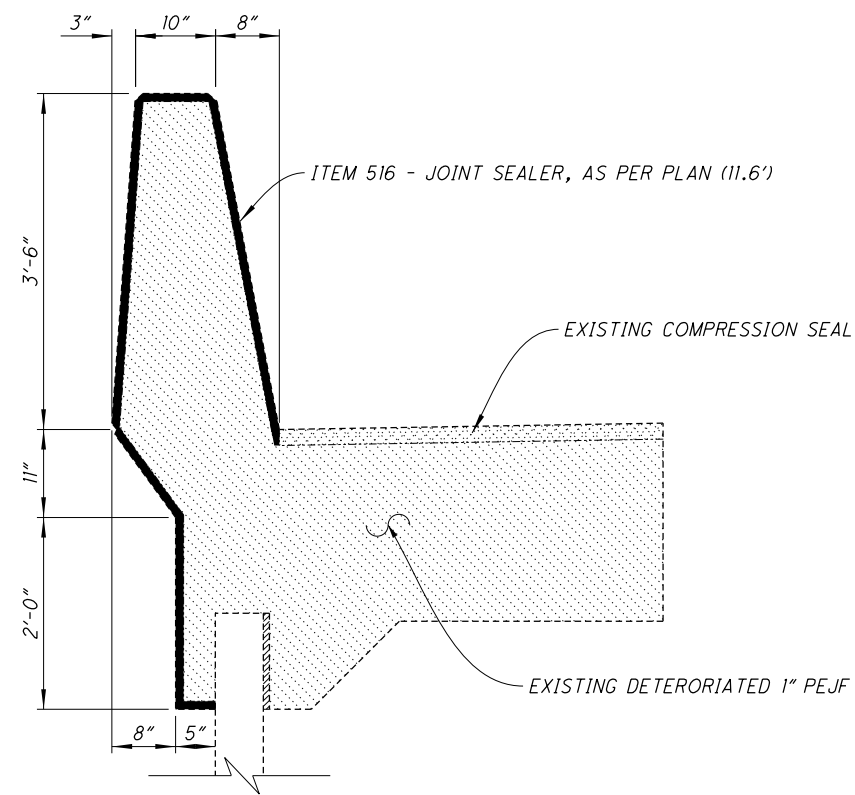
PROPOSED ITEM 613 - LOW STRENGTH MORTAR BACKFILL (LSM), TYPE 2



PROPOSED ITEM 842 - CORRECTING ELEVATION OF CONCRETE APPROACH SLABS WITH HIGH DENSITY POLYURETHANE

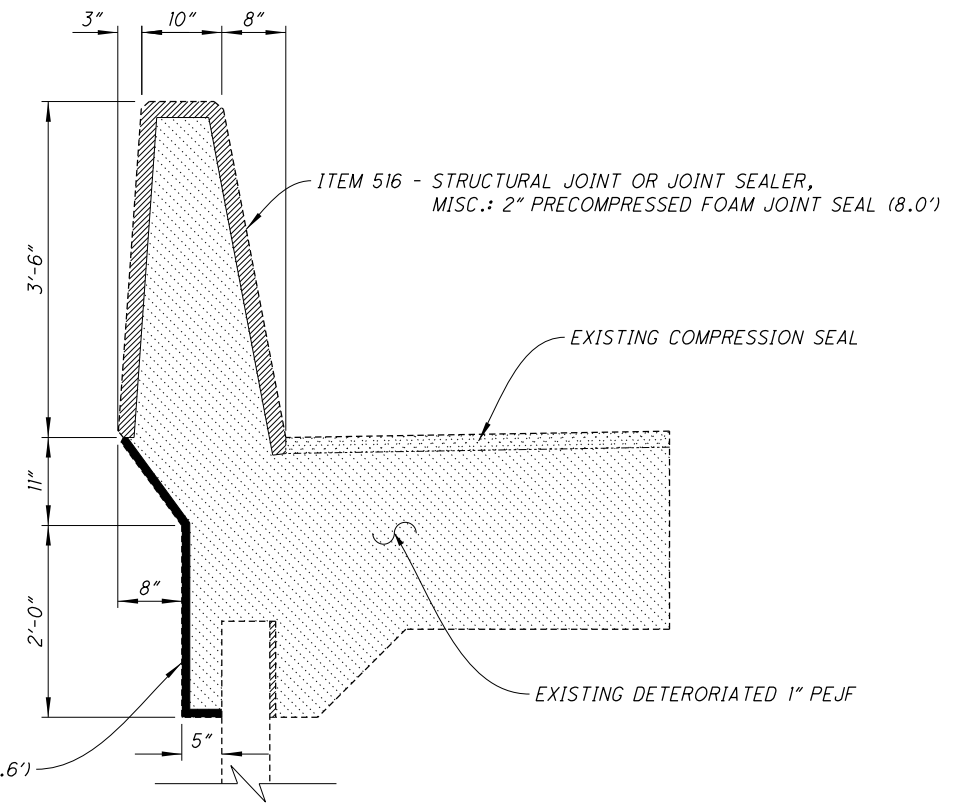
DESIGN AGENCY		OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 5	
DESIGNED TAG	CHECKED JDR	REVIEWED TAG	DATE 6/11/18
BRIDGE TYPICAL DETAILS		STRUCTURE FILE NUMBER	
FAI/LIC-33/70-VARIOUS		PID No. 106603	
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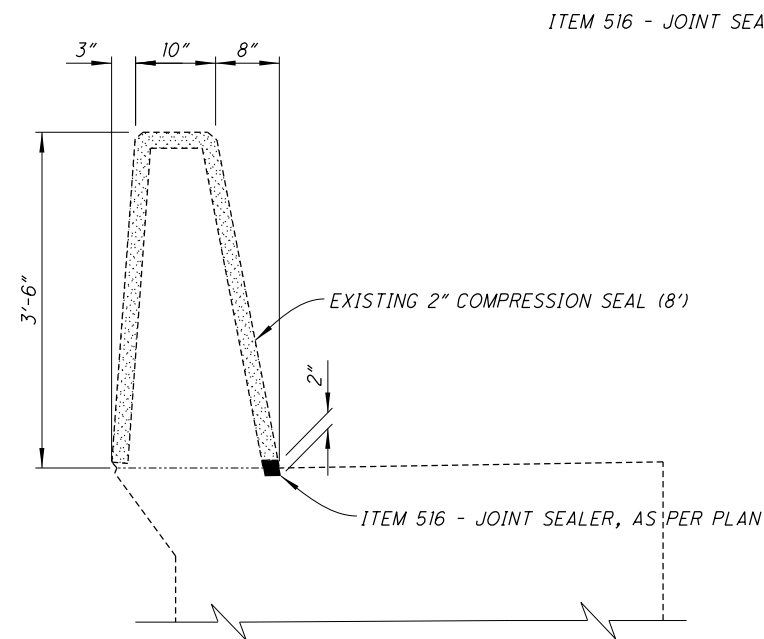


DETAIL 1

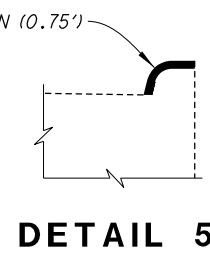
ITEM 516 - JOINT SEALER, AS PER PLAN (3.6')



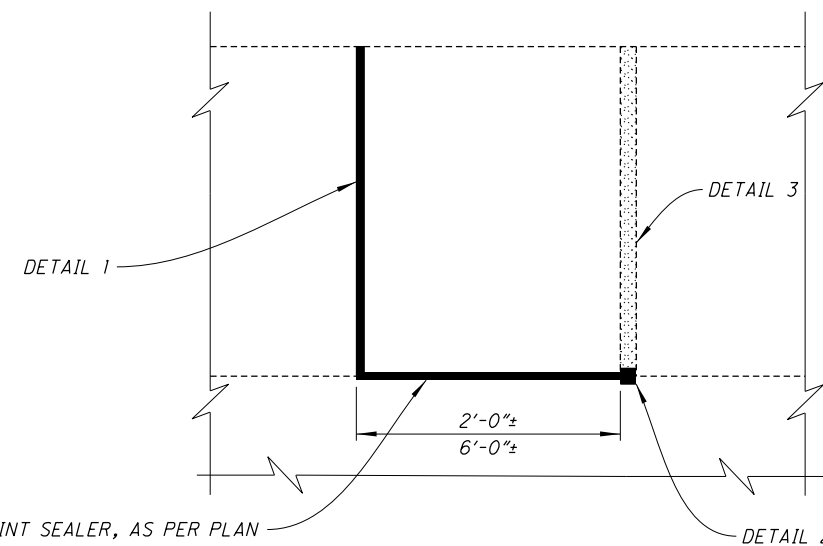
DETAIL 3



DETAIL 2



DETAIL 5



DETAIL 4

(SFN 2300710 ONLY)

DESIGNED TAG		DRAWN TAG	REVIEWED TAG	DATE	DESIGN AGENCY
CHECKED JDR		REVIS	STRUCTURE FILE NUMBER	6/11/18	OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 5
BRIDGE TYPICAL DETAILS					
FAI/LIC-33/70-VARIOUS					
PID No. 106603					
6 31					

CONSTRUCTION SPECIFICATIONS:

ODOT BRIDGE DESIGN MANUAL AND ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS).

MATERIALS:

CAST-IN-PLACE CONCRETE SHALL BE CLASS OCI, $f'c=4,000$ PSI @ 28 DAYS.

CMS ITEM 613 - LOW-STRENGTH MORTAR (LSM), TYPE 2.

REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CMS 509, MIN. YIELD STRENGTH 60 KSI.

BENDS AND HOOKS IN REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF THE MOST CURRENT EDITION OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 5.10.2, UNLESS NOTED OTHERWISE.

ALL REINFORCING STEEL SHALL HAVE A MINIMUM 2 INCH CONCRETE COVER UNLESS NOTED OTHERWISE.

HELICAL ANCHORS SHALL BE GRADE 60 STEEL GALVANIZED PER ODOT CMS 711.02 AND MUST BE AT LEAST 4.0 FEET LONG WITH 6 INCH BLADE DIAMETER MOUNTED ON A $\frac{5}{8}$ INCH DIAMETER SHAFT/ROD. THE NOMINAL GEOTECHNICAL RESISTANCE (HOLDING POWER) OF THE ANCHOR IS 4 KIPS. THE ANTICIPATED TORQUE TO ACHIEVE THE 4 KIPS IS 400 FT-LB.

BACKFILL MATERIALS PLACED OUTSIDE THE LIMITS OF THE NEW AND EXISTING WALLS SHALL MEET THE REQUIREMENTS OF ROADWAY EMBANKMENT PER CMS ITEM 203. BACKFILL PLACED BEHIND THE BACK OF THE WALL FACE SHALL MEET THE REQUIREMENTS OF ODOT SUPPLEMENTAL SPECIFICATION 840.

CONSTRUCTION REQUIREMENTS:

ALL EXPOSED SURFACES OF CAST-IN-PLACE CONCRETE SHALL BE FINISHED TO MATCH THE FINISH OF THE REMAINDER OF WALL.

EXPOSED AREAS OF NEW CONCRETE SHALL BE SEALED TO A MINIMUM OF 1.0 FOOT BELOW FINISHED GRADE. DAMAGED AND/OR ABRASIVE BLASTED AREAS OF EXISTING CONCRETE SURFACES SHALL BE SEALED AT THE SAME TIME AS NEW CONCRETE SURFACES. THE COLOR OF THE SEALER SHALL BE THE COLOR OF EXISTING PAINT.

ALL CONCRETE SEALING SHALL BE IN THE SAME COLOR AS EXISTING SEALER.

ALL EXPOSED CORNERS OF CAST-IN-PLACE CONCRETE SHALL BE CHAMFERED $\frac{3}{4}$ INCH.

ALL PANEL REPAIRS AND LOW STRENGTH MORTAR BACKFILL, AND SLAB JACKING SHALL BE PREFORMED PRIOR TOO PLACEMENT OF JOINT SEALS.

CONSTRUCTION SEQUENCE FOR REPAIR OF DAMAGED WALL FACING WITH FUNCTIONAL MSE REINFORCEMENT:

1. EXCAVATE SPILLED SELECT GRANULAR BACKFILL AND DEBRIS FROM THE OUTSIDE OF THE DAMAGED WALL AREA TO THE LIMITS OF THE NEW CAST-IN-PLACE WALL FACING.

2. REMOVE CONCRETE AND THE PRECAST CONCRETE PANEL REINFORCEMENT TO THE LIMITS SHOWN ON THE PLANS. THE CONCRETE SHALL BE REMOVED WITH HAND TOOLS THAT WILL GIVE SATISFACTORY RESULTS IN PREPARING AND SHAPING THE AREAS TO PROVIDE A CLEAN BOUNDARY FOR FORMING AND PLACING LOW STRENGTH MORTAR (LSM). EXPOSED REINFORCING BARS MAY BE SEVERED AS REQUIRED TO PROVIDE A SAFE WORK AREA AND FACILITATE PLACING FORMING MATERIALS IN THE AREA OF THE EXCAVATION. REPLACE REINFORCEMENT CONNECTORS IF DAMAGED DURING THE CONCRETE REMOVAL OPERATION. THE REINFORCEMENT CONNECTORS SHOULD BE ACQUIRED FROM THE ORIGINAL WALL SYSTEM SUPPLIER THAT MEET THE REQUIREMENT OF THE SUPPLEMENTAL SPECIFICATION SS 840. EXERCISE CARE DURING THE CONCRETE REMOVAL OPERATION SO THAT THE SOIL REINFORMENTS ARE NOT DAMAGED.

3. PREPARE ADJOINING SURFACES AS PER CMS 519.04.

4. COVER THE OPENING IN THE EXISTING WALL WITH TEMPORARY FORMWORK BEHIND THE MSE WALL PRECAST CONCRETE PANELS AND SEAL THE JOINTS BETWEEN THE PANELS TO THE LIMITS NEEDED TO PREVENT ITEM 613 TYPE 2 LOW STRENGTH MORTAR (LSM) BACKFILL FROM ESCAPING FROM BEHIND THE EXISTING WALL DURING PLACEMENT. THE FORMING MATERIALS SHALL BE SECURELY BRACED TO EXISTING GROUND TO WITHSTAND THE HYDROSTATIC PRESSURE OF THE LSM.

5. BRACE EXISTING PRECAST CONCRETE PANELS IN THE DAMAGED AREA AND VICINITY TO PREVENT OUTWARD MOVEMENT OR ROTATION DURING PLACEMENT OF THE LSM.

6. CORE-DRILL HOLES THROUGH THE CONCRETE OF THE EXISTING WALL OR THE FORMWORK TO PERMIT PUMPING AND VENTING OF THE LSM. ENTRY AND VENT HOLES SHALL BE IN THE LOCATIONS AS SHOWN ON THE PLANS.

7. PUMP LSM INTO THE VOID SPACE BEHIND THE EXISTING WALL UNTIL IT EXITS THROUGH THE VENT HOLES.

8. FORMING MATERIALS AND BRACING MAY BE REMOVED 3 DAYS AFTER PLACING LSM. NO WOOD SHALL REMAIN IN OR AROUND THE DAMAGED AREA.

9. INSTALL CONCRETE PANEL STEEL REINFORCEMENT IN THE DOWEL HOLES AS SHOWN ON THE PLANS. INSTALL ALL ADDITIONAL STEEL REINFORCEMENT AS SHOWN ON THE PLANS, OR REMOVED TO PHYSILITATE WORK..

10. PLACE EXPANDED POLYSTYRENE BETWEEN THE EXISTING MSE WALL PANELS AND THE PANEL UNDER REPAIR, AND INSTALL TEMPORARY FORMWORK WITH THE APPROPRIATE ARCHITECHTURAL FINISH THAT MATCHES THE ORIGINAL FINISH PROVIDED ON THE EXISTING MSE WALL PANELS.

11. PLACE PREFORMED EXPANSION JOINT FILLER (PEJF) AS SHOWN ON THE PLANS WHEN REQUIRED FOR TOP PANELS.

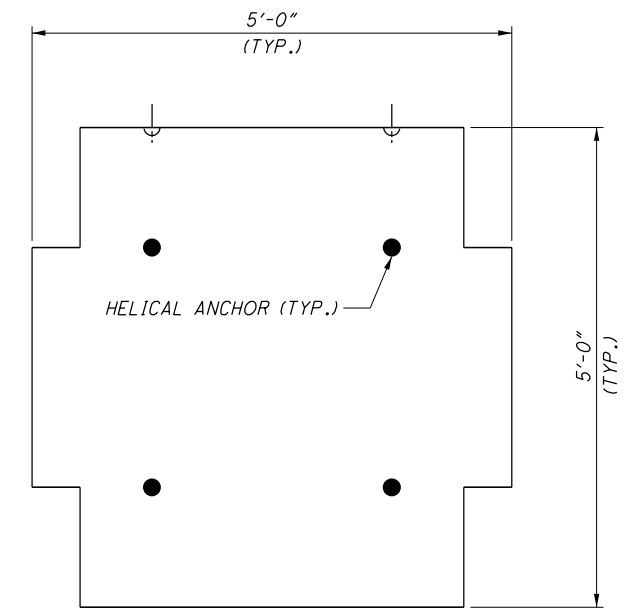
12. CAST THE CONCRETE TO FORM THE PANEL AND REMOVE THE TEMPORARY FORMWORK AFTER 48 HOURS.

13. REMOVE EXPANDED POLYSTYRENE THAT WAS PLACED BETWEEN THE EXISTING MSE WALL PANELS AND THE PANEL UNDER REPAIR.

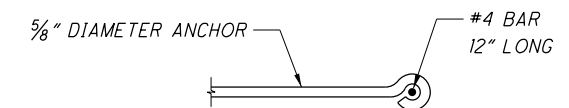
14. FILL JOINTS WITH FOAM BACKER ROD OR EXPANDING FOAM. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS FOR APPLICATION. IF USING EXPANDING FOAM, USE A FOAM THAT CAN BE APPLIED IN COLD WEATHER.

15. SEAL THE JOINTS BY APPLYING A SILICONE SEALANT TO THE FOAM IN THE JOINTS. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS FOR APPLICATION. USE A SEALANT THAT CAN BE APPLIED IN COLD WEATHER, AND THAT COMES IN A COLOR TO MATCH OR COMPLEMENT THE COLOR OF THE MSE WALL FACING PANELS.

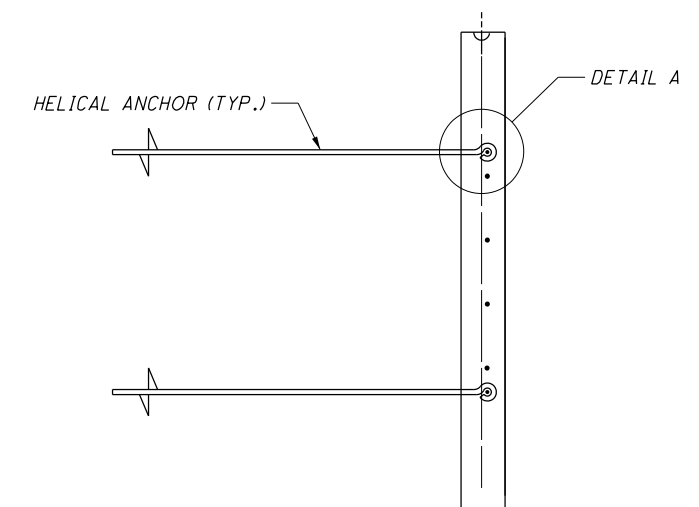
16. SMOOTH THE SURFACE OF THE SEALANT.



TYPICAL 5'x5' PANEL



DETAIL A



HELICAL ANCHOR DETAIL

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INTERMIN COMPLETION DATE REQUIREMENTS

WORK ON FAI-33-8.77 (2300710) AND FAI-188-9.40 (2301016) SHALL BE COMPLETED BEFORE OCTOBER 30, 2018.

IF THE CONTRACTOR FAILS TO HAVE ALL WORK COMPLETED BY OCTOBER 30, 2018 LIQUIDATED DAMAGES AS PER CMS 108.07 WILL BE ASSESSED TO THE CONTRACTOR.

DESIGN AGENCY
OHIO DEPARTMENT OF
TRANSPORTATION DISTRICT 5

REVIEWED DATE
TAG 6/11/18
STRUCTURE FILE NUMBER

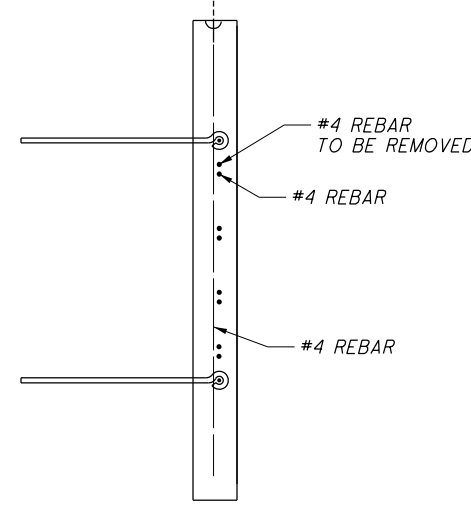
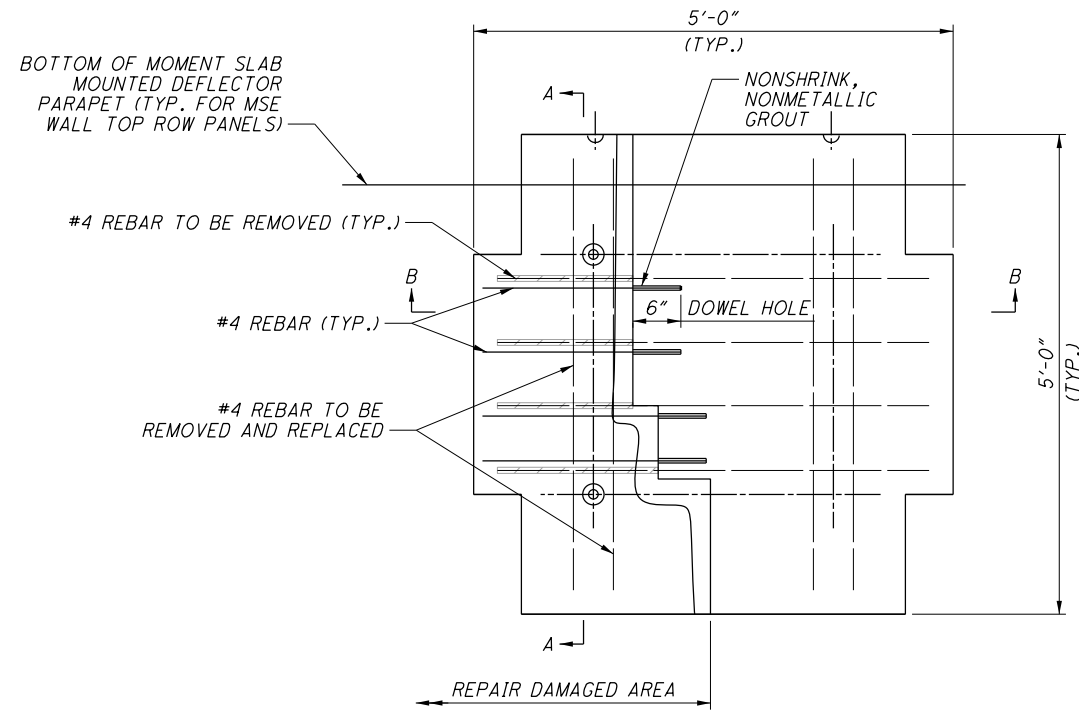
DRAWN TAG
TAG REVISED
DESIGNED TAG
TAG CHECKED JDR

BRIDGE NOTES

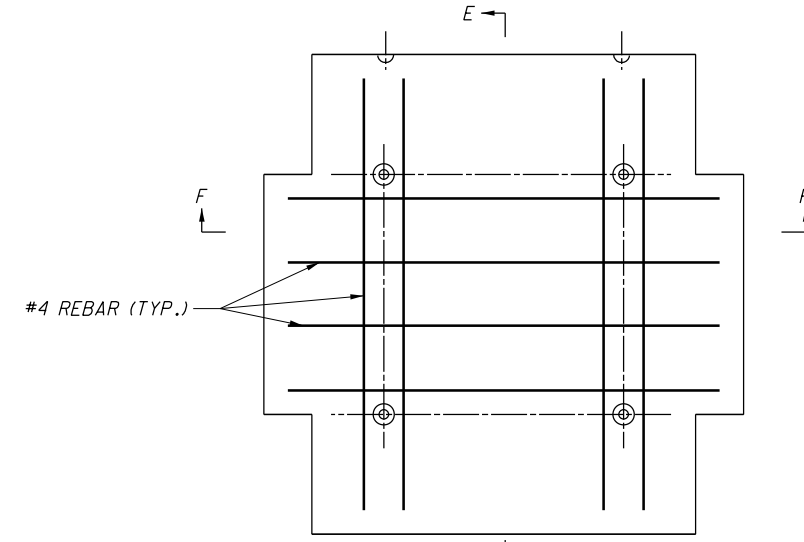
FAI/LIC-33/70-VARIOUS
PID No. 106603

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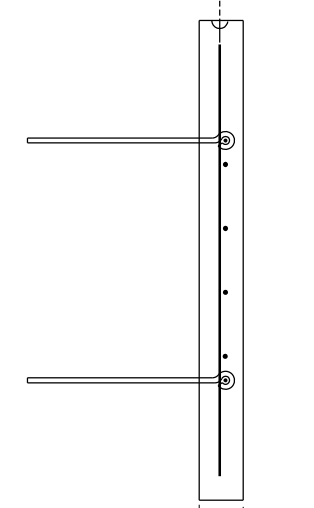
PARTIAL AND FULL REPLACEMENT OF 5' x 5' PANEL



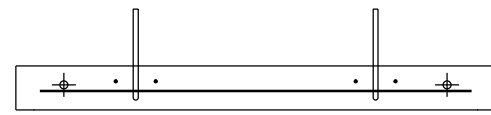
SECTION A-A



CIP MSE PANEL

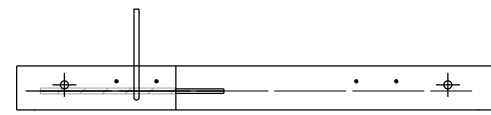
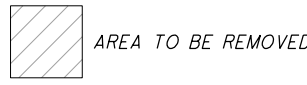


