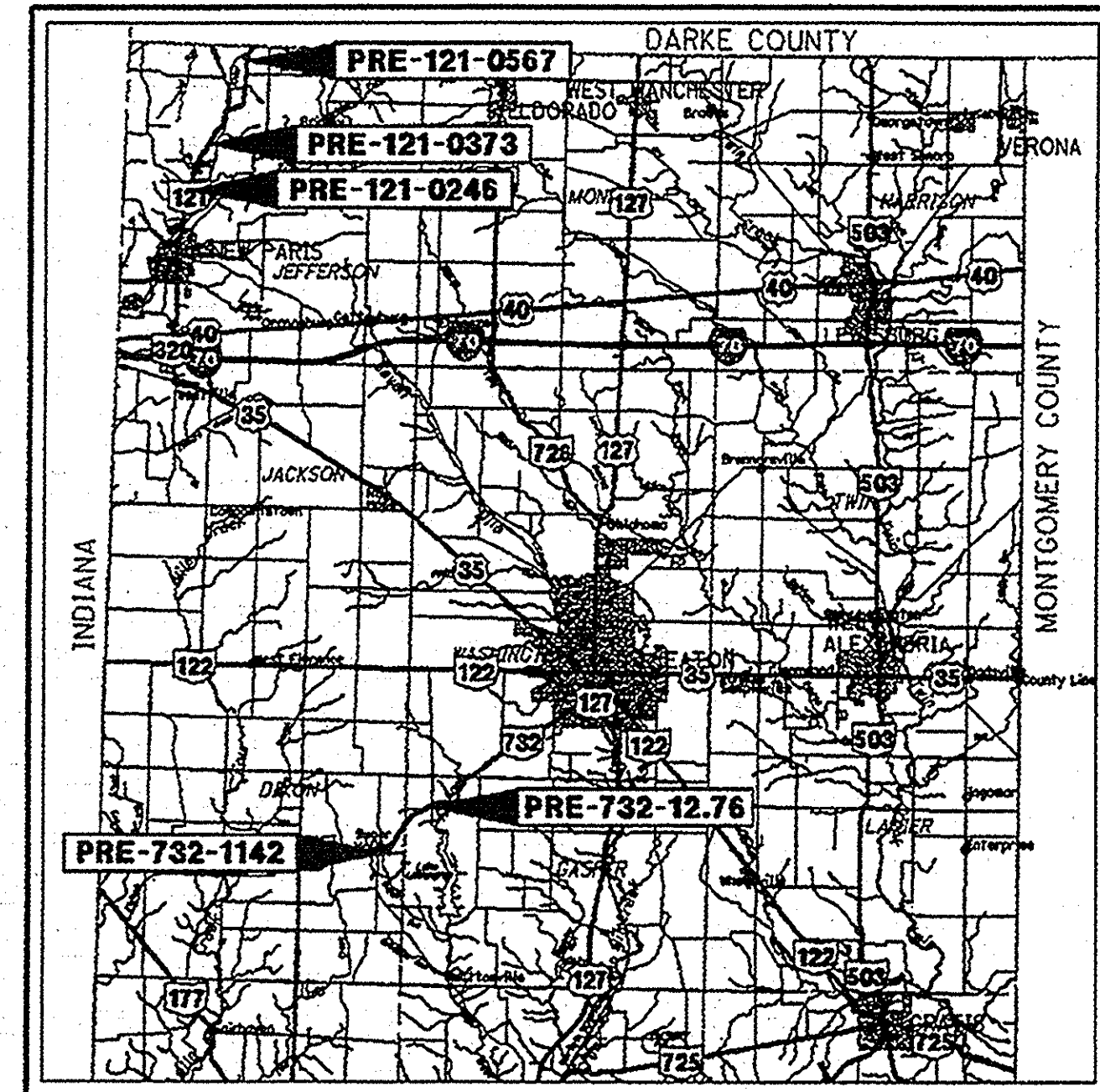


STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
PRE-CULVERTS-FY2014
DIXON, GASPER, AND
JEFFERSON TOWNSHIPS
PREBLE COUNTY



LOCATION MAP
LATITUDE: 39°48'51" LONGITUDE: 84°44'58"
SCALE IN MILES

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

DESIGN DESIGNATION	S.R. 121			S.R. 732
LOCATION	2.46	3.73	5.67	11.42/12.76
CURRENT ADT (2014)	2,100	2,200	1,500	5,300
DESIGN YEAR ADT (2034)	2,500	2,700	1,600	6,900
DESIGN HOURLY VOLUME (2034)	275	297	176	690
DIRECTIONAL DISTRIBUTION	55%	55%	55%	55%
TRUCKS (24 HOUR B&C)	6.5%	6.5%	7.1%	1.7%
DESIGN SPEED	60	60	60	60
LEGAL SPEED	55	55	55	55
DESIGN FUNCTIONAL CLASSIFICATION	RURAL MAJOR COLLECTOR			
NHS PROJECT	NO	NO	NO	NO

DESIGN EXCEPTIONS	LOCATION:	DESIGN FEATURE	APPROVAL DATE	SHEET NUMBER
PRE-121-2.46:		STOPPING SIGHT DISTANCE	2/23/11	8
		SUPERELEVATION	2/23/11	8
PRE-121-5.67:		STOPPING SIGHT DISTANCE	2/23/11	25
PRE-732-11.42:		STOPPING SIGHT DISTANCE	2/23/11	33
		SUPERELEVATION	2/23/11	33
PRE-732-12.76:		LANE WIDTH	2/23/11	2
		HORIZONTAL ALIGNMENT	2/23/11	38
		STOPPING SIGHT DISTANCE	2/23/11	38
		SUPERELEVATION	2/23/11	38

UNDERGROUND UTILITIES
CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG
CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY
OIL & GAS PRODUCERS PROTECTIVE
SERVICE CALL: 1-800-925-0988

PLAN PREPARED BY:
OHIO DEPARTMENT OF
TRANSPORTATION
DISTRICT 8 - PRODUCTION

ENGINEERS SEAL:

SIGNED: *Tami R. Brehm*
DATE: 9-24-2013

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PRE-121-0373	
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STANDARD CONSTRUCTION DRAWINGS				SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS
CB-1.1	1/18/13	TC-61.30	4/20/12	800-2013 10/18/13	WATERWAY PERMIT CONDITIONS
HW-1.1	1/18/13	TC-65.10	4/20/12	832 10/18/13	
		TC-65.11	4/20/12	837 1/20/12	
		TC-73.10	4/20/12	878 4/19/13	9/4/2012
DM-1.1	1/18/13	MT-97.10	7/20/12		
DM-4.3	7/19/13	MT-101.60	7/20/12		
DM-4.4	7/20/12	MT-101.90	10/19/12		
		MT-105.10	7/20/12		

PROJECT DESCRIPTION

REPLACEMENT/REHABILITATION OF FIVE CULVERTS, PRE-121-0246, PRE-121-0373, PRE-121-0567, PRE-732-1142, AND PRE-732-1276, IN PREBLE COUNTY.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA: * ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: * ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: * ACRES
* SEE INDIVIDUAL PLAN AND DETAIL SHEETS

2013 SPECIFICATIONS

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

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY EXCEPT AS NOTED ON SHEETS 4 AND 5, AND THAT DETOURS WILL BE PROVIDED AS INDICATED ON THE PLANS.

APPROVED *Steve Mann*
DATE 9/25/13 DISTRICT DEPUTY DIRECTOR

APPROVED *[Signature]*
DATE 11-1-13 DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO.
E130 (803)

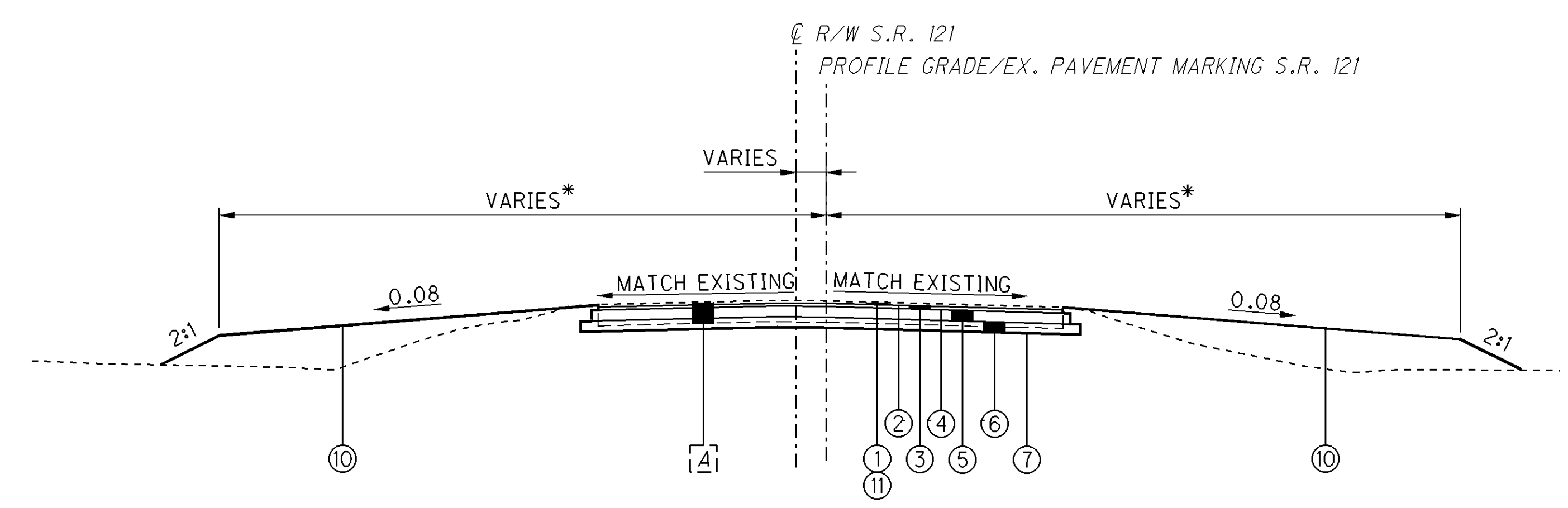
PID NO.
86136

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT
NONE

PRE-CULVERTS - FY2014

PRE - VA-CULVERTS-FY2014
 14005 PID - 86136
 Dist 8 1/23/2014
 Contract Proposal Available @ www.contracts.dot.state.oh.us/home
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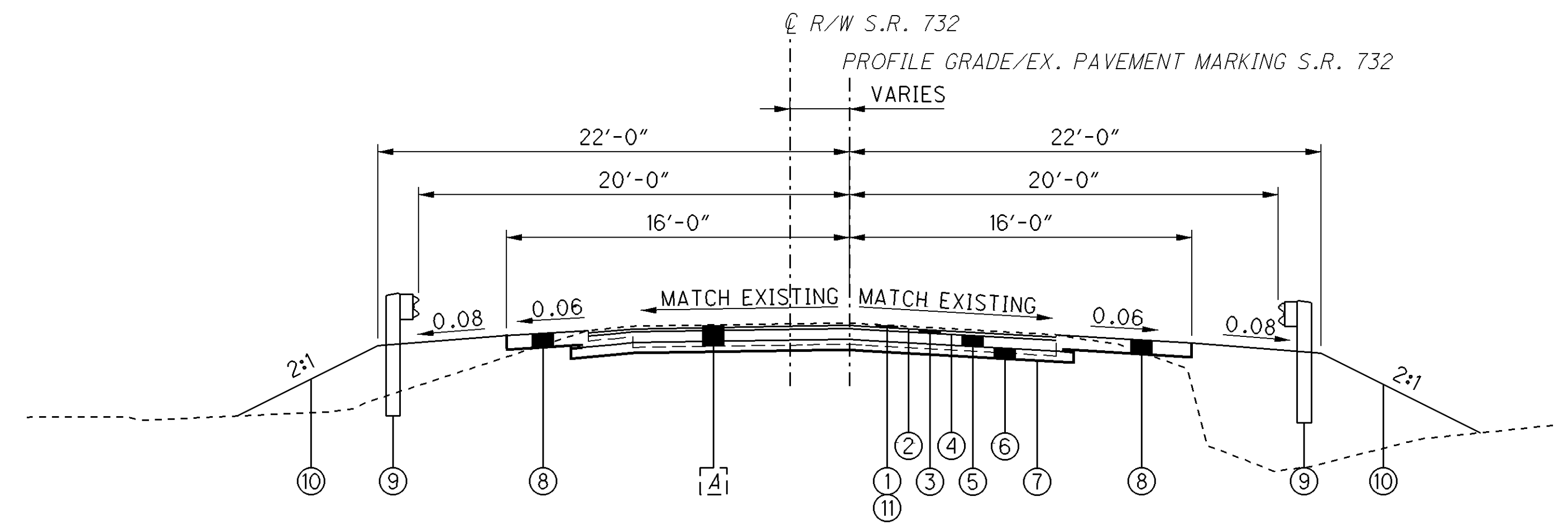


PLANING AND RESURFACING ①②⑪
STA. 129+71.50 TO STA. 129+81
STA. 130+12 TO STA. 130+21.50

FULL DEPTH PAVEMENT ①②③④⑤⑥⑦
STA. 129+81 TO STA. 130+12

SHOULDER WORK ⑩
STA. 128+50 TO STA. 131+24

PRE-121-2.46

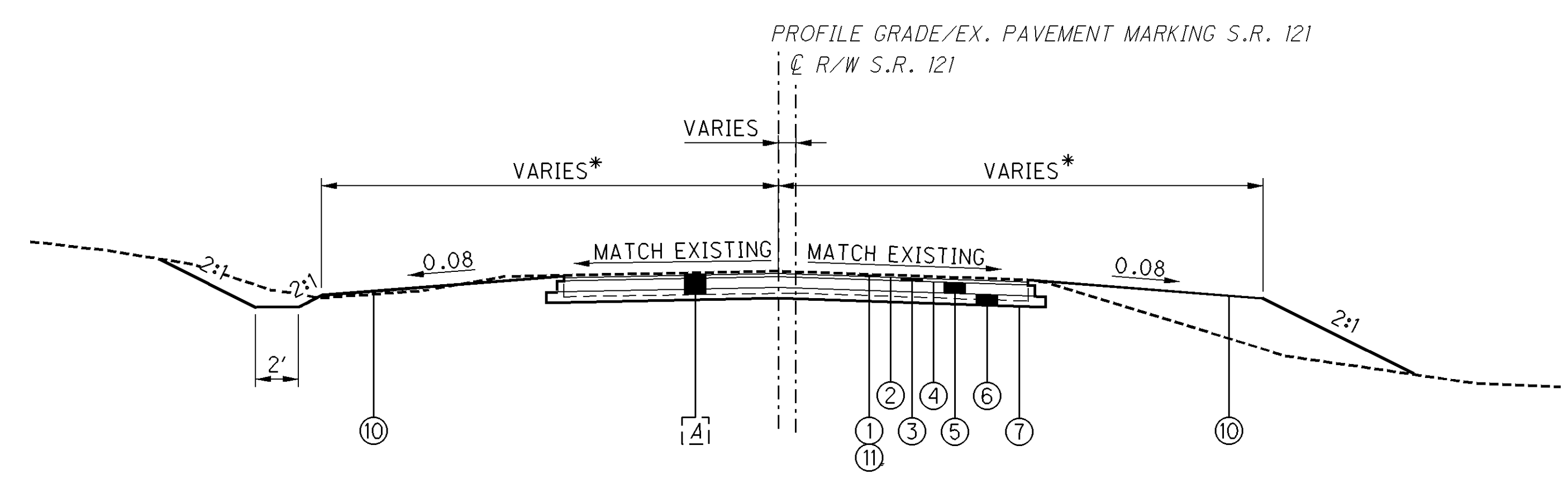


PLANING AND RESURFACING ①②⑪
STA. 602+70 TO STA. 602+83
STA. 603+13 TO STA. 603+25

FULL DEPTH PAVEMENT ①②③④⑤⑥⑦
STA. 602+83 TO STA. 603+13

SHOULDER WORK ⑧⑨⑩
STA. 601+21 TO STA. 604+75

PRE-732-11.42

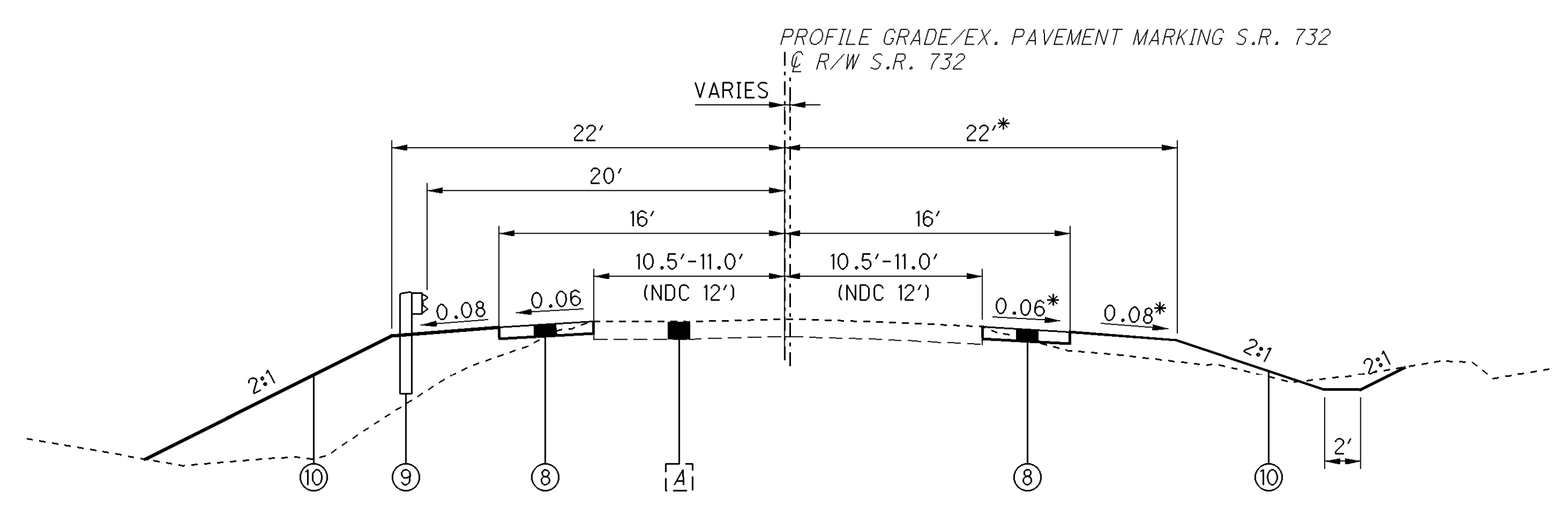


PLANING AND RESURFACING ①②⑪
STA. 196+69 TO STA. 196+81
STA. 197+07 TO STA. 197+19

FULL DEPTH PAVEMENT ①②③④⑤⑥⑦
STA. 196+81 TO STA. 197+07

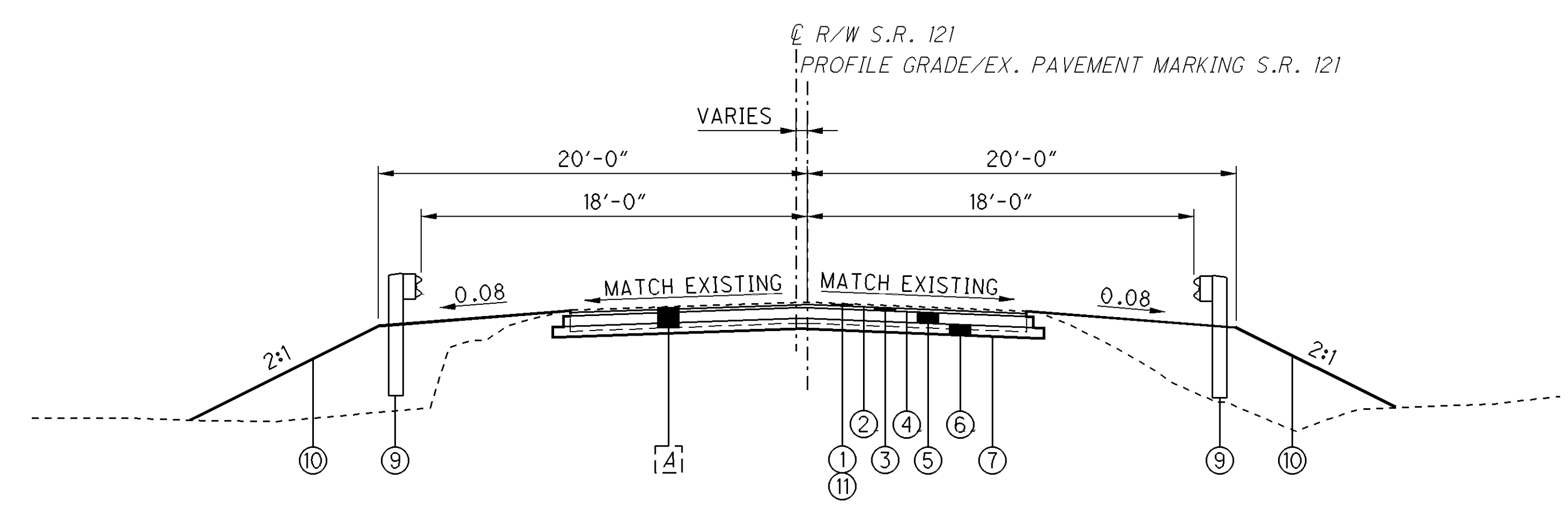
SHOULDER WORK ⑩
STA. 195+50 TO STA. 198+50

PRE-121-3.73



SHOULDER WORK ⑧⑨⑩
STA. 671+50 TO STA. 677+50

PRE-732-12.76



PLANING AND RESURFACING ①②⑪
STA. 299+17 TO STA. 299+28
STA. 299+56 TO STA. 299+67

FULL DEPTH PAVEMENT ①②③④⑤⑥⑦
STA. 299+28 TO STA. 299+56

SHOULDER WORK ⑨⑩
STA. 297+16 TO STA. 301+97

PRE-121-5.67

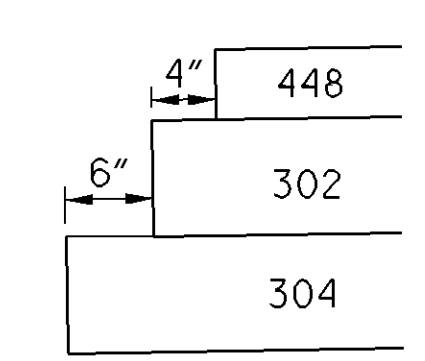
LEGEND:

- ① ITEM 448 - 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22
- ② ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE
- ③ ITEM 448 - 1.75" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22
- ④ ITEM 407 - TACK COAT
- ⑤ ITEM 301 - 6" ASPHALT CONCRETE BASE, PG64-22
- ⑥ ITEM 304 - 6" AGGREGATE BASE (VARIABLE DEPTH OVER CULVERTS PRE-121-0337/PRE-732-0567)
- ⑦ ITEM 204 - SUBGRADE COMPACTION
- ⑧ ITEM 411 - 8" STABILIZED CRUSHED AGGREGATE
- ⑨ ITEM 606 - GUARDRAIL, TYPE 5
- ⑩ ITEM 659 - SEEDING AND MULCHING
- ⑪ ITEM 254 - 1.25" PAVEMENT PLANING, ASPHALT CONCRETE

④ EXISTING PAVEMENT

NOTE:

DIMENSIONS ARE MEASURED FROM PAINTED CENTER LINE.



BASE STEP DETAIL
(NTS)

*REFER TO PLAN VIEW AND CROSS SECTIONS

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CONSTRUCTION NOTIFICATION

THE CONTRACTOR WILL ADVISE THE PROJECT ENGINEER A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE FOLLOWING: THE START OF CONSTRUCTION ACTIVITIES, LANE RESTRICTIONS, LANE CLOSURES, AND OR ROAD CLOSURES. THE PROJECT ENGINEER WILL FORWARD THIS INFORMATION TO THE FOLLOWING:

DISTRICT PUBLIC INFORMATION OFFICER (PIO) BY FAX AT (513) 933-9472 OR EMAIL AT SHARON.SMIGIELSKI@DOT.STATE.OH.US

DISTRICT PERMIT SECTION BY FAX AT (513) 933-9472 OR EMAIL AT TOM.MAKRIS@DOT.STATE.OH.US;

CENTRAL OFFICE SPECIAL HAUL PERMITS SECTION BY FAX AT (614) 728-4099 OR EMAIL AT HAULING.PERMITS@DOT.STATE.OH.US

THE PIO WILL, IN TURN, NOTIFY THE PUBLIC, THE LOCAL EMERGENCY SERVICES, AFFECTED SCHOOLS AND BUSINESSES, AND ANY OTHER IMPACTED LOCAL PUBLIC AGENCY OF ANY OF THE ABOVE MENTIONED ITEMS, VIA MEDIA SOURCES.

THE CONTRACTOR WILL NOTIFY DWIGHT RIEGEL (937-437-4221) A MINIMUM OF SEVEN (7) DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES AT PRE-121-0373 SO THAT HE CAN REMOVE THE 36" CORRUGATED METAL PIPE LOCATED IN THE STREAM AT THE OUTLET END OF MAIN STRUCTURE.

UTILITIES

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

CENTURYLINK - TELEPHONE 803 E. 12TH STREET GREENVILLE, OHIO 45331 (937) 547-4255 - DAVE KAPLAN	TIME WARNER (DAYTON) 3691 TURNER ROAD DAYTON, OHIO 45415 (937) 425-8850 - TIM KUSS
---	---

DAYTON POWER AND LIGHT - ELECTRIC 1900 DRYDEN ROAD DAYTON, OHIO 45439 (937) 331-4132 - JOHN KENTON	DARKE RURAL ELECTRIC P.O. BOX 278 GREENVILLE, OHIO 45331 (937) 548-4114 - BRUCE BURKE
---	--

GASPER TOWNSHIP FIRE DEPARTMENT
4195 PAINT CREEK ROAD
EATON, OHIO 45320
937-472-0100 (CAPT. JOSH HANEY)

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.

CLEARING AND GRUBBING

THE DEPARTMENT HAS NOT MARKED INDIVIDUAL TREES AND STUMPS FOR REMOVAL. UNLESS SPECIFICALLY DESIGNATED AS "DO NOT DISTURB" IN THE PLANS, REMOVE ALL TREES AND STUMPS WITHIN THE RIGHT OF WAY UNDER THE LUMP SUM BID FOR ITEM 201 CLEARING AND GRUBBING.

AT CULVERT LOCATION PRE-121-2.46, COMPLETE CLEARING AND GRUBBING OF ALL EXISTING AND PROPOSED RIGHT OF WAY BY MAY 1, 2014 DARKE RURAL ELECTRIC SHALL THEN HAVE UNTIL JUNE 1, 2014 TO COMPLETE THE TEMPORARY RELOCATION OF THE OVERHEAD ELECTRIC LINES. THE CONTRACTOR SHALL NOT SCHEDULE WORK AT THIS LOCATION DURING THIS TIME FRAME.

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.

ELEVATION DATUM

ALL ELEVATIONS ARE ORTHOMETRIC HEIGHTS USING THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AND THE GEOID03 GEOID. HORIZONTAL POSITIONS ARE BASED ON THE OHIO STATE PLANE SOUTH ZONE, A LAMBERT CONFORMAL CONIC MAP PROJECTION, THE NORTH AMERICAN DATUM OF 1983 ADJUSTED TO THE NATIONAL SPATIAL REFERENCE SYSTEM OF 2007 (NAD 83(NSRS 2007)), AND THE GRS80 ELLIPSOID.

FENCE LENGTHS

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

ITEM SPECIAL - MAILBOX REMOVED AND RESET

THE CONTRACTOR SHALL REMOVE THE EXISTING MAILBOX AND POST FOR STORAGE ON SITE. THE MAILBOX AND POST SHALL THEN BE RE-ERECTED AS DIRECTED BY THE ENGINEER IN ITS ORIGINAL LOCATION. CARE SHALL BE TAKEN AT ALL TIMES TO ENSURE THAT THE ITEMS ARE NOT DAMAGED AND THE RE-ERECTED MAILBOX SHALL BE STURDY AND WELL SET.

PAYMENT FOR THE ABOVE WORK SHALL BE INCLUDED IN THE BID FOR ITEM SPECIAL - MAILBOX REMOVED AND RESET.

ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF BULKHEADS IN AN EXISTING CONDUIT AND FILLING THE AREA THUS SEALED OFF WITH LEAN GROUT, ITEM 613, SAND OR OTHER MATERIAL APPROVED BY THE ENGINEER.

BULKHEADS SHALL BE LOCATED AT THE LIMITS OF THE AREA TO BE FILLED AS INDICATED ON THE PLANS. THE BULKHEADS SHALL CONSIST OF BRICK OR CONCRETE MASONRY WITH A MINIMUM THICKNESS OF 12 INCHES.

THE FILL MATERIAL SHALL BE PUMPED INTO PLACE, OR PLACED BY OTHER MEANS APPROVED BY THE ENGINEER, SO THAT, AFTER SETTLEMENT, AT LEAST 90 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CONDUIT, FOR ITS ENTIRE LENGTH, SHALL BE FILLED. THE LENGTH OF FILLED AND PLUGGED CONDUIT TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF FEET (MEASURED ALONG THE CENTERLINE OF EACH CONDUIT FROM OUTER FACE TO OUTER FACE OF BULKHEADS) FILLED AND PLUGGED AS DESCRIBED ABOVE.

IN LIEU OF FILLING AND PLUGGING THE EXISTING CONDUIT, THE PIPE MAY BE CRUSHED AND BACKFILLED IN ACCORDANCE WITH THE PROVISIONS OF 203, OR IT MAY BE REMOVED. THE LENGTH, MEASURED AS PROVIDED ABOVE, SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR, ITEM SPECIAL, FILL AND PLUG EXISTING CONDUIT.

FARM DRAINS

ALL FARM DRAINS, WHICH ARE ENCOUNTERED DURING CONSTRUCTION, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS. EXISTING COLLECTORS WHICH ARE LOCATED BELOW THE ROADWAY DITCH ELEVATIONS, AND WHICH CROSS THE ROADWAY, SHALL BE REPLACED WITHIN THE CONSTRUCTION LIMITS BY ITEM 611 CONDUIT, TYPE B, ONE COMMERCIAL SIZE LARGER THAN THE EXISTING CONDUIT.

EXISTING COLLECTORS AND ISOLATED FARM DRAINS, WHICH ARE ENCOUNTERED ABOVE THE ELEVATION OF ROADWAY DITCHES, SHALL BE OUTLETTED INTO THE ROADWAY DITCH BY 611 TYPE F CONDUIT. THE OPTIMUM OUTLET ELEVATION SHALL BE ONE FOOT ABOVE THE FLOWLINE ELEVATION OF THE DITCH. LATERAL FIELD TILES WHICH CROSS THE ROADWAY SHALL BE INTERCEPTED BY 611, TYPE E CONDUIT, AND CARRIED IN A LONGITUDINAL DIRECTION TO AN ADEQUATE OUTLET OR ROADWAY CROSSING.

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

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

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

ITEM 601 - ROCK CHANNEL PROTECTION TYPE C WITH FILTER	2 CU YD
ITEM 611 - 6" CONDUIT, TYPE E	30 FT
ITEM 611 - 6" CONDUIT, TYPE F	30 FT

PERMANENT PAVEMENT MARKINGS

THE CONTRACTOR SHALL REFERENCE ALL PAVEMENT MARKINGS INCLUDING AUXILIARY PAVEMENT MARKINGS BEFORE THE START OF THE RESURFACING OPERATION. THIS WILL BE NECESSARY TO ASSURE CORRECT PLACEMENT OF MARKINGS IN ORIGINAL LOCATIONS. FOR CENTER LINE MARKINGS, THE CONTRACTOR SHALL INSTALL THE PASSING/NO PASSING ZONE MARKINGS ACCORDING TO THE CURRENT CENTER LINE LOGS AVAILABLE AT THE TIME OF INSTALLATION. THE ENGINEER WILL PROVIDE THE CENTER LINE LOGS AT THE PRE-CONSTRUCTION MEETING. PAYMENT FOR THIS OPERATION SHALL BE INCLUDED WITH EACH RESPECTIVE PAVEMENT MARKING ITEM.

ITEM 606 - ANCHOR ASSEMBLY, TYPE E

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY OF THE GUARDRAIL END TERMINALS AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE UNDER ROADSIDE SAFETY DEVICES FOR APPROVED GUARDRAIL END TREATMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE FACE OF THE TYPE E IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19.

REFER TO THE MANUFACTURER'S INSTRUCTIONS REGARDING THE INSTALLATION OF, AND THE GRADING AROUND THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4 INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 29 INCHES FROM THE EDGE OF THE SHOULDER.

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

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

MONUMENT ASSEMBLIES

CONSTRUCT MONUMENT ASSEMBLIES IN ACCORDANCE WITH THE DETAILS SHOWN ON THE STANDARD CONSTRUCTION DRAWINGS AND AT THE LOCATIONS SHOWN ON SHEETS LISTED BELOW.

PROJECT LOCATION	SHEET NUMBER	QUANTITY
PRE-121-0246	48	3
PRE-121-0373	53	3
PRE-121-0567	58	3
PRE-732-1142	63	3
PRE-732-1276	68	3

A TOTAL QUANTITY OF 15 MONUMENT ASSEMBLIES HAS BEEN CARRIED TO THE GENERAL SUMMARY.

SEEDING AND MULCHING

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.

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

ITEM 659 - SEEDING AND MULCHING	8000 SQ YD
ITEM 659 - COMMERCIAL FERTILIZER	1.10 TON
ITEM 659 - LIME	1.65 ACRES
ITEM 659 - WATER	44 M GAL

ENVIRONMENTAL COMMITMENTS:

USACE REGIONAL GENERAL PERMIT - SECTION B AND C

ON 9-04-2012 ODOT OES WATERWAY PERMIT UNIT (WPU) DETERMINED THE PROJECT MEETS THE CONDITIONS OF AN ODOT REGIONAL GENERAL PERMIT (RGP), SECTIONS B (MAINTENANCE) AND SECTION C (TEMPORARY CONSTRUCTION, ACCESS, AND DEWATERING). A COPY OF THE PERMIT SHALL BE KEPT AT THE JOBSITE AT ALL TIMES AND MADE AVAILABLE UPON REQUEST. THE PERMIT IS VALID FROM 9-4-2012 UNTIL 10-24-2014. THIS PROJECT WILL NOT HAVE IN-STREAM WORK RESTRICTION DATES.

REQUIREMENTS FOR PROTECTION OF ENDANGERED SPECIES HABITAT - INDIANA BAT

THIS PROJECT FALLS WITHIN THE KNOWN RANGE OF THE FEDERALLY ENDANGERED INDIANA BAT, MYOTIS SODALIS. THE PROJECT AREA WAS SURVEYED BY ODOT DISTRICT 8 ENVIRONMENTAL STAFF AND WAS FOUND TO CONTAIN SEVEN (7) TREES THAT PROVIDE SUITABLE ROOST HABITAT FOR THE INDIANA BAT. THIS PROJECT WILL REQUIRE THE USE OF REVISED USEFS GUIDELINES OF TREE REMOVAL BETWEEN SEPTEMBER 30 AND APRIL 1. ALL TREE CLEARING IS TO BE COMPLETED BY APRIL 1. PRIOR TO THE BRIDGE REMOVAL THE UNDERSIDE OF THE BRIDGE IS TO 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 THE BRIDGE, PLEASE IMMEDIATELY CONTACT ODOT'S OFFICE OF ENVIRONMENTAL SERVICE TO PROVIDE THIS INFORMATION.

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NOTES

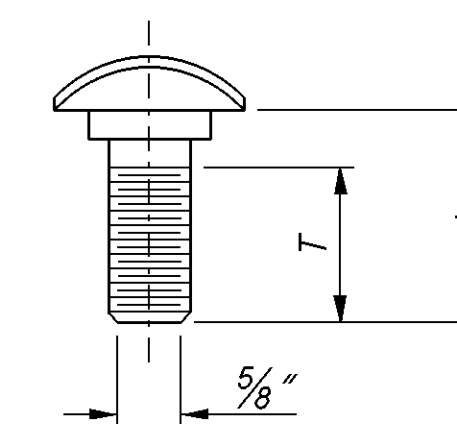
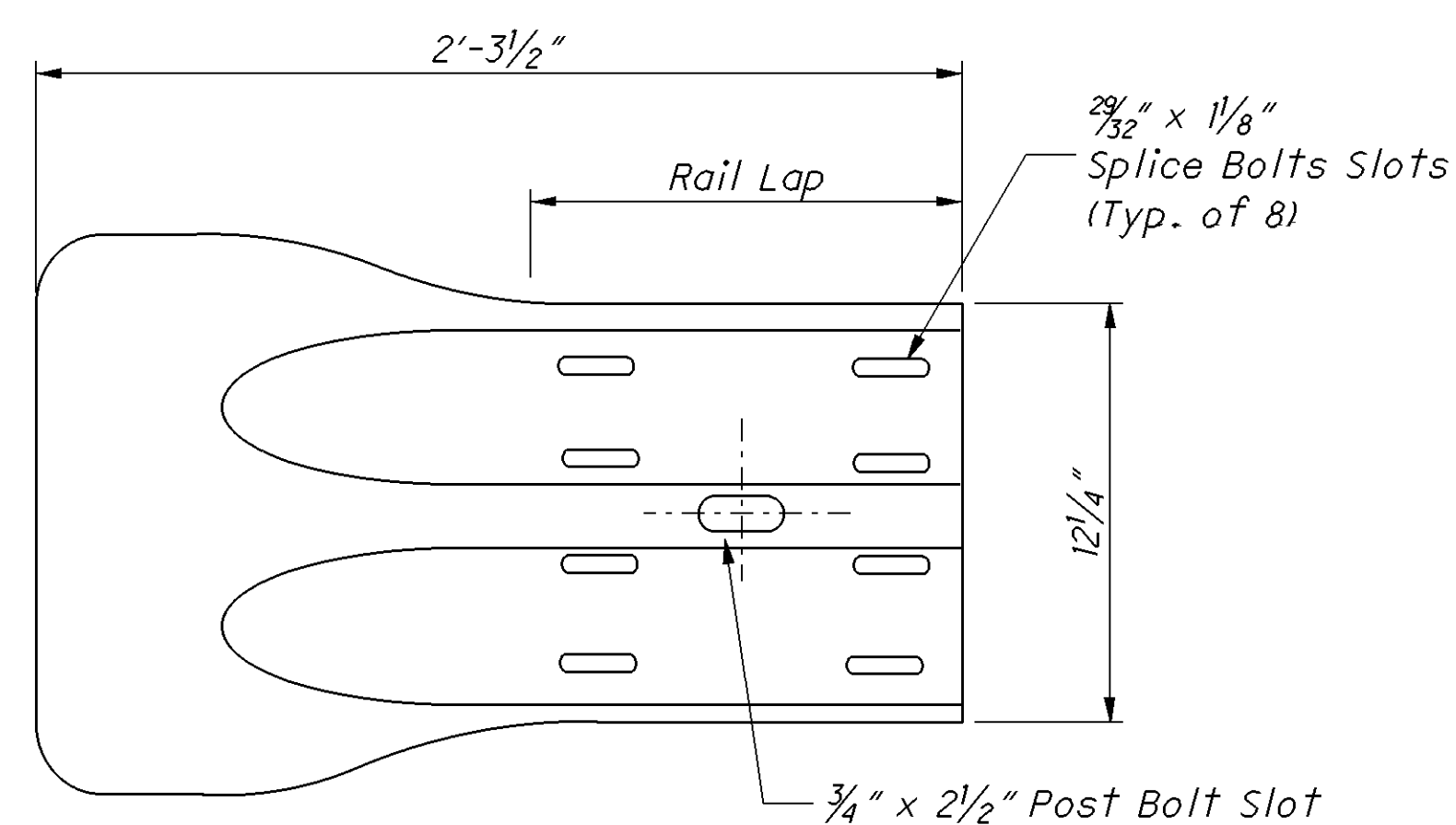
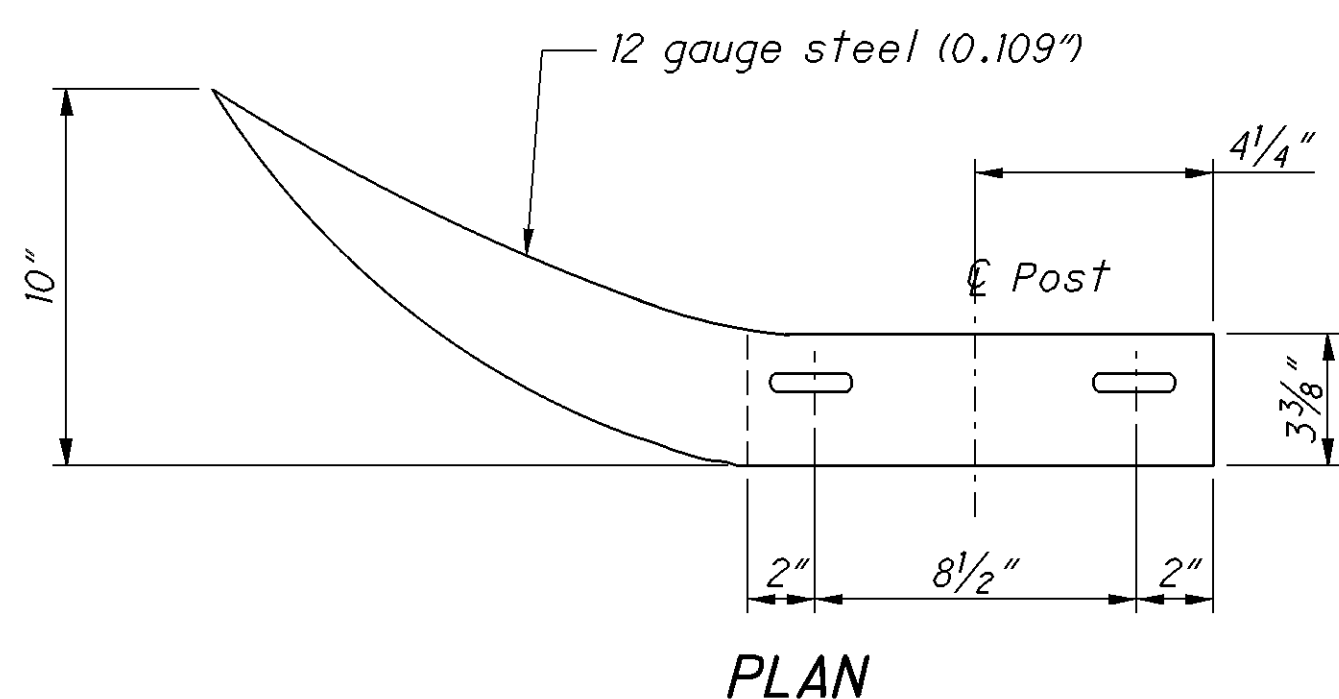
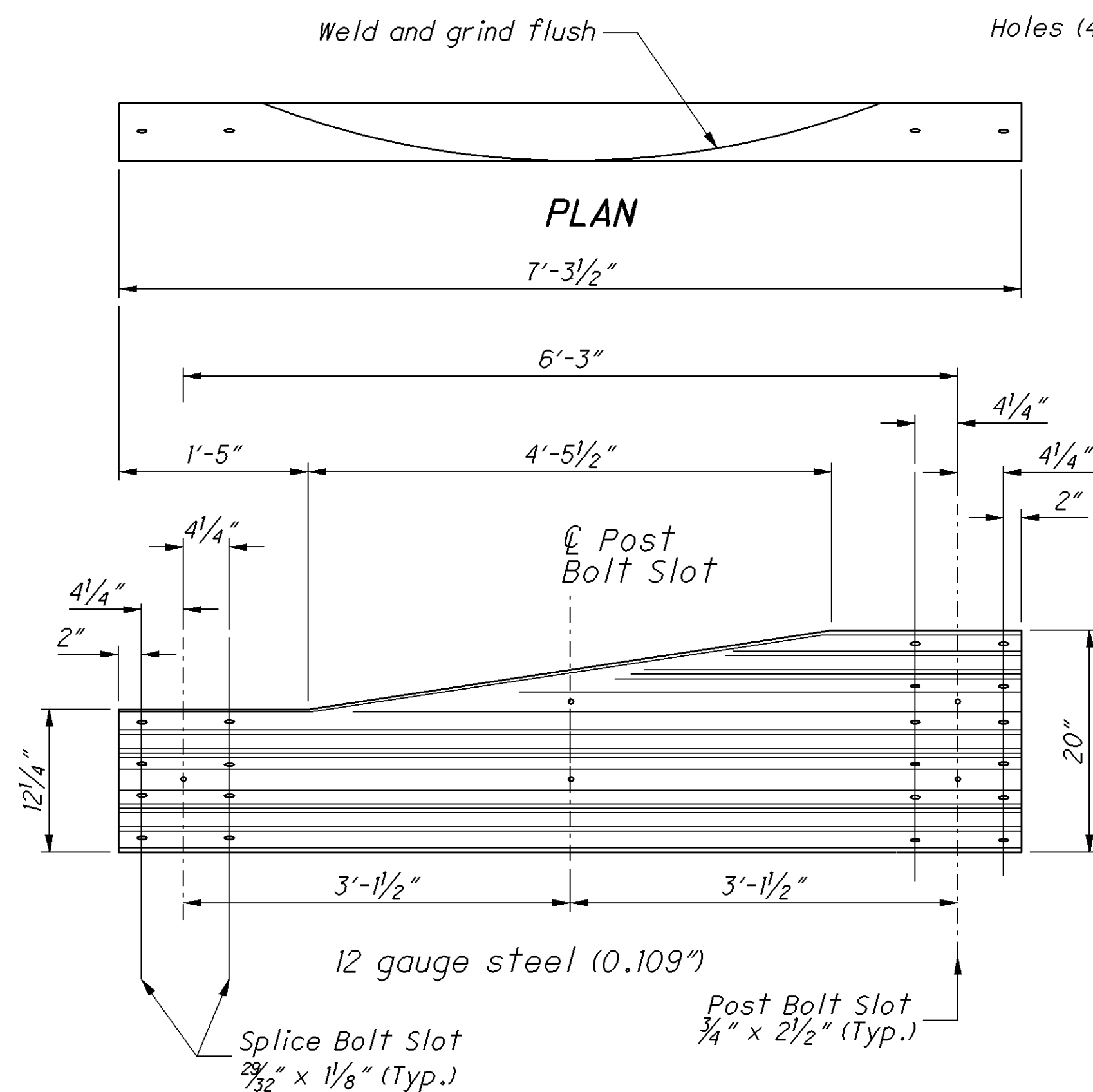
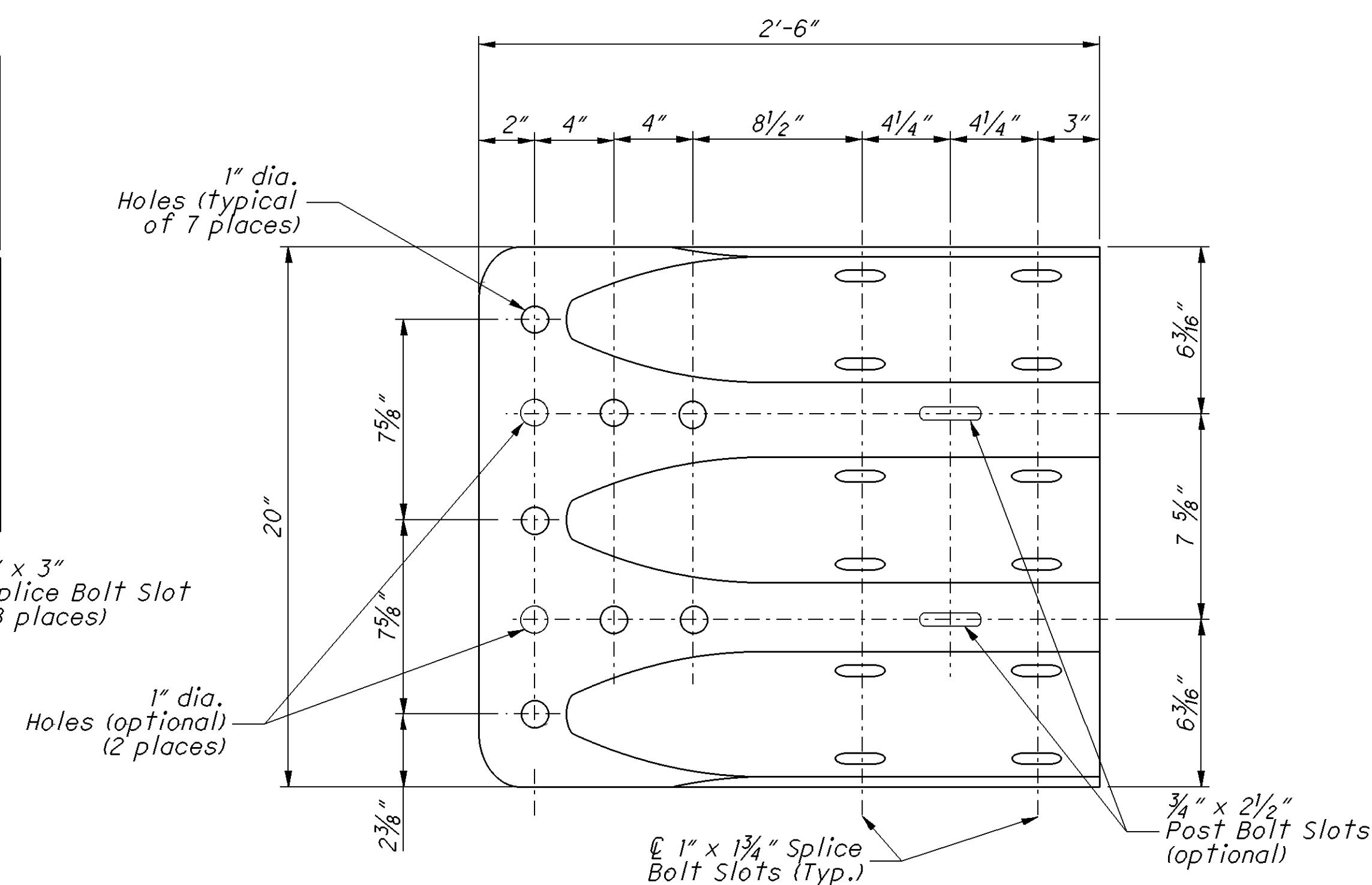
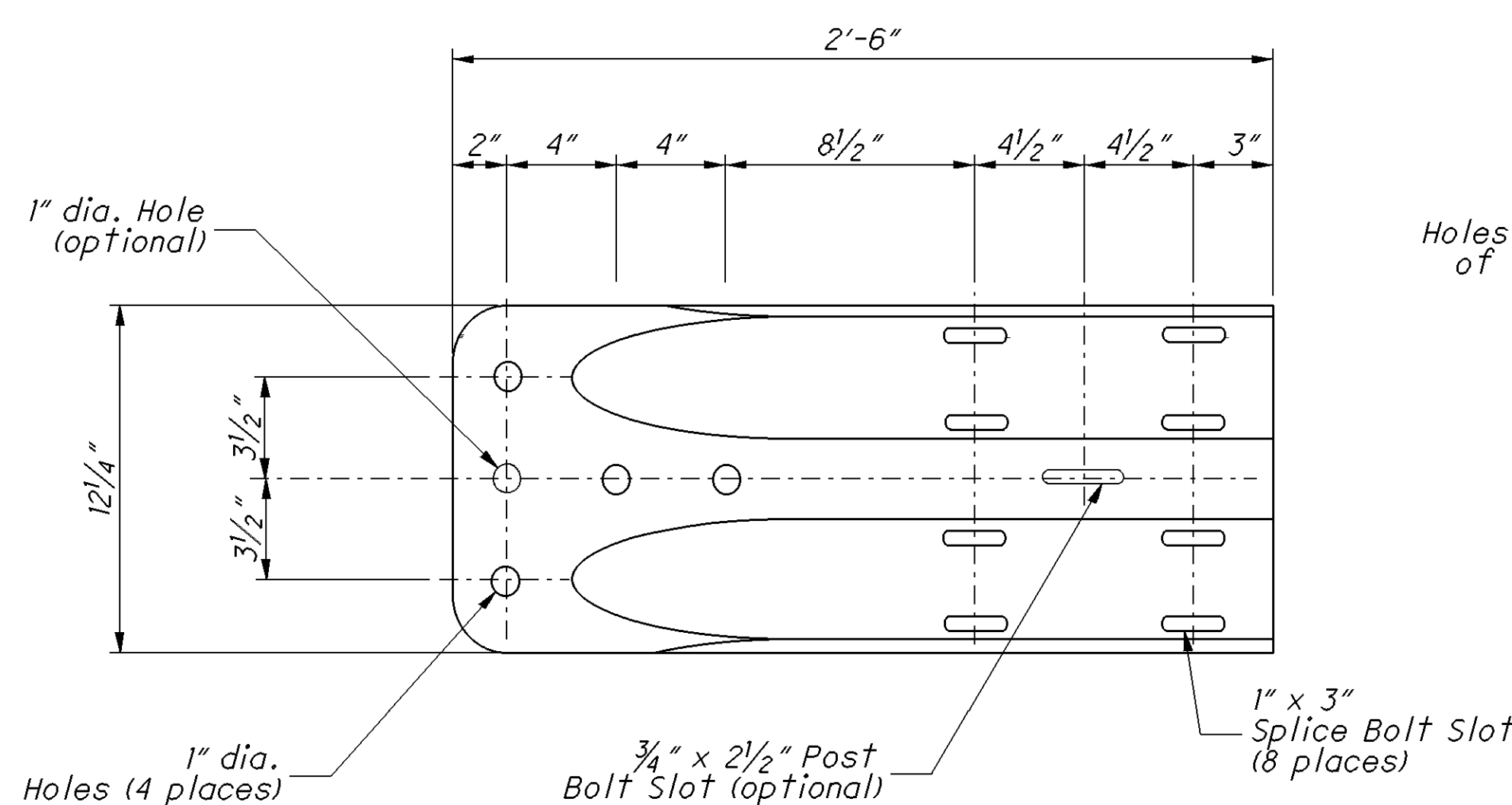
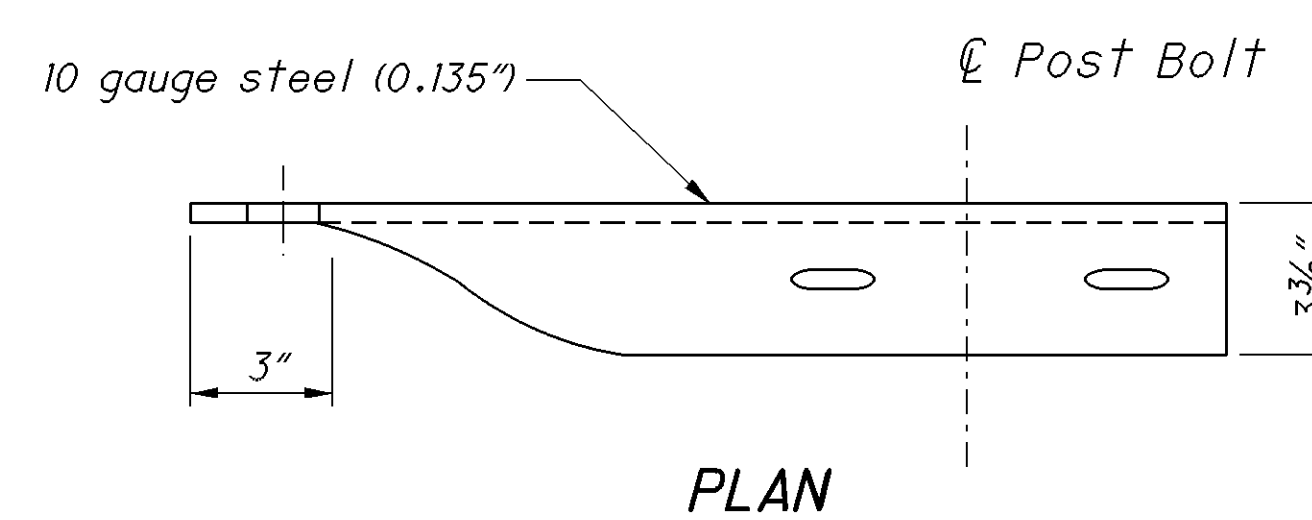
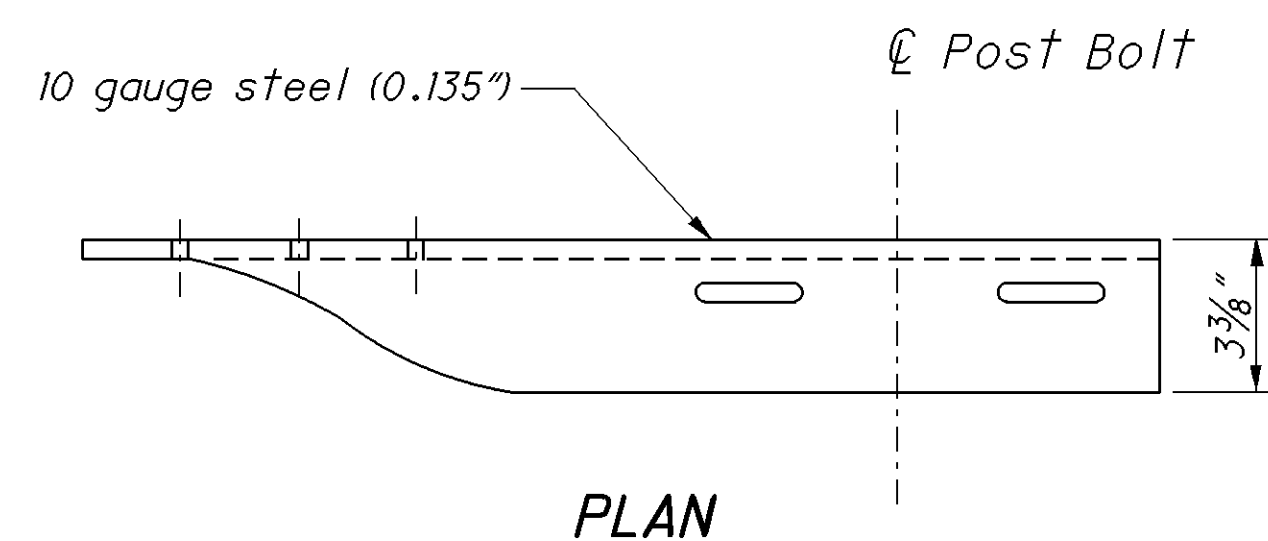
GENERAL: Components shown on this drawing are used in a variety of guardrail systems. See individual guardrail drawing for specific applications.

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 $\frac{3}{4}$ " x $2\frac{1}{2}$ " 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.

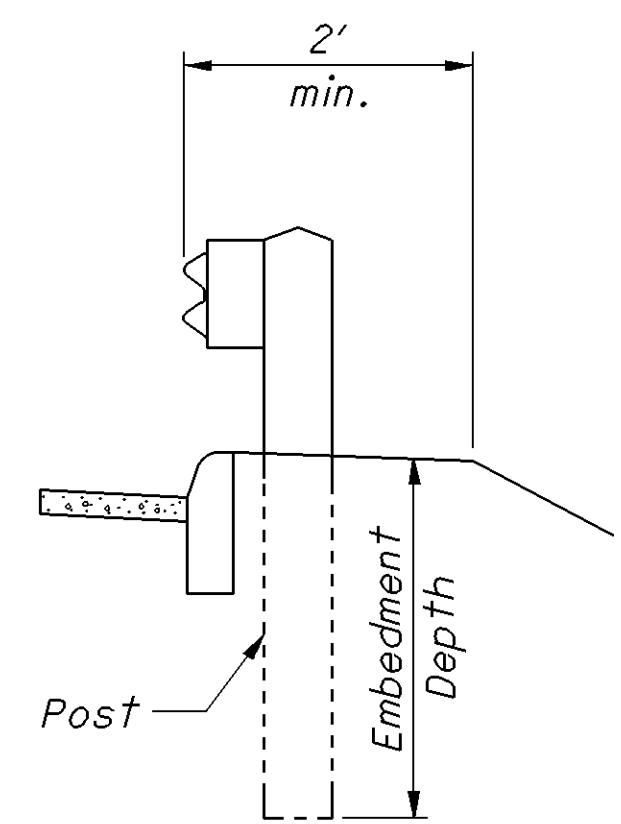


GUARDRAIL BOLT (For Post and Splice Bolts)		
L	T min.	Bolt Use
18" (Standard Rail)	4"	Type 5: WP/WB, PB
26" (Barrier Rail)		
10"	4"	Type 5: SP/WB, PB
1 1/4"	1 1/8"	Splice Bolt

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

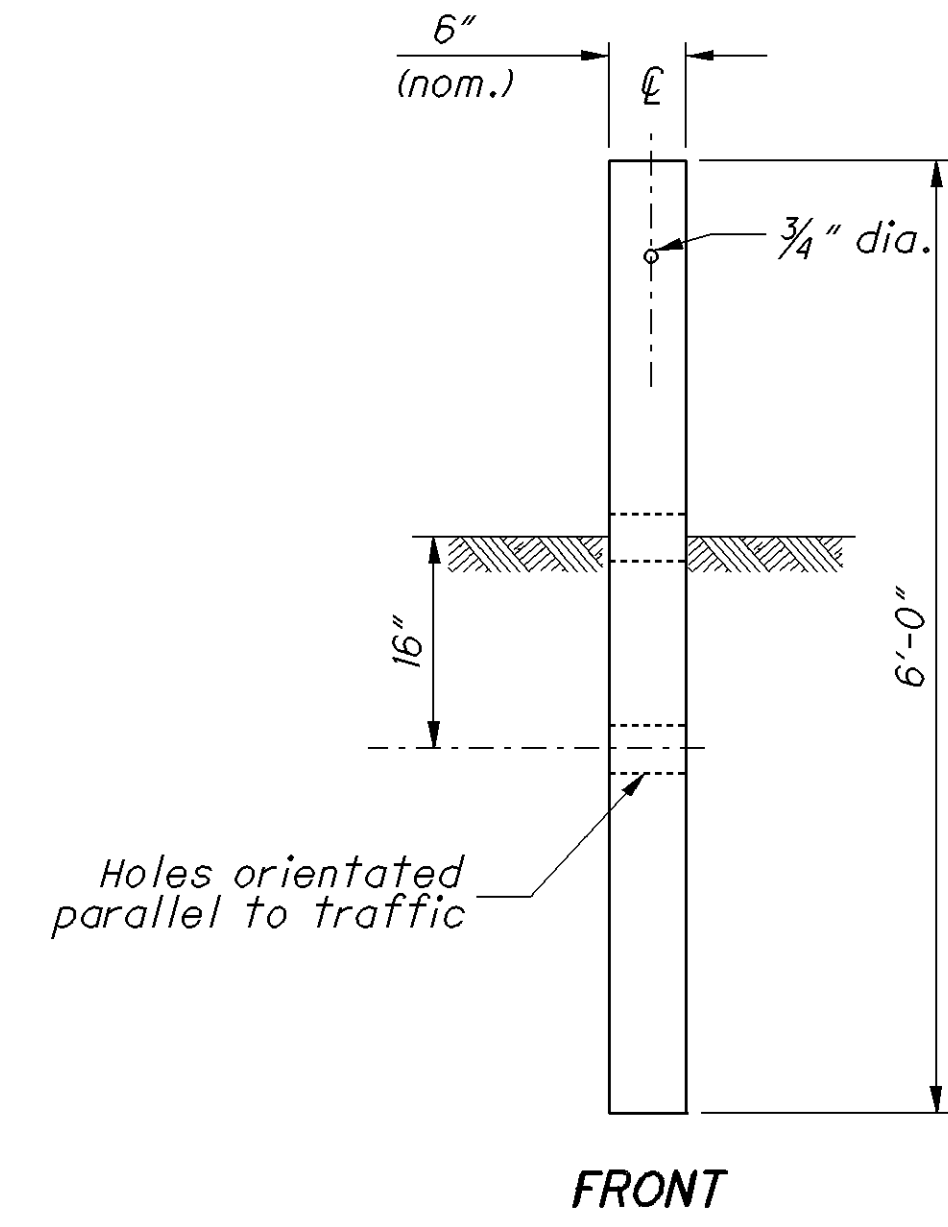
Longer Bolt may be needed for round Wood Post larger than 8" dia.

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

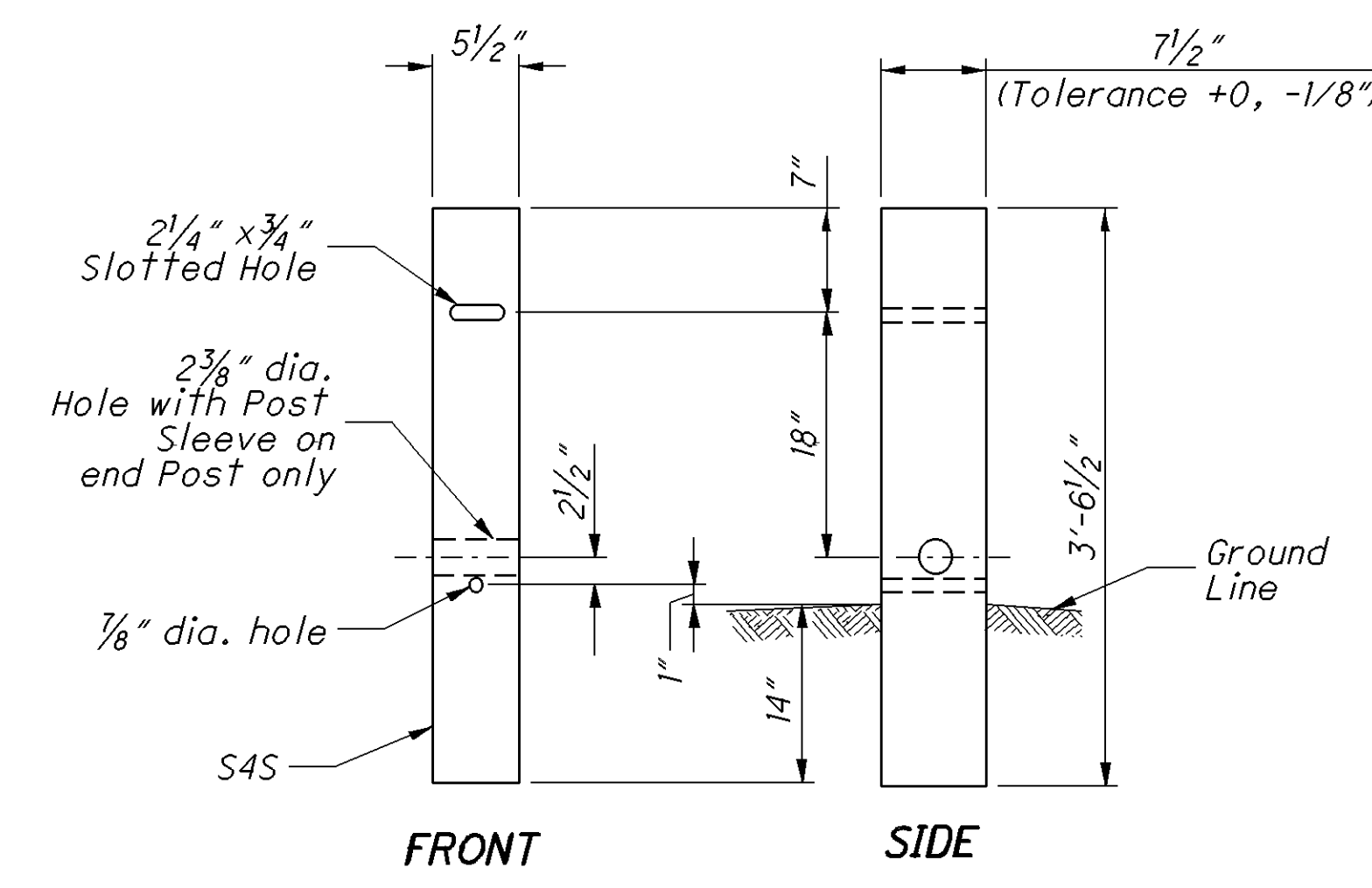


DETAIL A

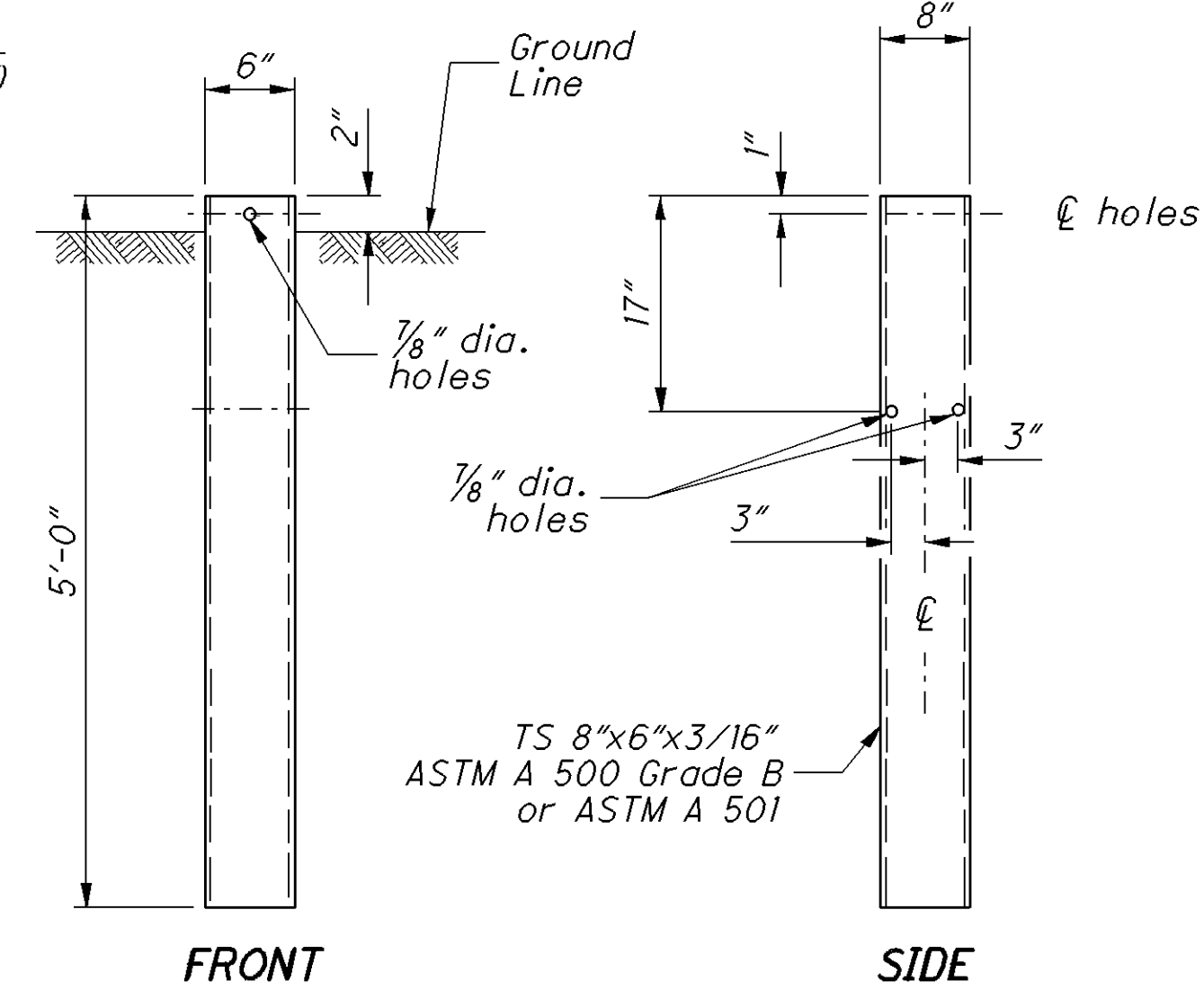
See POST EMBEDMENT DEPTH Note



TYPE 1 BREAKAWAY CRT POST



TYPE 2 BREAKAWAY CRT POST



STEEL GROUND TUBE

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.

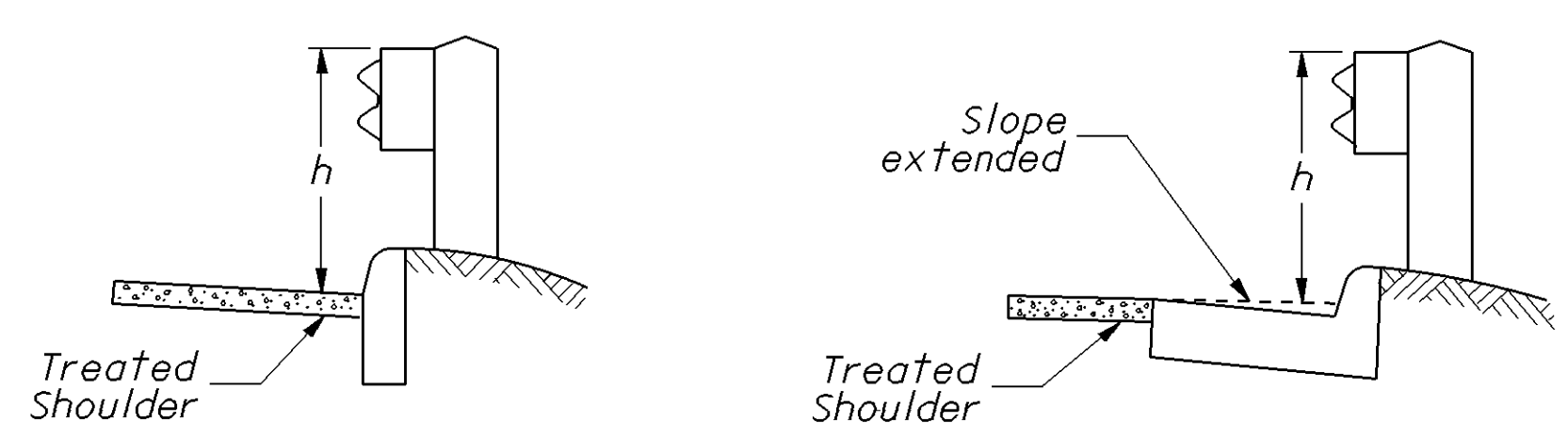
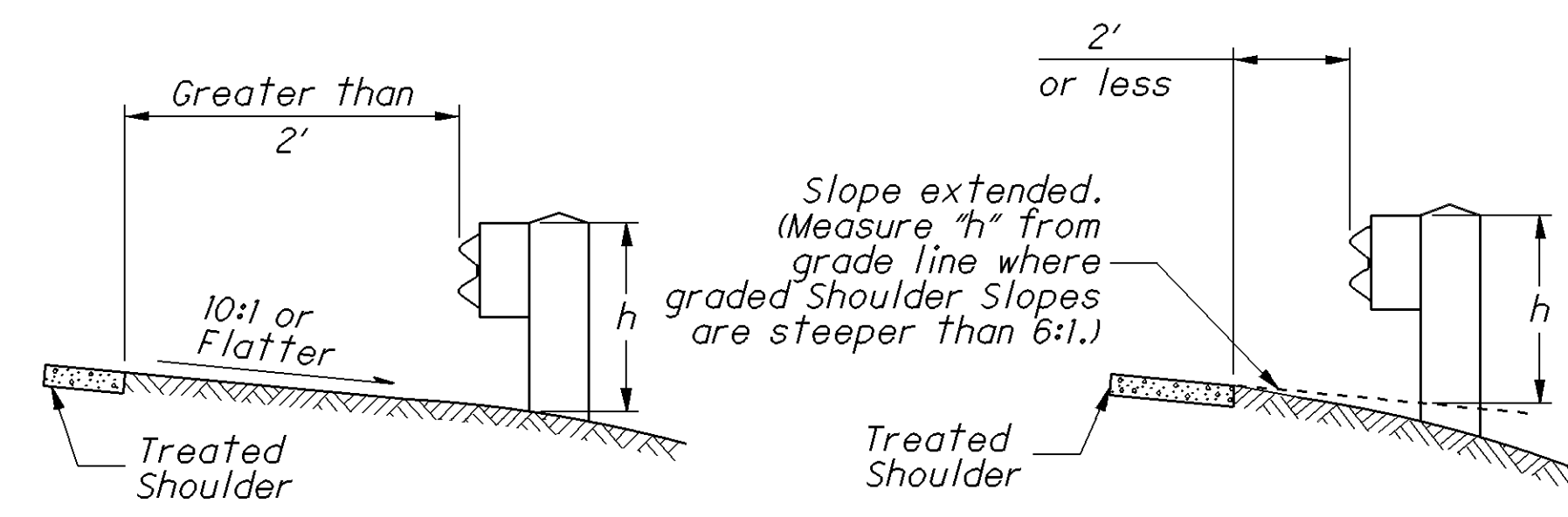
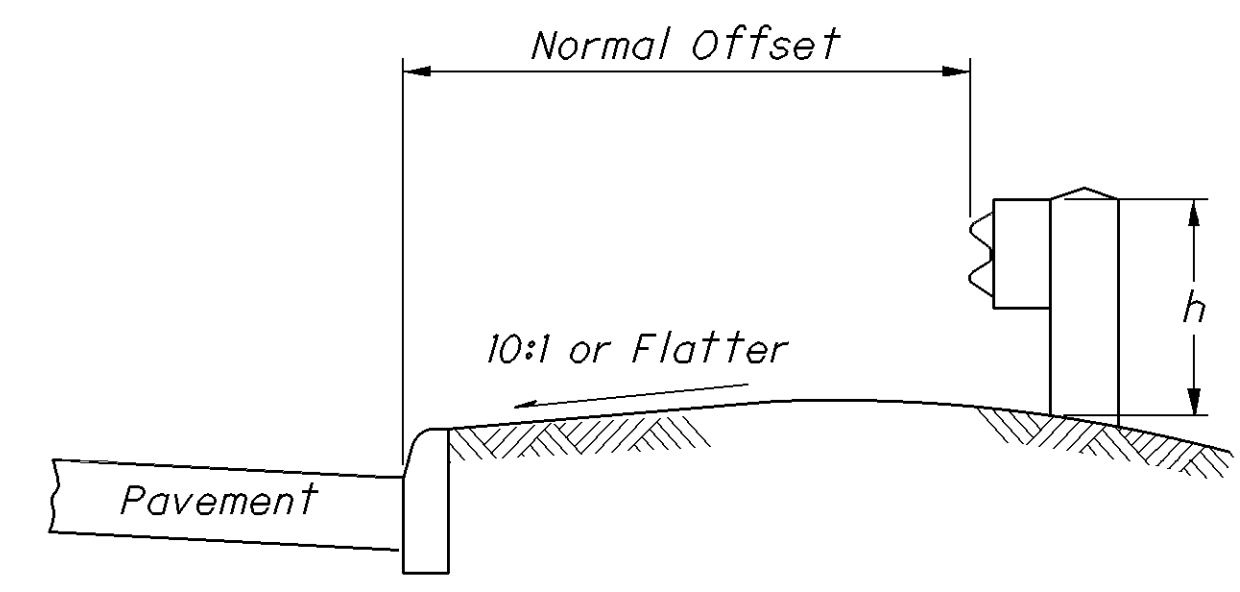
Do not drive posts located over a culvert with less than 4'-3" of cover; instead set in drilled or dug holes. Where the available post embedment depth is less than 3'-5", encase the post with a minimum of 4" concrete.

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.