SECTION E-E



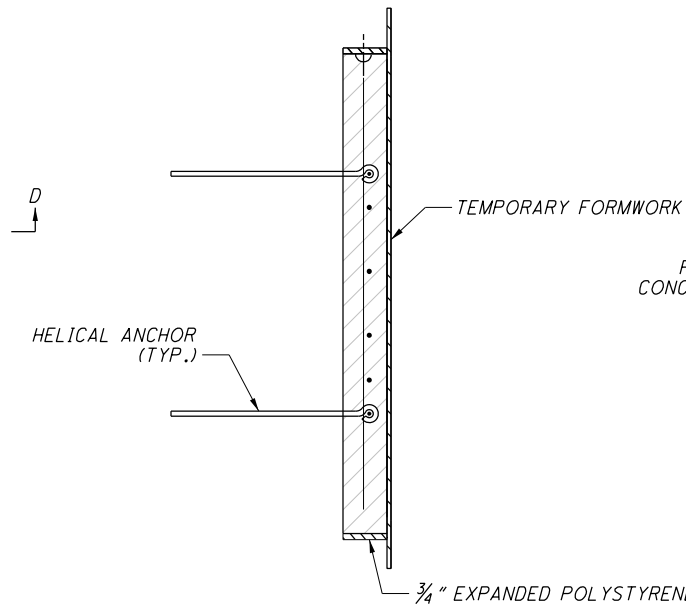
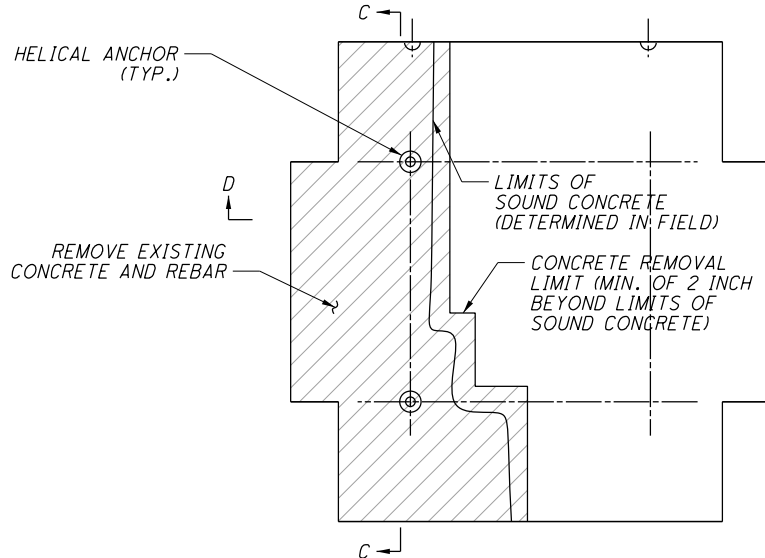
SECTION F-F

ALL REINFORCEMENT SHALL BE EPOXY COATED

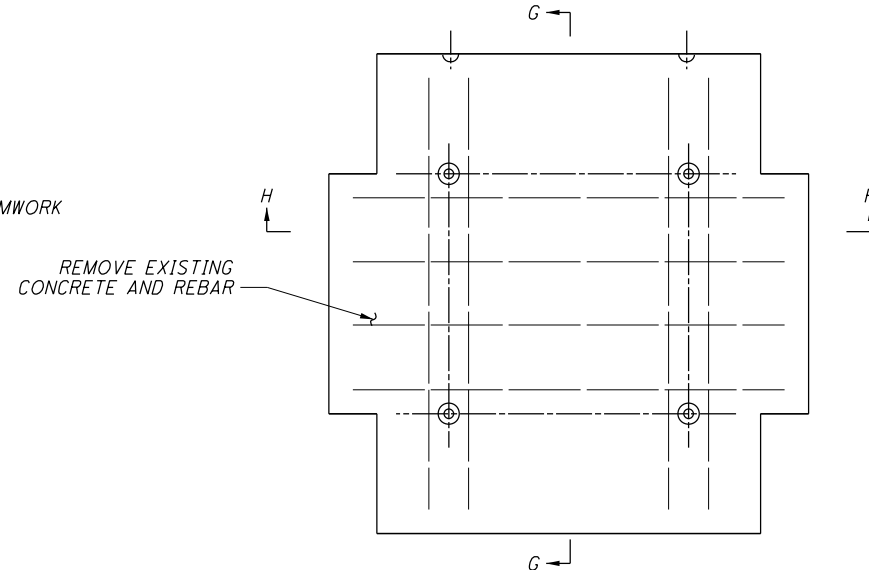


SECTION B-B

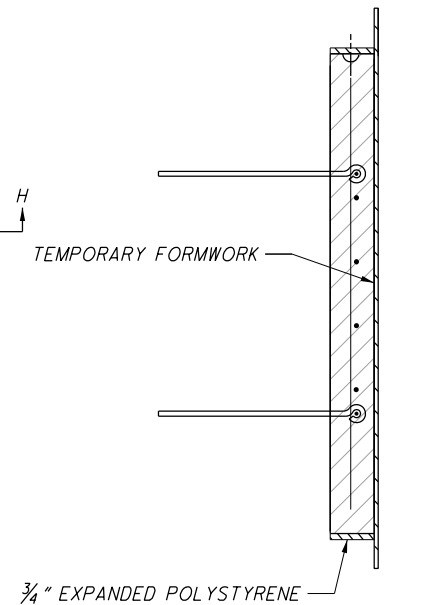
NOTE:
THE HELICAL ANCHOR LOCATIONS SHALL BE SUCH THAT THEY DO NOT COINCIDE WITH THE LOCATION OF EXISTING SOIL REINFORCEMENT. HELICAL ANCHORS SHALL BE A MINIMUM OF 4' LONG AND SHALL BE INCLUDED WITH THE UNIT BID PRICE FOR ITEM 511, CLASS QCI CONCRETE MISC.: MSE WALL REPAIR.



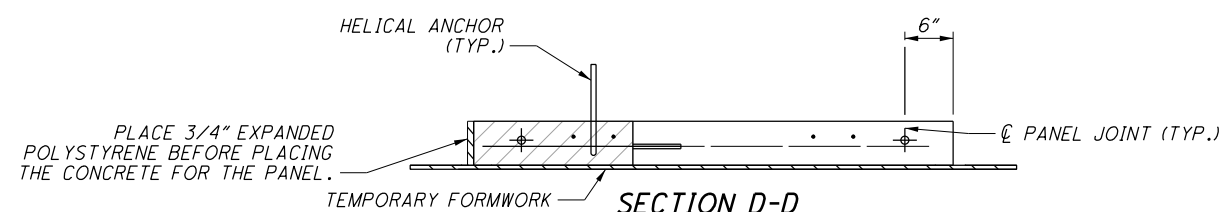
SECTION C-C



CIP MSE PANEL



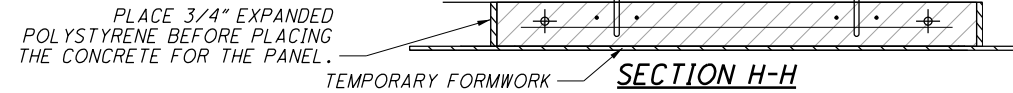
SECTION G-G



SECTION D-D

PARTIAL REPLACEMENT OF TYPICAL MSE PANEL REPAIR

SCALE : 1"=1'



SECTION H-H

FULL REPLACEMENT OF TYPICAL MSE PANEL REPAIR

SCALE : 1"=1'

DESIGNED TAG		CHECKED JDR		DESIGN AGENCY
DRAWN TAG		REVISOR		OHIO DEPARTMENT OF
REVIEWED TAG		DATE		TRANSPORTATION DISTRICT 5
DATE		STRUCTURE FILE NUMBER		
6/11/18				
FAI/LIC-33/70-VARIOUS		PID No. 106603		
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SHEET NUM.											PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
											01/IMS/BR	02/NHS/BR						
																	STRUCTURE REPAIR (FAI-33-8.77 or 2300710)	
												31	202	98400	31	SF	REMOVAL MISC.: PORTIONS OF STRUCTURE REMOVED	3
												3	255	10501	3	SY	FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS RRCM, AS PER PLAN	3
												31	511	71200	31	SF	CONCRETE, MISC.: MSE WALL REPAIR	3
												5	512	10100	5	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
												32	516	14600	32	FT	STRUCTURAL JOINT OR JOINT SEALER, MISC.: 2" PRECOMPRESSED FOAM JOINT	3
												90	516	31001	90	FT	JOINT SEALER, AS PER PLAN	3
												15	519	11100	15	SF	PATCHING CONCRETE STRUCTURE	
												10	613	41300	10	CY	LOW STRENGTH MORTAR BACKFILL (TYPE 2)	
																	STRUCTURE REPAIR (FAI-188-9.40 or 2301016)	
												45	202	38200	45	FT	GUARDRAIL REMOVED FOR REUSE	
												1	202	47200	1	EACH	BRIDGE TERMINAL ASSEMBLY REMOVED FOR REUSE	
												304	202	98200	304	FT	REMOVAL MISC.: 1" PEJF WITH HOT APPLIED JOINT SEALER	3
												6	202	98400	6	SF	REMOVAL MISC.: PORTIONS OF STRUCTURE REMOVED	3
												2	255	10501	2	SY	FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS RRCM, AS PER PLAN	3
												2	304	20000	2	CY	AGGREGATE BASE	
												6	511	71200	6	SF	CONCRETE, MISC.: MSE WALL REPAIR	3
												3	512	10100	3	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
												368	516	14600	368	FT	STRUCTURAL JOINT OR JOINT SEALER, MISC.: 2" PRECOMPRESSED FOAM JOINT	3
												80	516	31001	80	FT	JOINT SEALER, AS PER PLAN	3
												21	519	11100	21	SF	PATCHING CONCRETE STRUCTURE	
												2.4	601	32200	2.4	CY	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	
												0.3	602	20000	0.3	CY	CONCRETE MASONRY	
												45	606	16000	45	FT	GUARDRAIL REBUILT	
												1	606	35010	1	EACH	BRIDGE TERMINAL ASSEMBLY REBUILT, TYPE 1	
												45	609	23001	45	FT	COMBINATION CURB AND GUTTER, TYPE 4, AS PER PLAN	3
												28	611	04600	28	FT	12" CONDUIT, TYPE C	
												1	611	98180	1	EACH	CATCH BASIN, NO. 3A	
												5	613	41300	5	CY	LOW STRENGTH MORTAR BACKFILL (TYPE 2)	
												45	659	00530	45	SY	SEEDING AND MULCHING, CLASS 3B	
																	STRUCTURE REPAIR (FAI-33-15.05 or 2300850)	
												180	202	38200	180	FT	GUARDRAIL REMOVED FOR REUSE	
												4	202	47200	4	EACH	BRIDGE TERMINAL ASSEMBLY REMOVED FOR REUSE	
												207	202	98200	207	FT	REMOVAL MISC.: 1" PEJF WITH HOT APPLIED JOINT SEALER	3
												270	304	20000	270	CY	AGGREGATE BASE	
												19	516	14600	19	FT	STRUCTURAL JOINT OR JOINT SEALER, MISC.: 1" PRECOMPRESSED FOAM JOINT	3
												189	516	14600	189	FT	STRUCTURAL JOINT OR JOINT SEALER, MISC.: 2" PRECOMPRESSED FOAM JOINT	3
												9	516	31001	9	FT	JOINT SEALER, AS PER PLAN	3
												10	601	32200	10	CY	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	
												1.2	602	20000	1.2	CY	CONCRETE MASONRY	

DESIGN AGENCY OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 5	DATE	6/11/18
	REVIEWED TAG	STRUCTURE FILE NUMBER
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GENERAL SUMMARY		
FAI/LIC-33/70-VARIOUS	PID No. 106603	
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SHEET NUM.											PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.			
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											180	4	606	606	16000	35010	180	4	FT	GUARDRAIL REBUILT	
																			EACH	BRIDGE TERMINAL ASSEMBLY REBUILT, TYPE 1	
											180		609		23001		180		FT	COMBINATION CURB AND GUTTER, TYPE 4, AS PER PLAN	3
											186		611		04600		186		FT	12" CONDUIT, TYPE C	
											4		611		98180		4		EACH	CATCH BASIN, NO. 3A	
											206		659		00530		206		SY	SEEDING AND MULCHING, CLASS 3B	
																				STRUCTURE REPAIR (FAI-33-16.69 or 2301148)	
											90		202		38200		90		FT	GUARDRAIL REMOVED FOR REUSE	
											2		202		47200		2		EACH	BRIDGE TERMINAL ASSEMBLY REMOVED FOR REUSE	
											100		202		98200		100		FT	REMOVAL MISC.: 1" PEJF WITH HOT APPLIED JOINT SEALER	3
											5		304		20000		5		CY	AGGREGATE BASE	
											100		516		14600		100		FT	STRUCTURAL JOINT OR JOINT SEALER, MISC.: 2" PRECOMPRESSED FOAM JOINT	3
											5		516		31001		5		FT	JOINT SEALER, AS PER PLAN	3
											90		516		31011		90		FT	2" DEEP JOINT SEALER, AS PER PLAN	3
											5		601		32200		5		CY	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	
											0.6		602		20000		0.6		CY	CONCRETE MASONRY	
											90		606		16000		90		FT	GUARDRAIL REBUILT	
											2		606		35010		2		EACH	BRIDGE TERMINAL ASSEMBLY REBUILT, TYPE 1	
											90		609		23001		90		FT	COMBINATION CURB AND GUTTER, TYPE 4, AS PER PLAN	3
											56		611		04600		56		FT	12" CONDUIT, TYPE C	
											2		611		98180		2		EACH	CATCH BASIN, NO. 3A	
											62		659		00530		62		SY	SEEDING AND MULCHING, CLASS 3B	
											500		842		10000		500		LB	CORRECTING ELEVATION OF CONCRETE APPROACH SLABS WITH HIGH DENSITY POLYURETHANE	3
																				STRUCTURE REPAIR (FAI-33-18.89 or 2300869)	
											64		516		31001		64		FT	JOINT SEALER, AS PER PLAN	3
																				STRUCTURE REPAIR (FAI-33-20.65 or 2300915)	
											20		202		38200		20		FT	GUARDRAIL REMOVED FOR REUSE	
											1		304		20000		1		CY	AGGREGATE BASE	
											3		516		31001		3		FT	JOINT SEALER, AS PER PLAN	3
											3		601		32200		3		CY	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	
											0.3		602		20000		0.3		CY	CONCRETE MASONRY	
											20		606		16000		20		FT	GUARDRAIL REBUILT	
											20		609		23001		20		FT	COMBINATION CURB AND GUTTER, TYPE 4, AS PER PLAN	3
											50		611		04600		50		FT	12" CONDUIT, TYPE C	
											1		611		98180		1		EACH	CATCH BASIN, NO. 3A	
											56		659		00530		56		SY	SEEDING AND MULCHING, CLASS 3B	

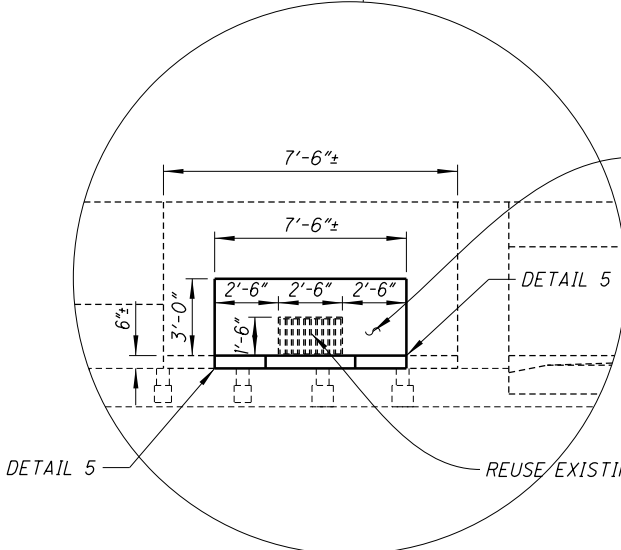
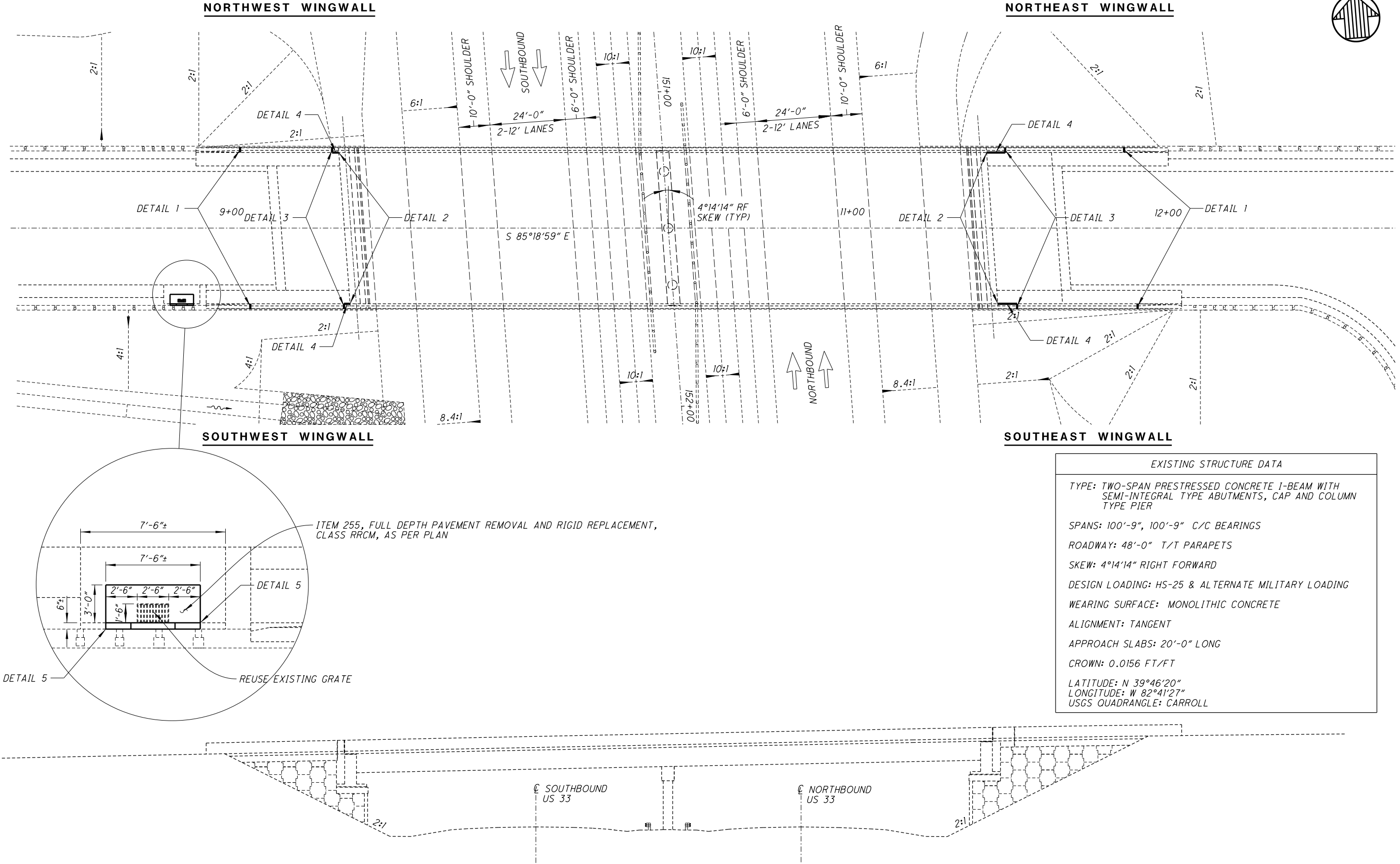
DESIGN AGENCY	OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 5
DATE	6/11/18
REVIEWED TAG	STRUCTURE FILE NUMBER
DRAIN TAG	REVISED
DESIGNED TAG	JDR
GENERAL SUMMARY	
FAI/LIC-33/70-VARIOUS	PID No. 106603

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SHEET NUM.											PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
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												1	202	47200	1	EACH	GUARDRAIL REMOVED FOR REUSE BRIDGE TERMINAL ASSEMBLY REMOVED FOR REUSE	
												2	304	20000	2	CY	AGGREGATE BASE	
												1	516	31001	1	FT	JOINT SEALER, AS PER PLAN	3
												30	606	16000	30	FT	GUARDRAIL REBUILT	
												1	606	35010	1	EACH	BRIDGE TERMINAL ASSEMBLY REBUILT, TYPE 1	
												30	609	23001	30	FT	COMBINATION CURB AND GUTTER, TYPE 4, AS PER PLAN	3
												939	516	31001	939	FT	STRUCTURE REPAIR (LIC-70-13.70 or 4503538) JOINT SEALER, AS PER PLAN	3
											0.1 LS	0.9 LS	614	11000	LS	INCIDENTALS MAINTAINING TRAFFIC		
												LS	623	10001	LS	CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN	3	
											0.1 LS	0.9 LS	624	10000	LS	MOBILIZATION		

DESIGN AGENCY OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 5	DATE 6/11/18	REVIEWED TAG	DRAWN TAG
	STRUCTURE FILE NUMBER	STRUCTURE FILE NUMBER	REVISED
GENERAL SUMMARY			
FAI/LIC-33/70-VARIOUS PID No. 106603			
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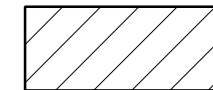
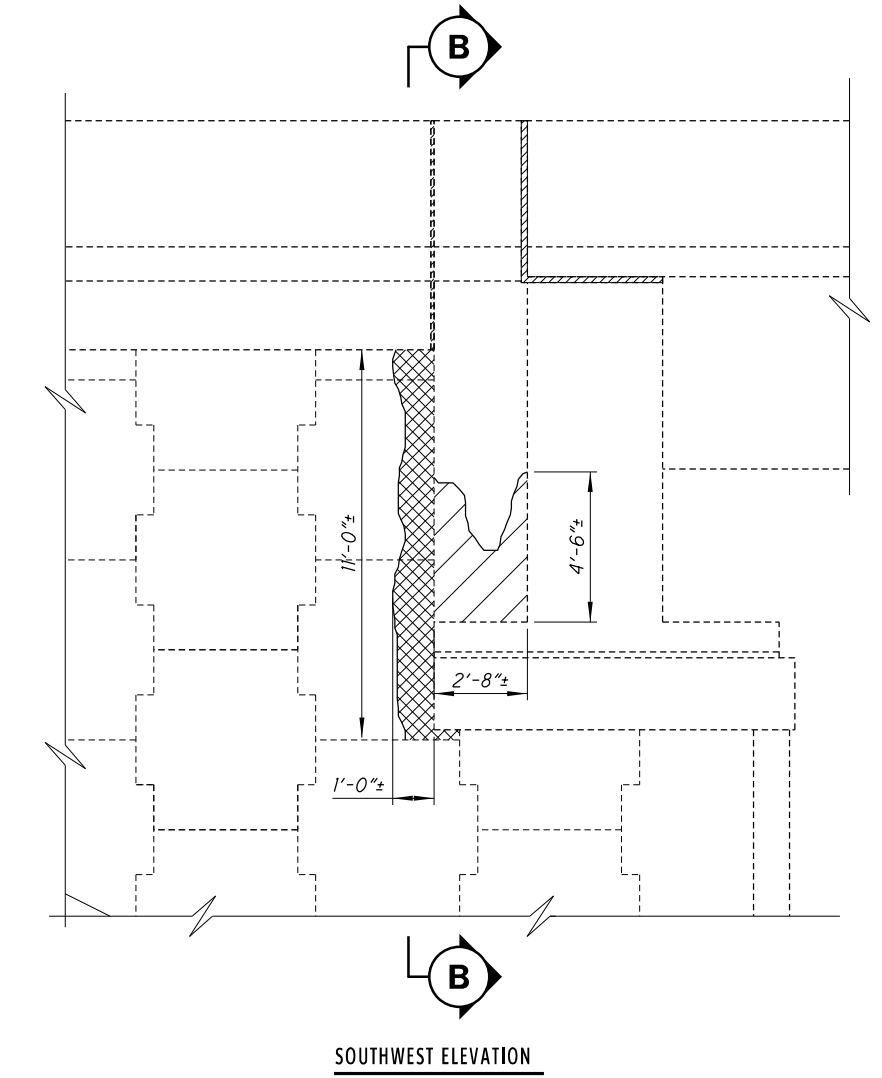
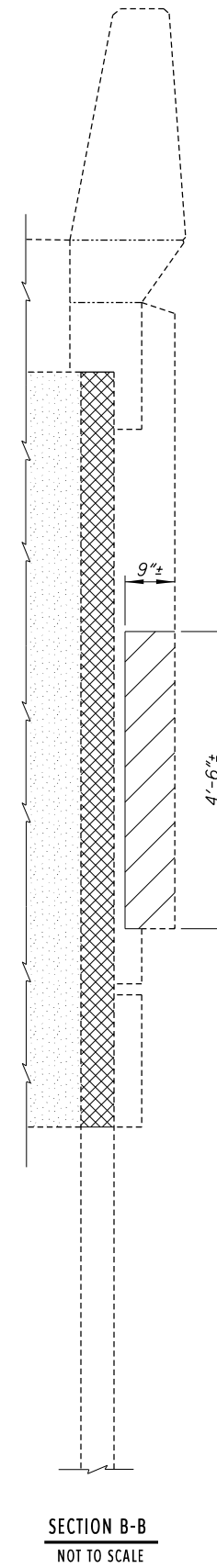
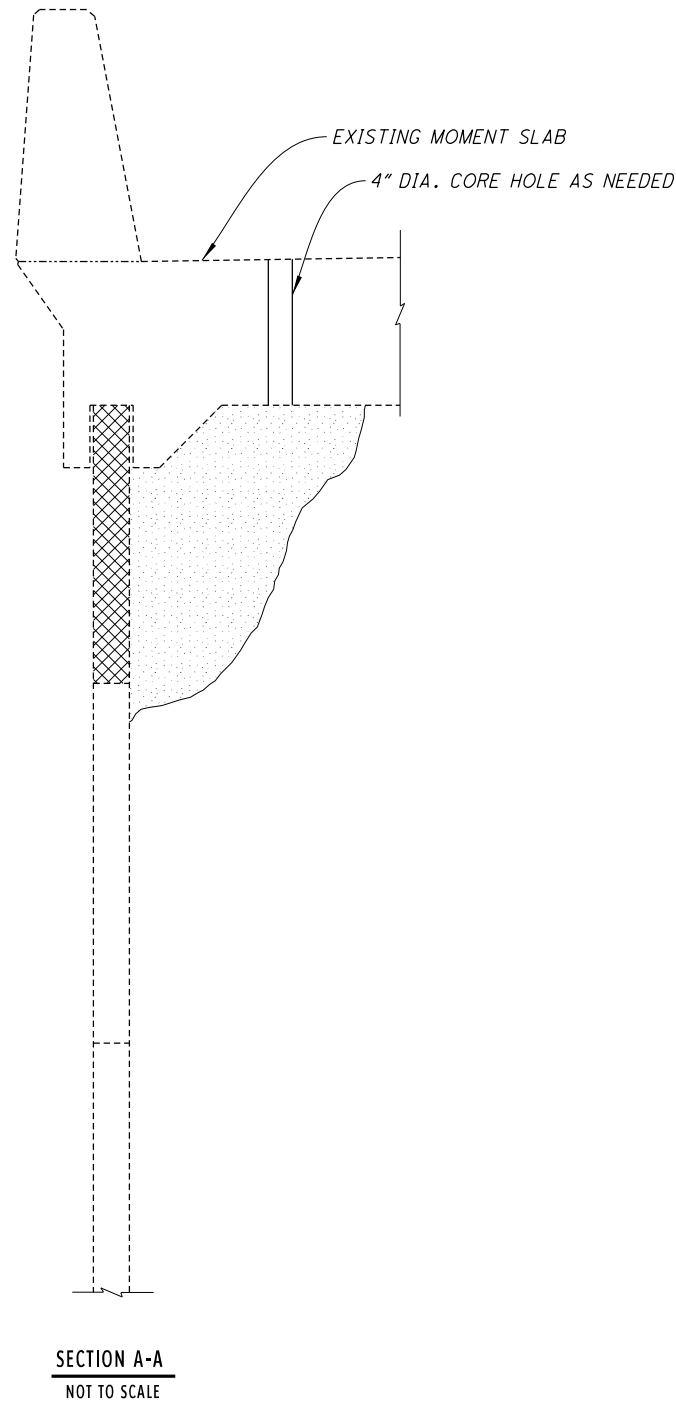
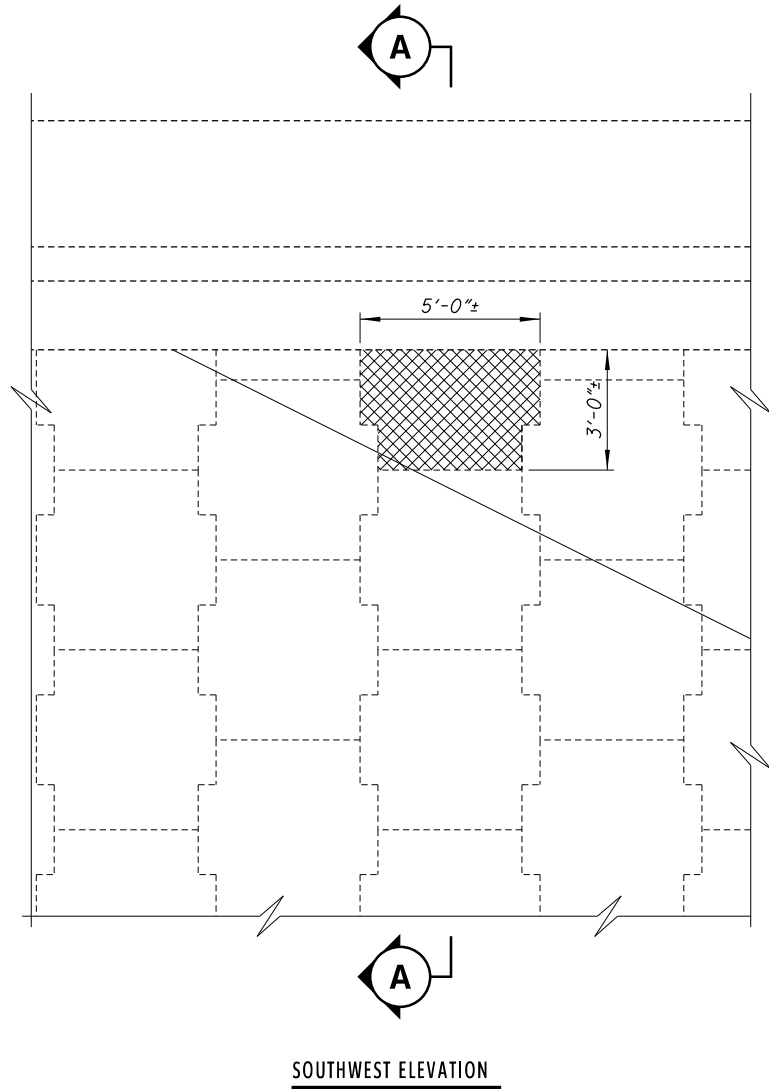