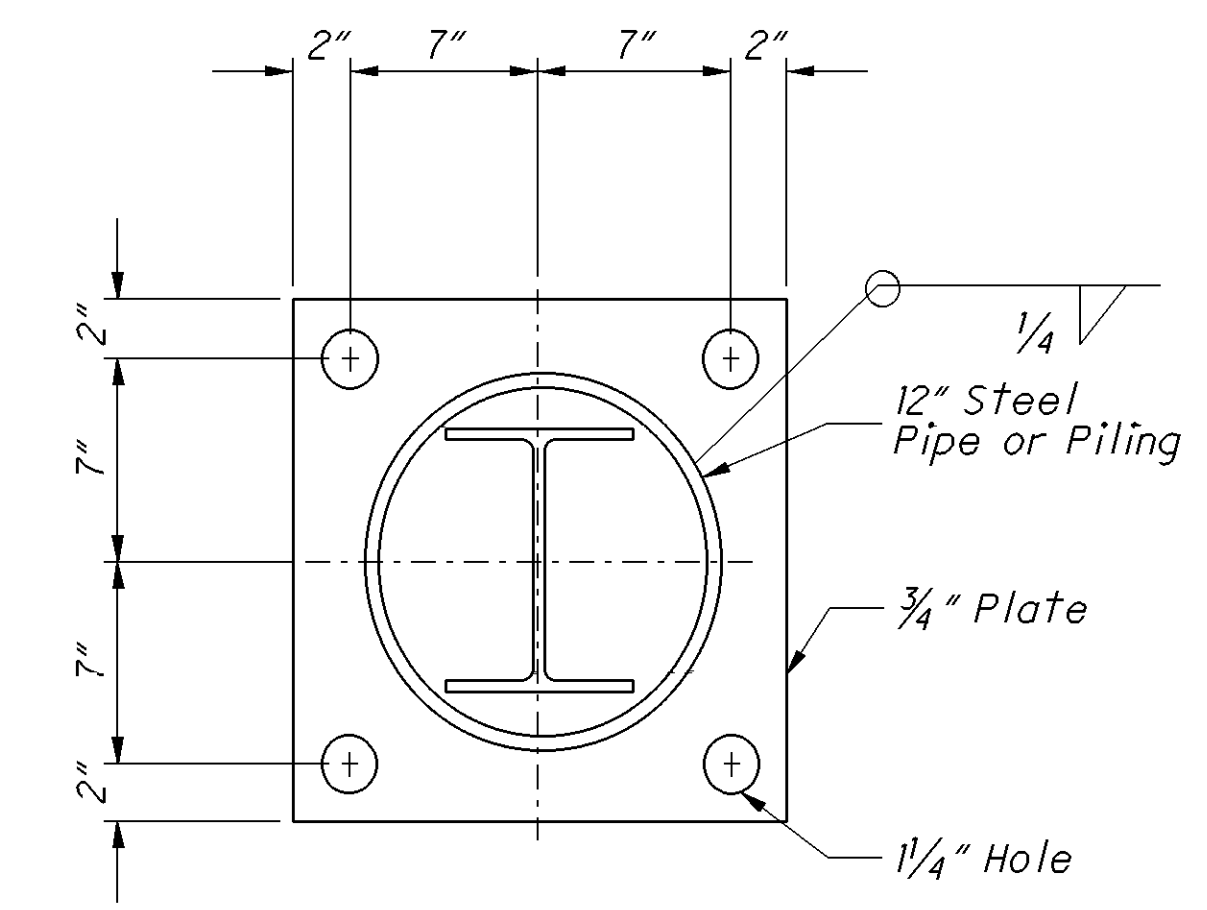
Expansion shield anchors as specified in CMS 712.01 may be substituted except where concrete deterioration has occurred, as determined by the Engineer. Where self-drilling anchors are used, drill the holes with the expansion shield (not by a drill bit) and install the shield flush with the concrete surface.

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.)



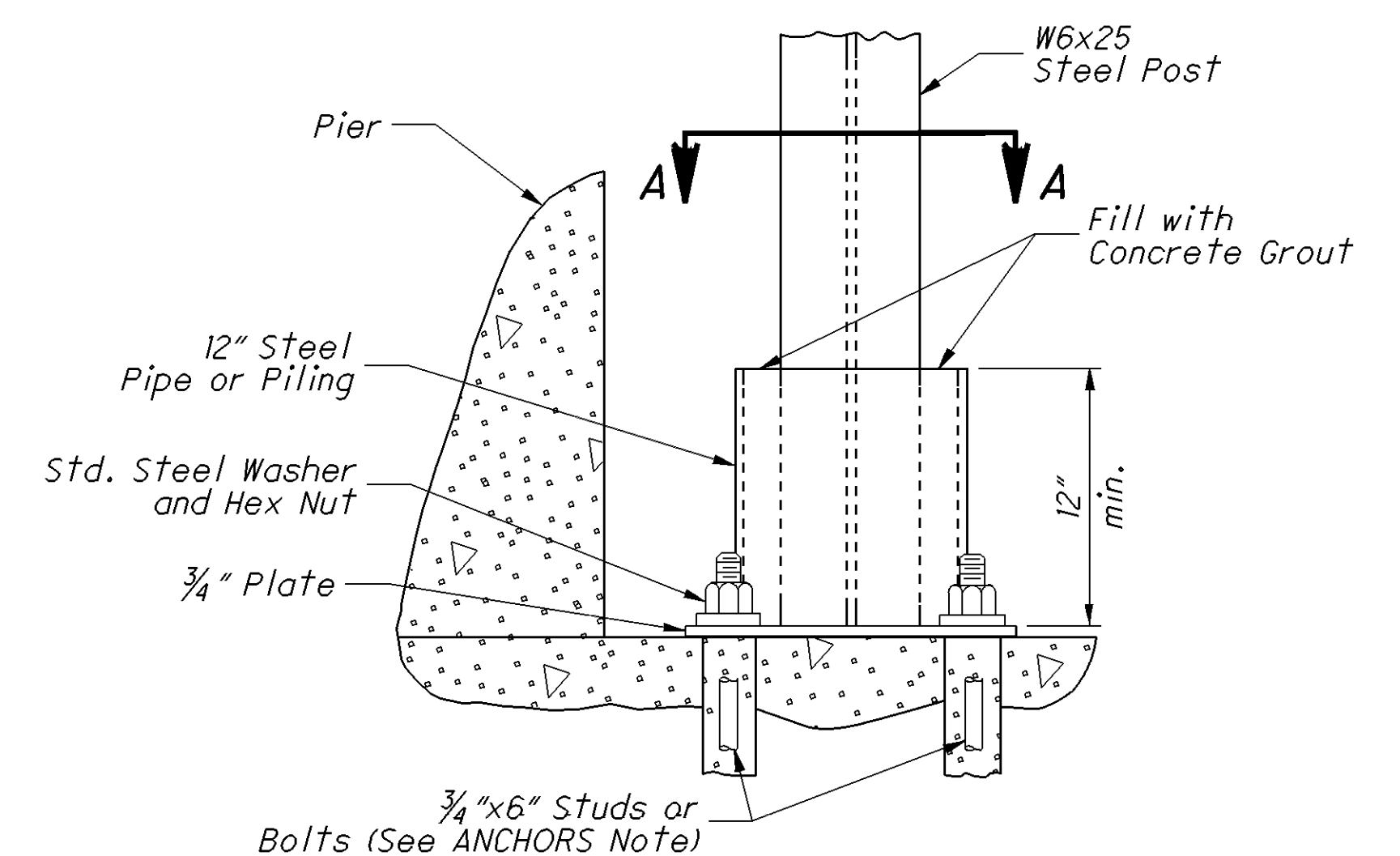
h = Standard Height (See GUARDRAIL HEIGHT Note)

MEASURING GUARDRAIL HEIGHT



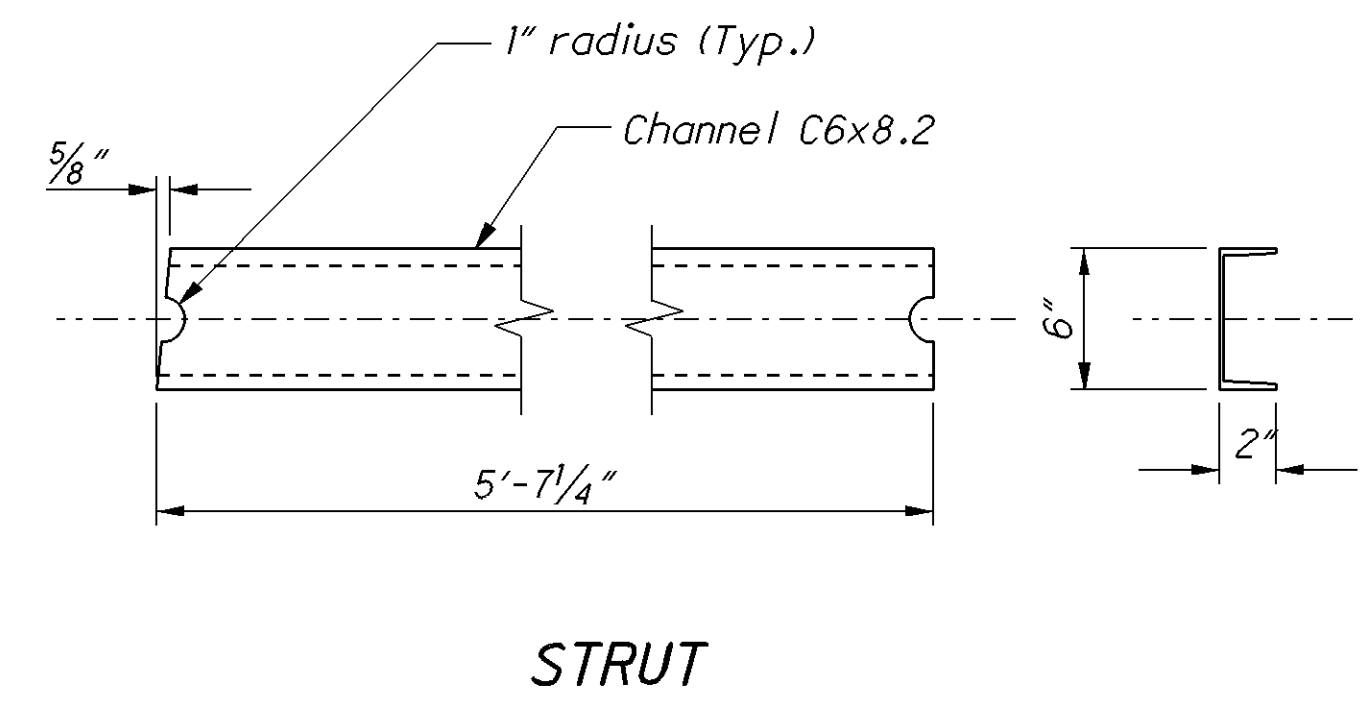
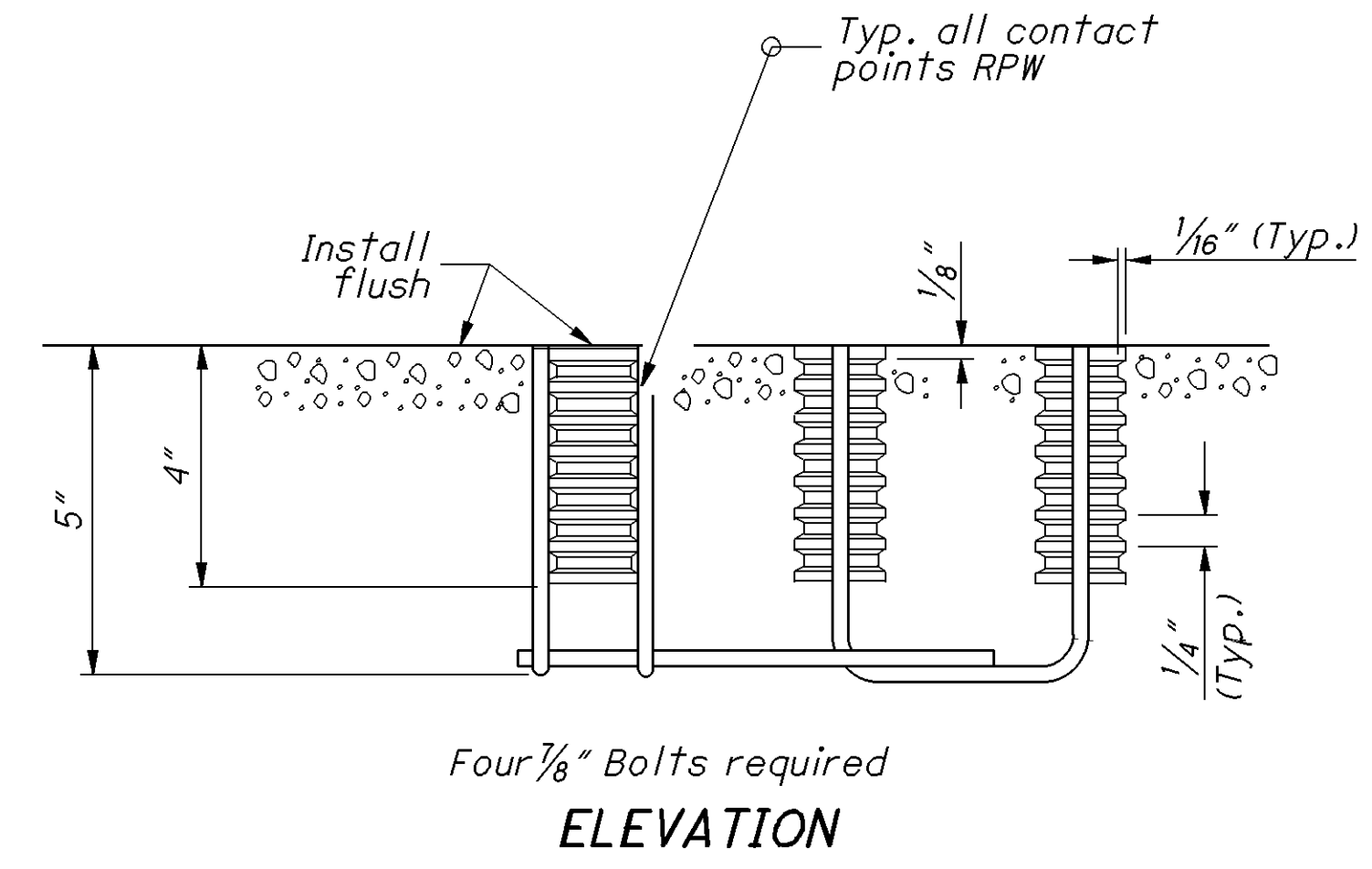
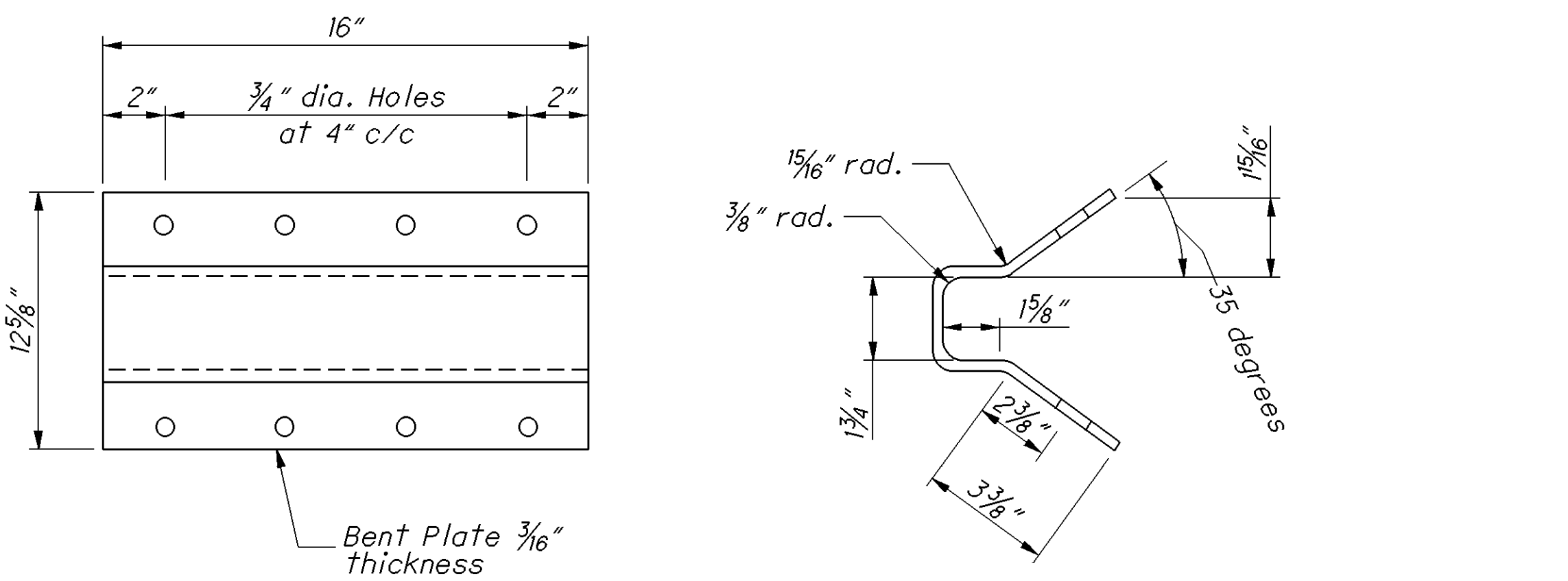
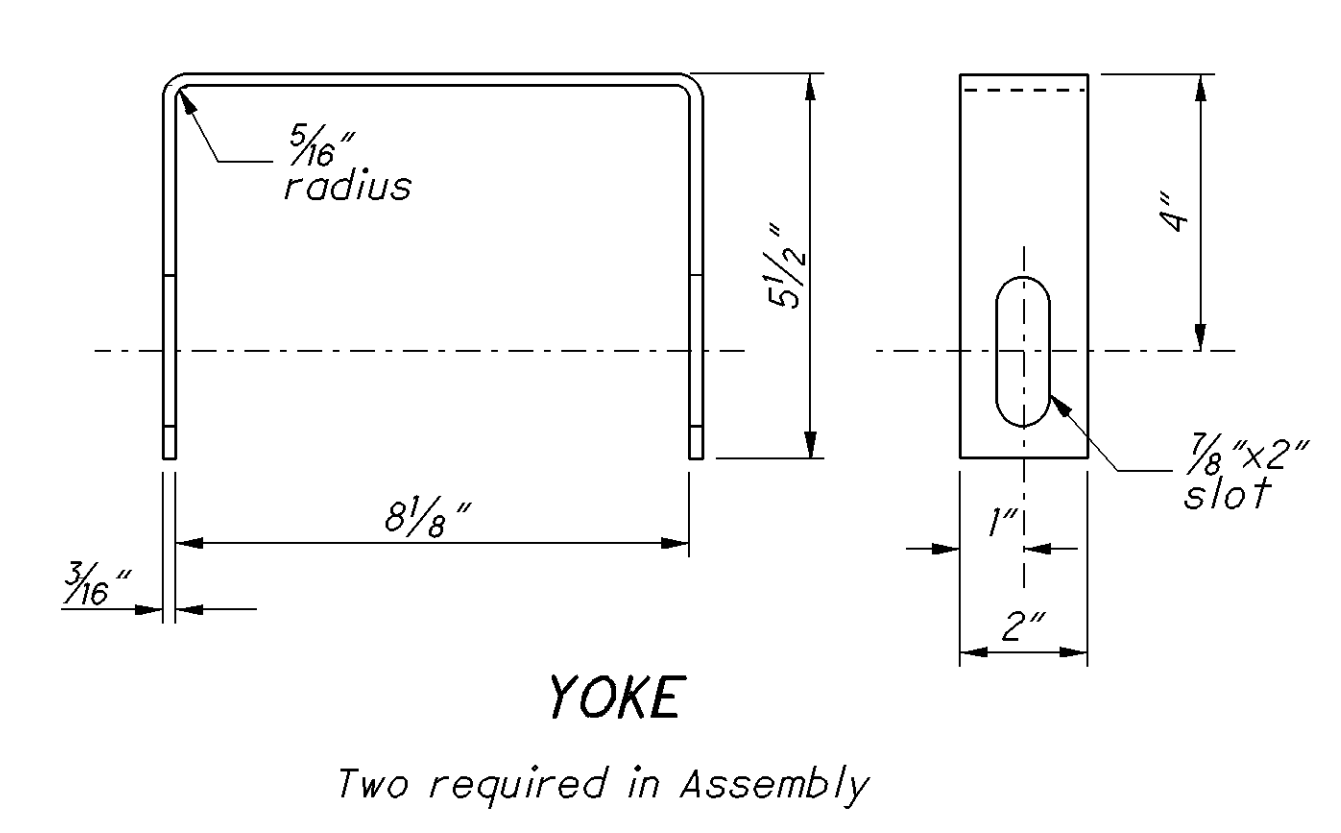
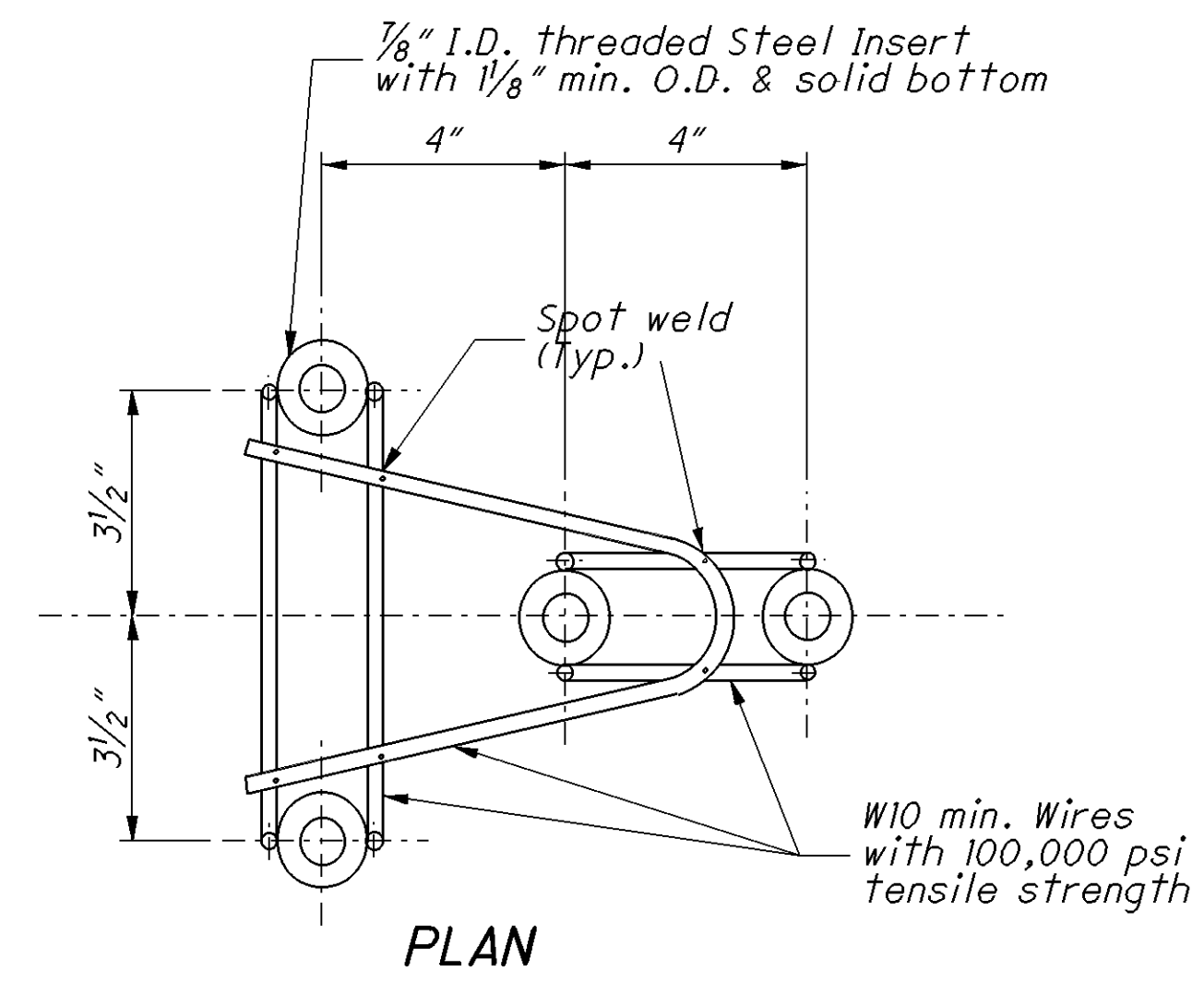
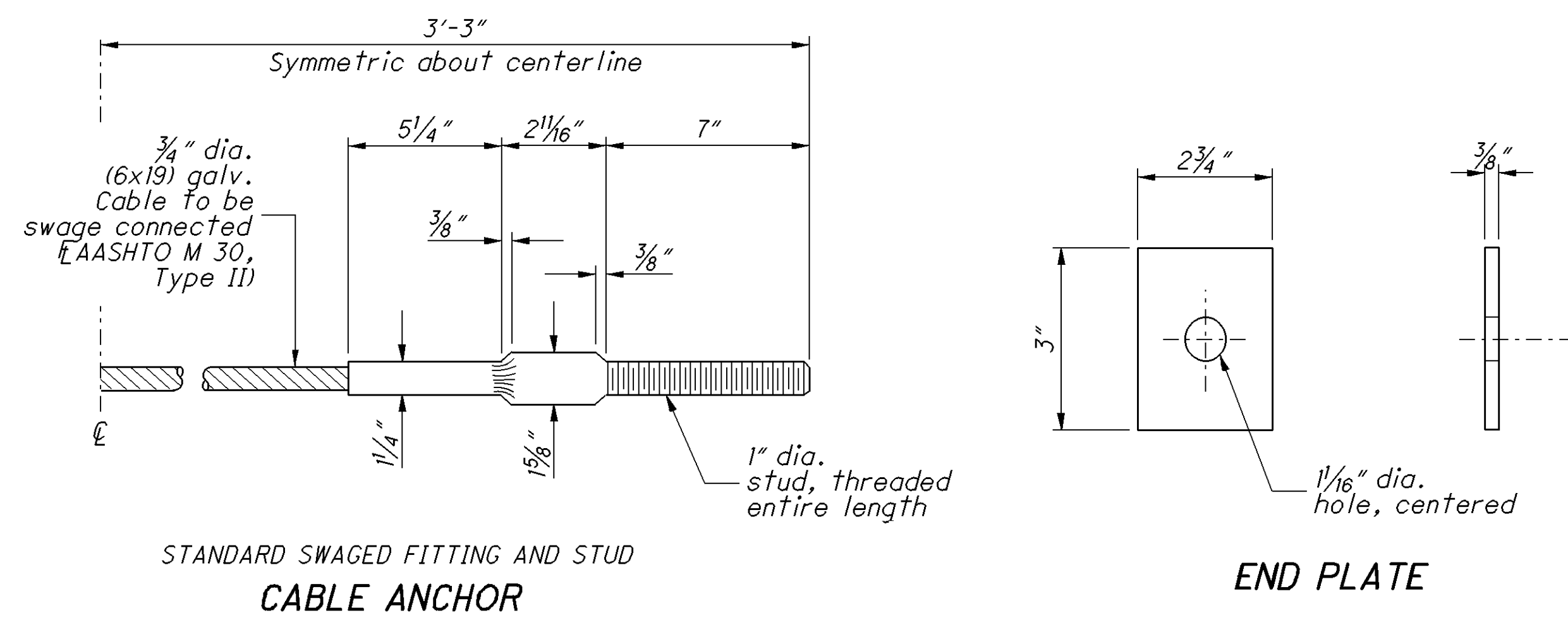
Footing Anchor and hardware need not be galvanized

SECTION A-A

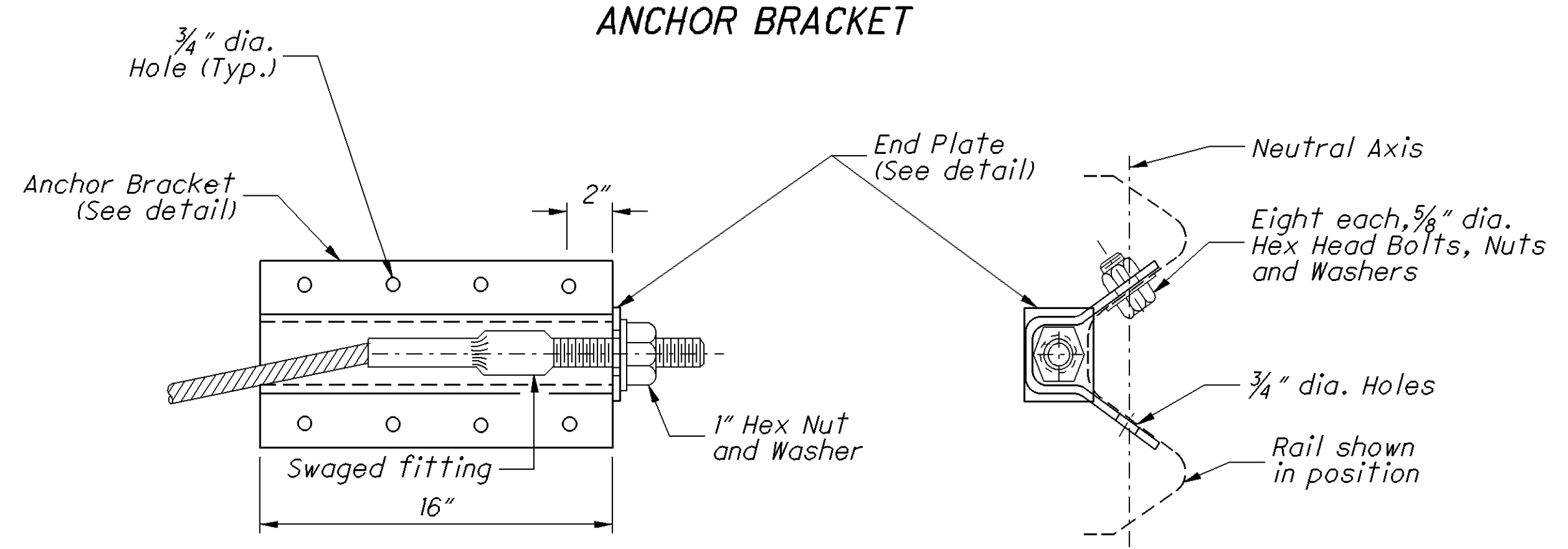
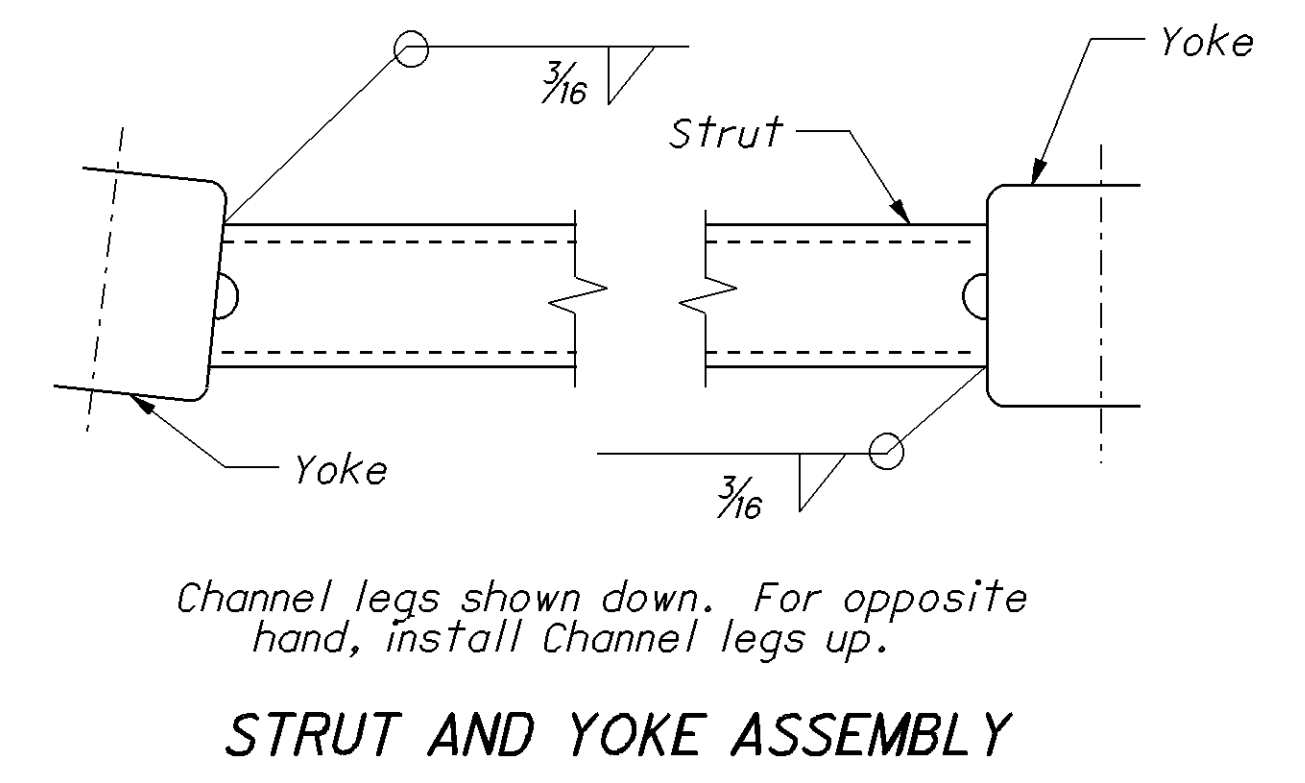


ELEVATION FOOTING ANCHOR

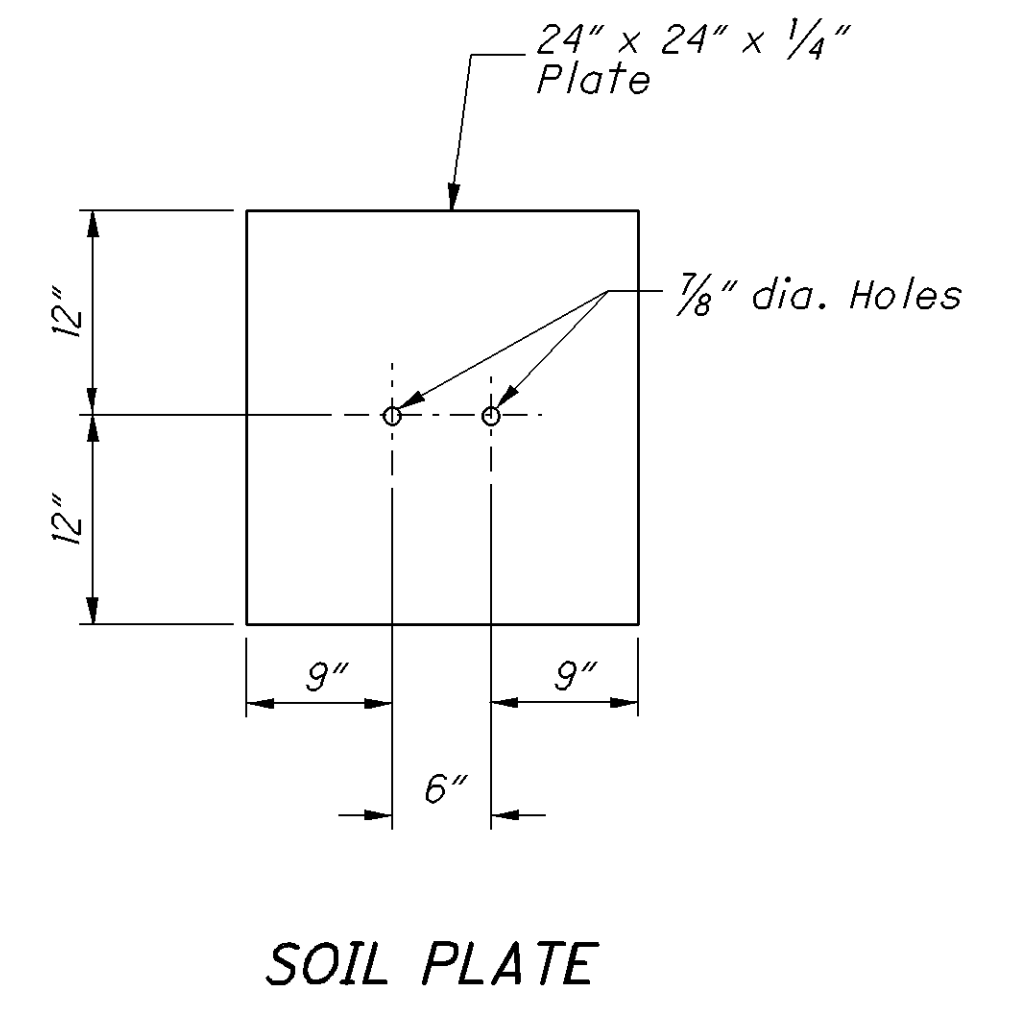
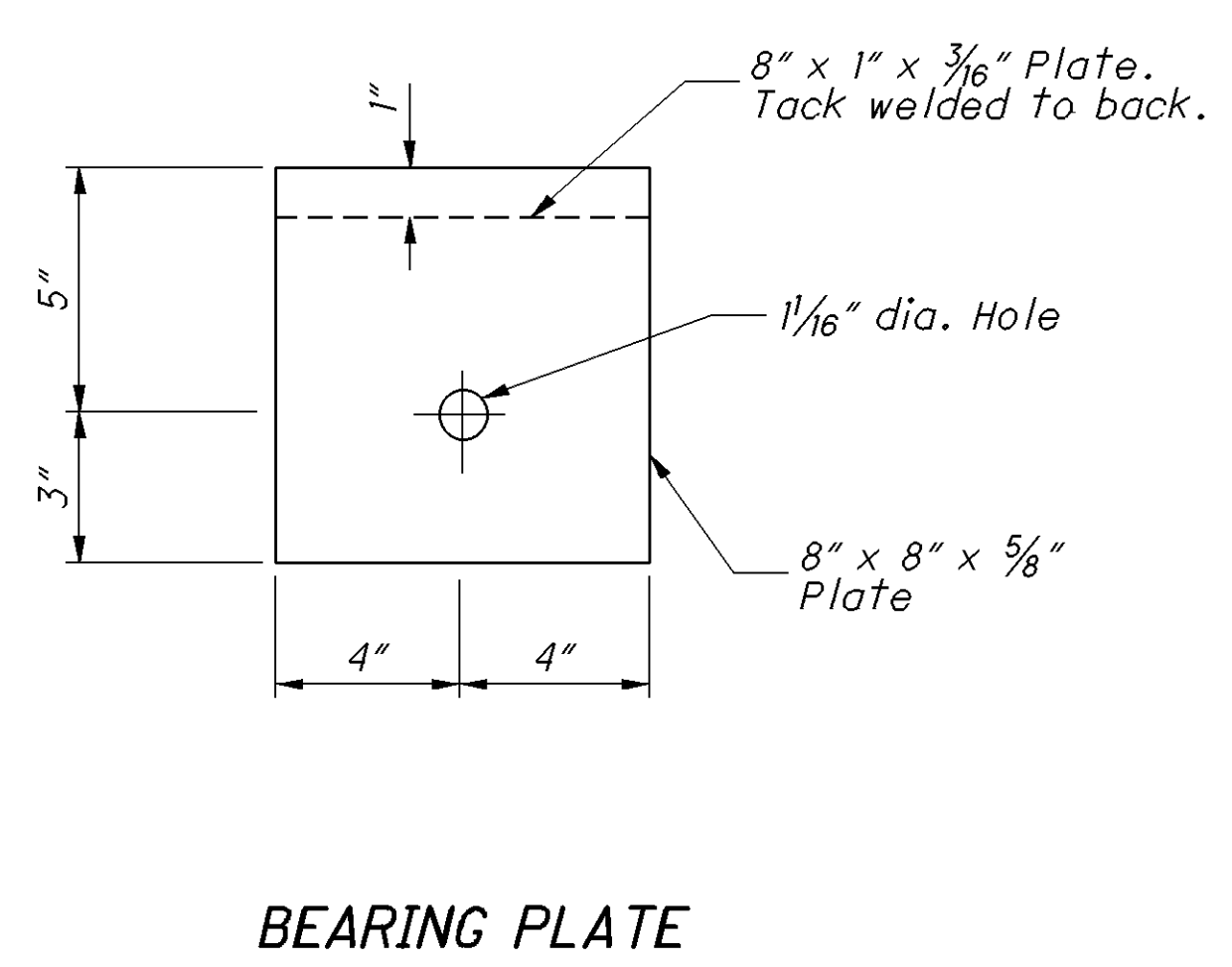
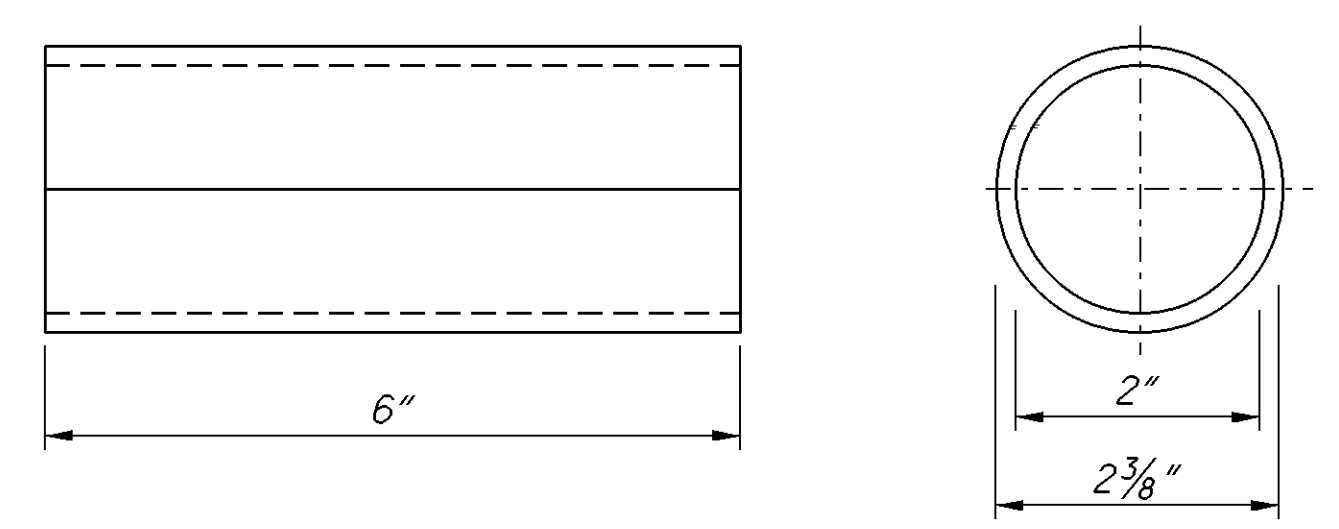
See SPECIAL POST MOUNTINGS Note.



CONCRETE INSERT ANCHOR ASSEMBLY (W-BEAM ONLY)
 See ANCHORS and PROTECTIVE COATINGS Notes on Sheet 2



ANCHOR BRACKET ASSEMBLY DETAILS



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.

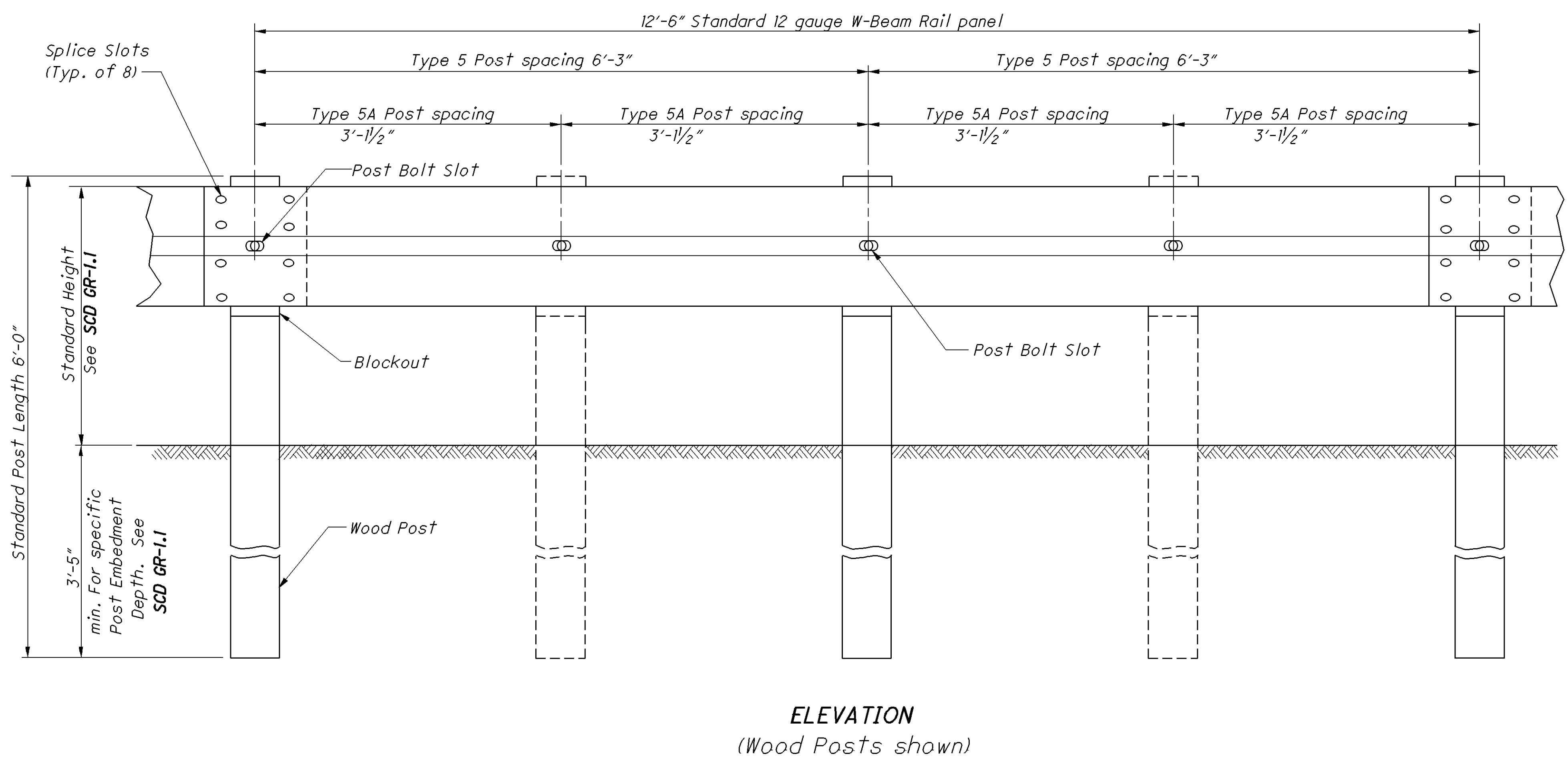
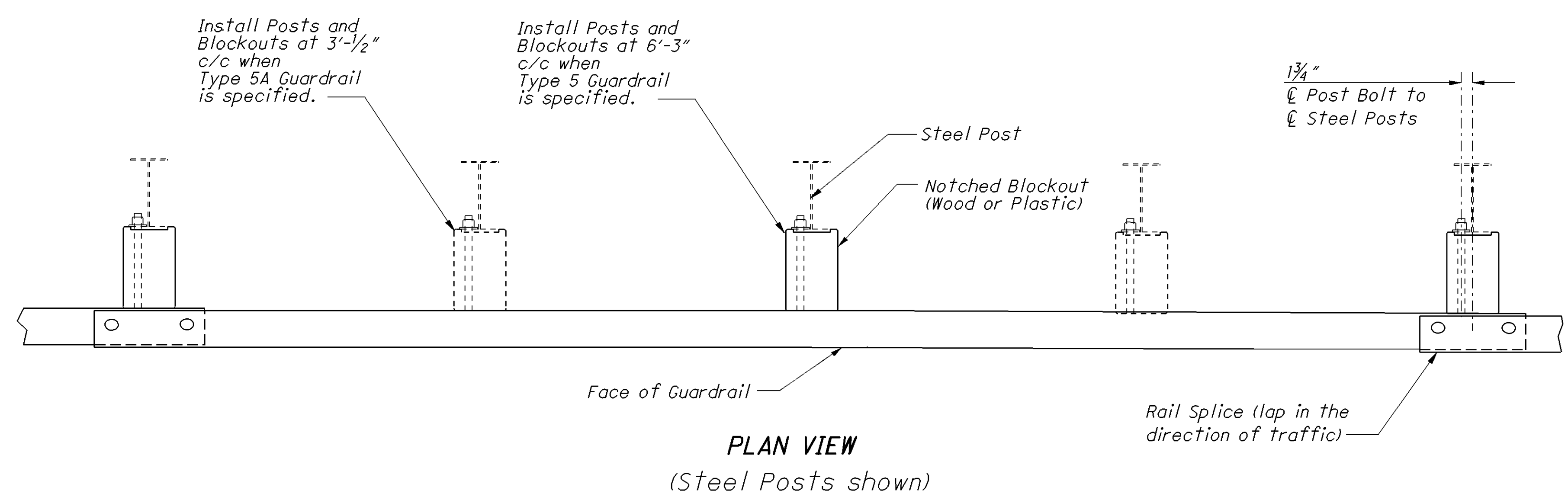
BLOCKOUTS: Blockout dimensions are dependent on post used. Wood Blockouts are to be pressure treated as specified in CMS 710.14. Bore bolt holes. Approved alternate blockouts may be used in lieu of the wood blockouts shown. The approved list is maintained by the **Office of Roadway Engineering**.

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.

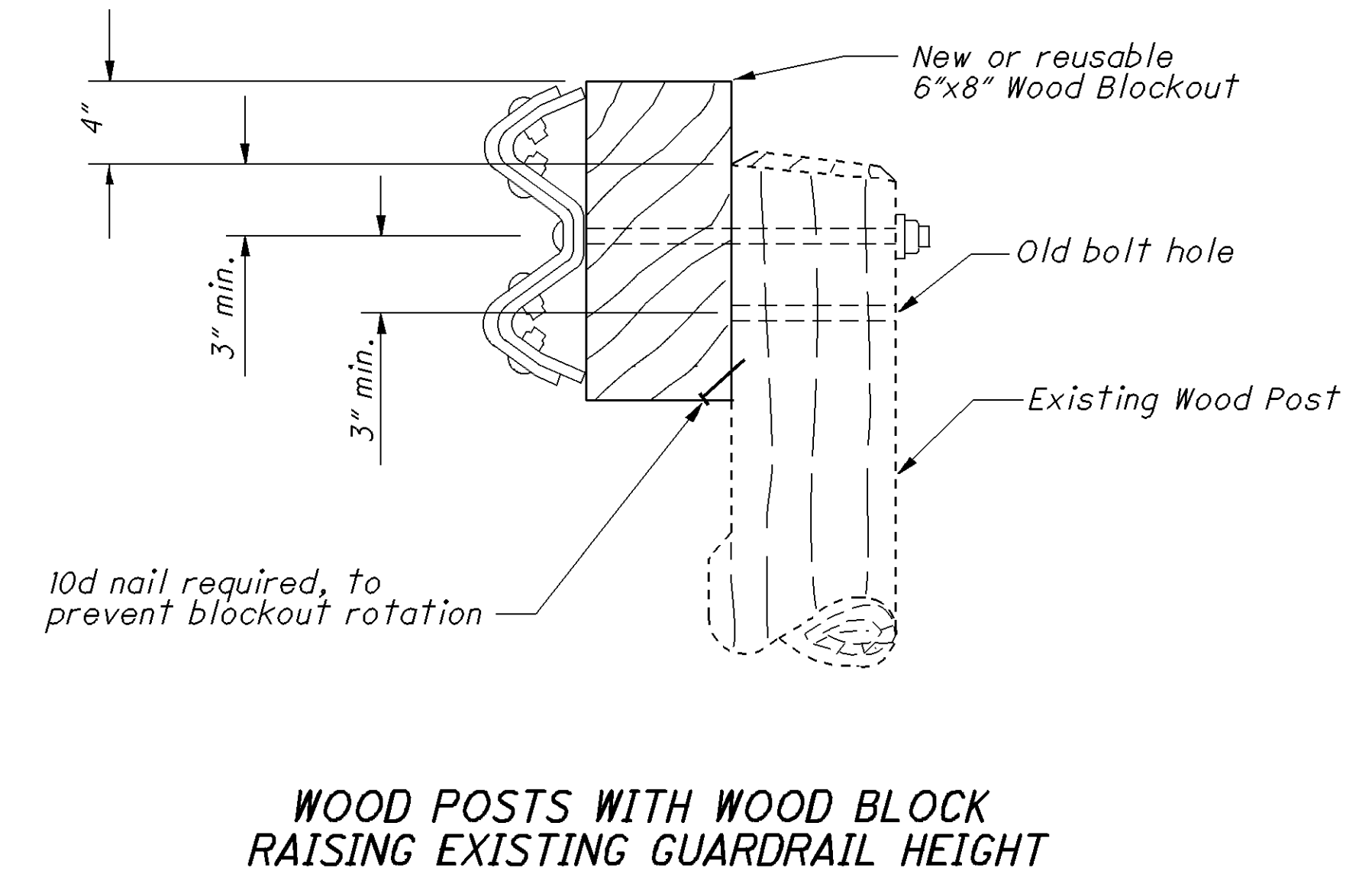
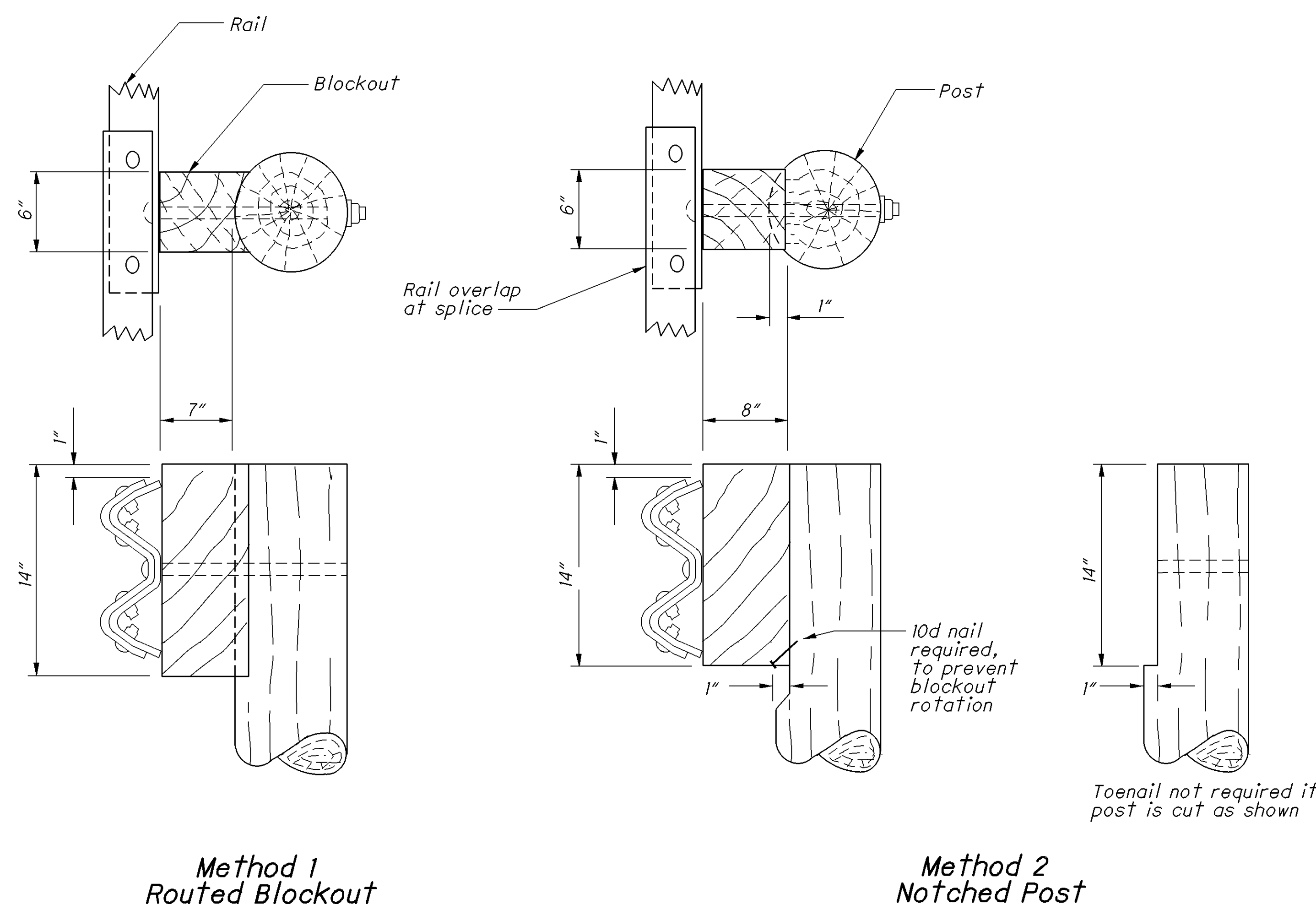
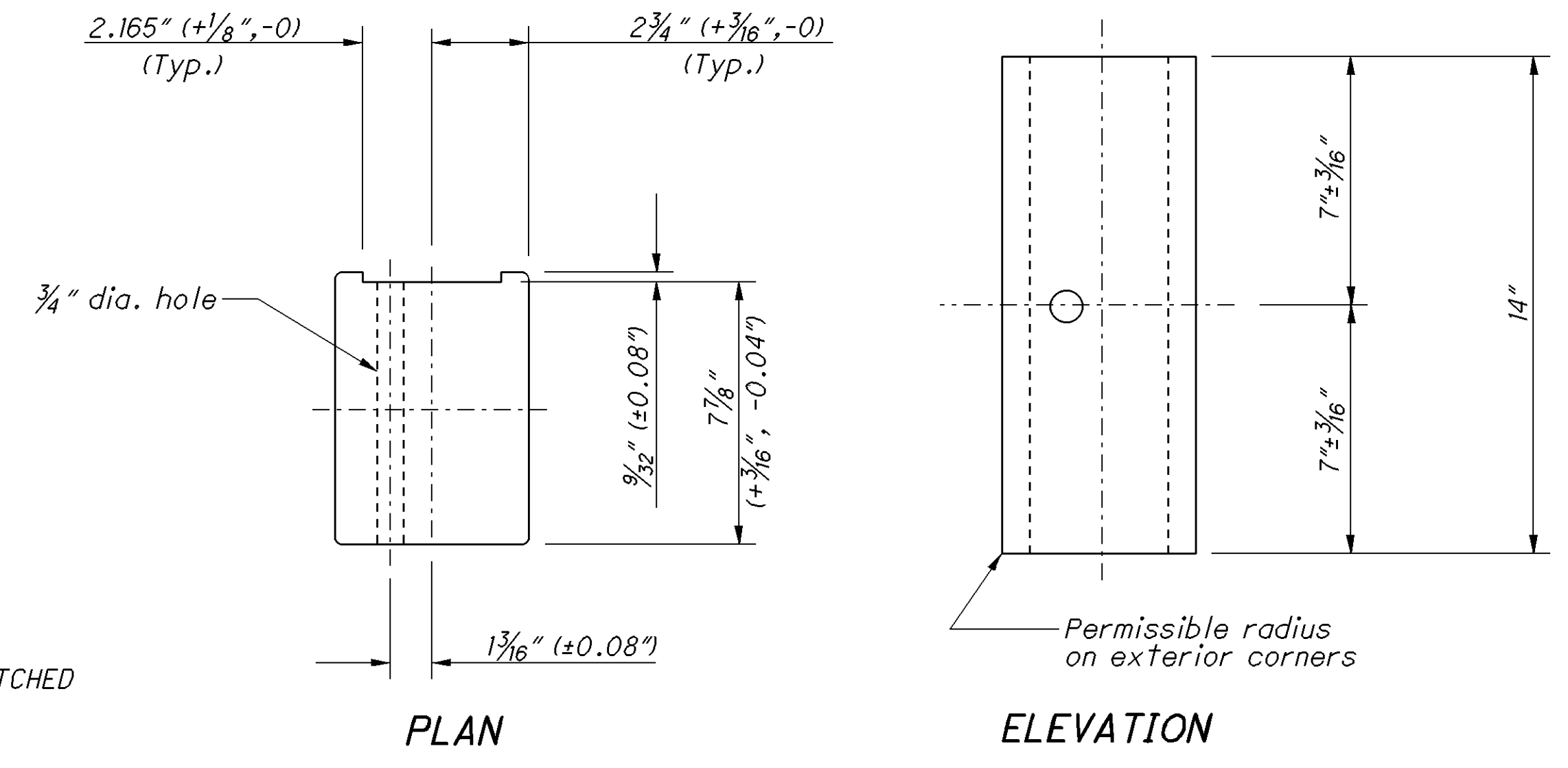
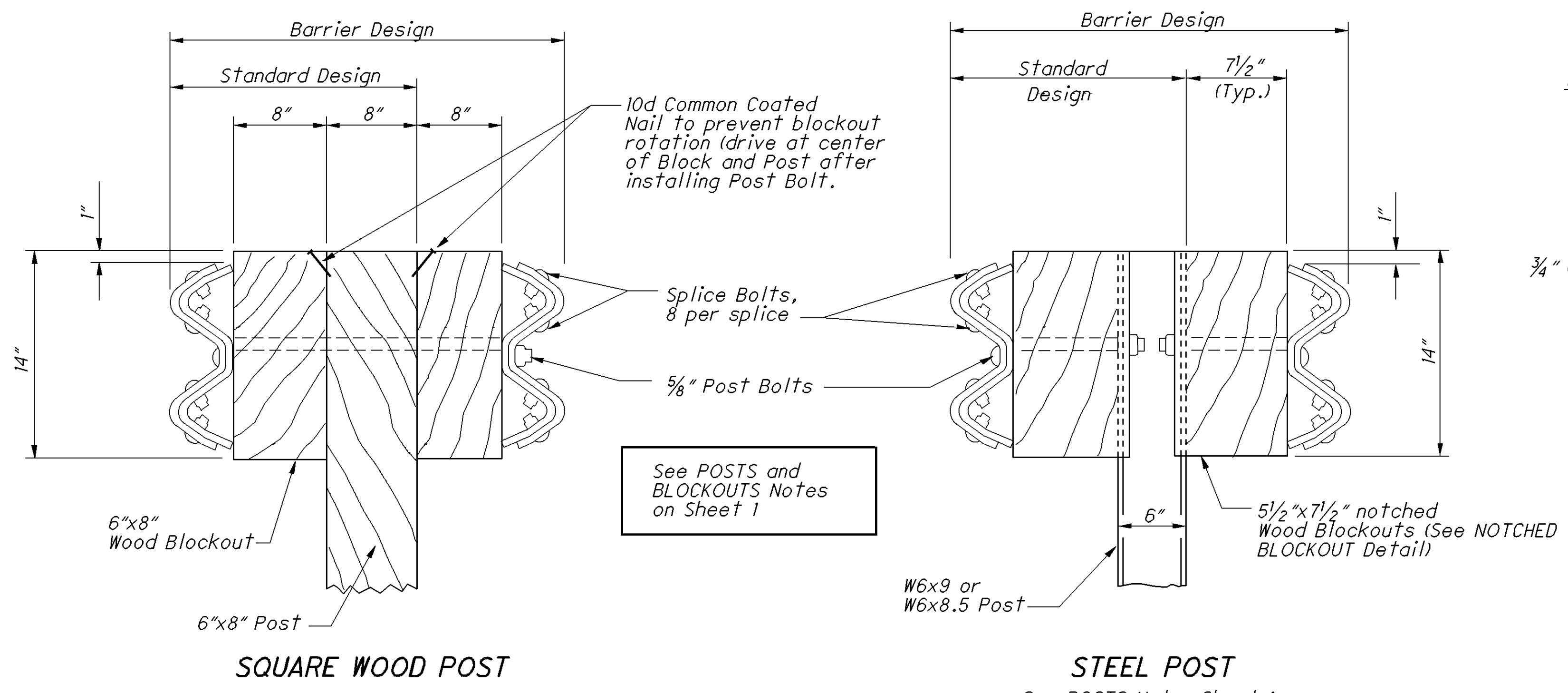
STEEL BEAM POSTS (English)				
Size	Beam depth	Flange width	Flange thickness	Web thickness
Rolled W6x8.5	5.8"	3.94"	0.193"	0.170"
Rolled W6x9	5.9"	3.94"	0.215"	0.170"
Welded 6x8.5	6.0"	3.94"	0.193"	0.170"
Welded 6x9	6.0"	3.94"	0.215"	0.170"



ELEVATION
(Wood Posts shown)

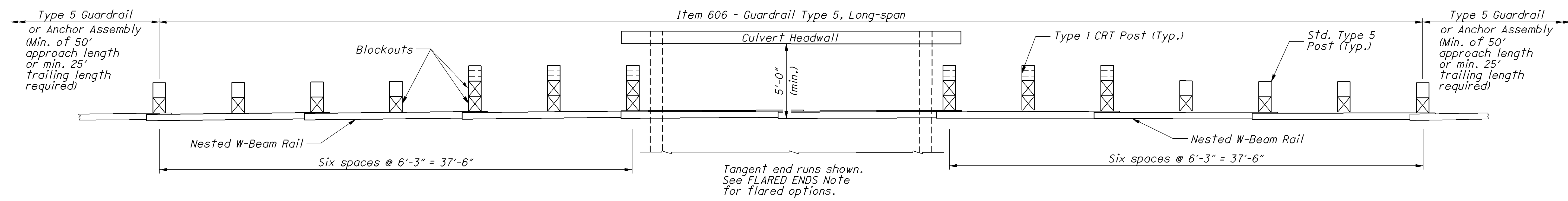
PLAN VIEW
(Steel Posts shown)

DESIGNED	REVISION DATE
	CHECKED
PIS NUMBER	REVIEWED

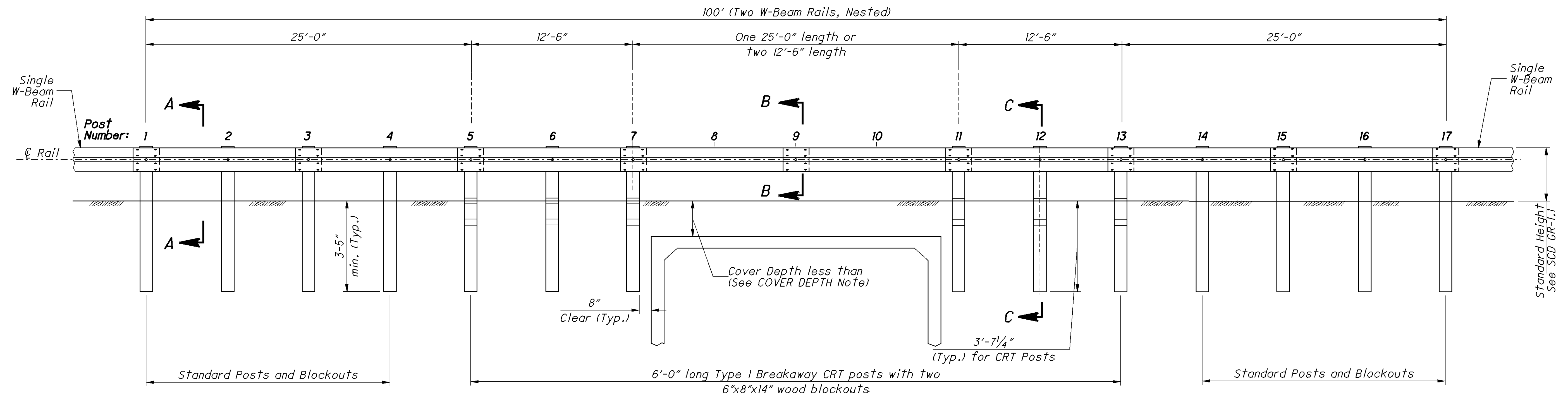


Alternate methods of placing the Blockouts on round Posts may be submitted for consideration and approved by The Engineer.

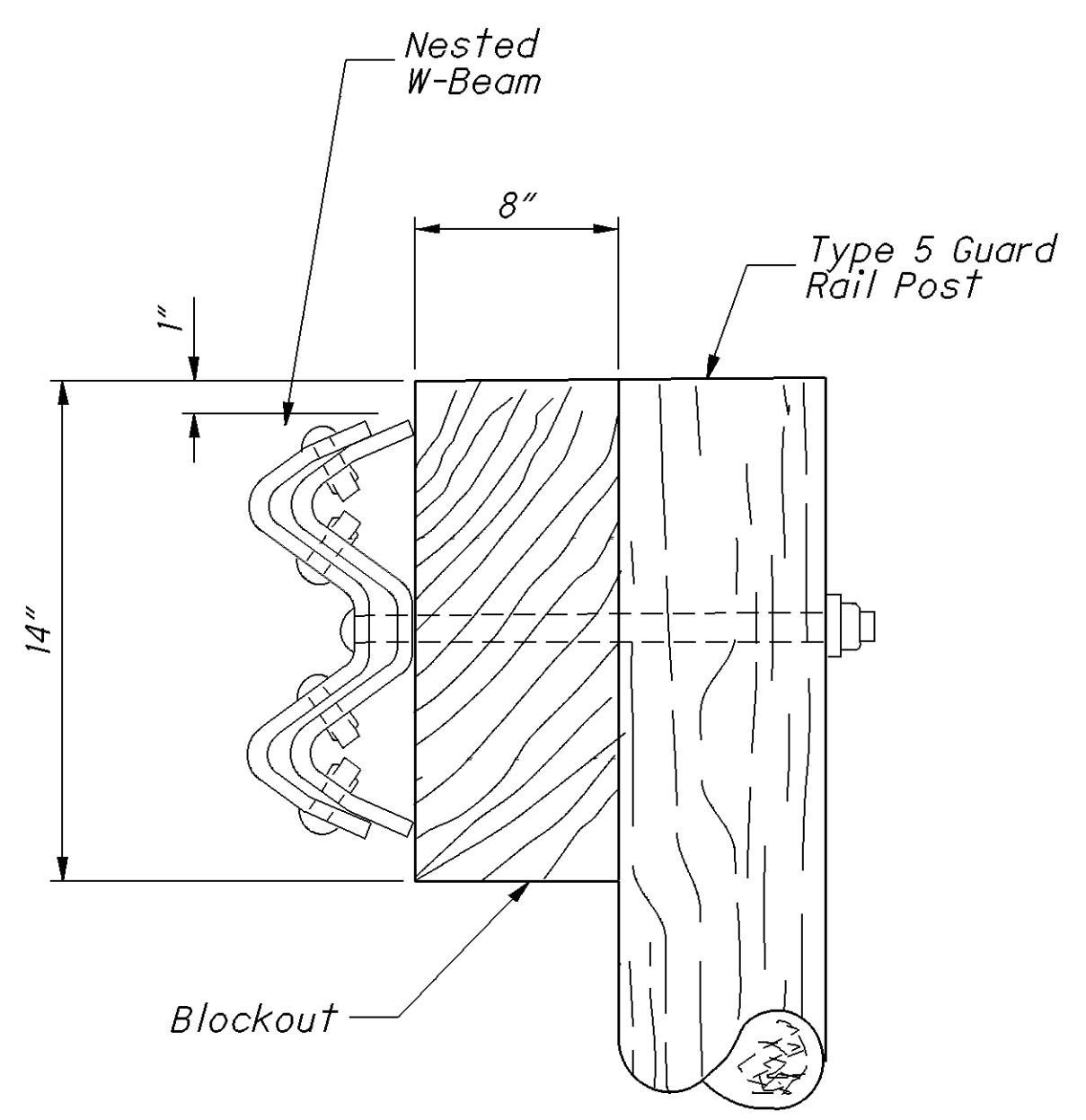
ROUND WOOD POSTS
Single Sided runs only (Standard Design)



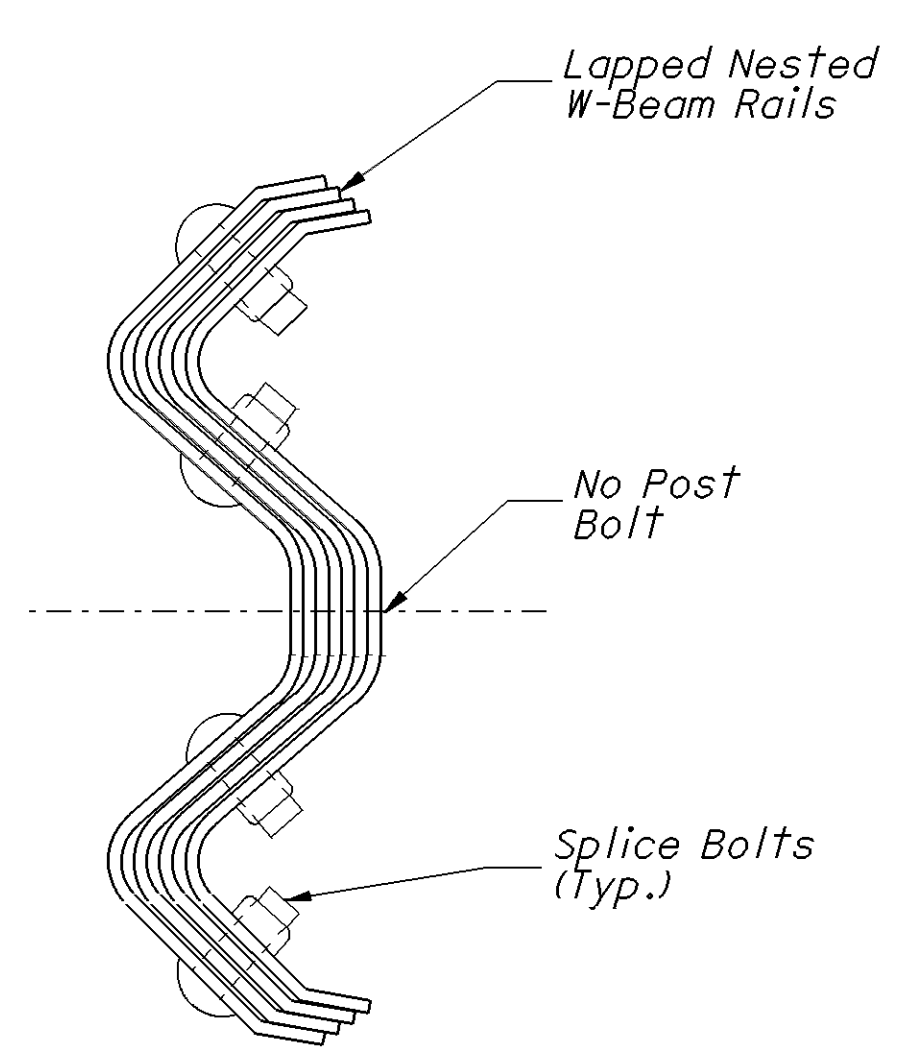
PLAN



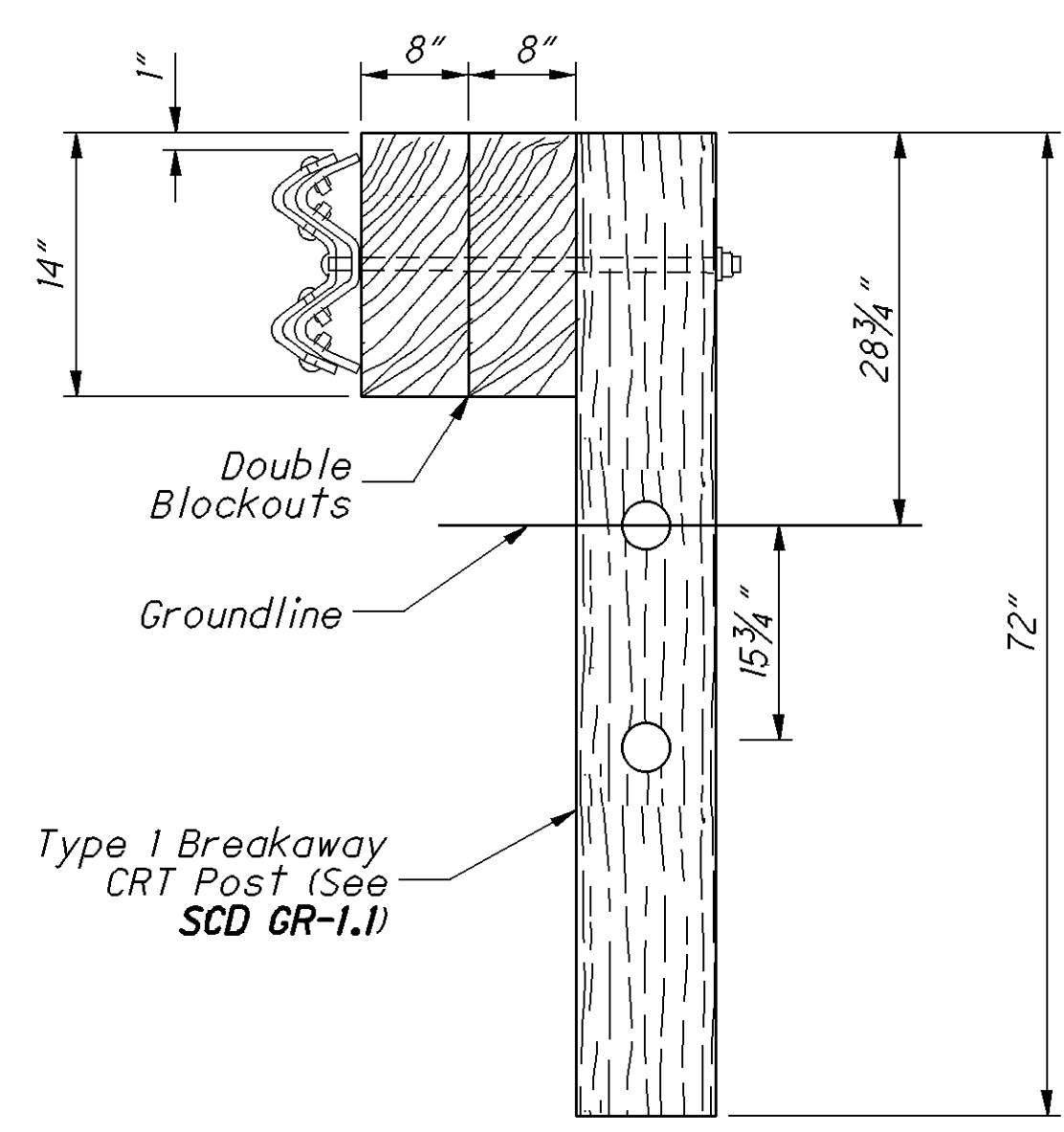
ELEVATION
25'-0" GUARDRAIL SPAN



SECTION A-A



RAIL SPLICE SECTION B-B



SECTION C-C

NOTES

APPLICATION: This drawing details the 25'-0" Long-span Guardrail cross culvert option, which meets the requirements of NCHRP 350 Test Level 3.

25'-0" SPAN: Posts may be eliminated such that a maximum of one rail splice is located within the unsupported length. A 25'-0" length of nested W-Beam rail may be used to eliminate a splice when 12'-6" long rail elements are used throughout the guardrail run.

CRT POSTS: For Details see SCD GR-1.1. Place holes parallel to traffic. The CRT Posts should have a 3'-7/4" embedment depth.

COVER DEPTH: This depth is measured at the locations of the missing posts. For cover depths greater than or equal to 2'-6", see SCD GR-2.2.

FLARED ENDS: Install the system with either one or both ends flared away from the traveled way. For locations where a guardrail flare will be used, the minimum recommended length of tangent section adjacent to the unsupported length is 25'. Taper rates should be as shown on SCD GR-5.1.

MATERIALS: All posts, blockouts, rails, and hardware shall comply with Item 606, Guardrail Type 5 as detailed on SCD GR-2.1 except as noted. For other details not shown, see SCD GR-1.1.

PAYMENT: Item 606 - Guardrail, Type 5, 25' Long-Span is paid for in Feet for the length specified in the plans and includes the double rail elements, block outs, posts, and the other hardware, materials and labor required to construct the guardrail as shown.

NOTES

APPLICATION: Use Type T Anchor Assemblies on the trailing end of guardrail runs, located outside of the clear zone of opposing traffic. The assembly is 12'-6" long, none of which can be considered the Length of Need for the guardrail run.

For termination requirements at driveways, see DRIVEWAY OPENING Detail on Sheet 2. For side road approaches and Terminals at Structures, see Location & Design Manual, Volume 1, Figure 603-3.

ANCHORING OPTIONS: Contractor may choose either the foundation tube (shown on this Sheet) or the concrete footing option (Sheet 2) to construct this anchor assembly.

If the foundation tube option is chosen, the contractor will take proper care to insure that the Soil Plate fasteners are not broken during the driving process.

Concrete footings may be cast-in-place or precast. Compact fill after placing precast unit.

MATERIALS: See SCD GR-1.1 for parts used on this anchor, including the CRT Breakaway Posts, Steel Ground Tube, Post Sleeve, Cable Anchor and Bracket Assembly.

Bearing Plate and Soil Plate is ASTM A709 Grade 36. Steel Ground Tube shall be ASTM A500, Grade B, and meet CMS 707.10. All angles, channels and plates shall meet CMS 711.01. All structural steel shall be galvanized as specified in CMS 711.02. All bolt washers indicated are standard galvanized steel of the appropriate size.

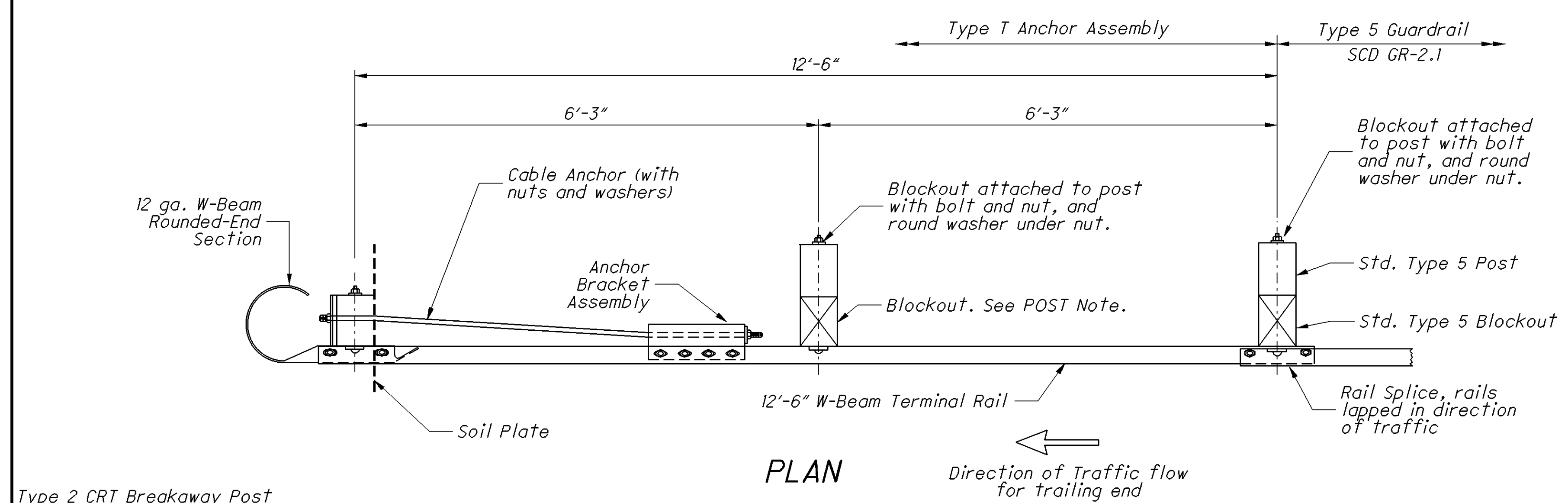
Concrete shall be class C.

Components on this anchor that are not detailed on SCD GR-1.1 include: 1) 12'-6" W-Beam Terminal Rail (standard part RWM14a), and 2) W-Beam Rounded End Section (RWE03a). For complete details and specifications, see part descriptions in the AASHTO/AGC/ARTBA Standardized Hardware Guide.

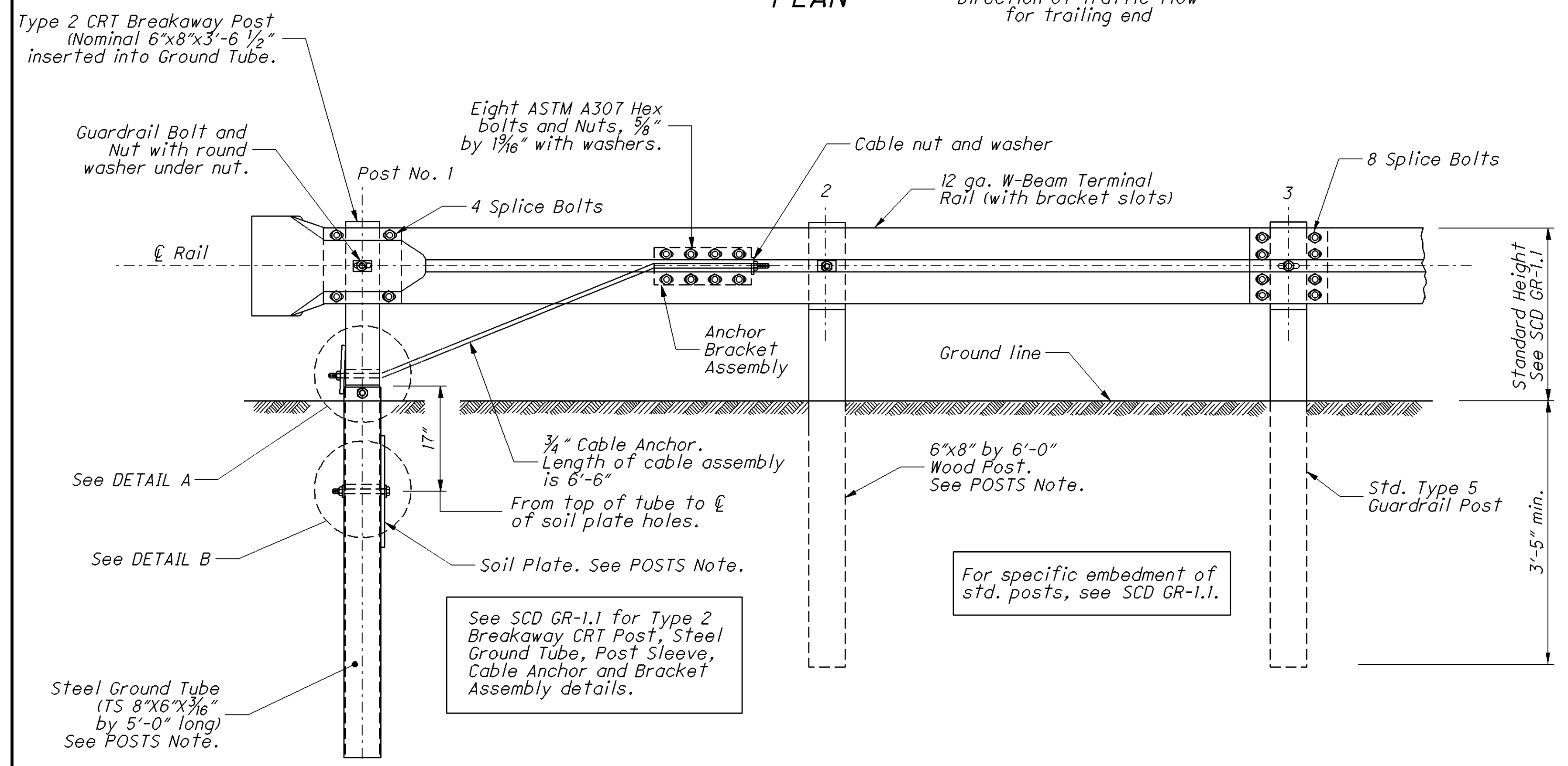
POSTS: Post No. 1 may be an 8'-0" long Steel Ground Tube without a Soil Plate in lieu of the 5'-0" tube with Soil Plate.

Post No. 2 can be W6x9 (or W6x8.5) with notched wood blockouts or a standard Type 5 post and blockout. Recycled plastic blockouts are permitted.

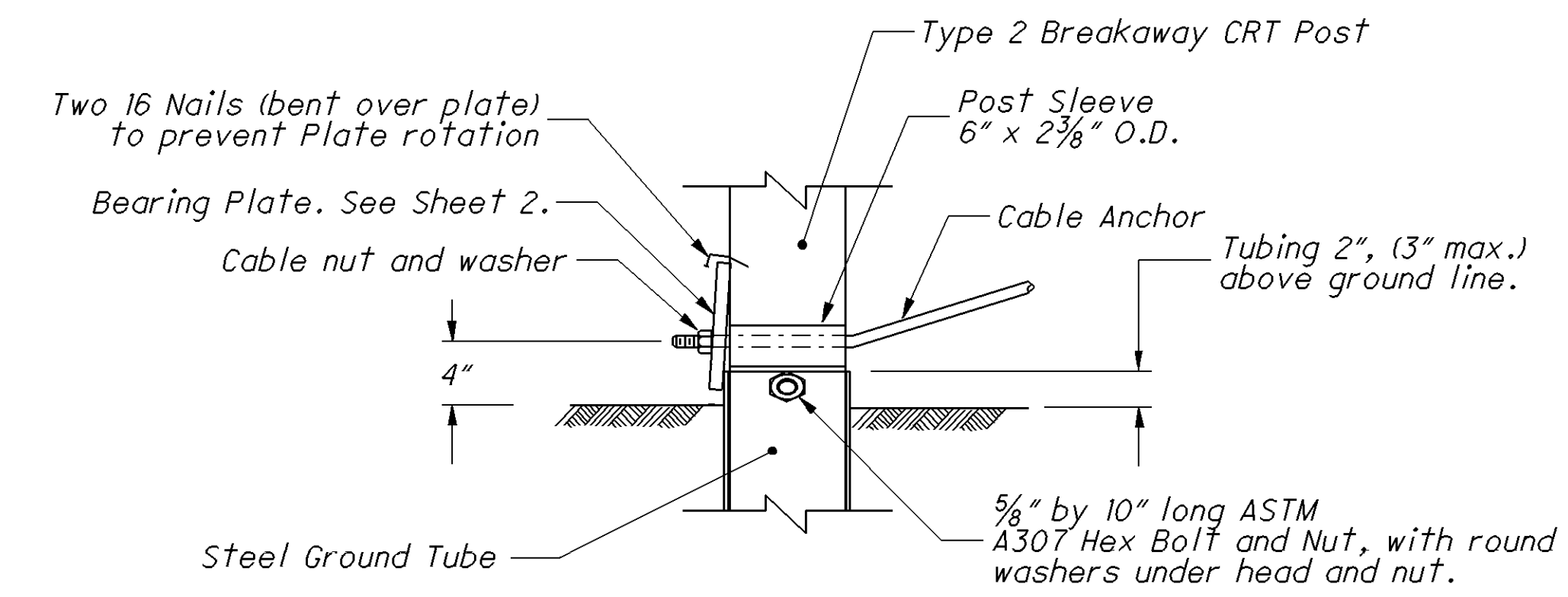
PAYMENT: All labor and materials, including the W-Beam Rounded End Section and the W-Beam Terminal Rail for the 12'-6" anchor assembly shall be included in the unit price bid for Item 606 - Anchor Assembly, Type T, Each.



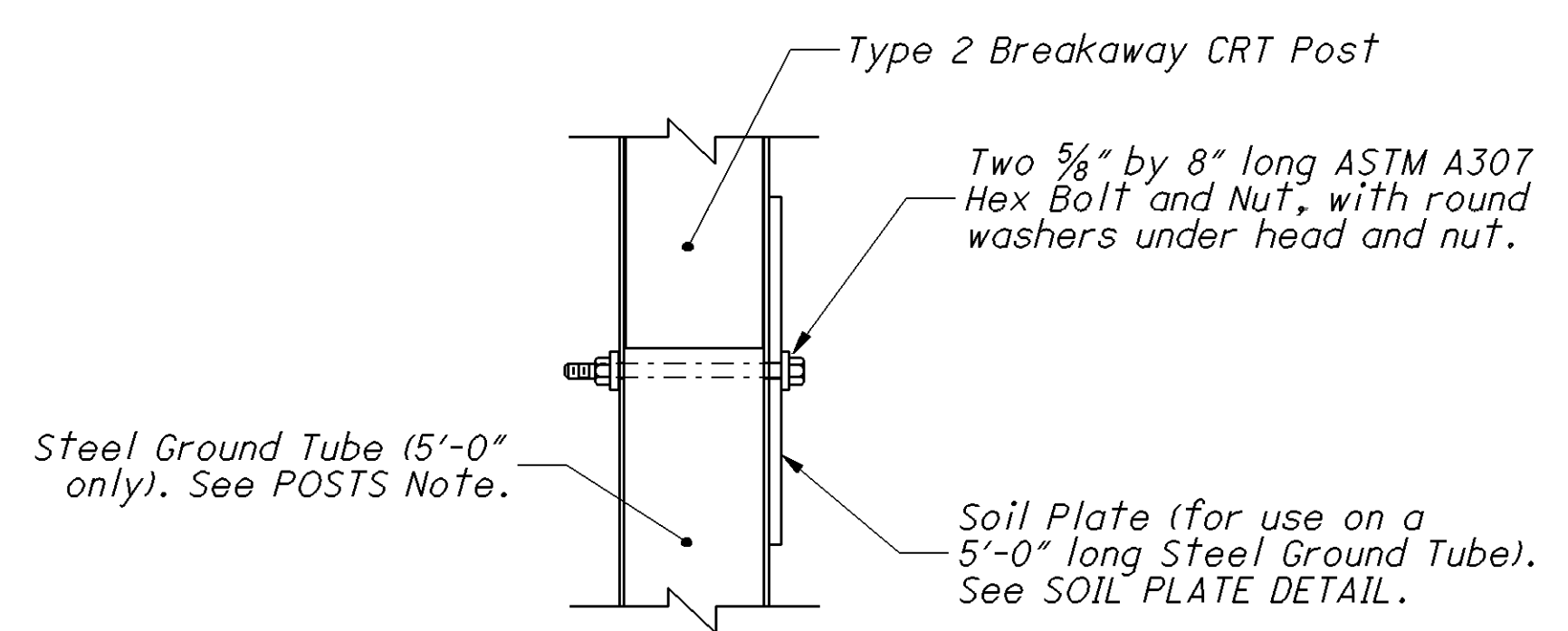
PLAN



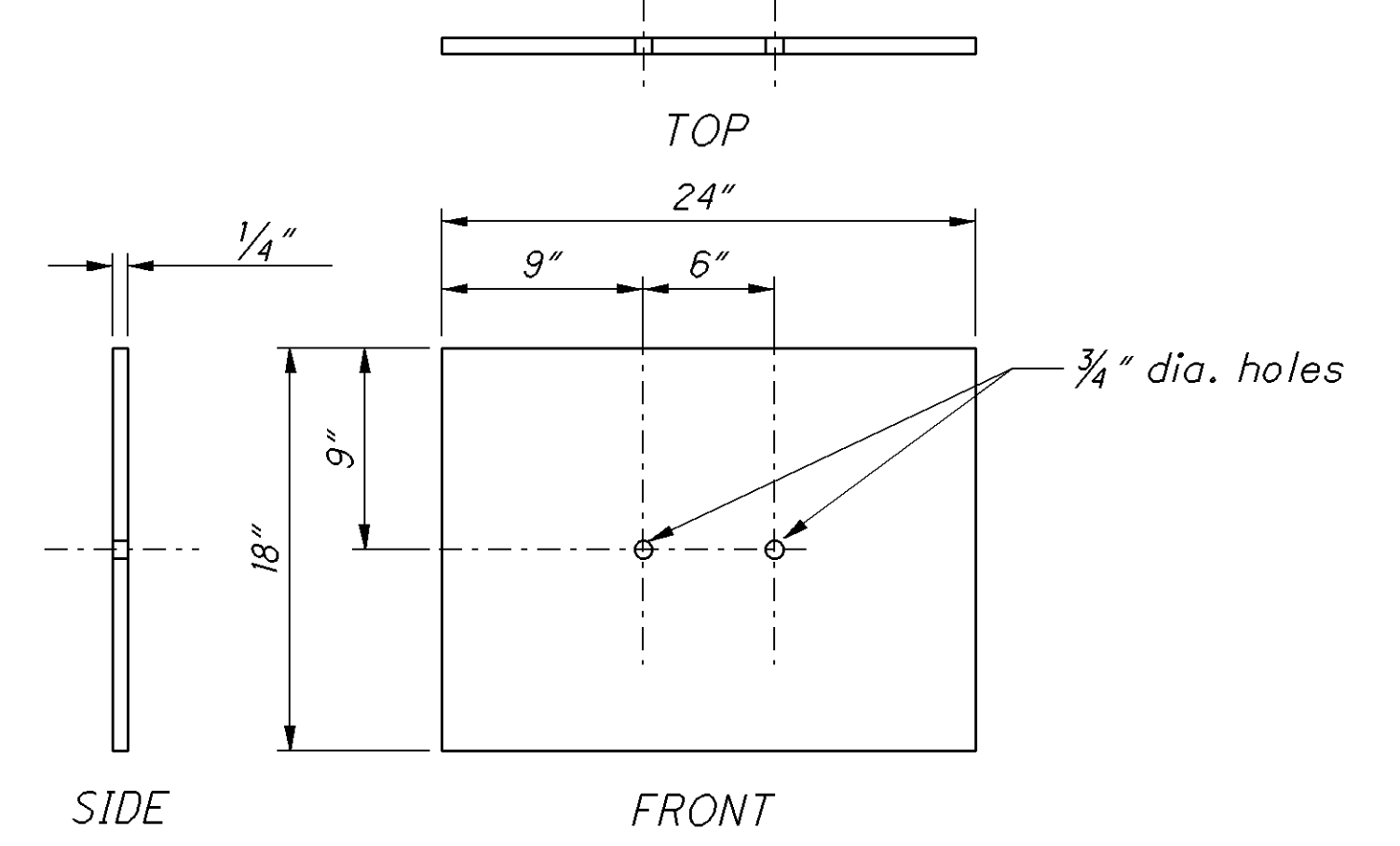
ELEVATION - FOUNDATION TUBE



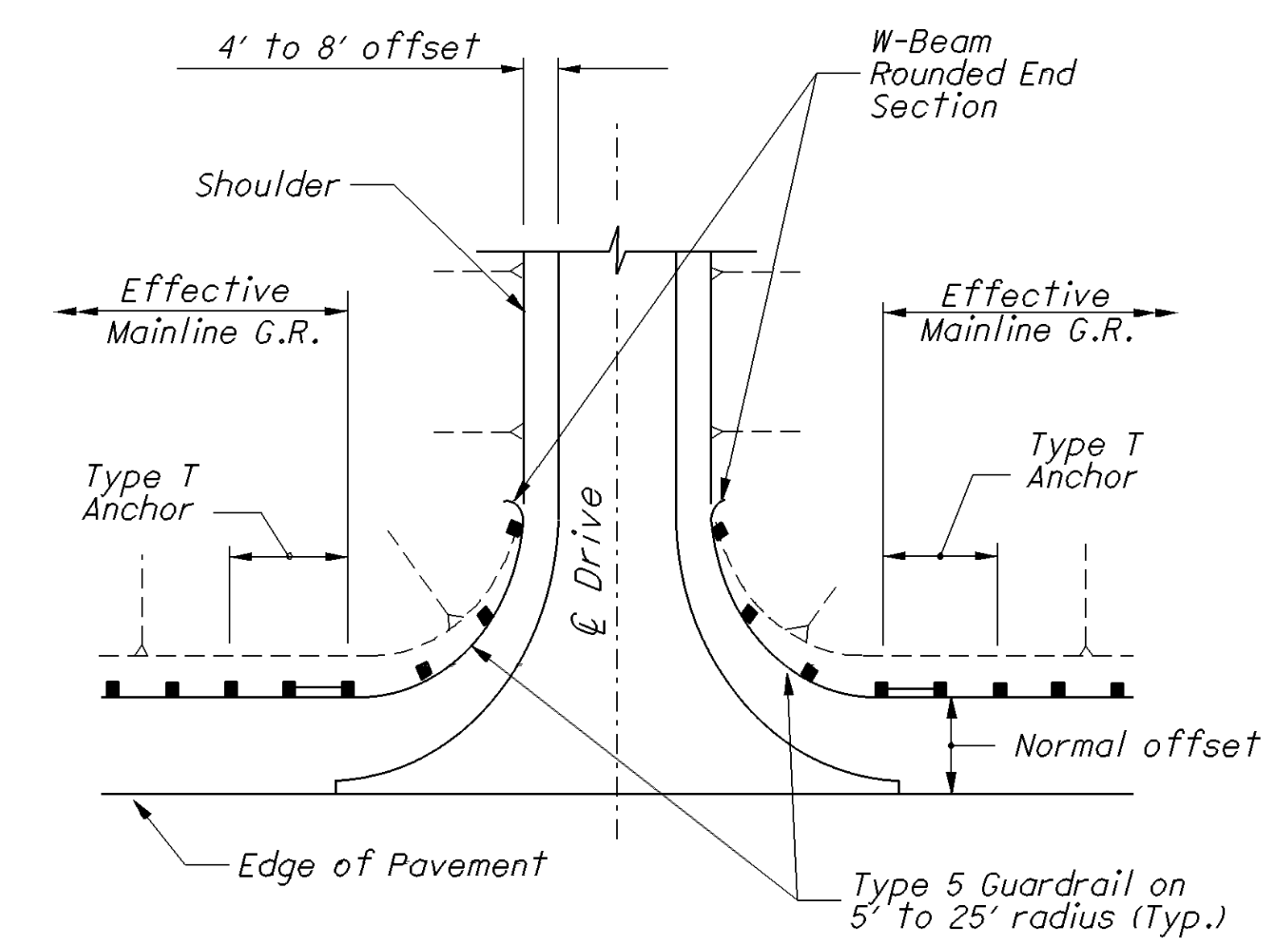
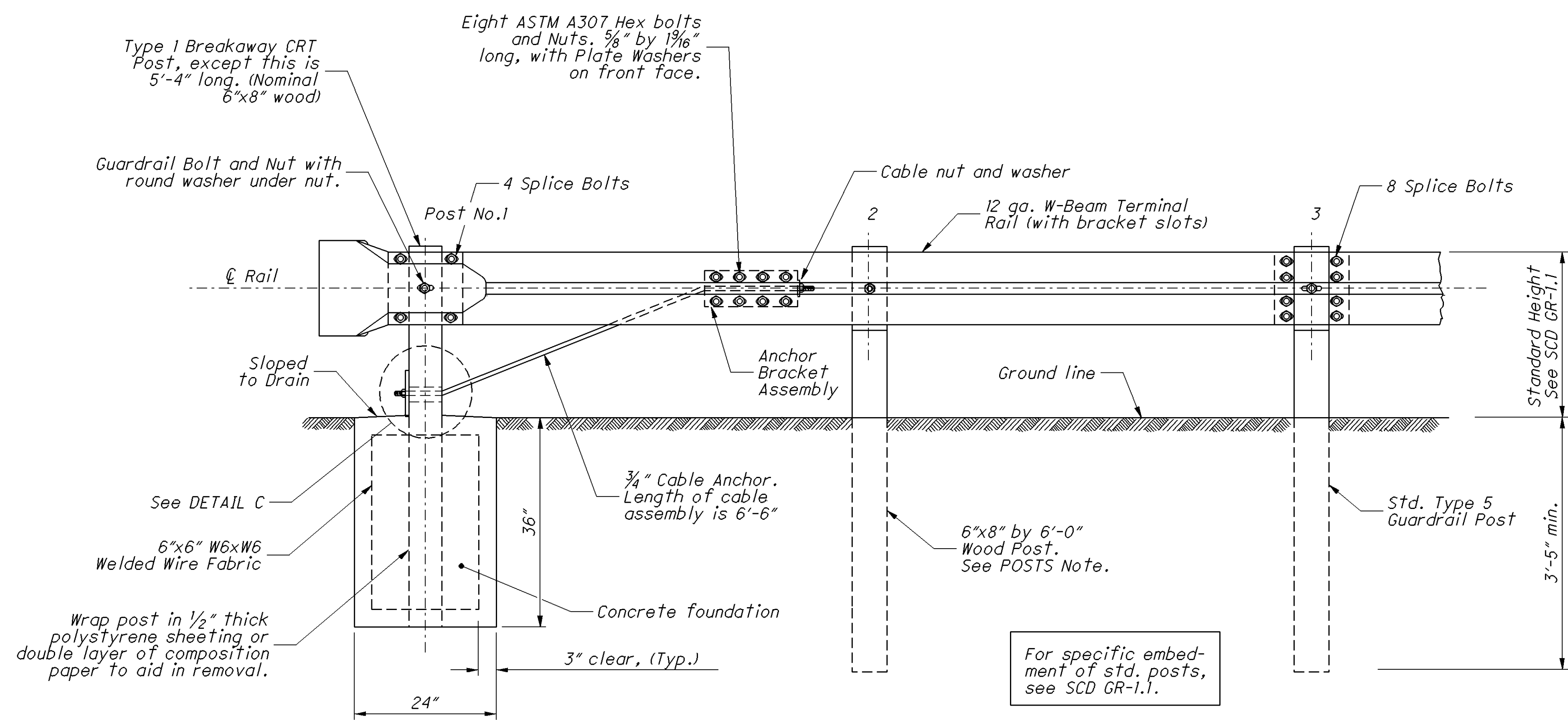
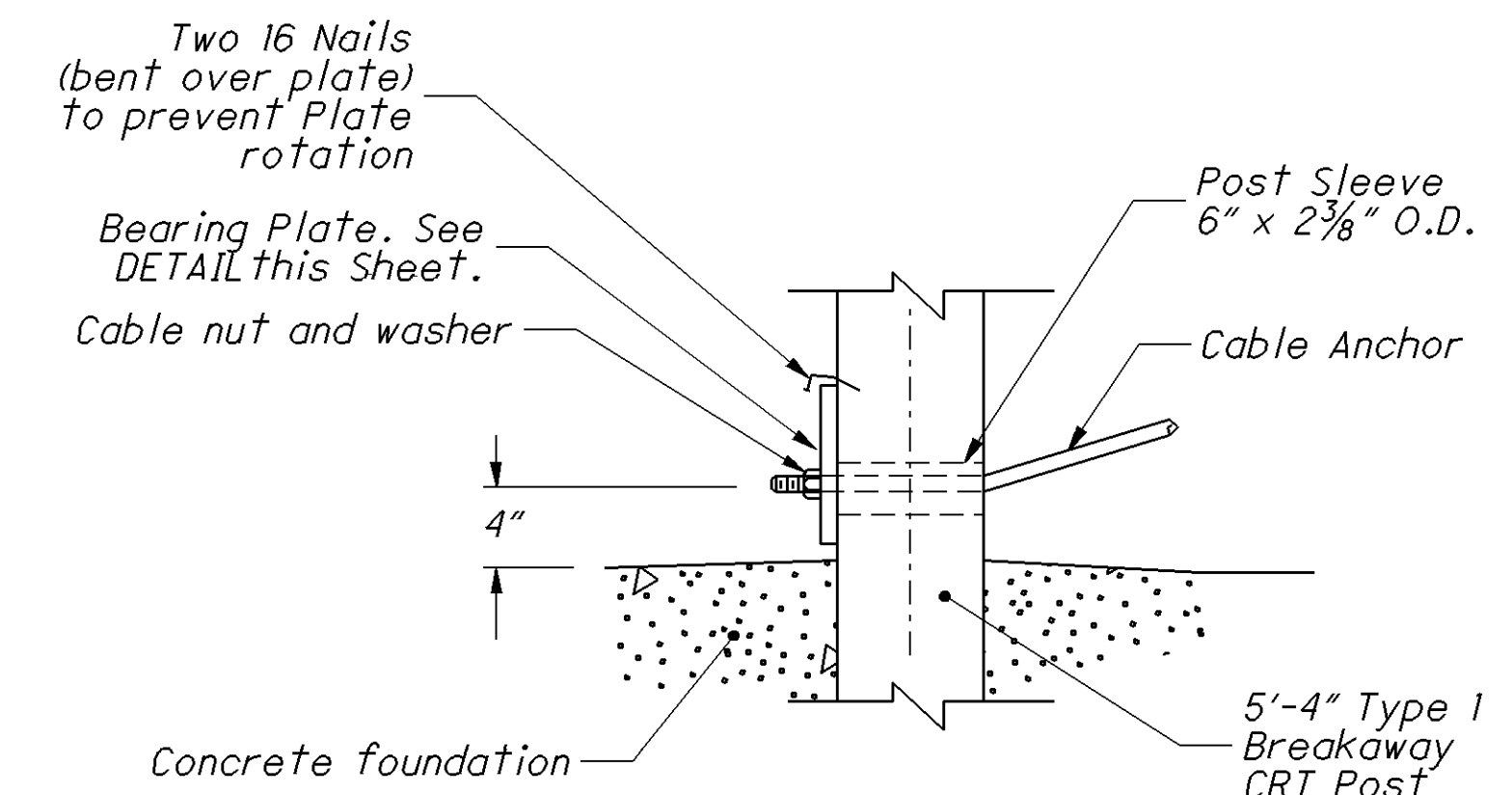
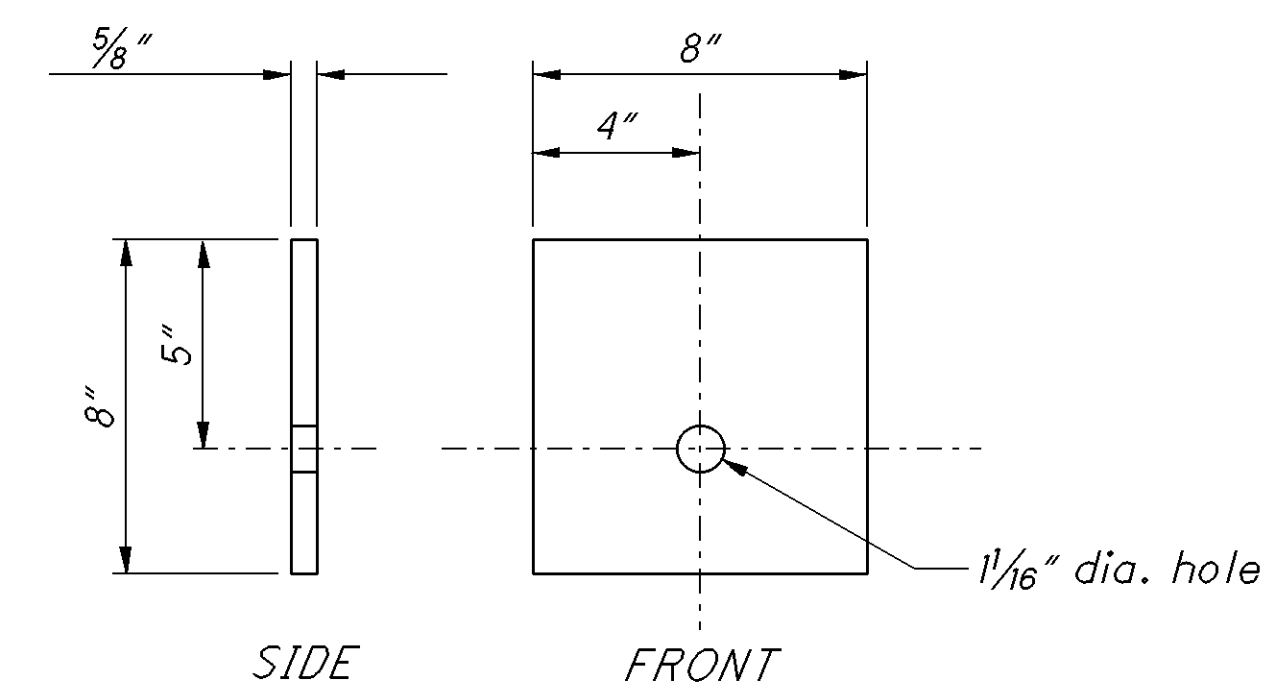
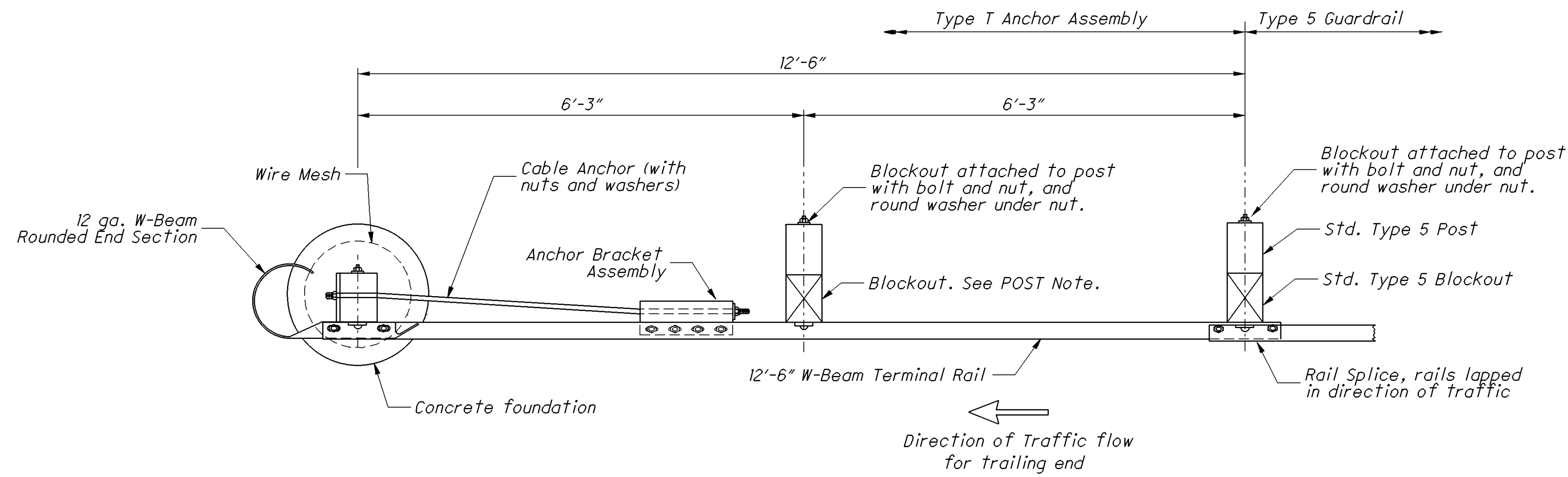
DETAIL A



DETAIL B



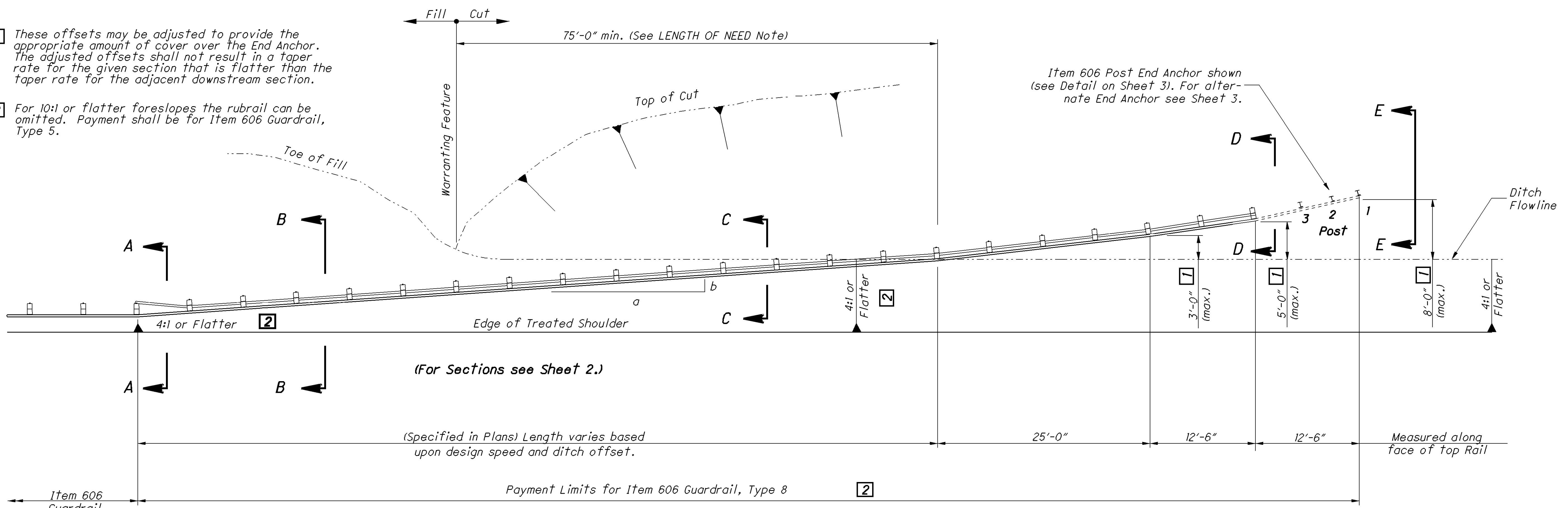
SOIL PLATE DETAIL



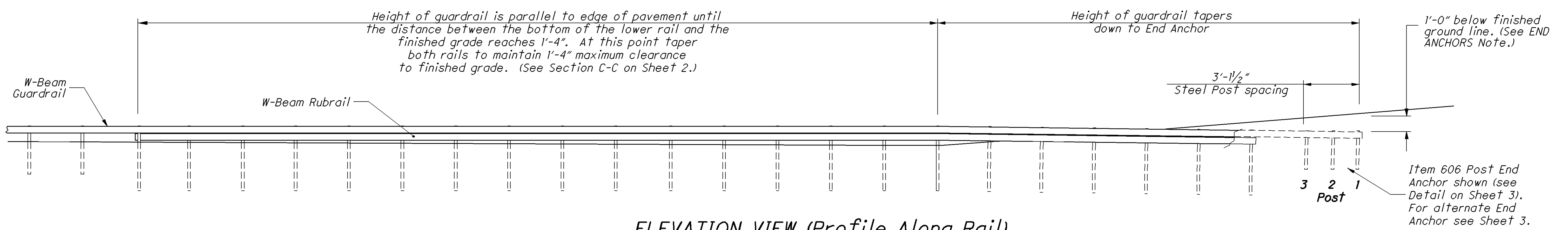
ELEVATION - CONCRETE FOOTER

DRIVEWAY OPENING

- 1 These offsets may be adjusted to provide the appropriate amount of cover over the End Anchor. The adjusted offsets shall not result in a taper rate for the given section that is flatter than the taper rate for the adjacent downstream section.
- 2 For 10:1 or flatter foreslopes the rubrail can be omitted. Payment shall be for Item 606 Guardrail, Type 5.



PLAN VIEW



ELEVATION VIEW (Profile Along Rail)

NOTES

POSTS & BLOCKOUTS: Shall comply with Guardrail, Type 5 (See SCD GR-2.1) except posts shall be 8'-0" long unless otherwise specified.

LENGTH OF NEED: Where backslopes along the length of the terminal to the warranting feature are 2:1 or flatter, at least 75'-0" of guardrail must be provided upstream from the warranting feature before the guardrail crosses the ditch line. (The warranting feature is often the intersection of the Fill/Cut slopes as shown, but may be at some other point.) Where backslopes are steeper than 2:1, this minimum distance is not applicable.

PAYMENT: Item 606 Guardrail, Type 8, shall be in Linear Feet for the length specified in the plans and shall include rails, 8'-0" posts, grading, excavation, embankment and all other hardware, materials and labor required to construct the guardrail as shown except for the End Anchor. Payment for Item 606 - Post End Anchor (or Concrete Block End Anchor), Each, shall include the extra cost of concrete blocks or steel posts and all other hardware, materials and labor required to construct the End Anchor.

END ANCHORS: A Post End Anchor is the preferred end treatment. A Concrete Block End Anchor may be installed in any location that does not permit the installation of posts. Concrete Blocks may be either pre-cast or cast-in-place and shall meet the requirements of CMS 606.02. The guardrail panel in the end anchors shall be pre-drilled and then galvanized per CMS 606.02. The finished ground line over the end anchor should be smooth and consistent with the surrounding topography, i.e. embankment shall not be mounded over the end anchor to achieve the proper amount of cover.

MISCELLANEOUS: For details not shown see SCD GR-2.1.

DESIGN SPEED	a:b
60 mph	13:1*
55 mph	12:1
50 mph	11:1
45 mph	10:1
35-40 mph	9:1

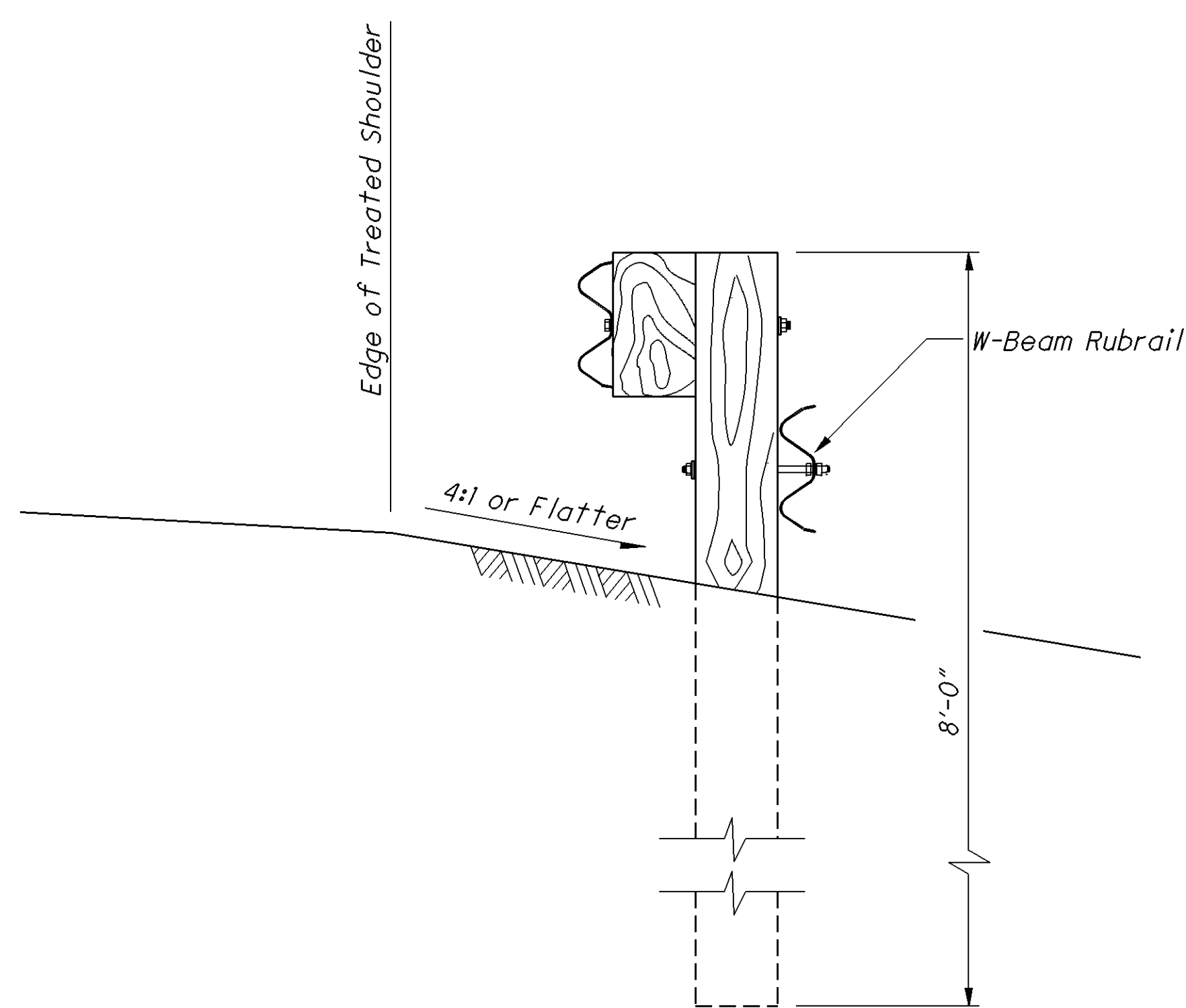
* All installations on the National Highway System shall be installed with this maximum flare rate regardless of design speed.

DESIGNED	REVIEWED
REVISION DATE	CHECKED

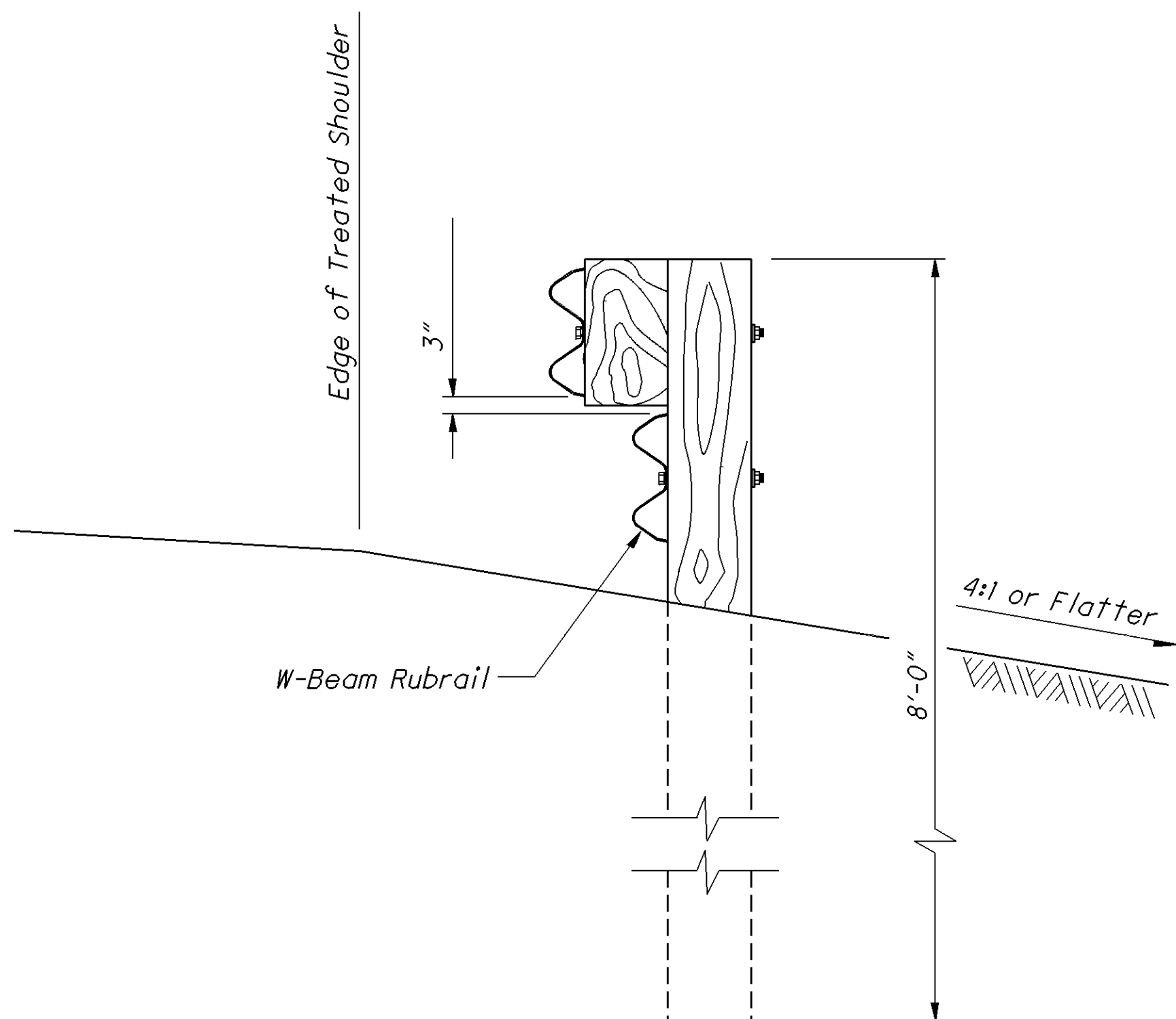
PIS NUMBER

PLAN INSERT SHEET
**GUARDRAIL TYPE 8
BURIED IN BACKSLOPE**

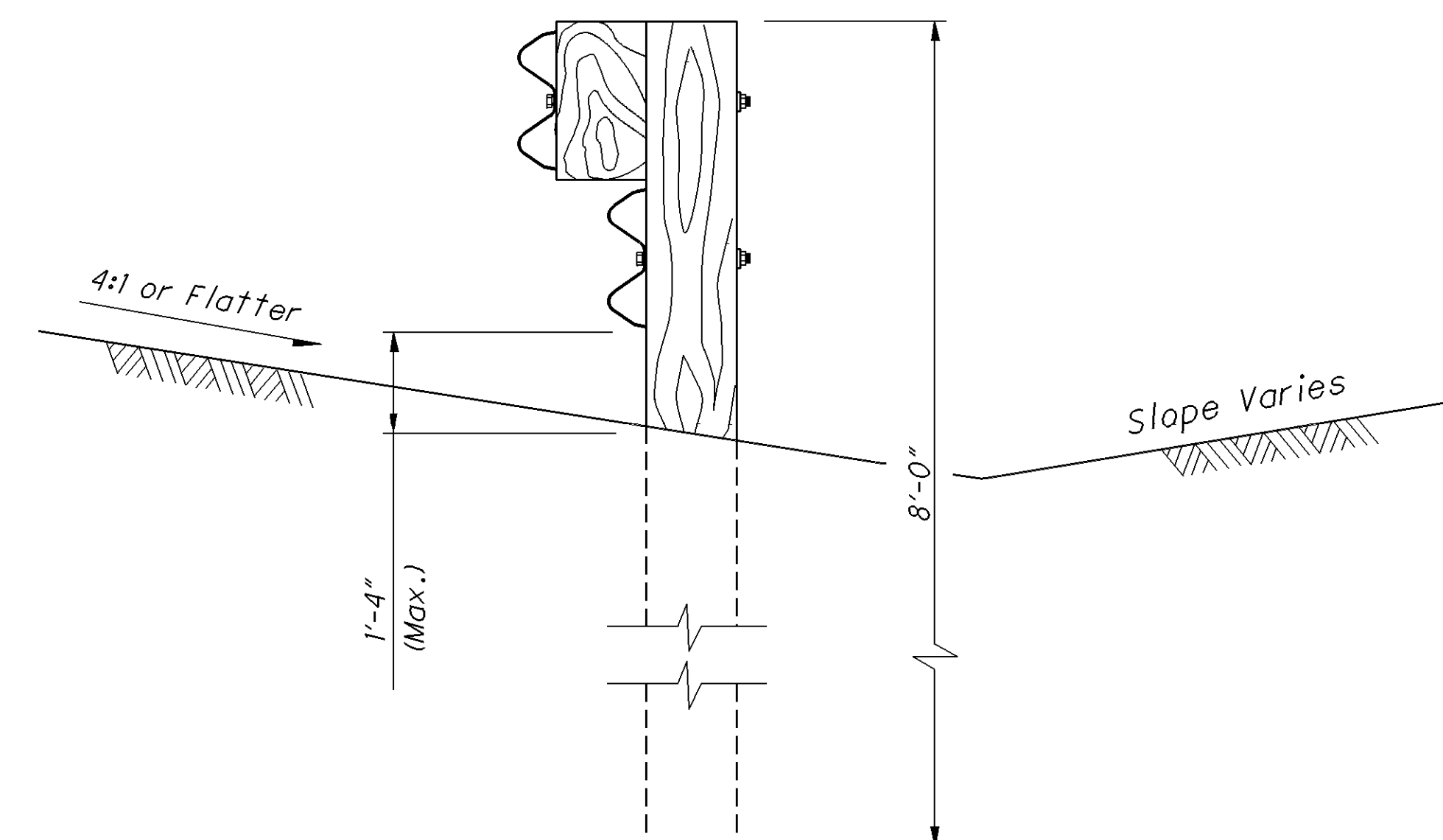
**PRE-CULVERTS -
FY2014**



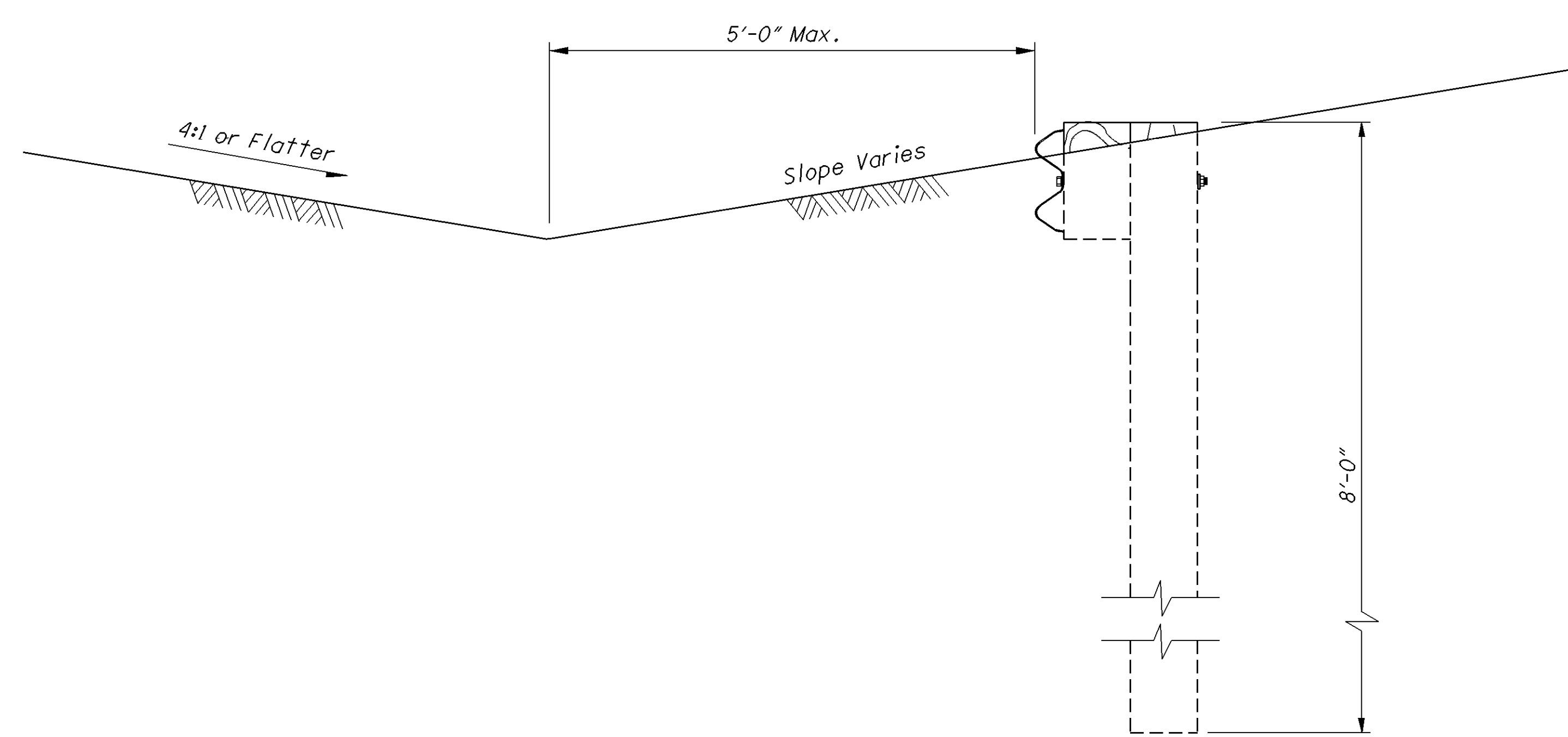
SECTION A-A
(See Sheet 1)



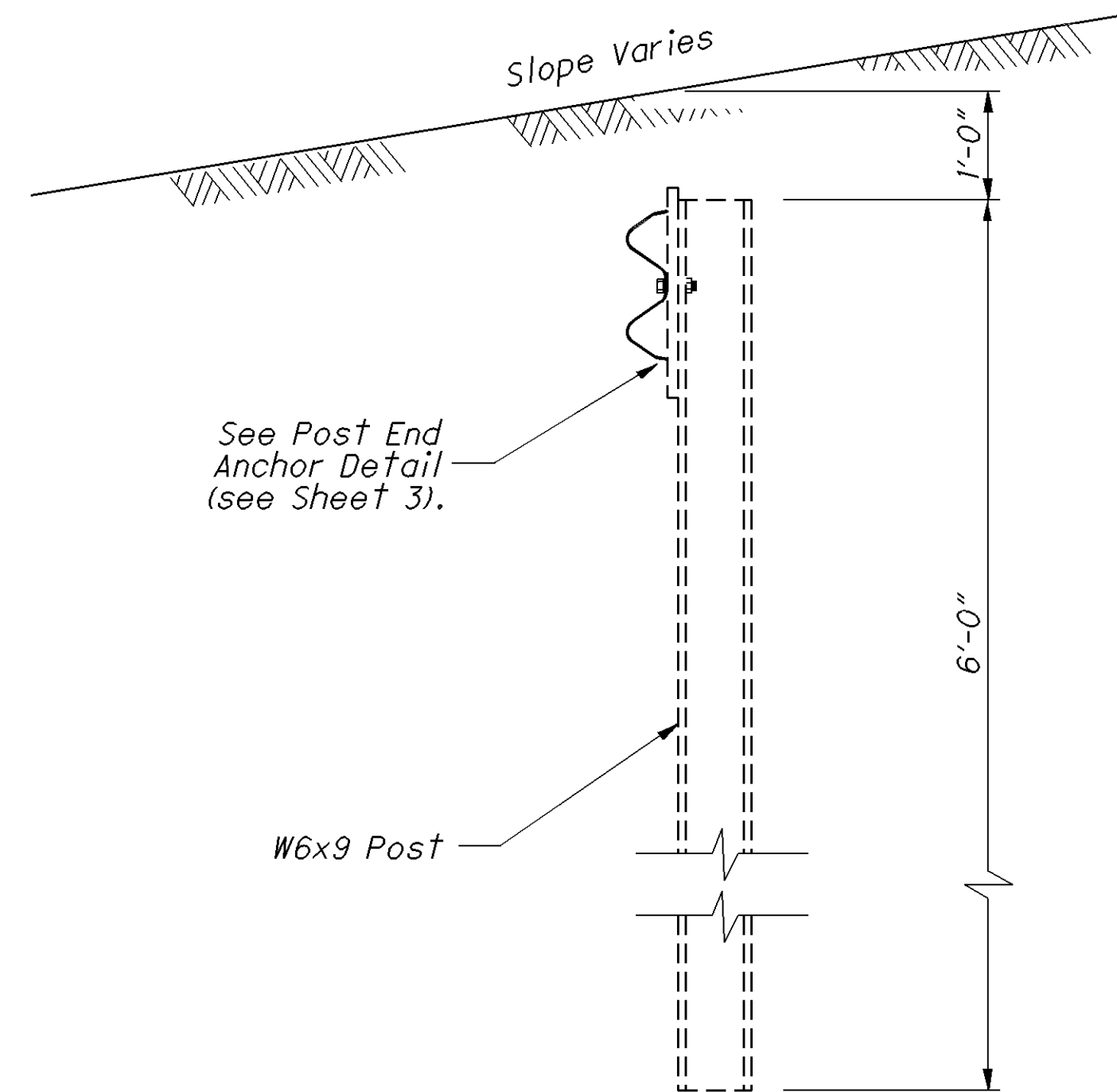
SECTION B-B
(See Sheet 1)



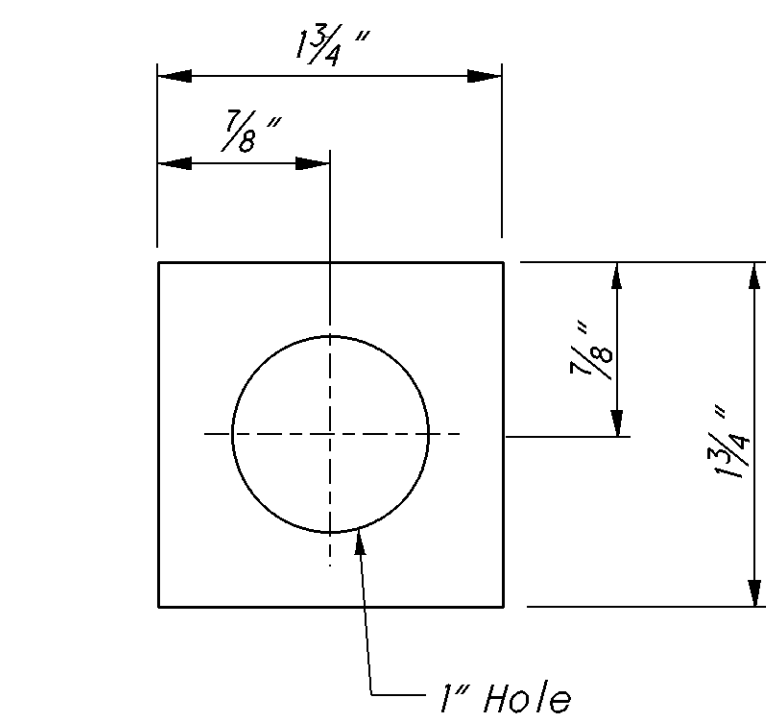
SECTION C-C
(See Sheet 1)



SECTION D-D
(See Sheet 1)



SECTION E-E
(See Sheet 1)



WASHER DETAIL
3/16" THICK SQUARE WASHER

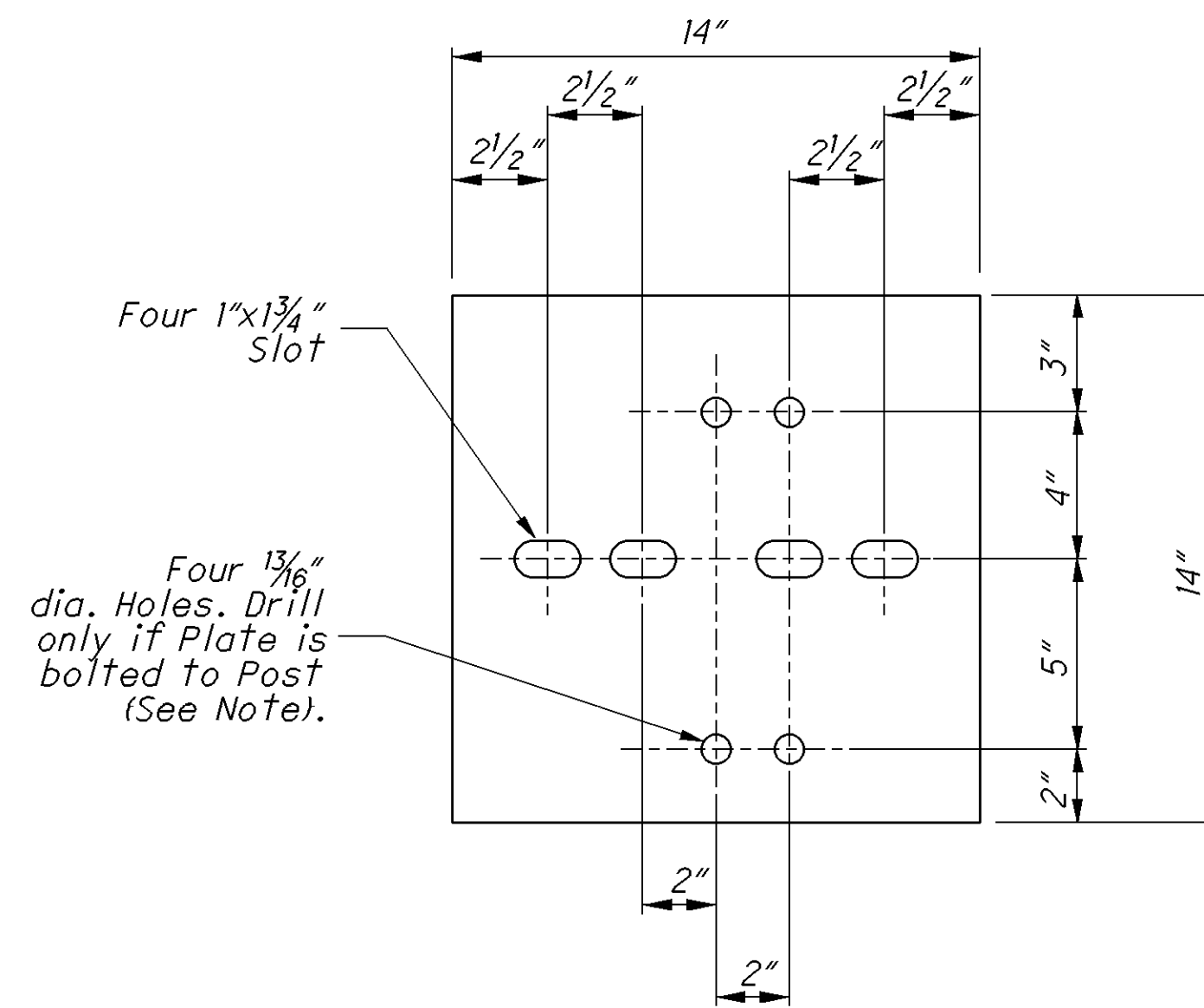
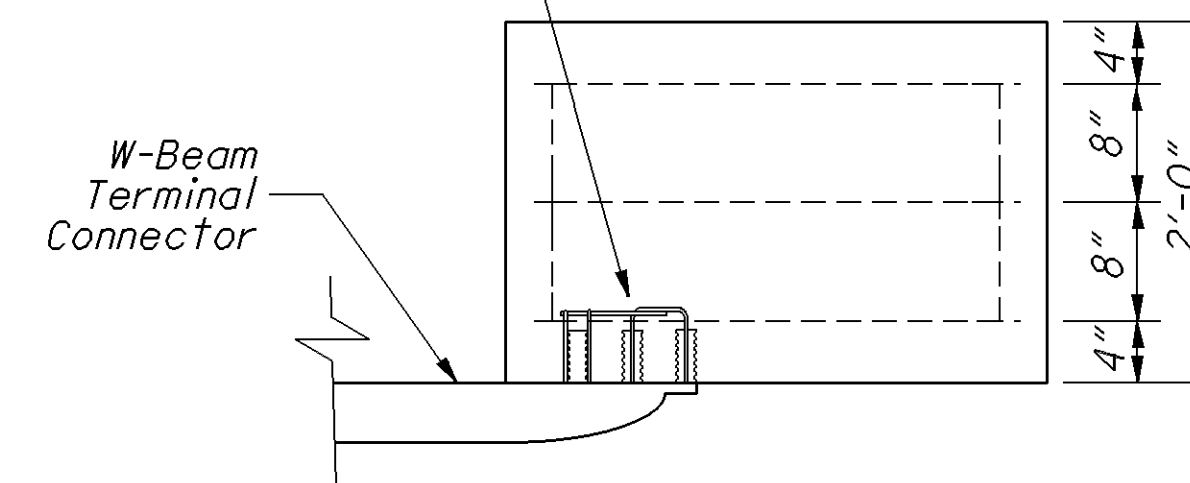


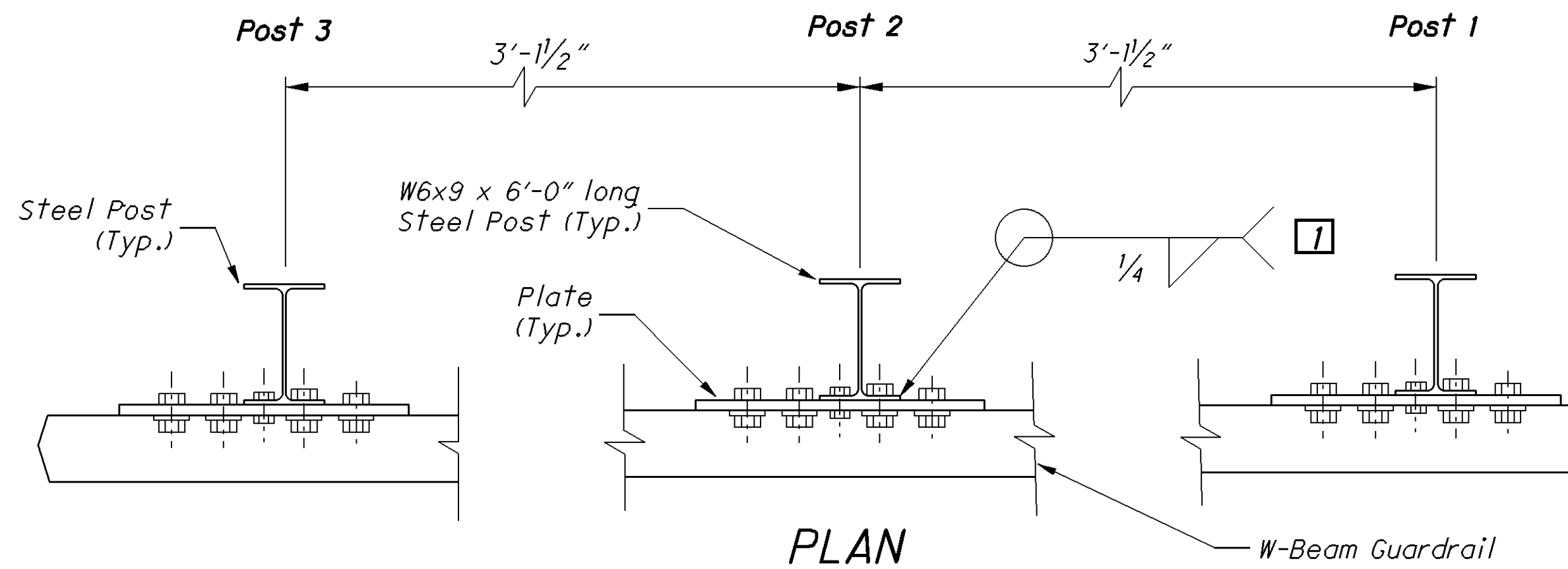
PLATE DETAIL
1/2" THICK STEEL PLATE

Use either: 1) Concrete Insert Anchor Assembly (See Detail on (SCD GR-1.1), or 2) four 7/8" Anchor Bolts with washers, or 3) Expansion Shield Anchors conforming to CMS 712.01.

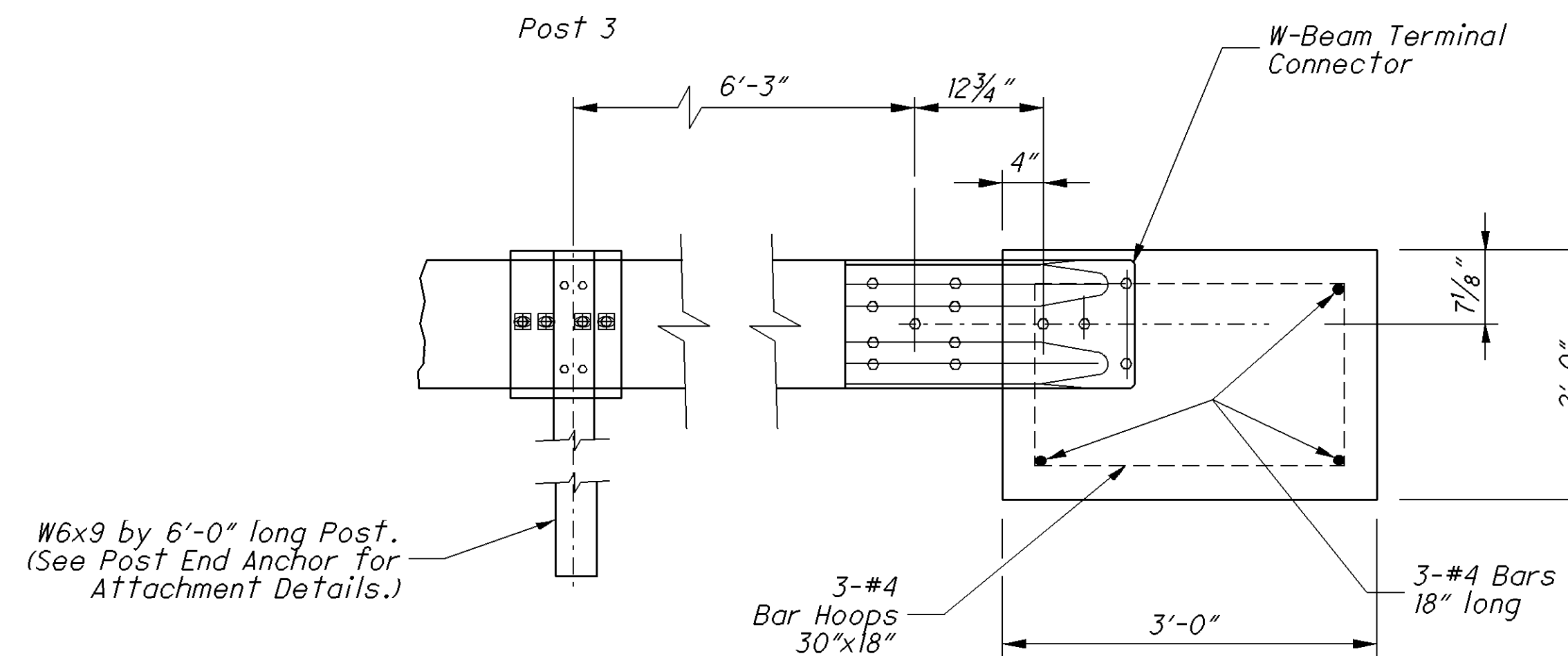
Bolts shall be either mechanical or set in epoxy adhesive. Length of bolt and size of hole to be determined by manufacturer's recommendation.



PLAN

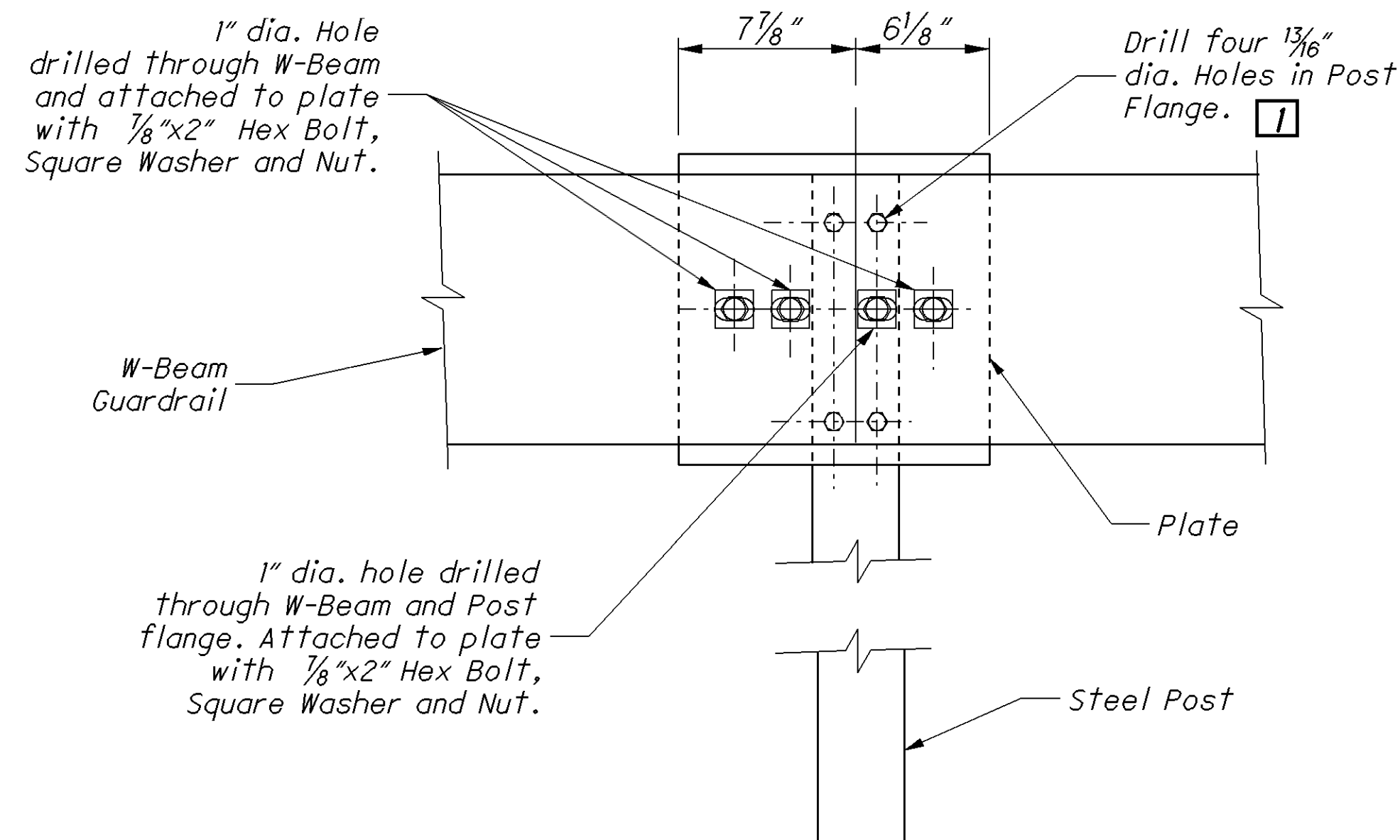


PLAN



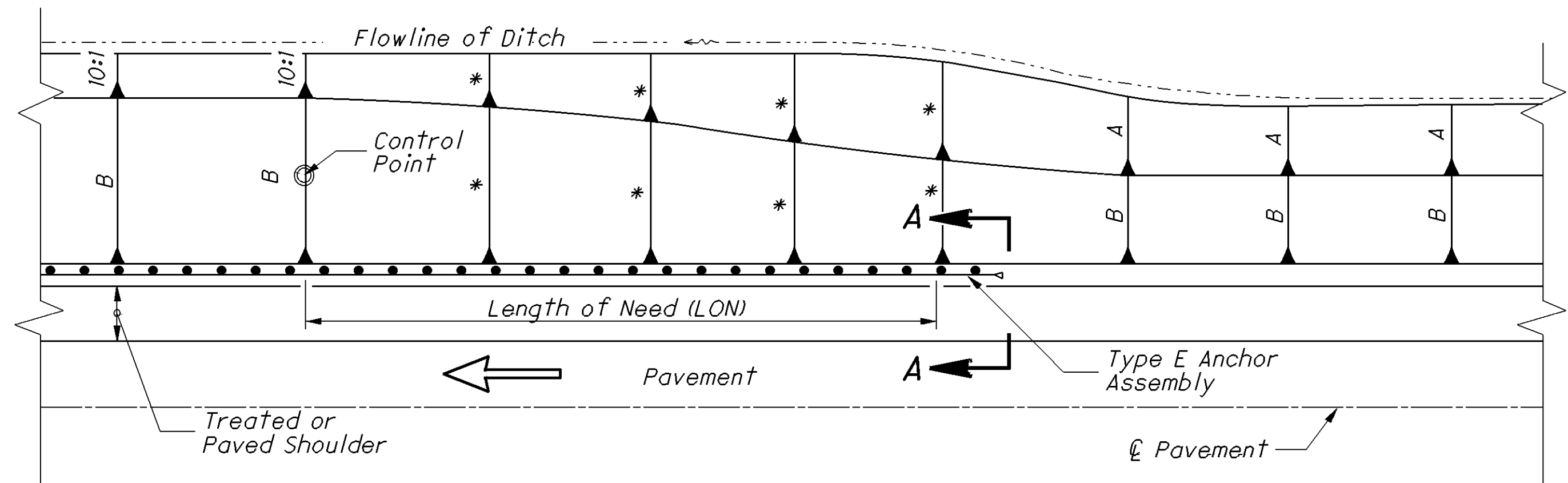
ELEVATION
CONCRETE BLOCK END ANCHOR

Posts 1 and 2 are not used in concrete option.



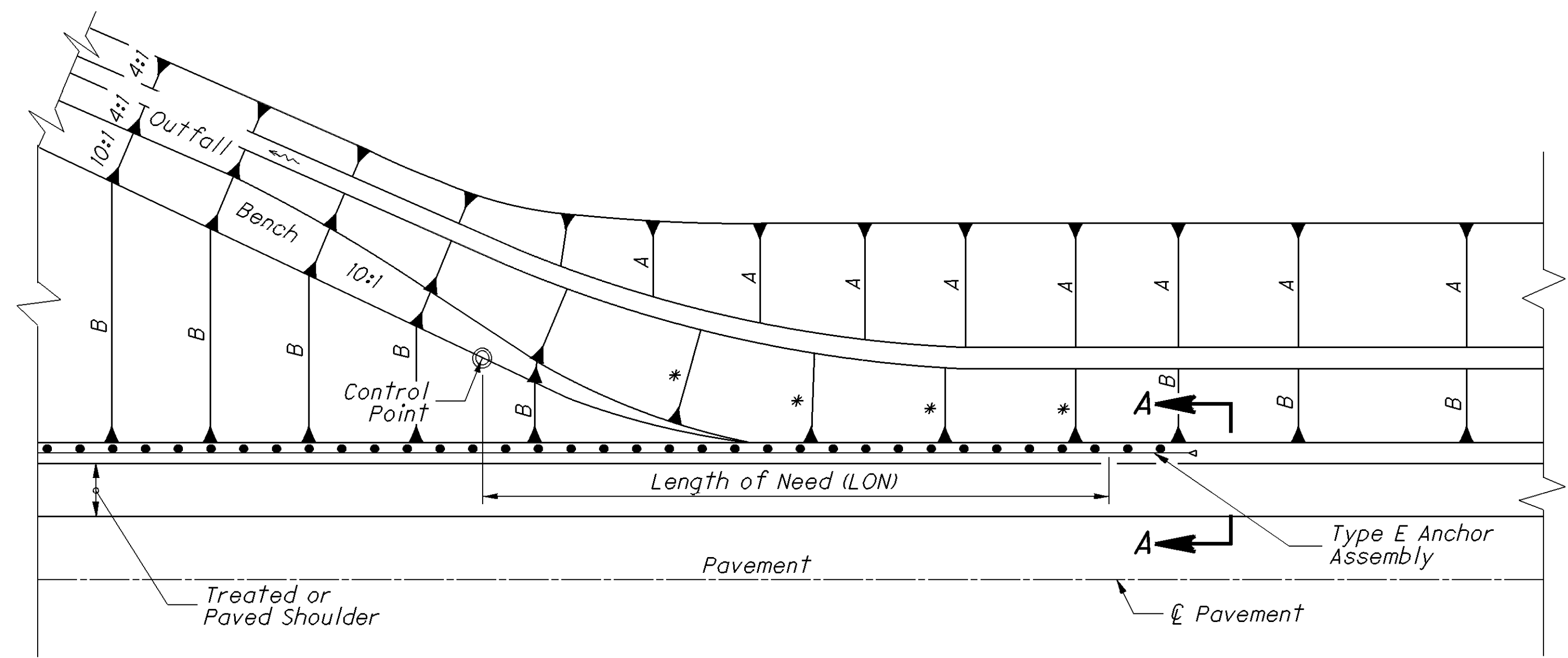
ELEVATION
POST END ANCHOR

1 The 1/2" Steel Plate may be welded or bolted to the Post. If the Plate is bolted to the Post use four 5/8"x1 1/2" long Hex Head Bolts with Hex Nuts. If the Plate is welded to the Post do not drill 1 3/8" Holes in the Plate or the Post Flanges.