EXISTING STRUCTURE DATA	
TYPE: TWO-SPAN PRESTRESSED CONCRETE I-BEAM WITH SEMI-INTEGRAL TYPE ABUTMENTS, CAP AND COLUMN TYPE PIER	
SPANS: 100'-9", 100'-9" C/C BEARINGS	
ROADWAY: 48'-0" T/T PARAPETS	
SKEW: 4°14'14" RIGHT FORWARD	
DESIGN LOADING: HS-25 & ALTERNATE MILITARY LOADING	
WEARING SURFACE: MONOLITHIC CONCRETE	
ALIGNMENT: TANGENT	
APPROACH SLABS: 20'-0" LONG	
CROWN: 0.0156 FT/FT	
LATITUDE: N 39°46'20"	
LONGITUDE: W 82°41'27"	
USGS QUADRANGLE: CARROLL	

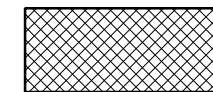


GENERAL PLAN & ELEVATION BRIDGE NO.: FAI-33-8.77 UNDER CR31 COONPATH	DESIGN AGENCY OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 5
	DATE 6/11/18
	REVIEWED TAG STRUCTURE FILE NUMBER 2300710
	DRAWN TAG CHECKED JDR
FAI/LIC-33/70-VARIOUS PID No. 106603	11 31

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ITEM 519 - PATCHING CONCRETE STRUCTURE

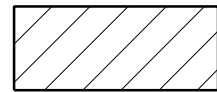


ITEM 202 - REMOVAL MISC.: PORTIONS OF STRUCTURE REMOVED
ITEM 511 - CLASS OCI CONCRETE MISC.: MSE WALL REPAIR

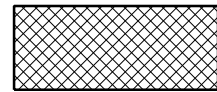


ITEM 613 - LOW STRENGTH MORTAR BACKFILL (LSM), TYPE 2

ABUTMENT/MSE WALL DETAILS BRIDGE NO.: FAI-33-8.77 UNDER CR31 COONPATH	DESIGN AGENCY OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 5
DESIGNED TAG CHECKED JDR	REVIEWED TAG STRUCTURE FILE NUMBER 2300710
DRAIN TAG REVISED	DATE 6/11/18
FAI/LIC-33/70-VARIOUS PID No. 106603	12 31



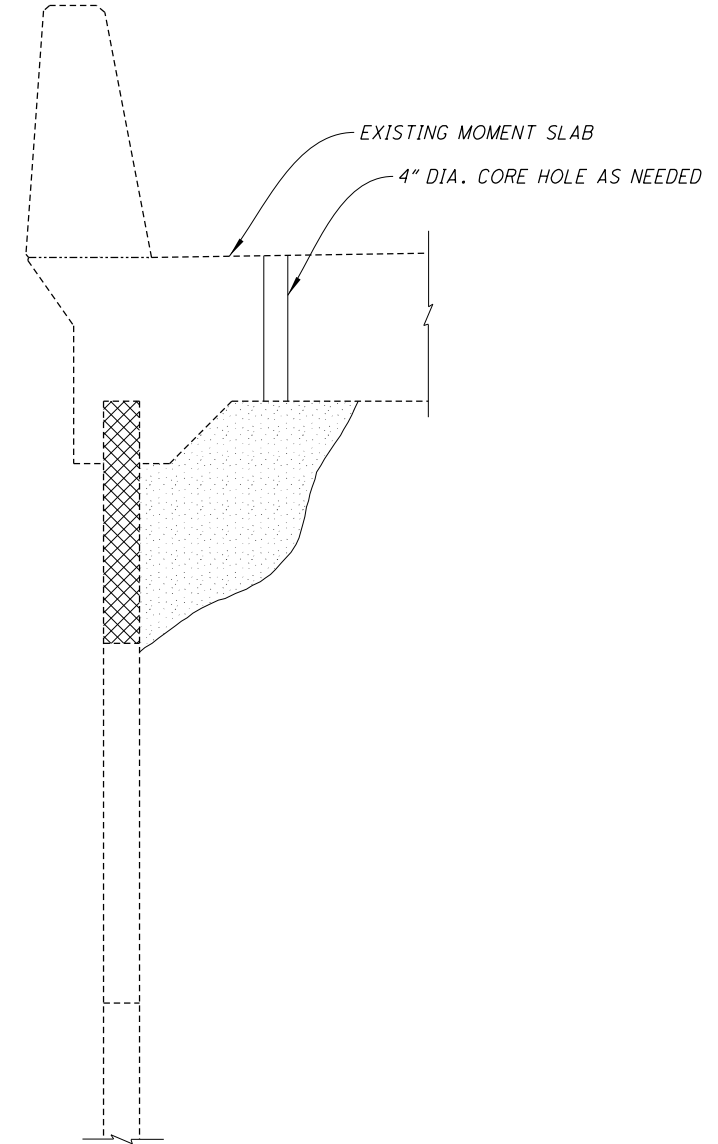
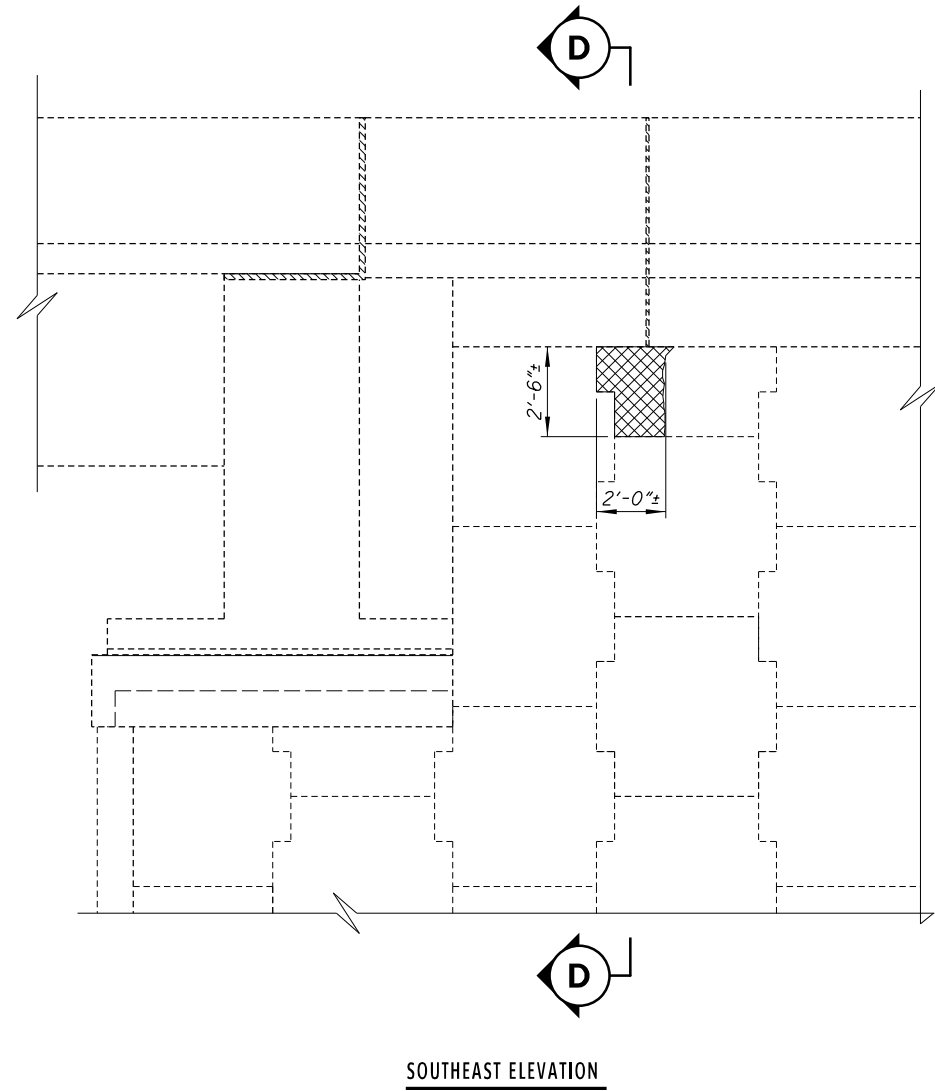
ITEM 519 - PATCHING CONCRETE STRUCTURE



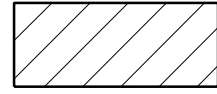
ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN
ITEM 511 - CLASS OC1 CONCRETE MISC.: MSE WALL REPAIR



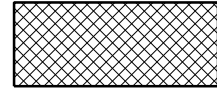
ITEM 613 - LOW STRENGTH MORTAR BACKFILL (LSM), TYPE 2



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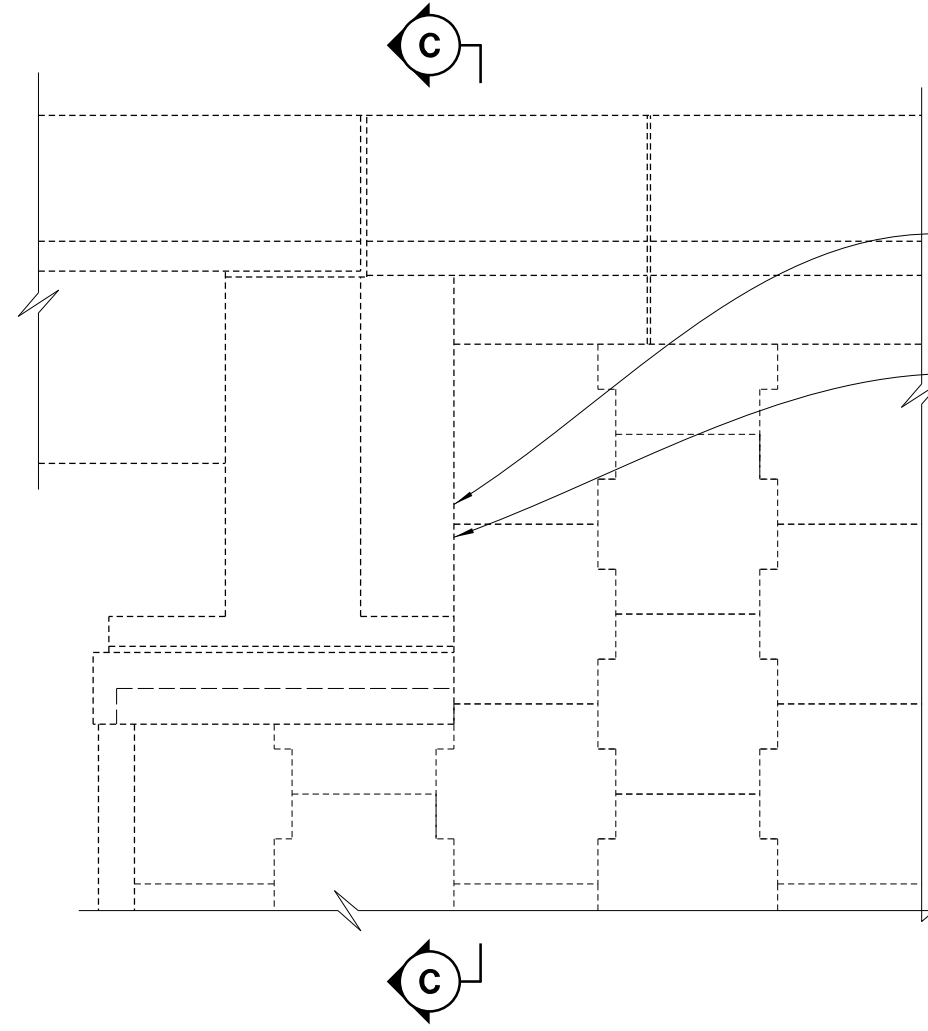
ITEM 519 - PATCHING CONCRETE STRUCTURE



ITEM 202 - REMOVAL MISC.: PORTIONS OF STRUCTURE REMOVED
ITEM 511 - CLASS OC1 CONCRETE MISC.: MSE WALL REPAIR



ITEM 613 - LOW STRENGTH MORTAR BACKFILL (LSM), TYPE 2



NORTHWEST ELEVATION

1" DEEP REMOVAL

ITEM 202 - PORTIONS OF STRUCTURE REMOVED

ITEM 516 - JOINT SEALER, AS PER PLAN

3" AVE.

11'-0"

SECTION C-C
NOT TO SCALE

FAI/LIC-33/70-VARIOUS
PID No. 106603

ABUTMENT/MSE WALL DETAILS
BRIDGE NO.: FAI-33-8.77
UNDER CR31 COONPATH

DESIGNED TAG
CHECKED JDR

DRAIN TAG
REVIS

REVIEWED TAG
STRUCTURE FILE NUMBER
2300710

DATE
6/11/18

DESIGN AGENCY
OHIO DEPARTMENT OF
TRANSPORTATION DISTRICT 5



③ ITEM 202 - REMOVAL MISC.: 1" PEJF WITH HOT APPLIED JOINT SEALER
 ITEM 516-STRUCTURAL JOINT OR JOINT SEALER, MISC.: 2" PRECOMPRESSED FOAM JOINT SEAL

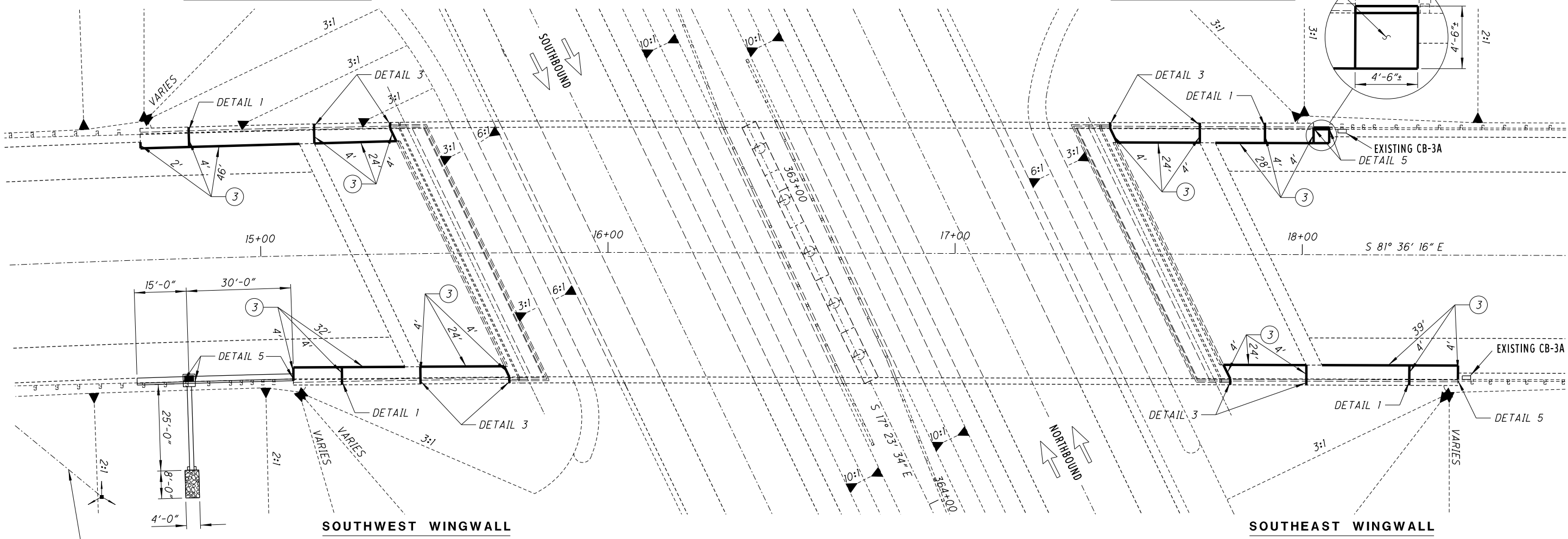
ITEM 255, FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS RRCCM, AS PER PLAN

NORTHWEST WINGWALL

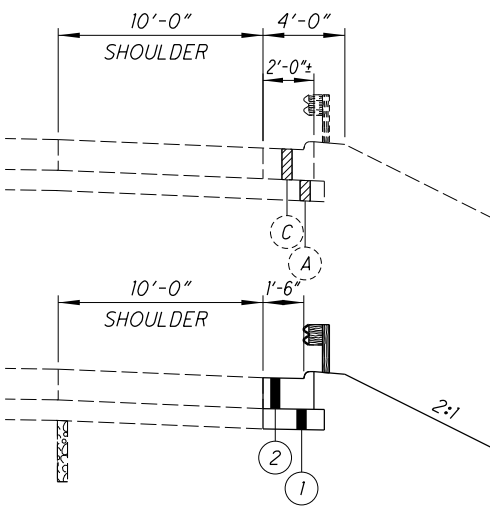
NORTHEAST WINGWALL

SOUTHWEST WINGWALL

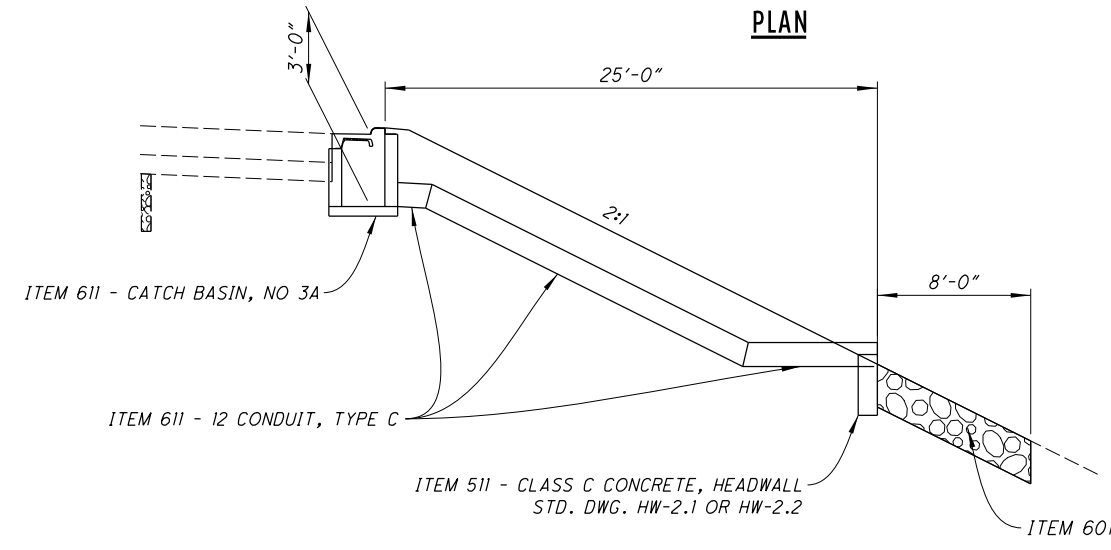
SOUTHEAST WINGWALL



EXISTING 1/2" DUCT CABLE WITH THREE NO. 2 AWG 5000 VOLT CABLES



PLAN

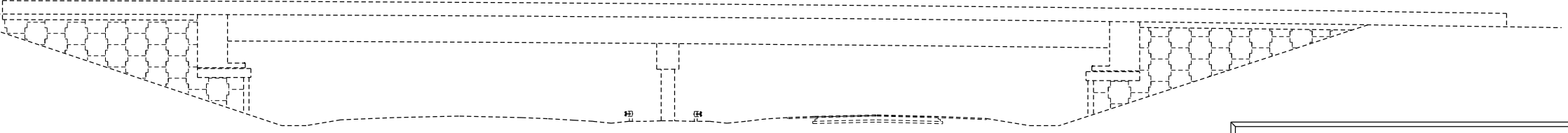


EXISTING STRUCTURE DATA

TYPE: TWO-SPAN COMPOSITE PRESTRESSED CONCRETE I-BEAM WITH STUB ABUTMENTS & MSE WALLS, CAP & COLUMN PIER.
 SPAN: 99'-0", 99'-0", C/C SUPPORTS ALONG REFERENCE LINE
 ROADWAY: 72'-0" T/T PARAPET
 SKEW: 25°47'19" RIGHT FORWARD
 DESIGN LOADING: HS-25 AND THE ALTERNATE MILITARY LOADING
 WEARING SURFACE: MONOLITHIC CONCRETE
 ALIGNMENT: 1° 28' 00" CURVE RIGHT
 APPROACH SLABS: 25'-0" LONG
 SUPERELEVATION: 0.035 MAX NORMAL MIN
 LATITUDE: N 39°43'06"
 LONGITUDE: W 82°40'30"
 USGS QUADRANGLE: AMANDA

- ① EXISTING 6" AGGREGATE BASE
- ② EXISTING 9" PLAIN CONCRETE PAVEMENT
- ③ EXISTING COMBINATION CURB AND GUTTER
- ④ EXISTING ASPHALT PAVEMENT
- ① ITEM 304 - AGGREGATE BASE
- ② ITEM 609 - COMBINATION CURB AND GUTTER, TYPE 4

PROFILE

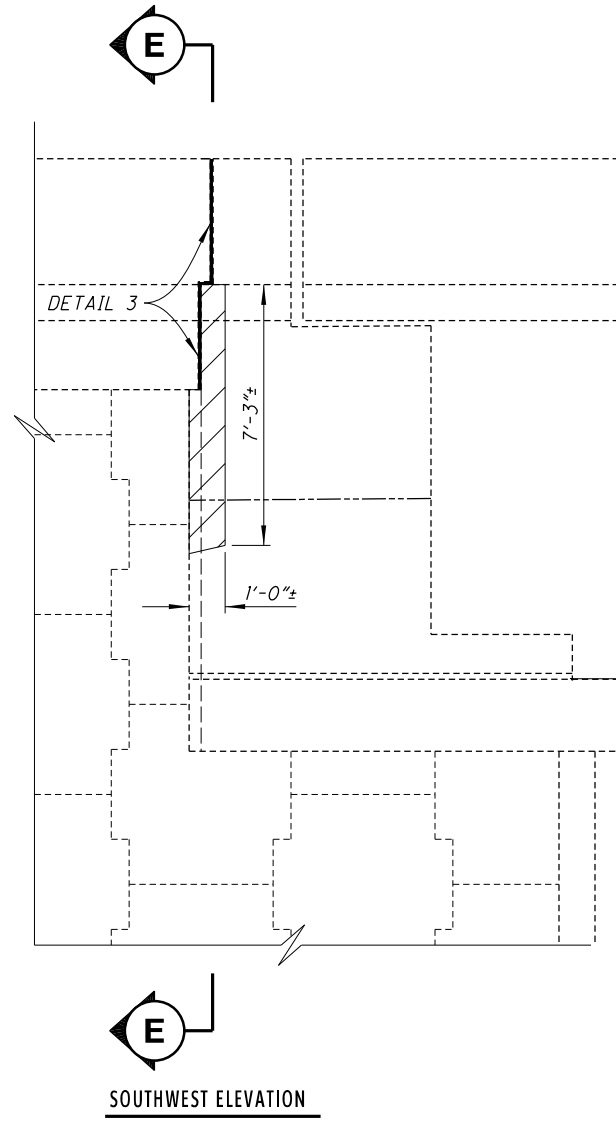


NOTE: THE CONTRACTOR SHALL USE PRECAUTION WHEN EXCAVATING FOR THE CATCH BASIN AND CONDUIT.