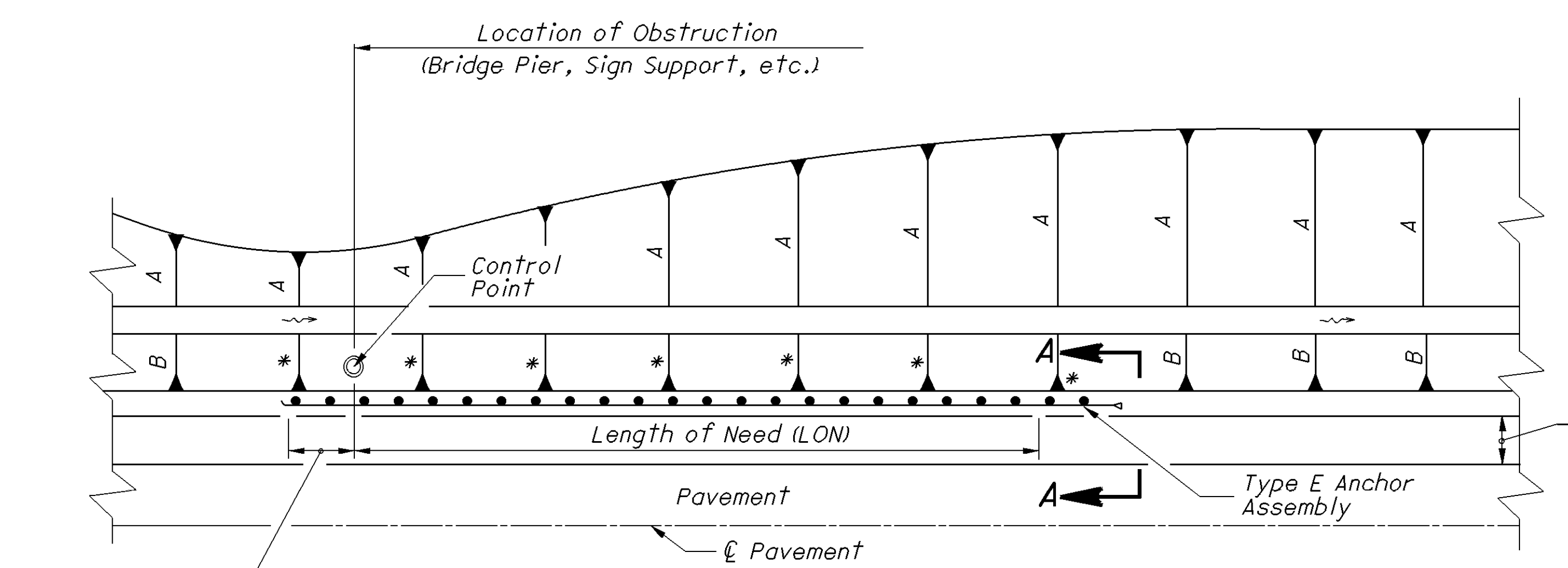


FILL TO FILL

* 3:1 or Flatter

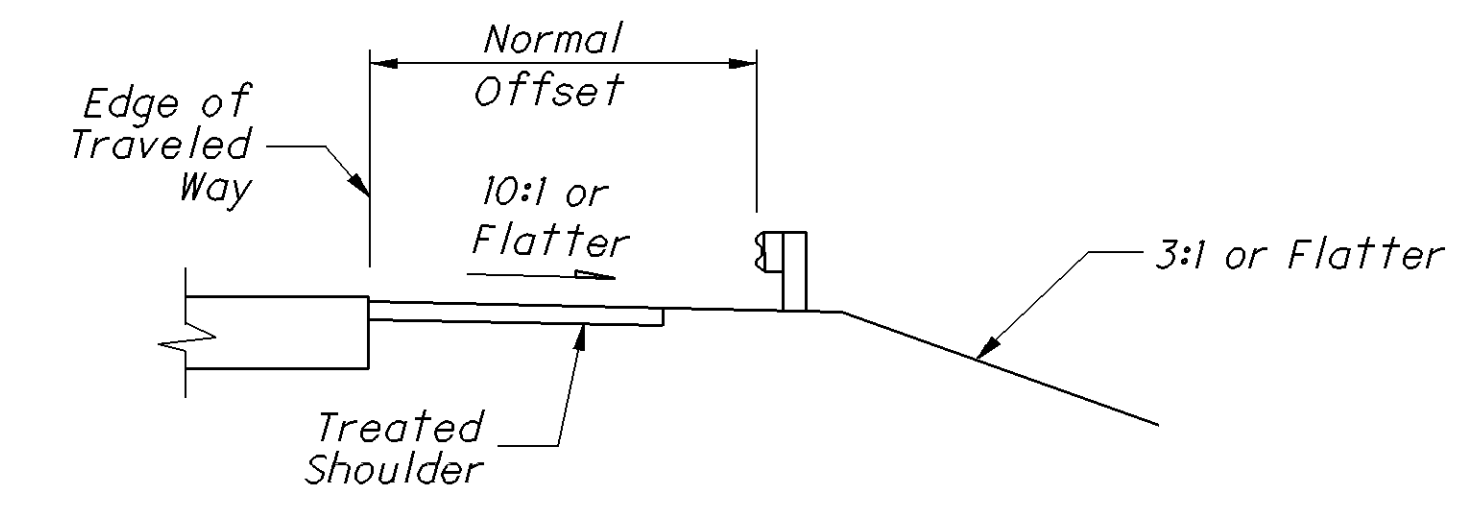


CUT TO FILL



OBSTRUCTION

Type T Anchor Assembly. See SCD GR-4.2.



SECTION A-A

NOTES

APPLICATION: Utilize details shown here only where approach foreslopes are steeper than 6:1, but not steeper than 3:1.

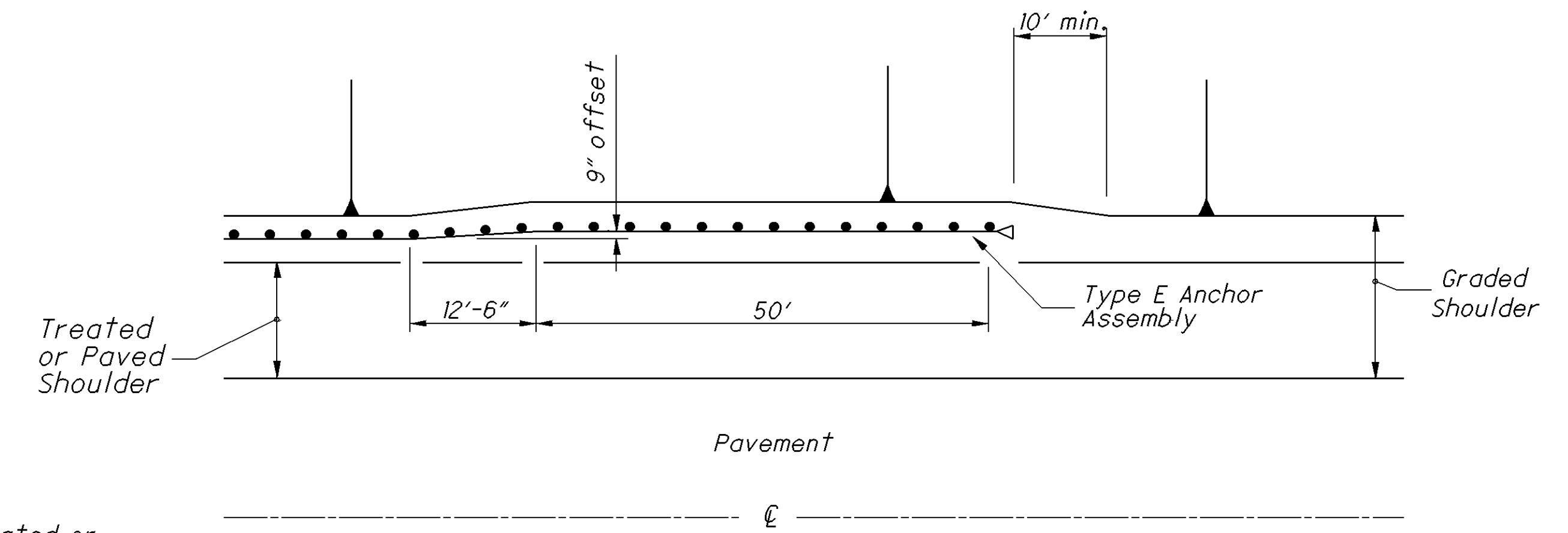
SLOPES: Slopes designated by * shall be 3:1 or flatter. Slopes labeled "A" and "B" shall be constructed as specified in the plans.

"LON" DISTANCE: The Length of Need, LON, represents the distance from the control point to the beginning of the end treatment. The control point shown designates the extent of the hazard being shielded and is shown for design use only. See *Location & Design Manual, Volume 1, Section 602.*

GUARDRAIL END TERMINALS: Terminals utilized for the situations shown here shall be Type E Anchor Assemblies unless otherwise specified in the plans.

OBSTRUCTION INSTALLATION: Use this installation for one-directional roadways only.

OFFSET DESIGN: The design shown may be specified on the plans where it is deemed detrimental to lose effective shoulder width due to the dimensions of the Type E Anchor Assembly. The Type E which represents the final 50' of guardrail is to be offset an additional 9" from the normal guardrail offset by tapering within the 12'-6" shown below. The graded shoulder width shall be increased 9" and tapered back to the normal width to 10' as shown.



OFFSET DESIGN
(Plan View)

ITEM 614, MAINTAINING TRAFFIC

ALL WORK AND TRAFFIC CONTROL 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. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

TIME LIMITATION ON A DETOUR

A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED 14 CONSECUTIVE CALENDAR DAYS FOR EACH OF THE FIVE PROJECT WORK LOCATIONS. THE CLOSURES ON S.R. 121 SHALL NOT BE CONCURRENT WITH OTHER CLOSURES ON S.R. 121. A CLOSURE ON S.R. 732 SHALL NOT BE CONCURRENT WITH THE OTHER CLOSURE ON S.R. 732. COMPLETE ALL WORK AT THESE LOCATIONS WITHIN THE SPECIFIED TIME PERIODS, WHEN THROUGH TRAFFIC MAY BE DETOURED AS SHOWN ON SHEETS 4 AND 5. DISINCENTIVES SHALL BE ASSESSED THE AMOUNT OF \$1,000 FOR EACH CALENDAR DAY THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT.

SUMMER TIME LIMITATIONS

ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC EXCEPT FROM JUNE 5 THRU AUGUST 15 WHEN THE ROAD MAY BE CLOSED TO TRAFFIC. SEE TIME LIMITATION ON A DETOUR PLAN NOTE ON THIS SHEET FOR MAXIMUM LENGTHS OF TIME FOR THE ROAD CLOSURES. AUGUST 15 SHALL BE CONSIDERED TO CONSTITUTE AN INTERIM COMPLETION DATE AND A DISINCENTIVE SHALL BE ASSESSED THE AMOUNT OF \$1,000 FOR EACH CALENDAR DAY THAT ALL LANES ARE NOT OPEN AND AVAILABLE TO TRAFFIC.

NOTICE OF CLOSURE SIGN

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

ROAD CLOSED SIGN

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

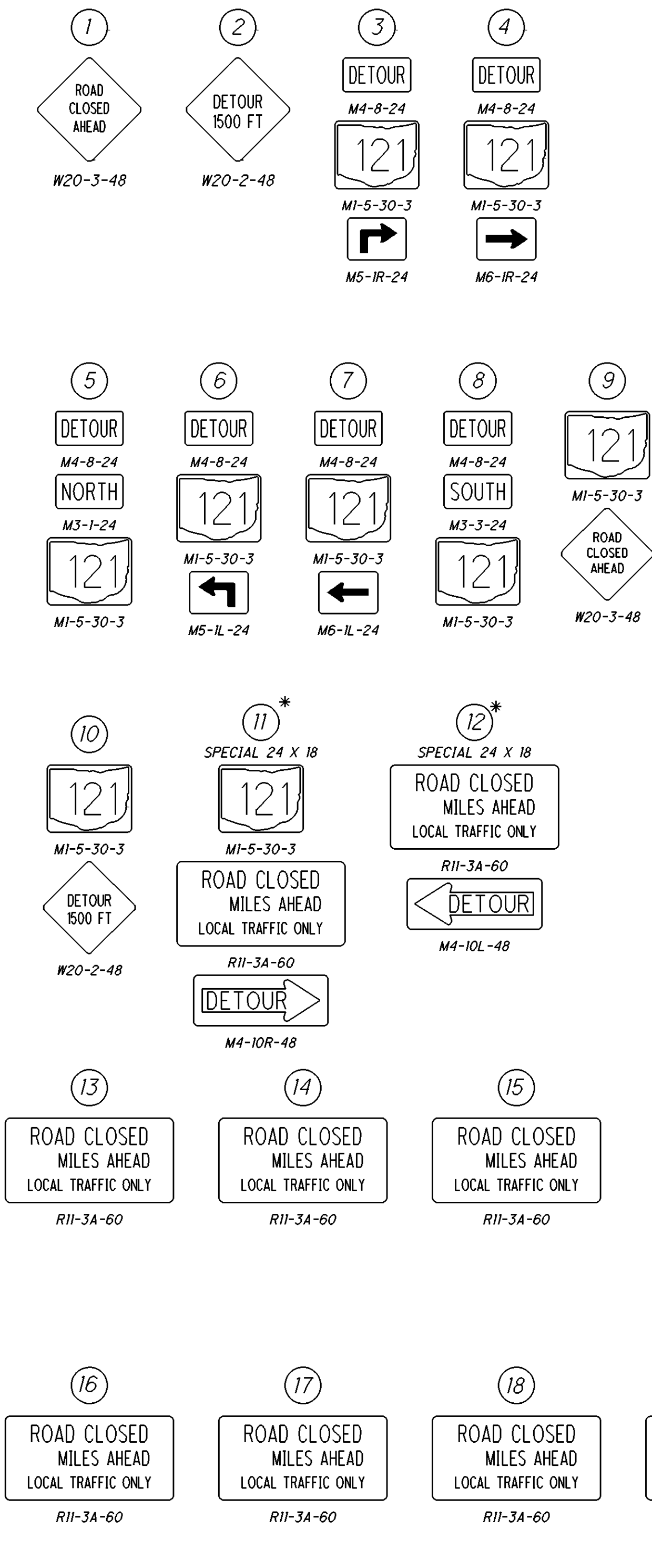
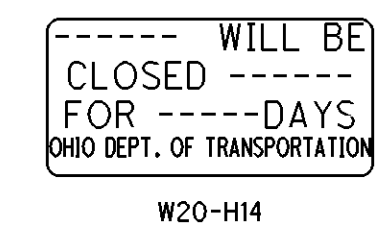
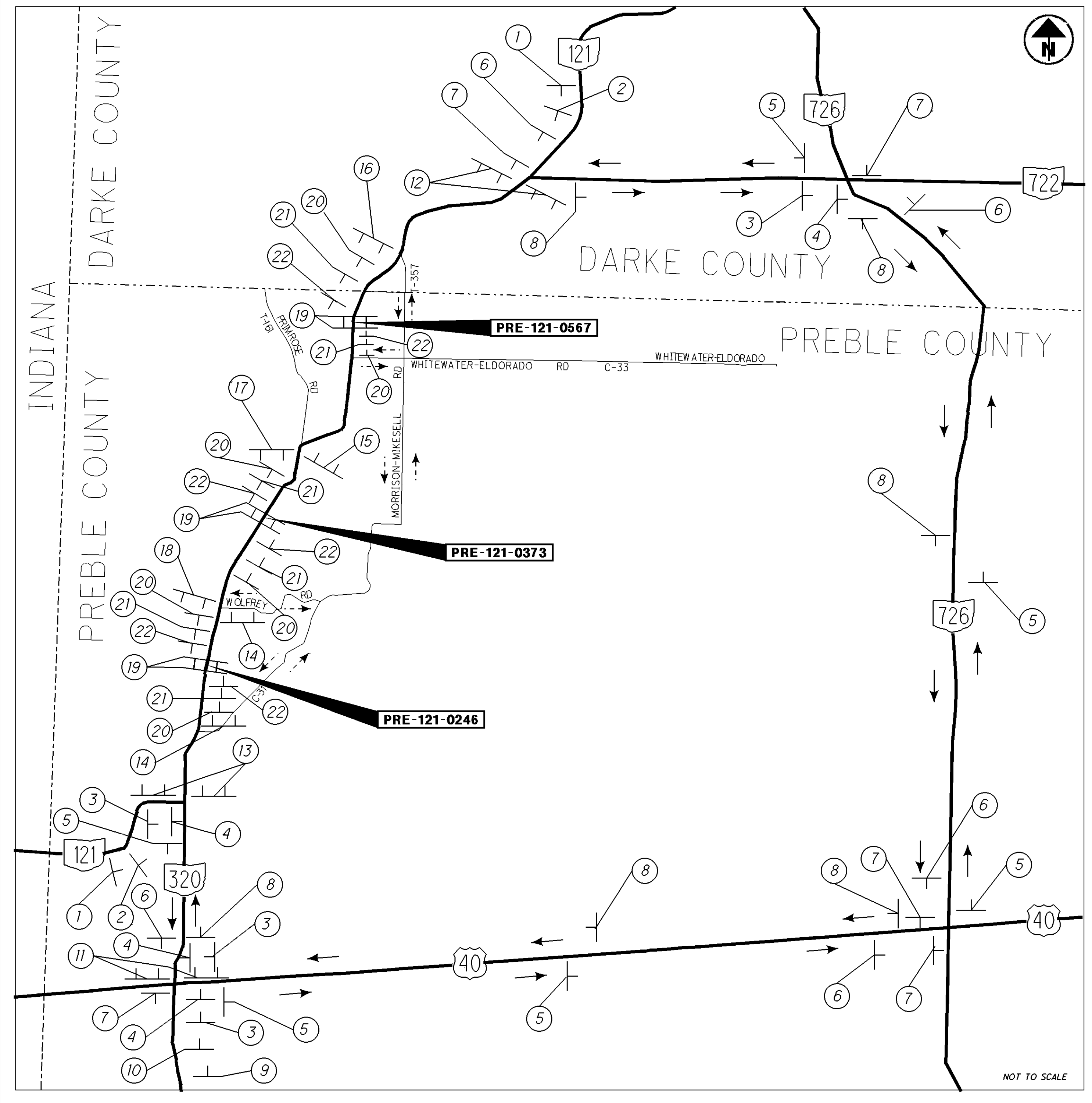


TABLE 1 - MILEAGE FOR R11-3A-60 SIGNAGE

SIGN NUMBER	WORK AREA 1	WORK AREA 2	WORK AREA 3
	DISTANCE TO WORK AREA (MILES)	DISTANCE TO WORK AREA (MILES)	DISTANCE TO WORK AREA (MILES)
11	2.6	3.9	5.8
12	5.3	4.0	2.1
13	1.0	2.3	4.2
14	0.5	1.8	3.7
15	NO SIGN	0.8	2.7
16	NO SIGN	NO SIGN	1.2
17	4.0	2.7	0.8
18	0.5	NO SIGN	NO SIGN

* CONTRACTOR TO DETERMINE APPROPRIATE HOUSE NUMBER FOR EACH DETOUR SITE.

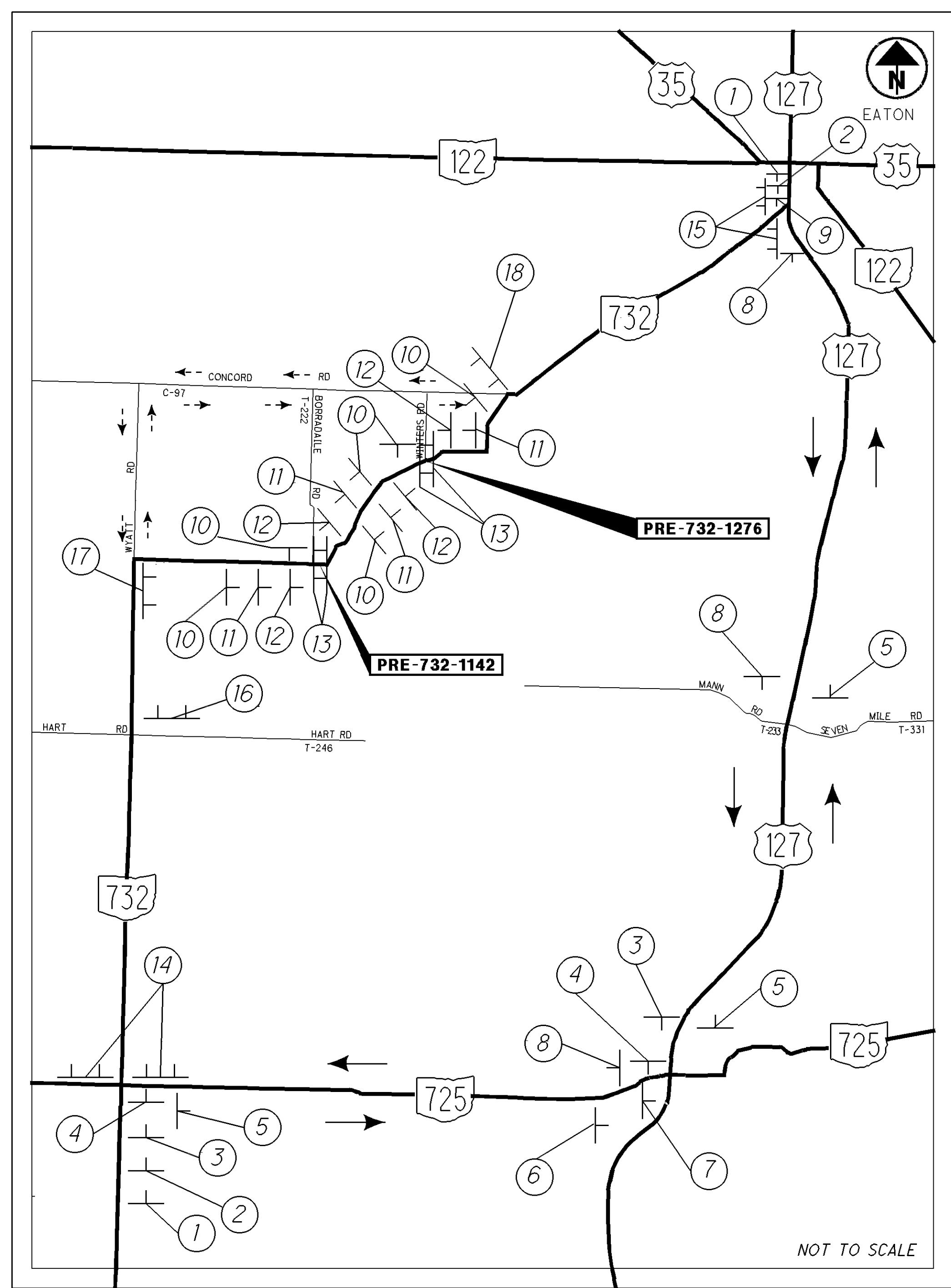


ESTIMATED OFFICIAL SIGNED DETOUR ADDITIONAL LENGTH = 10.5 MILES
 ESTIMATED LOCAL DETOUR ADDITIONAL LENGTH WORK AREA 3 = 0.40 MILES
 ESTIMATED LOCAL DETOUR ADDITIONAL LENGTH WORK AREA 2 = 1.94 MILES
 ESTIMATED LOCAL DETOUR ADDITIONAL LENGTH WORK AREA 1 = 1.93 MILES



- NOTES:
- IN ORDER TO MAINTAIN ACCESS TO THE ADJACENT PROPERTIES THE CLOSURES FOR THE CULVERT REPLACEMENTS ARE DIVIDED BY WORK AREAS AS SHOWN. WORK AREAS 1, 2, & 3 SHALL NOT BE CLOSED CONCURRENTLY.
 - AFFECTED ADJACENT PROPERTY OWNERS SHALL BE NOTIFIED A MINIMUM OF 2 DAYS PRIOR TO ERECTING CLOSURES FOR EACH WORK AREA.
 - SIGNS 19, 20, 21, AND 22 SHALL BE RELOCATED TO EACH WORK AREA BEFORE CONSTRUCTION BEGINS. THE SIGNS SHALL BE ERECTED AS DETAILED IN STANDARD CONSTRUCTION DRAWING MT-101.60.
 - THE R11-3A SIGNAGE SHALL BE MODIFIED AS DETAILED IN TABLE 1 AS WORK PROGRESSES.
 - THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, AND REMOVE ALL TRAFFIC CONTROL DETAILED IN STANDARD CONSTRUCTION DRAWING MT 101.60. PAYMENT FOR ALL MATERIAL, LABOR AND EQUIPMENT TO PERFORM THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 DETOUR SIGNING.
 - WORK AREA DESIGNATIONS ARE FOR ILLUSTRATION PURPOSES ONLY.
 - PLAN NOTES APPLY TO ALL FIVE DETOUR LOCATIONS.

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ESTIMATED OFFICIAL SIGNED DETOUR ADDITIONAL LENGTH = 1.3 MILES
 ESTIMATED LOCAL DETOUR ADDITIONAL LENGTH = 0.64 MILES
 ---> DESIGNATED LOCAL DETOUR ROUTE -> OFFICIAL SIGNED DETOUR ROUTE

- NOTES:
1. IN ORDER TO MAINTAIN ACCESS TO THE ADJACENT PROPERTIES THE CLOSURES FOR THE CULVERT REPLACEMENTS ARE DIVIDED BY WORK AREAS AS SHOWN. WORK AREAS 1 & 2 SHALL NOT BE CLOSED CONCURRENTLY.
 2. AFFECTED ADJACENT PROPERTY OWNERS SHALL BE NOTIFIED A MINIMUM OF 2 DAYS PRIOR TO ERECTING CLOSURES FOR EACH WORK AREA.
 3. SIGNS 10, 11, 12, AND 13 SHALL BE RELOCATED TO EACH WORK AREA BEFORE CONSTRUCTION BEGINS. THE SIGNS SHALL BE ERECTED AS DETAILED IN STANDARD CONSTRUCTION DRAWING MT-101.60.
 4. THE R11-3A SIGNAGE SHALL BE MODIFIED AS DETAILED IN TABLE 1 AS WORK PROGRESSES.
 5. THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, AND REMOVE ALL TRAFFIC CONTROL DETAILED IN STANDARD CONSTRUCTION DRAWING MT 101.60. PAYMENT FOR ALL MATERIAL, LABOR AND EQUIPMENT TO PERFORM THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 DETOUR SIGNING.
 6. WORK AREA DESIGNATIONS ARE FOR ILLUSTRATION PURPOSES ONLY.
 7. PLAN NOTES APPLY TO ALL FIVE DETOUR LOCATIONS.

① ROAD CLOSED AHEAD W20-3-48	② DETOUR 1500 FT W20-2-48	③ DETOUR M4-8-24 732	④ DETOUR M4-8-24 732
⑤ DETOUR M4-8-24 NORTH M3-1-24 732	⑥ DETOUR M4-8-24 732	⑦ DETOUR M4-8-24 732	⑧ DETOUR M4-8-24 SOUTH M3-3-24 732
⑨ DETOUR M4-8-24 732	⑩ ROAD WORK AHEAD W20-1-48 WITH TYPE A WARNING LIGHT	⑪ ROAD WORK AHEAD W20-3-48 WITH TYPE A WARNING LIGHT	⑫ ROAD CLOSED 500 FT W20-3-48
⑬ ROAD CLOSED R11-2-48 WITH TYPE B WARNING LIGHT	⑭* ROAD CLOSED MILES AHEAD LOCAL TRAFFIC ONLY SPECIAL 24 X 18 R11-3A-60	⑮* ROAD CLOSED MILES AHEAD LOCAL TRAFFIC ONLY SPECIAL 24 X 18 R11-3A-60	⑯ ROAD CLOSED MILES AHEAD LOCAL TRAFFIC ONLY R11-3A-60
⑰ ROAD CLOSED MILES AHEAD LOCAL TRAFFIC ONLY R11-3A-60	⑱ ROAD CLOSED MILES AHEAD LOCAL TRAFFIC ONLY R11-3A-60	* CONTRACTOR TO DETERMINE APPROPRIATE HOUSE NUMBER FOR EACH DETOUR SITE.	

TABLE 1 - MILEAGE FOR R11-3A-60 SIGNAGE

SIGN NUMBER	WORK AREA 1	WORK AREA 2
	DISTANCE TO WORK AREA (MILES)	DISTANCE TO WORK AREA (MILES)
14	6.2	7.5
15	5.4	4.1
16	3.2	4.5
17	1.6	2.9
18	2.5	1.1

SIGNS AND BARRICADES

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

PRE-121-2.46

- * STAGGERED BARRICADES AT START AND END OF PROJECT NEAR STATIONS 128+50 AND 131+00
- * BARRICADE AT START OF PROJECT SHOULD BE LOCATED NEAR STA. 129+50
- * BARRICADE AT END OF PROJECT SHOULD BE LOCATED NEAR STA. 130+25

PRE-121-3.73

- * STAGGERED BARRICADES AT START AND END OF PROJECT NEAR STATIONS 195+50 AND 198+50
- * BARRICADE AT START OF PROJECT SHOULD BE LOCATED NEAR STA. 196+75
- * BARRICADE AT END OF PROJECT SHOULD BE LOCATED NEAR STA. 197+25

PRE-121-5.67

- * STAGGERED BARRICADES AT START AND END OF PROJECT NEAR STATIONS 297+00 AND 302+00
- * BARRICADE AT START OF PROJECT SHOULD BE LOCATED NEAR STA. 299+00
- * BARRICADE AT END OF PROJECT SHOULD BE LOCATED NEAR STA. 300+00

PRE-732-11.42

- * BARRICADE AT START OF PROJECT SHOULD BE LOCATED NEAR STA. 601+25
- * BARRICADE AT END OF PROJECT SHOULD BE NEAR STA. 604+50

PRE-732-12.76

- * STAGGERED BARRICADES AT END OF PROJECT NEAR STATION 677+25
- * BARRICADE AT START OF PROJECT SHOULD BE LOCATED NEAR STA. 671+50
- * BARRICADE AT END OF PROJECT SHOULD BE LOCATED NEAR STA. 675+00

FOR MORE DETAILS SEE DETOURS ON SHEETS 4 AND 5.

ALL WORK AND TRAFFIC CONTROL 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.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

PRIOR TO OPENING ROADWAY TO TRAFFIC, ALL PERMANENT PAVEMENT MARKINGS SHALL BE IN PLACE.

DESIGNATED LOCAL DETOUR ROUTE

IN ADDITION TO THE OFFICIAL, SIGNED DETOUR ROUTE, A LOCAL ROUTE HAS BEEN DETERMINED TO BE THE SECONDARY, UNSIGNED DETOUR ROUTE OR "DESIGNATED LOCAL DETOUR ROUTE." THESE ROUTES ARE SHOWN ON THE DETOUR MAPS ON SHEETS 4 AND 5.

DURING THE TIME THAT TRAFFIC IS DETOURED, THE CONTRACTOR SHALL MAINTAIN THIS ROUTE IN A CONDITION WHICH IS REASONABLY SMOOTH AND FREE FROM HOLES, RUTS, RIDGES, BUMPS, DUST AND STANDING WATER. ONCE THE DETOUR IS REMOVED AND TRAFFIC RETURNED TO ITS NORMAL PATTERN, THE DESIGNATED LOCAL DETOUR ROUTE SHALL BE RESTORED TO A CONDITION THAT IS EQUIVALENT TO THAT WHICH EXISTED PRIOR TO ITS USE FOR THIS PURPOSE. ALL SUCH WORK SHALL BE PERFORMED WHEN AND AS DETERMINED BY THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED FOR USE AS DETERMINED BY THE ENGINEER TO MAINTAIN AND SUBSEQUENTLY RESTORE THE DESIGNATED LOCAL DETOUR ROUTE.

ITEM 301, ASPHALT CONCRETE BASE, PG 64-22	40 CU YD
ITEM 304, AGGREGATE BASE	40 CU YD
ITEM 448, ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-22	60 CU YD
ITEM 407, TACK COAT	40 GAL
ITEM 642, EDGE LINE	0.40 MILE
ITEM 642, CENTER LINE	0.20 MILE

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGNS, AS PER PLAN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A CHANGEABLE MESSAGE SIGN. THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS AVAILABLE ON THE OFFICE OF MATERIALS MANAGEMENT WEB PAGE. THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCES OF 650 FEET AND 475 FEET, RESPECTIVELY.

EACH SIGN SHALL BE TRAILER-MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM, TO DIM THE SIGN DURING DARKNESS, AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON-SITE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT. THE SIGN SHALL ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY. PCMS TRAILERS SHALL BE DELINEATED ON A PERMANENT BASIS BY AFFIXING CONSPICUITY TAPE CONFORMING TO CMS 614.03, IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER AS SEEN BY ONCOMING ROAD USERS.

PLACEMENT, OPERATION, MAINTENANCE AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS SHALL BE TURNED OFF. ADDITIONALLY, WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED, FACING AWAY FROM ALL TRAFFIC, AND SHALL DISPLAY ONE OR MORE TYPE G YELLOW RETROREFLECTIVE SHEETING SURFACES OF 9-INCH BY 15-INCH MINIMUM SIZE FACING TRAFFIC.

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

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE ENGINEER. A LIST OF ALL REQUIRED PRE-PROGRAMMED MESSAGES WILL BE GIVEN TO THE CONTRACTOR AT THE PROJECT PRECONSTRUCTION CONFERENCE. THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PRE-PROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON-BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THREE-LINE PRESENTATION FORMATS WITH UP TO SIX MESSAGE PHASES SHALL BE SUPPORTED. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST TWICE. THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DEACTIVATED OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK.

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

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

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

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN 5 SIGN MONTH

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DESCRIPTION	STATION		LENGTH OR AVERAGE LENGTH (L) FT	BEGIN WIDTH FT	END WIDTH FT	AVERAGE WIDTH (W) FT	TOTAL AREA (A = L x W) SQ FT	202	204	254	302	304	407	411	448		
	FROM	TO						PAVEMENT REMOVED, ASPHALT SQ YD	SUBGRADE COMPACTION SQ YD	1.25" PAVEMENT PLANING, ASPHALT CONCRETE SQ YD	6" ASPHALT CONCRETE BASE, PG64-22 CU YD	6" AGGREGATE BASE CU YD	TACK COAT (APPLIED AT 0.075 GAL/SQ YD) GALLON	TACK COAT FOR INTERMEDIATE COURSE (APPLIED AT 0.04 GAL/SQ YD) GALLON	8" STABILIZED CRUSHED AGGREGATE CU YD	1.75" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22 CU YD	1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 CU YD
PRE-121-2.46																	
PLANING AND RESURFACING																	
PLANING/SURFACE COURSE/TACK FOR INT.	129+71.50	129+81.00	9.50	21.5	21.3	21.4	203.30			22.6			0.9			0.8	
FULL DEPTH																	
SURFACE/INTERMEDIATE/TACK FOR INT.	129+81.00	130+12.00	31.00	21.3	21.5	21.4	663.40	73.7					2.9		3.6	2.6	
TACK COAT/ASPHALT CONCRETE BASE	129+81.00	130+12.00	31.00	22.0	22.2	22.1	685.10				12.7		5.7				
AGGREGATE BASE	129+81.00	130+12.00	31.00	23.0	23.2	23.1	716.10					13.3					
SUBGRADE COMPACTION	129+81.00	130+12.00	31.00	24.3	24.5	24.4	756.40		84								
PLANING AND RESURFACING																	
PLANING/SURFACE COURSE/TACK FOR INT.	130+12.00	130+21.50	9.50	21.5	21.5	21.5	204.25			22.7			0.9			0.8	
PRE-121-3.73																	
PLANING AND RESURFACING																	
PLANING/SURFACE COURSE/TACK FOR INT.	196+69.00	196+81.00	12.00	21.5	21.5	21.5	258.00			28.7			1.1			1	
FULL DEPTH																	
SURFACE/INTERMEDIATE/TACK FOR INT.	196+81.00	197+07.00	26.00	21.5	21.5	21.5	559.00	62.1					2.5		3	2.2	
TACK COAT/ASPHALT CONCRETE BASE	196+81.00	197+07.00	26.00	22.2	22.2	22.2	577.20				10.7		4.8				
AGGREGATE BASE	196+81.00	197+07.00	26.00	23.2	23.2	23.2	603.20					11.2					
SUBGRADE COMPACTION	196+81.00	197+07.00	26.00	24.5	24.5	24.5	637.00		70.8								
PLANING AND RESURFACING																	
PLANING/SURFACE COURSE/TACK FOR INT.	197+07.00	197+19.00	12.00	21.5	21.6	21.6	258.60			28.7			1.1			1.0	
PRE-121-5.67																	
PLANING AND RESURFACING																	
PLANING/SURFACE COURSE/TACK FOR INT.	299+17.00	299+28.00	11.00	21.5	21.5	21.5	236.50			26.3			1.1			0.9	
FULL DEPTH																	
SURFACE/INTERMEDIATE/TACK FOR INT.	299+28.00	299+56.00	28.00	21.5	21.4	21.5	600.60	66.7					2.7		3.2	2.3	
TACK COAT/ASPHALT CONCRETE BASE	299+28.00	299+56.00	28.00	22.2	22.1	22.2	620.20				11.5		5.2				
AGGREGATE BASE	299+28.00	299+56.00	28.00	23.2	23.1	23.2	648.20					12					
SUBGRADE COMPACTION	299+28.00	299+56.00	28.00	24.5	24.4	24.5	684.60		76.1								
PLANING AND RESURFACING																	
PLANING/SURFACE COURSE/TACK FOR INT.	299+56.00	299+67.00	11.00	21.4	21.6	21.5	236.50			26.3			1.1			0.9	
PRE-121-11.42																	
SHOULDER WORK (LEFT)	601+21.00	604+55.00	334.00	4.8	4.4	4.6	1536.40							37.9			
SHOULDER WORK (RIGHT)	601+25.00	604+70.00	345.00	5.4	5.5	5.5	1880.25							46.4			
PLANING AND RESURFACING																	
PLANING/SURFACE COURSE/TACK FOR INT.	602+70.00	602+83.00	13.00	23.7	23.8	23.8	308.75			34.3			1.4			1.2	
FULL DEPTH																	
SURFACE/INTERMEDIATE/TACK FOR INT.	602+83.00	603+13.00	30.00	23.8	24.1	24.0	718.50	79.8					3.2		3.9	2.8	
TACK COAT/ASPHALT CONCRETE BASE	602+83.00	603+13.00	30.00	24.5	24.8	24.7	739.50				13.7		6.2				
AGGREGATE BASE	602+83.00	603+13.00	30.00	25.5	25.8	25.7	769.50					14.3					
SUBGRADE COMPACTION	602+83.00	603+13.00	30.00	26.8	27.1	27.0	808.50		89.8								
PLANING AND RESURFACING																	
PLANING/SURFACE COURSE/TACK FOR INT.	603+13.00	603+25.00	12.00	24.1	24.1	24.1	289.20			32.1			1.3			1.1	
TOTALS CARRIED TO GENERAL SUMMARY								282	321	222	49	51	22	20	84	14	18

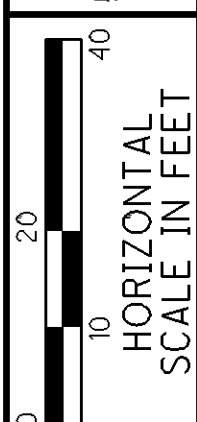
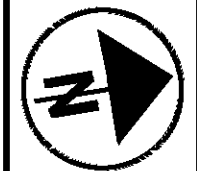
PAVEMENT CALCULATIONS

D08 - CULVERTS - FY2015

CALCULATED
TRB
CHECKED
DAG

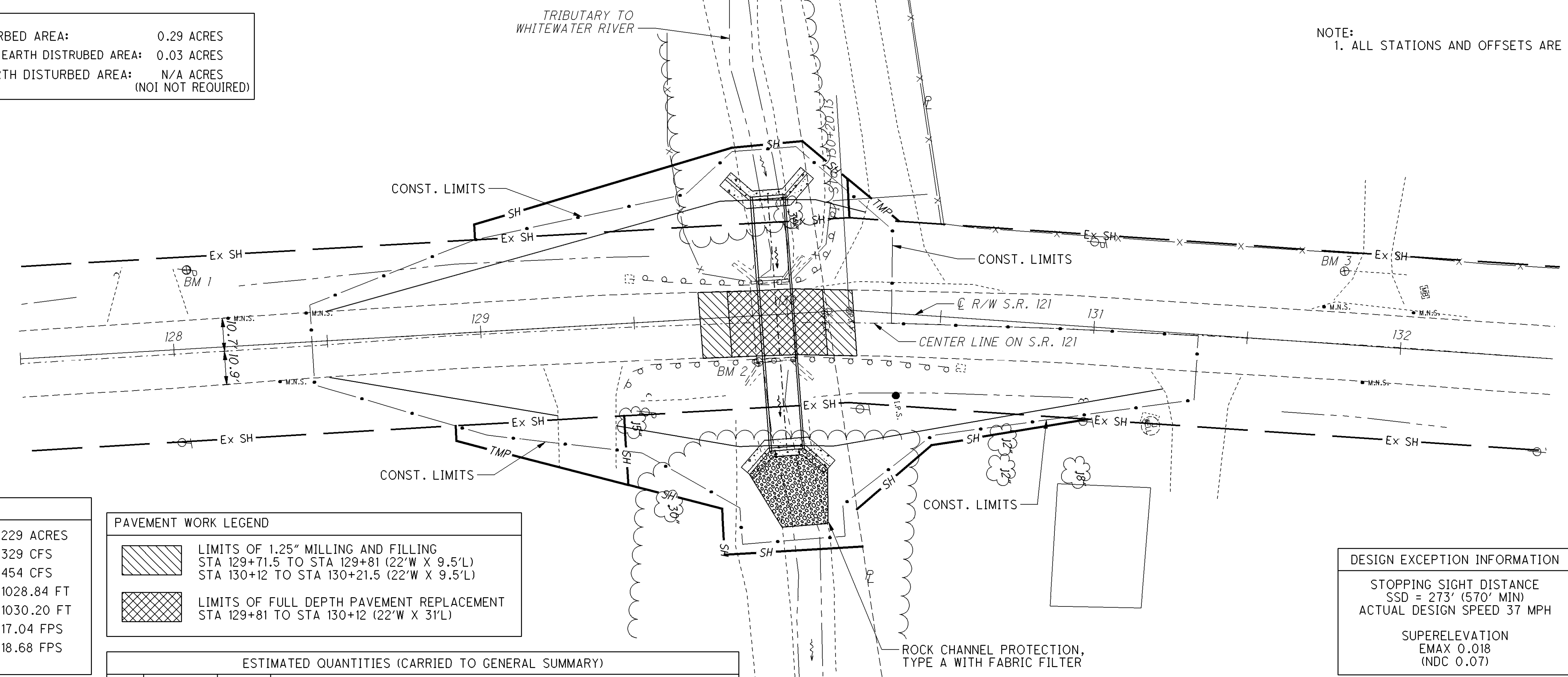
PROJECT EARTH DISTURBED AREA: 0.29 ACRES
 ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.03 ACRES
 NOTICE OF INTENT EARTH DISTURBED AREA: N/A ACRES (NOI NOT REQUIRED)

NOTE:
 1. ALL STATIONS AND OFFSETS ARE TO ϵ OF R/W.



REVIEWED DATE
 STRUCTURE FILE NUMBER 6801943

DESIGNED TRB CHECKED DAG
 DRAWN TRB REVISED



HYDRAULIC DESIGN DATA

DRAINAGE AREA:	= 229 ACRES
Q_{25}	= 329 CFS
Q_{100}	= 454 CFS
HW_{25}	= 1028.84 FT
HW_{100}	= 1030.20 FT
V_{25}	= 17.04 FPS
V_{100}	= 18.68 FPS

PAVEMENT WORK LEGEND

	LIMITS OF 1.25" MILLING AND FILLING STA 129+71.5 TO STA 129+81 (22'W X 9.5'L) STA 130+12 TO STA 130+21.5 (22'W X 9.5'L)
	LIMITS OF FULL DEPTH PAVEMENT REPLACEMENT STA 129+81 TO STA 130+12 (22'W X 31'L)

ESTIMATED QUANTITIES (CARRIED TO GENERAL SUMMARY)

ITEM	QUANTITY	UNIT	DESCRIPTION
202	187.5	FT	GUARDRAIL REMOVED
202	78	FT	FENCE REMOVED
601	58	CU YD	ROCK CHANNEL PROTECTION, TYPE A WITH FABRIC FILTER
611	83	FT	10' X 6' CONDUIT, TYPE A, 706.05
621	1	EACH	RPM
621	1	EACH	RAISED PAVEMENT MARKER REMOVED
642	0.02	MILE	EDGE LINE
642	0.01	MILE	CENTER LINE (DOUBLE-SOLID)

DESIGN EXCEPTION INFORMATION

STOPPING SIGHT DISTANCE
 SSD = 273' (570' MIN)
 ACTUAL DESIGN SPEED 37 MPH

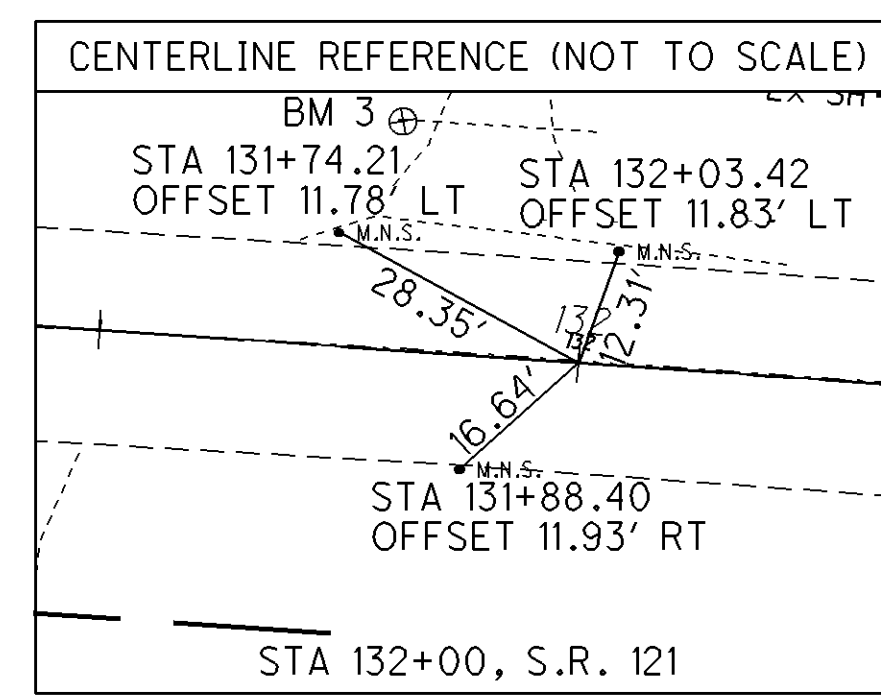
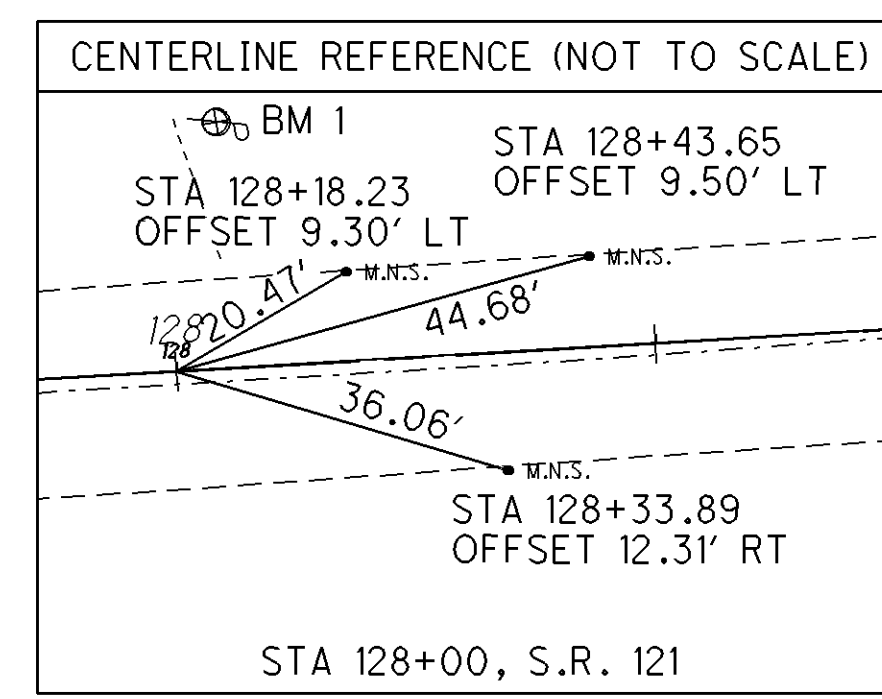
SUPERELEVATION
 EMAX 0.018
 (NDC 0.07)

EXISTING STRUCTURE

TYPE: C.I.P. CONCRETE ARCH
 SIZE: 9.8'x5.9', 36' LONG
 SKEW: 5° RIGHT FORWARD
 ALIGNMENT: TANGENT
 DATE BUILT: UNKNOWN
 CONDITION: POOR

PROPOSED STRUCTURE

TYPE: CONCRETE BOX
 SIZE: 10'x6', 83' LONG
 SKEW: 5° RIGHT FORWARD
 ALIGNMENT: TANGENT

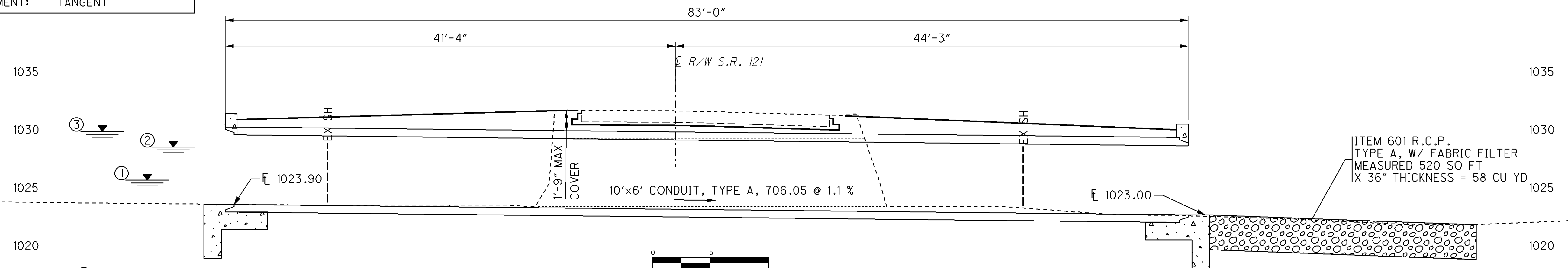


BENCH MARK DATA

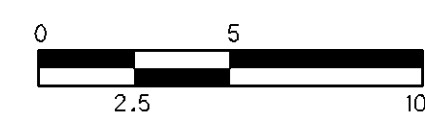
BENCH MARK # 1
 SPIKE IN POWER POLE
 STA 128+05.65, 25.70' LT
 ELEV= 1029.43

BENCH MARK # 2
 SQUARE CUT IN HEADWALL
 STA 129+89.63, 15.08' RT
 ELEV= 1034.88

BENCH MARK # 3
 SQUARE CUT IN DRIVE PIPE
 STA 131+80.07, 23.81' LT
 ELEV= 1028.78



- ① ORDINARY HIGH WATER - ELEV. 1026.00±
- ② 25 YR HW ELEV. 1028.84
- ③ 100 YR HW ELEV. 1030.20



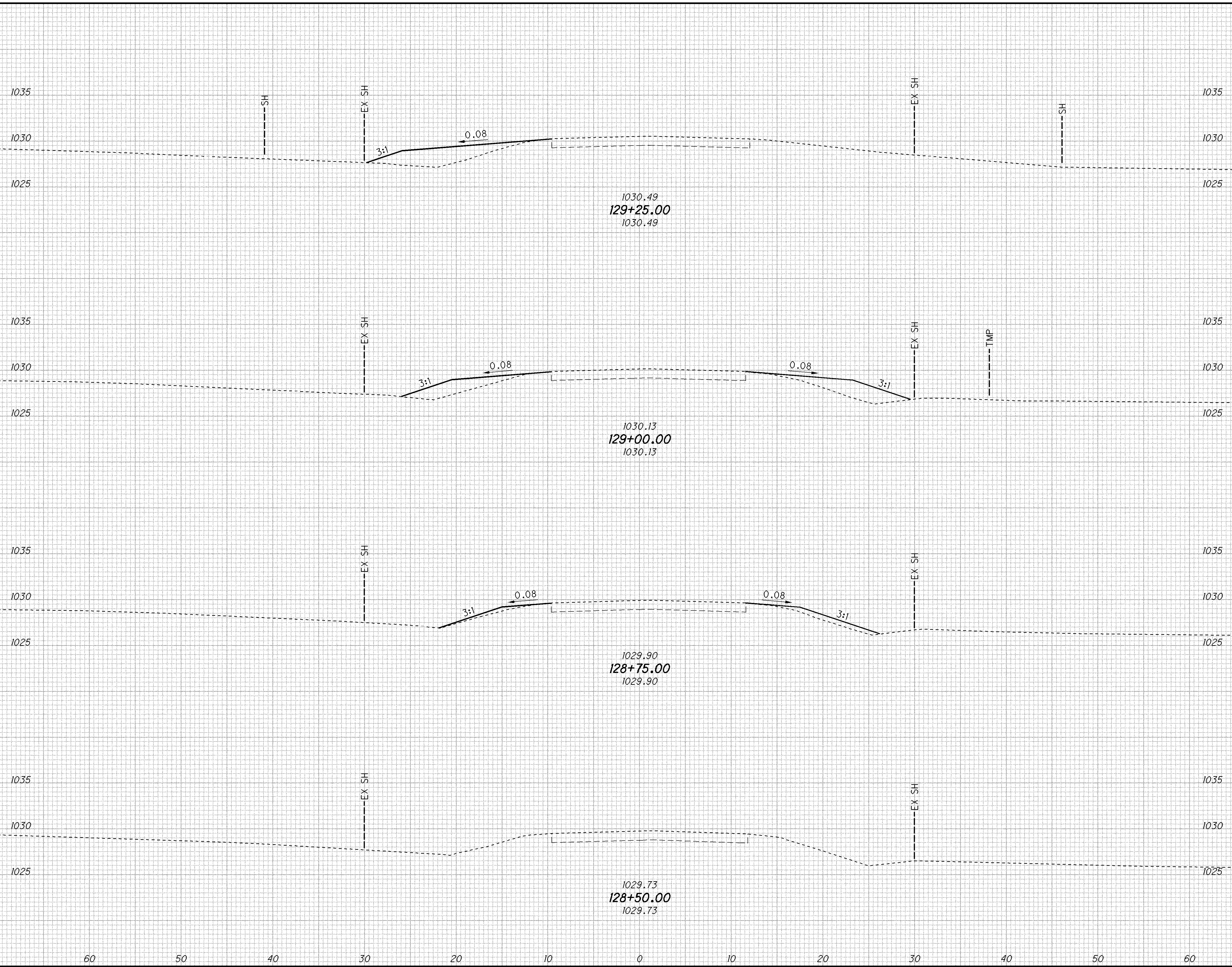
**CULVERT PLAN AND DETAIL
 PRE-121-0246**

**PRE-CULVERTS -
 FY2014**

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SEEDING	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
143			0	37
43	0	22	0	24
120			0	24
43	0	29	0	29
110			0	17
36	0	8	0	8
50			0	4
0	0	0	0	0
423			0	82



CALCULATED	TRB	CHECKED	DAG

CROSS SECTIONS - PRE-121-0246
STA 128+50.00 TO STA 129+25.00

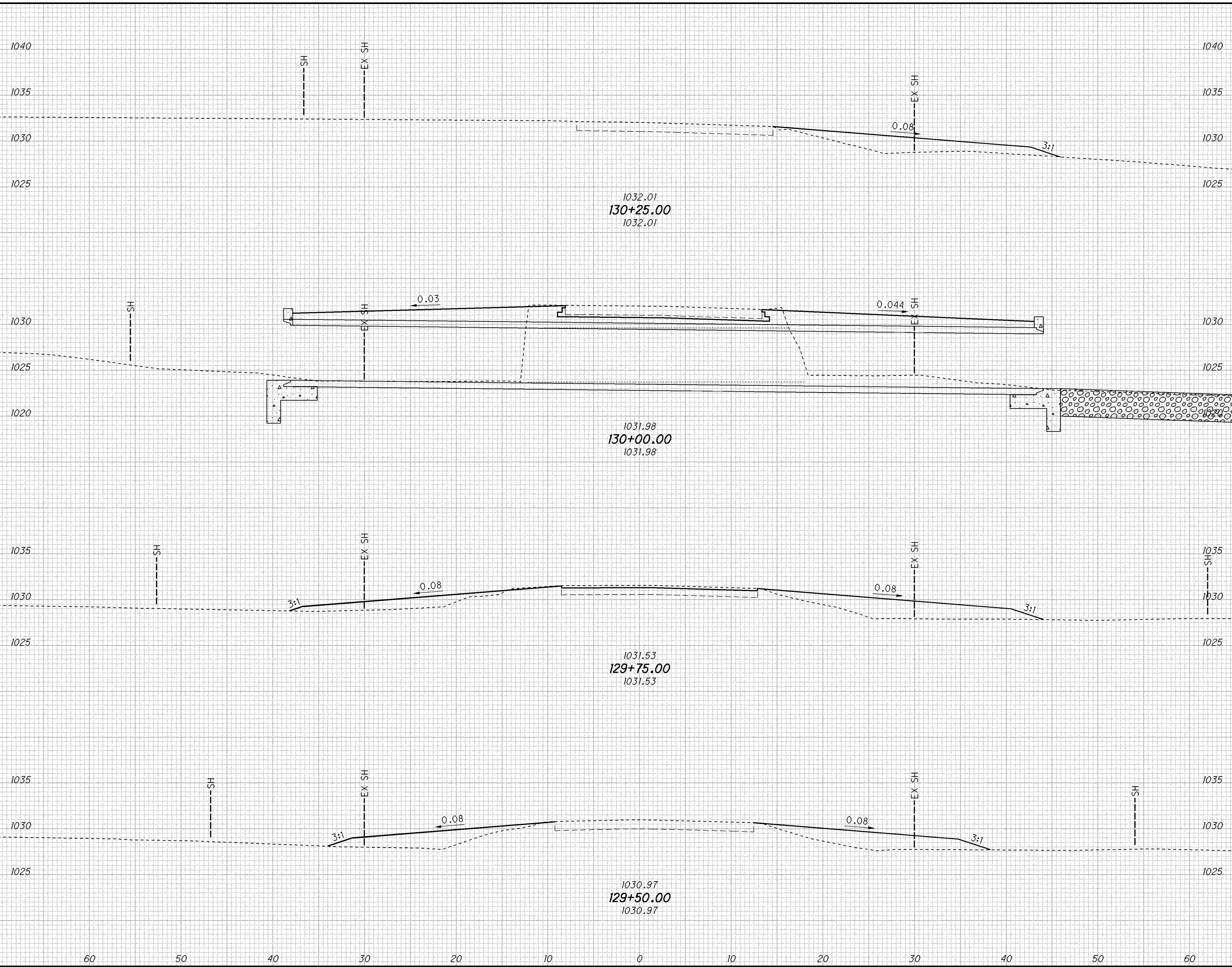
PRE-CULVERTS - FY2014

2 / 8

9 / 72

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SEEDING	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
157			0	22
65	0	33		
174			0	201
60	0	400		
181			0	214
70	0	61		
181			0	55
60	0	57		
693			0	492



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		0	22
0	33		
		0	201
0	400		
		0	214
0	61		
		0	55
0	57		
		0	492

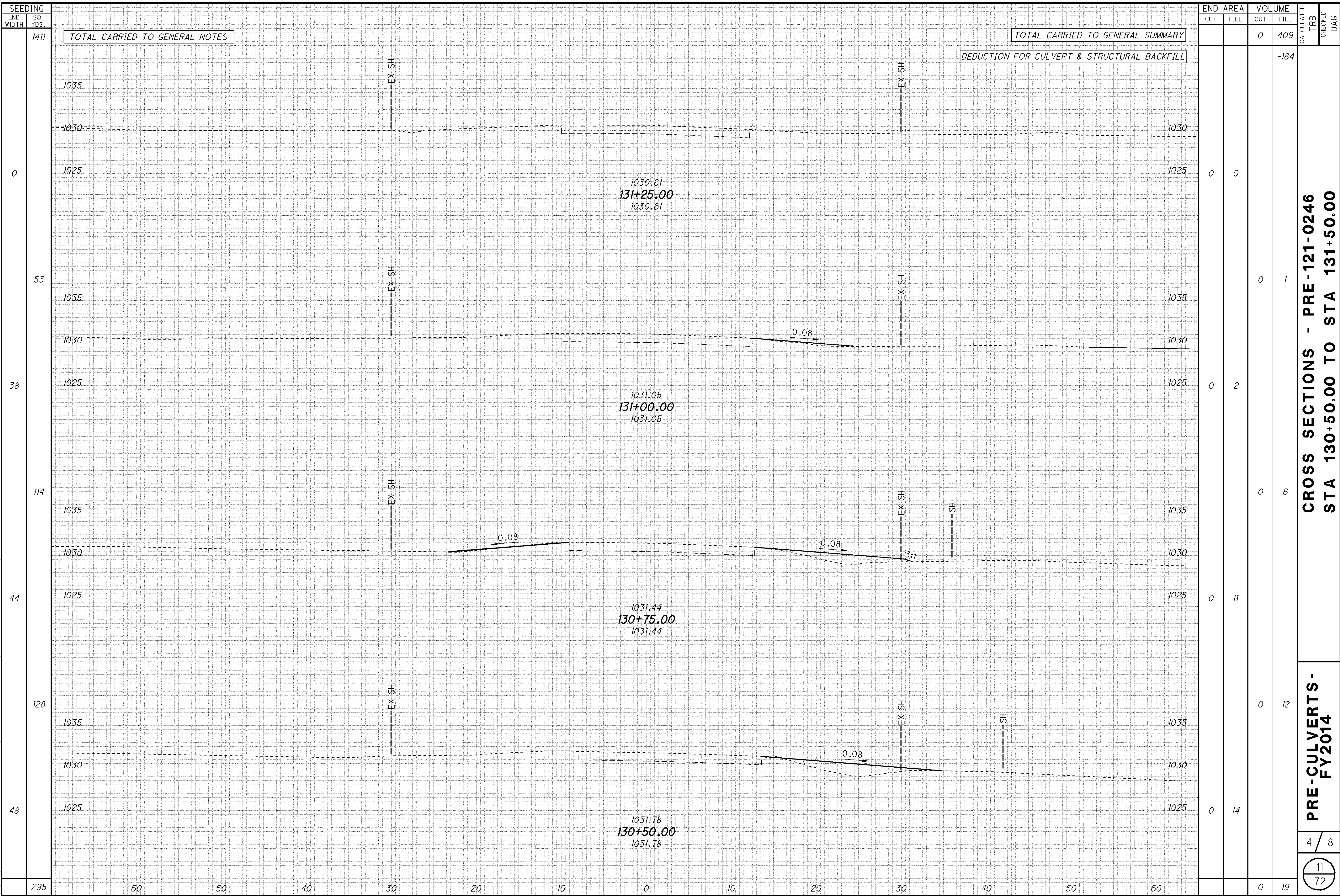
CROSS SECTIONS - PRE-121-0246
STA 129+50.00 TO STA 130+25.00

PRE-CULVERTS - FY2014

3 / 8

10 / 72

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TOTAL CARRIED TO GENERAL NOTES

TOTAL CARRIED TO GENERAL SUMMARY

DEDUCTION FOR CULVERT & STRUCTURAL BACKFILL

CROSS SECTIONS - PRE-121-0246
STA 130+50.00 TO STA 131+50.00

PRE-CULVERTS -
FY2014

4 / 8
11 / 72

GENERAL NOTES

DESIGN SPECIFICATIONS: THIS STANDARD DRAWING CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002 AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN DATA: THE FOLLOWING DESIGN DATA IS ASSUMED:

INTERNAL ANGLE OF FRICTION (ϕ) = 30 DEGREES
 COEFFICIENT OF FRICTION (μ) = 0.30
 UNIT WEIGHT OF SOIL = 120 PCF
 UNIT WEIGHT OF CONCRETE = 150 PCF
 SLOPE OF BACKFILL = 2:1 (TYPE A & B HEADWALLS ONLY)
 HEIGHT OF LIVE LOAD SURCHARGE = 2 FT (TYPE C HEADWALLS ONLY)
 MAXIMUM FOUNDATION BEARING PRESSURE = 2000 P.S.F.

CONCRETE CLASS C - COMPRESSIVE STRENGTH 4000 PSI
 (FOOTING, WINGWALL AND FORESLOPE WALL)

REINFORCING STEEL - ASTM A615, A616, OR A617
 GRADE 60 MINIMUM YIELD STRENGTH
 60,000 PSI (ALL REINFORCING SHALL BE
 EPOXY COATED)

FORESLOPE WALL ANCHOR DOWELS: ANCHOR PER CMS 510 WITH NONSHRINK, NONMETALLIC GROUT CONFORMING TO CMS 705.20 AND TO A DEPTH OF 5". PAYMENT FOR DOWEL HOLES, GROUT AND INSTALLATION SHALL BE INCLUDED WITH ITEM 511.

AS AN ALTERNATIVE TO RESIN BONDING, THREADED INSERTS OR NONPROTRUDING MECHANICAL CONNECTORS CAST INTO THE CULVERT BY THE MANUFACTURER MAY BE USED PROVIDED THEY CAN RESIST AN ULTIMATE PULL-OUT STRENGTH OF 12 KIPS AND MAINTAIN A MINIMUM COVER OF 3 INCHES AT THE BOTTOM OF THE CULVERT SLAB. MECHANICAL CONNECTORS MUST PROVIDE AN "L-SHAPED" BAR INSIDE THE CULVERT WITH A MINIMUM HORIZONTAL LENGTH OF 12 INCHES. PAYMENT FOR INSERTS OR MECHANICAL CONNECTORS SHALL BE INCLUDED WITH ITEM 611.

BACKFILL LIMITATION: WHEN THE DESIGN HEIGHT IS GREATER THAN 10 FT, THE BACKFILL BEHIND THE WINGWALLS SHALL NOT BE PLACED HIGHER THAN THE ELEVATION OF THE SOIL ABOVE THE TOE. WHEN THE SOIL ABOVE THE TOE IS AT ITS FINISHED ELEVATION, THE REMAINDER OF THE BACKFILL MAY BE PLACED.

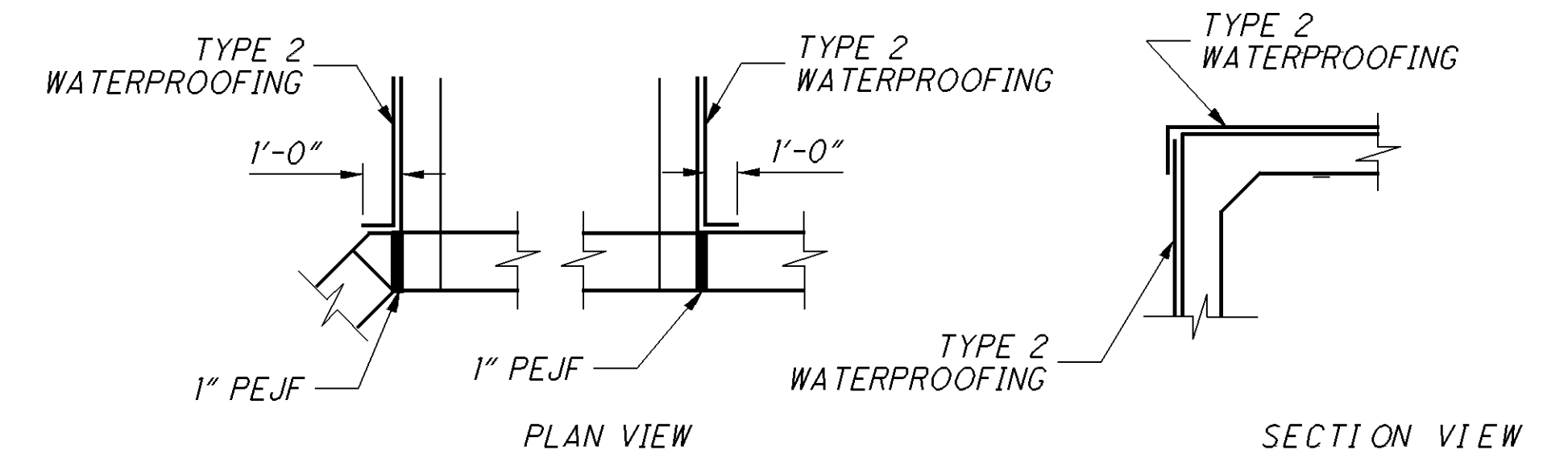
POROUS BACKFILL WITH FILTER FABRIC 1'-6" THICK SHALL BE PLACED BEHIND THE WINGWALLS ONLY AND SHALL EXTEND TO 12" BELOW THE EMBANKMENT SURFACE. GEOTEXTILE FABRIC SHALL BE PLACED BETWEEN THE POROUS BACKFILL AND REPLACED EXCAVATION ADJACENT TO THE STRUCTURE. IT SHALL TURN UNDER THE BOTTOM OF THE POROUS BACKFILL AND RETURN 6" ABOVE THE TOP ELEVATION OF THE WEEPHOLE.

WEEPHOLES SHALL BE PLACED 6" TO 12" ABOVE THE NORMAL WATER ELEVATION OR GROUND LINE AND SHALL HAVE A MAXIMUM SPACING OF 10'-0". A MINIMUM OF ONE WEEPHOLE SHALL BE PROVIDED PER WINGWALL.

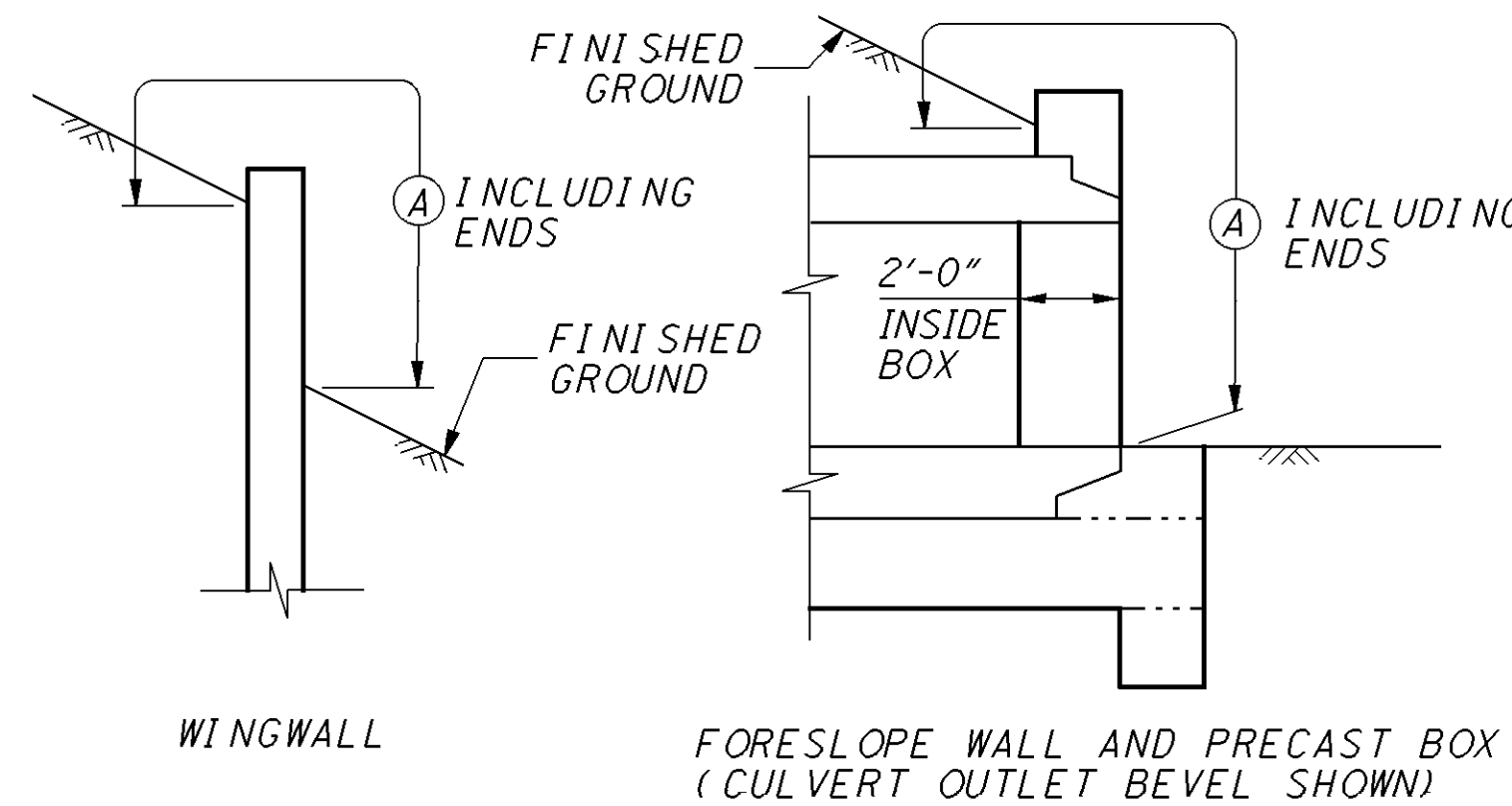
PREFORMED EXPANSION JOINT FILLER: PREFORMED EXPANSION JOINT FILLER (PEJF) CONFORMING TO CMS 705.03, 1 INCH THICK, SHALL BE PLACED ABOVE THE FOOTING BETWEEN THE SIDES OF THE BOX CULVERT AND THE ENDS OF THE WINGWALLS. PAYMENT FOR MATERIALS AND INSTALLATION SHALL BE INCLUDED WITH ITEM 516 - 1" PREFORMED EXPANSION JOINT FILLER.

SEALING OF FORESLOPE WALL AND WINGWALLS: ALL EXPOSED FORESLOPE WALL AND WINGWALL CONCRETE SHALL BE SEALED WITH EPOXY-URETHANE SEALER. THE LIMITS SHALL BE AS SHOWN IN THE DIAGRAMS BELOW. PAYMENT FOR THE EPOXY-URETHANE SEALER SHALL BE PER ITEM 512 - SEALING OF CONCRETE SURFACES.

WATERPROOFING: TYPE 2 WATERPROOFING, PER CMS 512.08 AND 711.25, SHALL EXTEND VERTICALLY DOWN THE ENTIRE SIDES OF THE PRECAST CULVERT SECTIONS FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. ALSO, PER CMS 512.08 AND 711.25 APPLY TYPE 2 WATERPROOFING TO THE ENTIRE TOP SURFACE OF THE PRECAST CULVERT SECTIONS AND EXTEND ONE FOOT VERTICALLY DOWN THE SIDES FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 2 WATERPROOFING.



WATERPROOFING DETAILS



LIMITS OF ITEM 512-SEALING CONCRETE SURFACES

Ⓐ - SEAL ENTIRE CONCRETE SURFACE AREA

STRUCTURE REMOVED:

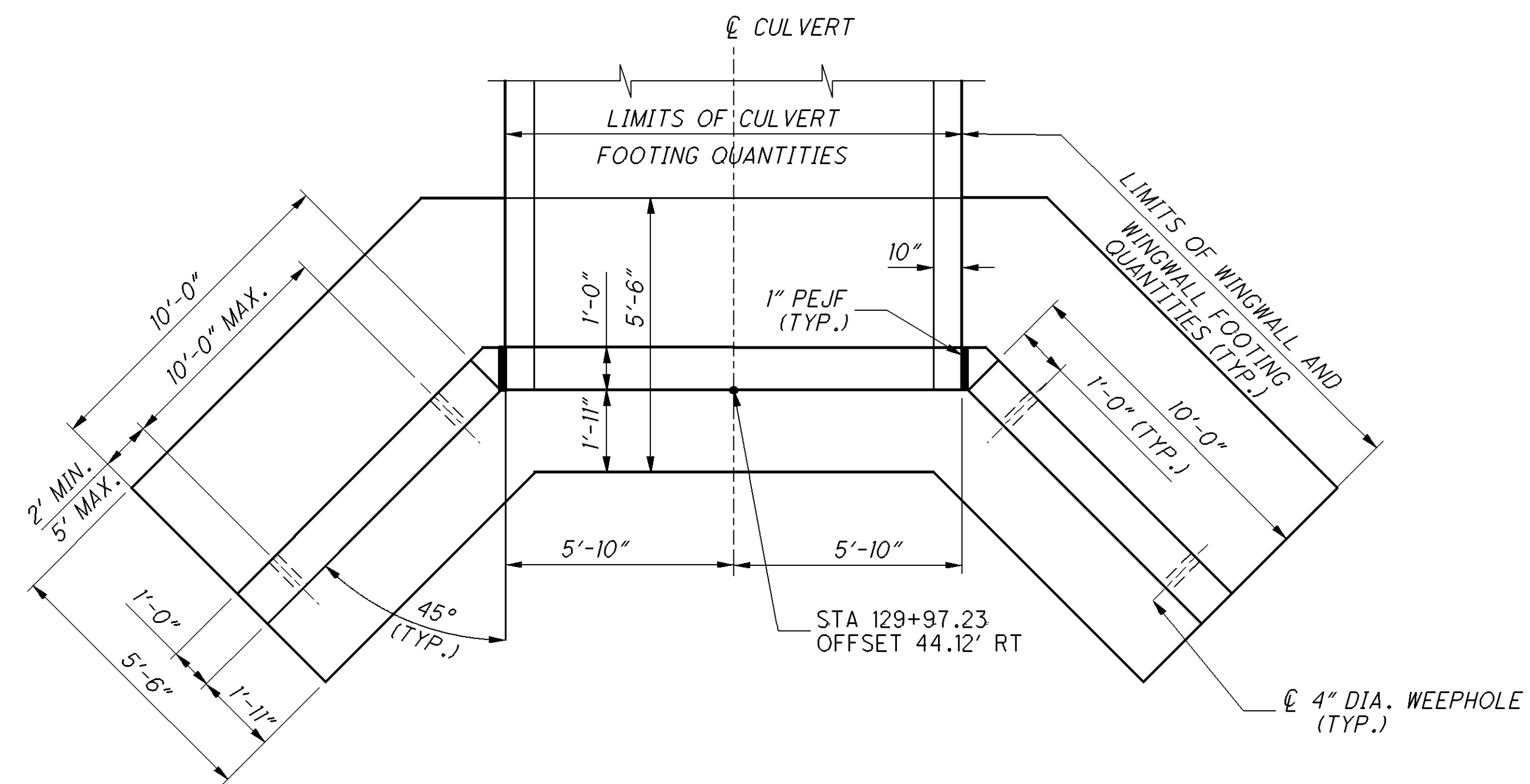
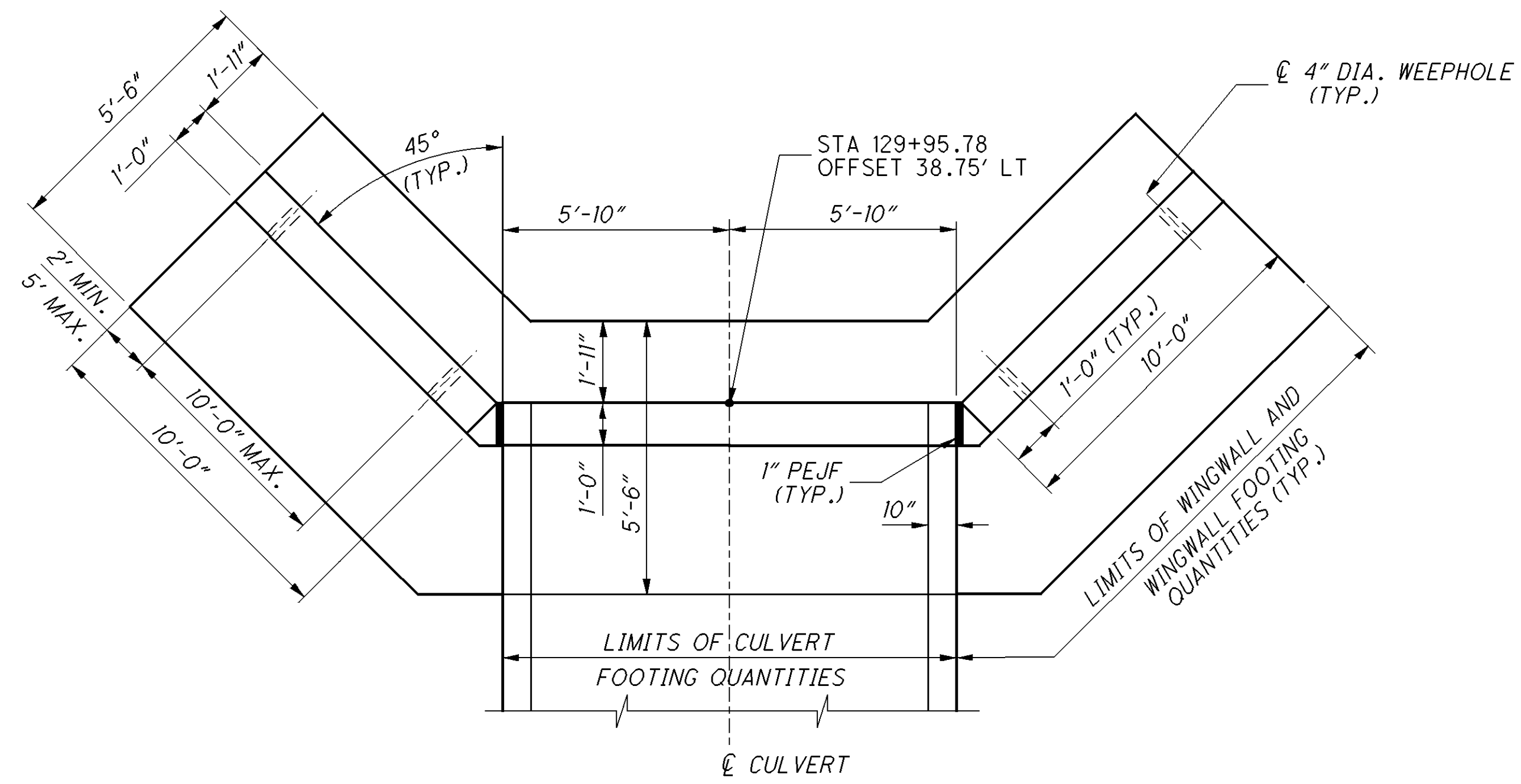
THE EXISTING CONCRETE ARCH STRUCTURE, CONCRETE WINGWALLS, AND CONCRETE RAILINGS SHALL BE REMOVED PER CMS 202. PAYMENT FOR THE REMOVAL OF THESE ITEMS IS PER ITEM 202 - STRUCTURE REMOVED.