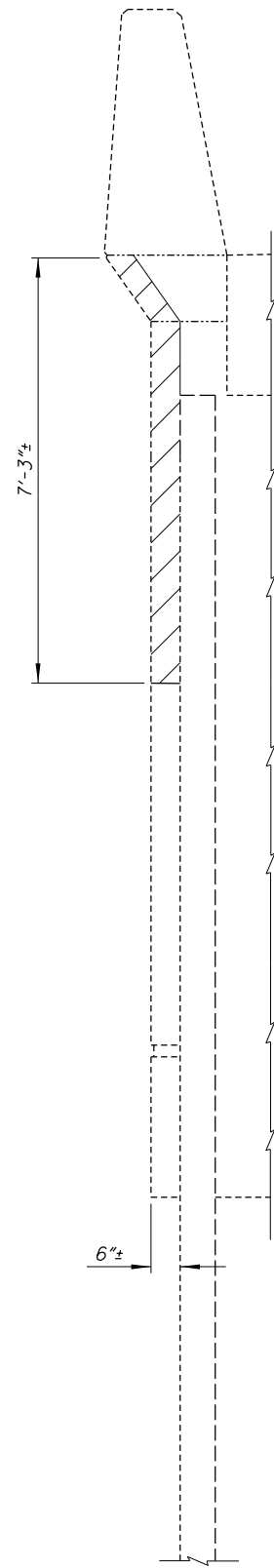
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DESIGN AGENCY	OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 5
DATE	6/11/18
REVIEWED TAG	STRUCTURE FILE NUMBER 2301016
DRAWN TAG	REVISED
DESIGNED TAG	CHECKED JDR
GENERAL PLAN & ELEVATION	
BRIDGE NO.: FAI-188-9.40 OVER US 33	
FAI/LIC-33/70-VARIOUS	PID No. 106603
15	31

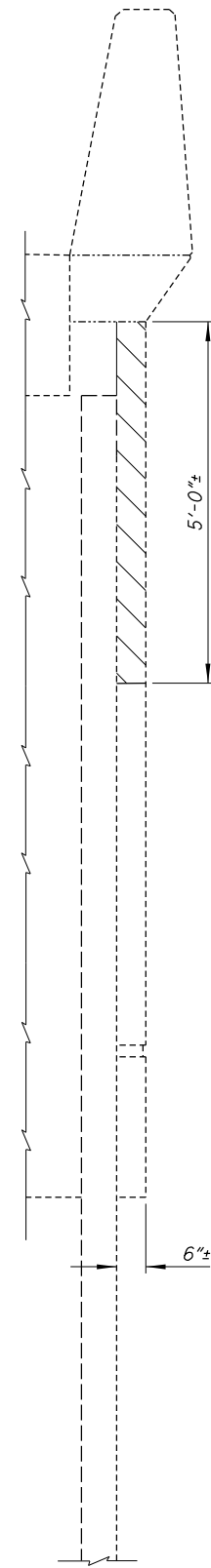
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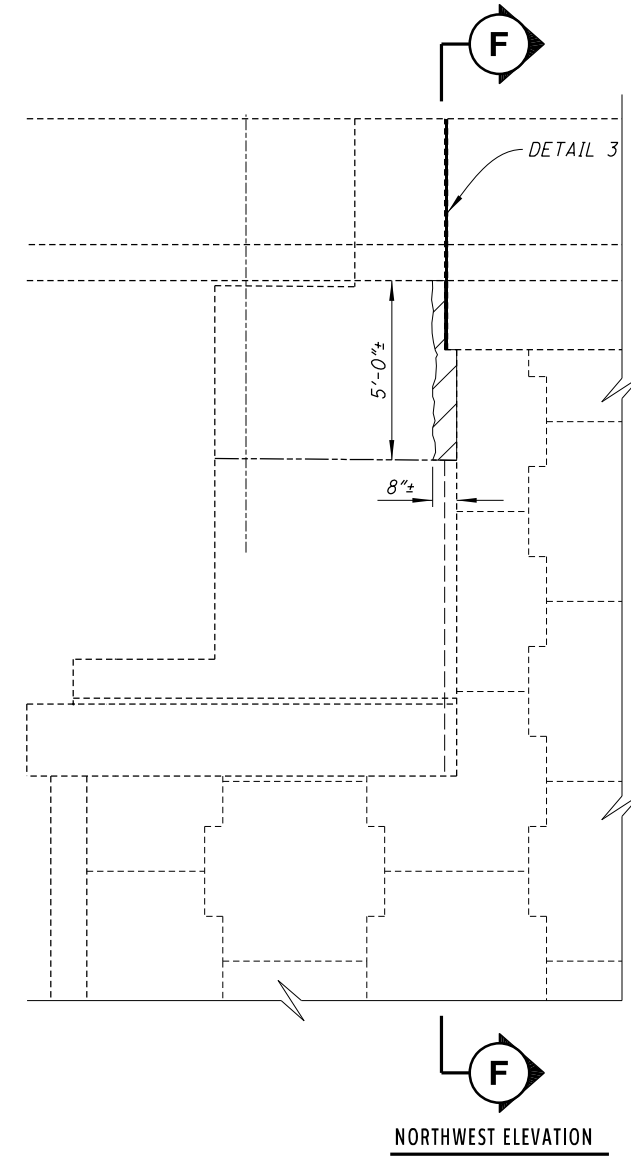
SOUTHWEST ELEVATION



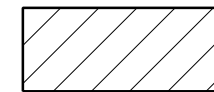
SECTION E-E
NOT TO SCALE



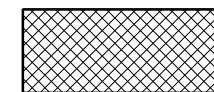
SECTION F-F
NOT TO SCALE



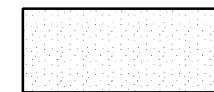
NORTHWEST ELEVATION



ITEM 519 - PATCHING CONCRETE STRUCTURE

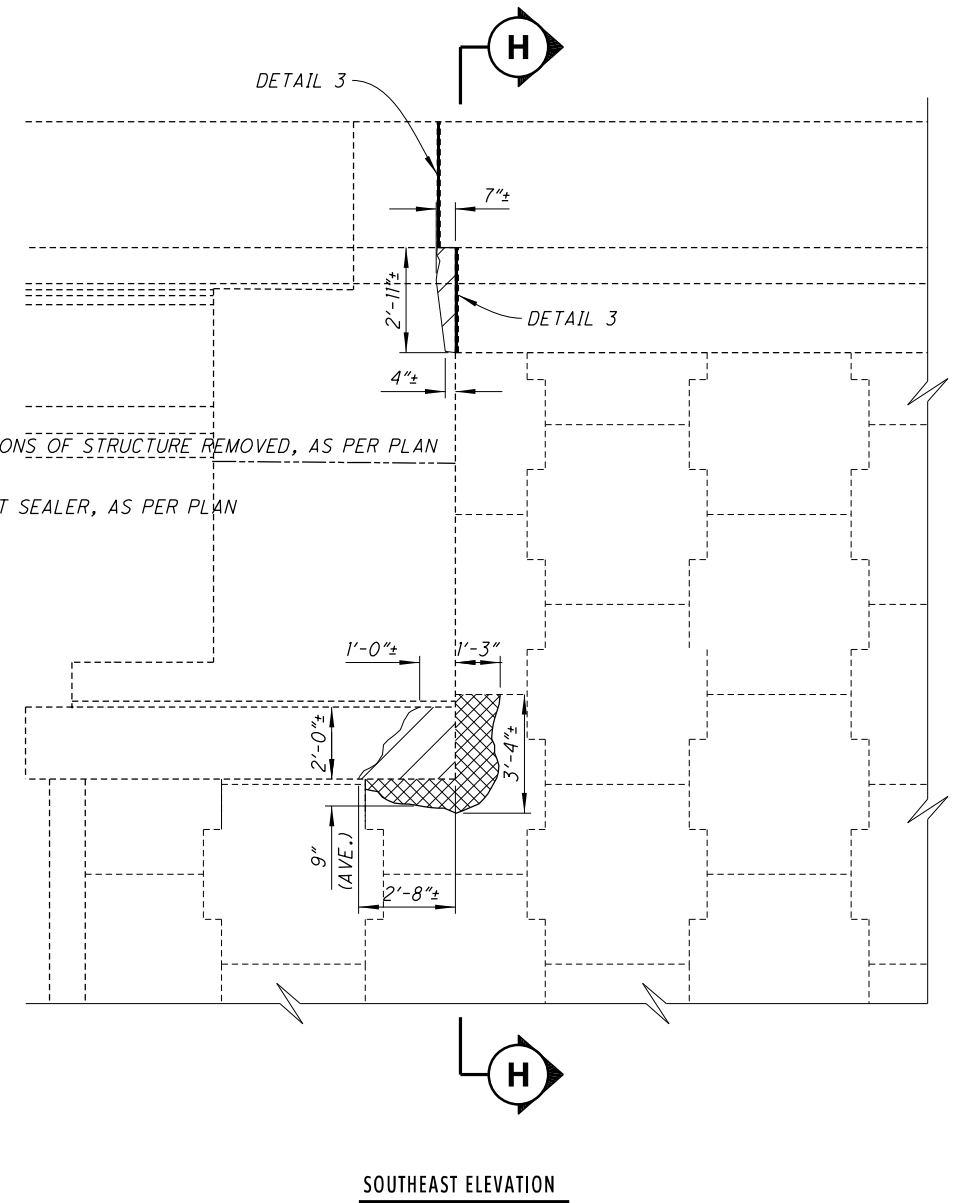
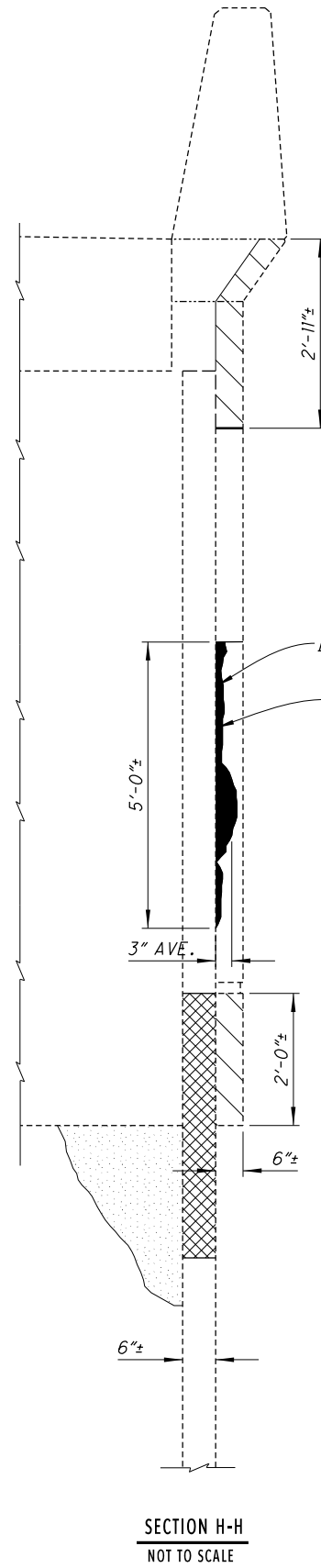
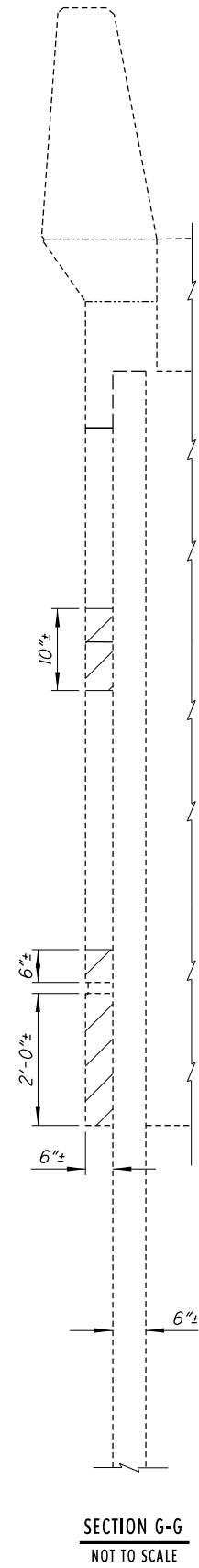
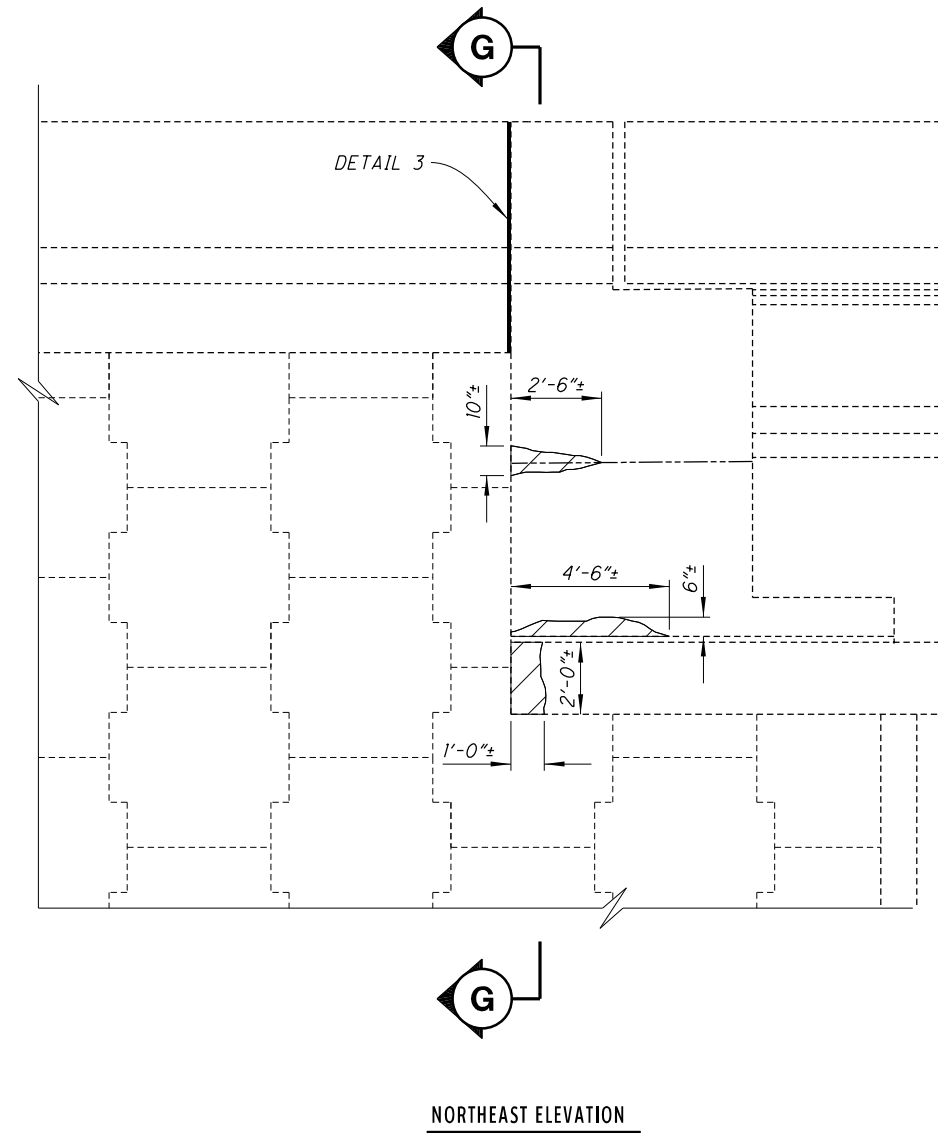


ITEM 202 - REMOVAL MISC.: PORTIONS OF STRUCTURE REMOVED
ITEM 511 - CLASS OC1 CONCRETE MISC.: MSE WALL REPAIR

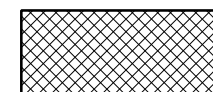


ITEM 613 - LOW STRENGTH MORTAR BACKFILL (LSM), TYPE 2

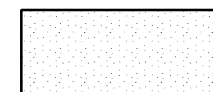
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ITEM 519 - PATCHING CONCRETE STRUCTURE

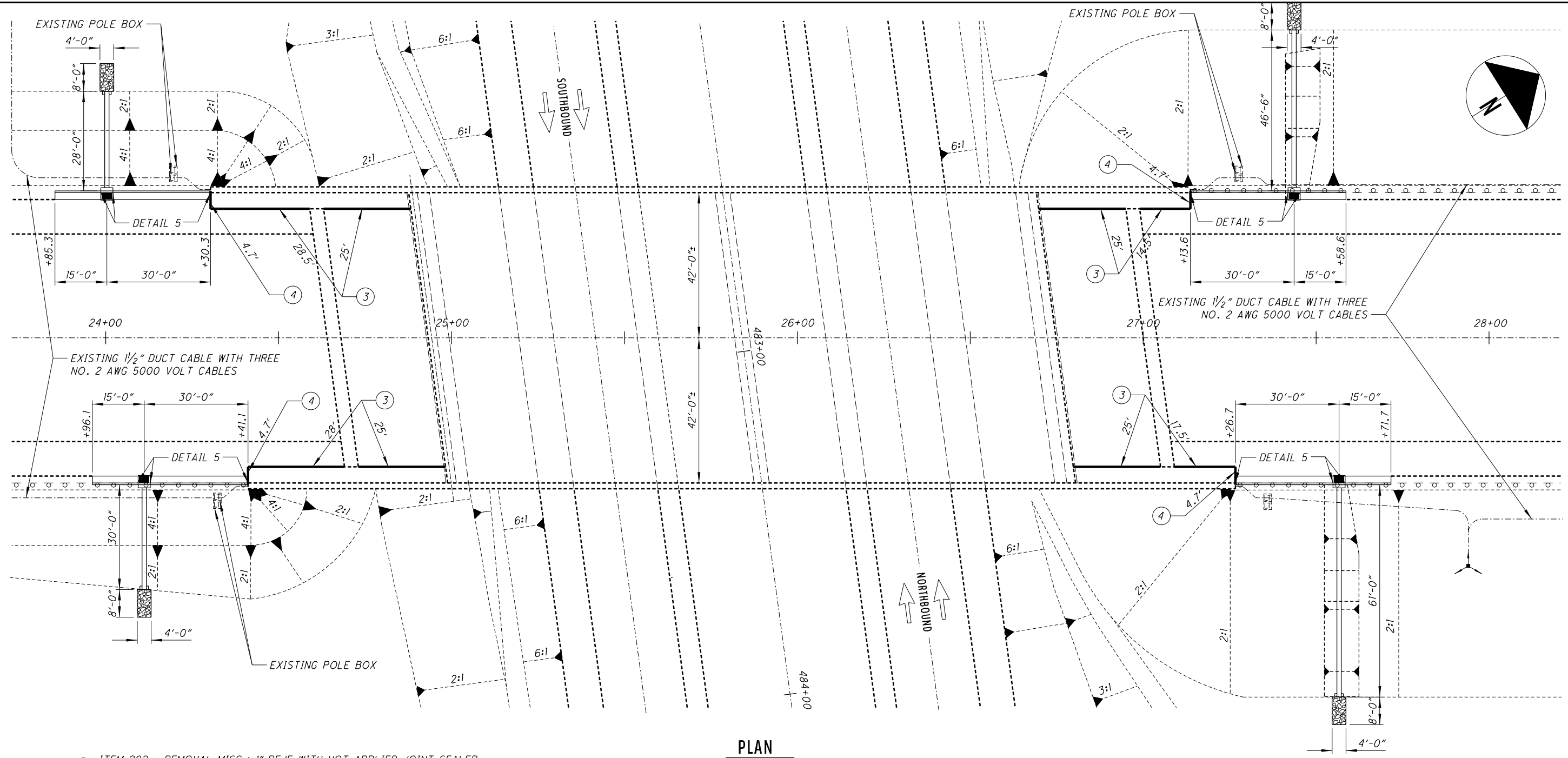


ITEM 202 - REMOVAL MISC.: PORTIONS OF STRUCTURE REMOVED
ITEM 511 - GLASS OCI CONCRETE MISC.: MSE WALL REPAIR



ITEM 613 - LOW STRENGTH MORTAR BACKFILL (LSM), TYPE 2

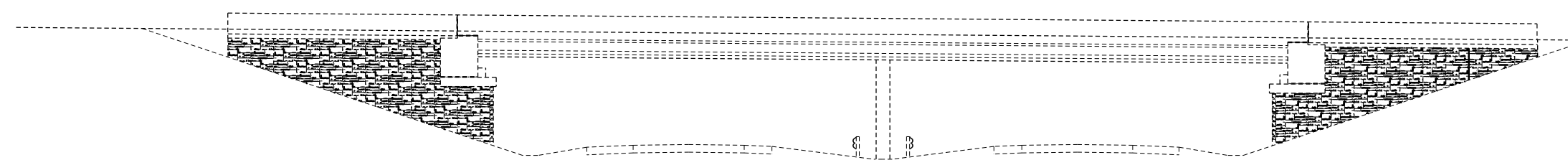
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PLAN

- ③ ITEM 202 - REMOVAL MISC.: 1" PEJF WITH HOT APPLIED JOINT SEALER
ITEM 516-STRUCTURAL JOINT OR JOINT SEALER, MISC: 2" PRECOMPRESSED FOAM JOINT SEAL
- ④ ITEM 202 - REMOVAL MISC.: 1" PEJF WITH HOT APPLIED JOINT SEALER
ITEM 516-STRUCTURAL JOINT OR JOINT SEALER, MISC: 1" PRECOMPRESSED FOAM JOINT SEAL

NOTE: THE CONTRACTOR SHALL USE PRECAUTION WHEN EXCAVATING FOR THE CATCH BASIN AND CONDUIT.