BASIS OF PAYMENT: ALL LABOR, EQUIPMENT AND INCIDENTALS REQUIRED TO CONSTRUCT THE FOOTING, CUTOFF WALL, WINGWALLS AND FORESLOPE WALL SHALL BE INCLUDED WITH ITEM 511 - CLASS C CONCRETE (RET-WALL/WINGWALL - INCLUDING FOOTING). PAYMENT FOR REINFORCING STEEL SHALL BE INCLUDED WITH ITEM 509 - EPOXY COATED REINFORCING STEEL.

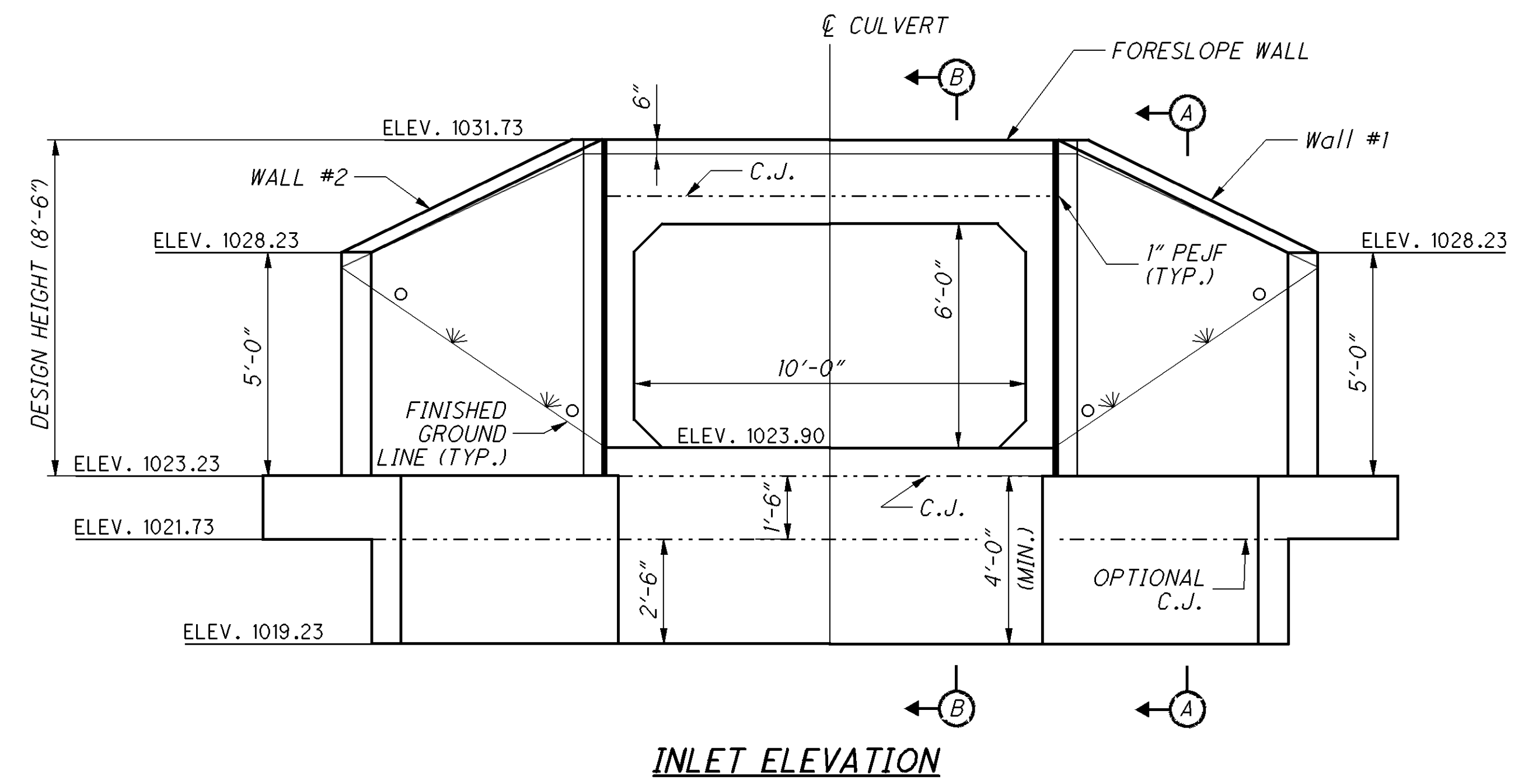
ESTIMATED QUANTITIES				
ITEM	ITEM EXT	TOTAL	UNIT	DESCRIPTION
202	11000	LUMP		STRUCTURE REMOVED
503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACNG
503	21300	LUMP		UNCLASSIFIED EXCAVATION (WINGWALL FOOTING)
509	10000	3916	LB	EPOXY COATED REINFORCING STEEL
511	46010	10	CU YD	CLASS OC1 CONCRETE, WINGWALL
511	46510	30	CU YD	CLASS OC1 CONCRETE, FOOTING
511	46610	1	CU YD	CLASS OC1 CONCRETE, HEADWALL
512	10100	51	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
512	33000	265	SQ YD	TYPE 2 WATERPROOFING
516	13600	34	SQ FT	1" PREFORMED EXPANSION JOINT FILLER
518	21230	LUMP		POROUS BACKFILL WITH FILTER FABRIC

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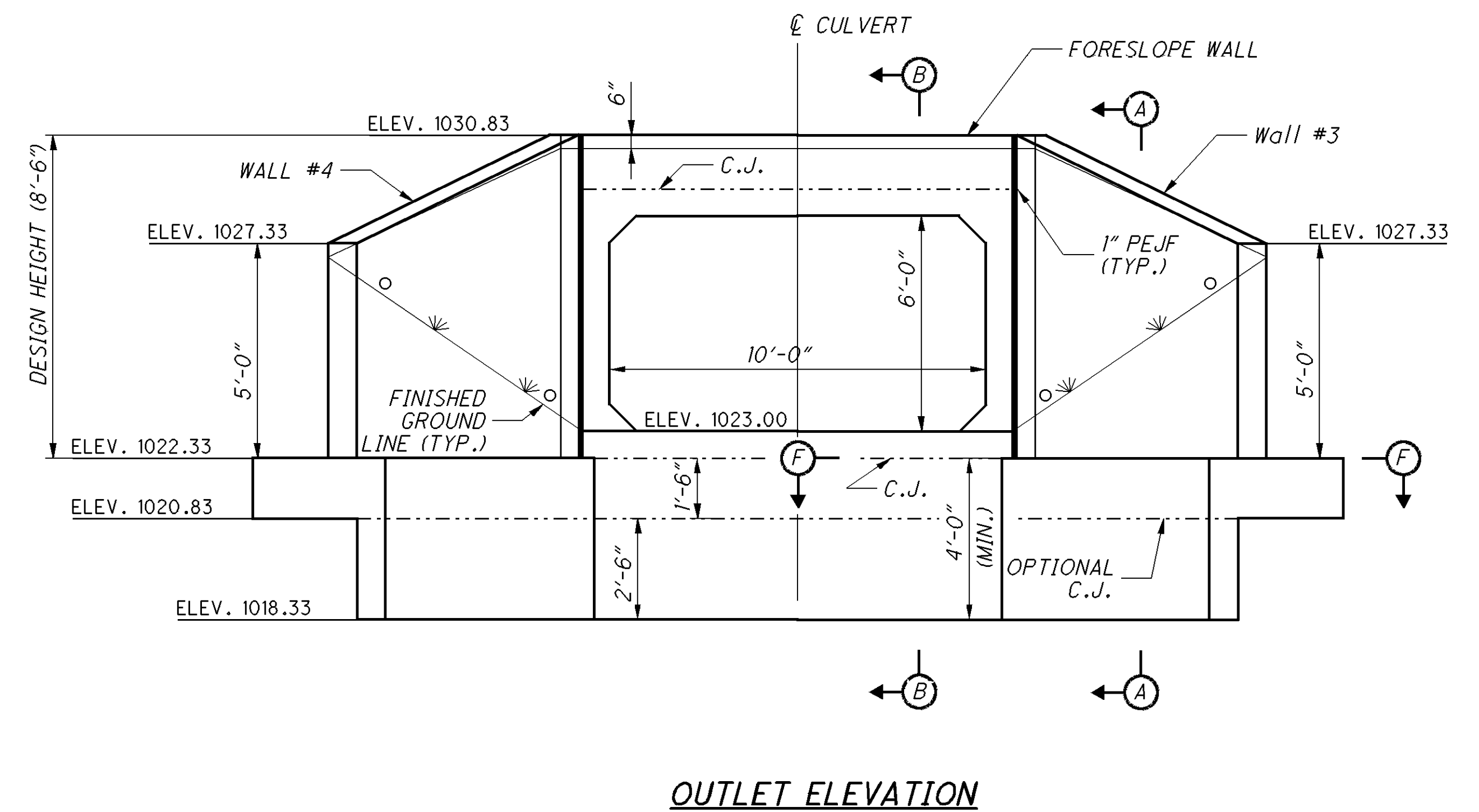
DESIGNED TRB CHECKED DAG	DRAWN TRB REVISED	REVIEWED	DATE	DESIGN AGENCY OHIO DEPARTMENT OF TRANSPORTATION - DISTRICT 8
			STRUCTURE FILE NUMBER 6801943	
STRUCTURE NOTES AND ESTIMATED QUANTITIES				
PRE - CULVERTS - FY 2014 PID No. 86136				
PRE-121-0246				
5 / 8				
12 72				



CULVERT & WINGWALL LAYOUT



INLET ELEVATION

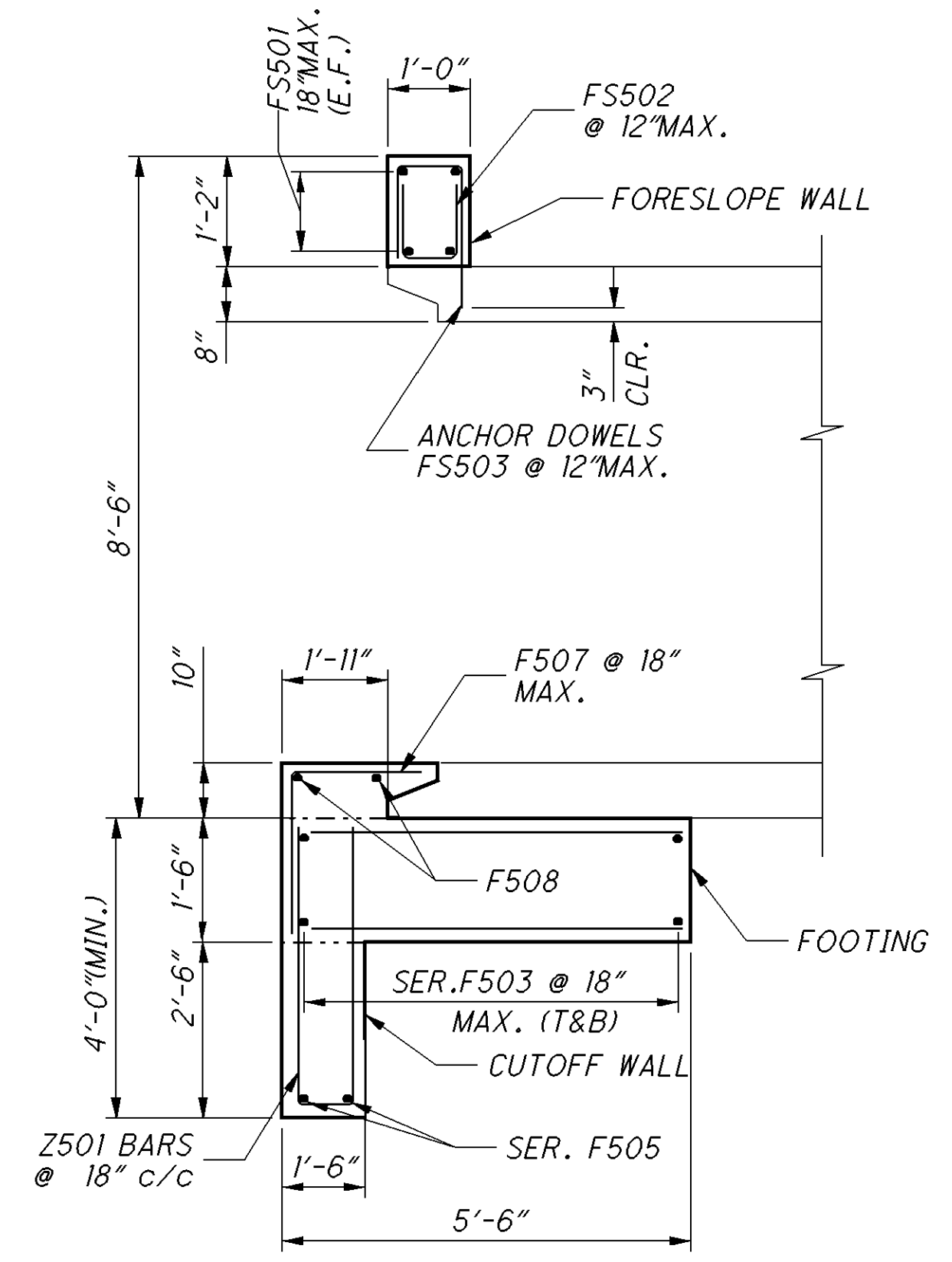
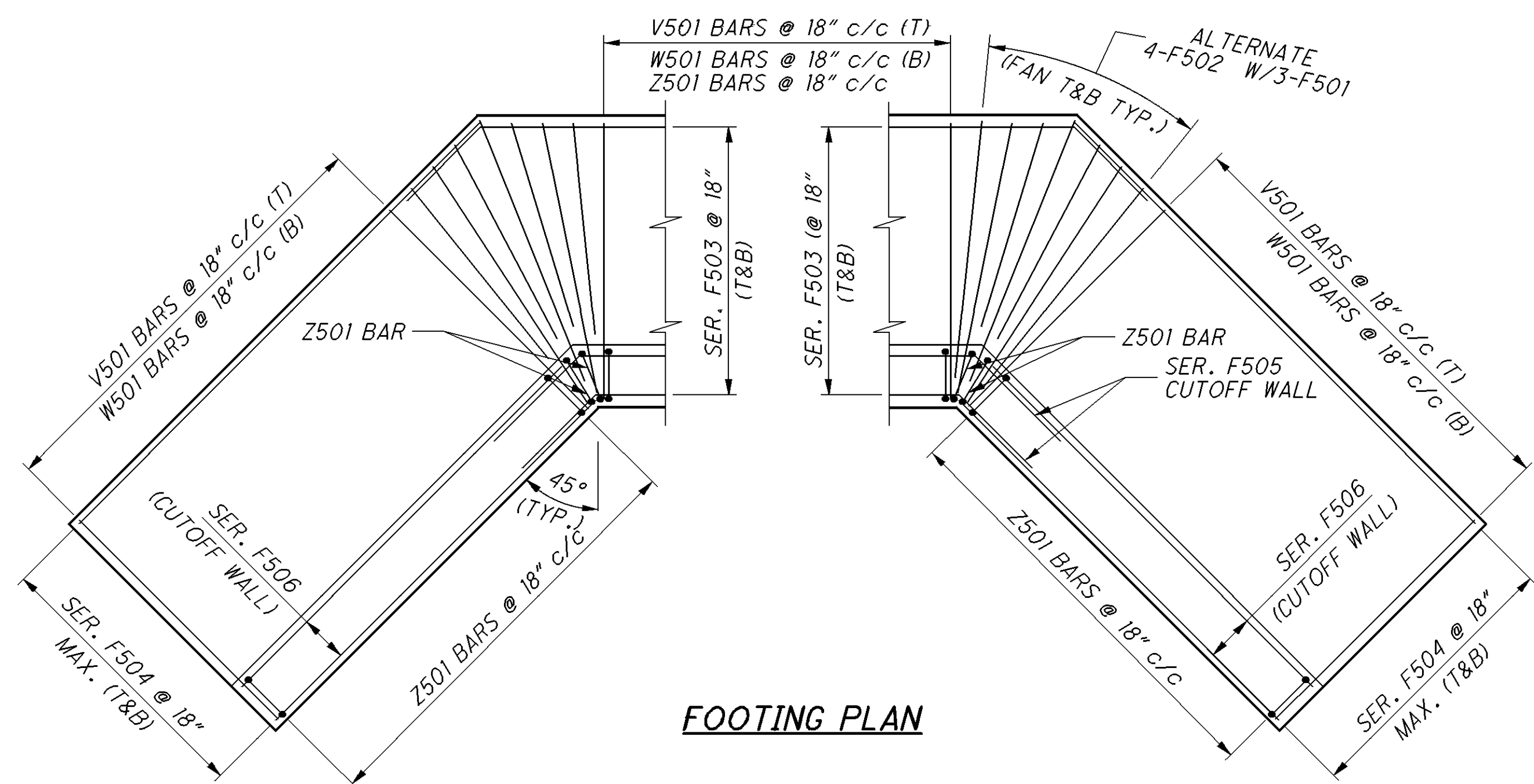
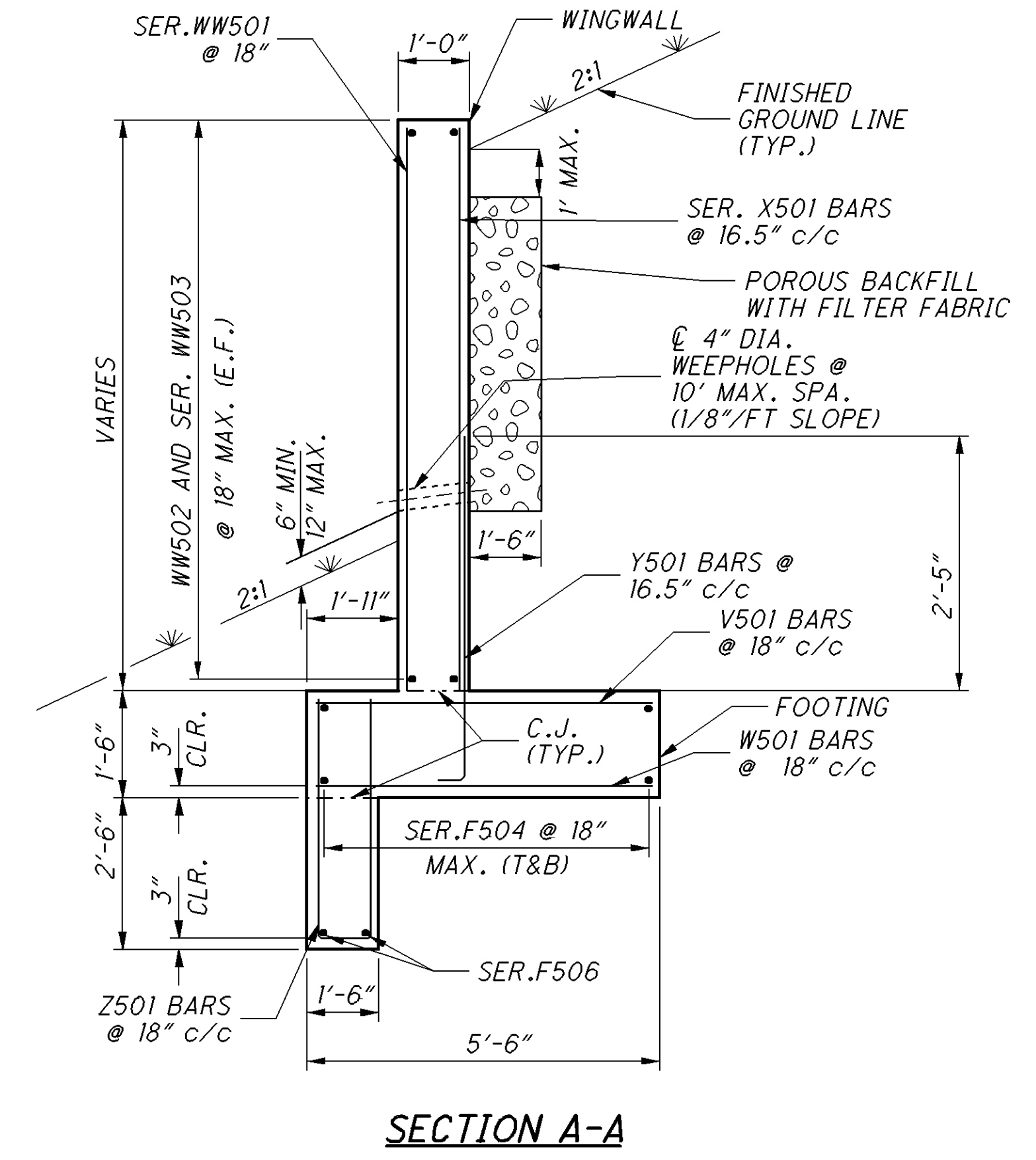
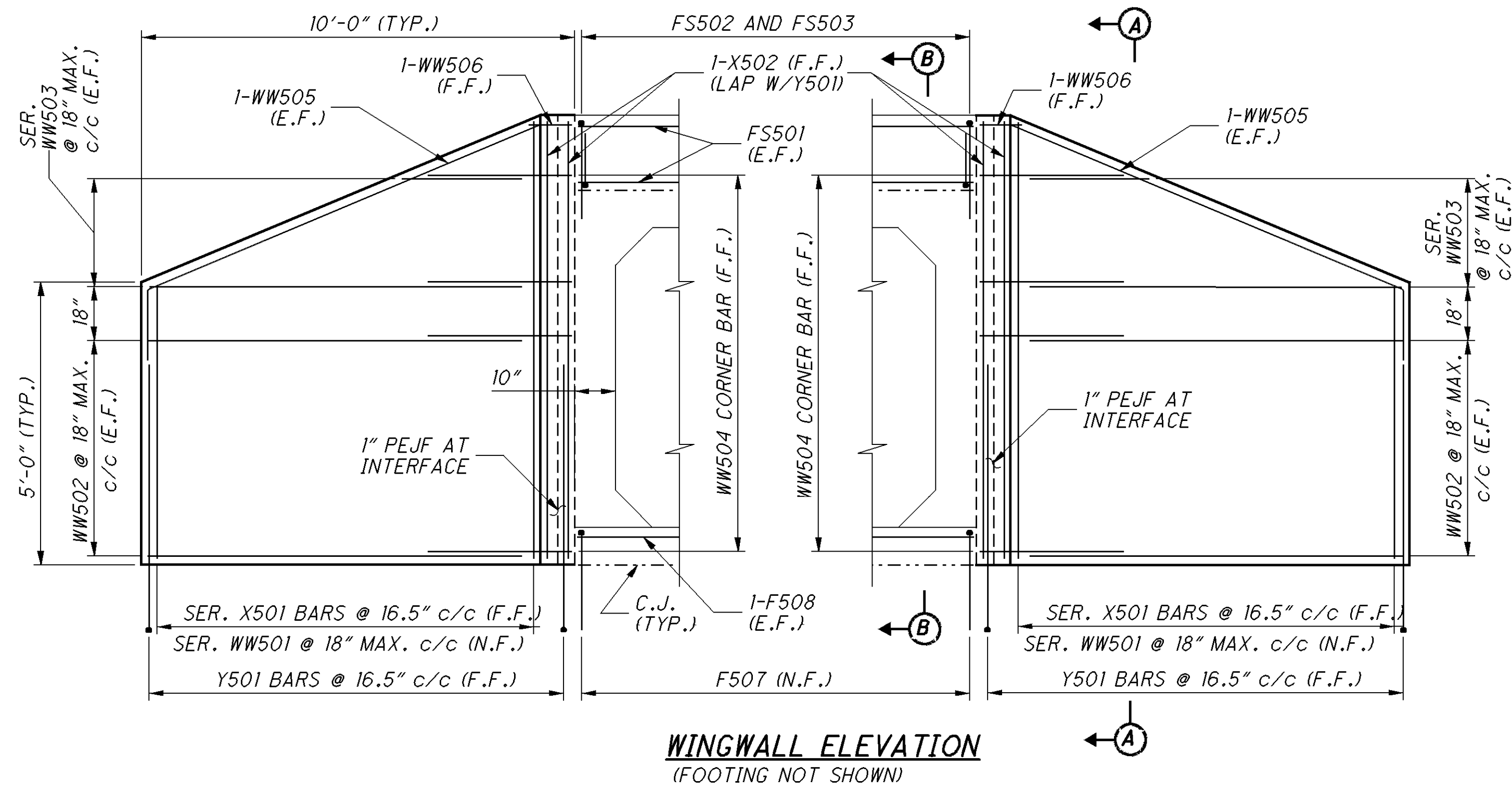


OUTLET ELEVATION

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DESIGN AGENCY		OHIO DEPARTMENT OF TRANSPORTATION - DISTRICT 8	
DATE	REVIEWED	STRUCTURE FILE NUMBER	6801943
DRAWN	TRB	CHECKED	DAG
DESIGNED	TRB	CHECKED	DAG
CULVERT & WINGWALL LAYOUT AND ELEVATIONS			
PRE-CULVERTS - FY 2014		PID No. 86136	
PRE-121-0246		8 / 8	
		13 / 72	

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NOTES

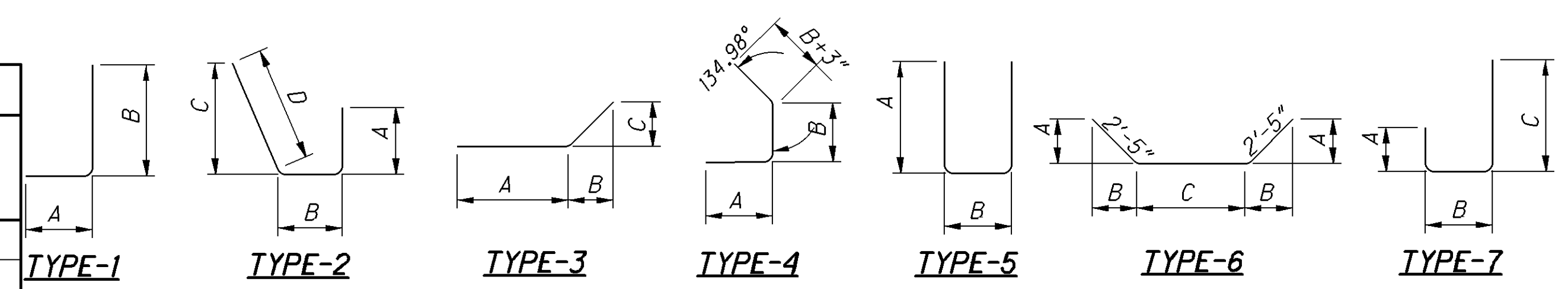
1. FOR CULVERT LOCATION PLAN, SEE SHEET 8/72.
2. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, WW501 IS A NO.5 BAR. BAR DIMENSIONS SHOWN ARE OUT TO OUT. ALL REINFORCING STEEL SHALL BE EPOXY COATED.
3. THE LAP SPLICE LENGTHS USED IN THESE DETAILS ARE AS FOLLOWS: 2'-5" FOR #5 BARS; 2'-11" FOR #6 BARS.

LEGEND:

C.J.	CONSTRUCTION JOINT	N.F.	NEAR FACE
CLR.	CLEAR	SER.	SERIES
DIA.	DIAMETER	STR.	STRAIGHT
E.F.	EACH FACE	(T)	TOP
F.F.	FAR FACE	(B)	BOTTOM
MAX.	MAXIMUM	T&B	TOP AND BOTTOM
MIN.	MINIMUM	TYP.	TYPICAL
PEJF	PREFORMED EXPANSION JOINT FILLER	INC.	INCREMENT

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HEADWALL REINFORCING SCHEDULE									
BAR MARK	NUMBER	LENGTH	WEIGHT (LBS.)	TYPE	BAR TYPE DIMENSIONS				INC.
					A	B	C	D	
WINGWALLS									
	2	4'- 10"							
X501	SERIES TO		124	STR.					0'- 5 1/4"
	of 9	8'- 4"							
X502	4	8'- 4"	35	STR.					
Y501	22	4'- 0"	93	1	0'- 6"	3'- 8"			
	2	4'- 10"							
WW501	SERIES TO		110	STR.					0'- 6 "
	of 8	8'- 4"							
WW502	16	9'- 8"	162	STR.					
	4	3'- 3"							
WW503	SERIES TO		81	STR.					3'- 2 1/2"
	of 3	9'- 8"							
WW504	14	3'- 6"	52	2	0'- 7"	0'- 2 "	2'- 1/4"	2'- 10 "	
WW505	4	12'- 8"	53	3	2'- 5"	3'- 4"	9'- 8"		
WW506	2	1'- 1"	3	4	0'- 7"	0'- 2 "			
FOOTING & CUTOFF WALL									
V501	24	5'- 2"	130	STR.					
W501	24	5'- 2"	130	STR.					
Z501	28	8'- 2"	239	5	3'- 7"	1'- 2"			
F501	12	4'- 8"	59	STR.					
F502	16	3'- 8"	62	STR.					
	2	15'- 4"					10'- 4 3/4"		
F503	SERIES TO		183	6	1'- 9"	1'- 9"	TO		1'- 7/8"
	of 5	19'- 7"					14'- 8"		
	4	9'- 1"							
F504	SERIES TO		212	STR.					0'- 6 1/4"
	of 5	11'- 2"							
	1	15'- 4"					10'- 4 3/4"		
F505	SERIES TO		33	6	1'- 9"	1'- 9"	TO		0'- 11 1/2"
	2	16'- 3"					11'- 4 1/4"		
	2	9'- 1"							
F506	SERIES TO		39	STR.					0'- 5 "
	2	9'- 6"							
F507	9	3'- 10"	36	1	1'- 11"	2'- 0"			
F508	2	11'- 4"	24	STR.					
FORESLOPE WALL									
FS501	4	11'- 4"	48	STR.					
FS502	13	1'- 5"	20	5	0'- 6"	0'- 8"			
FS503	13	2'- 2"	30	7	0'- 6"	0'- 8"	1'- 3"		
		TOTAL	1,958						

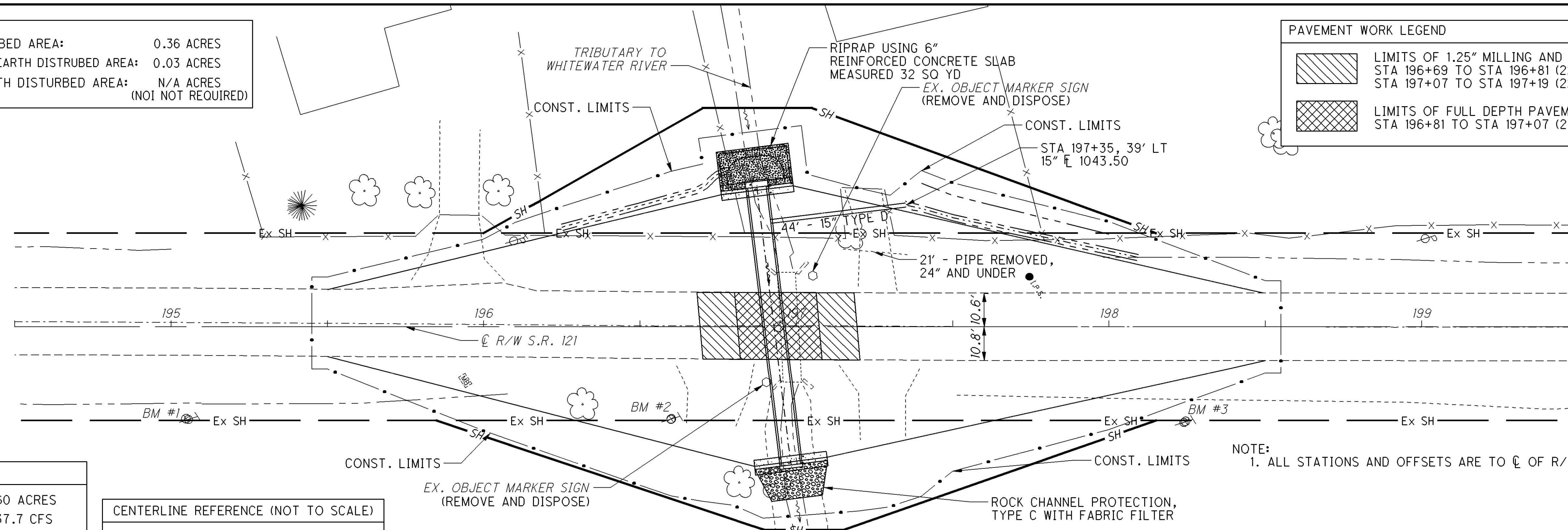


NOTE:
1. THE TABLE ABOVE APPLIES ONLY TO ONE END OF THE CULVERT; THE OTHER END IS IDENTICAL.

DESIGN AGENCY OHIO DEPARTMENT OF TRANSPORTATION - DISTRICT 8	
DESIGNED TRB CHECKED DAG	DATE REVIEWED STRUCTURE FILE NUMBER 6801943
REINFORCING STEEL SCHEDULE PRE-121-0246	
PRE-CULVERTS - FY 2014 PID No. 86136	
8 / 8	15 / 72

PROJECT EARTH DISTURBED AREA: 0.36 ACRES
 ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.03 ACRES
 NOTICE OF INTENT EARTH DISTURBED AREA: N/A ACRES (NOI NOT REQUIRED)

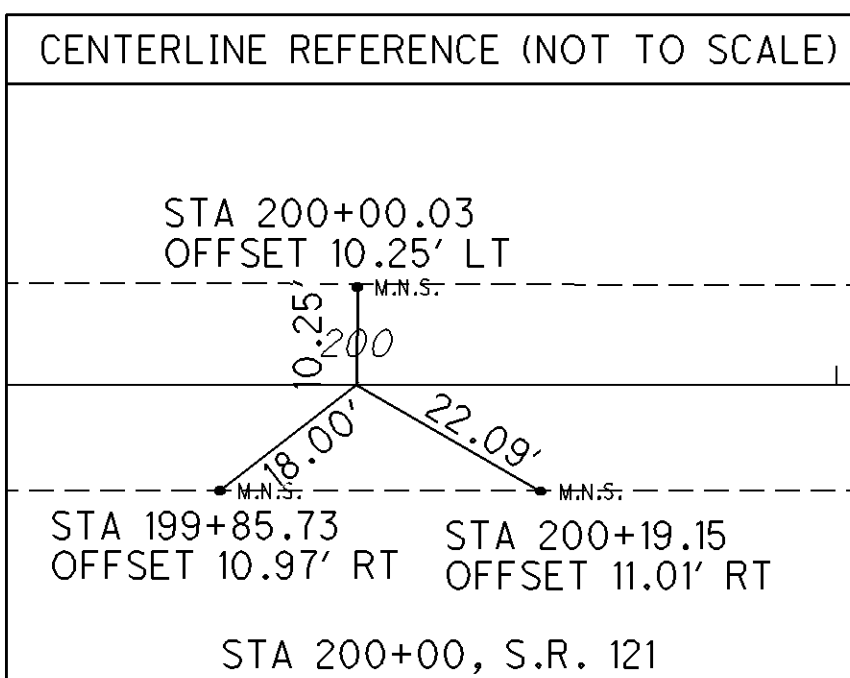
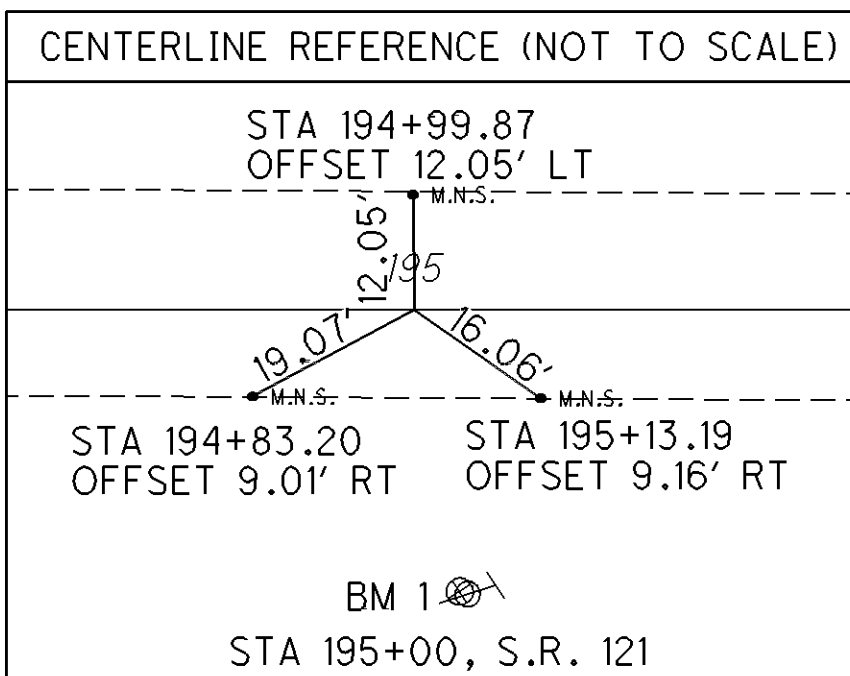
PAVEMENT WORK LEGEND	
	LIMITS OF 1.25" MILLING AND FILLING STA 196+69 TO STA 196+81 (22'W X 12'L) STA 197+07 TO STA 197+19 (22'W X 12'L)
	LIMITS OF FULL DEPTH PAVEMENT REPLACEMENT STA 196+81 TO STA 197+07 (22'W X 26'L)



HYDRAULIC DESIGN DATA	
DRAINAGE AREA:	= 60 ACRES
Q_{25}	= 37.7 CFS
Q_{100}	= 46.1 CFS
HW ₂₅	= 1043.58 FT
HW ₁₀₀	= 1043.83 FT
V_{25}	= 5.67 FPS
V_{100}	= 6.05 FPS

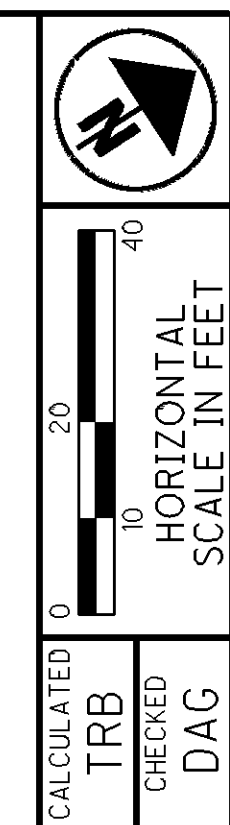
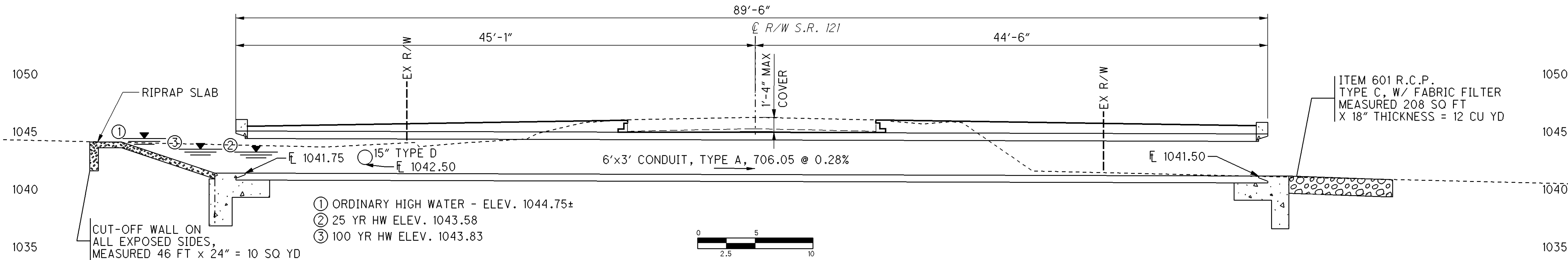
EXISTING STRUCTURE	
TYPE:	C.I.P. 3-SIDED BOX
SIZE:	72"x36", 36' LONG
SKEW:	3°11' RIGHT FORWARD
ALIGNMENT:	TANGENT
DATE BUILT:	1928
CONDITION:	POOR

PROPOSED STRUCTURE	
TYPE:	CONCRETE BOX
SIZE:	6'X3', 90' LONG
SKEW:	7°
ALIGNMENT:	TANGENT



BENCH MARK DATA	
BENCH MARK # 1	SPIKE IN POWER POLE STA 195+04.76, 29.32' RT ELEV= 1041.91
BENCH MARK # 2	SPIKE IN POWER POLE STA 196+59.99, 29.40' RT ELEV= 1044.25
BENCH MARK # 3	SPIKE IN POWER POLE STA 198+24.44, 30.20' RT ELEV= 1042.02

ESTIMATED QUANTITIES (CARRIED TO GENERAL SUMMARY)			
ITEM	QUANTITY	UNIT	DESCRIPTION
202	21	FT	PIPE REMOVED, 24" AND UNDER
202	279	FT	FENCE REMOVED
690	1	EACH	MAILBOX REMOVED AND RESET
601	42	SO YD	RIPRAP USING 6" REINFORCED CONCRETE SLAB
601	12	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER
611	44	FT	15" CONDUIT, TYPE D
611	90	FT	6' X 3' CONDUIT, TYPE A, 706.05
621	1	EACH	RPM
621	1	EACH	RAISED PAVEMENT MARKER REMOVED
630	2	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL
630	2	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL
642	0.02	MILE	EDGE LINE
642	0.01	MILE	CENTER LINE (DOUBLE-SOLID)
642	0.01	MILE	CENTER LINE (DASHED-SOLID)



CALCULATED TRB CHECKED DAG
CULVERT PLAN AND DETAIL
PRE-121-0373

PRE-CULVERTS -
FY2014
 1 / 9
 16 / 72

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SEEDING	END AREA		VOLUME		CALCULATED	CHECKED	DAG
	CUT	FILL	CUT	FILL			
96			4	18			
84	10	44					
89			3	14			
76	7	31					
322			7	45			
40	0	17					
111			0	16			
0	0	0					
618			14	93			



1044.53
195+50.00
 1044.53
 1 9

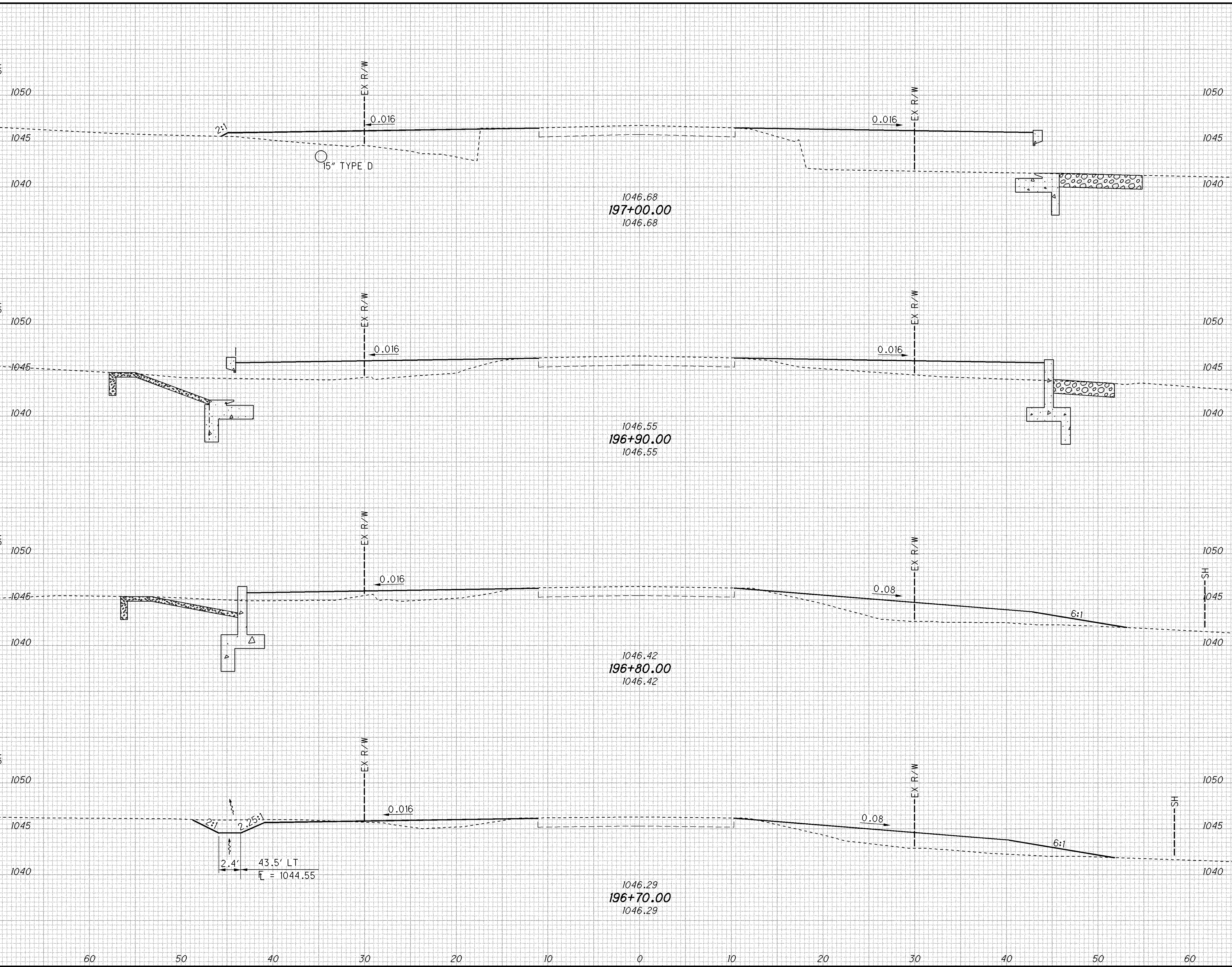
**CROSS SECTIONS - PRE-121-0373
 STA 195+50.00 TO STA 196+60.00**

**PRE-CULVERTS -
 FY2014**

2 / 9
 17 / 72

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SEEDING	END AREA		VOLUME		CALCULATED TRB	CHECKED DAG
	CUT	FILL	CUT	FILL		
83			1	37		
72	1	164				
77			1	48		
67	0	92				
81			1	31		
79	1	75				
93			2	24		
88	10	54				
334			5	140		



END AREA	VOLUME		CALCULATED TRB	CHECKED DAG
	CUT	FILL		
1	164			
0	92			
1	75			
10	54			
5	140			

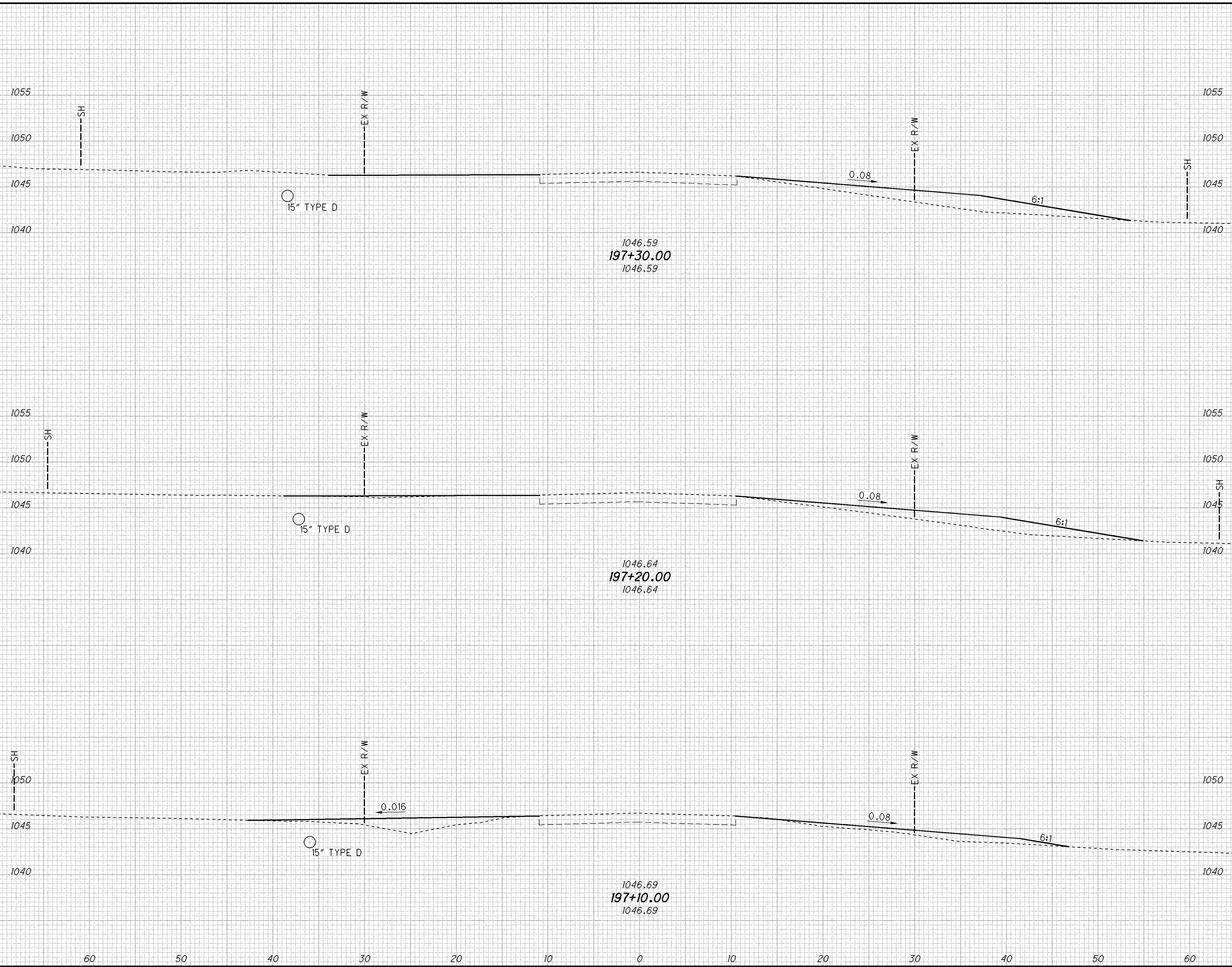
**CROSS SECTIONS - PRE-121-0373
STA 196+70.00 TO STA 196+90.00**

**PRE-CULVERTS -
FY2014**

3 / 9
18 / 72

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SEEDING	END AREA		VOLUME		CALCULATED	CHECKED
	CUT	FILL	CUT	FILL		
91	0	38	8	14		
79	0	38	0	14		
90	0	36	0	14		
82	0	36	0	13		
88	0	33	0	13		
77	0	33	0	13		
269			8	41		



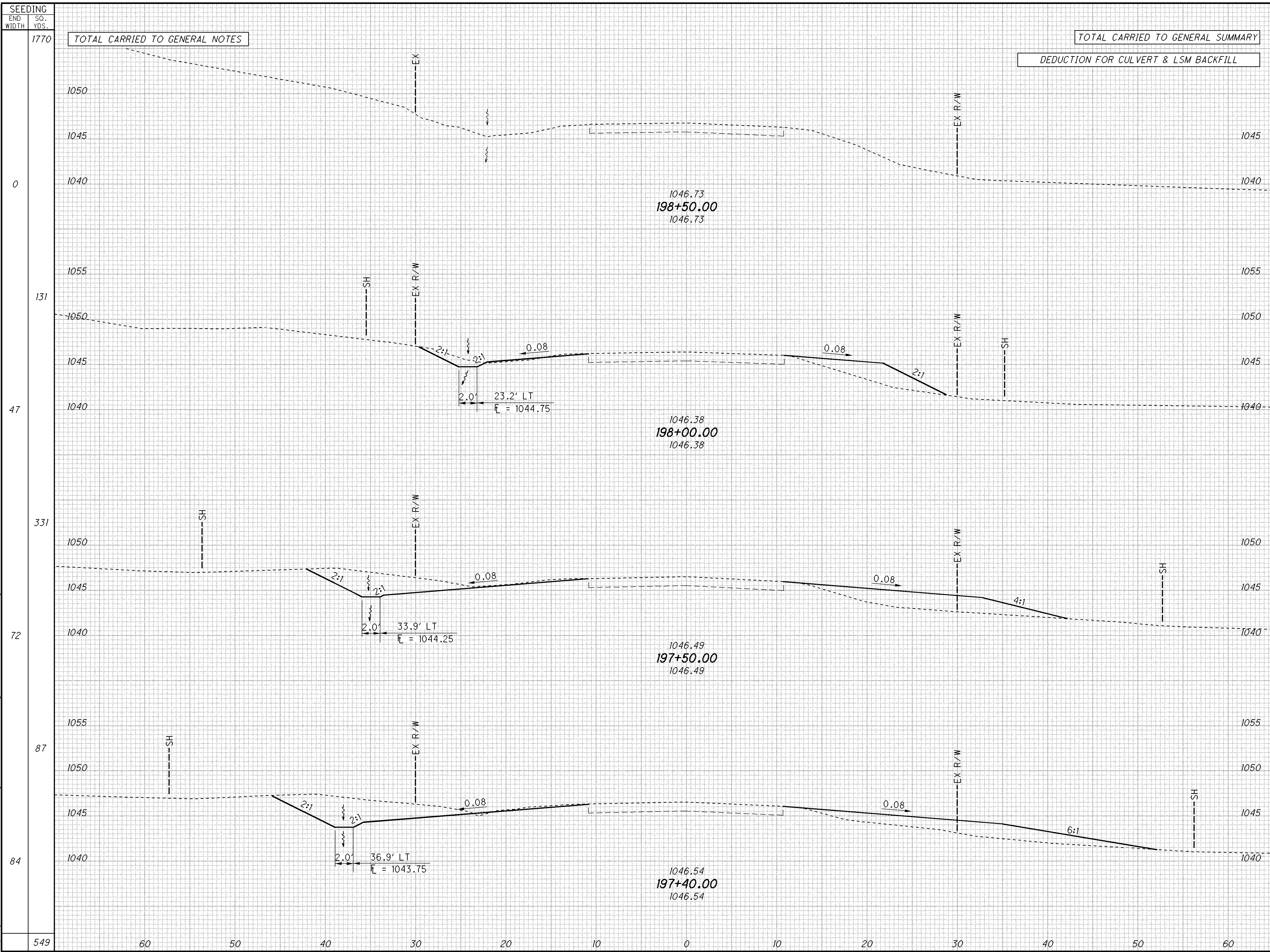
SEEDING	END AREA		VOLUME		CALCULATED	CHECKED
	CUT	FILL	CUT	FILL		
91	0	38	8	14		
79	0	38	0	14		
90	0	36	0	14		
82	0	36	0	13		
88	0	33	0	13		
77	0	33	0	13		
269			8	41		

**CROSS SECTIONS - PRE-121-0373
STA 197+50.00 TO STA 197+20.00**

**PRE-CULVERTS -
FY2014**

4 / 9
19 / 72

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TOTAL CARRIED TO GENERAL NOTES

TOTAL CARRIED TO GENERAL SUMMARY

DEDUCTION FOR CULVERT & LSM BACKFILL

SEEDING	END AREA		VOLUME		CALCULATED	CHECKED	DAG
	CUT	FILL	CUT	FILL			
1770			80	293			
0	0	0					
131			5	20			
47	5	21					
331			34	53			
72	31	36					
87			14	14			
84	41	39					
549			53	87			

CROSS SECTIONS - PRE-121-0373
 STA 197+30.00 TO STA 198+50.00

PRE-CULVERTS -
 FY2014

5 / 9
 20 / 72

GENERAL NOTES

DESIGN SPECIFICATIONS: THIS STANDARD DRAWING CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002 AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN DATA: THE FOLLOWING DESIGN DATA IS ASSUMED:

INTERNAL ANGLE OF FRICTION (ϕ) = 30 DEGREES
 COEFFICIENT OF FRICTION (μ) = 0.30
 UNIT WEIGHT OF SOIL = 120 PCF
 UNIT WEIGHT OF CONCRETE = 150 PCF
 SLOPE OF BACKFILL = 2:1 (TYPE A & B HEADWALLS ONLY)
 HEIGHT OF LIVE LOAD SURCHARGE = 2 FT (TYPE C HEADWALLS ONLY)
 MAXIMUM FOUNDATION BEARING PRESSURE = 2000 P.S.F.

CONCRETE CLASS C - COMPRESSIVE STRENGTH 4000 PSI
 (FOOTING, WINGWALL AND FORESLOPE WALL)

REINFORCING STEEL - ASTM A615, A616, OR A617
 GRADE 60 MINIMUM YIELD STRENGTH
 60,000 PSI (ALL REINFORCING SHALL BE
 EPOXY COATED)

FORESLOPE WALL ANCHOR DOWELS: ANCHOR PER CMS 510 WITH NONSHRINK, NONMETALLIC GROUT CONFORMING TO CMS 705.20 AND TO A DEPTH OF 5". PAYMENT FOR DOWEL HOLES, GROUT AND INSTALLATION SHALL BE INCLUDED WITH ITEM 511.

AS AN ALTERNATIVE TO RESIN BONDING, THREADED INSERTS OR NONPROTRUDING MECHANICAL CONNECTORS CAST INTO THE CULVERT BY THE MANUFACTURER MAY BE USED PROVIDED THEY CAN RESIST AN ULTIMATE PULL-OUT STRENGTH OF 12 KIPS AND MAINTAIN A MINIMUM COVER OF 3 INCHES AT THE BOTTOM OF THE CULVERT SLAB. MECHANICAL CONNECTORS MUST PROVIDE AN "L-SHAPED" BAR INSIDE THE CULVERT WITH A MINIMUM HORIZONTAL LENGTH OF 12 INCHES. PAYMENT FOR INSERTS OR MECHANICAL CONNECTORS SHALL BE INCLUDED WITH ITEM 611.

BACKFILL LIMITATION: WHEN THE DESIGN HEIGHT IS GREATER THAN 10 FT, THE BACKFILL BEHIND THE WINGWALLS SHALL NOT BE PLACED HIGHER THAN THE ELEVATION OF THE SOIL ABOVE THE TOE. WHEN THE SOIL ABOVE THE TOE IS AT ITS FINISHED ELEVATION, THE REMAINDER OF THE BACKFILL MAY BE PLACED.

POROUS BACKFILL WITH FILTER FABRIC: 1'-6" THICK SHALL BE PLACED BEHIND THE WINGWALLS ONLY AND SHALL EXTEND TO 12" BELOW THE EMBANKMENT SURFACE. GEOTEXTILE FABRIC SHALL BE PLACED BETWEEN THE POROUS BACKFILL AND REPLACED EXCAVATION ADJACENT TO THE STRUCTURE. IT SHALL TURN UNDER THE BOTTOM OF THE POROUS BACKFILL AND RETURN 6" ABOVE THE TOP ELEVATION OF THE WEEPHOLE.

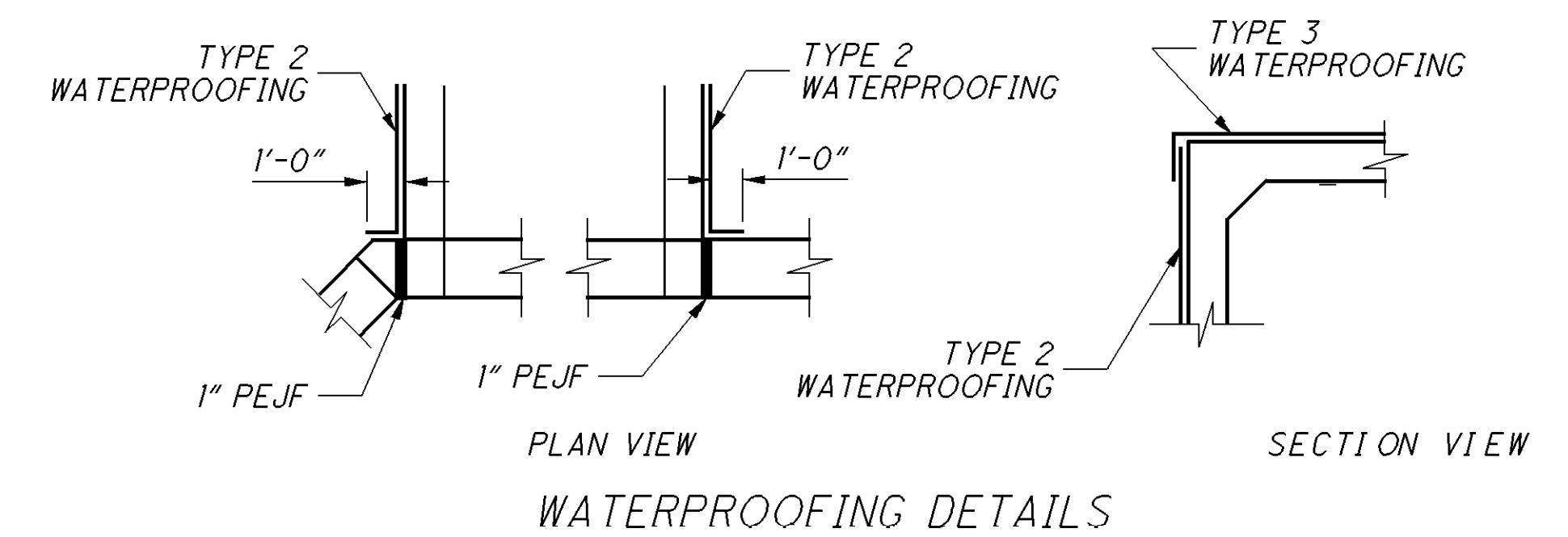
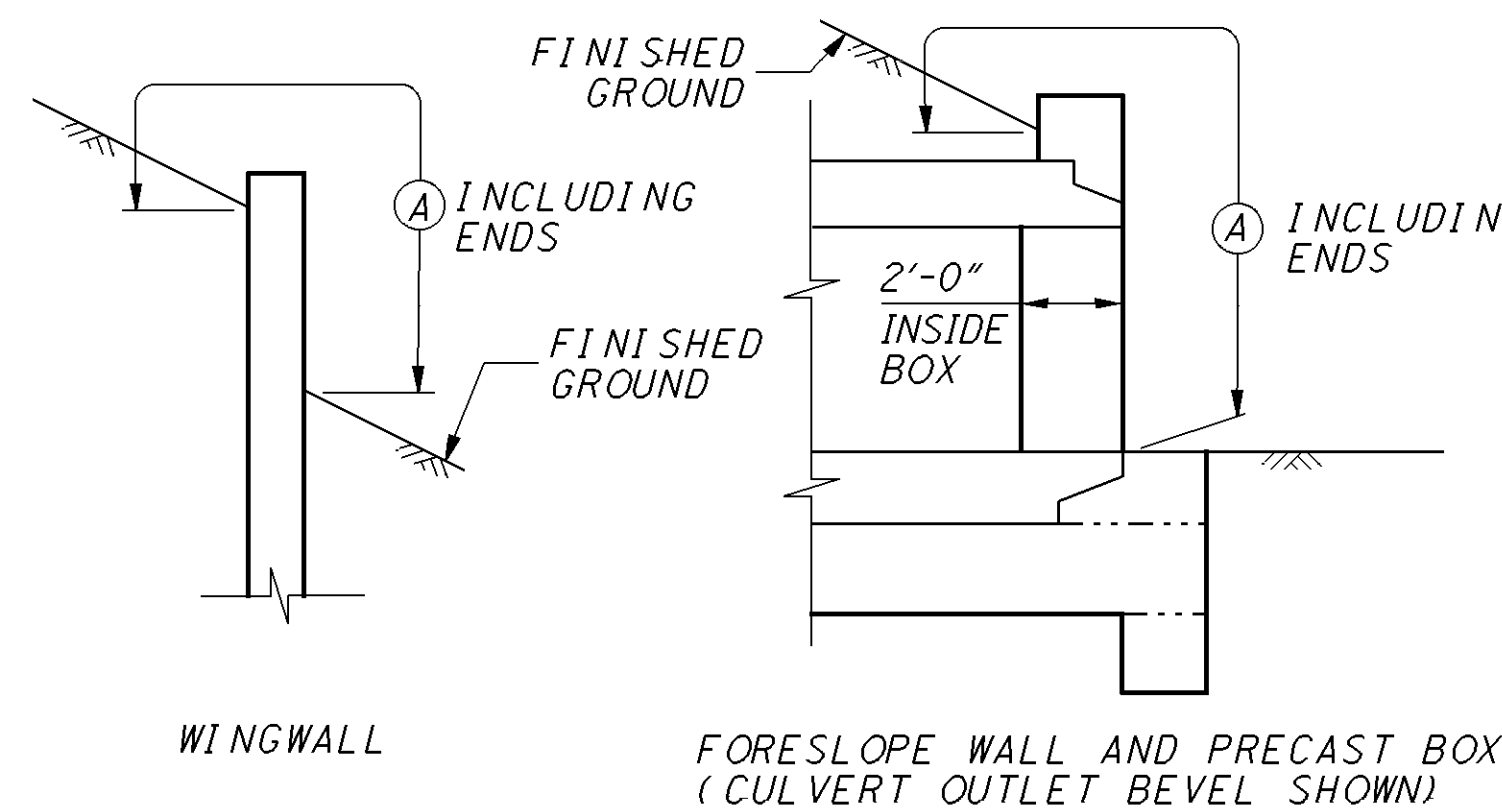
WEEPHOLES SHALL BE PLACED 6" TO 12" ABOVE THE NORMAL WATER ELEVATION OR GROUND LINE AND SHALL HAVE A MAXIMUM SPACING OF 10'-0". A MINIMUM OF ONE WEEPHOLE SHALL BE PROVIDED PER WINGWALL.

PREFORMED EXPANSION JOINT FILLER: PREFORMED EXPANSION JOINT FILLER (PEJF) CONFORMING TO CMS 705.03, 1 INCH THICK, SHALL BE PLACED ABOVE THE FOOTING BETWEEN THE SIDES OF THE BOX CULVERT AND THE ENDS OF THE WINGWALLS. PAYMENT FOR MATERIALS AND INSTALLATION SHALL BE INCLUDED WITH ITEM 516 - 1" PREFORMED EXPANSION JOINT FILLER.

SEALING OF FORESLOPE WALL AND WINGWALLS: ALL EXPOSED FORESLOPE WALL AND WINGWALL CONCRETE SHALL BE SEALED WITH EPOXY-URETHANE SEALER. THE LIMITS SHALL BE AS SHOWN IN THE DIAGRAMS BELOW. PAYMENT FOR THE EPOXY-URETHANE SEALER SHALL BE PER ITEM 512 - SEALING OF CONCRETE SURFACES.

WATERPROOFING: TYPE 2 WATERPROOFING, PER CMS 512.08 AND 711.25, SHALL EXTEND VERTICALLY DOWN THE ENTIRE SIDES OF THE PRECAST CULVERT SECTIONS FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 2 WATERPROOFING.

TYPE 3 WATERPROOFING, PER CMS 512.08 AND 711.29 SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE PRECAST CULVERT SECTIONS AND SHALL EXTEND ONE FOOT VERTICALLY DOWN THE SIDES FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 3 WATERPROOFING.



BASIS OF PAYMENT: ALL LABOR, EQUIPMENT AND INCIDENTALS REQUIRED TO CONSTRUCT THE FOOTING, CUTOFF WALL, WINGWALLS AND FORESLOPE WALL SHALL BE INCLUDED WITH ITEM 511 - CLASS C CONCRETE (RET-WALL, WINGWALL - INCLUDING FOOTING). PAYMENT FOR REINFORCING STEEL SHALL BE INCLUDED WITH ITEM 509 - EPOXY COATED REINFORCING STEEL.

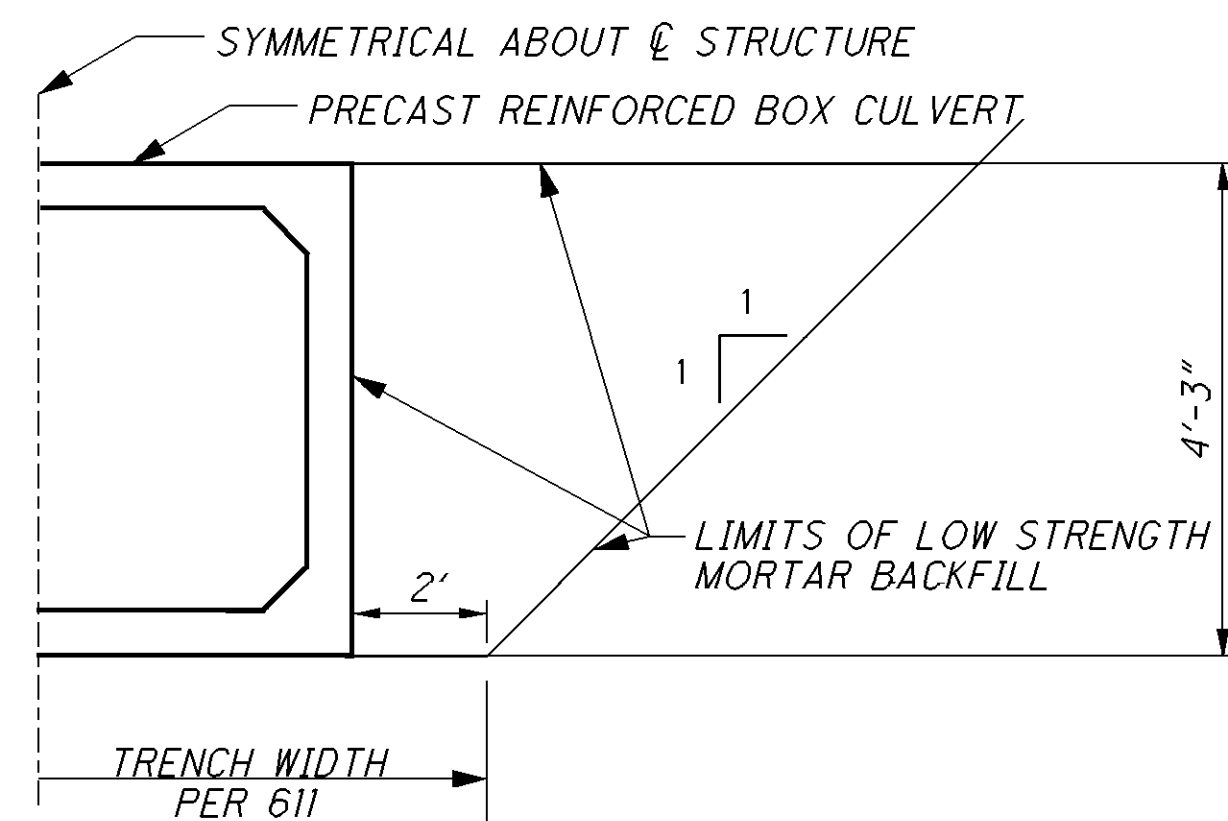
LIMITS OF ITEM 512-SEALING CONCRETE SURFACES

(A) - SEAL ENTIRE CONCRETE SURFACE AREA

STRUCTURE REMOVED:

THE EXISTING CONCRETE STRUCTURE AND CONCRETE WINGWALLS SHALL BE REMOVED PER CMS 202. PAYMENT FOR THE REMOVAL OF THESE ITEMS IS PER ITEM 202 - STRUCTURE REMOVED.

ITEM 613 LOW STRENGTH MORTAR BACKFILL: LOW STRENGTH MORTAR BACKFILL SHALL BE PLACED AS SHOWN AND LATERALLY TO THE WINGWALLS. PAYMENT FOR LOW STRENGTH MORTAR BACKFILL SHALL BE MADE ONLY FOR THE BACKFILL PLACED TO THE LIMITS SHOWN. THE EXCAVATION REQUIRED FOR THE PLACEMENT SHALL BE INCLUDED IN ITEM 611 FOR PAYMENT.