EXISTING STRUCTURE

TYPE: CONTINUOUS COMPOSITE PRESTRESSED, CONCRETE I-BEAMS WITH REINFORCED, CONCRETE DECK AND SUBSTRUCTURE UNITS

SPANS: 88'-6 3/4", 88'-6 3/4" C/C BEARINGS
(89'-9 1/4", 89'-9 1/4" @ ABUT BRGS. TO @ PIER)

ROADWAY: 84'-0" TOE/TOE BARRIERS

SKEW: 7°30' RIGHT FORWARD

DESIGN LOADING: HS25 AND THE ALTERNATE MILITARY LOADING

APPROACH SLABS: 25' LONG

ALIGNMENT: TANGENT

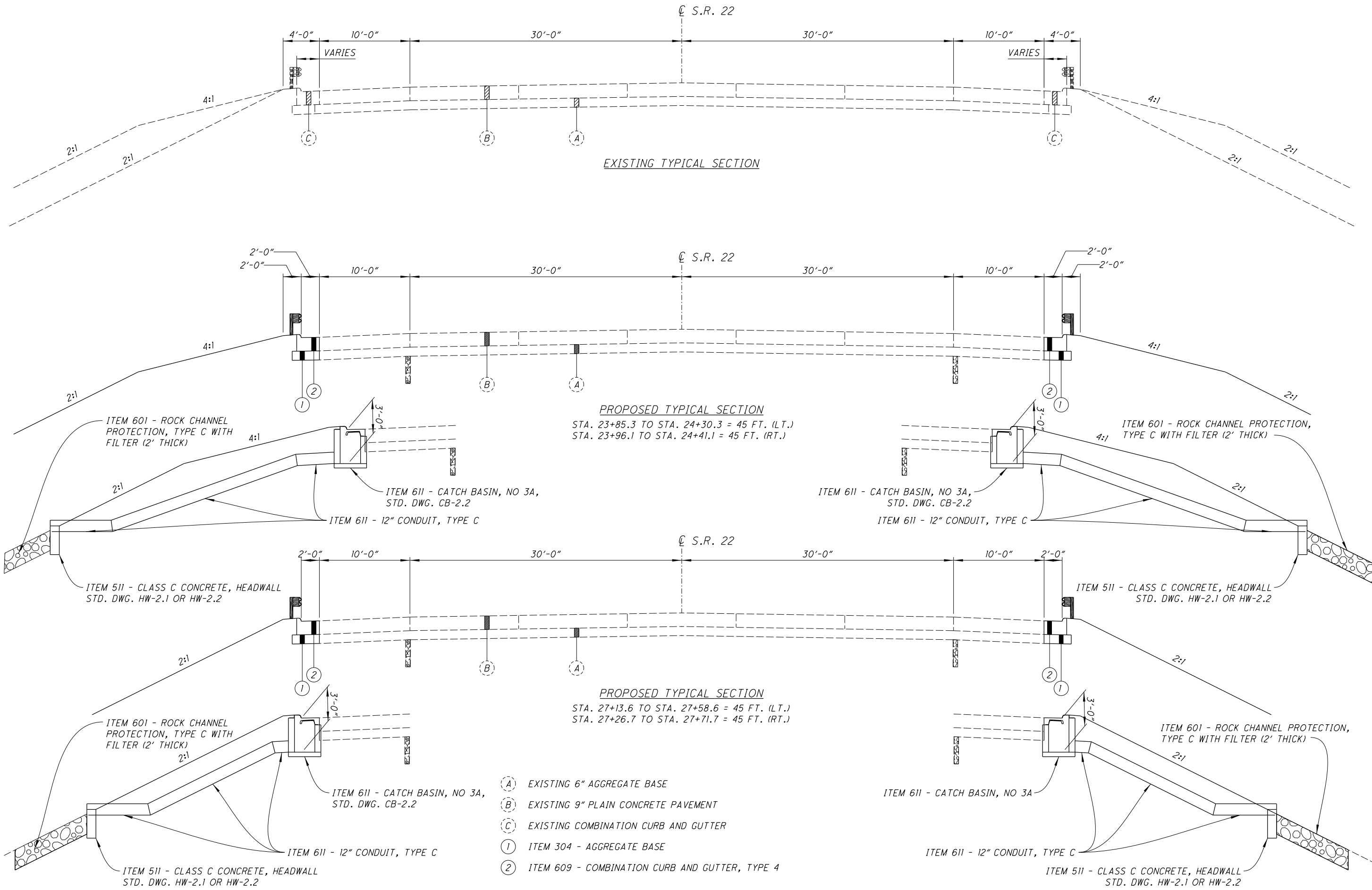
WEARING SURFACE: MONOLITHIC CONCRETE

CROWN: 3/16" INCH PER FOOT

COORDINATES: LATITUDE= 39°41'16"
LONGITUDE= 82°39'40"

DESIGN AGENCY	OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 5
DATE	6/11/18
REVIEWED TAG	STRUCTURE FILE NUMBER 2300850
DRAWN TAG	REVISED
DESIGNED TAG	CHECKED JDR
GENERAL PLAN & ELEVATION	
BRIDGE NO.: FAI-33-15.05 UNDER US22	
FAI/LIC-33/70-VARIOUS	PID No. 106603
18 31	

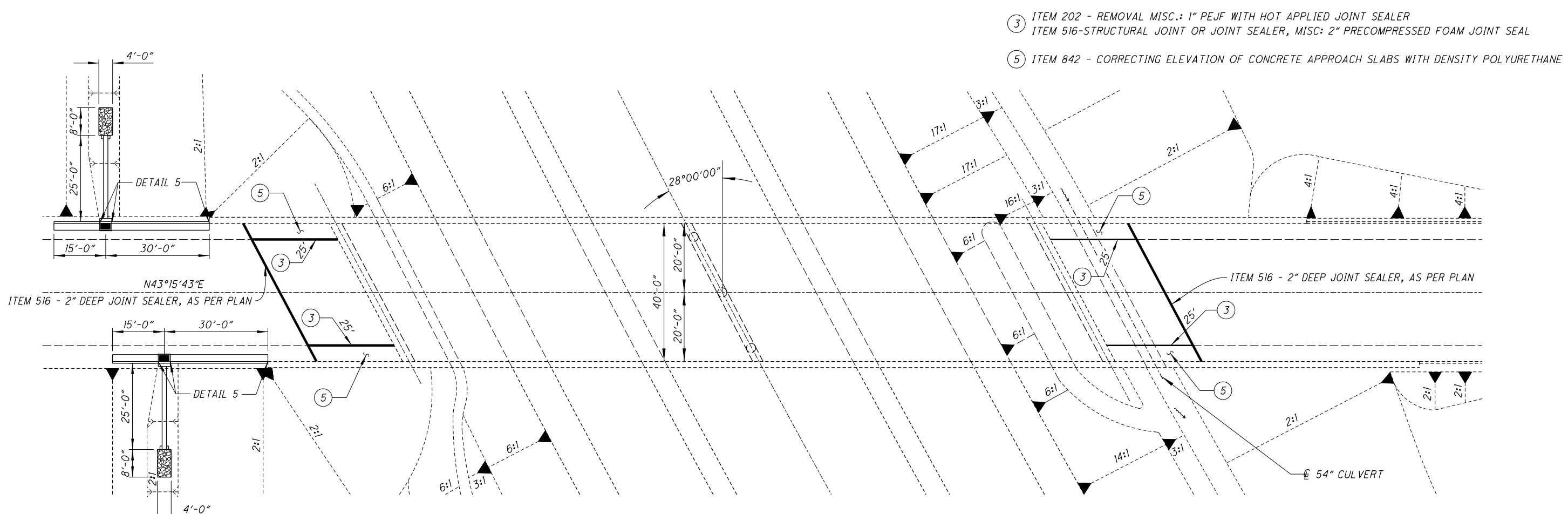
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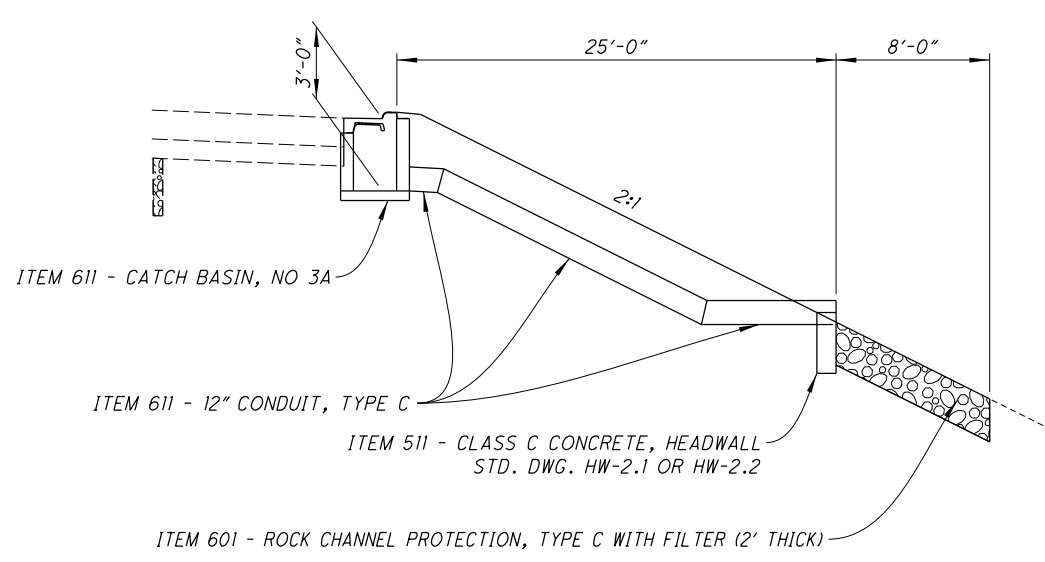
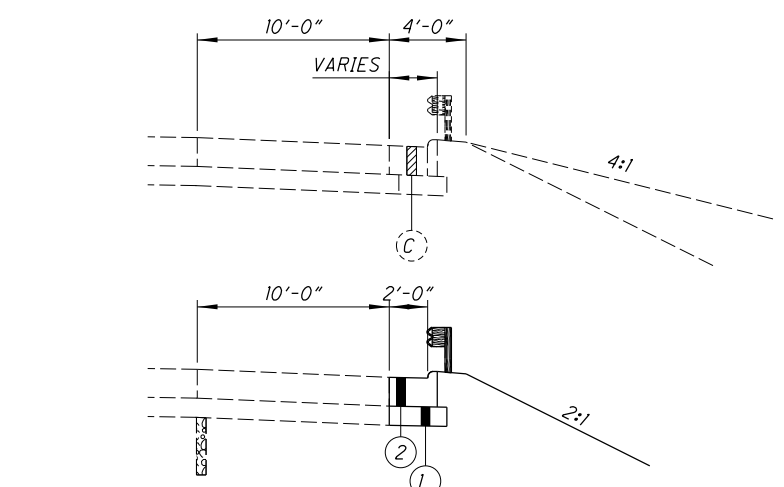
- (A) EXISTING 6" AGGREGATE BASE
- (B) EXISTING 9" PLAIN CONCRETE PAVEMENT
- (C) EXISTING COMBINATION CURB AND GUTTER
- (1) ITEM 304 - AGGREGATE BASE
- (2) ITEM 609 - COMBINATION CURB AND GUTTER, TYPE 4

DESIGNED TAG	CHECKED	JDR
DRAWN TAG	REVIS	
REVIEWED TAG	STRUCTURE FILE NUMBER	2300850
DATE	6/11/18	
DESIGN AGENCY	OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 5	
US22 TYPICAL SECTION		
BRIDGE NO.: FAI-33-15.05 UNDER US22		
FAI/LIC-33/70-VARIOUS		
PID No. 106603		
19		
31		

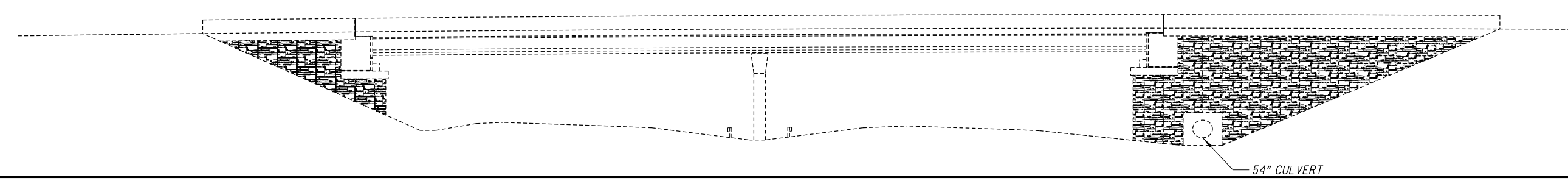
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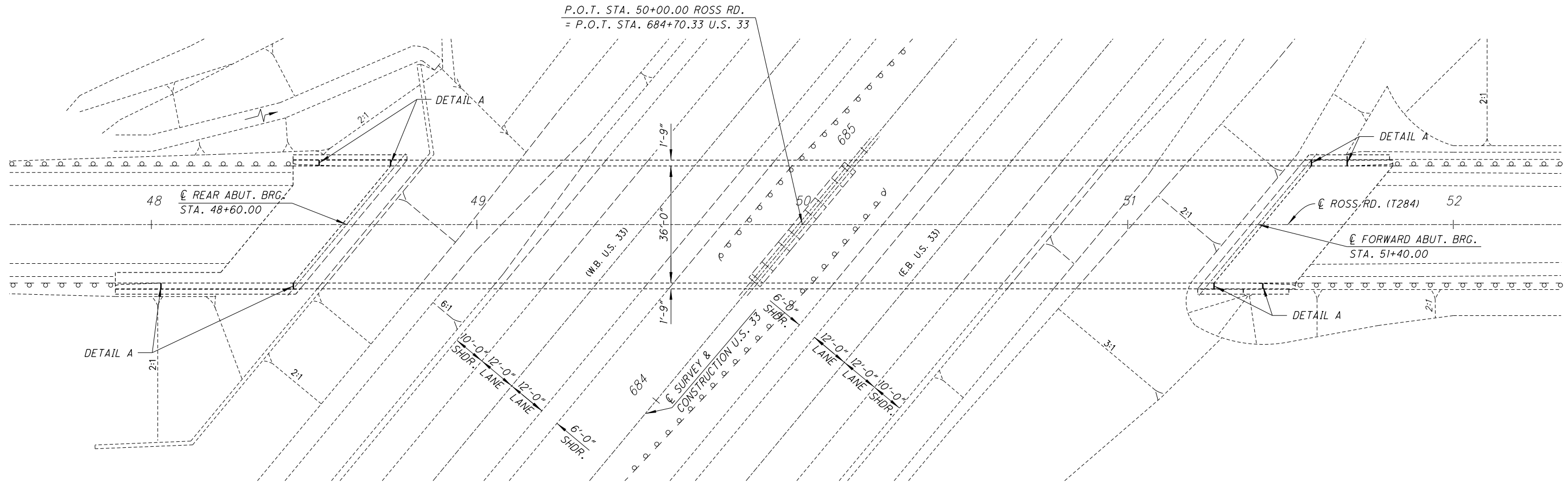
- ③ ITEM 202 - REMOVAL MISC.: 1" PEJF WITH HOT APPLIED JOINT SEALER
- ITEM 516-STRUCTURAL JOINT OR JOINT SEALER, MISC: 2" PRECOMPRESSED FOAM JOINT SEAL
- ⑤ ITEM 842 - CORRECTING ELEVATION OF CONCRETE APPROACH SLABS WITH DENSITY POLYURETHANE



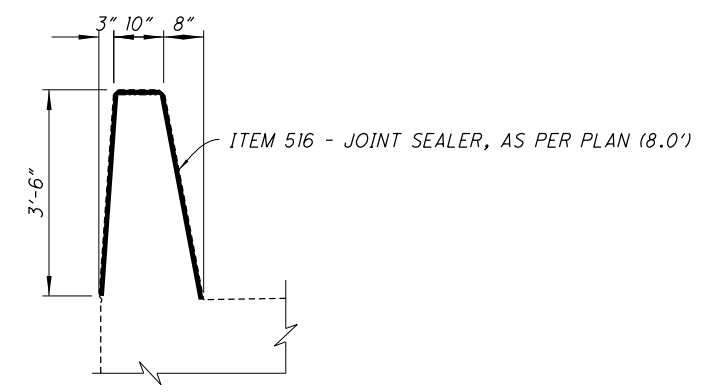
EXISTING STRUCTURE	
TYPE: CONTINUOUS COMPOSITE PRESTRESSED CONCRETE I-BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE UNITS	
SPANS: 100'-1/2", 100'-1/2" C/C BEARINGS	
ROADWAY: 40' TOE/TOE PARAPET	
SKEW: 28° RIGHT FORWARD	
DESIGN LOADING: HS25 & ALTERNATE MILITARY LOADING	
APPROACH SLABS: 25' LONG	
ALIGNMENT: TANGENT	
WEARING SURFACE: MONOLITHIC CONCRETE	
CROWN: 3/16" PER FOOT	
COORDINATES: LATITUDE= 39°40'21" LONGITUDE= 82°38'13"	



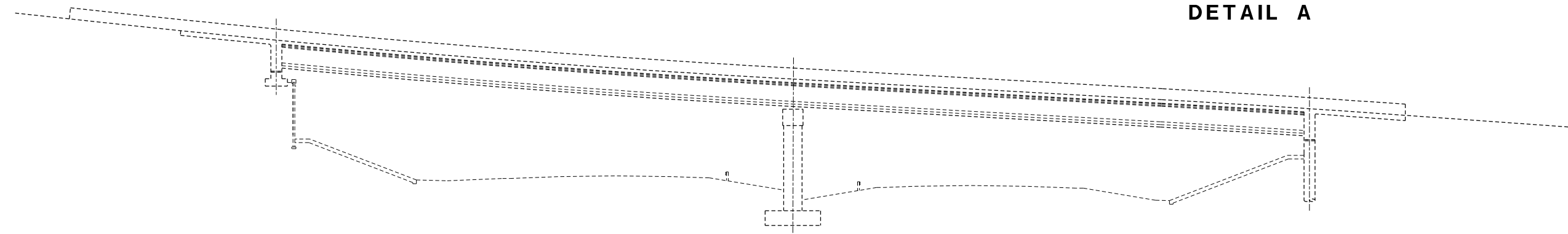
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PLAN



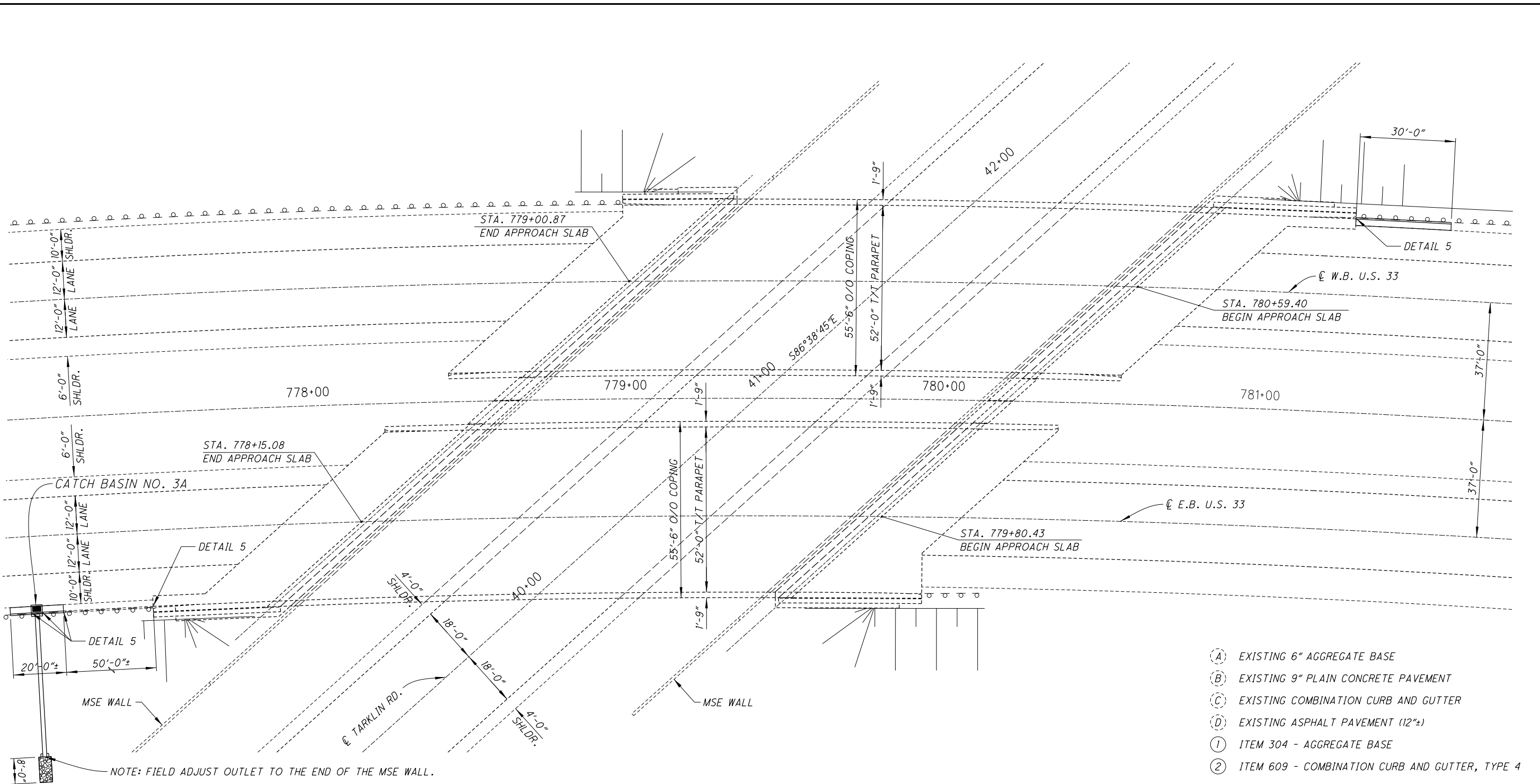
DETAIL A



ELEVATION

FAI/LIC-33/70-VARIOS PID No. 106603	GENERAL PLAN & ELEVATION BRIDGE NO.: FAI-33-18.89 UNDER ROSS ROAD (T284)		DESIGNED TAG CHECKED JDR	DRAIN TAG REVISED	REVIEWED TAG STRUCTURE FILE NUMBER	DATE 6/11/18	DESIGN AGENCY OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 5
					2300869		

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- (A) EXISTING 6" AGGREGATE BASE
- (B) EXISTING 9" PLAIN CONCRETE PAVEMENT
- (C) EXISTING COMBINATION CURB AND GUTTER
- (D) EXISTING ASPHALT PAVEMENT (12"±)
- (1) ITEM 304 - AGGREGATE BASE
- (2) ITEM 609 - COMBINATION CURB AND GUTTER, TYPE 4

EXISTING STRUCTURE

TYPE: TWIN POST TENSIONED CONCRETE BULB T GIRDERS 90" DEEP WITH 8 1/2" REINFORCED CONCRETE DECK & SUBSTRUCTURES.

SPANS: 156.69'L AND 160.37'R C/C BRGS. ALONG REFERENCE CORD

ROADWAY: 52'-0" T/T BARRIERS

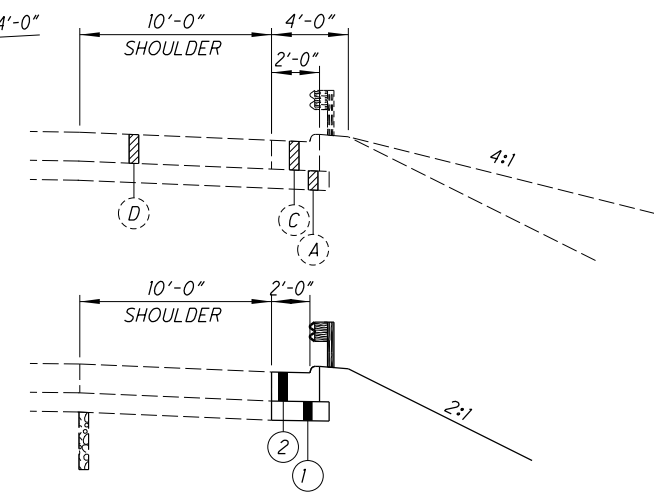
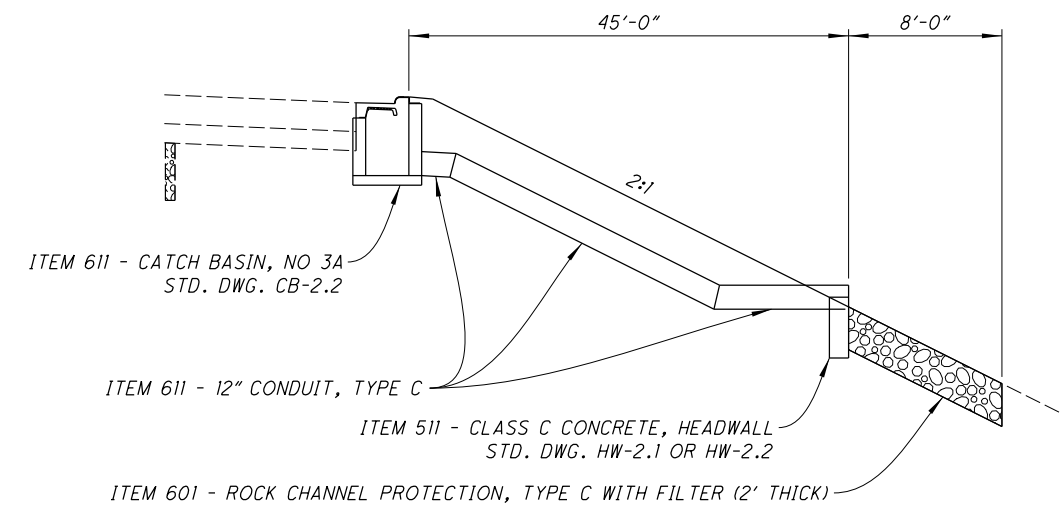
SKEW: 48°01'09" L.F.

DESIGN LOADING: HS25 AND THE ALTERNATE MILITARY LOADING

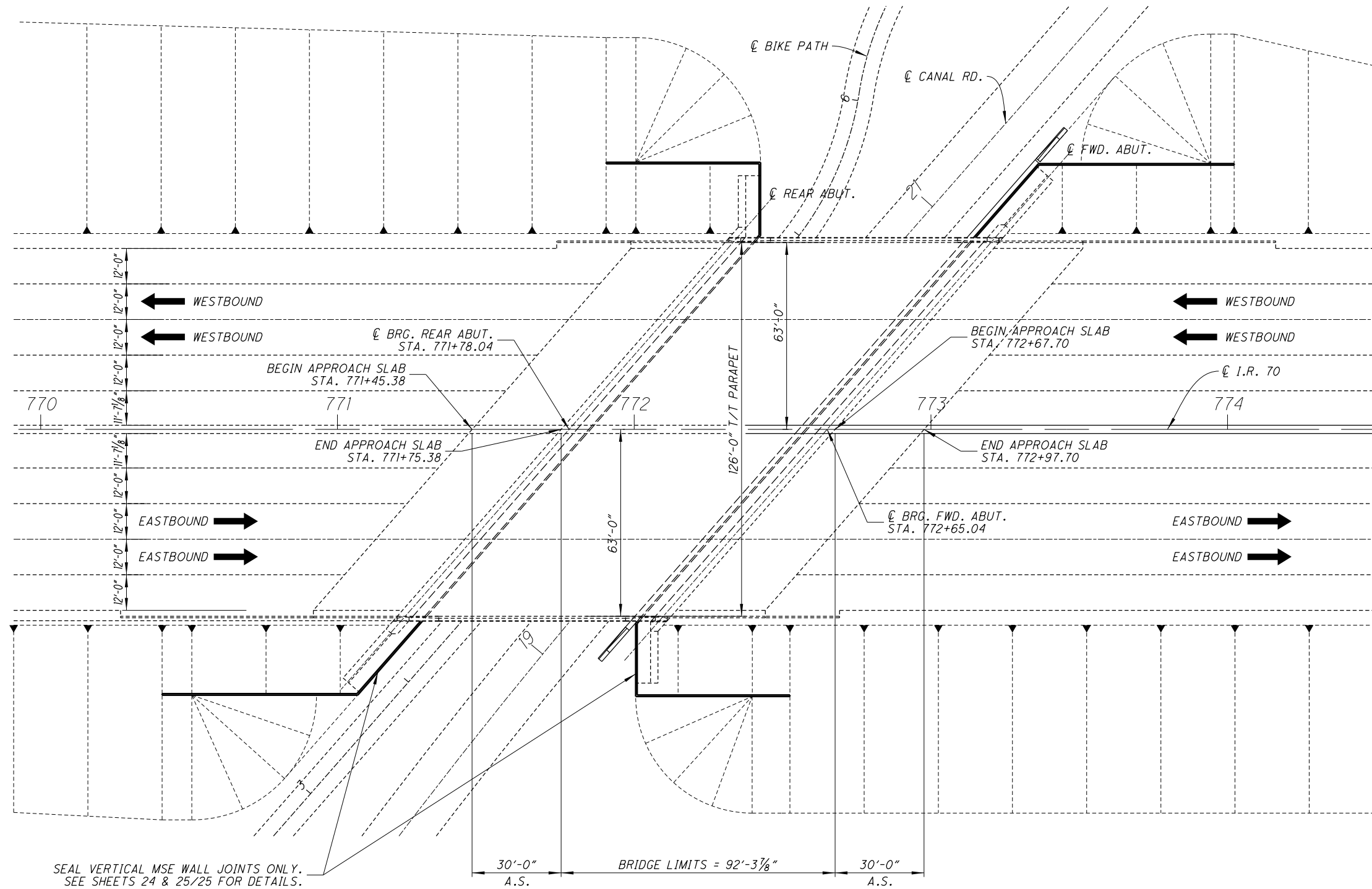
APPROACH SLABS: AS-1-81 25' LONG (MODIFIED)

ALIGNMENT: 01°27'18" CURVE TO THE RIGHT

WEARING SURFACE: MONOLITHIC CONCRETE

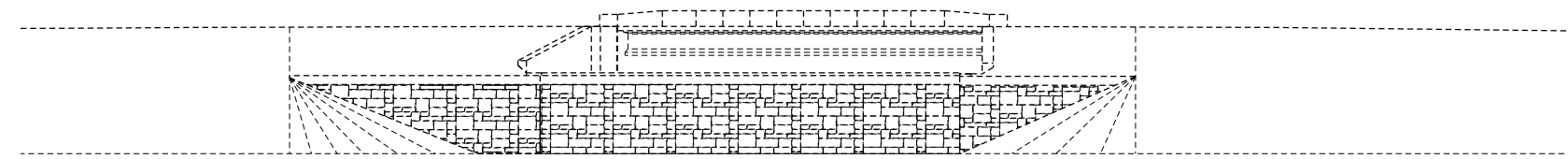


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SEAL VERTICAL MSE WALL JOINTS ONLY.
SEE SHEETS 24 & 25/25 FOR DETAILS.

PLAN

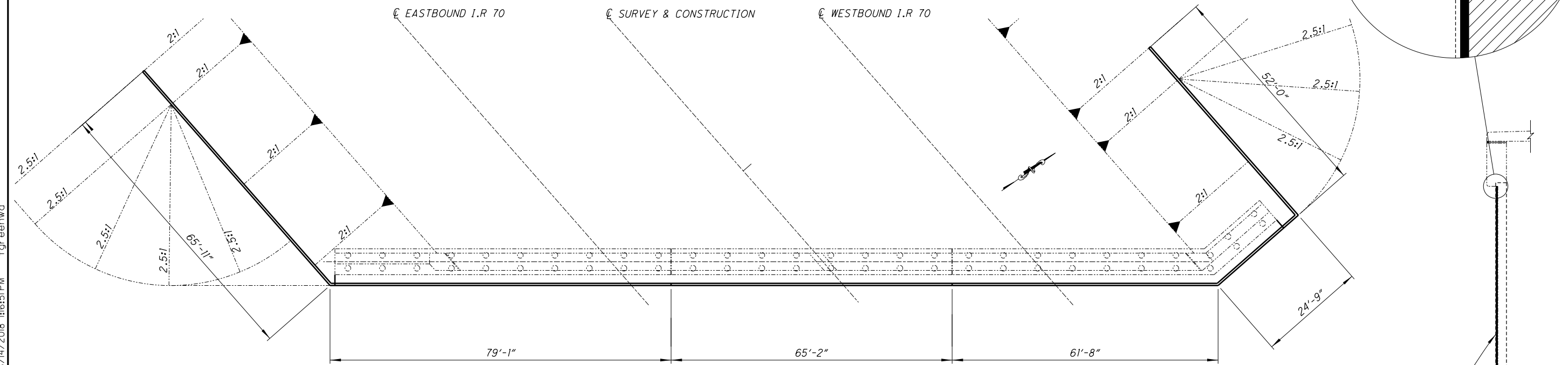


ELEVATION

EXISTING STRUCTURE (SFN: 4503538)	
TYPE: SINGLE SPAN PRESTRESSED CONCRETE I-BEAM COMPOSITE SUPERSTRUCTURE ON SEMI-INTEGRAL ABUTMENT WITH MSE WALLS.	
SPANS: 87'-0"	
ROADWAY: 61'-7 7/8" (LT. & RT.) TOE OF PARAPET TO TOE OF MEDIAN BARRIER	
LOADING: HL-93	
SKEW: 41° 15" L.F.	
APPROACH SLABS: 30'-0" LONG (AS-1-81)	
ALIGNMENT: TANGENT	
CROWN: 0.0156 FT/FT	
COORDINATES: LATITUDE 39° 56' 32"	
LONGITUDE -82° 30' 58"	

DESIGN AGENCY		OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 5	
REVIEWED	DATE	TAG	STRUCTURE FILE NUMBER
JDR	6/11/18		4503538
DESIGNED	TAG	CHECKED	JDR
GENERAL PLAN & ELEVATION			
BRIDGE NO.: LIC-70-13.71			
OVER T.R. .171			
FAI/LIC-33/70-VARIOUS		PID No. 106603	
23		31	

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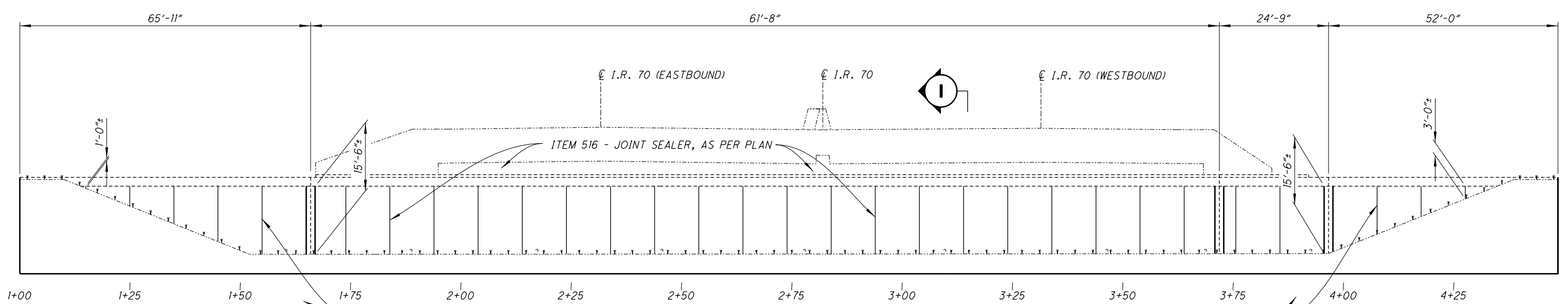


PLAN

FOAM BACKER ROD OR EXPANDING FOAM
ITEM 516 JOINT SEALER, AS PER PLAN

ITEM 516 - JOINT SEALER, AS PER PLAN

SECTION I-I



PROFILE

ITEM 516 - JOINT SEALER, AS PER PLAN

ITEM 516 - JOINT SEALER, AS PER PLAN

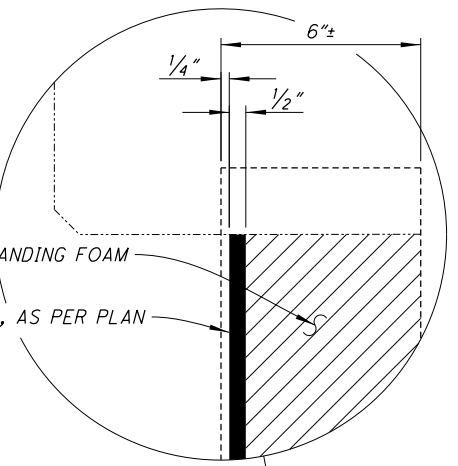
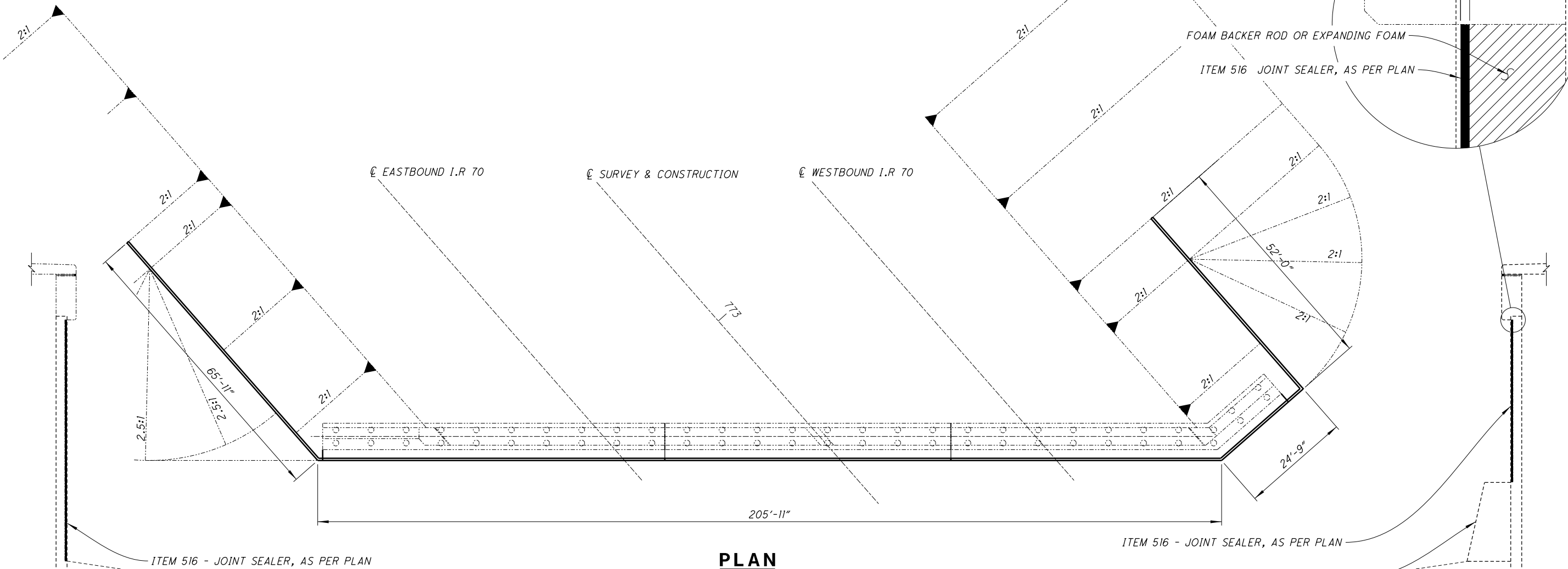
DESIGN AGENCY
OHIO DEPARTMENT OF
TRANSPORTATION DISTRICT 5

DESIGNED	TAG	CHECKED	JDR
DRAWN	TAG	REVIS	
REVIEWED	TAG	STRUCTURE FILE NUMBER	4503538
DATE	6/11/18		

MSE WALL 1
BRIDGE NO.: LIC-70-13.71
OVER T.R. 171

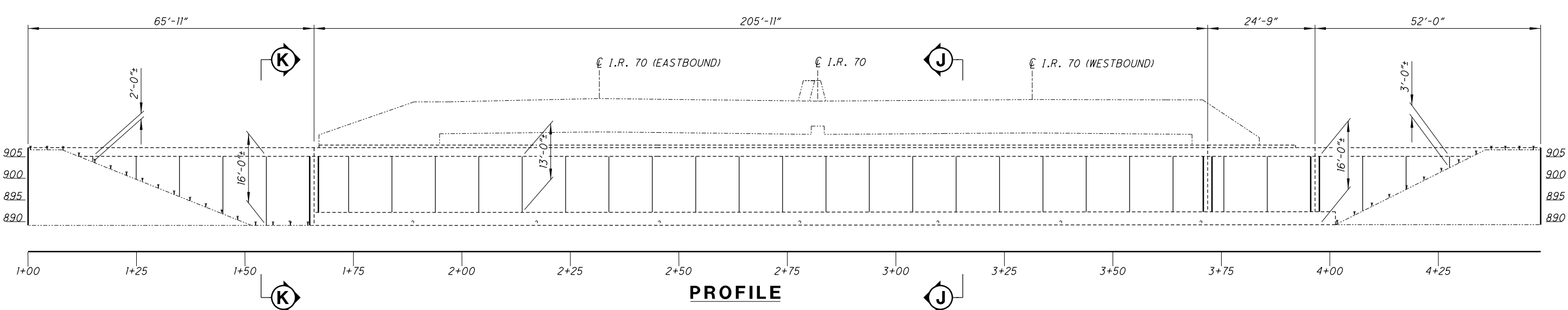
FAI/LIC-33/70-VARIOUS
PID No. 106603

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SECTION K-K

SECTION J-J



DESIGNED TAG CHECKED JDR	DRAWN TAG REVISED	REVIEWED TAG STRUCTURE FILE NUMBER 4503538	DATE 6/11/18	DESIGN AGENCY OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 5
				BRIDGE NO.: LIC-70-13.71 OVER T.R. 171
				MSE WALL 2
				PID No. 106603

NOTES

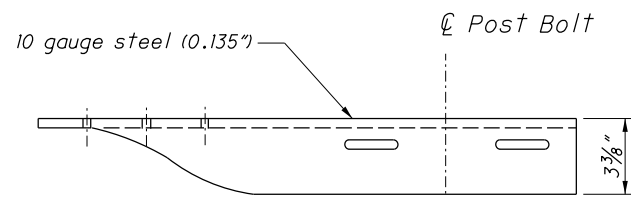
GENERAL: Components shown on this drawing are used in a variety of guardrail systems. See individual guardrail drawing for specific applications.

See CMS 606 for guardrail specifications not covered on these drawings.

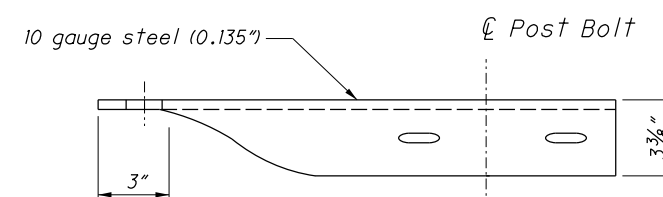
Refer to AASHTO M 180 for dimensional details of W-Beam and Thrie-Beam rail elements, related buffer and end sections, beam splices, post and splice bolts, nuts, and Type 1 W-Beam to Thrie-Beam Transition sections.

RAIL ELEMENTS: W-Beam Rail has an effective length of 12'-6" unless otherwise specified, with 3/4" x 2 1/2" post bolt slots on 6'-3" centers regardless of post spacing. Field punch or drill bolt holes or slots for irregularly spaced posts as specified in CMS 606.04.

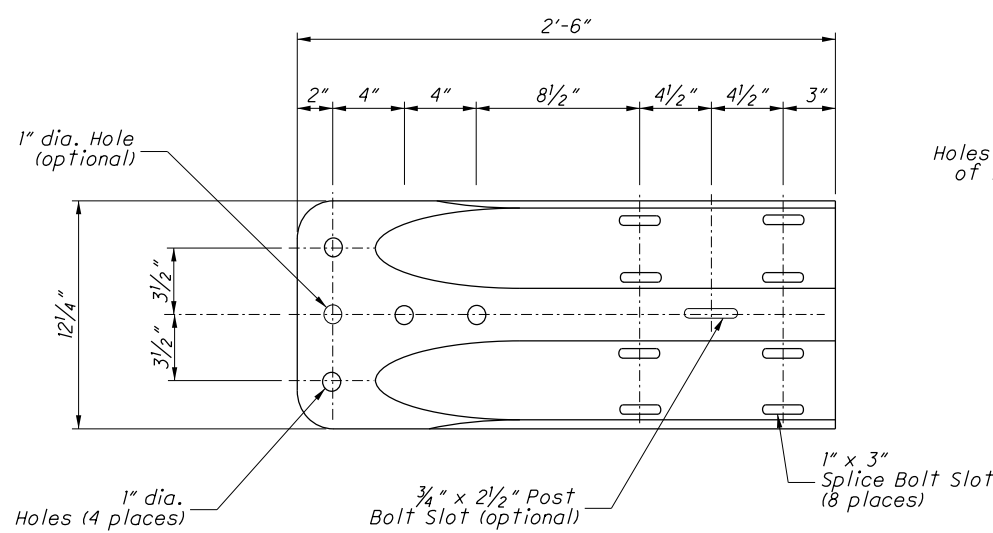
RAIL SPLICES: Lap splices between two rail elements or between a rail and terminal connector in the direction of traffic. Lap the buffer or flared end sections in the direction of traffic.



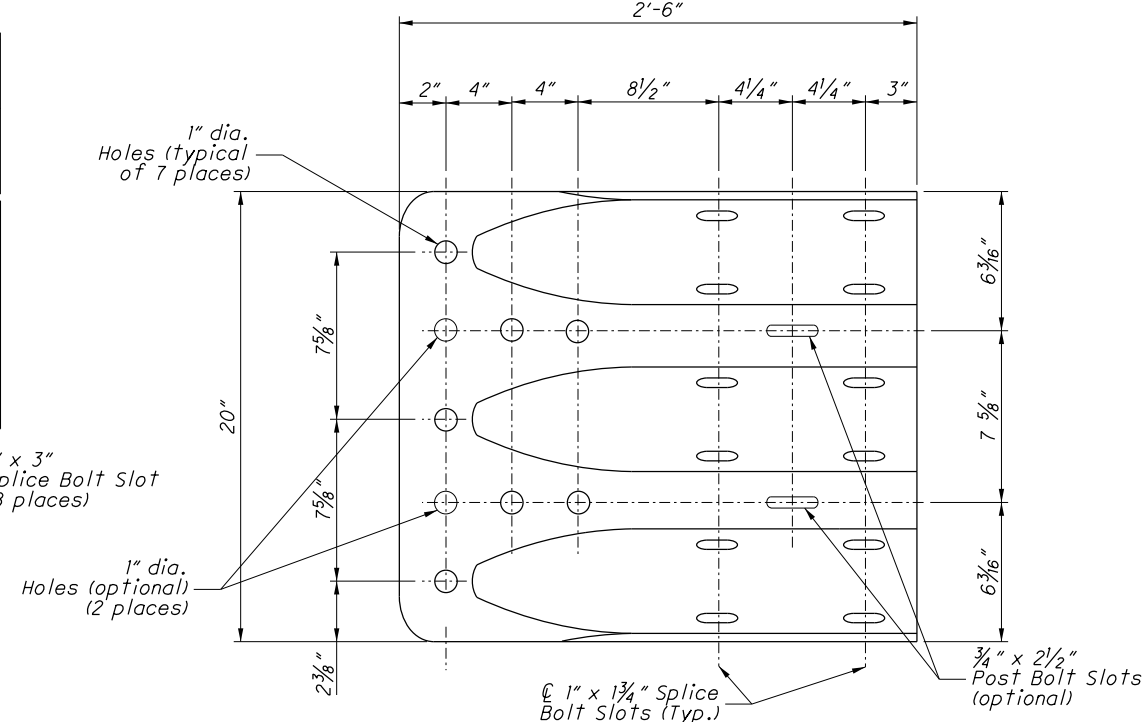
PLAN



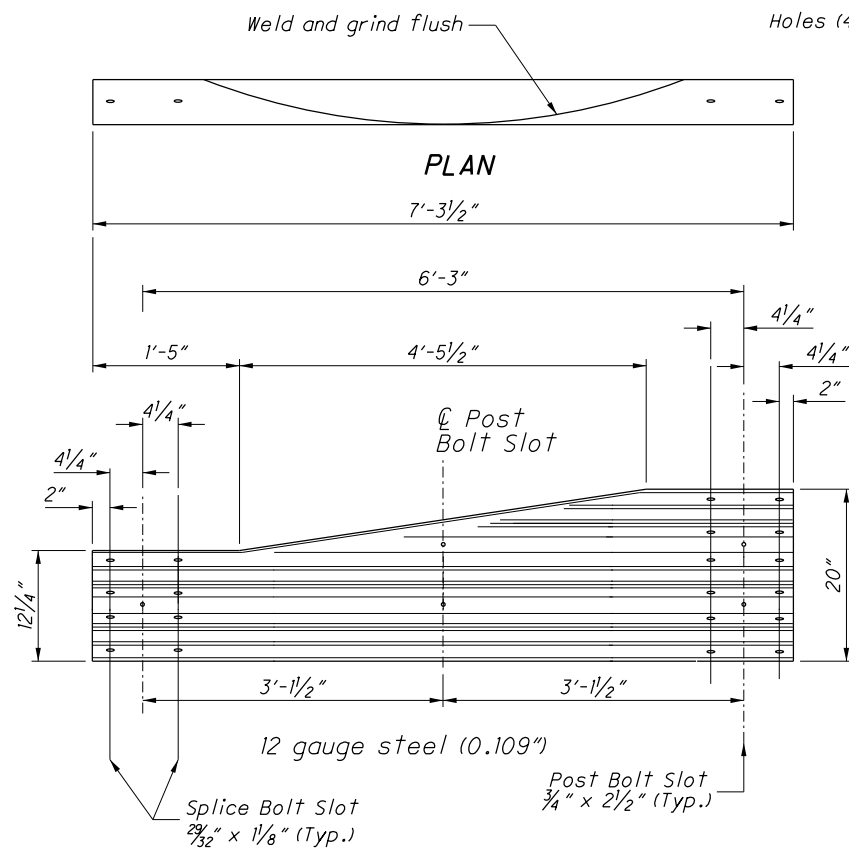
PLAN



ELEVATION
W-BEAM TERMINAL CONNECTOR

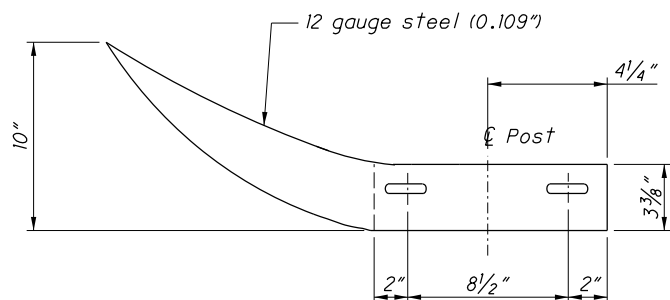


ELEVATION
THRIE-BEAM TERMINAL CONNECTOR

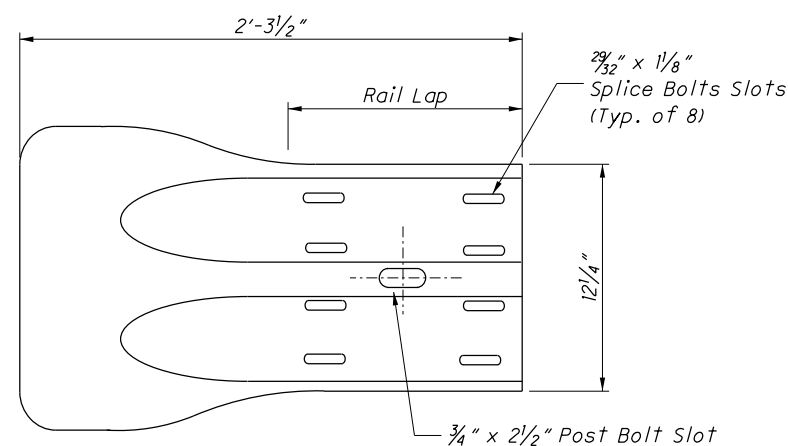


ELEVATION
TYPE 2 TRANSITION SECTION
(Asymmetric W to Thrie-Beam)

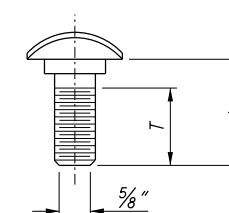
For details of Type 1 Transition Section (Symmetric), refer to AASHTO M 180, Figure 4.



PLAN



ELEVATION
W-BEAM FLARED END SECTION

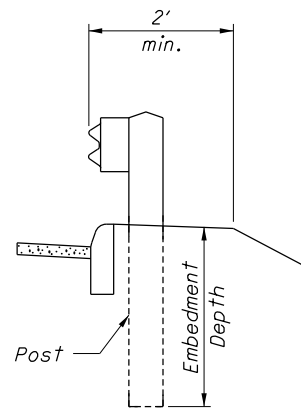


GUARDRAIL BOLT (For Post and Splice Bolts)		
L	T min.	Bolt Use
18" (Standard Rail)	4"	Type 5: WP/WB, PB
26" (Barrier Rail)		
10"	4"	Type 5: SP/WB, PB
1 1/4"	1 1/8"	Splice Bolt

WP = Wood Post WB = Wood Blockout
SP = Steel Post PB = Plastic Blockout

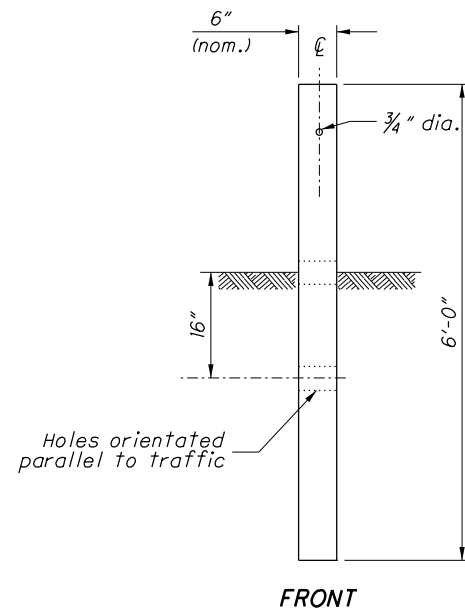
Longer Bolt may be needed for round Wood Post larger than 8" dia.