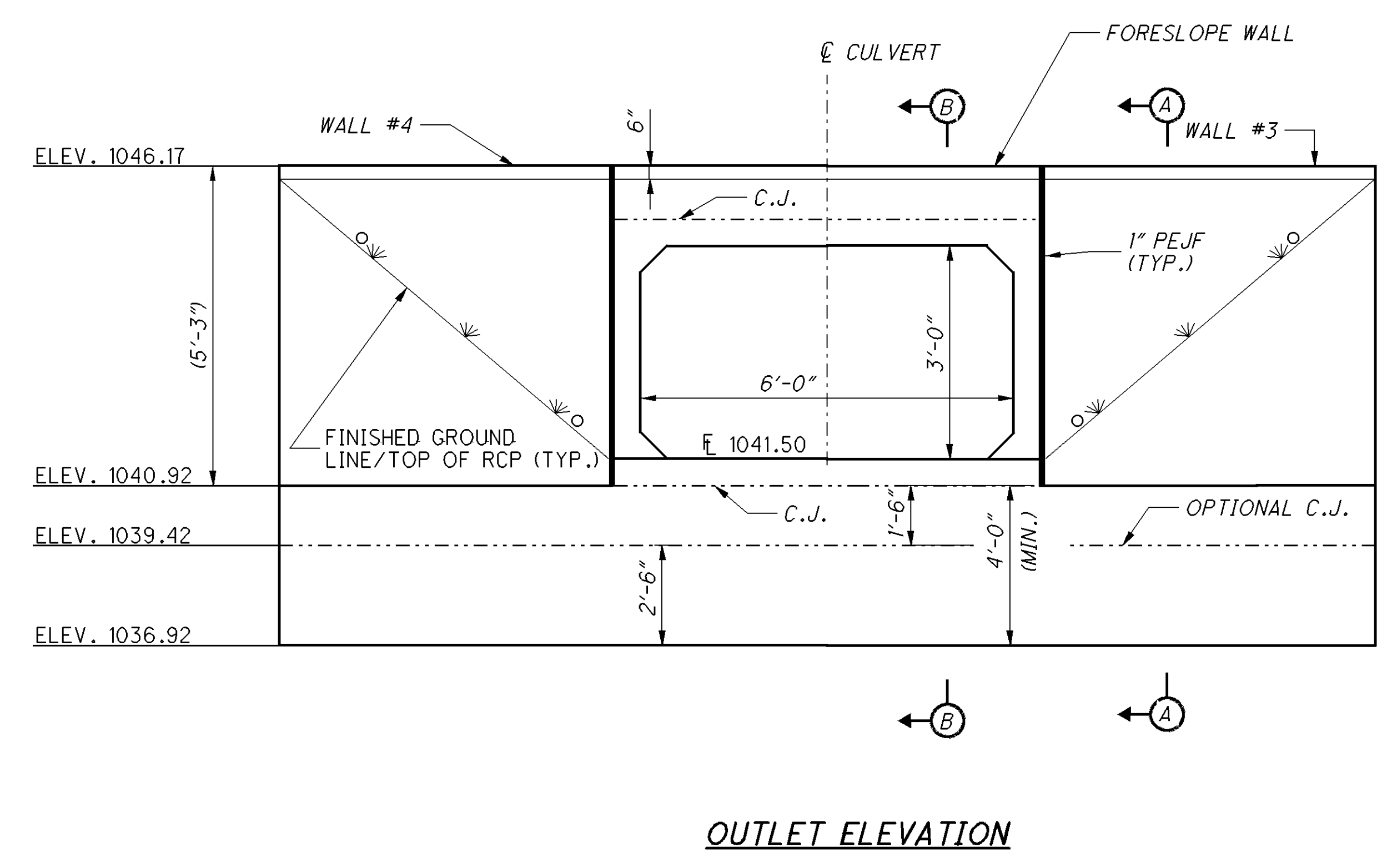
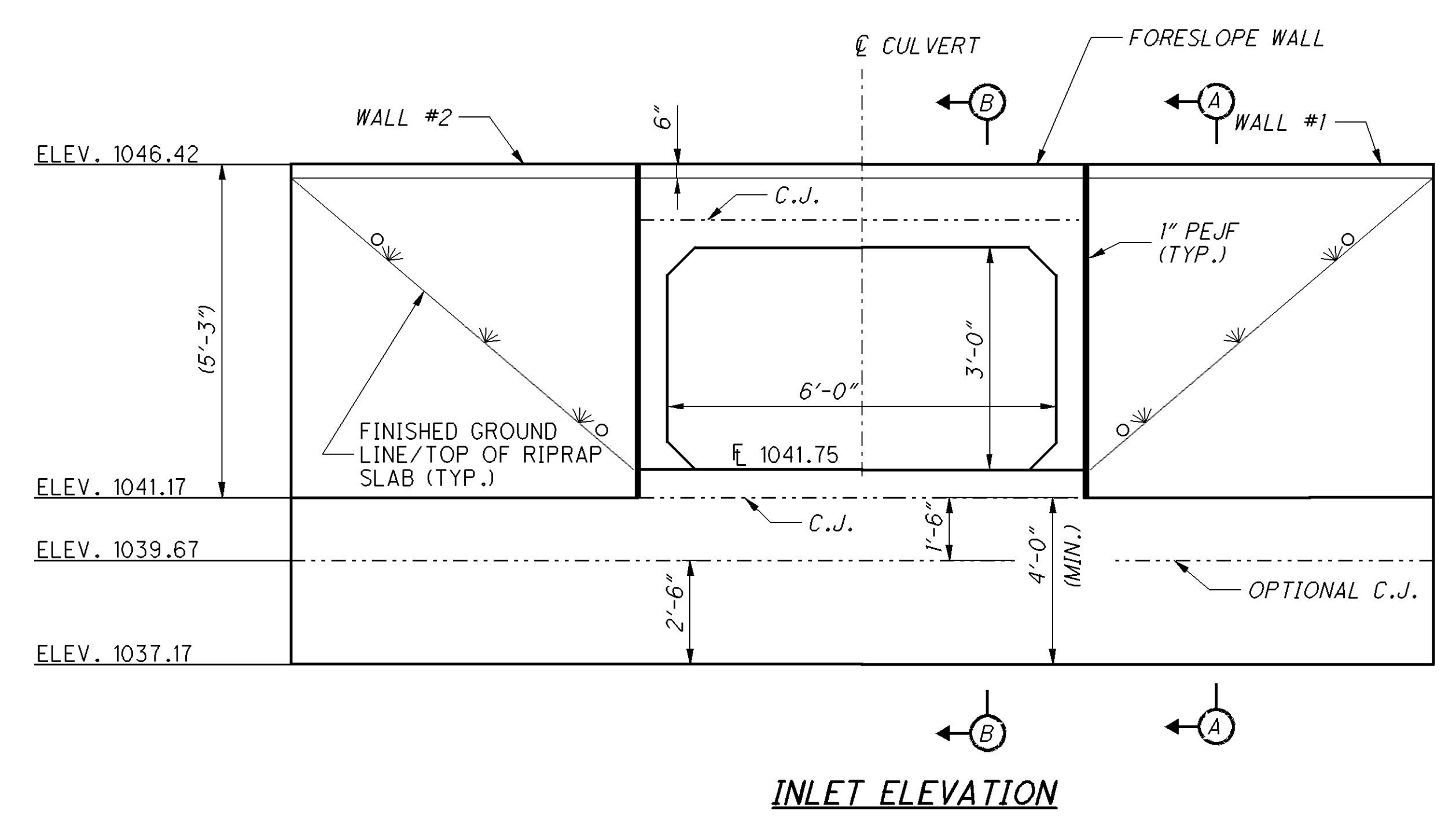
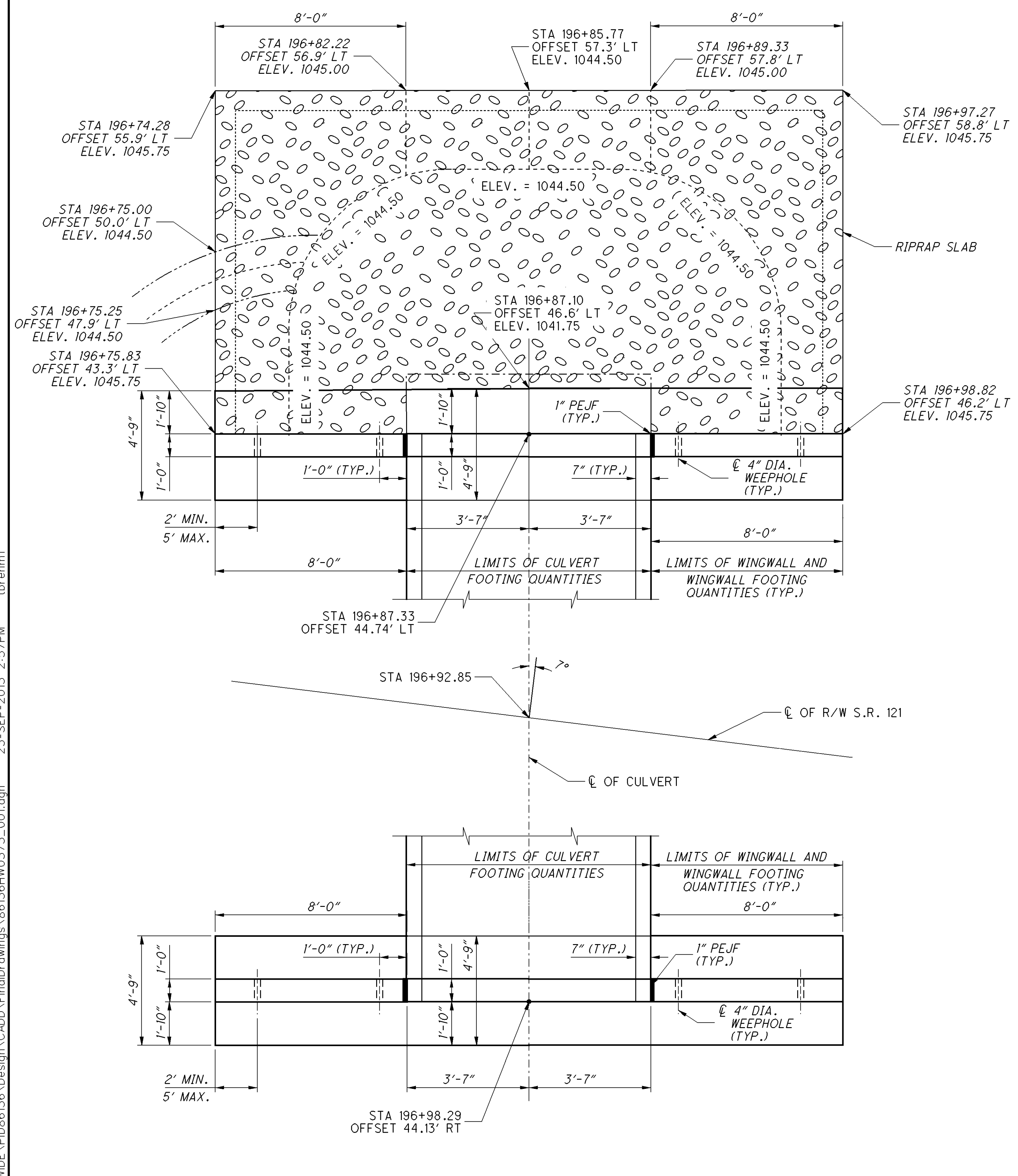


ITEM 613 LOW STRENGTH MORTAR BACKFILL

ESTIMATED QUANTITIES				
ITEM	ITEM EXT	TOTAL	UNIT	DESCRIPTION
202	11000	LUMP		STRUCTURE REMOVED
503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING
503	21300	LUMP		UNCLASSIFIED EXCAVATION (WINGWALL FOOTING)
509	10000	2078	POUND	EPOXY COATED REINFORCING STEEL
511	46010	7	CU YD	CLASS QC1 CONCRETE, WINGWALL
511	46510	20	CU YD	CLASS QC1 CONCRETE, FOOTING
511	46610	1	CU YD	CLASS QC1 CONCRETE, HEADWALL
512	10100	30	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
512	33000	85	SQ YD	TYPE 2 MEMBRANE WATERPROOFING
512	33010	90	SQ YD	TYPE 3 MEMBRANE WATERPROOFING
516	13600	21	SQ FT	1" PREFORMED EXPANSION JOINT FILLER
518	21230	LUMP		POROUS BACKFILL WITH FILTER FABRIC
613	41200	115	CU YD	LOW STRENGTH MORTAR BACKFILL

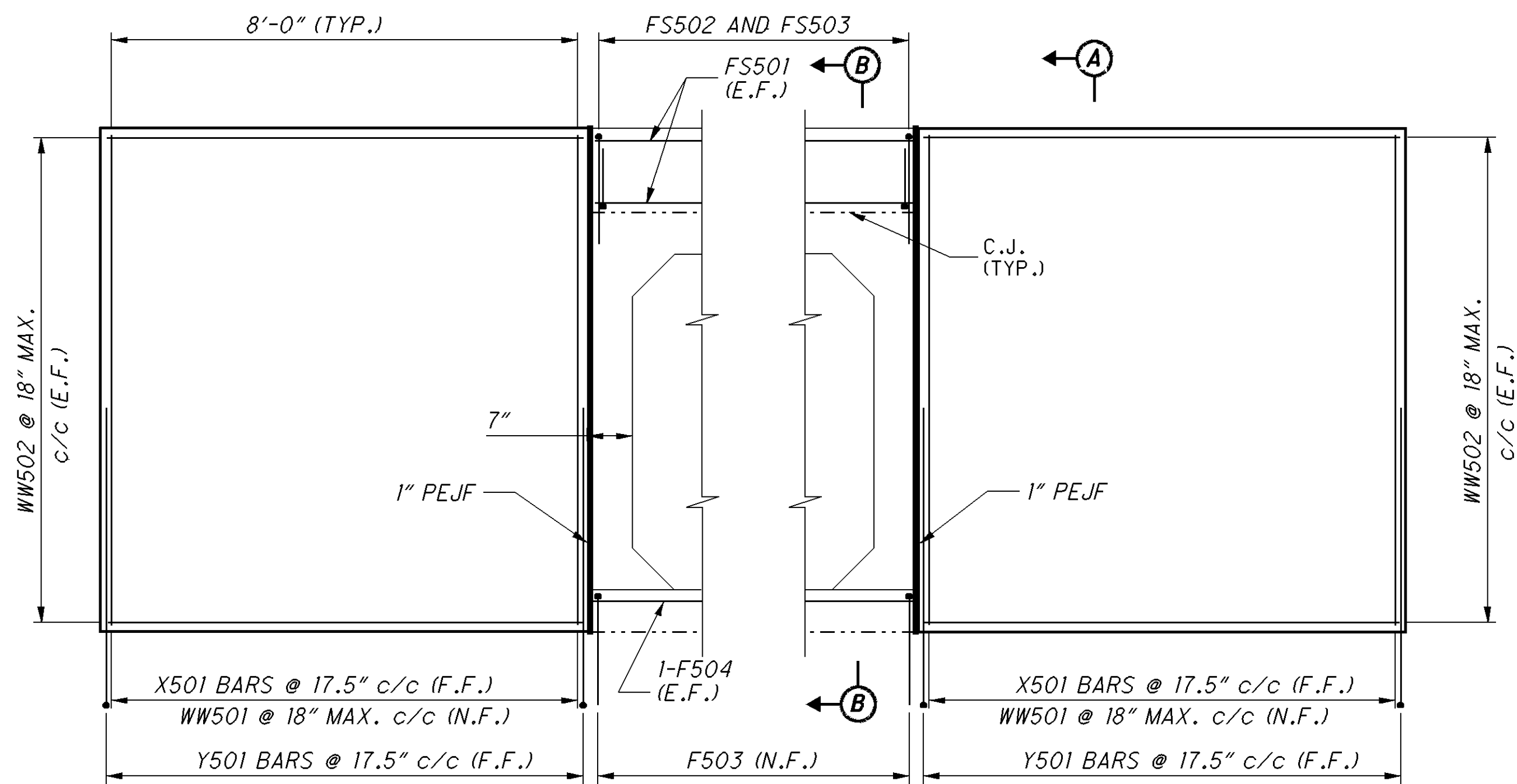
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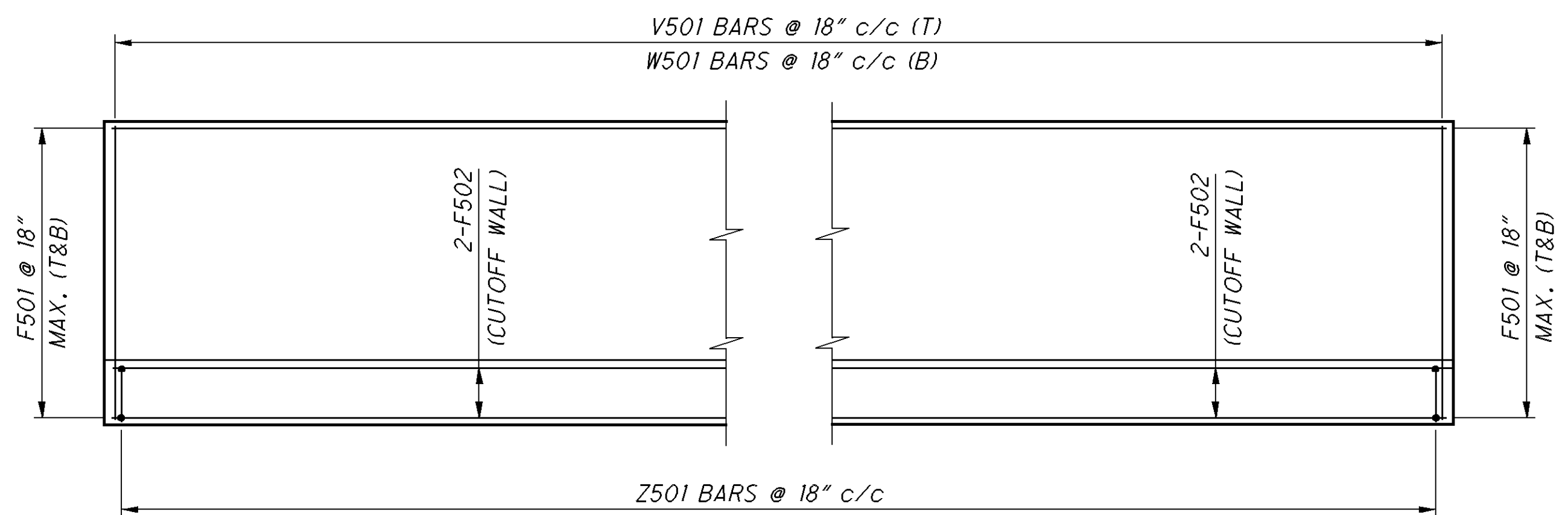


CULVERT & WINGWALL LAYOUT
(OUTLET RCP NOT SHOWN FOR CLARITY)

DESIGN AGENCY OHIO DEPARTMENT OF TRANSPORTATION - DISTRICT 8	
DATE	REVIEWED
DRAWN TRB	STRUCTURE FILE NUMBER
DESIGNED TRB	CHECKED DAG
CULVERT & WINGWALL LAYOUT AND ELEVATIONS PRE-121-0373	
PRE - CULVERTS - FY2014 PID No. 86136	
7 / 9	
22 72	



WINGWALL ELEVATION
(FOOTING NOT SHOWN)



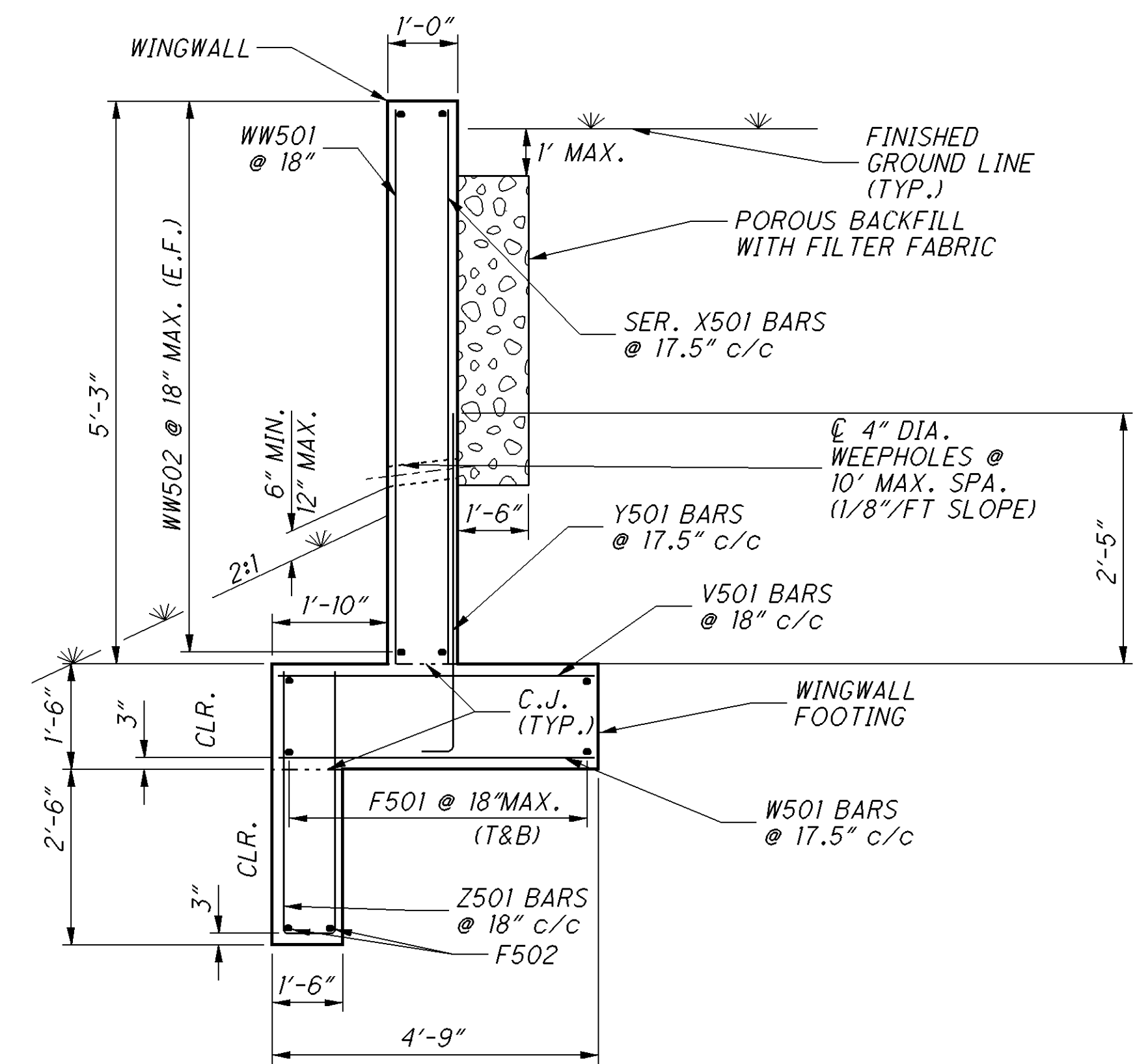
FOOTING PLAN

NOTES

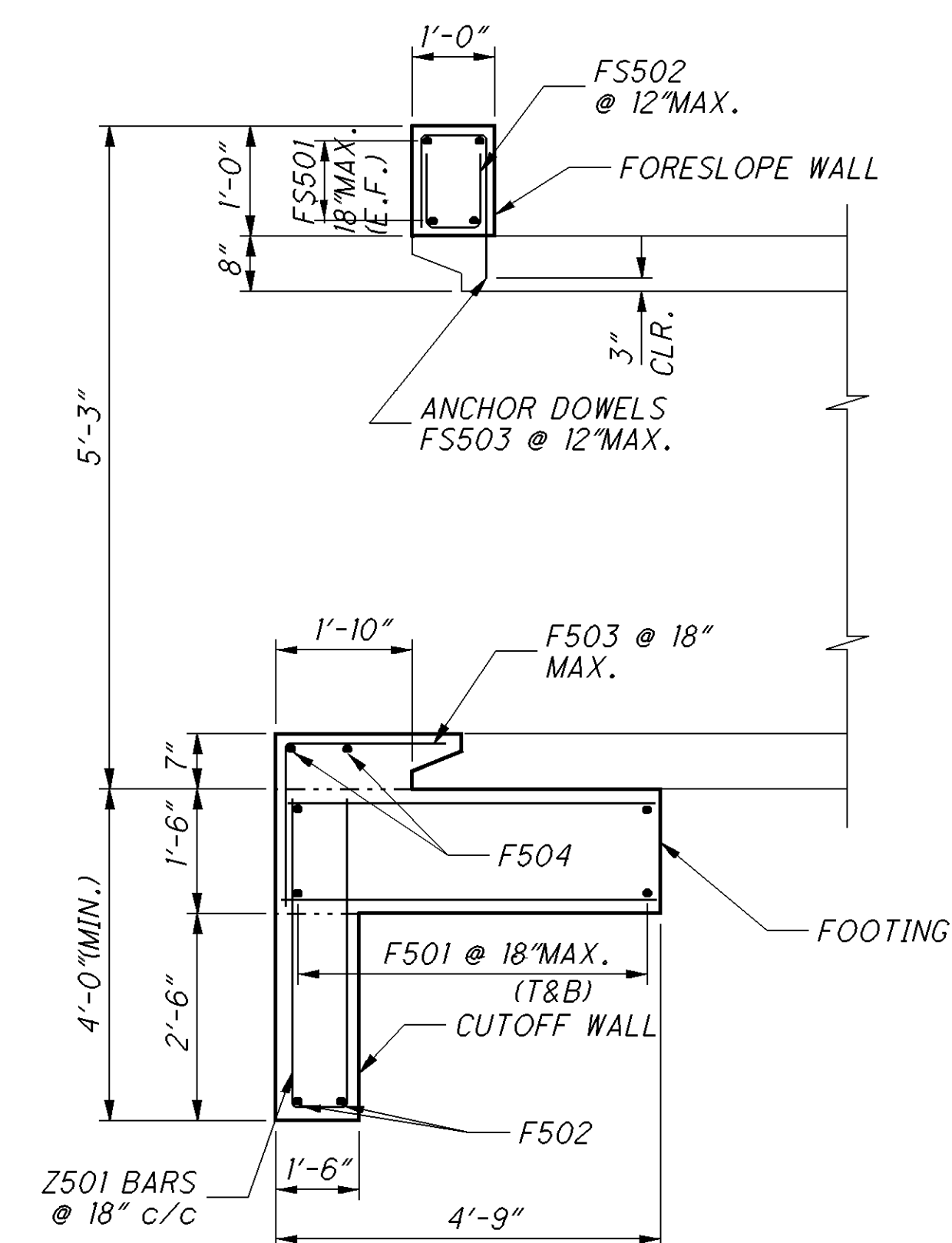
- FOR CULVERT LOCATION PLAN, SEE SHEET 16/72.
- THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, WW501 IS A NO.5 BAR. BAR DIMENSIONS SHOWN ARE OUT TO OUT. ALL REINFORCING STEEL SHALL BE EPOXY COATED.
- THE LAP SPLICE LENGTHS USED IN THESE DETAILS ARE AS FOLLOWS: 2'-5" FOR #5 BARS; 2'-11" FOR #6 BARS.

LEGEND:

C.J.	CONSTRUCTION JOINT	N.F.	NEAR FACE
CLR.	CLEAR	SER.	SERIES
DIA.	DIAMETER	STR.	STRAIGHT
E.F.	EACH FACE	(T)	TOP
F.F.	FAR FACE	(B)	BOTTOM
MAX.	MAXIMUM	T&B	TOP AND BOTTOM
MIN.	MINIMUM	TYP.	TYPICAL
PEJF	PREFORMED EXPANSION JOINT FILLER	INC.	INCREMENT



SECTION A-A



SECTION B-B

(CULVERT INLET BEVEL SHOWN)

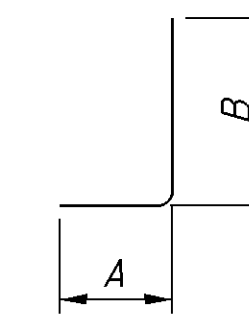
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DESIGN AGENCY OHIO DEPARTMENT OF TRANSPORTATION - DISTRICT 8	
DATE	STRUCTURE FILE NUMBER
REVIEWED	REVISED
DRAWN TRB	REVISED DAG
DESIGNED TRB	
CHECKED DAG	
REINFORCING STEEL PLACEMENT	
PRE-121-0373	
PRE - CULVERTS -	
FY 2014	
PID No. 86136	
8 / 9	23 / 72

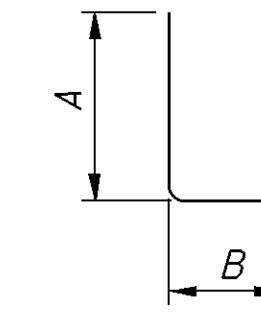
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HEADWALL REINFORCING SCHEDULE							
BAR MARK	NUMBER	LENGTH	WEIGHT (LBS.)	TYPE	BAR TYPE DIMENSIONS		
					A	B	C
WINGWALLS							
X501	14	5'- 1"	75	STR.			
Y501	14	4'- 0"	60	1	0'- 6"	3'- 8"	
WW501	14	5'- 1"	75	STR.			
WW502	20	7'- 8"	160	STR.			
FOOTING & CUTOFF WALL							
V501	17	4'- 5"	79	STR.			
W501	17	4'- 5"	79	STR.			
Z501	17	8'- 2"	145	5	3'- 7"	1'- 2"	
F501	16	12'- 8"	212	STR.			
F502	4	12'- 8"	53	STR.			
F503	6	3'- 6"	22	1	1'- 10"	1'- 9"	
F504	2	6'- 10"	15	STR.			
FORESLOPE WALL							
FS501	4	6'- 10"	29	STR.			
FS502	8	1'- 9"	15	5	0'- 8"	0'- 8"	
FS503	8	2'- 4"	20	7	0'- 8"	0'- 8"	1'- 3"
		TOTAL	1,039				

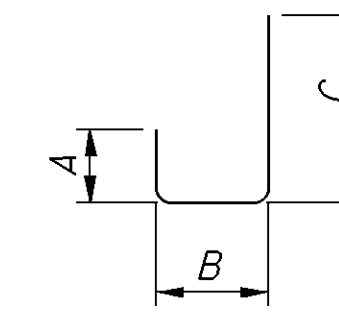
NOTE:
1. THE TABLE ABOVE APPLIES ONLY TO ONE END OF THE CULVERT; THE OTHER END IS IDENTICAL.



TYPE-1





TYPE-5

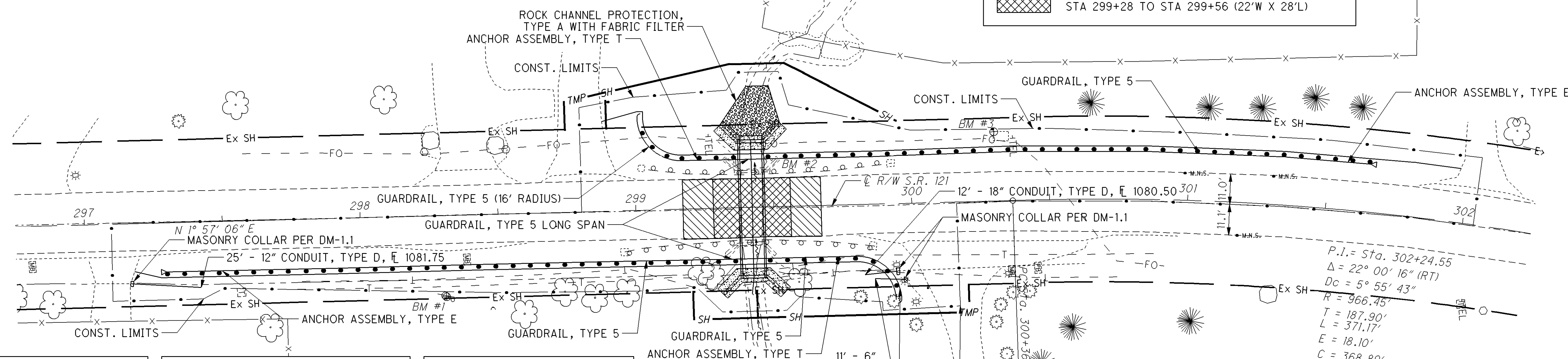


TYPE-7

PROJECT EARTH DISTURBED AREA: 0.29 ACRES
 ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.02 ACRES
 NOTICE OF INTENT EARTH DISTURBED AREA: N/A ACRES (NOI NOT REQUIRED)

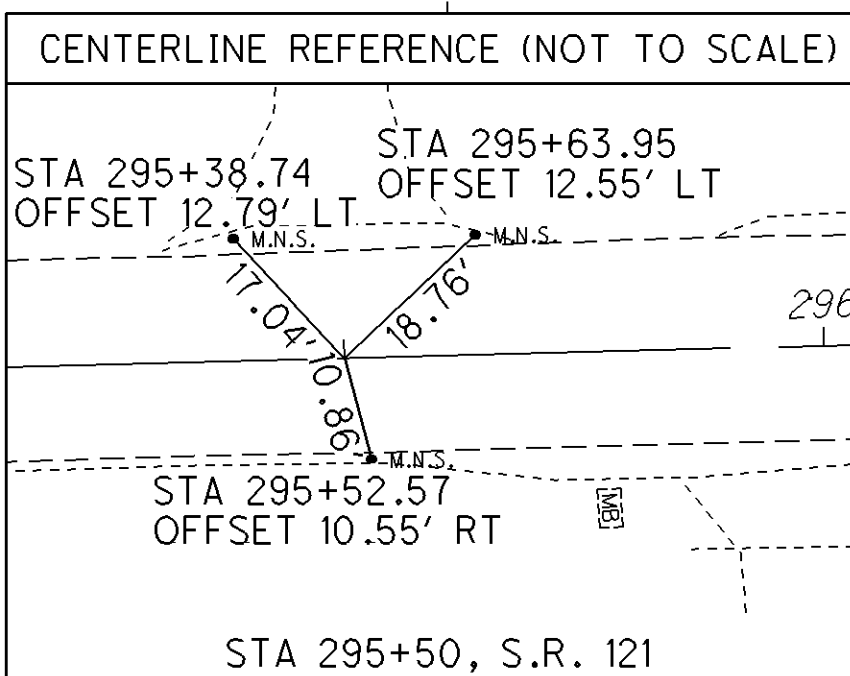
NOTE:
 1. ALL STATIONS AND OFFSETS ARE TO C OF R/W.

PAVEMENT WORK LEGEND
 LIMITS OF 1.25" MILLING AND FILLING
 STA 299+17 TO STA 299+28 (22'W X 11'L)
 STA 299+56 TO STA 299+67 (22'W X 11'L)
 LIMITS OF FULL DEPTH PAVEMENT REPLACEMENT
 STA 299+28 TO STA 299+56 (22'W X 28'L)



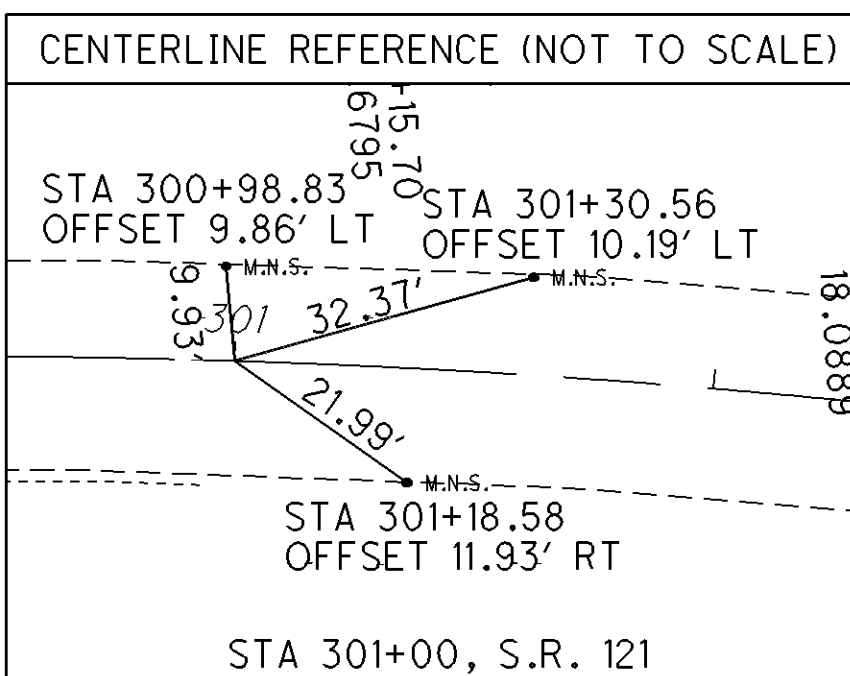
P.I. = Sta. 302+24.55
 $\Delta = 22^\circ 00' 16''$ (RT)
 $Dc = 5^\circ 55' 43''$
 $R = 966.45'$
 $T = 187.90'$
 $L = 371.17'$
 $E = 18.10'$
 $C = 368.89'$
 $C.B. = N 12^\circ 31' 53'' E$

EXISTING STRUCTURE
 TYPE: CONCRETE SLAB TOP
 SIZE: 102"x53", 36.5' LONG
 SKEW: 2°54' RIGHT FORWARD
 ALIGNMENT: TANGENT
 DATE BUILT: 1928
 CONDITION: POOR



BENCH MARK DATA
 BENCH MARK # 1
 SPIKE IN POWER POLE
 STA 298+30.66, 29.32' RT
 ELEV= 1081.01
 BENCH MARK # 2
 SQUARE CUT IN POST
 STA 299+48.09, 12.49' LT
 ELEV= 1084.67
 BENCH MARK # 3
 SQUARE IN CONCRETE PAD
 STA 300+30.36, 25.27' LT
 ELEV= 1080.67

PROPOSED STRUCTURE
 TYPE: CONCRETE BOX
 SIZE: 8'X5', 50' LONG
 SKEW: 0°
 ALIGNMENT: TANGENT



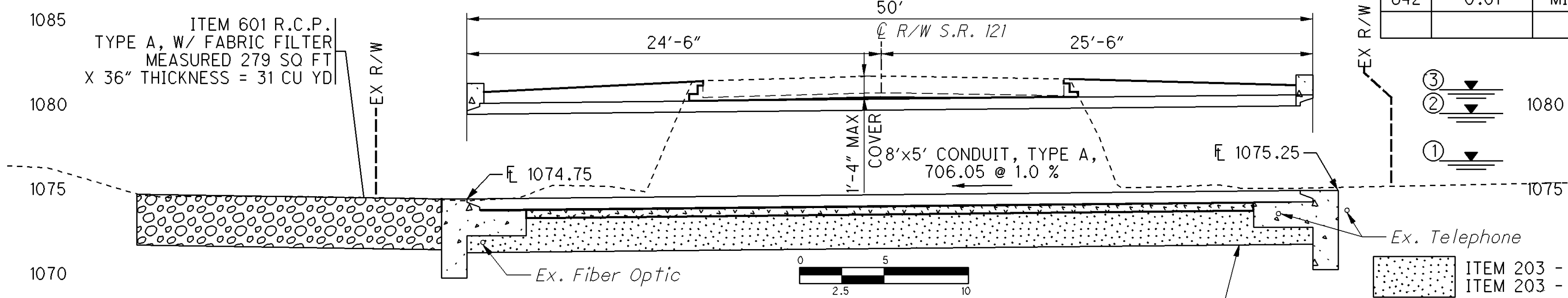
GUARDRAIL TYPE	BEGIN	END	LENGTH
GUARDRAIL, TYPE 5 (16'R)	299+01.2, 33.91' LT	299+17.1, 17.79' LT	25'-0"
ANCHOR ASSEMBLY, TYPE T	299+17.1, 17.79' LT	299+29.6, 17.70' LT	12'-6"
TYPE 5, LONG-SPAN (SCD GR-2.4)	299+29.6, 17.70' LT	299+54.6, 17.62' LT	25'-0"
GUARDRAIL, TYPE 5	299+54.6, 17.62' LT	301+15.7, 17.68' LT	162'-6"
ANCHOR ASSEMBLY, TYPE E	301+15.7, 17.68' LT	301+64.8, 18.09' LT	50'-0"
ANCHOR ASSEMBLY, TYPE E	297+29.5, 17.67' RT	297+79.5, 17.85' RT	50'-0"
GUARDRAIL, TYPE 5	297+79.5, 17.85' RT	299+29.5, 18.30' RT	150'-0"
TYPE 5, LONG-SPAN (SCD GR-2.4)	299+29.5, 18.30' RT	299+54.5, 18.38' RT	25'-0"
GUARDRAIL, TYPE 5	299+54.5, 18.38' RT	299+67.0, 18.42' RT	12'-6"
ANCHOR ASSEMBLY, TYPE T	299+67.0, 18.42' RT	299+79.5, 18.46' RT	12'-6"
GUARDRAIL, TYPE 5 (16'R)	299+79.5, 18.46' RT	299+95.5, 34.52' RT	25'-0"

DESIGN EXCEPTION INFORMATION
 STOPPING SIGHT DISTANCE
 SSD = 392' (570' MIN)
 ACTUAL DESIGN SPEED 48 MPH

ESTIMATED QUANTITIES (CARRIED TO GENERAL SUMMARY)

ITEM	QUANTITY	UNIT	DESCRIPTION
202	187.5	FT	GUARDRAIL REMOVED
202	20	FT	FENCE REMOVED
203	35	CU YD	EXCAVATION
203	35	CU YD	GRANULAR MATERIAL, TYPE C
204	74	SO YD	GEOTEXTILE FABRIC
606	375	FT	GUARDRAIL, TYPE 5
606	50	FT	GUARDRAIL, TYPE 5, LONG SPAN
606	2	EACH	ANCHOR ASSEMBLY, TYPE E
606	2	EACH	ANCHOR ASSEMBLY, TYPE T
690	1	EACH	MAILBOX REMOVED AND RESET
601	24	CU YD	ROCK CHANNEL PROTECTION, TYPE A WITH FABRIC FILTER
611	11	FT	6" CONDUIT, TYPE E
611	25	FT	12" CONDUIT, TYPE D
611	12	FT	18" CONDUIT, TYPE D
611	50	FT	8' X 5' CONDUIT, TYPE A, 706.05
621	1	EACH	RPM
621	1	EACH	RAISED PAVEMENT MARKER REMOVED
626	8	EACH	BARRIER REFLECTOR
642	0.02	MILE	EDGE LINE
642	0.01	MILE	CENTER LINE (DOUBLE-SOLID)

HYDRAULIC DESIGN DATA
 DRAINAGE AREA: = 180 ACRES
 Q_{25} = 234 CFS
 Q_{100} = 319 CFS
 HW_{25} = 1079.82 FT
 HW_{100} = 1081.20 FT
 V_{25} = 14.89 FPS
 V_{100} = 16.34 FPS



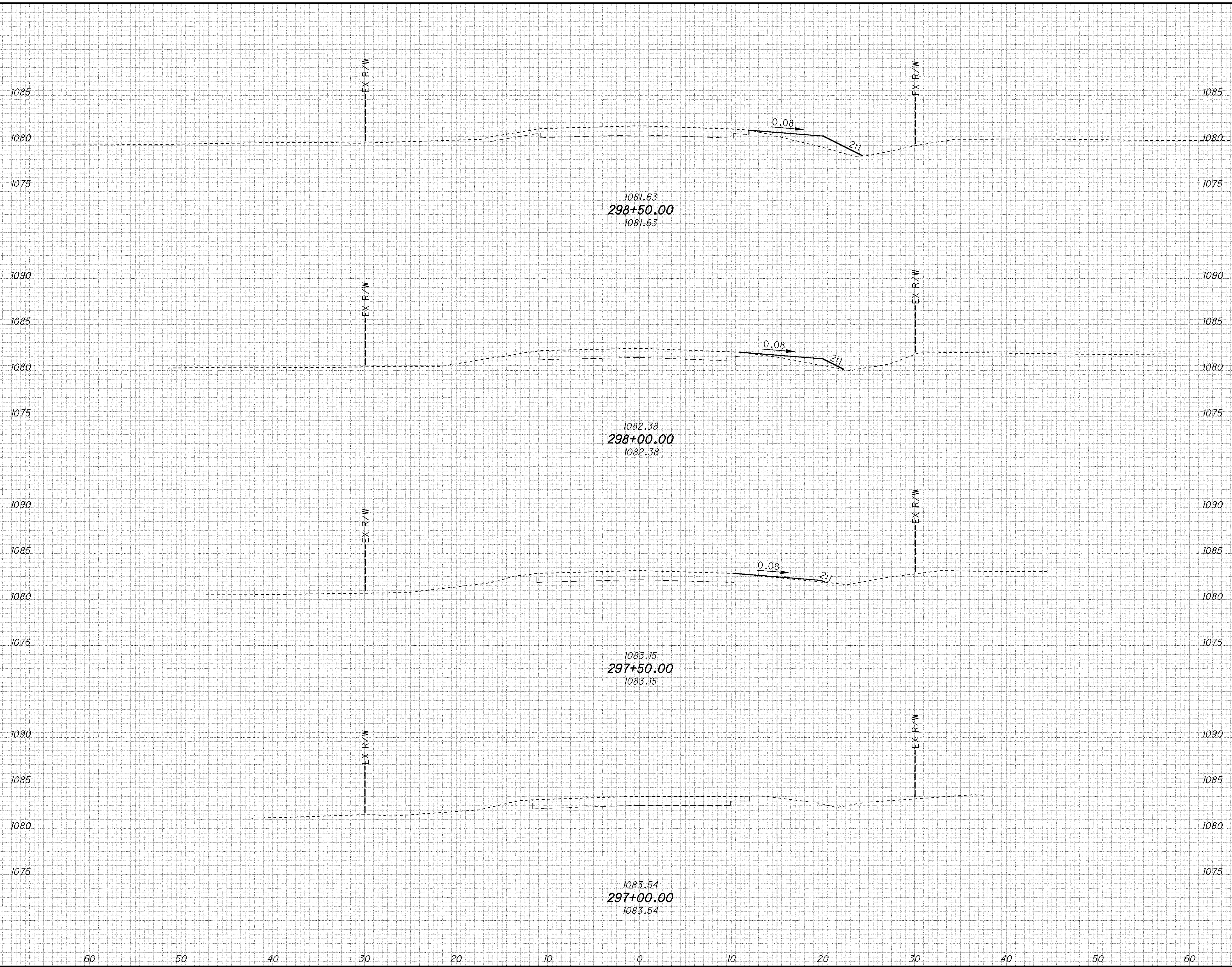
① ORDINARY HIGH WATER - ELEV. 1077.00±
 ② 25 YR HW ELEV. 1079.82
 ③ 100 YR HW ELEV. 1081.20

ITEM 203 - EXCAVATION (50'L, 9'-4"W, 2'T) = 35 CU YD
 ITEM 203 - GRANULAR MATERIAL, TYPE C (50'L, 9'-4"W, 2'T) = 35 CU YD
 6" TYPE 1 BEDDING

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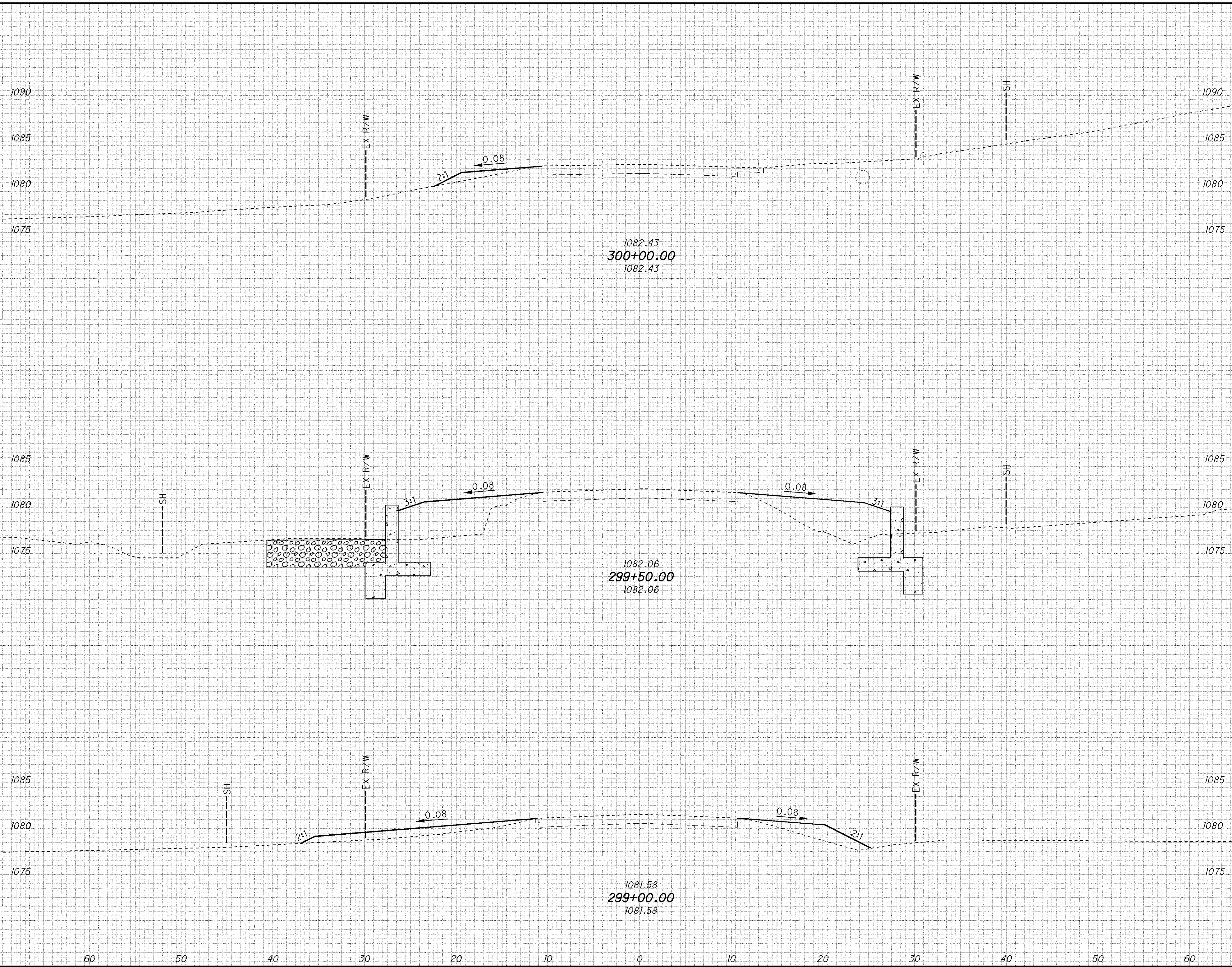
SEEDING	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
192			0	36
19	0	8		
109			0	11
20	0	4		
111			0	5
20	0	1		
56			0	1
0	0	0		
468			0	53



CALCULATED	CHECKED	DAG
CROSS SECTIONS - PRE-121-0567 STA 297+00.00 TO STA 198+50.00		
PRE-CULVERTS - FY2014		
2 / 8		
(26 / 72)		

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SEEDING	END AREA		VOLUME		CALCULATED	TRB	CHECKED	DAG
	CUT	FILL	CUT	FILL				
III	0	6	0	11				
20	0	6	0	106				
59	0	108	0	129				
303	0	31	0	246				
50	0	31	0	246				
634	0	31	0	246				



END AREA	VOLUME		CALCULATED	TRB	CHECKED	DAG
	CUT	FILL				
0	6	11				
0	6	106				
0	108	129				
0	31	246				
0	31	246				
0	31	246				

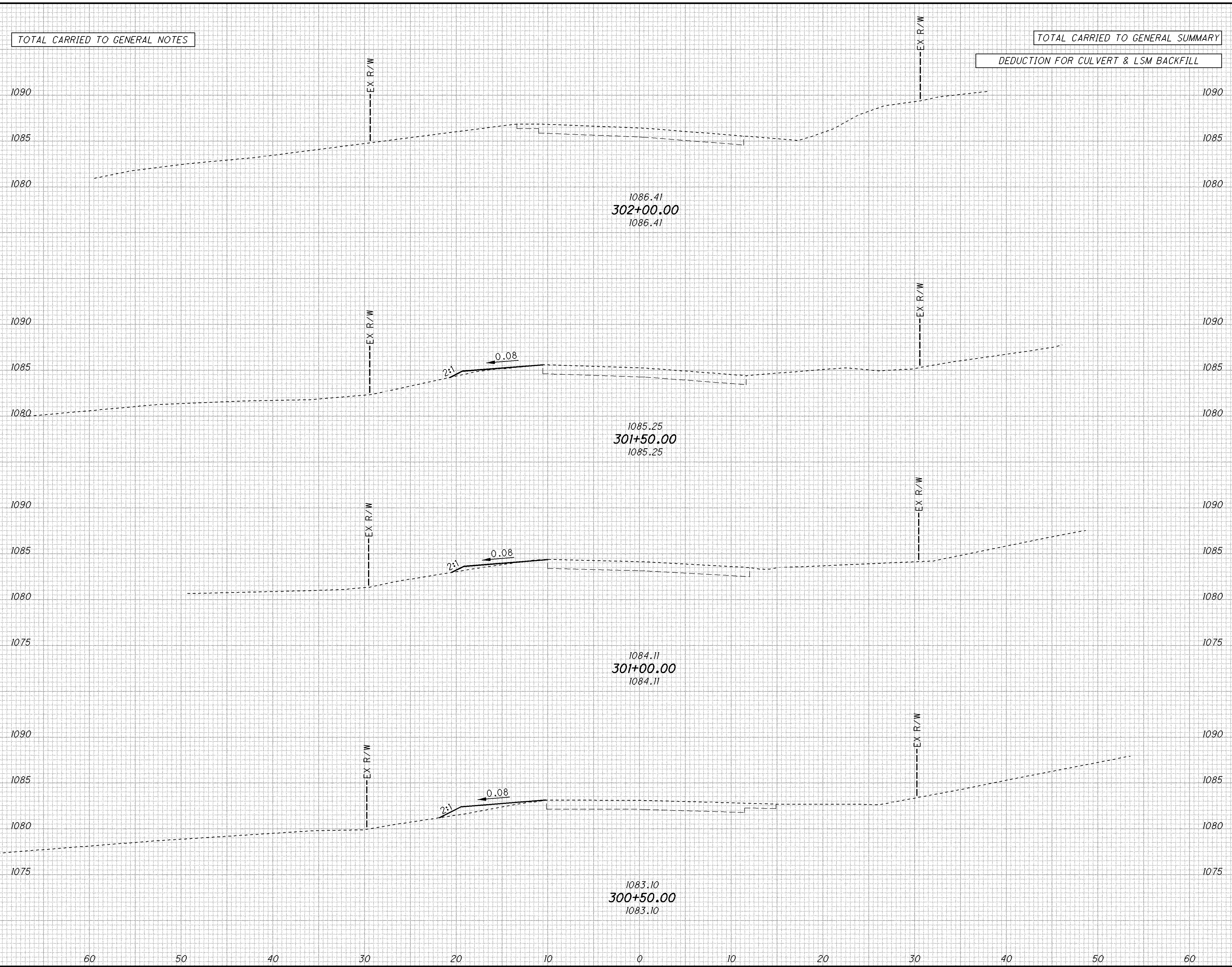
**CROSS SECTIONS - PRE-121-0567
STA 199+00.00 TO STA 300+00.00**

**PRE-CULVERTS -
FY2014**

3 / 8
27 / 72

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SEEDING	END	
	WIDTH	SO. YDS.
	1375	
	273	



END AREA	VOLUME		CALCULATED TRB	CHECKED DAG
	CUT	FILL		
	0	0	0	264
				-48
	0	2	0	2
	0	2	0	4
	0	2	0	7
	0	5	0	13

CROSS SECTIONS - PRE-121-0567
STA 300+50.00 TO STA 302+00.00
PRE-CULVERTS - FY2014
 4 / 8
 28 / 72

GENERAL NOTES

DESIGN SPECIFICATIONS: THIS STANDARD DRAWING CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002 AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN DATA: THE FOLLOWING DESIGN DATA IS ASSUMED:

INTERNAL ANGLE OF FRICTION (ϕ) = 30 DEGREES
 COEFFICIENT OF FRICTION (μ) = 0.30
 UNIT WEIGHT OF SOIL = 120 PCF
 UNIT WEIGHT OF CONCRETE = 150 PCF
 SLOPE OF BACKFILL = 2:1 (TYPE A & B HEADWALLS ONLY)
 HEIGHT OF LIVE LOAD SURCHARGE = 2 FT (TYPE C HEADWALLS ONLY)
 MAXIMUM FOUNDATION BEARING PRESSURE = 2000 P.S.F.

CONCRETE CLASS C - COMPRESSIVE STRENGTH 4000 PSI
 (FOOTING, WINGWALL AND FORESLOPE WALL)

REINFORCING STEEL - ASTM A615, A616, OR A617
 GRADE 60 MINIMUM YIELD STRENGTH
 60,000 PSI (ALL REINFORCING SHALL BE
 EPOXY COATED)

FORESLOPE WALL ANCHOR DOWELS: ANCHOR PER CMS 510 WITH NONSHRINK, NONMETALLIC GROUT CONFORMING TO CMS 705.20 AND TO A DEPTH OF 5". PAYMENT FOR DOWEL HOLES, GROUT AND INSTALLATION SHALL BE INCLUDED WITH ITEM 511.

AS AN ALTERNATIVE TO RESIN BONDING, THREADED INSERTS OR NONPROTRUDING MECHANICAL CONNECTORS CAST INTO THE CULVERT BY THE MANUFACTURER MAY BE USED PROVIDED THEY CAN RESIST AN ULTIMATE PULL-OUT STRENGTH OF 12 KIPS AND MAINTAIN A MINIMUM COVER OF 3 INCHES AT THE BOTTOM OF THE CULVERT SLAB. MECHANICAL CONNECTORS MUST PROVIDE AN "L-SHAPED" BAR INSIDE THE CULVERT WITH A MINIMUM HORIZONTAL LENGTH OF 12 INCHES. PAYMENT FOR INSERTS OR MECHANICAL CONNECTORS SHALL BE INCLUDED WITH ITEM 611.

BACKFILL LIMITATION: WHEN THE DESIGN HEIGHT IS GREATER THAN 10 FT, THE BACKFILL BEHIND THE WINGWALLS SHALL NOT BE PLACED HIGHER THAN THE ELEVATION OF THE SOIL ABOVE THE TOE. WHEN THE SOIL ABOVE THE TOE IS AT ITS FINISHED ELEVATION, THE REMAINDER OF THE BACKFILL MAY BE PLACED.

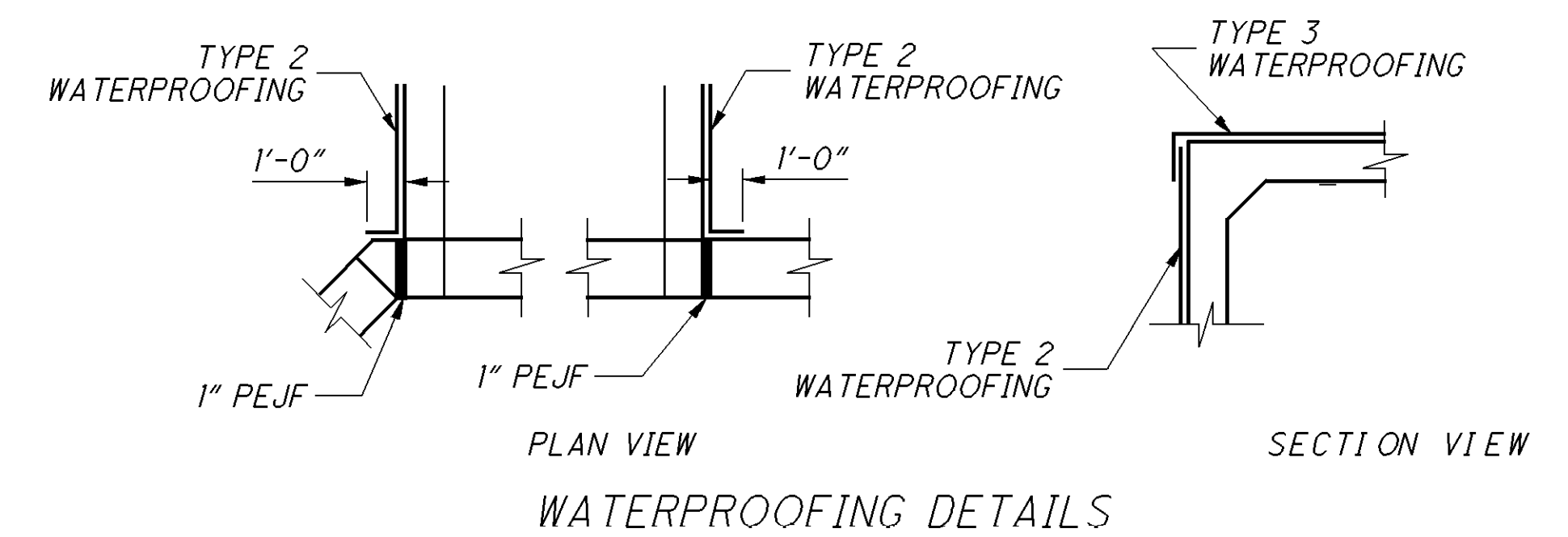
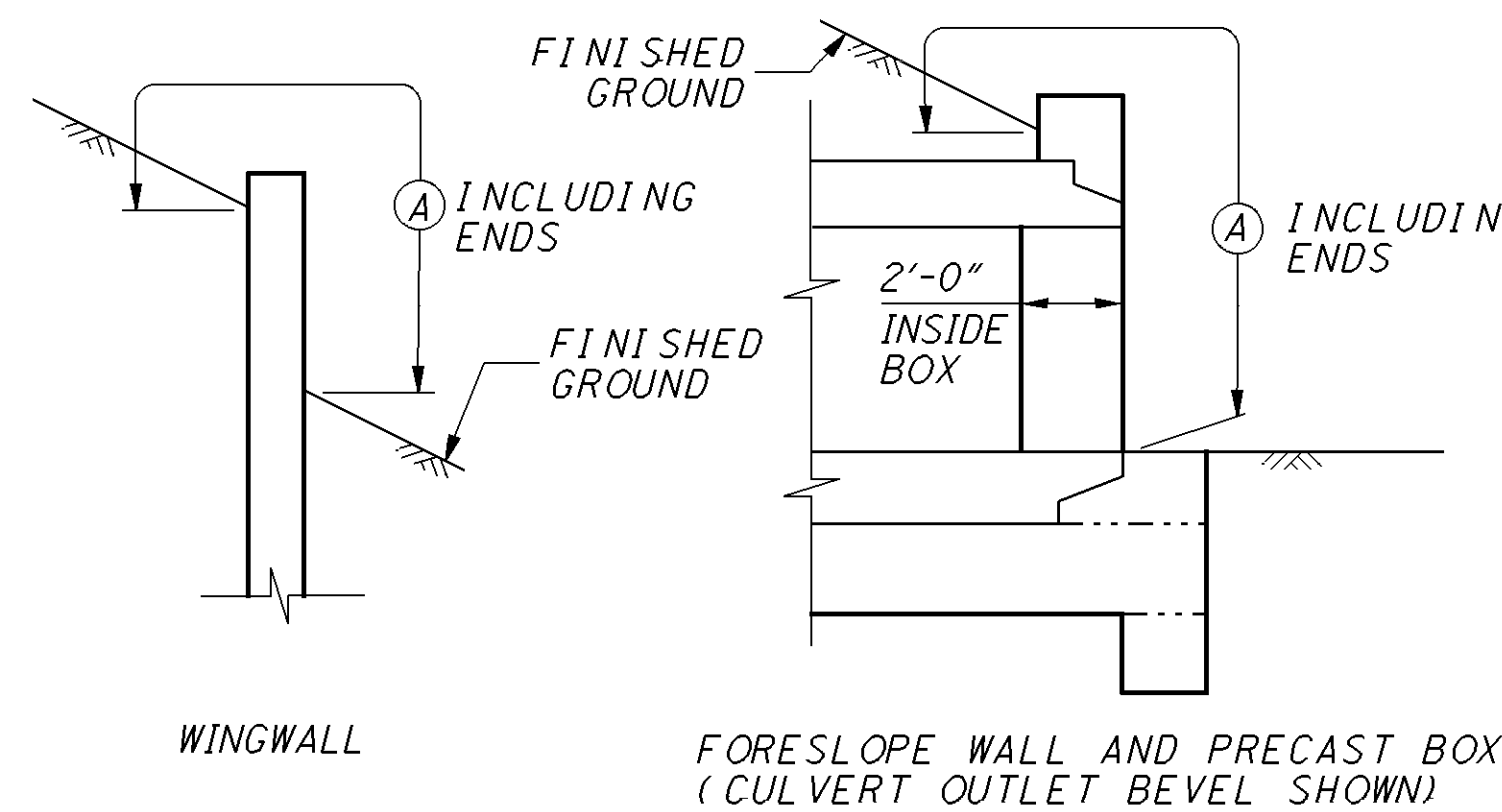
POROUS BACKFILL WITH FILTER FABRIC: 1'-6" THICK SHALL BE PLACED BEHIND THE WINGWALLS ONLY AND SHALL EXTEND TO 12" BELOW THE EMBANKMENT SURFACE. GEOTEXTILE FABRIC SHALL BE PLACED BETWEEN THE POROUS BACKFILL AND REPLACED EXCAVATION ADJACENT TO THE STRUCTURE. IT SHALL TURN UNDER THE BOTTOM OF THE POROUS BACKFILL AND RETURN 6" ABOVE THE TOP ELEVATION OF THE WEEPHOLE. WEEPHOLES SHALL BE PLACED 6" TO 12" ABOVE THE NORMAL WATER ELEVATION OR GROUND LINE AND SHALL HAVE A MAXIMUM SPACING OF 10'-0". A MINIMUM OF ONE WEEPHOLE SHALL BE PROVIDED PER WINGWALL.

PERFORMED EXPANSION JOINT FILLER: PERFORMED EXPANSION JOINT FILLER (PEJF) CONFORMING TO CMS 705.03, 1 INCH THICK, SHALL BE PLACED ABOVE THE FOOTING BETWEEN THE SIDES OF THE BOX CULVERT AND THE ENDS OF THE WINGWALLS. PAYMENT FOR MATERIALS AND INSTALLATION SHALL BE INCLUDED WITH ITEM 516 - 1" PERFORMED EXPANSION JOINT FILLER.

SEALING OF FORESLOPE WALL AND WINGWALLS: ALL EXPOSED FORESLOPE WALL AND WINGWALL CONCRETE SHALL BE SEALED WITH EPOXY-URETHANE SEALER. THE LIMITS SHALL BE AS SHOWN IN THE DIAGRAMS BELOW. PAYMENT FOR THE EPOXY-URETHANE SEALER SHALL BE PER ITEM 512 - SEALING OF CONCRETE SURFACES.

WATERPROOFING: TYPE 2 WATERPROOFING, PER CMS 512.08 AND 711.25, SHALL EXTEND VERTICALLY DOWN THE ENTIRE SIDES OF THE PRECAST CULVERT SECTIONS FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 2 WATERPROOFING.

TYPE 3 WATERPROOFING, PER CMS 512.08 AND 711.29 SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE PRECAST CULVERT SECTIONS AND SHALL EXTEND ONE FOOT VERTICALLY DOWN THE SIDES FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 3 WATERPROOFING.

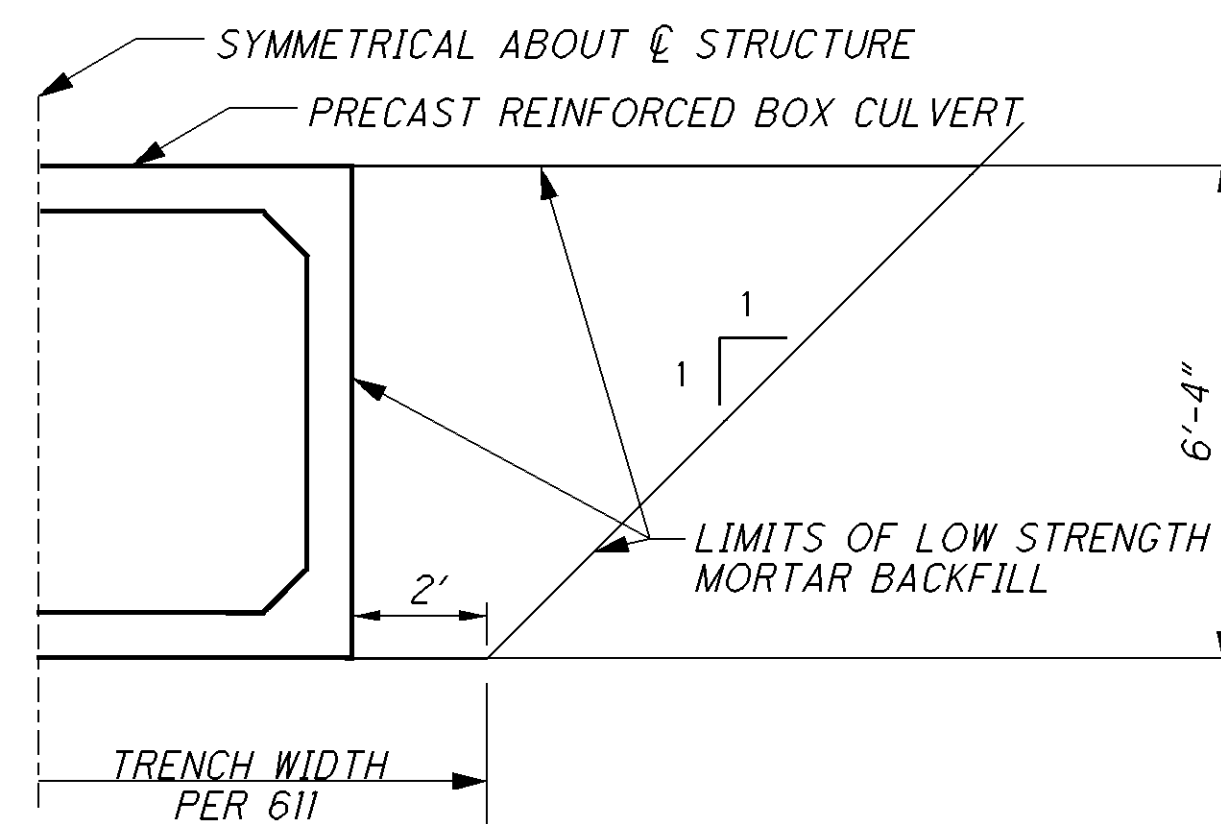


BASIS OF PAYMENT: ALL LABOR, EQUIPMENT AND INCIDENTALS REQUIRED TO CONSTRUCT THE FOOTING, CUTOFF WALL, WINGWALLS AND FORESLOPE WALL SHALL BE INCLUDED WITH ITEM 511 - CLASS C CONCRETE (RET-WALL, WINGWALL - INCLUDING FOOTING). PAYMENT FOR REINFORCING STEEL SHALL BE INCLUDED WITH ITEM 509 - EPOXY COATED REINFORCING STEEL.

LIMITS OF ITEM 512-SEALING CONCRETE SURFACES

Ⓐ - SEAL ENTIRE CONCRETE SURFACE AREA

ITEM 613 LOW STRENGTH MORTAR BACKFILL: LOW STRENGTH MORTAR BACKFILL SHALL BE PLACED AS SHOWN AND Laterally TO THE WINGWALLS. PAYMENT FOR LOW STRENGTH MORTAR BACKFILL SHALL BE MADE ONLY FOR THE BACKFILL PLACED TO THE LIMITS SHOWN. THE EXCAVATION REQUIRED FOR THE PLACEMENT SHALL BE INCLUDED IN ITEM 611 FOR PAYMENT.

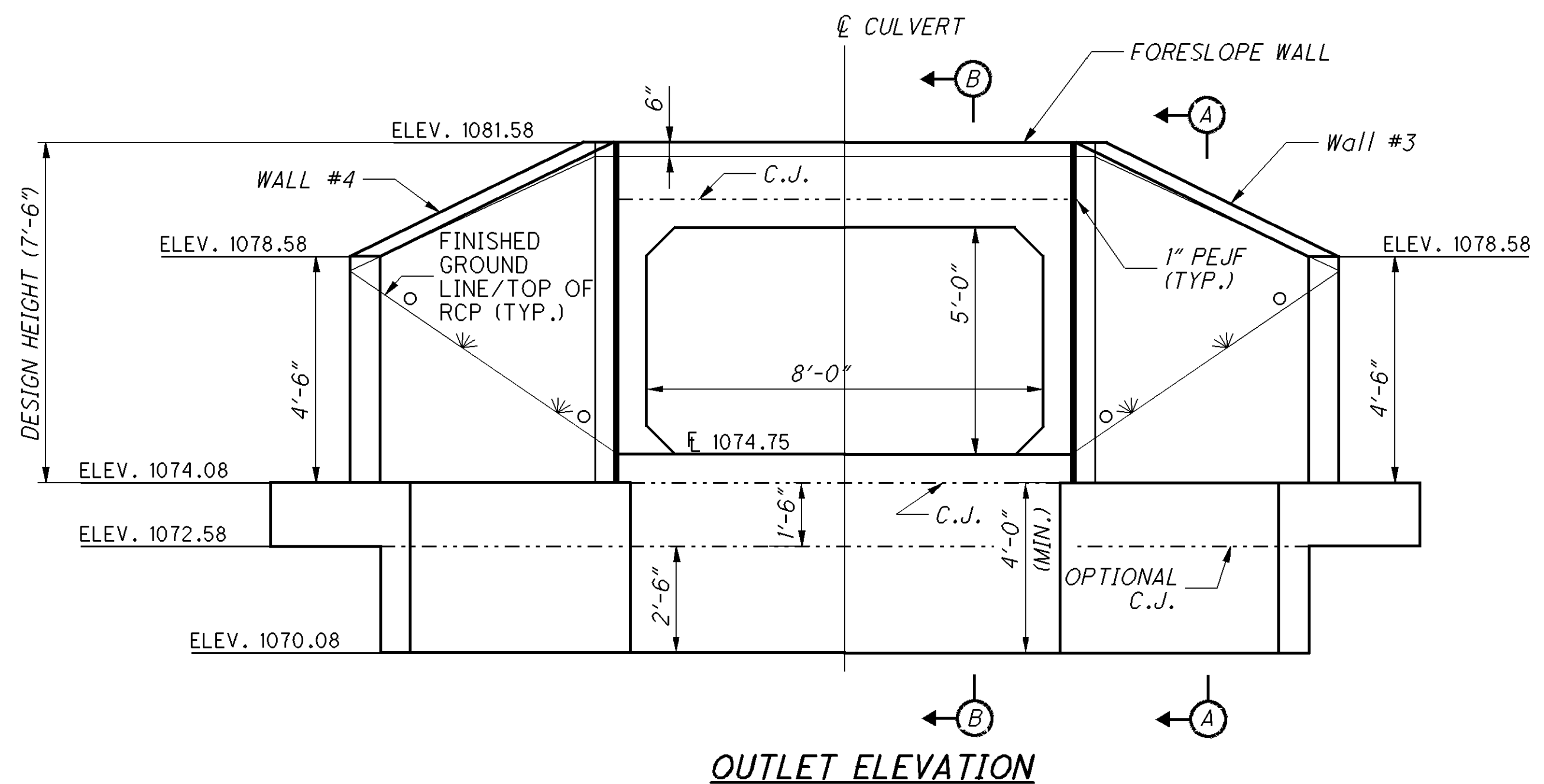
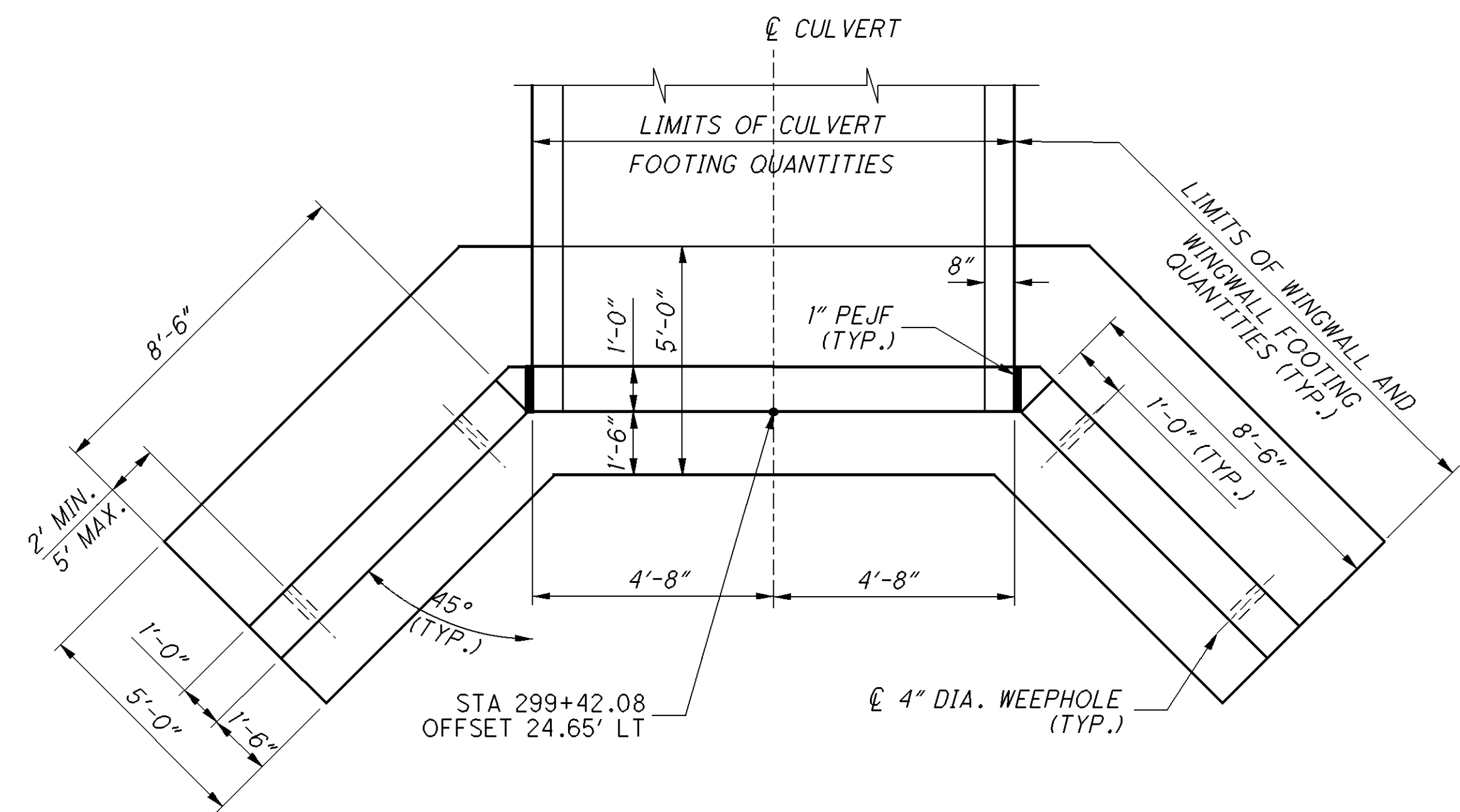
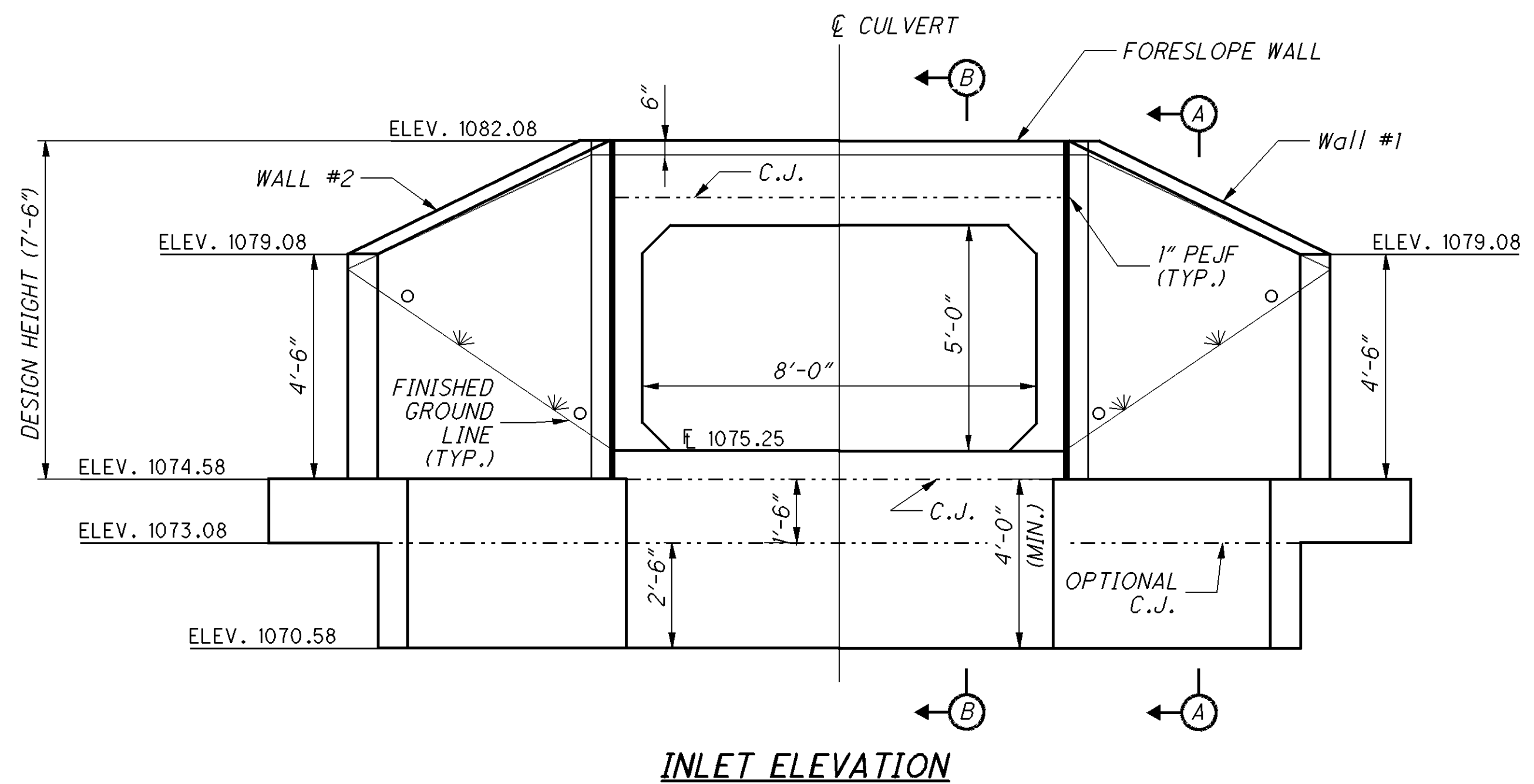
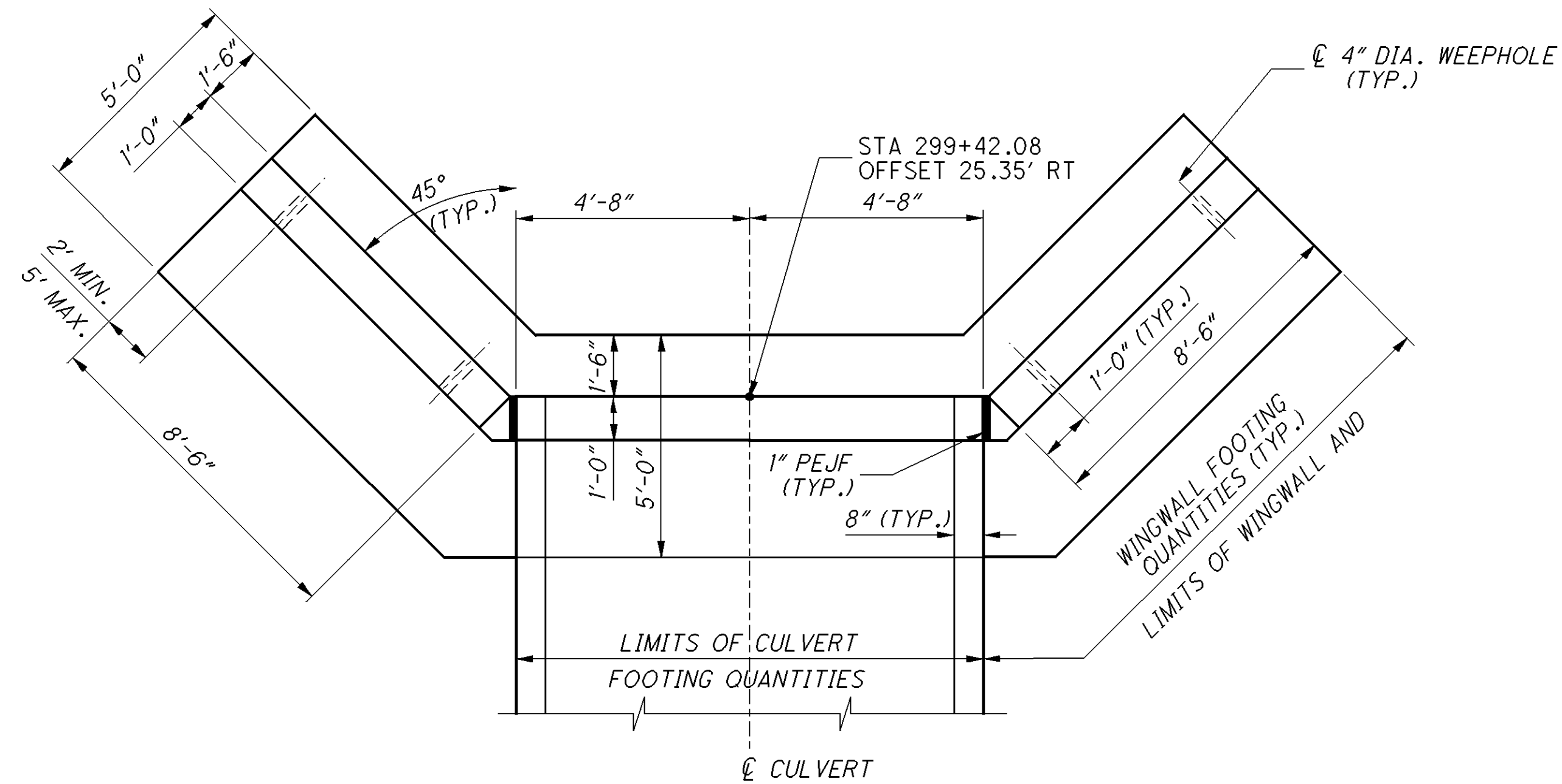