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DETAIL A

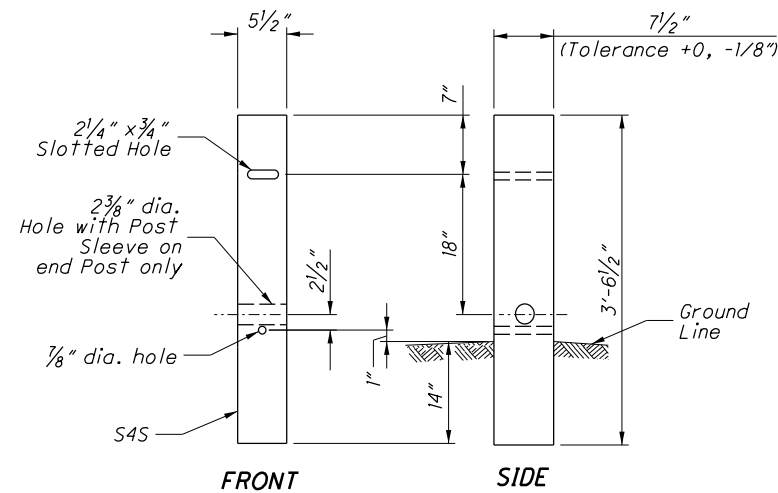
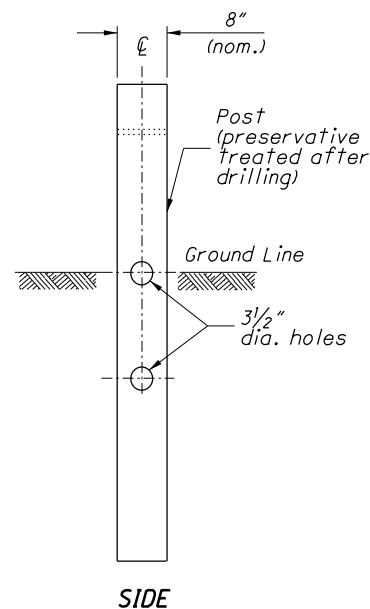
See POST EMBEDMENT DEPTH Note



FRONT

SIDE

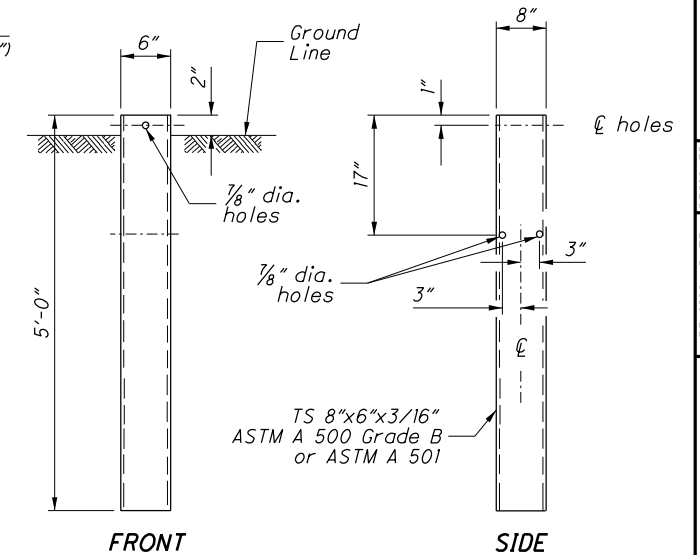
TYPE 1 BREAKAWAY CRT POST



FRONT

SIDE

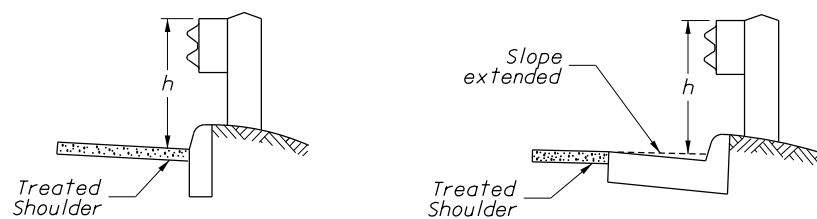
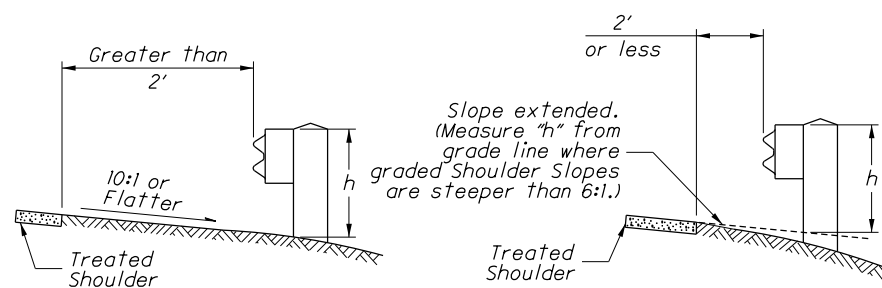
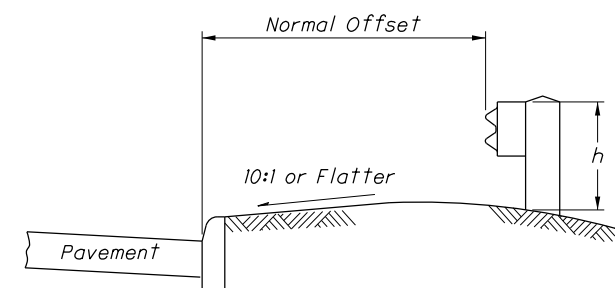
TYPE 2 BREAKAWAY CRT POST



FRONT

SIDE

STEEL GROUND TUBE



h = Standard Height (See GUARDRAIL HEIGHT Note)

MEASURING GUARDRAIL HEIGHT

NOTES

GUARDRAIL HEIGHT: For initial installation, construct the guardrail within $\pm 1"$ of the standard height, h , or **29"** to the top of W-Beam rail. (See MEASURING GUARDRAIL HEIGHT Detail.)

When subsequent projects, such as resurfacings, affect the height of existing guardrail, the finished height is to be within $\pm 2.5"$ of the standard height.

POST EMBEDMENT DEPTH: Standard embedment is 3'-5" min. Where less than 2' of graded shoulder width (10:1 or flatter) exists, measured from the face of the guardrail (see DETAIL "A"), use longer posts so that a minimum of 5'-5" embedment depth is provided. Payment for the longer posts will be made at the unit price bid for **ITEM 606 - GUARDRAIL POST, 9', Each.**

SPECIAL POST MOUNTINGS: Install posts located over a drainage inlet or structure as shown in the FOOTING ANCHOR Detail, or anchor per the details shown on **SCD GR-2.2.**

Install posts located over a footing with a cover of less than 2'-6" with a footing anchor as detailed here. (A plate, as detailed on SECTION B-B of **SCD GR-2.2**, may be used as an alternative attachment method.) Where the cover is between 2'-6" and 3'-5", the footing anchor may be omitted and the post encased instead with 4" (min.) of concrete.

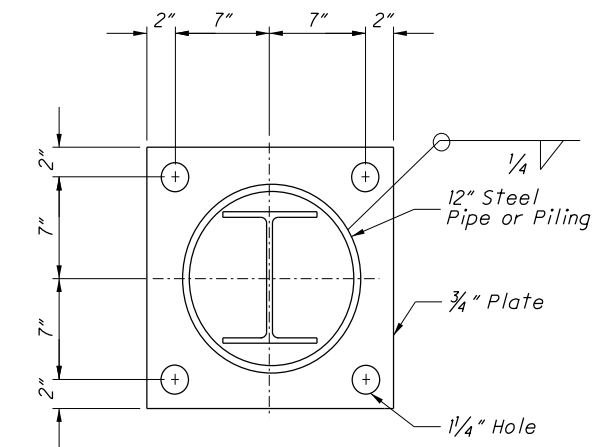
Do not drive posts located over a culvert with less than 4'-3" of cover; instead set in drilled or dug holes. Where the available post embedment depth is less than 3'-5", encase the post with a minimum of 4" concrete.

All costs associated with special post mountings are included in the unit price bid of Item 606 Guardrail of the type specified in the plans.

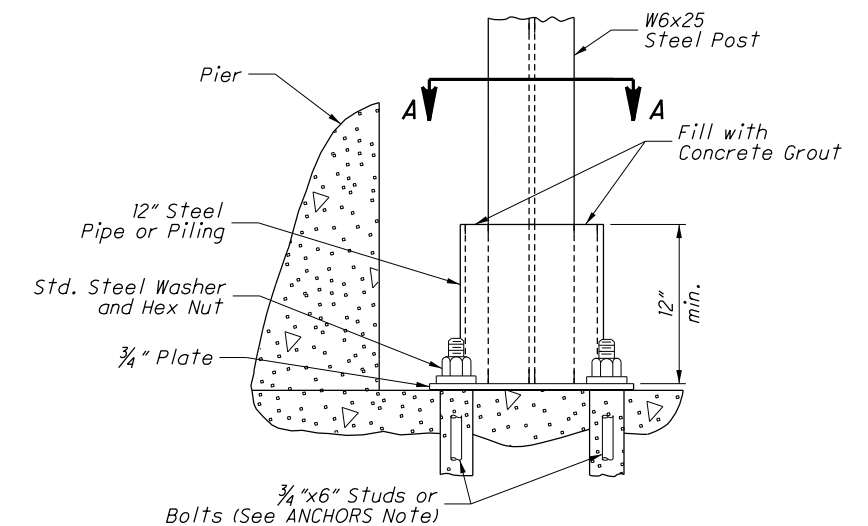
ANCHORS: Holes and grouting shall comply with CMS 510. Use either cement or non-shrink, nonmetallic grout.

Expansion shield anchors as specified in CMS 712.01 may be substituted except where concrete deterioration has occurred, as determined by the Engineer. Where self-drilling anchors are used, drill the holes with the expansion shield (not by a drill bit) and install the shield flush with the concrete surface.

PROTECTIVE COATING: In lieu of the complying with CMS 710.06, coat expansion shields, anchors and concrete insert anchor assemblies embedded in concrete in accordance with ASTM A 153 or be of stainless steel. Any bolts screwed into these devices shall meet CMS 710.06. (See sheet 3 for Concrete Insert Anchor Assembly Detail.)



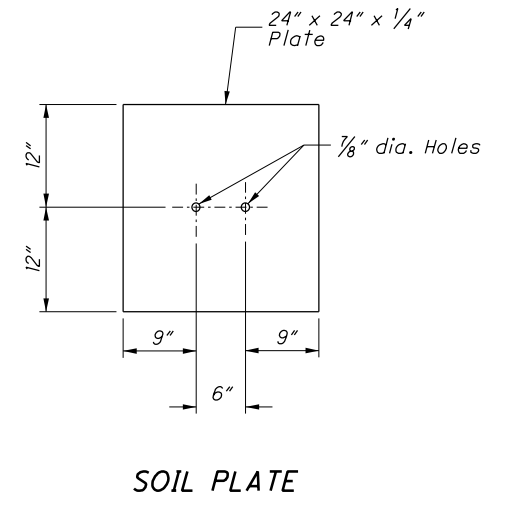
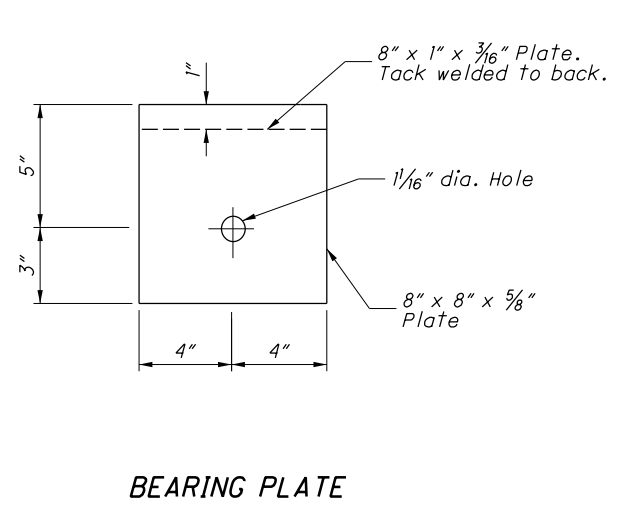
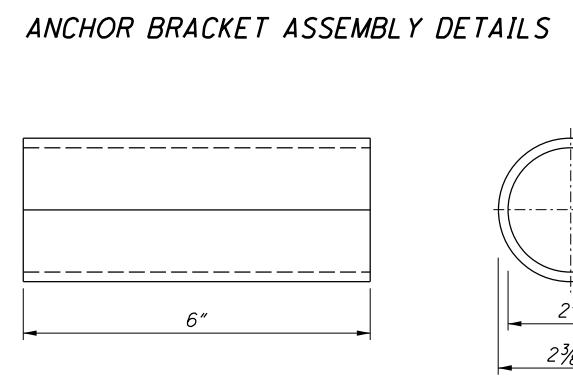
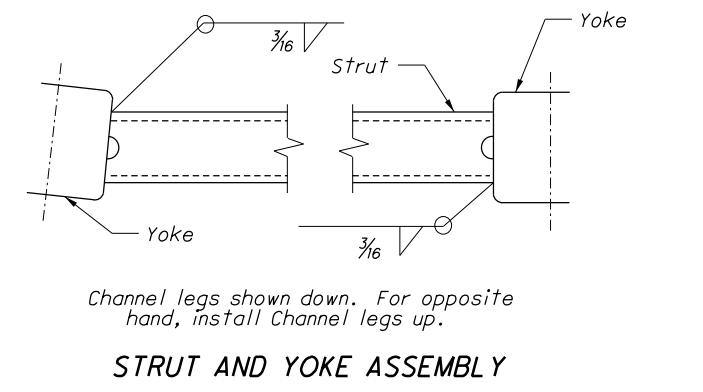
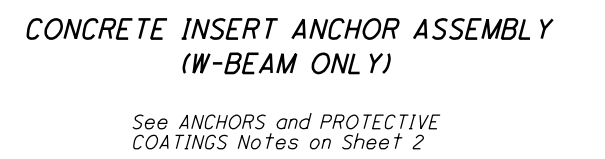
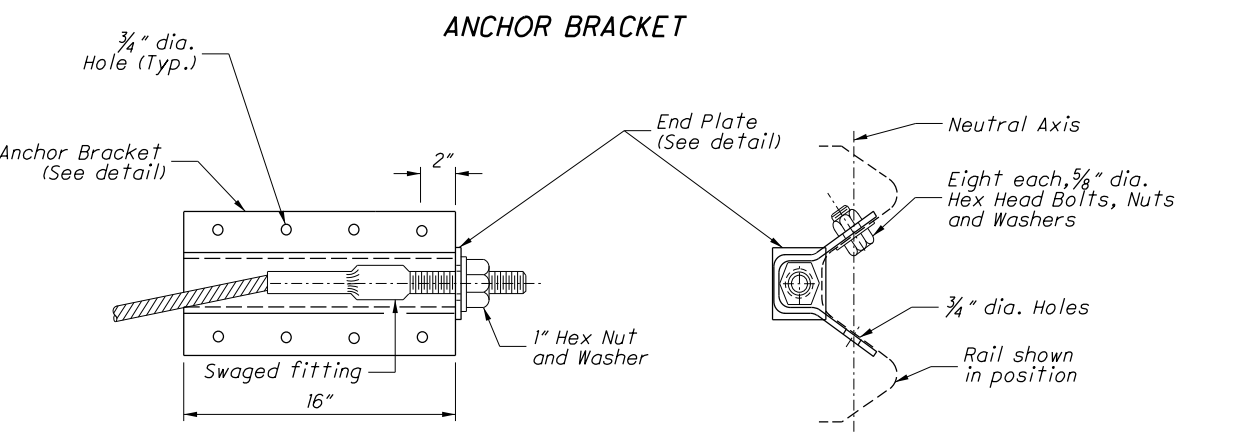
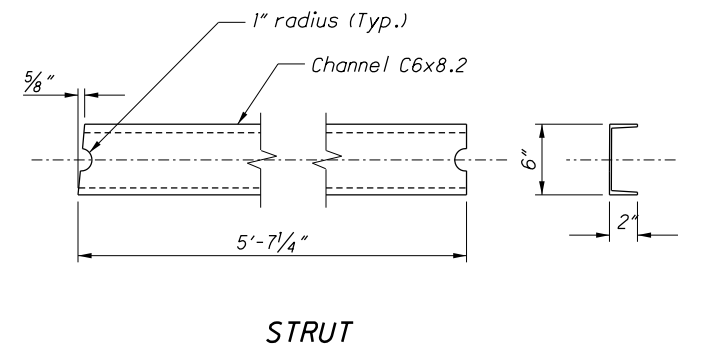
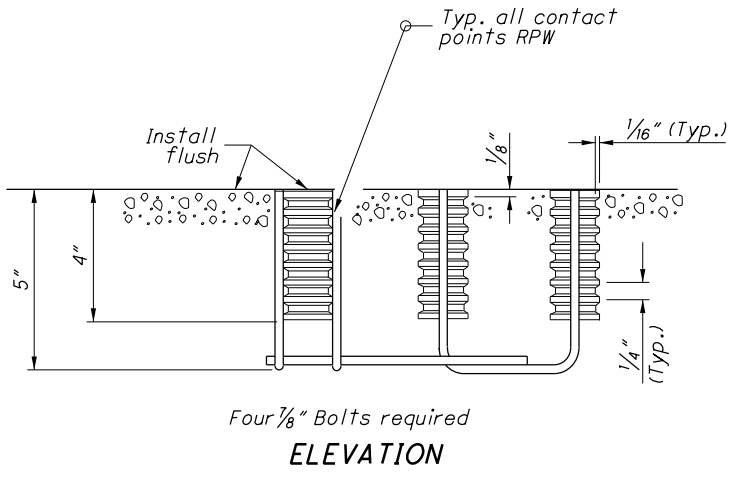
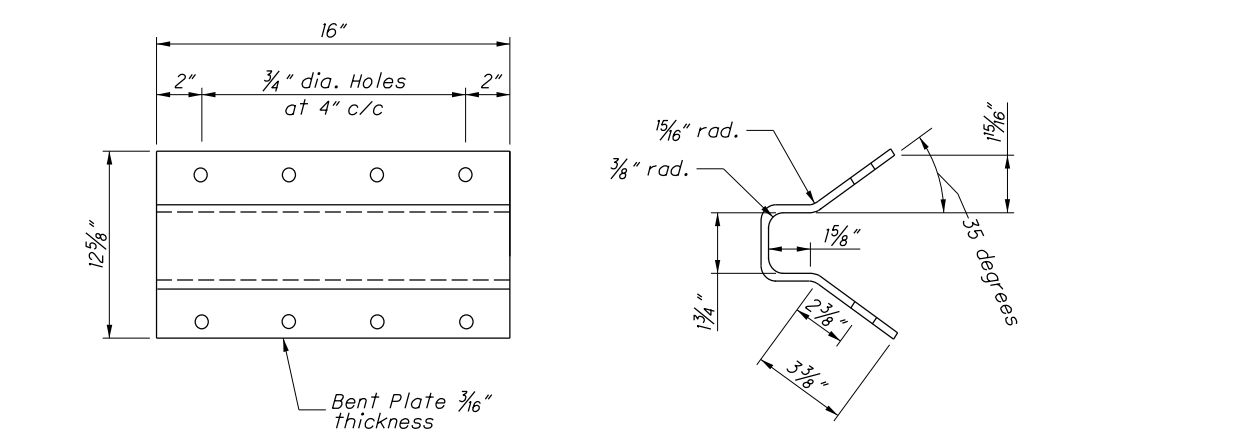
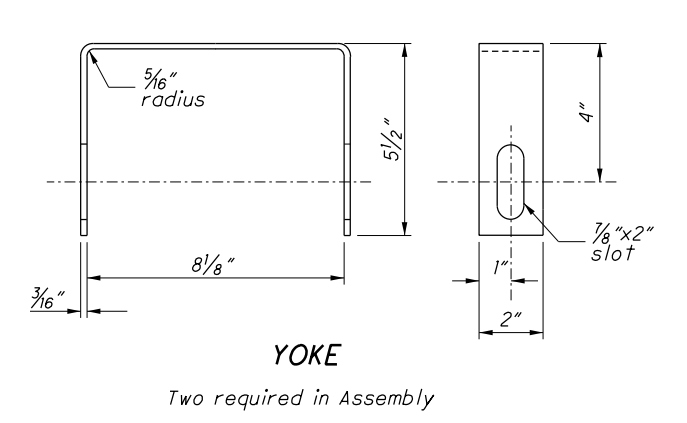
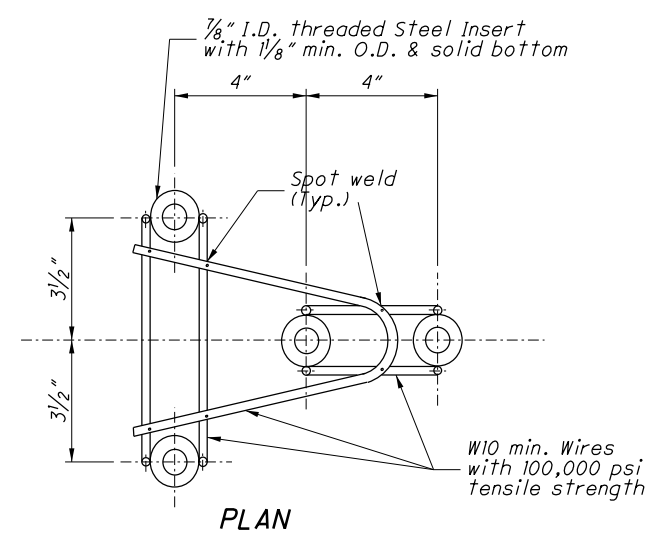
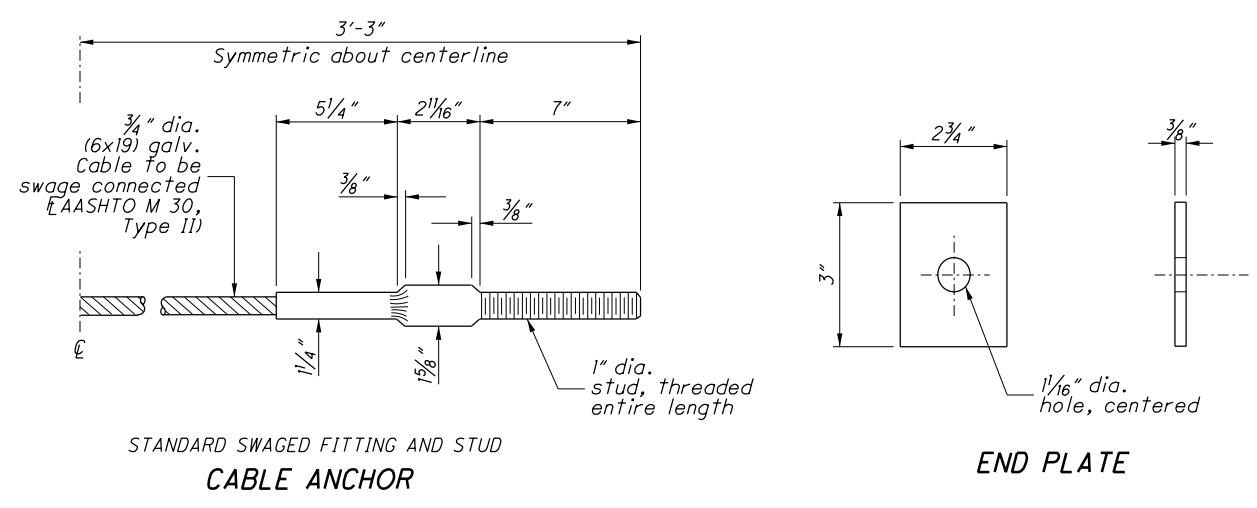
SECTION A-A



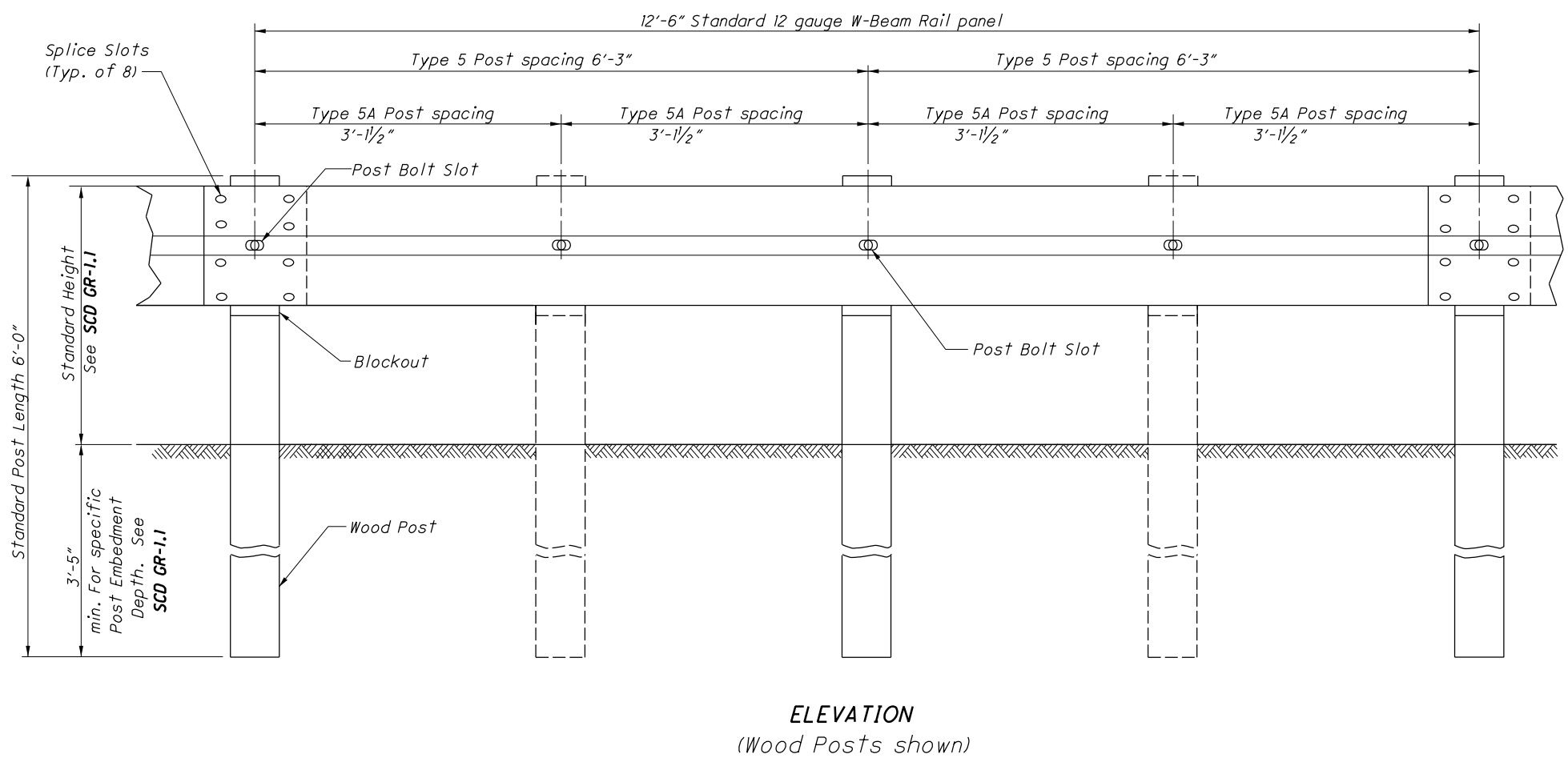
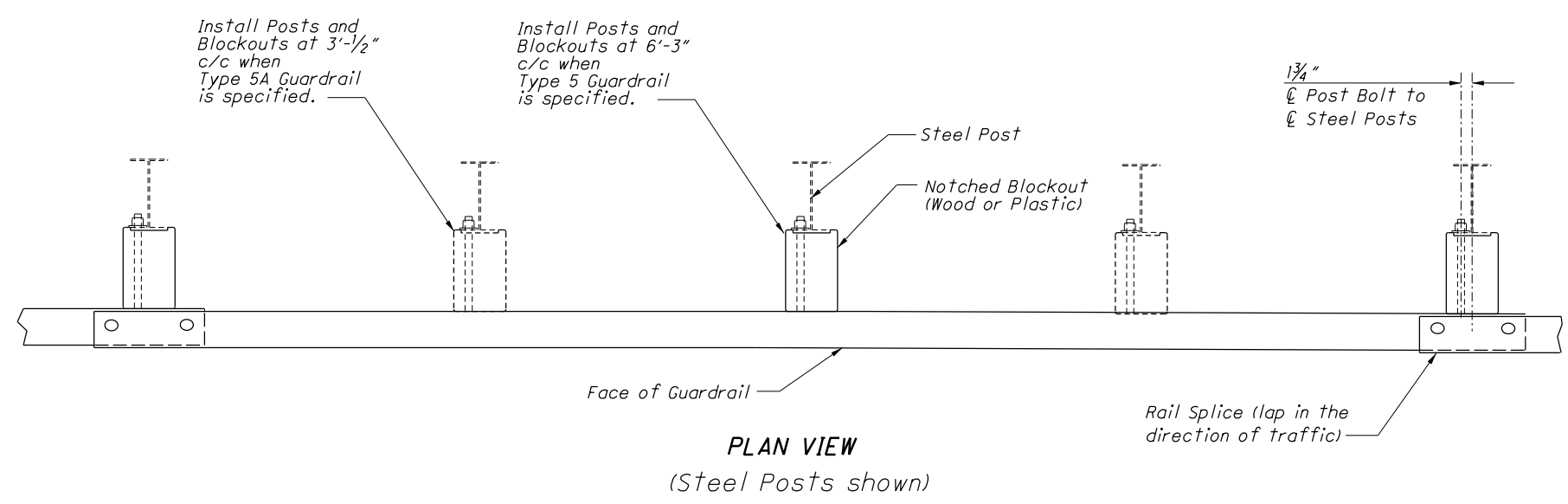
ELEVATION FOOTING ANCHOR

See SPECIAL POST MOUNTINGS Note.