ITEM 613 LOW STRENGTH MORTAR BACKFILL

ESTIMATED QUANTITIES				
ITEM	ITEM EXT	TOTAL	UNIT	DESCRIPTION
202	11000	LUMP		STRUCTURE REMOVED
503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING
503	21300	LUMP		UNCLASSIFIED EXCAVATION (WINGWALL FOOTING)
509	10000	3172	POUND	EPOXY COATED REINFORCING STEEL
511	46010	8	CU YD	CLASS OC1 CONCRETE, WINGWALL
511	46510	23	CU YD	CLASS OC1 CONCRETE, FOOTING
511	46610	1	CU YD	CLASS OC1 CONCRETE, HEADWALL
512	10100	41	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
512	33000	71	SQ YD	TYPE 2 MEMBRANE WATERPROOFING
512	33010	61	SQ YD	TYPE 3 MEMBRANE WATERPROOFING
516	13600	30	SQ FT	1" PERFORMED EXPANSION JOINT FILLER
518	21230	LUMP		POROUS BACKFILL WITH FILTER FABRIC
613	41200	117	CU YD	LOW STRENGTH MORTAR BACKFILL

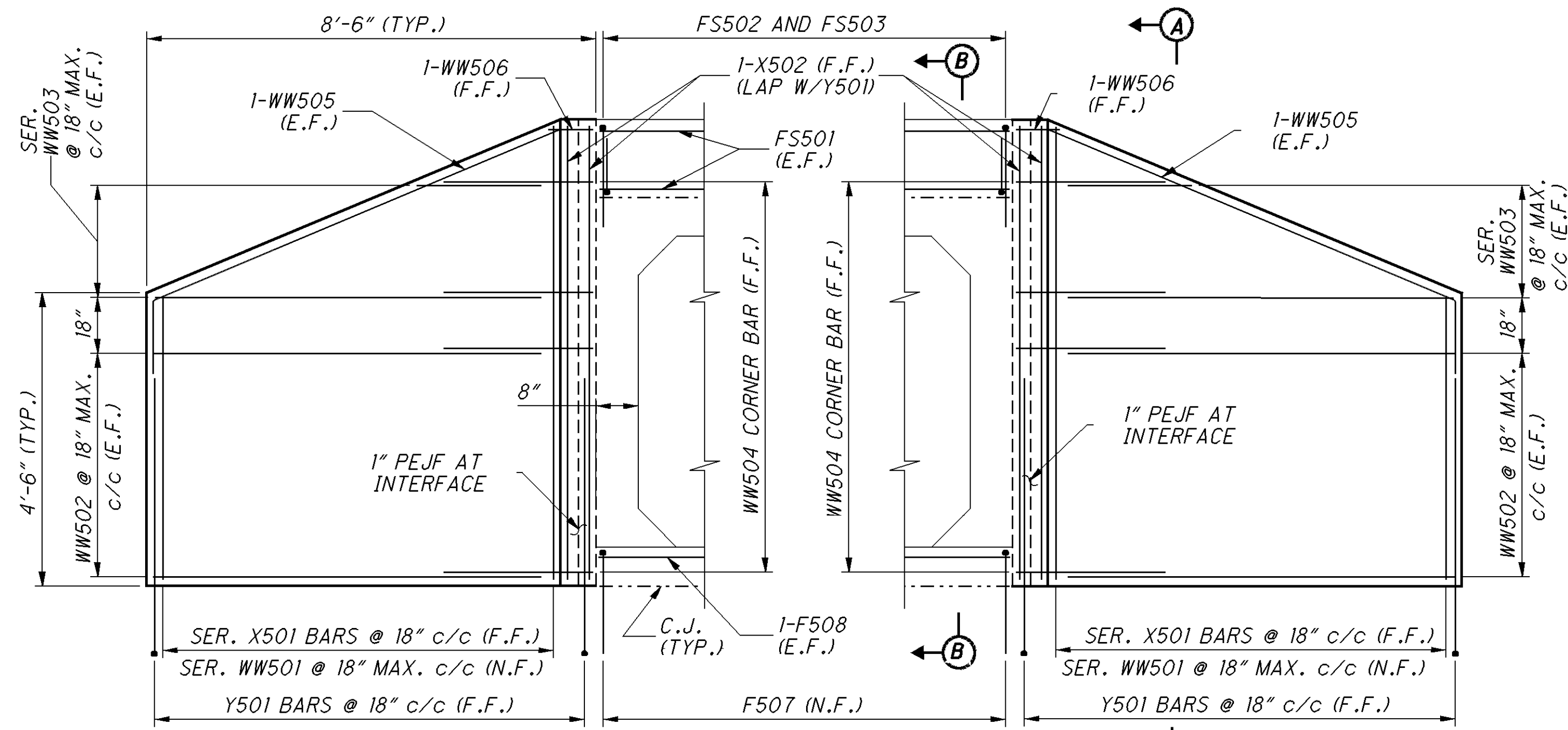
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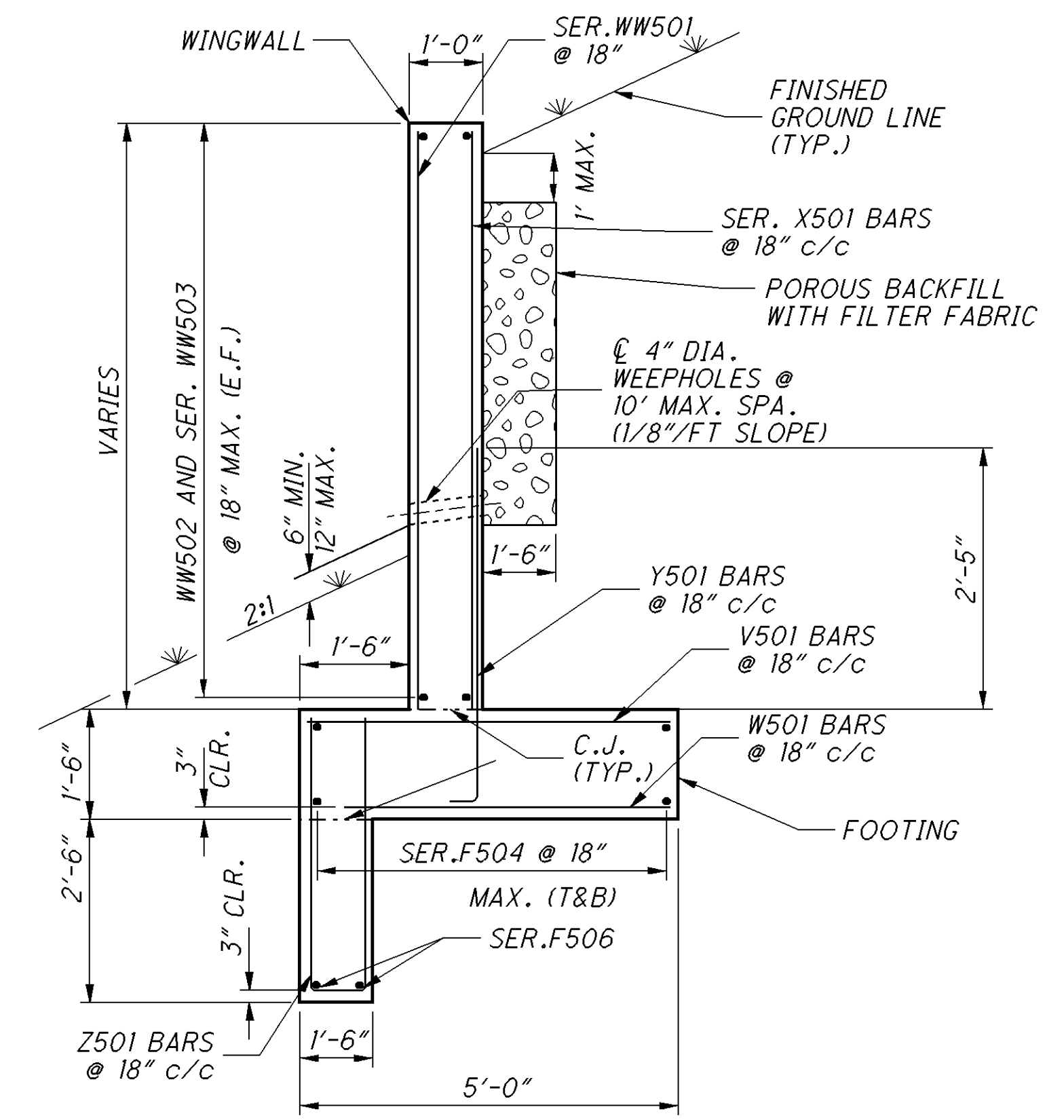


CULVERT & WINGWALL LAYOUT
(OUTLET RCP NOT SHOWN FOR CLARITY)

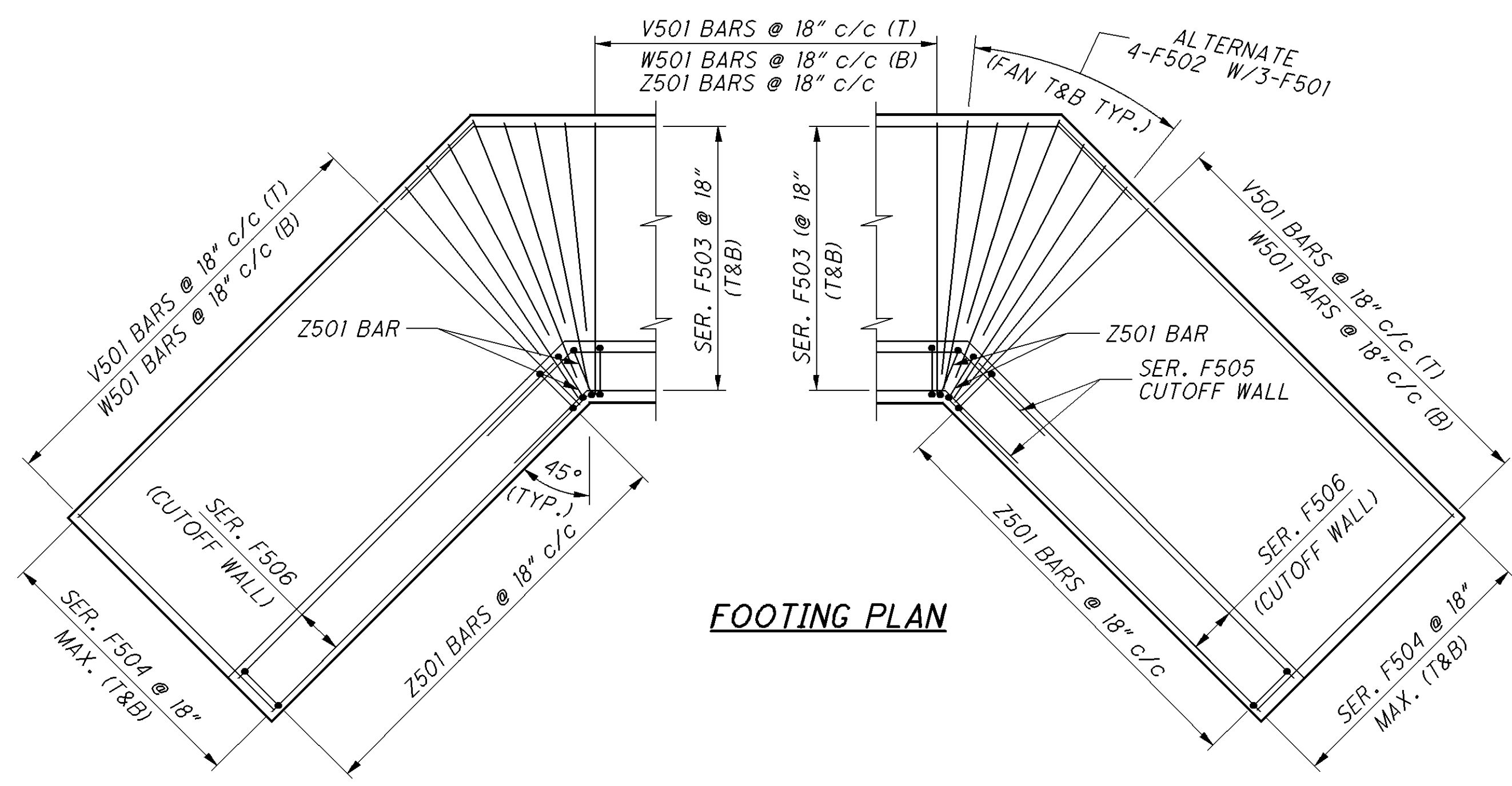
DESIGN AGENCY		OHIO DEPARTMENT OF TRANSPORTATION - DISTRICT 8	
DESIGNED	TRB	CHECKED	DAG
DRAWN	TRB	REVIEWED	DATE
FILE NUMBER	STRUCTURE FILE NUMBER	DATE	STRUCTURE FILE NUMBER
PRE-CULVERTS - FY2014 PID No. 86136			
CULVERT & WINGWALL LAYOUT AND ELEVATIONS			
PRE-121-0567			
6 / 8			
30 / 72			



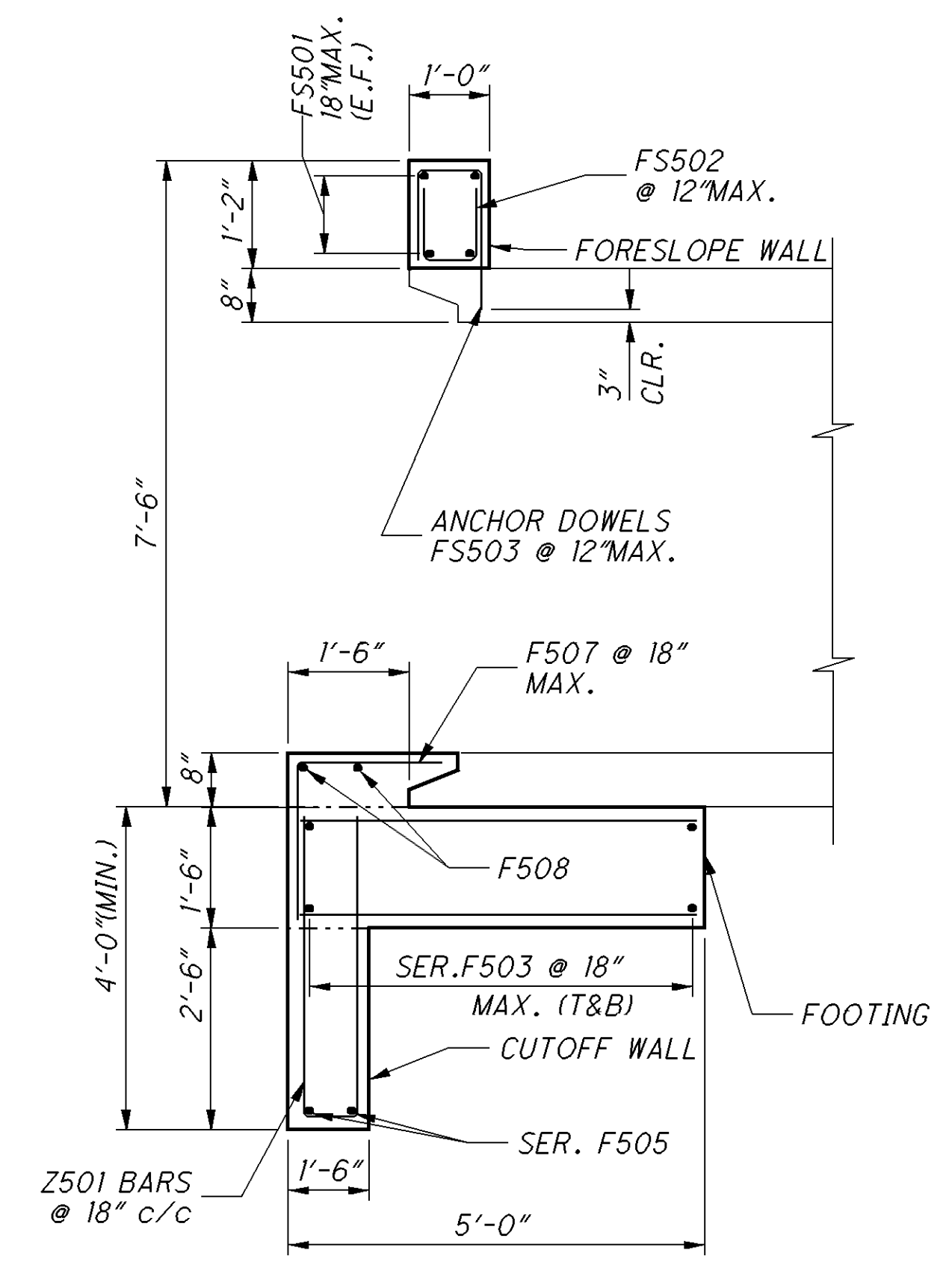
WINGWALL ELEVATION
(FOOTING NOT SHOWN)



SECTION A-A



FOOTING PLAN



SECTION B-B
(CULVERT INLET BEVEL SHOWN)

NOTES

1. FOR CULVERT LOCATION PLAN, SEE SHEET 25/72.
2. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, WW501 IS A NO.5 BAR. BAR DIMENSIONS SHOWN ARE OUT TO OUT. ALL REINFORCING STEEL SHALL BE EPOXY COATED.
3. THE LAP SPLICE LENGTHS USED IN THESE DETAILS ARE AS FOLLOWS: 2'-5" FOR #5 BARS; 2'-11" FOR #6 BARS.

LEGEND:

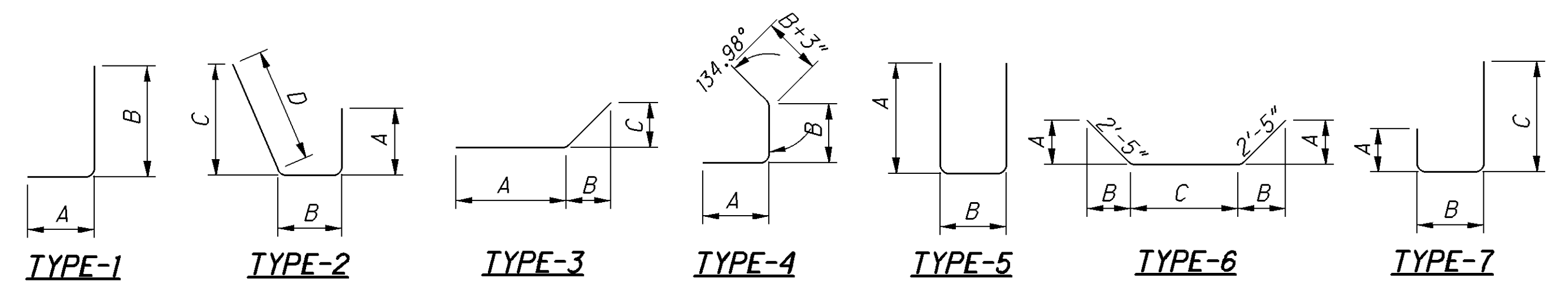
C.J.	CONSTRUCTION JOINT	N.F.	NEAR FACE
CLR.	CLEAR	SER.	SERIES
DIA.	DIAMETER	STR.	STRAIGHT
E.F.	EACH FACE	(T)	TOP
F.F.	FAR FACE	(B)	BOTTOM
MAX.	MAXIMUM	T&B	TOP AND BOTTOM
MIN.	MINIMUM	TYP.	TYPICAL
PEJF	PREFORMED EXPANSION JOINT FILLER	INC.	INCREMENT

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HEADWALL REINFORCING SCHEDULE									
BAR MARK	NUMBER	LENGTH	WEIGHT (LBS.)	TYPE	BAR TYPE DIMENSIONS				INC.
					A	B	C	D	
WINGWALLS									
X501	2	4'- 4"	86	STR.					0'- 6 "
	SERIES TO								
	of 7	7'- 4"							
X502	4	7'- 4"	31	STR.					
Y501	18	4'- 0"	76	1	0'- 6"	3'- 8"			
WW501	2	4'- 4"	86	STR.					0'- 6 "
	SERIES TO								
	of 7	7'- 4"							
WW502	12	8'- 2"	103	STR.					
	4	4'- 1"							
WW503	SERIES TO		52	STR.					4'- 1 "
	of 2	8'- 2"							
WW504	10	3'- 6"	37	2	0'- 7"	0'- 2 "	2'- 1/4"	2'- 10 "	
WW505	4	11'- 1"	47	3	2'- 5"	2'- 10"	8'- 2"		
WW506	2	1'- 1"	3	4	0'- 7"	0'- 2 "			
FOOTING & CUTOFF WALL									
V501	21	4'- 8"	103	STR.					
W501	21	4'- 8"	103	STR.					
Z501	25	8'- 2"	213	5	3'- 7"	1'- 2"			
F501	12	4'- 3"	54	STR.					
F502	16	3'- 4"	56	STR.					
	2	13'- 4"					8'- 4 3/4"		
F503	SERIES TO		160	6	1'- 9"	1'- 9"	TO		0'- 11 5/8"
	of 5	17'- 2"					12'- 3 1/4"		
	4	7'- 9"							
F504	SERIES TO		182	STR.					0'- 5 3/4"
	of 5	9'- 8"							
	1	13'- 4"					8'- 4 3/4"		
F505	SERIES TO		29	6	1'- 9"	1'- 9"	TO		0'- 11 3/4"
	2	14'- 4"					9'- 4 1/2"		
	2	7'- 9"							
F506	SERIES TO		34	STR.					0'- 5 "
	2	8'- 2"							
F507	7	3'- 3"	24	1	1'- 6"	1'- 10"			
F508	2	9'- 0"	19	STR.					
FORESLOPE WALL									
FS501	4	9'- 0"	38	STR.					
FS502	10	2'- 1"	22	5	0'- 10"	0'- 8"			
FS503	10	2'- 8"	28	7	0'- 10"	0'- 8"	1'- 5"		
		TOTAL	1,586						

NOTE:
1. THE TABLE ABOVE APPLIES ONLY TO ONE END OF THE CULVERT; THE OTHER END IS IDENTICAL.



DESIGN AGENCY OHIO DEPARTMENT OF TRANSPORTATION - DISTRICT 8	
DESIGNED TRB CHECKED DAG	DATE REVIEWED STRUCTURE FILE NUMBER
REINFORCING STEEL SCHEDULE PRE-121-0567 PRE-CULVERTS - FY2014 PID No. 86136	
8 / 8	32 / 72

PROJECT EARTH DISTURBED AREA: 0.39 ACRES
 ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.04 ACRES
 NOTICE OF INTENT EARTH DISTURBED AREA: N/A ACRES (NOI NOT REQUIRED)

HYDRAULIC DESIGN DATA

DRAINAGE AREA: = 164 ACRES
 Q_{25} = 203 CFS
 Q_{100} = 276 CFS
 HW_{25} = 1086.96 FT
 HW_{100} = 1088.36 FT
 V_{25} = 18.99 FPS
 V_{100} = 20.58 FPS

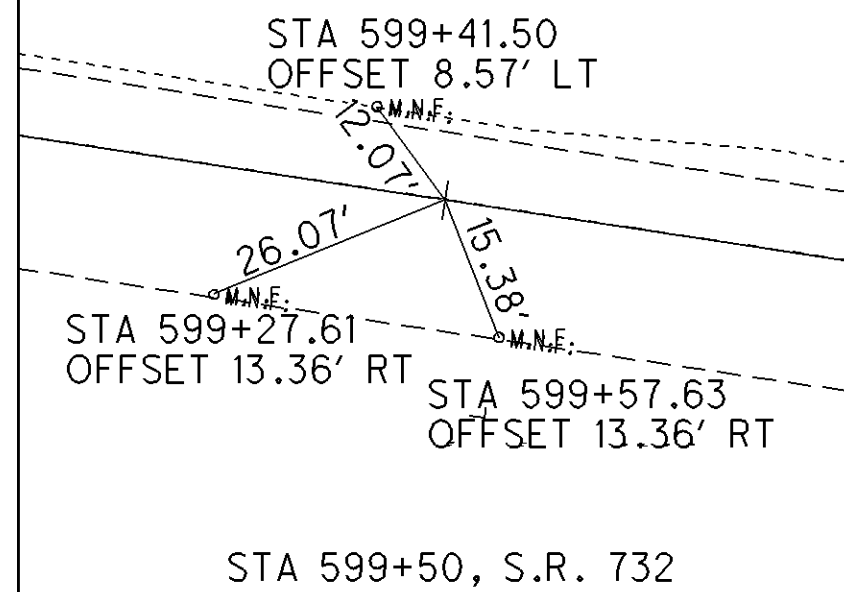
EXISTING STRUCTURE

TYPE: 8'x4.5' CONCRETE SLAB TOP WITH 78" CMP EXTENSIONS
 SKEW: 24°50' RIGHT FORWARD
 ALIGNMENT: TANGENT
 DATE BUILT: EXTENSIONS ADDED 1963
 CONDITION: POOR

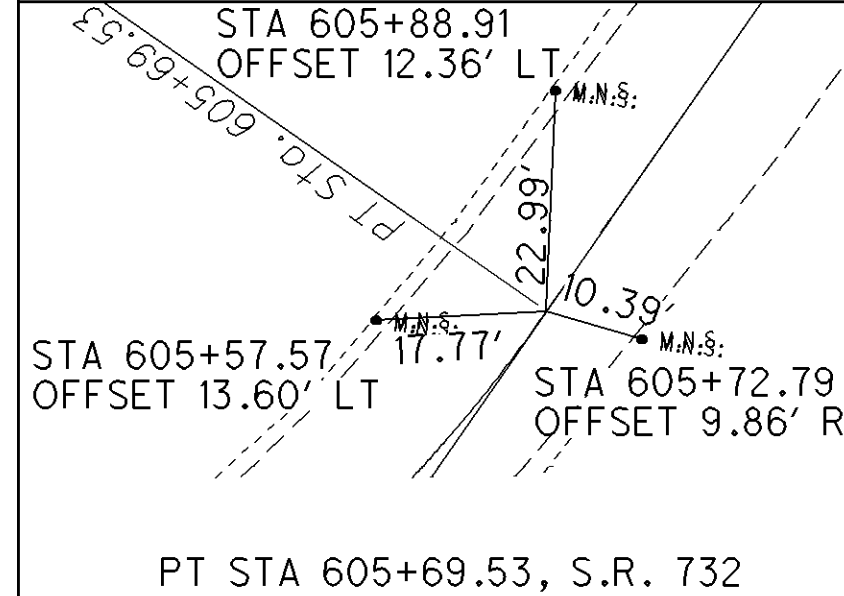
PROPOSED STRUCTURE

TYPE: CIRCULAR CULVERT
 SIZE: 72", 60' LONG
 SKEW: 25° LEFT FORWARD
 ALIGNMENT: TANGENT

CENTERLINE REFERENCE (NOT TO SCALE)

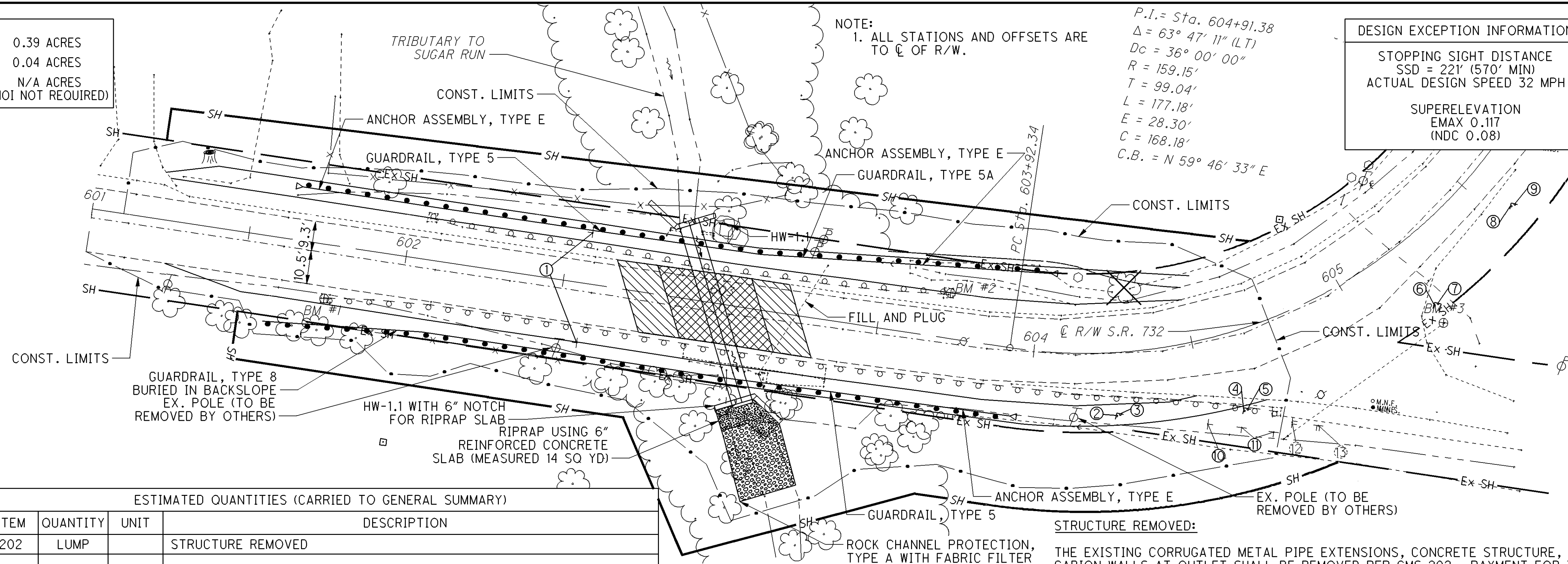


CENTERLINE REFERENCE (NOT TO SCALE)

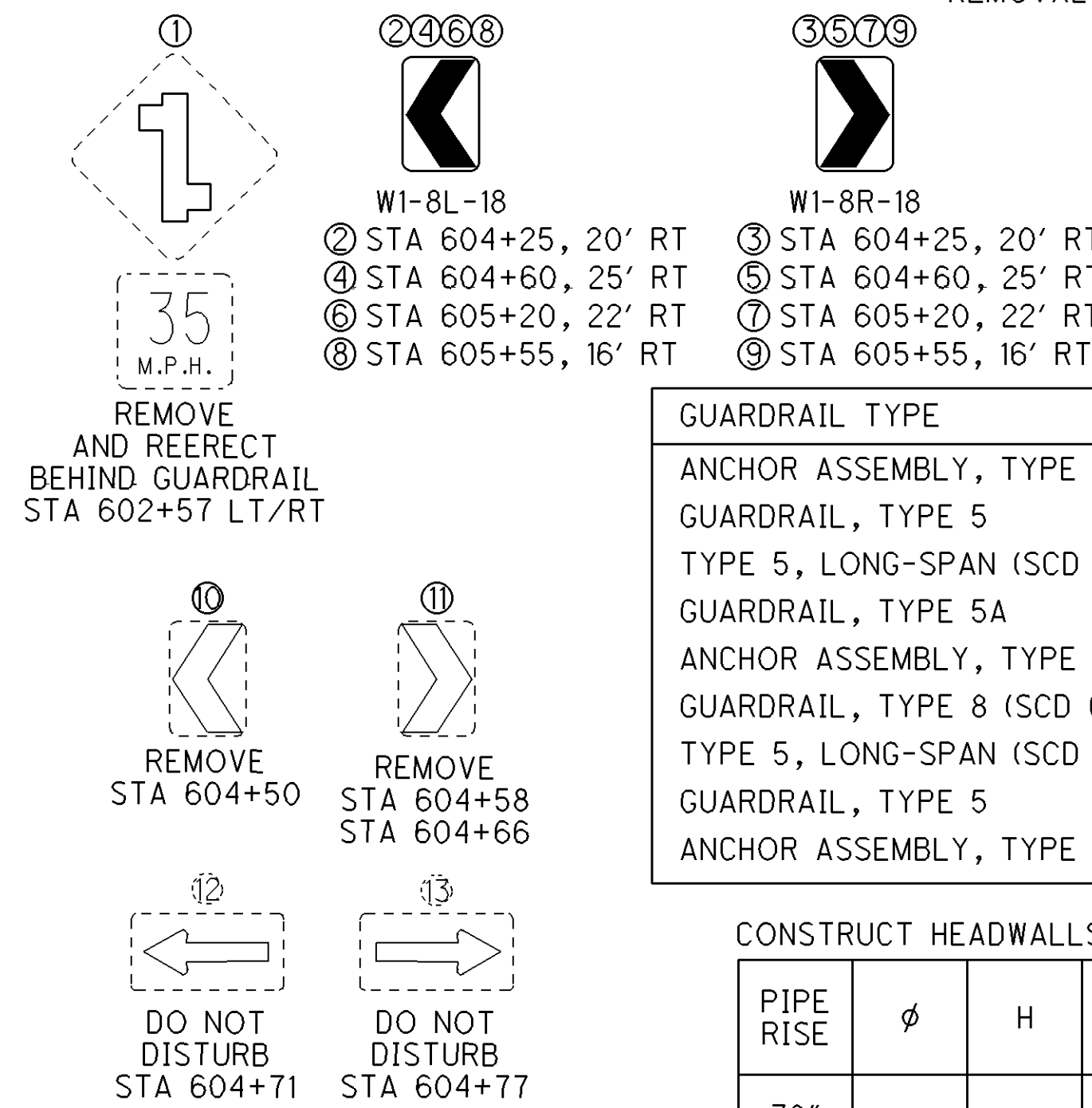


BENCH MARK DATA

BENCH MARK # 1
 GUARDRAIL BOLT
 STA 601+76.37, 16.97' RT
 ELEV= 1090.93
 BENCH MARK # 2
 GUARDRAIL BOLT
 STA 603+71.33, 14.25' LT
 ELEV= 1088.81
 BENCH MARK # 3
 SQUARE ON PIPE
 STA 605+19.10, 28.10' RT
 ELEV= 1092.91



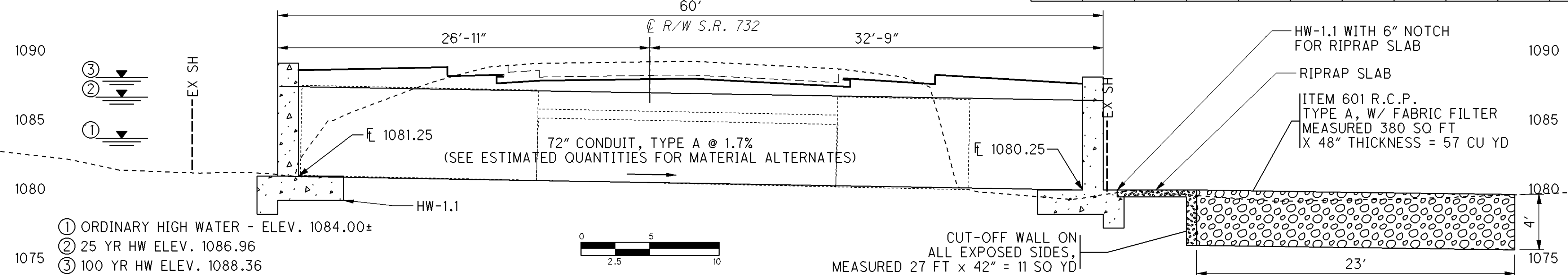
ESTIMATED QUANTITIES (CARRIED TO GENERAL SUMMARY)				
ITEM	QUANTITY	UNIT	DESCRIPTION	
202	LUMP		STRUCTURE REMOVED	
202	462.5	FT	GUARDRAIL REMOVED	
202	41	FT	FILL AND PLUG EXISTING CONDUIT	
202	273	FT	FENCE REMOVED	
606	75	FT	GUARDRAIL, TYPE 5	
606	75	FT	GUARDRAIL, TYPE 5A	
606	137.5	FT	GUARDRAIL, TYPE 8	
606	50	FT	GUARDRAIL, TYPE 5, LONG-SPAN	
606	3	EACH	ANCHOR ASSEMBLY, TYPE E	
601	25	CU YD	RIPRAP USING 6" REINFORCED CONCRETE SLAB	
601	57	CU YD	ROCK CHANNEL PROTECTION, TYPE A WITH FABRIC FILTER	
602	41.4	CU YD	CONCRETE MASONRY	
611	60	FT	72" CONDUIT, TYPE A 706.02 OR 78" 707.02 (AL COATED), 707.02 WITH FIELD PAVING OF PIPE, 707.04 (1" CORR.), 707.22	
621	1	EACH	RPM	
621	1	EACH	RAISED PAVEMENT MARKER REMOVED	
626	7	EACH	BARRIER REFLECTOR	
630	150	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
630	10	EACH	SIGN POST REFLECTOR	
630	24	SQ FT	SIGN, FLAT SHEET	
630	4	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
630	2	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
642	0.02	MILE	EDGE LINE	
642	0.01	MILE	CENTER LINE (DOUBLE-SOLID)	



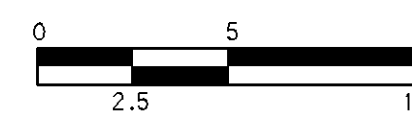
GUARDRAIL TYPE	BEGIN	END	LENGTH
ANCHOR ASSEMBLY, TYPE E	601+64.5, 16.86' LT	602+14.5, 16.74' LT	50'-0"
GUARDRAIL, TYPE 5	602+14.5, 16.74' LT	602+77.0, 17.06' LT	50'-0"
TYPE 5, LONG-SPAN (SCD GR-2.4)	602+77.0, 17.06' LT	603+02.0, 17.33' LT	25'-0"
GUARDRAIL, TYPE 5A	603+02.0, 17.33' LT	603+51.8, 20.92' LT	50'-0"
ANCHOR ASSEMBLY, TYPE E	603+51.8, 20.92' LT	604+03.4, 24.81' LT	50'-0"
GUARDRAIL, TYPE 8 (SCD GR-4.5)	601+58.2, 26.84' RT	602+95.5, 22.74' RT	137'-6"
TYPE 5, LONG-SPAN (SCD GR-2.4)	602+95.5, 22.74' RT	603+20.5, 22.45' RT	25'-0"
GUARDRAIL, TYPE 5	603+20.5, 22.45' RT	603+45.5, 22.00' RT	25'-0"
ANCHOR ASSEMBLY, TYPE E	603+45.5, 22.00' RT	603+95.1, 21.26' RT	50'-0"

CONSTRUCT HEADWALLS PER HW-1.1 ($\phi = 30^\circ$). USE TABLE BELOW IF 78" CONDUIT IS SELECTED.

PIPE RISE	ϕ	H	a	b	c	Bar # d	L ₁	L ₂	h ₁	h ₂	CONC. CU YD	STEEL POUND
78" CMP	30°	8'-2"	4'-9"	1'-9"	4'-0"	#8	13'-6"	12'-3"	4'-7"	4'-11"	20.7	2150



- ① ORDINARY HIGH WATER - ELEV. 1084.00±
- ② 25 YR HW ELEV. 1086.96
- ③ 100 YR HW ELEV. 1088.36



CUT-OFF WALL ON ALL EXPOSED SIDES, MEASURED 27 FT X 42" = 11 SQ YD

DESIGN EXCEPTION INFORMATION
 STOPPING SIGHT DISTANCE
 SSD = 221' (570' MIN)
 ACTUAL DESIGN SPEED 32 MPH
 SUPERELEVATION
 EMAX 0.117
 (NDC 0.08)

NOTE:
 1. ALL STATIONS AND OFFSETS ARE TO ϕ OF R/W.
 P.I. = Sta. 604+91.38
 $\Delta = 63^\circ 47' 11''$ (LT)
 $Dc = 36^\circ 00' 00''$
 $R = 159.15'$
 $T = 99.04'$
 $L = 177.18'$
 $E = 28.30'$
 $C = 168.18'$
 C.B. = N 59° 46' 33" E

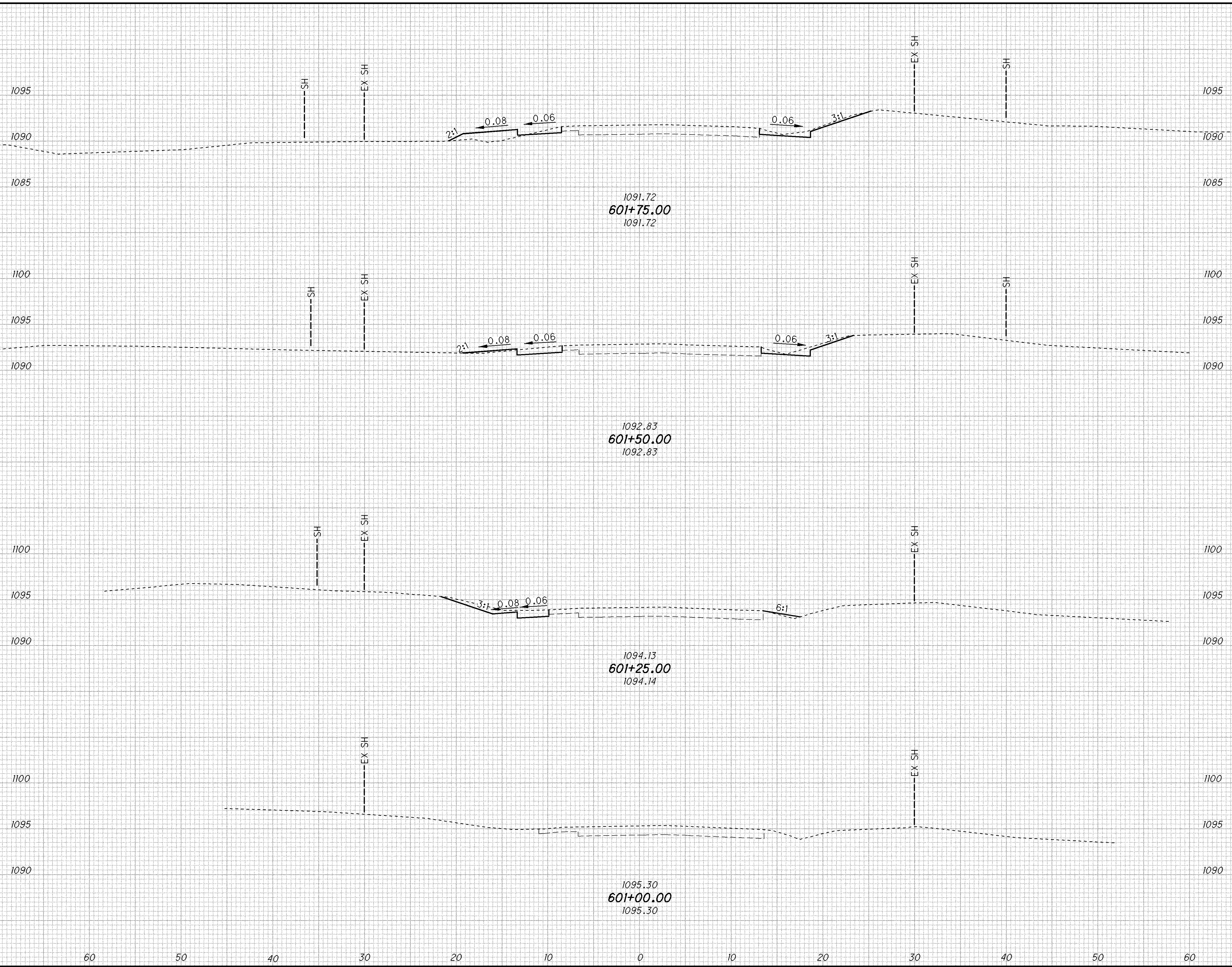


CULVERT PLAN AND DETAIL
 PRE-732-1142

PRE-CULVERTS -
 FY2014
 33
 72

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SEEDING	END AREA		VOLUME		CALCULATED	TRB	CHECKED	DAG
	CUT	FILL	CUT	FILL				
91			9	11				
29	5	7						
81			5	4				
29	6	1						
88			6	1				
34	6	1						
47			3	1				
0	0	0						
307			23	17				



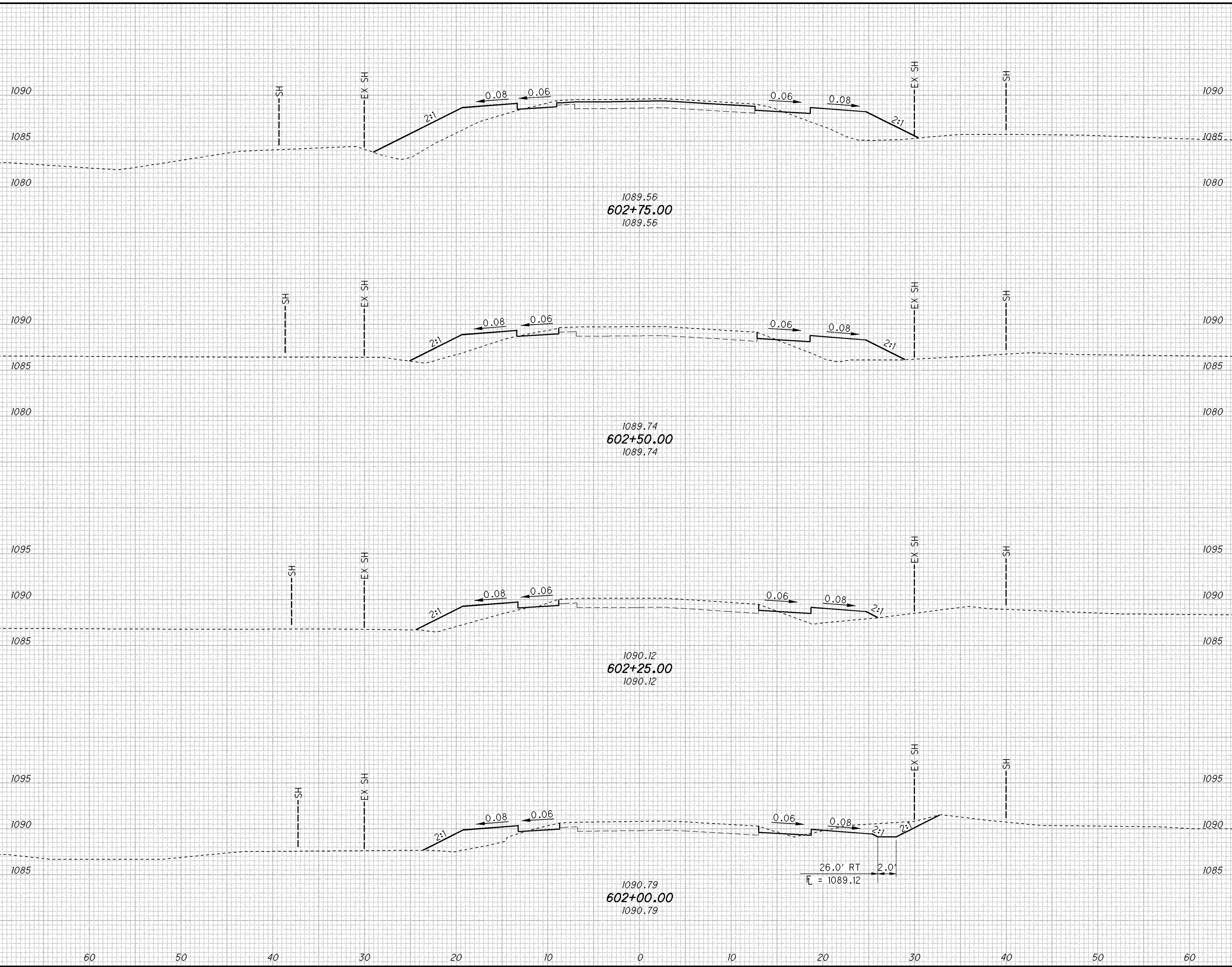
**CROSS SECTIONS - PRE-732-1142
STA 601+00.00 TO STA 601+75.00**

**PRE-CULVERTS -
FY2014**

2 / 5
34 / 72

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SEEDING	END AREA		VOLUME		CALCULATED	TRB	CHECKED	DAG
	CUT	FILL	CUT	FILL				
116			3	66				
38			3	56				
99			3	43				
33			2	37				
86			2	29				
29			2	26				
91			7	25				
36			13	17				
392			15	163				



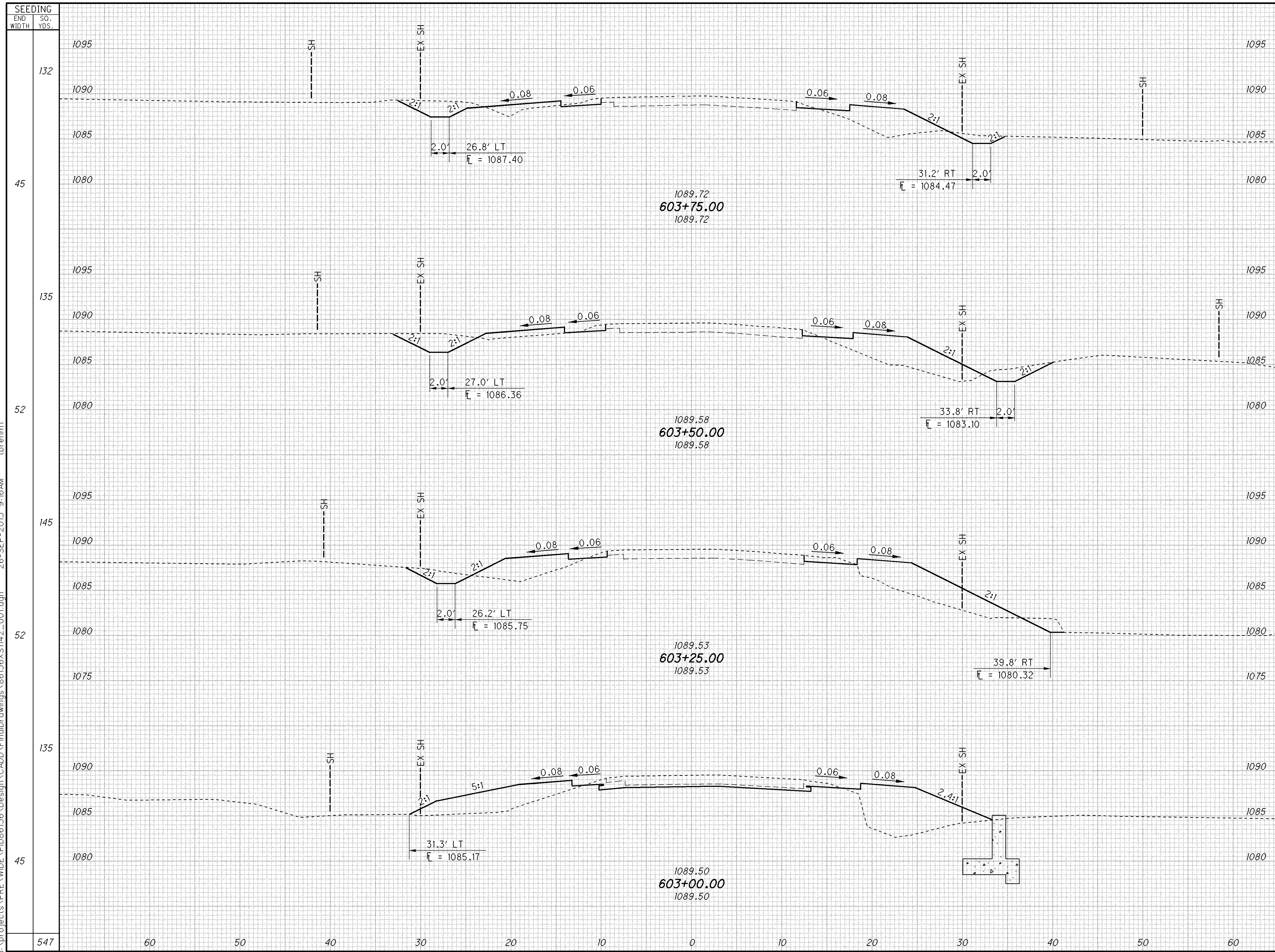
END AREA		VOLUME		CALCULATED	TRB	CHECKED	DAG
CUT	FILL	CUT	FILL				
		3	66				
		3	56				
		3	43				
		2	37				
		2	29				
		2	26				
		7	25				
		13	17				
		15	163				

**CROSS SECTIONS - PRE-732-1142
STA 602+00.00 TO STA 602+75.00**

**PRE-CULVERTS -
FY2014**

3 / 5
35 / 72

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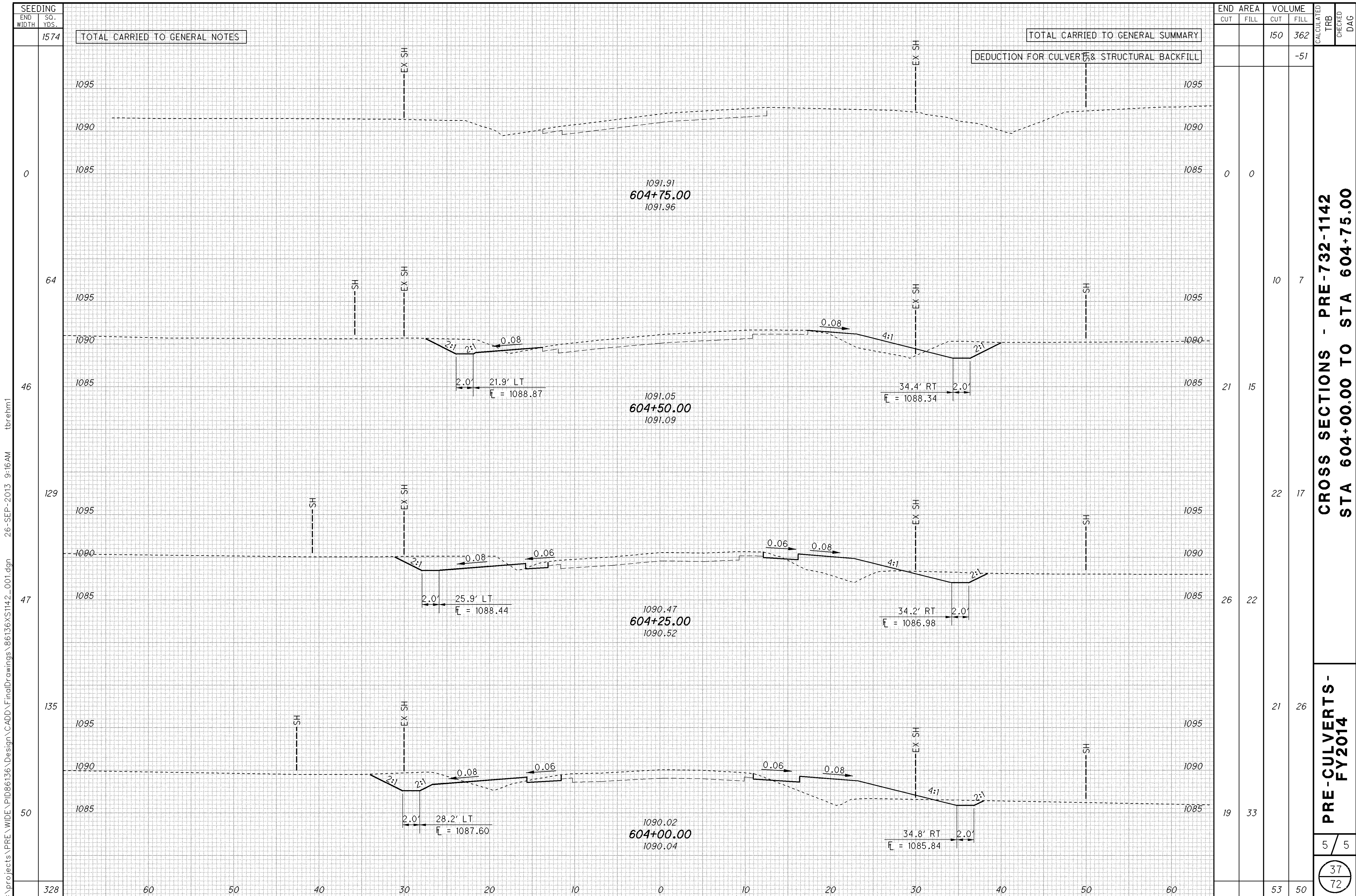


SEEDING END WIDTH	SO. YDS.	END AREA		VOLUME		CALCULATED TRB	CHECKED DAG
		CUT	FILL	CUT	FILL		
132	1095			17	29		
45	1080	16	30				
135	1095			17	35		
52	1080	21	45				
145	1095			17	50		
52	1080	14	62				
135	1090			8	69		
45	1080	3	86				
547				59	183		

**CROSS SECTIONS - PRE-732-1142
STA 603+00.00 TO STA 603+75.00**

**PRE-CULVERTS -
FY2014**

4 / 5
36 / 72



SEEDING	END	
	WIDTH	SO. YDS.
	1574	
0		
64		
46		
129		
47		
135		
50		
328		

TOTAL CARRIED TO GENERAL NOTES

TOTAL CARRIED TO GENERAL SUMMARY

DEDUCTION FOR CULVERT & STRUCTURAL BACKFILL

END AREA		VOLUME		CALCULATED TRB	CHECKED DAG
CUT	FILL	CUT	FILL		
		150	362		
			-51		
0	0				
21	15	10	7		
26	22	22	17		
19	33	21	26		
		53	50		

CROSS SECTIONS - PRE-732-1142
STA 604+00.00 TO STA 604+75.00

PRE-CULVERTS -
FY2014

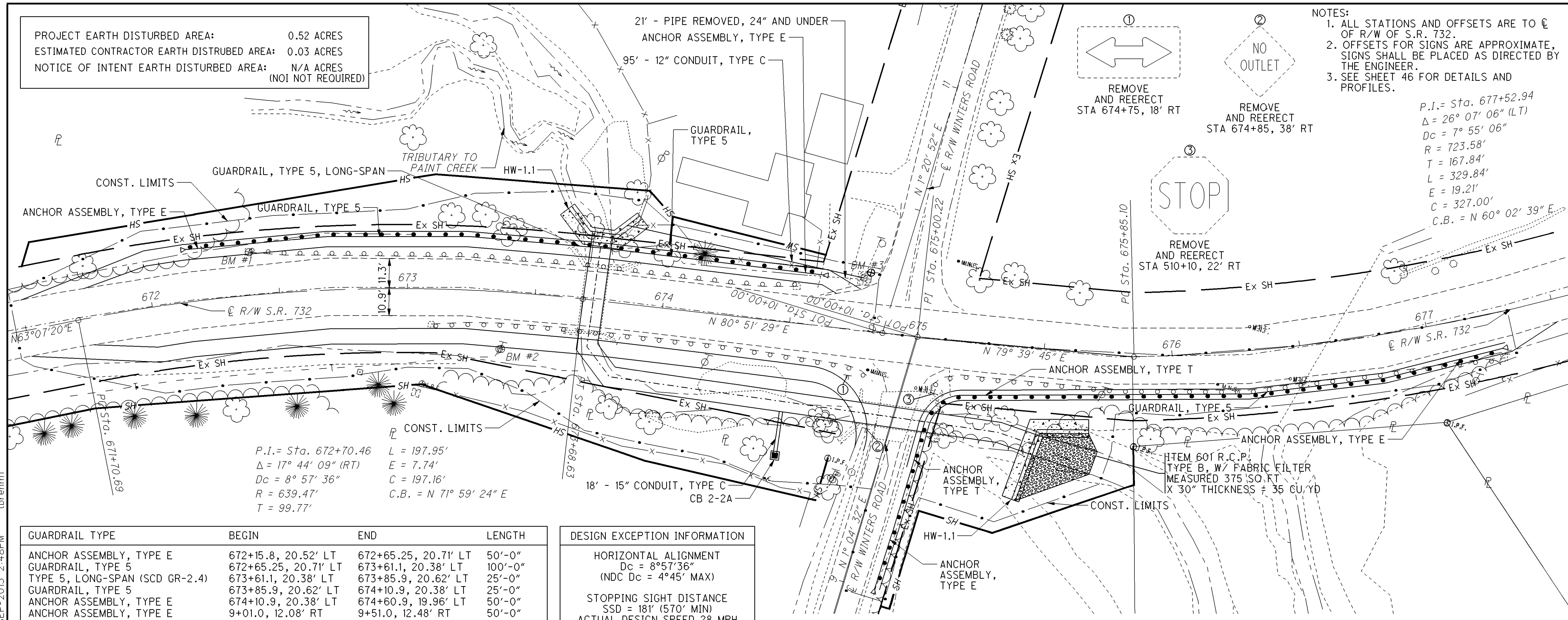
5 / 5
37 / 72

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PROJECT EARTH DISTURBED AREA: 0.52 ACRES
 ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.03 ACRES
 NOTICE OF INTENT EARTH DISTURBED AREA: N/A ACRES (NOI NOT REQUIRED)

NOTES:
 1. ALL STATIONS AND OFFSETS ARE TO C OF R/W OF S.R. 732.
 2. OFFSETS FOR SIGNS ARE APPROXIMATE, SIGNS SHALL BE PLACED AS DIRECTED BY THE ENGINEER.
 3. SEE SHEET 46 FOR DETAILS AND PROFILES.

P.I. = Sta. 677+52.94
 $\Delta = 26^\circ 07' 06''$ (LT)
 $Dc = 7^\circ 55' 06''$
 $R = 723.58'$
 $T = 167.84'$
 $L = 329.84'$
 $E = 19.21'$
 $C = 327.00'$
 $C.B. = N 60^\circ 02' 39'' E$



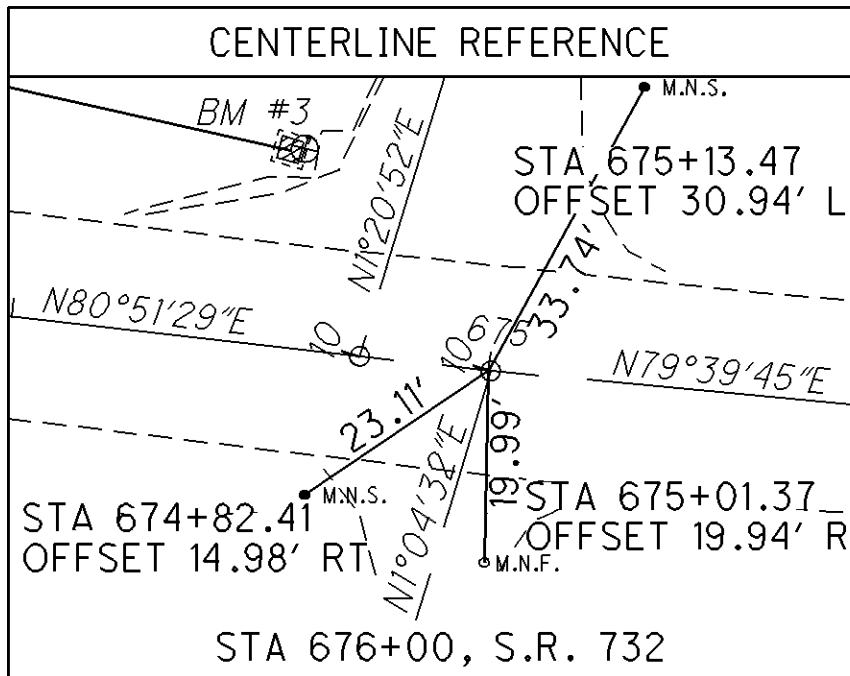
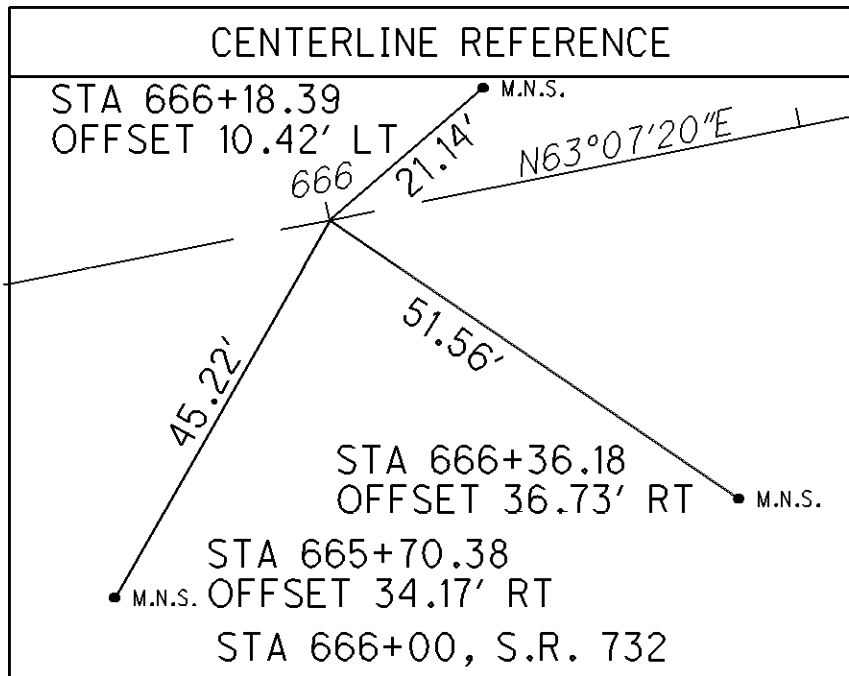
GUARDRAIL TYPE	BEGIN	END	LENGTH
ANCHOR ASSEMBLY, TYPE E	672+15.8, 20.52' LT	672+65.25, 20.71' LT	50'-0"
GUARDRAIL, TYPE 5	672+65.25, 20.71' LT	673+61.1, 20.38' LT	100'-0"
TYPE 5, LONG-SPAN (SCD GR-2.4)	673+61.1, 20.38' LT	673+85.9, 20.62' LT	25'-0"
GUARDRAIL, TYPE 5	673+85.9, 20.62' LT	674+10.9, 20.38' LT	25'-0"
ANCHOR ASSEMBLY, TYPE E	674+10.9, 20.38' LT	674+60.9, 19.96' LT	50'-0"
ANCHOR ASSEMBLY, TYPE E	9+01.0, 12.08' RT	9+51.0, 12.48' RT	50'-0"
ANCHOR ASSEMBLY, TYPE T	9+51.0, 12.48' RT	9+63.5, 12.25' RT	12'-6"
GUARDRAIL, TYPE 5	9+63.5, 12.25' RT	675+20.1, 21.00' RT	25'-0"
ANCHOR ASSEMBLY, TYPE T	675+20.1, 21.00' RT	675+32.5, 19.89' RT	12'-6"
GUARDRAIL, TYPE 5	675+32.5, 19.89' RT	676+78.4, 16.89' RT	150'-0"
ANCHOR ASSEMBLY, TYPE E	676+78.4, 16.89' RT	677+27.3, 14.16' RT	50'-0"

DESIGN EXCEPTION INFORMATION

HORIZONTAL ALIGNMENT
 $Dc = 8^\circ 57' 36''$
 (NDC $Dc = 4^\circ 45'$ MAX)

STOPPING SIGHT DISTANCE
 $SSD = 181'$ (570' MIN)
 ACTUAL DESIGN SPEED 28 MPH

SUPERELEVATION
 $EMAX 0.03$
 (NDC 0.08)



HYDRAULIC DESIGN DATA

DRAINAGE AREA: = 146 ACRES

$Q_{25} = 220$ CFS

$Q_{100} = 302$ CFS

$HW_{25} = 951.15$ FT

$HW_{100} = 952.43$ FT

$V_{25} = 9.83$ FPS

$V_{100} = 10.69$ FPS

EXISTING STRUCTURE (S.R. 732)

TYPE: CORRUGATED METAL PIPE

SIZE: 102" DIAMETER, 28' LONG

SKEW: $1^\circ 29'$ RIGHT FORWARD

ALIGNMENT: CURVE

DATE BUILT: 1937

CONDITION: GOOD

EXISTING STRUCTURE (WINTERS ROAD)

TYPE: CORRUGATED METAL PIPE

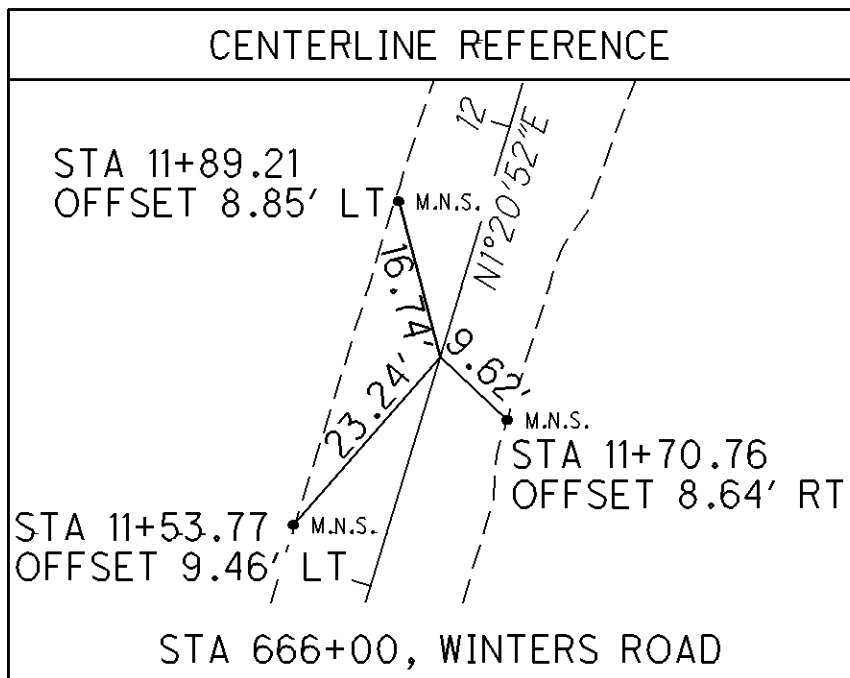
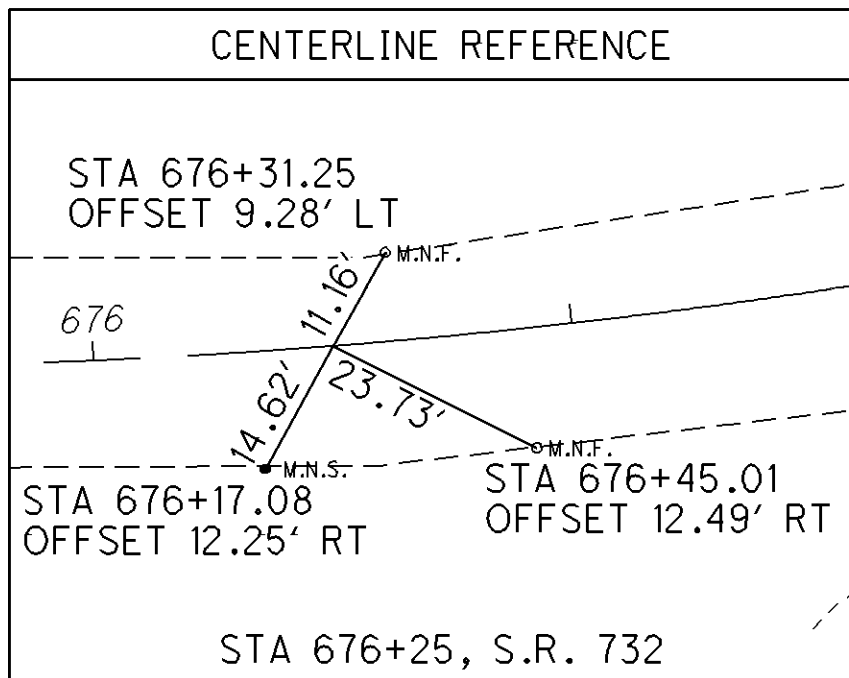
SIZE: 108" DIAMETER, 33' LONG

SKEW: $8^\circ 55'$ RIGHT FORWARD

ALIGNMENT: TANGENT

DATE BUILT: UNKNOWN

CONDITION: GOOD



BENCH MARK DATA

BENCH MARK # 1
 CENTER BOLT GUARDRAIL BASE
 STA 672+39.46, 16.84' LT
 ELEV= 958.55

BENCH MARK # 2
 NAIL IN TELEPHONE POLE
 STA 673+38.07, 22.30' RT
 ELEV= 956.11

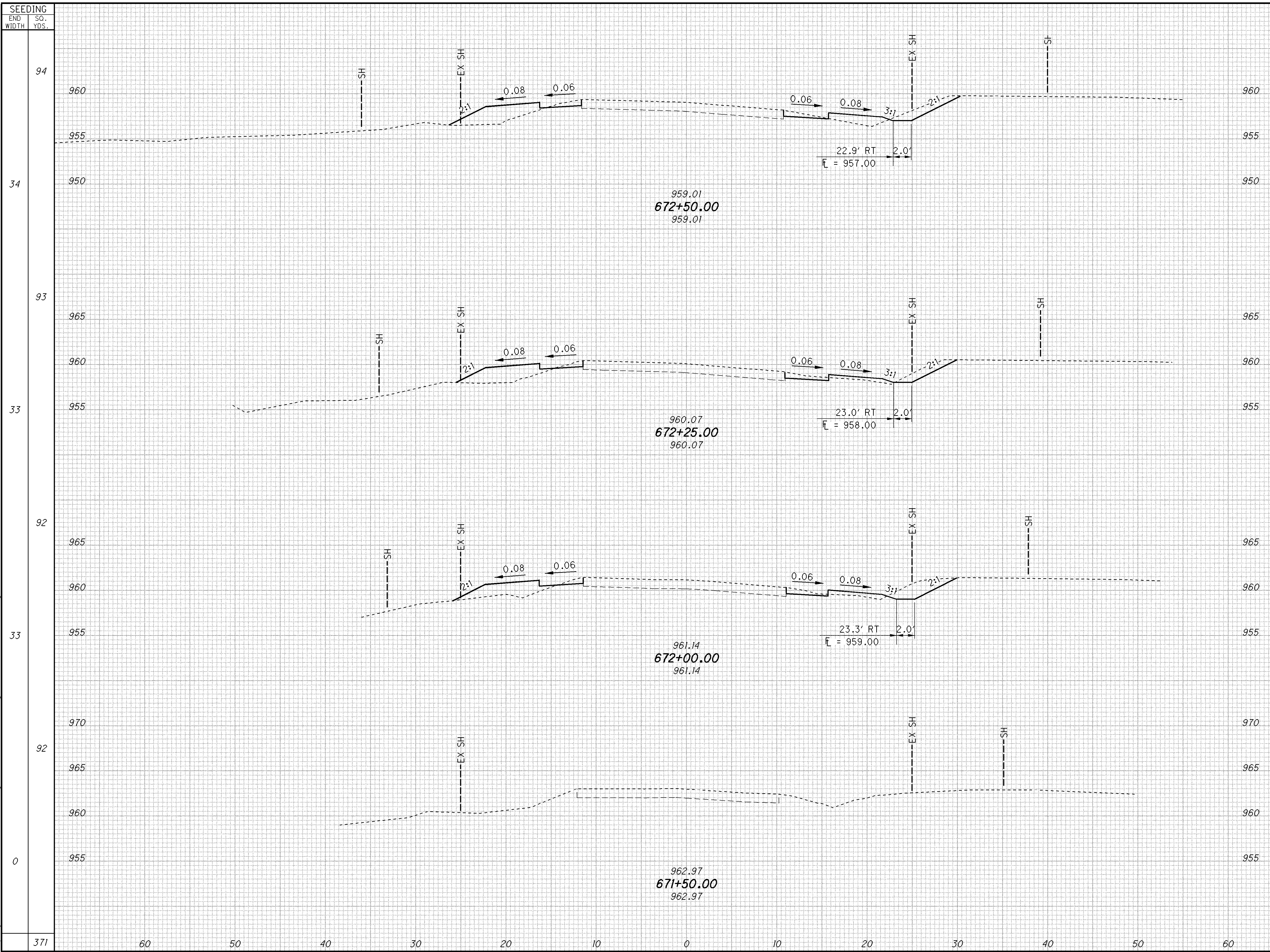
BENCH MARK # 3
 SQUARE CUT IN CATCH BASIN
 STA 674+79.45, 22.88' LT
 ELEV= 953.60

ESTIMATED QUANTITIES (CARRIED TO GENERAL SUMMARY)			
ITEM	QUANTITY	UNIT	DESCRIPTION
202	LUMP		PORTIONS OF STRUCTURE REMOVED
202	21	FT	PIPE REMOVED, 24" AND UNDER
202	612.5	FT	GUARDRAIL REMOVED
202	90	FT	FENCE REMOVED
606	300	FT	GUARDRAIL, TYPE 5
606	25	FT	GUARDRAIL, TYPE 5A
606	25	FT	GUARDRAIL, TYPE 5, LONG-SPAN
606	4	EACH	ANCHOR ASSEMBLY, TYPE E
606	2	EACH	ANCHOR ASSEMBLY, TYPE T
601	35	CU YD	ROCK CHANNEL PROTECTION, TYPE B WITH FABRIC FILTER
602	78	CU YD	CONCRETE MASONRY
611	95	FT	12" CONDUIT, TYPE C
611	18	FT	15" CONDUIT, TYPE C
611	146	FT	96" CONDUIT, TYPE A 707.02 (AL COATED), 707.04, 707.22
611	1	EACH	CATCH BASIN, NO. 2-2A
837	89	FT	LINER PIPE, 96" ID 707.12
837	30	CU YD	BACKFILL FOR LINER PIPE
626	8	EACH	BARRIER REFLECTOR
630	45	FT	GROUND MOUNTED SUPPORT, NO. 3 POST
630	3	EACH	SIGN POST REFLECTOR
630	3	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION
630	4	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL

CULVERT PLAN AND DETAIL
PRE-732-1276

PRE-CULVERTS-
FY2014

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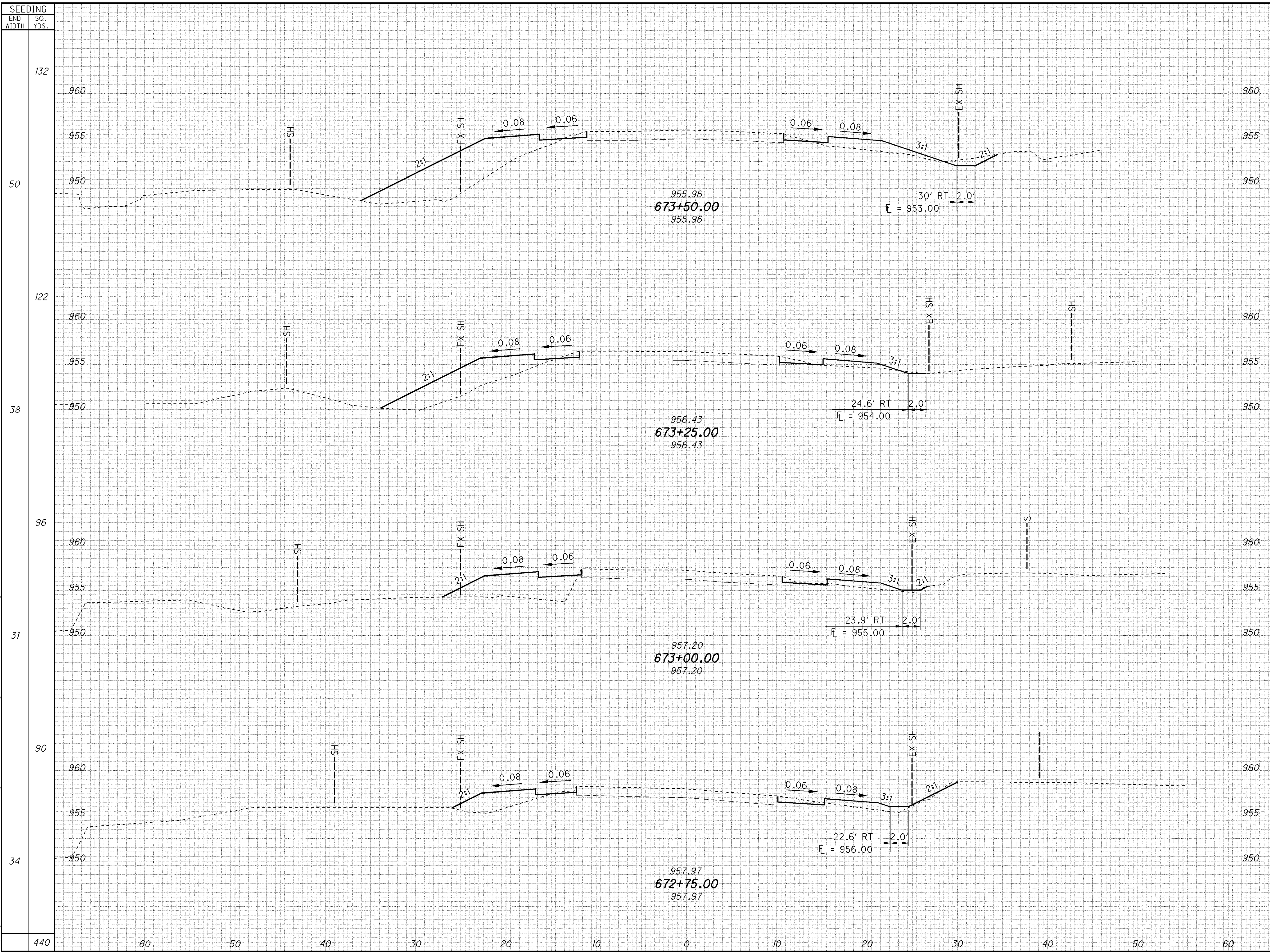
SEEDING	END AREA		VOLUME		CALCULATED	CHECKED	DAG
	CUT	FILL	CUT	FILL			
94			9	19			
34	16	20					
93			11	17			
33	8	16					
92			9	14			
33	11	15					
92			10	14			
0	0	0					
371			39	64			