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NOTES

RAIL: Use W-Beam rail meeting AASHTO M 180 Type II Class A, as specified in CMS 606.

POSTS: Posts may be constructed of wood or steel. Wood posts may be round or 6"x8" square-sawed.

Use round wood posts on runs of single-sided rail. The round posts shall be 8"±1 in diameter at the top and not more than 3" larger at the butt with a uniform taper.

Fabricated wood posts with square ends. Posts shall be pressure-treated as per CMS 710.14. Bore bolt holes and, if required, trim the tops of posts after the posts are set.

Steel posts are to be W6x9 or W6x8.5 galvanized steel. Use the same type of post throughout the length of the project unless otherwise specified in the plans or permitted by the Engineer.

All posts are 6'-0" long unless specified otherwise in the Contract Document. Posts may be set in drilled holes or may be driven to grade.

WELDED BEAM POSTS: Welded beam guardrail posts may be used for Item 606, Guardrail, provided the web and flange sizes are as shown here. Welding of the web to the flanges must comply with ASTM A 769, Class 1, using Grade 36 steel [250 MPa yield point] with the following exceptions:

- Sec. 7.2 Test reports of tensile properties for each lot shall accompany each shipment.
- Sec. 12 Beams that have imperfections repaired by welding shall not be accepted for use in Item 606.
- Sec. 13 Random samples shall be tested by the Department from materials delivered to the project site, or other locations designated by the Laboratory.

ALTERNATE POSTS: Engineered guardrail posts having met NCHRP 350 criteria, and listed on the **Office of Materials Management's** Approved List are permitted as an equal alternate when installed according to the Manufacturer's instructions and within the limitations shown on the Approved List.

BLOCKOUTS: Blockout dimensions are dependent on post used. Wood Blockouts are to be pressure treated as specified in CMS 710.14. Bore bolt holes. Approved alternate blockouts may be used in lieu of the wood blockouts shown. The approved list is maintained by the **Office of Roadway Engineering**.

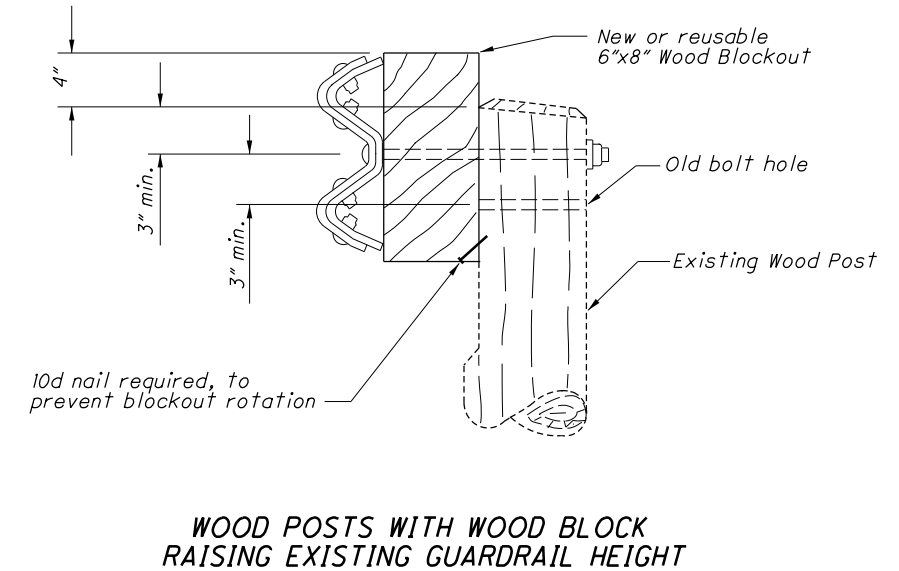
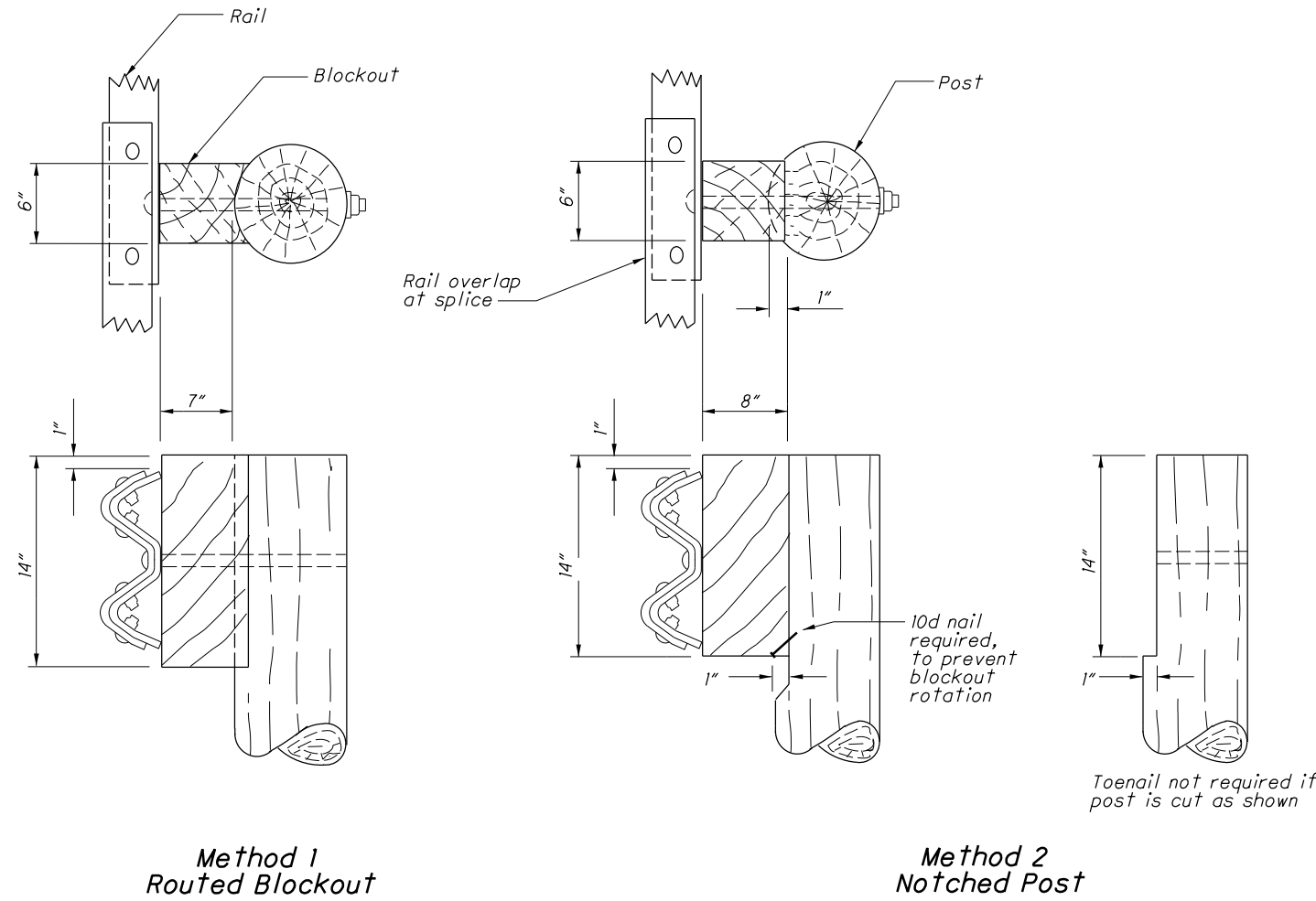
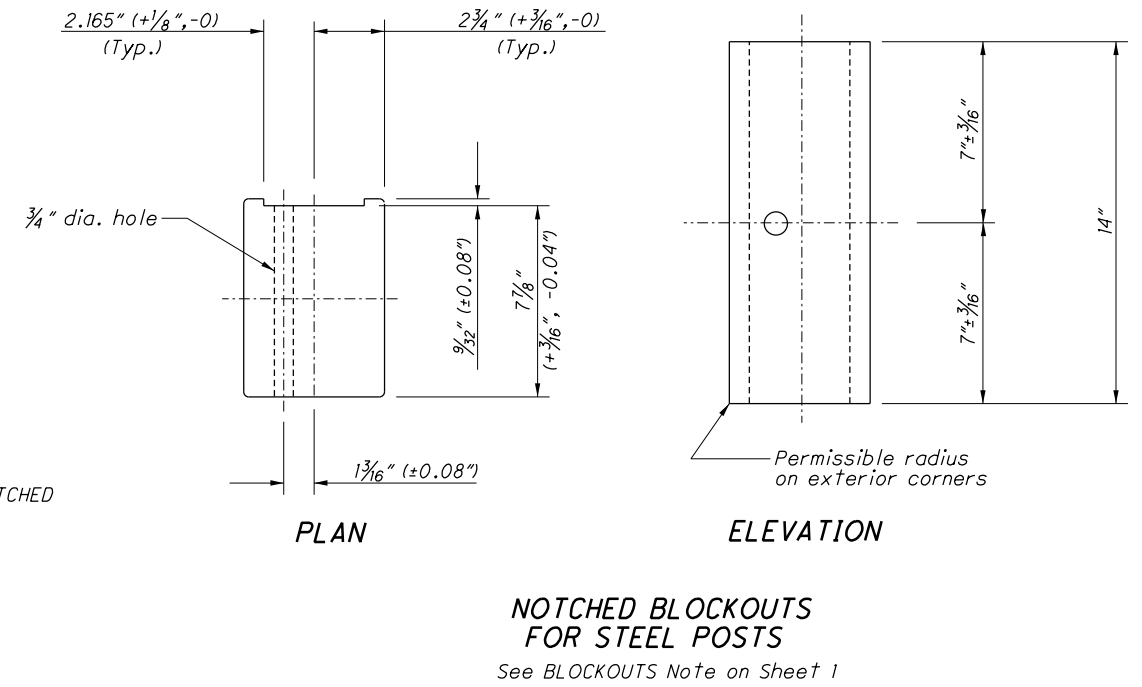
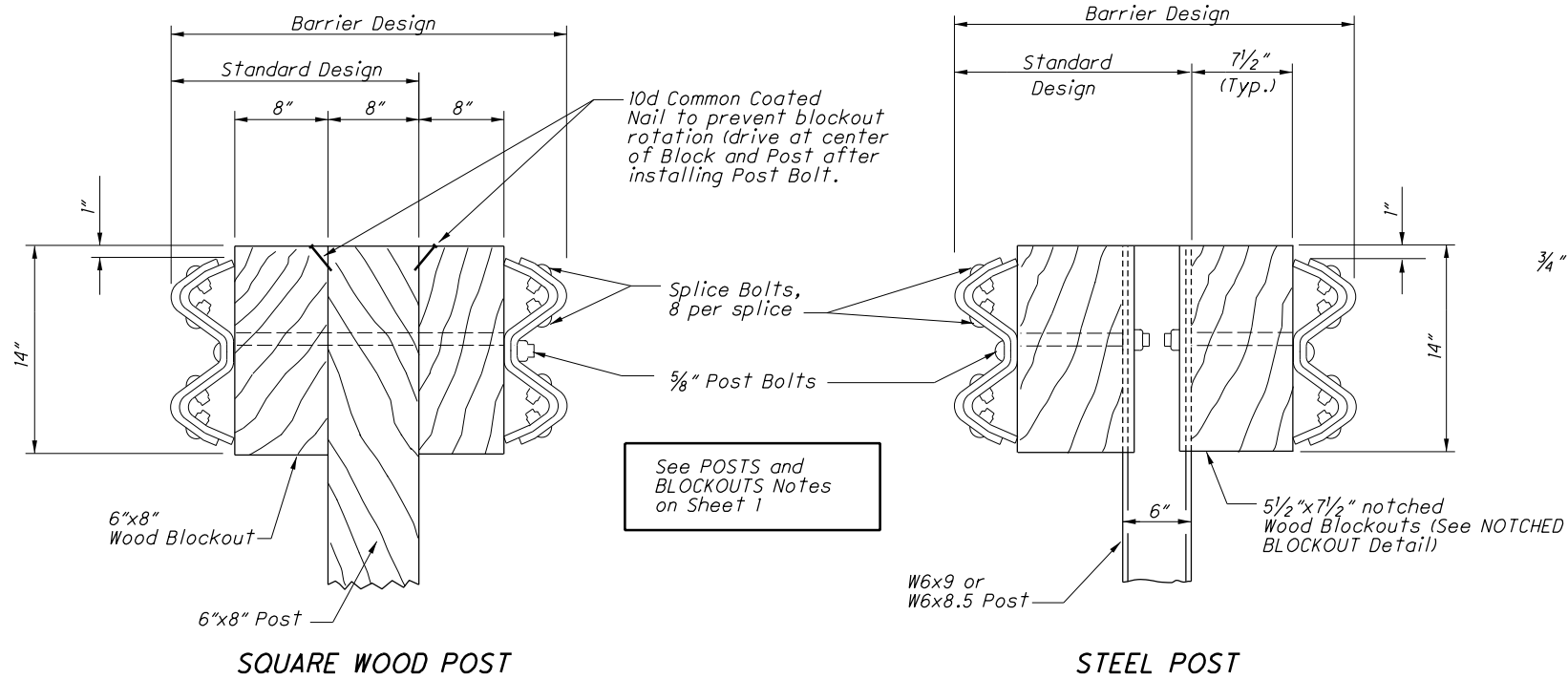
WASHERS: Install appropriate sized standard galvanized steel washers on the nut side of bolts installed on wood posts.

DELINEATION: For barrier reflectors, see CMS 626.

MISCELLANEOUS: For other guardrail details, see SCD GR-1.1.

STEEL BEAM POSTS (English)				
Size	Beam depth	Flange width	Flange thickness	Web thickness
Rolled W6x8.5	5.8"	3.94"	0.193"	0.170"
Rolled W6x9	5.9"	3.94"	0.215"	0.170"
Welded 6x8.5	6.0"	3.94"	0.193"	0.170"
Welded 6x9	6.0"	3.94"	0.215"	0.170"

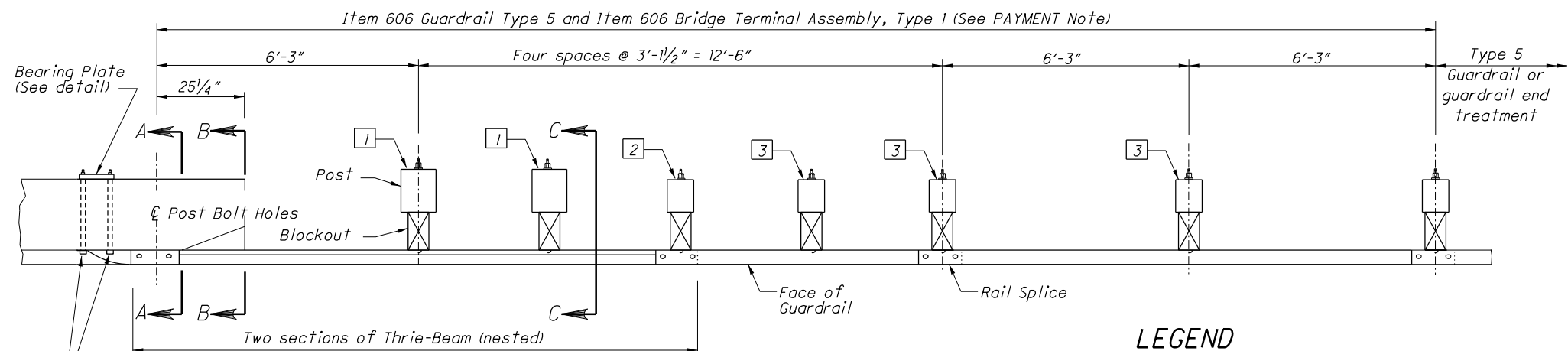
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Alternate methods of placing the Blockouts on round Posts may be submitted for consideration and approved by the Engineer.

ROUND WOOD POSTS
 Single Sided runs only (Standard Design)

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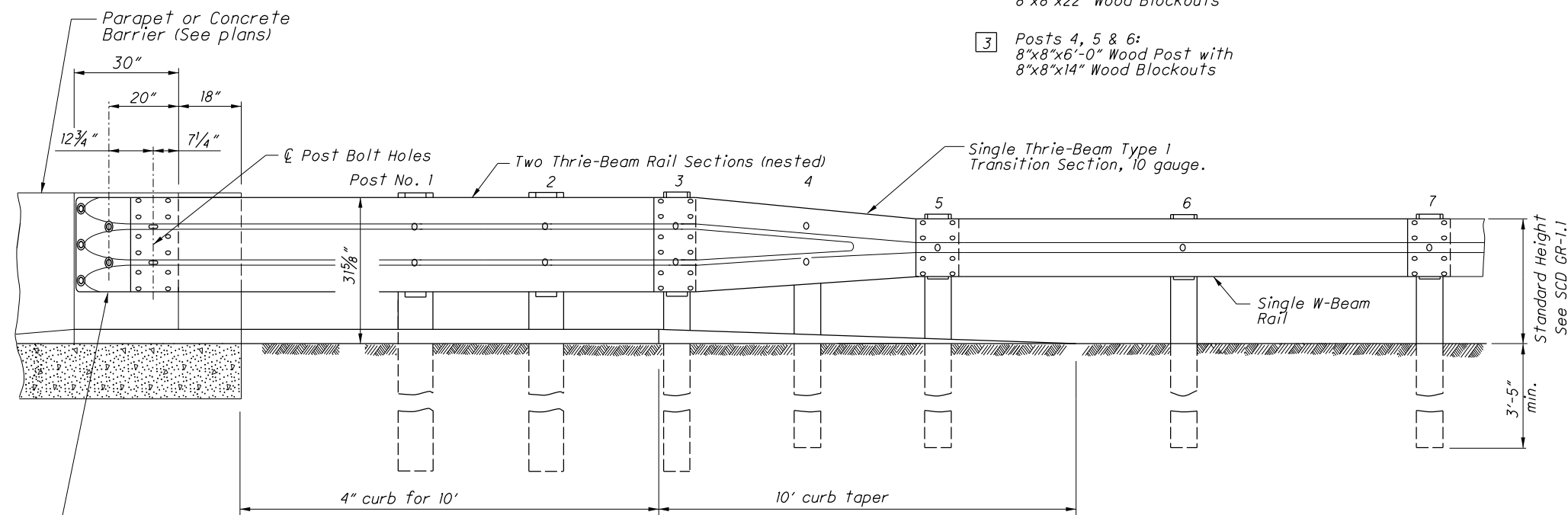


PLAN

1/8" dia. ASTM A 325 through bolts (length to be determined in field in accordance with Parapet width) into Bearing Plate with standard washers and hex nuts.

LEGEND

- 1 Posts 1 & 2:
10"x10"x8'-0" Wood Post with
8"x8"x22" Wood Blockouts
- 2 Post 3:
8"x8"x8'-0" Wood Post with
8"x8"x22" Wood Blockouts
- 3 Posts 4, 5 & 6:
8"x8"x6'-0" Wood Post with
8"x8"x14" Wood Blockouts



ELEVATION

NOTES

GENERAL: For additional details, see SCD GR-1.1.

APPLICATION: Use Type 1 Bridge Terminal Assembly to connect guardrail runs to bridges having deflector Parapet Type Bridge Railing (see **Structural Engineering's SCD BR-II**). It may also be used to connect guardrail runs to the approach ends of Concrete Barrier (see **SCD RM-4.6**).

On undivided, bi-directional roadways, Type 1's may be used to anchor guardrail runs to the trailing end of Deflector Parapets or Concrete Barrier installations.

THRIE BEAM TRANSITION: Symmetrical W-Beam to Thrie Beam transition panel shall be 10 gauge.

POSTS: Posts may be set in drilled holes or driven to grade. See SCD GR-1.1 for additional Post embedment details.

WOOD POSTS - Use square sawed pressure treated wood as per CMS 710.14 and fabricate with square ends. Bore bolt holes and trim the tops of posts, if required, after the posts are set.

STEEL POSTS - are allowed as an alternate. Use W8x24 for 10"x10" wood posts and use W6x25 for 8"x8" posts. Use same post material throughout assembly.

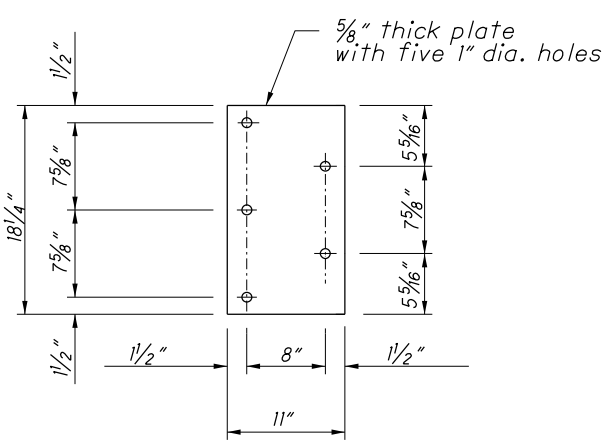
BLOCKOUTS: Use wood blockouts only, steel or plastic blockouts are not permitted. Use notched blockouts with steel posts.

CURB: Provide a Type 4A or 4C concrete curb minimum of 20', or longer as shown on plans, including a 10' taper (from curb height to flush). Front of curb to be flush with face of guardrail.

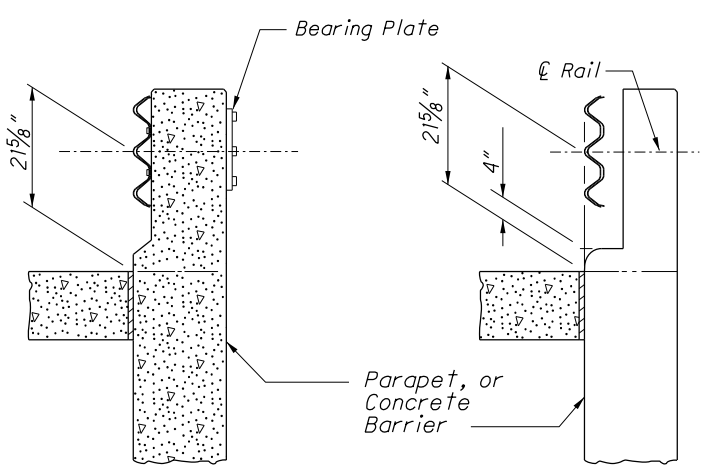
FLARED GUARDRAIL: Begin Standard Guardrail Flares as shown on SCD GR-5.1 preferably at or beyond Post No. 7; however, the flare may begin at Post No. 5.

PAYMENT: Item 606 - Bridge Terminal Assembly, Type 1, Each, includes the cost of extra components, in excess of normal guardrail, for additional and different size of posts and blockouts, nested Thrie-Beam, transition and connector sections, Bearing Plate, bolts, washers, nuts, and other hardware.

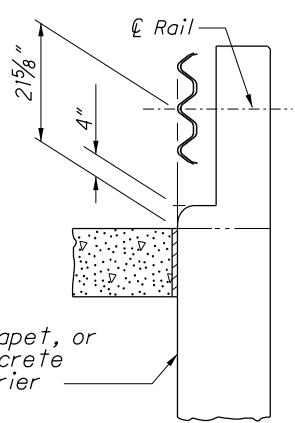
The curb is required in this design, and is paid separately under Item 609 - Curb, Type 4A (or 4C), per Foot, for the curb and taper sections, including materials, forming and labor needed to construct as shown.



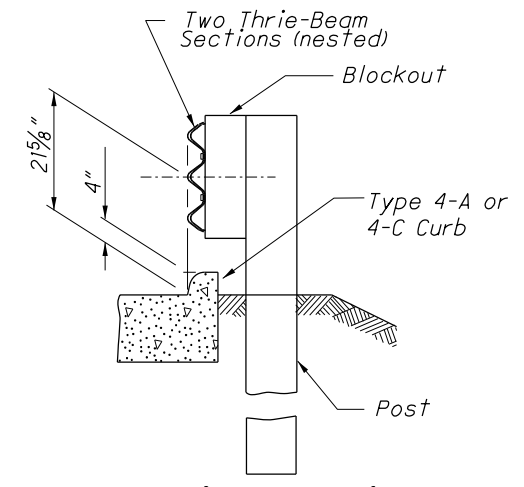
BEARING PLATE



SECTION A-A



SECTION B-B



SECTION C-C

Front of curb to be flush with face of guardrail.