**CROSS SECTIONS - S.R. 732
STA 129+50.00 TO STA 130+25.00**

**PRE-CULVERTS -
FY2014**

2 / 9
39 / 72

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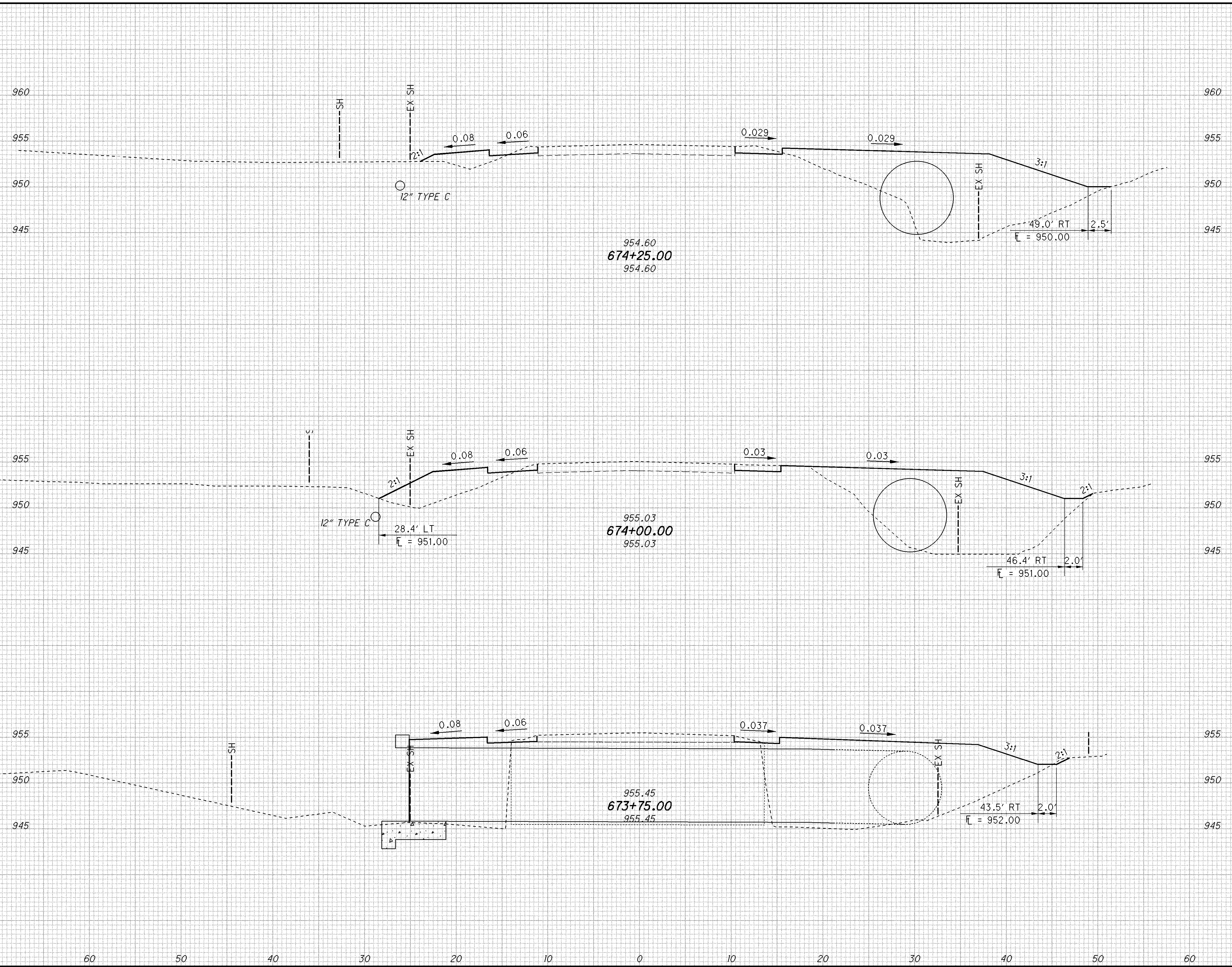


SEEDING	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
132			3	187
50	5	73		
122			4	55
38	3	45		
96			2	38
31	1	37		
90			2	27
34	3	21		
440			11	307

CROSS SECTIONS - S.R. 732
STA 129+50.00 TO STA 130+25.00
PRE-CULVERTS - FY2014
 3 / 9
 40 / 72

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SEEDING	END AREA		VOLUME		CALCULATED	CHECKED	DAG
	CUT	FILL	CUT	FILL			
161			5	97			
55			4	107			
154			4	124			
56			3	210			
140			2	40			
45			12	414			

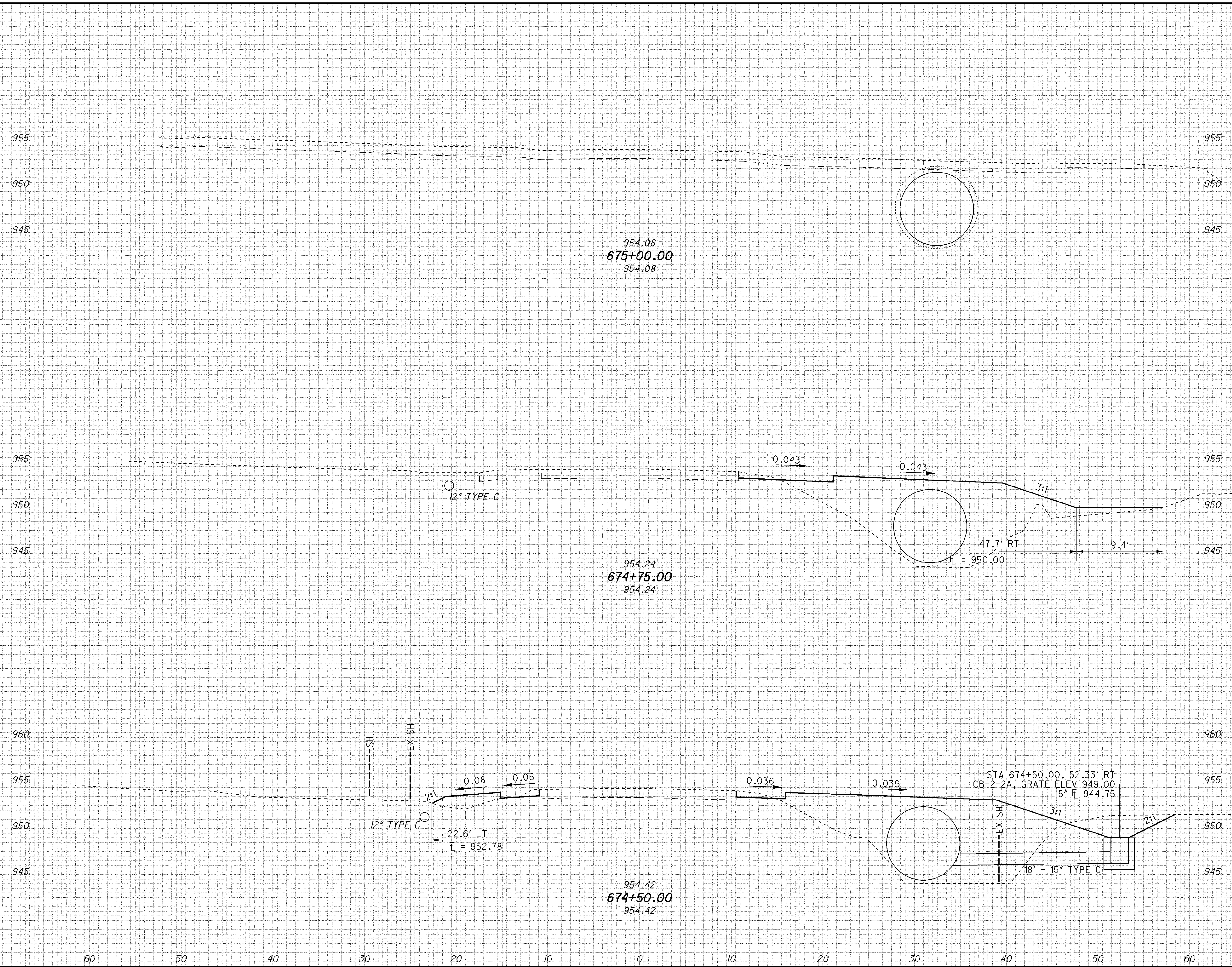


END AREA	VOLUME		CALCULATED	CHECKED	DAG
	CUT	FILL			
5	97				
4	107				
4	124				
3	210				
2	40				
12	414				

CROSS SECTIONS - S.R. 732
STA 129+50.00 TO STA 130+25.00
PRE-CULVERTS -
FY2014
 4 / 9
 41 / 72

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SEEDING	END AREA		VOLUME		CALCULATED	CHECKED	DAG
	CUT	FILL	CUT	FILL			
51	0	0	1	50			
57	41	2	1	37			
61	142	5	3	83			
250	60	5	5	170			



END AREA	VOLUME		CALCULATED	CHECKED	DAG
	CUT	FILL			
0	0	0	1	50	
41	2	79	1	37	
142	5	101	3	83	
60	5	170	5	170	

**CROSS SECTIONS - S.R. 732
STA 129+50.00 TO STA 130+25.00**

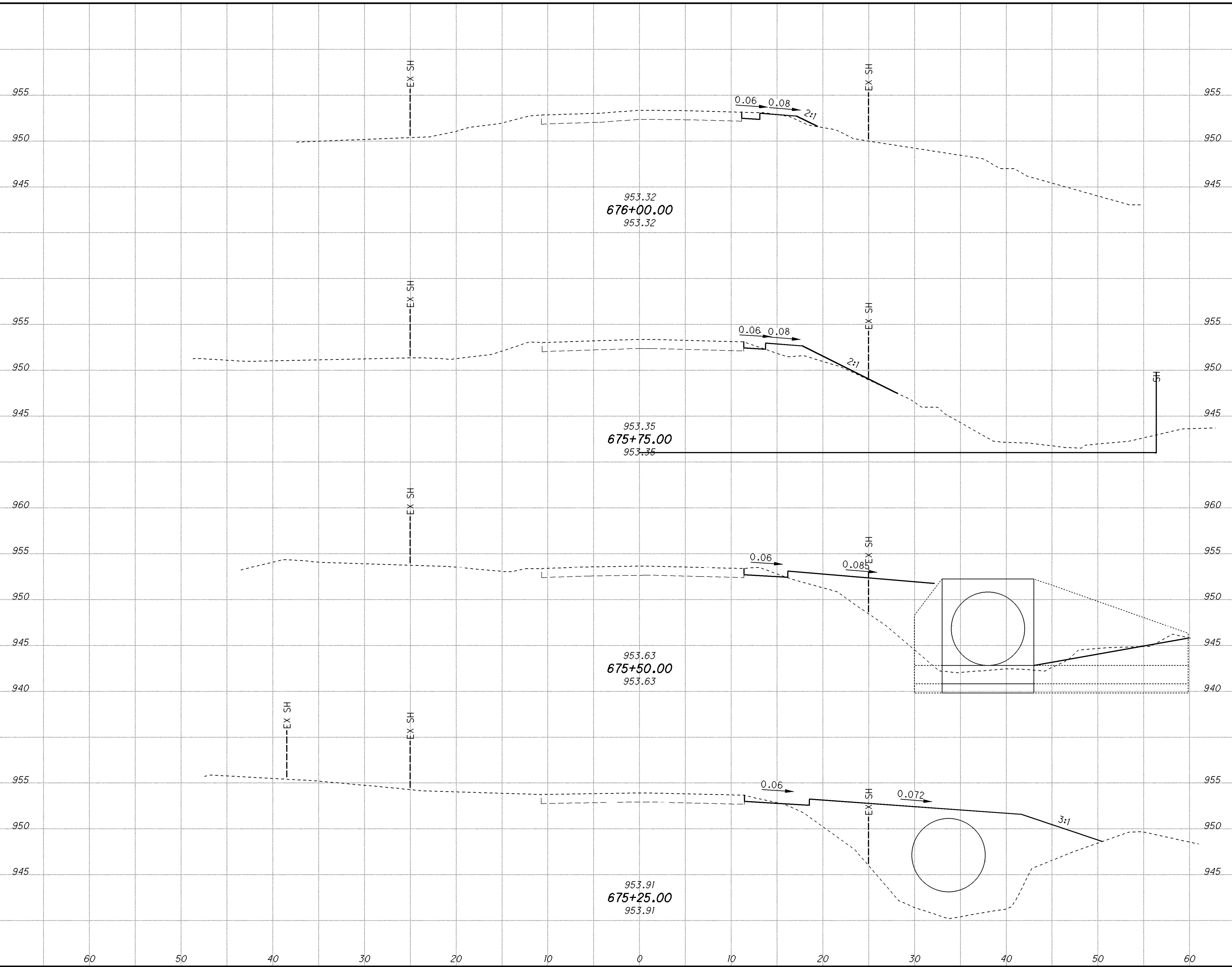
**PRE-CULVERTS -
FY2014**

5 / 9

42 / 72

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SEEDING	END	
	WIDTH	SO. YDS.
53		
11		
43		
20		
51		
17		
75		
37		
222		



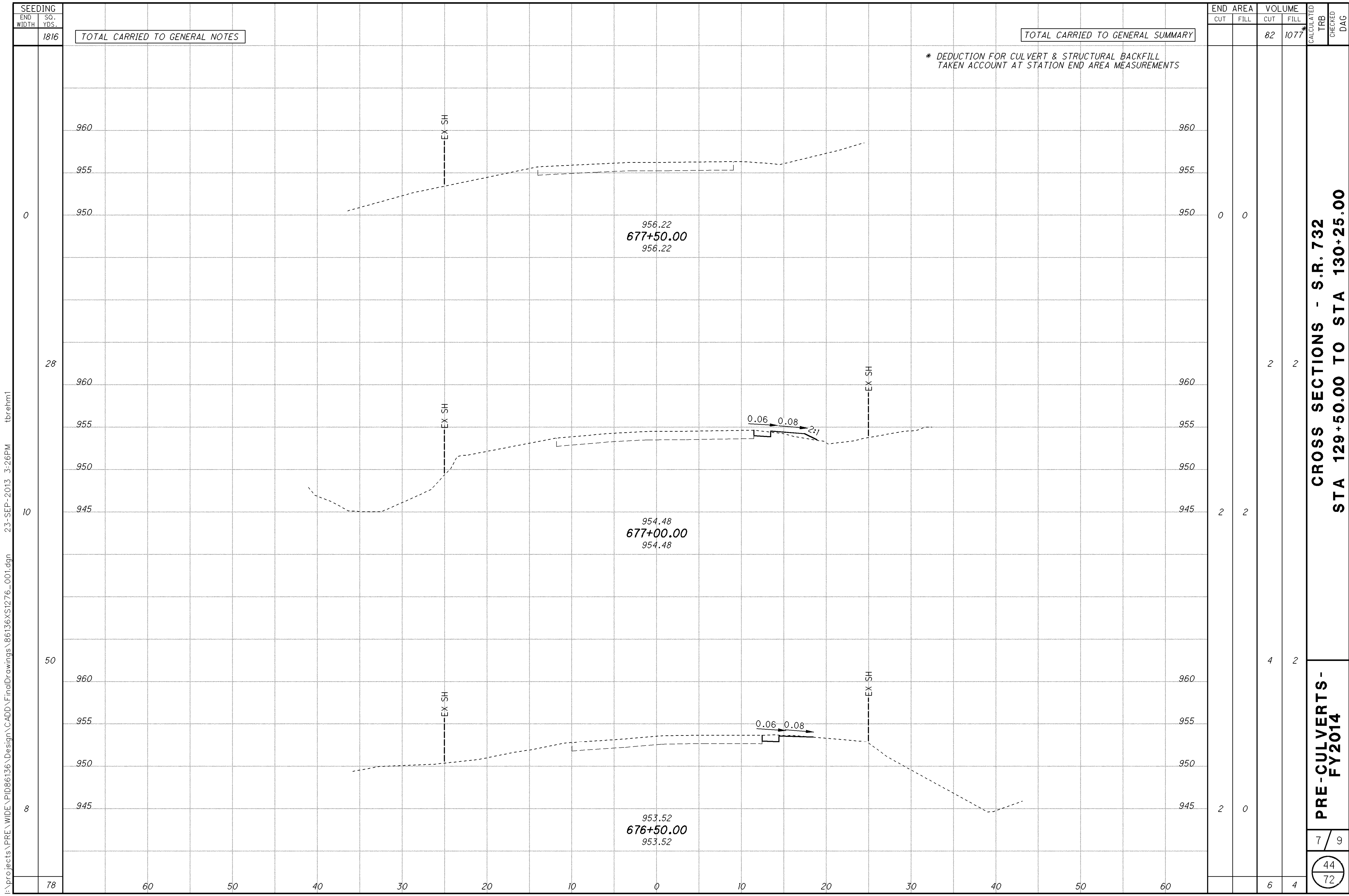
END	AREA		VOLUME	
	CUT	FILL	CUT	FILL
53			4	1
11	2	1		
43			1	4
20	1	8		
51			2	33
17	3	63		
75			2	80
37	2	109		
222			9	118

**CROSS SECTIONS - S.R. 732
STA 129+50.00 TO STA 130+25.00**

**PRE-CULVERTS -
FY2014**

6 / 9

43
72



SEEDING	
END WIDTH	SO. YDS.
1816	

TOTAL CARRIED TO GENERAL NOTES

TOTAL CARRIED TO GENERAL SUMMARY

* DEDUCTION FOR CULVERT & STRUCTURAL BACKFILL TAKEN ACCOUNT AT STATION END AREA MEASUREMENTS

END AREA		VOLUME		CALCULATED TRB	CHECKED DAG
CUT	FILL	CUT	FILL		
0	0	82	1077*		
2	2	2	2		
4	2	4	2		
2	0	6	4		

CROSS SECTIONS - S.R. 732
STA 129+50.00 TO STA 130+25.00

PRE-CULVERTS -
FY 2014

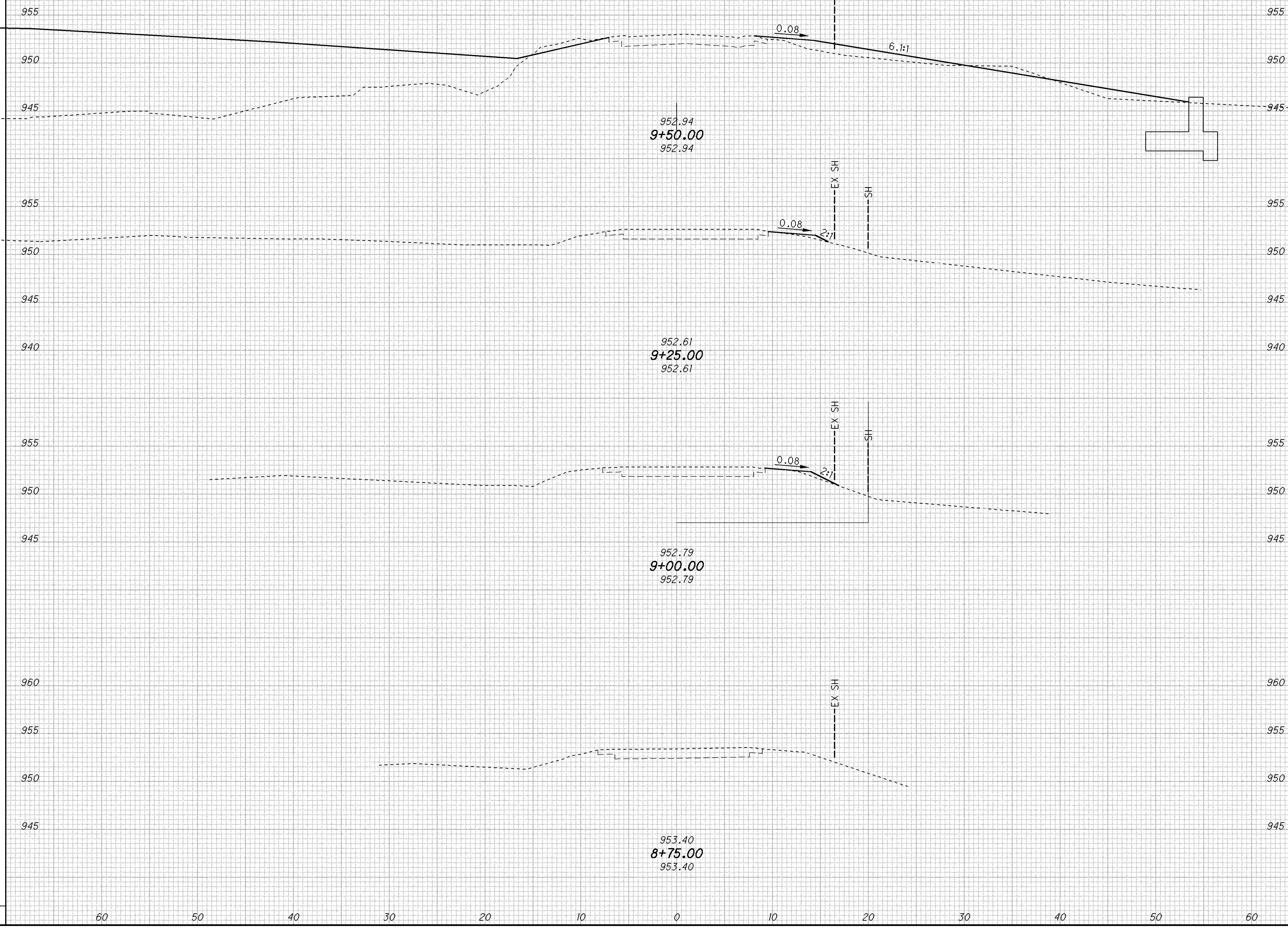
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SEEDING	
END WIDTH	SO. YDS.
54	54

TOTAL CARRIED TO GENERAL NOTES

TOTAL CARRIED TO GENERAL SUMMARY



END AREA		VOLUME		CALCULATED TRB	CHECKED DAG
CUT	FILL	CUT	FILL		
0	0	0	3		
0	0	0	1		
0	1	0	1		
0	1	0	1		
0	0	0	1		
0	0	0	3		

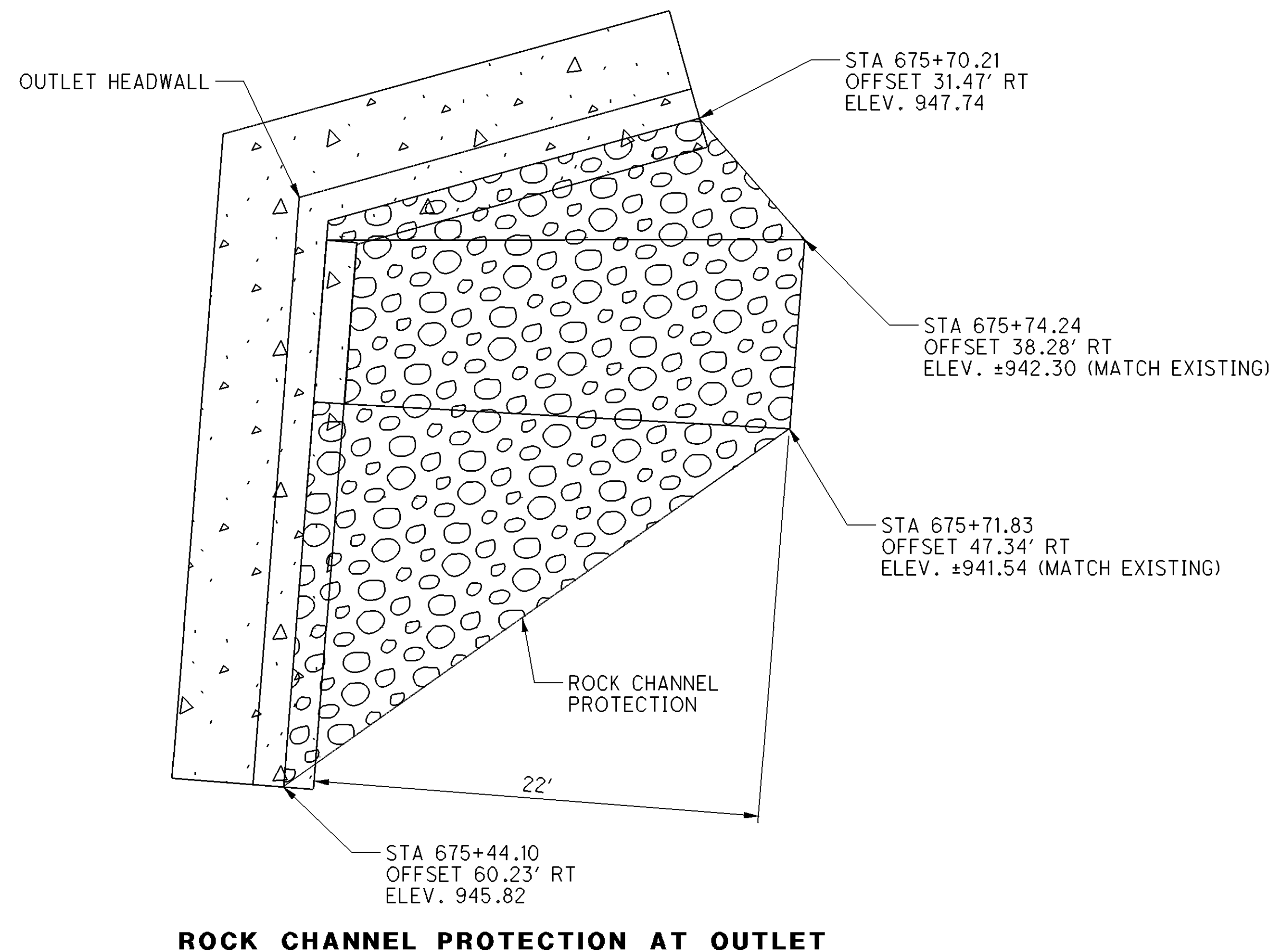
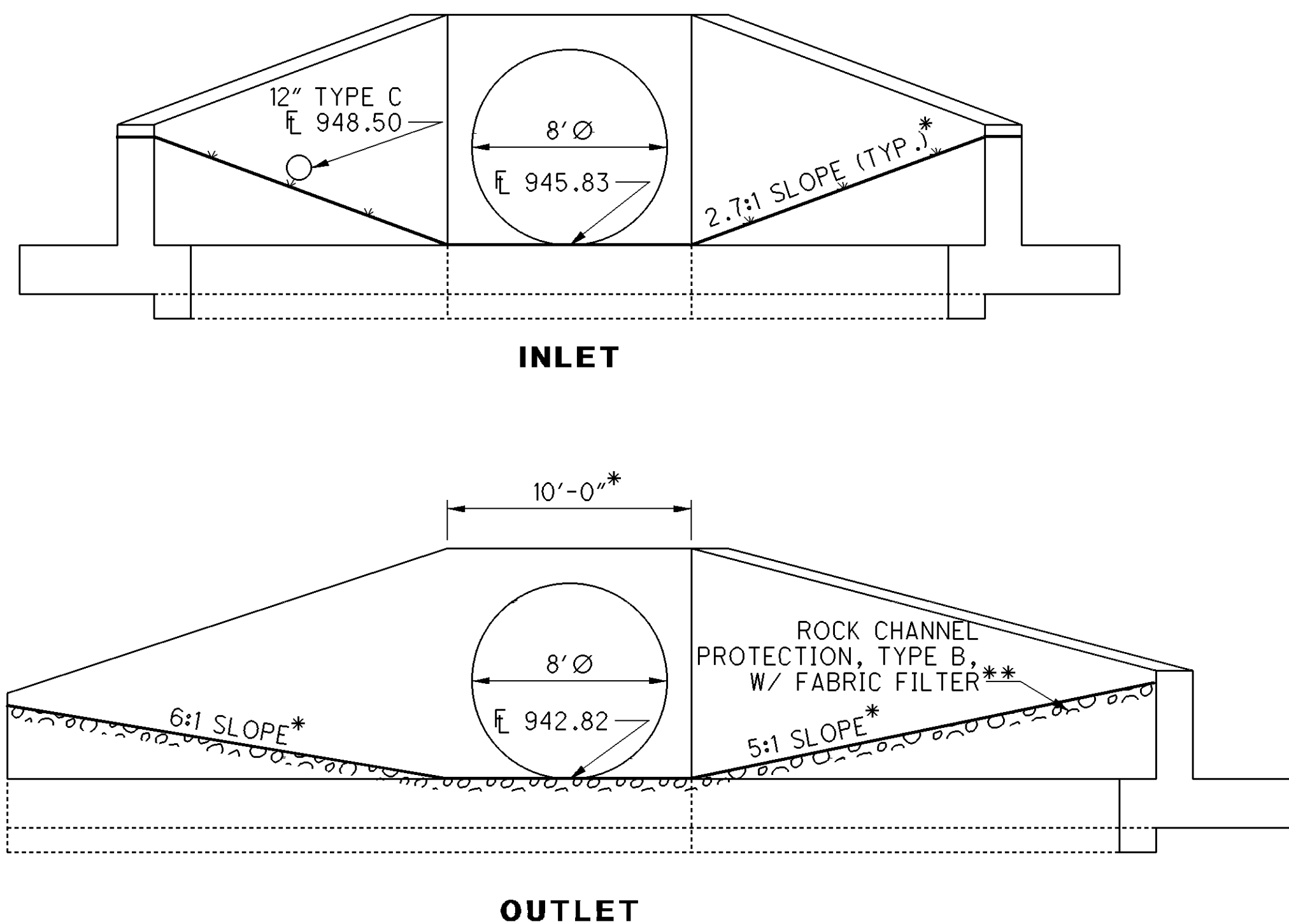
CROSS SECTIONS - WINTERS ROAD
 STA 8+75.00 TO STA 9+50.00
 PRE-CULVERTS -
 FY2014

8 / 9
 45 / 72

HEADWALL AND ROCK CHANNEL PROTECTION DETAILS

CONSTRUCT INLET AND OUTLET HEADWALL PER HW-1.1 USING THE FOLLOWING TABLE:

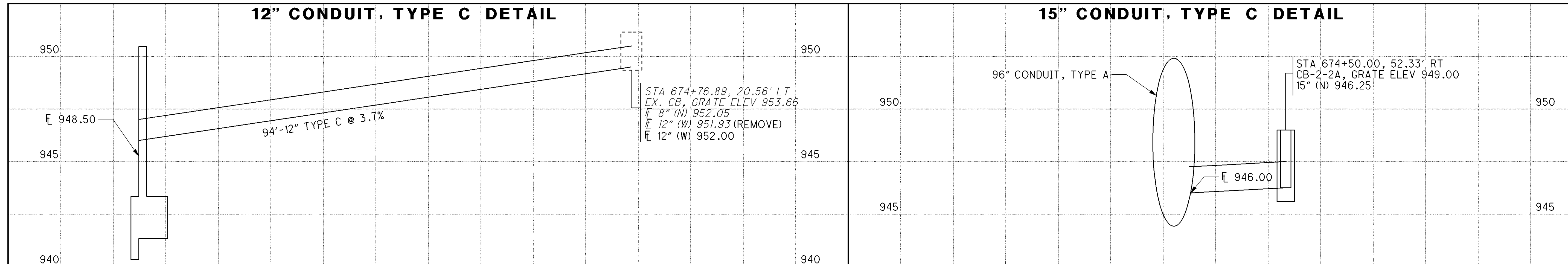
PIPE DIA. D	H	a	b	c	Bar # d	END	TYPE	∅	L ₁	h ₁	L ₂	h ₂	CONC. (CMP) CU YD	STEEL LBS
96"	9'-5"	5'-6"	2'-0"	5'-0"	#8	INLET	A	8"	12'-0"	4'-11"	12'-0"	4'-11"	32.5	3500
						OUTLET	B	50°	28'-0"	3'-6"	19'-0"	4'-5"	44.1	4700



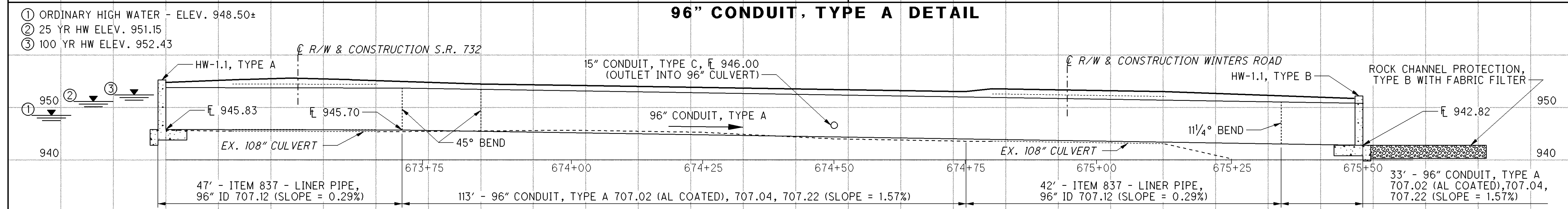
* VARIANCE FROM SCD HW-1.1
** RCP DEPTH (30") NOT SHOWN FOR CLARITY

12" CONDUIT, TYPE C DETAIL

15" CONDUIT, TYPE C DETAIL



96" CONDUIT, TYPE A DETAIL



HORIZONTAL SCALE IN FEET

CALCULATED TRB CHECKED DAG

CULVERT DETAILS
PRE-732-1276

PRE-CULVERTS -
FY2014

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PROJECT DESCRIPTION
 VARIOUS CULVERT REPLACEMENTS THRU OUT PREBLE COUNTY.

PROJECT CONTROL
 STATE PLANE GRID - OHIO SOUTH ZONE NAD83
 PROJECT ADJUSTMENT FACTOR various (see separate sheets)

RIGHT OF WAY LEGEND SHEET PRE-CULVERTS-FY2014

SECTIONS 4,8,17,18,20&24
 DIXON,GASPER &JEFFERSON TOWNSHIP
 PREBLE COUNTY, OHIO

PLANS PREPARED BY:

FIRM NAME : O.D.O.T.
 PLANS PREPARED BY: JEFFREY C.THOMPSON P.S.
 FIELD REVIEW BY: JEFFREY C.THOMPSON P.S.
 DATE COMPLETED: 2/29/12
 OWNERSHIP VERIFIED BY: JEFFREY C.THOMPSON P.S.
 DATE COMPLETED: 2/28/12

UTILITIES

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

- Centurylink - Telephone
 803 E. 12th Street
 Greenville, Ohio 45331
 937-547-4255 (Dave Kaplan)
- Dayton Power and Light -Electric
 1900 Dryden Road
 Dayton, Ohio 45439
 937-331-4132 (John Kenton)
- VecTren Energy - Gas
 6500 Cloy Road
 Dayton, Ohio 45429
 937-312-2533 (Don Specht)
- Time Warner Cable
 3691 Turner Road
 Dayton, Ohio 45415
 937-425-8850 (Tim Kuss)
- Drake Rural Electric
 P.O.Box 278
 Greenville, Ohio 45331
 937-548-4114 (Bruce Burke)
- Knox Energy - Gas
 5900 Mayfair Road, Northwest
 North Canton, Ohio 44720
 (888)863-0032
- Lakengren Water Authority
 24 Lakengren Drive
 Eaton, Ohio 45320
 (937) 456-4455 - Gary Wagner

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.

ALL UTILITY RELOCATIONS SHALL BE COORDINATED BETWEEN THE CONTRACTOR AND THE UTILITY OWNERS IN SUCH A WAY AS TO AVOID AND/OR MINIMIZE ANY INCONVENIENCE TO POTENTIALLY AFFECTED CUSTOMERS. ALL UTILITY RELOCATIONS NOT INCLUDED IN THIS CONTRACT SHALL BE PERFORMED BY THE AFFECTED UTILITY OWNER OR ITS CONTRACTOR AND WILL BE COMPLIANT WITH ODOT ROADWAY DESIGN STANDARDS. UTILITY WORK WILL BE ONGOING DURING THE CONSTRUCTION PERIOD. UPON THE CONTRACT AWARD, THE COORDINATION OF ALL NECESSARY RELOCATIONS WITH THE UTILITIES SHALL BECOME THE RESPONSIBILITY OF THE CONTRACTOR.

STRUCTURE KEY

- RESIDENTIAL
- COMMERCIAL
- OUT-BUILDING

INDEX OF SHEETS:

LEGEND SHEET	1
CENTERLINE PLAT	2,7,12,17,22
PROPERTY MAP	3,8,13,18,23,
SUMMARY OF ADDITIONAL R/W	4,9,14,19,24
R/W DETAIL	5,6,10,11,15,16,20,21,25,26,

LEGEND:

- | | |
|---|--|
| WL = FEE SIMPLE WITH LIMITATION OF ACCESS | FL = FLOW EASEMENT |
| WD = WARRANTY DEED | U = UTILITY EASEMENT |
| BS = BILL OF SALE | A = AERIAL EASEMENT |
| PRW = PROPERTY RIGHT FEE SIMPLE | PRE = PROPERTY RIGHT |
| SH = STANDARD HIGHWAY EASEMENT | SC = SCENIC EASEMENT |
| LA = LIMITED ACCESS EASEMENT | V = IN NAME OF ANOTHER STATE AGENCY, LPA, ETC. |
| T = TEMPORARY EASEMENT | R = SPECIAL RESERVATION |
| SL = SLOPE EASEMENT | WA = WORK AGREEMENT |
| S = SEWER EASEMENT | SA = SPECIAL AGREEMENT AND WAIVER OF DAMAGES |
| CH = CHANNEL EASEMENT | |

CONVENTIONAL SYMBOLS

County Line	Ditch / Creek (Ex)
Township Line	Ditch / Creek (Pr)
Section Line	Tree Line (Ex)
Corporation Line	Ownership Hook Symbol / , Example /
Fence Line (Ex) (Pr)	Property Line Symbol / , Example /
Center Line	Break Line Symbol / , Example /
Right of Way (Ex)	Tree (Pr) , Tree (Ex) , Shrub (Ex)
Right of Way (Pr)	Tree (Remove) , Shrub (Remove)
Standard Highway Ease.(Ex)	Evergreen (Ex) , Stump
Temporary Right of Way	Evergreen (Remove) , Stump (Remove)
Channel Ease. (Pr)	Wetland (Pr) , Grass (Pr) , Aerial Target
Utility Ease. (Ex)	Post (Ex) , Mailbox (Ex) , Mailbox (Pr)
Railroad or	Light (Ex) , Telephone Marker (Ex)TEL
Guardrail (Ex) (Pr)	Fire Hydrant (Ex) , Water Meter (Ex)
Construction Limits	Water Valve (Ex) , Utility Valve Unknown (Ex.)
Edge of Pavement (Ex)	Telephone Pole (Ex) , Power Pole (Ex)
Edge of Pavement (Pr)	Light Pole (Ex)
Edge of Shoulder (Ex)	
Edge of Shoulder (Pr)	

I, JEFFREY THOMPSON , P. S. have calculated the proposed property lines, Gross Take, present roadway occupied (PRO), Net Take and Net Residue; as well as prepared the legal descriptions necessary to acquire these parcels as shown herein.

All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "A Minimum Standards for Boundary Surveys in the State of Ohio" unless noted.

The words I and my as used herein are to mean either myself or someone working under my direct supervision.

Jeffrey Thompson
 JEFFREY THOMPSON Professional Land Surveyor No. 7362

Date: 2/29/12

I, WILLIAM HELMICK, P. S. have conducted a survey of the existing conditions for the Ohio Department of Transportation on MAY, 2010 . The results of that survey are contained herein.

As a part of this project I have reestablished the locations of the existing property lines and centerline of existing Right of Way for property takes contained herein.

All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "A Minimum Standards for Boundary Surveys in the State of Ohio" unless noted.

The words I and my as used herein are to mean either myself or someone working under my direct supervision.

William Helmick
 WILLIAM HELMICK Professional Land Surveyor No.8030

Date: 2/29/12

SURVEYORS SEAL

SIGNED: *W.H.*
 DATE: 2/29/12

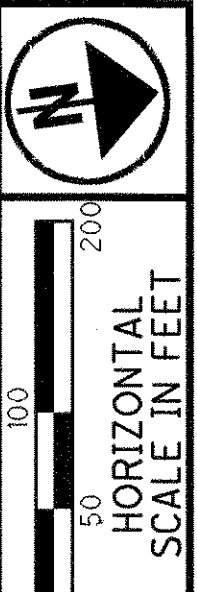
SURVEYORS SEAL

STATE OF OHIO
 REGISTERED PROFESSIONAL SURVEYOR
 WILLIAM H. HELMICK
 8030

SIGNED: *W.H.*
 DATE: 2/29/12

PRE-CULVERTS-FY2014

PRE-121-02.46
 PREBLE COUNTY
 Jefferson Township
 Section 17 & 20 T9 R1

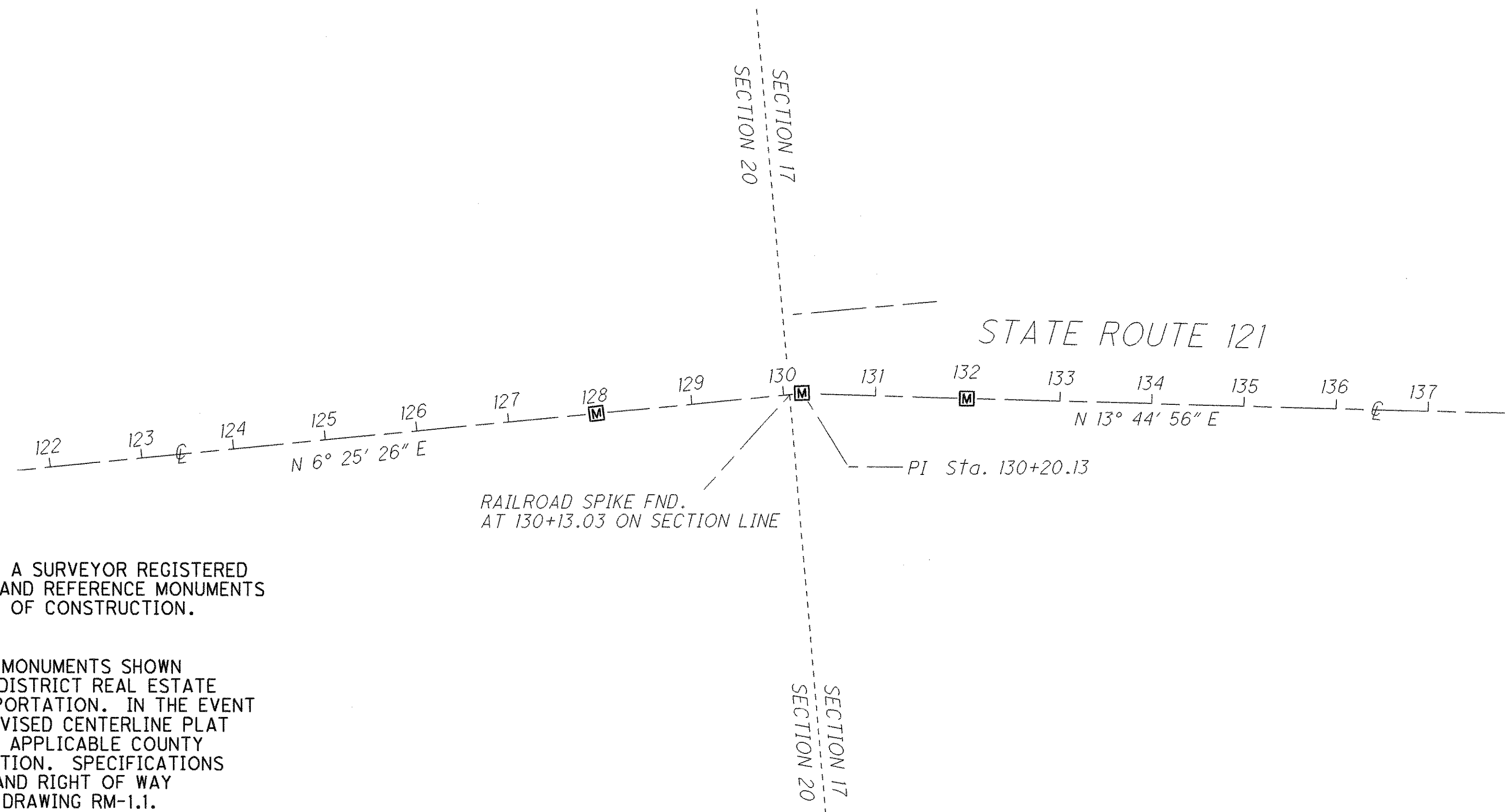


PID NO.
86136

R/W DESIGNER
 D.E.
 R/W REVIEWER
 J.T.

CENTERLINE PLAT

PRE-121-02.46



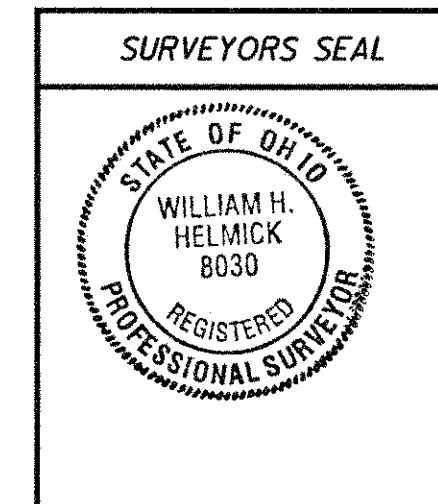
SETTING OF ALL MONUMENTS SHALL BE PERFORMED BY A SURVEYOR REGISTERED IN THE STATE OF OHIO. THE MONUMENT ASSEMBLIES AND REFERENCE MONUMENTS WILL BE INSTALLED BY THE CONTRACTOR AT THE TIME OF CONSTRUCTION.

CHANGES OR ALTERATIONS TO THE LOCATION OF ANY MONUMENTS SHOWN IN THIS TABLE, REQUIRE PRIOR APPROVAL FROM THE DISTRICT REAL ESTATE ADMINISTRATOR OF THE OHIO DEPARTMENT OF TRANSPORTATION. IN THE EVENT THAT CHANGES OR ALTERATIONS ARE APPROVED, A REVISED CENTERLINE PLAT WITH THE NEW LOCATIONS SHALL BE RECORDED IN THE APPLICABLE COUNTY RECORDS AND THE OHIO DEPARTMENT OF TRANSPORTATION. SPECIFICATIONS FOR MONUMENT ASSEMBLIES, REFERENCE MONUMENTS AND RIGHT OF WAY MONUMENTS ARE SHOWN ON STANDARD CONSTRUCTION DRAWING RM-1.1.

MONUMENT LEGEND

- ☒ EXISTING R/W MONUMENT BOX
- Ⓜ PROPOSED R/W MONUMENT BOX
- ⊙ EXISTING CONCRETE MONUMENT
- PROPOSED CONCRETE MONUMENT
- ⊗ RAILROAD SPIKE FOUND
- ✦ RAILROAD SPIKE SET
- ⊙ I.P.F. IRON PIN FOUND
- ⊙ I.P.F. IRON PIN FOUND W/ ID CAP
- I.P.S. IRON PIN SET W/ ID CAP
- ⊙ I.P.F. IRON PIPE FOUND
- ⊙ I.P.S. IRON PIPE SET
- ⊙ P.K.F. P.K. NAIL FOUND
- ⊙ P.K.S. P.K. NAIL SET

MONUMENT TABLE							
State Route 121		PROJECT GRID COORDINATES SEE SURVEY CERTIFICATION		MONUMENTS TO BE SET DURING CONSTRUCTION		R/W MON. EXPECTED TO BE DISTURBED	
STATION	OFFSET	NORTH (Y)	EAST (X)	MON. ASSY.	REF. MON.	R/W MON.	DESCRIPTION
128+00	€	689750.591	1325743.709	1			
130+20.13	€	689969.339	1325768.338	1			
132+00	€	690144.055	1325811.087	1			
TOTAL CARRIED TO GENERAL SUMMARY SHEET				3			



Scale factor: 0.99992692

I, William Helmick P. S. No.8030 have conducted a survey of the existing conditions for the Ohio Department of Transportation on May 2010. The results of that survey are contained herein. As a part of this project I have reestablished the locations of the existing property lines and centerline of existing Right of Way for property takes contained herein. All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "A Minimum Standards for Boundary Surveys in the State of Ohio" unless noted. The words I and my as used herein are to mean either myself or someone working under my direct supervision.

William Helmick
 William Helmick, Professional Land Surveyor No. 8030

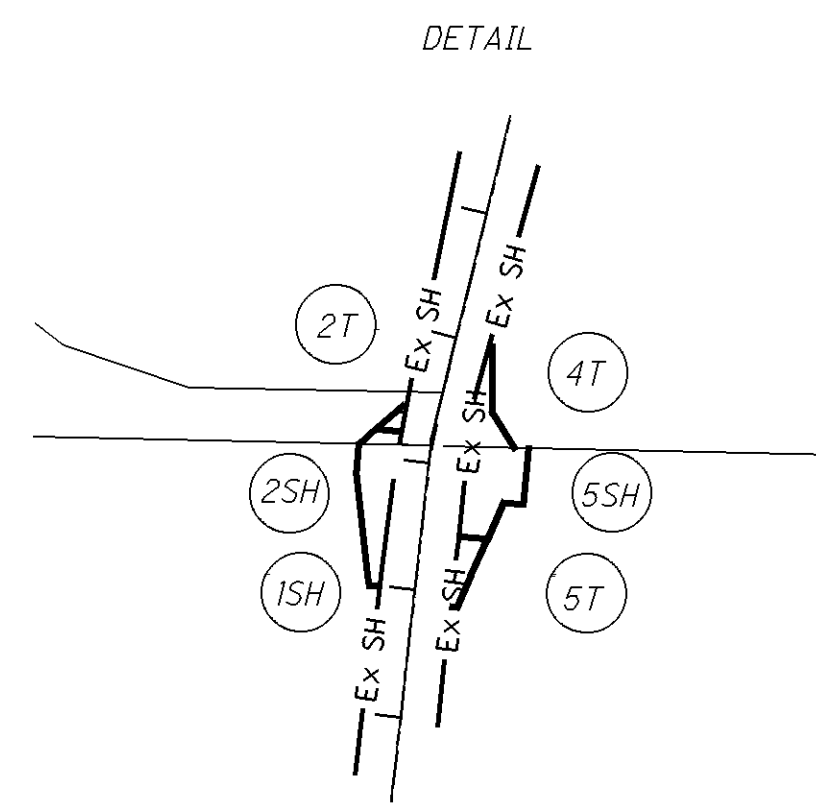
Date: 1/26/2012

RECEIVED _____, 20____
 RECORDED _____, 20____
 BOOK _____ PAGE _____
 COUNTY RECORDER

REV. BY	DATE	DESCRIPTION

I:\projects\PRE-WIDE\PID86136\RM\Plans\PRE-121-2.46\86136RC02.46.dgn 25-JAN-2012 3:29PM jthomps1

PRE-CULVERTS-FY2014
SECTION 17 & 20 TOWN 9E RANGE 1E
JEFFERSON TOWNSHIP
PREBLE COUNTY, OHIO



REV. BY	DATE	DESCRIPTION
JCT	5/7/12	REVISED PARCEL 1 OWNER

HORIZONTAL SCALE IN FEET

R/W DESIGNER
D.E.
PID NO.
86136

R/W REVIEWER
J.T.

PROPERTY MAP

PRE-121-02.46
3 / 26

(49)

(72)

I:\projects\PRE\WIDE\PID86136\RW\Plans\PRE-121-2.46\86136RM02.46.dgn 07-DEC-2012 7:01AM jthomps1

TOTAL NUMBER OF :

4 OWNERSHIPS
6 PARCELS

TOTAL TAKES
OWNERSHIPS W/ STRUCTURES INVOLVED

NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE
NET TAKE = GROSS TAKE - PRO IN TAKE

ALL AREAS IN

PARCEL NO.	OWNER	SHEET NO.	OWNERS BOOK	RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE		TYPE FUND	REMARKS	AS ACQUIRED	
												LEFT	RIGHT			BOOK	PAGE
1SH	VALLEY'S EDGE LLC	5,6	O.R.300	618	G22912010000 001001	40.590	.590	0.0434	0.000	0.0434		39.957			Auditor shows 53.704 acres, recorded survey shows 40.590 acres.		
2SH	JAMES T. & CINDY L.JACKSON	5,6	O.R.263	1494	G22911730000 004001	108.403	0.029	0.0055	0.000	0.0055		108.369					
2T 3	" "	"	"	"	"	"	"	0.0023	0.000	0.0023					NO RIGHT OF WAY REQUIRED		
4SH	DWIGHT D.RIEGEL	5,6	O.R.248	539	G22911740000 004001	34.383	1.290	0.0220	0.000	0.0220			33.071				
5SH	FREDRICK G. SMALLWOOD	5,6	O.R.209	2425	G22912010000 003000	4.000	0.201	0.0650	0.000	0.0650			3.734				
5T	" "	"	"	"	"	"	"	0.0173	0.000	0.0173							

FEDERAL PROJECT NO. 86136
 PID NO. 86136
 STATE JOB NO.
 R/W DESIGNER D.E.
 R/W REVIEWER J.T.
SUMMARY OF ADDITIONAL RIGHT OF WAY
PRE-121-02.46

NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

NOTE: ALL TEMPORARY PARCELS TO BE OF 12 MONTH DURATION. (c) = CALCULATED AREA

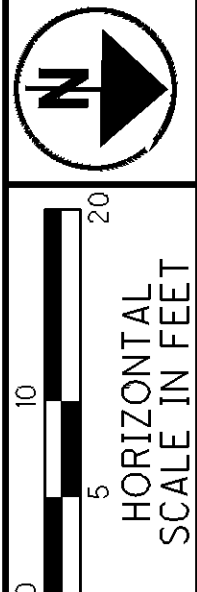
TYPES OF TITLE LEGEND:
 WL = FEE SIMPLE WITH LIMITATION OF ACCESS
 WD = WARRANTY DEED
 PRW = PROPERTY RIGHT FEE SIMPLE
 SH = STANDARD HIGHWAY EASEMENT
 LA = LIMITED ACCESS EASEMENT
 T = TEMPORARY EASEMENT
 CH = CHANNEL EASEMENT
 A = AERIAL EASEMENT
 SL = SLOPE EASEMENT
 PRE = PROPERTY RIGHT EASEMENT

GRANTEE:
 ALL RIGHT OF WAY ACQUIRED IN THE NAME OF _____
 UNLESS OTHERWISE SHOWN.

REV. BY	DATE	DESCRIPTION
JCT	5/3/12	REVISED PARCEL 1 OWNER
JCT	4/16/12	REVISED PARCEL NAME AND ADDED NOTE.
FIELD REVIEW BY		DATE:
OWNERSHIP VERIFIED BY		DATE:
DATE COMPLETED		

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PRE-CULVERTS FY-2014
SECTION 17 AND 20, TOWN 9E, RANGE 1E
JEFFERSON TOWNSHIP
PREBLE COUNTY, OHIO



PID NO. **86136**
R/W DESIGNER D.E. J.T.
R/W REVIEWER J.T.

RIGHT OF WAY TOPO SHEET
PRE-CULVERTS FY2014

PRE-121-02.46

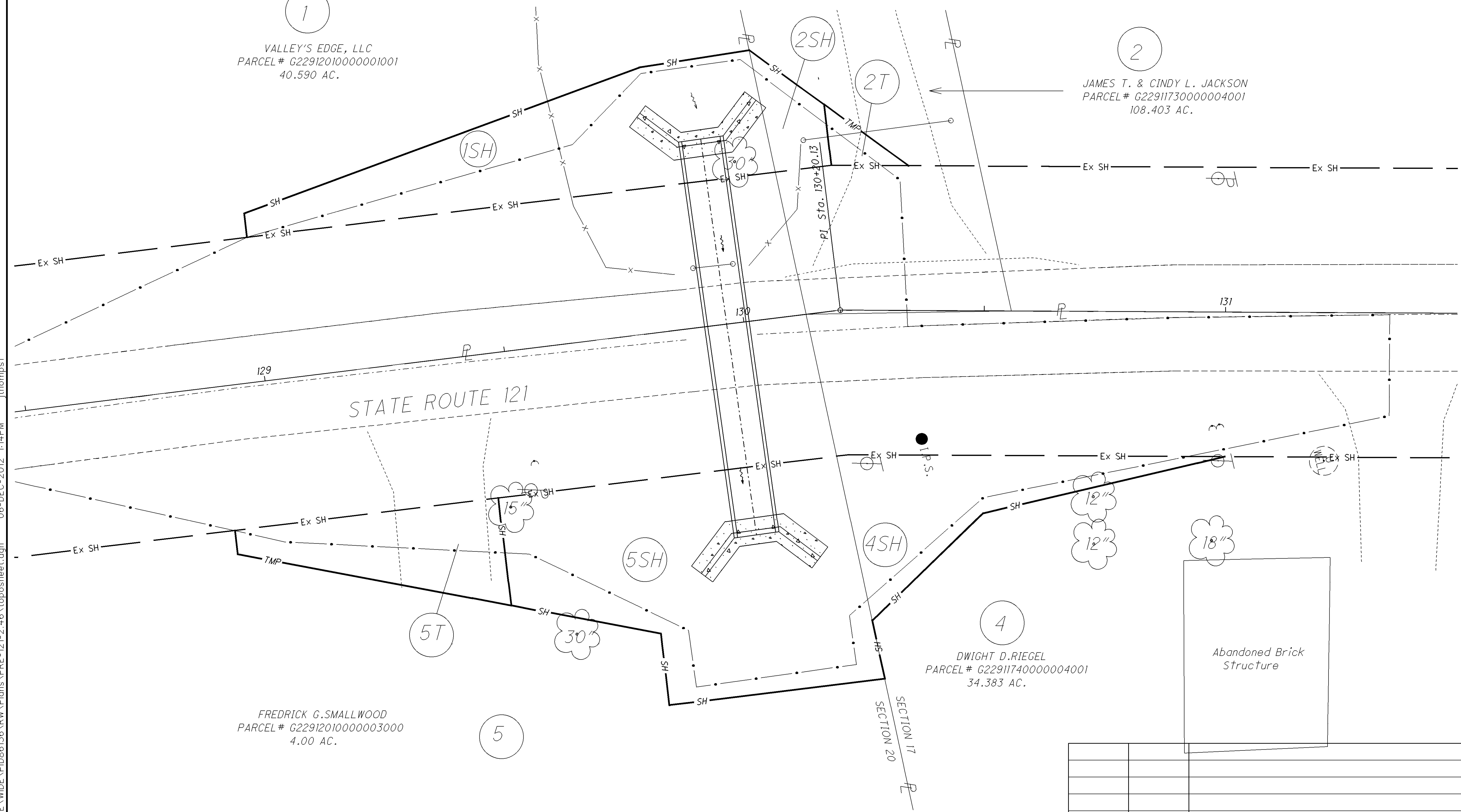
5 / 26
51
72

1
VALLEY'S EDGE, LLC
PARCEL # G22912010000001001
40.590 AC.

2
JAMES T. & CINDY L. JACKSON
PARCEL # G22911730000004001
108.403 AC.

4
DWIGHT D. RIEGEL
PARCEL # G22911740000004001
34.383 AC.

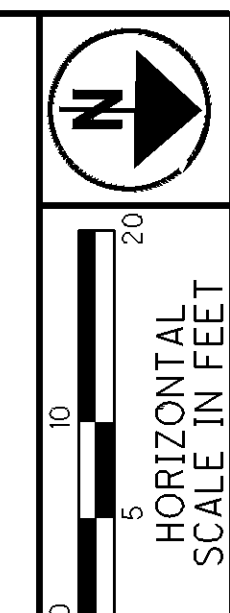
5
FREDRICK G. SMALLWOOD
PARCEL # G22912010000003000
4.00 AC.



REV. BY	DATE	DESCRIPTION
JCT	5/7/12	REVISED PARCEL 1 OWNER
JCT	4/16/12	REVISED RECORD ACREAGE PARCEL 1
DATE COMPLETED		

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PRE-CULVERTS FY 2014
SECTION 17 & 20, TOWN 9E, RANGE 1E
JEFFERSON TOWNSHIP
PREBLE COUNTY, OHIO

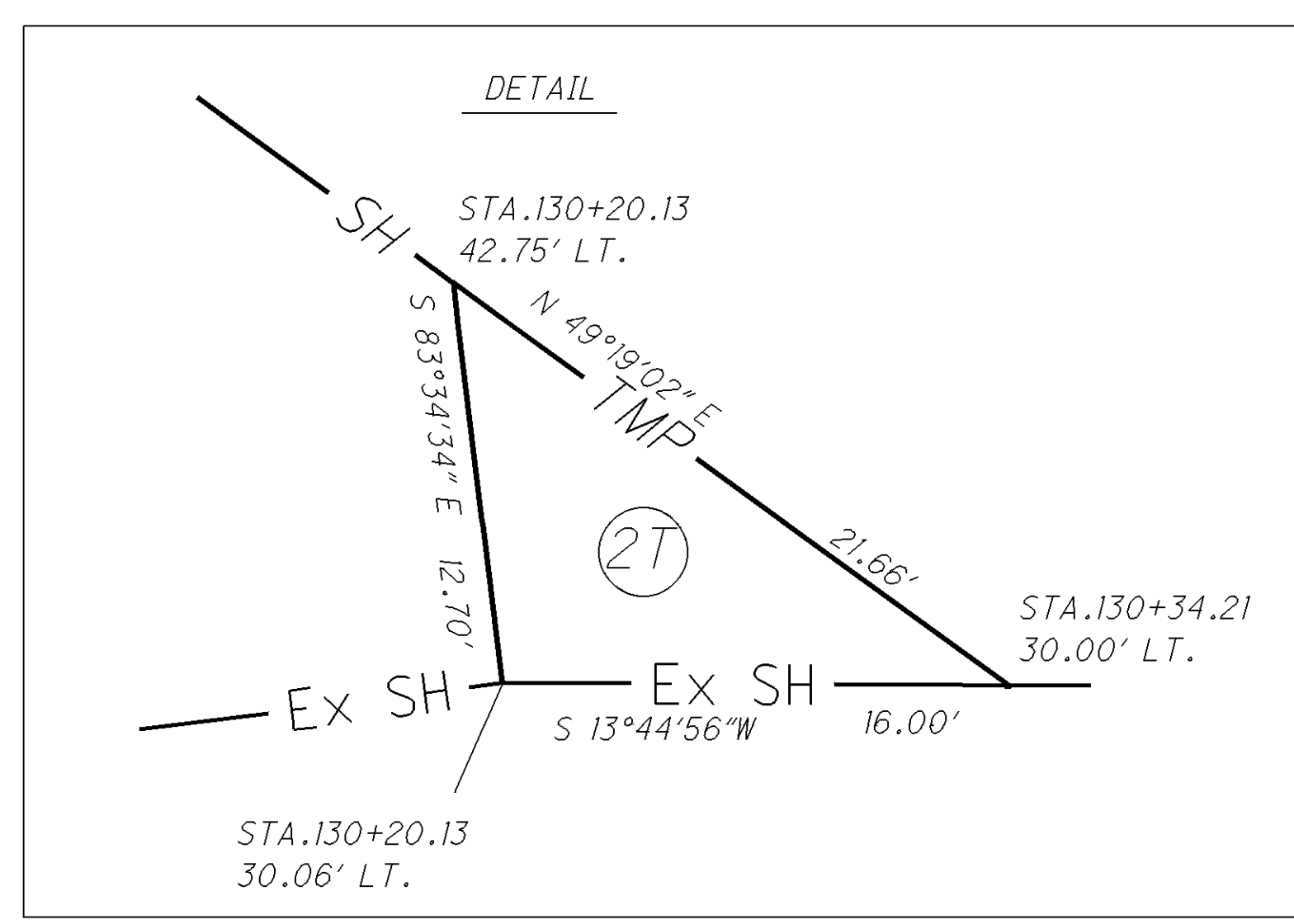


PID NO. **86136**
R/W DESIGNER D.E. J.T.
R/W REVIEWER J.T.

RIGHT OF WAY BOUNDARY SHEET
PRE-CULVERTS FY2014

PRE-121-02.46

6 / 26
52 / 72



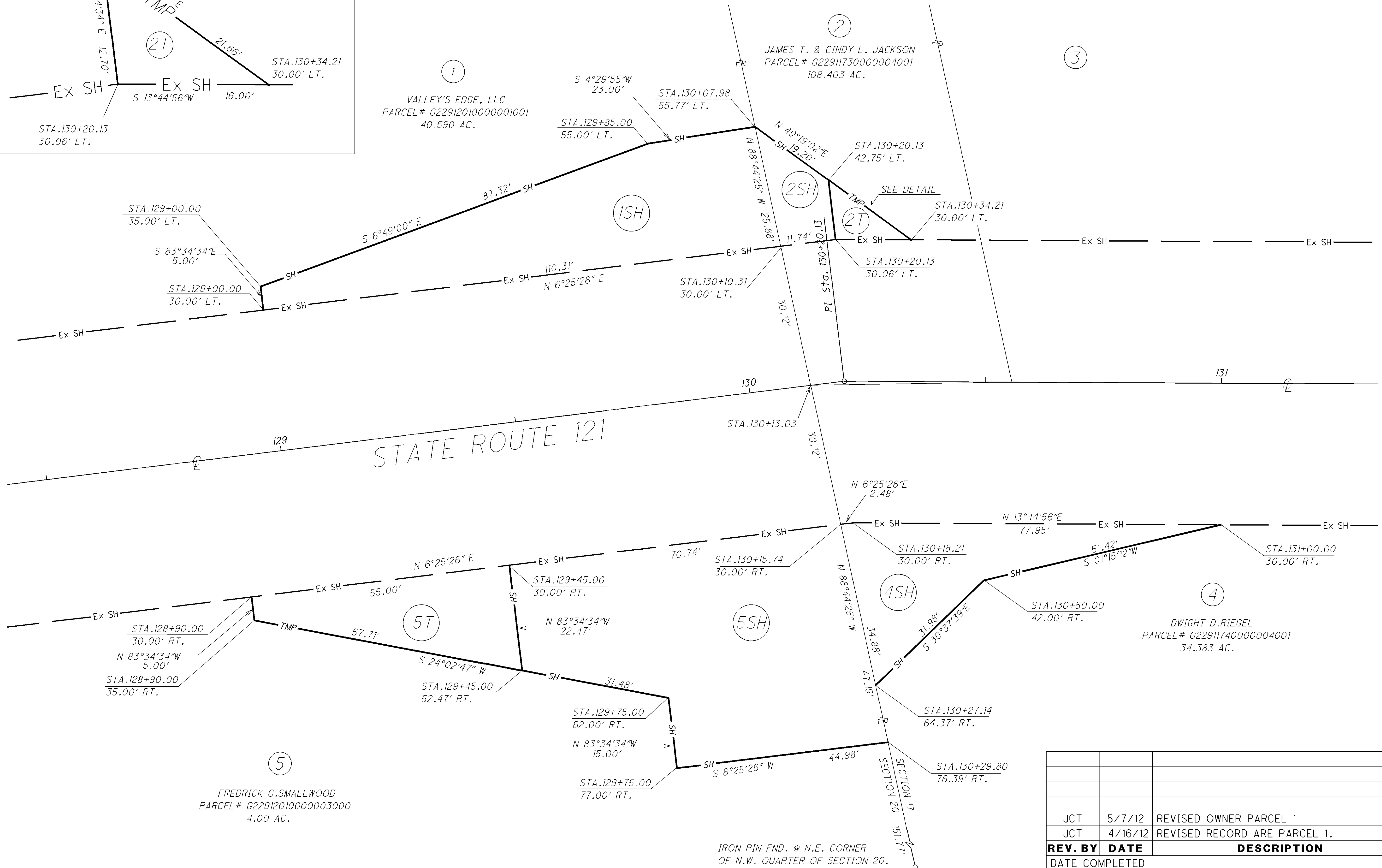
①
VALLEY'S EDGE, LLC
PARCEL # G22912010000001001
40.590 AC.

②
JAMES T. & CINDY L. JACKSON
PARCEL # G22911730000004001
108.403 AC.

④
DWIGHT D. RIEGEL
PARCEL # G22911740000004001
34.383 AC.

⑤
FREDRICK G. SMALLWOOD
PARCEL # G22912010000003000
4.00 AC.

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REV. BY	DATE	DESCRIPTION
JCT	5/7/12	REVISED OWNER PARCEL 1
JCT	4/16/12	REVISED RECORD ARE PARCEL 1.
DATE COMPLETED		

IRON PIN FND. @ N.E. CORNER
OF N.W. QUARTER OF SECTION 20.

PRE-CULVERTS FY 2014

PRE-121-3.73
SECTION 8 & 17 T 9 R1
JEFFERSON TOWNSHIP
PREBLE COUNTY, OHIO

SETTING OF ALL MONUMENTS SHALL BE PERFORMED BY A SURVEYOR REGISTERED IN THE STATE OF OHIO. THE MONUMENT ASSEMBLIES AND REFERENCE MONUMENTS WILL BE INSTALLED BY THE CONTRACTOR AT THE TIME OF CONSTRUCTION. THE IRON PIN AND CAP (WHEN REQUIRED) ARE TO BE INSTALLED BY THE CONTRACTOR'S SURVEYOR.

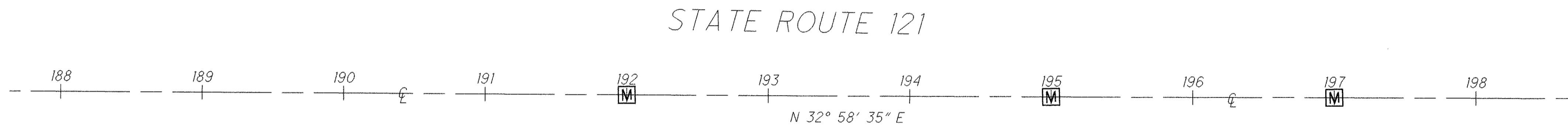
CHANGES OR ALTERATIONS TO THE LOCATION OF ANY MONUMENTS SHOWN IN THIS TABLE, REQUIRE PRIOR APPROVAL FROM THE DISTRICT REAL ESTATE ADMINISTRATOR OF THE OHIO DEPARTMENT OF TRANSPORTATION. IN THE EVENT THAT CHANGES OR ALTERATIONS ARE APPROVED, A REVISED CENTERLINE PLAT WITH THE NEW LOCATIONS SHALL BE RECORDED IN THE APPLICABLE COUNTY RECORDS AND THE OHIO DEPARTMENT OF TRANSPORTATION. SPECIFICATIONS FOR MONUMENT ASSEMBLIES, REFERENCE MONUMENTS AND RIGHT OF WAY MONUMENTS ARE SHOWN ON STANDARD CONSTRUCTION DRAWING RM-1.1.

MONUMENT LEGEND

- ☒ EXISTING R/W MONUMENT BOX
- ▣ PROPOSED R/W MONUMENT BOX
- ⊙ EXISTING CONCRETE MONUMENT
- PROPOSED CONCRETE MONUMENT
- ⚡ RAILROAD SPIKE FOUND
- ⚡ RAILROAD SPIKE SET
- I.R.F. IRON PIN FOUND
- ⊙ I.R.F. IRON PIN FOUND W/ ID CAP
- I.R.S. IRON PIN SET W/ ID CAP
- ⊙ I.R.P. IRON PIPE FOUND
- I.R.S. IRON PIPE SET
- ⊙ P.K.F. P.K. NAIL FOUND
- P.K.S. P.K. NAIL SET

MONUMENT TABLE							
℄ of STATE ROUTE 121		PROJECT GRID COORDINATES SEE SURVEY CERTIFICATION		MONUMENTS TO BE SET DURING CONSTRUCTION		R/W MON. EXPECTED TO BE DISTURBED	
STATION	OFFSET	NORTH (Y)	EAST (X)	MON. ASSY.	REF. MON.	R/W MON.	DESCRIPTION
192+00	℄	695799.673	1327845.443	1			
192+00	℄	696051.341	1328008.730	1			
192+00	℄	696219.120	1328117.589	1			
TOTAL CARRIED TO GENERAL SUMMARY SHEET				3			

Scale Factor: 0.999926050

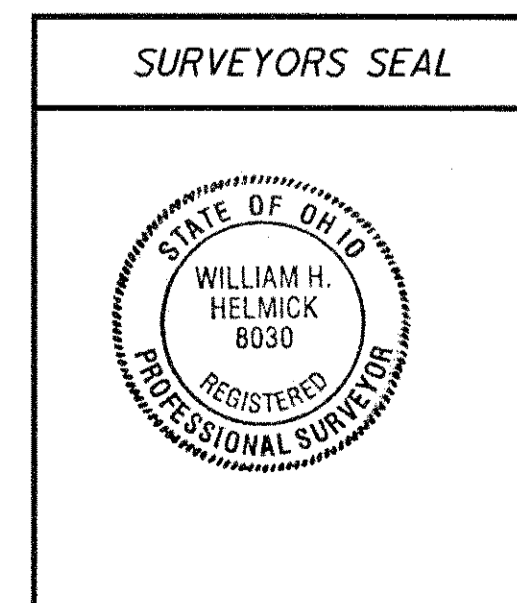


I, William Helmick P. S. No.8030 have conducted a survey of the existing conditions for the Ohio Department of Transportation on May 2010. The results of that survey are contained herein. As a part of this project I have reestablished the locations of the existing property lines and centerline of existing Right of Way for property takes contained herein.

All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "A Minimum Standards for Boundary Surveys in the State of Ohio" unless noted. The words I and my as used herein are to mean either myself or someone working under my direct supervision.

William Helmick
William Helmick, Professional Land Surveyor No. 8030

1/26/2012
Date:



RECEIVED _____, 20____
RECORDED _____, 20____
BOOK _____ PAGE _____

COUNTY RECORDER

7	26
53	72
REV. BY	DATE
DATE COMPLETED	DESCRIPTION

HORIZONTAL SCALE IN FEET
 0 50 100
 PID NO. **86136**
 R/W DESIGNER D.E. J.T.
 R/W REVIEWER J.T.
CENTERLINE PLAT
PRE-121-3.73

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TOTAL NUMBER OF :

2 OWNERSHIPS TOTAL TAKES
 2 PARCELS OWNERSHIPS W/ STRUCTURES INVOLVED

NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE
 NET TAKE = GROSS TAKE - PRO IN TAKE

ALL AREAS IN

(c) = CALCULATED AREA

PARCEL NO.	OWNER	SHEET NO.	OWNERS BOOK	RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE		TYPE FUND	REMARKS	AS ACQUIRED	
												LEFT	RIGHT			BOOK	PAGE
6SH	RIEDEL FEED & GRAIN INC.	10,11	304	15121	G22910840000 006000	29.999	1.206	0.102	0.000	0.102			28.691				
					G22911720000 001000	1.481	.055	0.000	0.000	0.000			1.426				
					Total	31.480	1.261	0.102	0.000	0.102			30.117				
7SH	GREGORY AM & JUDITH E. SMITH	10,11	313	444	G22910840000 004000	57.183	1.206	0.115	0.000	0.115			55.862				
					G22911720000 002000	0.269	0.056	0.000	0.000	0.000			0.213				
					Total	57.452	1.262	0.115	0.000	0.115			56.075				

FEDERAL PROJECT NO. 86136
 PID NO. 86136
 STATE JOB NO.
 R/W DESIGNER D.E.
 R/W REVIEWER J.T.
SUMMARY OF ADDITIONAL RIGHT OF WAY
PRE-121-03.73

NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

NOTE: ALL TEMPORARY PARCELS TO BE OF 12 MONTH DURATION.

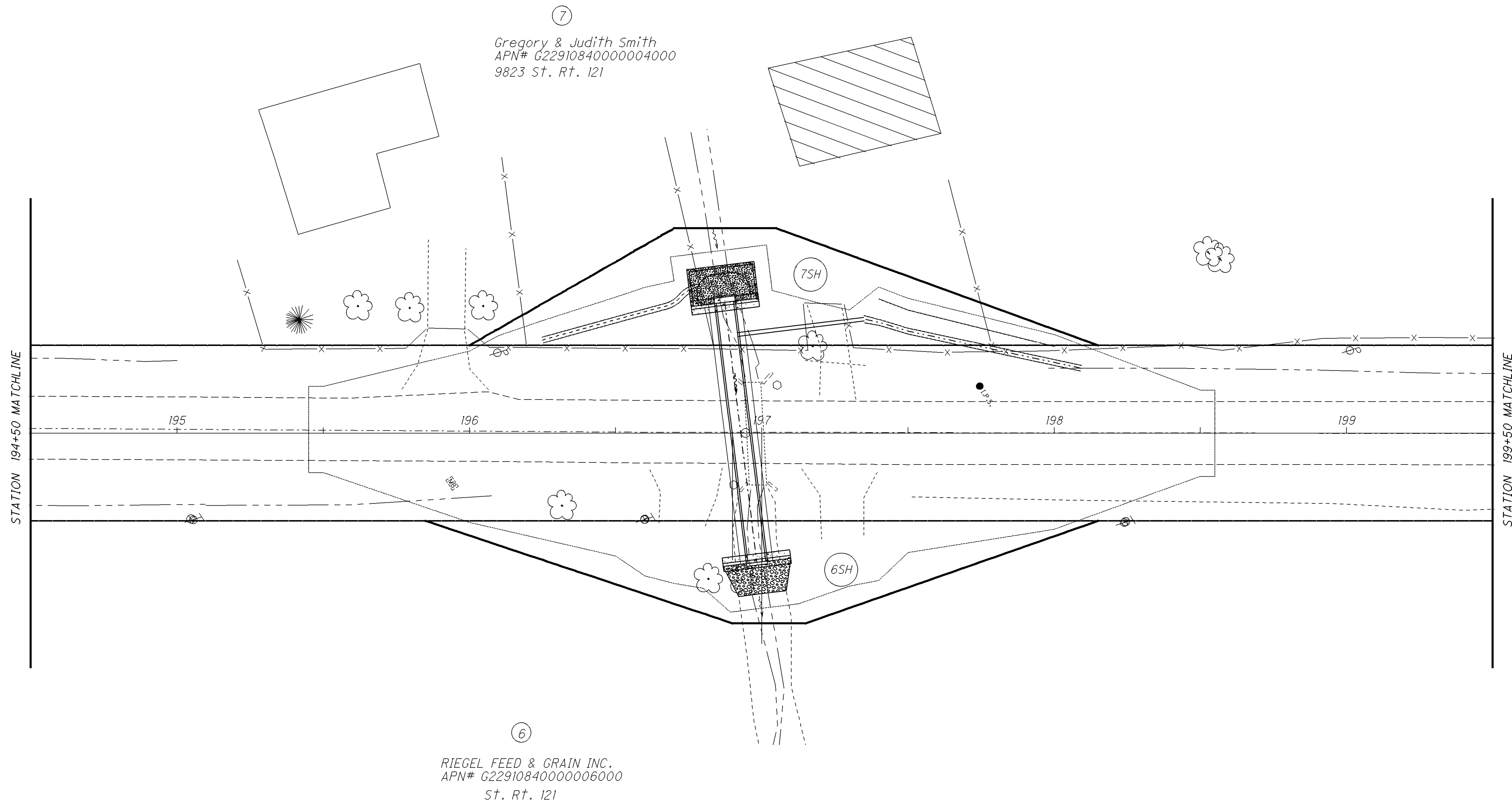
TYPES OF TITLE LEGEND:
 WL = FEE SIMPLE WITH LIMITATION OF ACCESS
 WD = WARRANTY DEED
 PRW = PROPERTY RIGHT FEE SIMPLE
 SH = STANDARD HIGHWAY EASEMENT
 LA = LIMITED ACCESS EASEMENT
 T = TEMPORARY EASEMENT
 CH = CHANNEL EASEMENT
 A = AERIAL EASEMENT
 SL = SLOPE EASEMENT
 PRE = PROPERTY RIGHT EASEMENT

GRANTEE:
 ALL RIGHT OF WAY ACQUIRED IN THE NAME OF _____
 UNLESS OTHERWISE SHOWN.

REV. BY	DATE	DESCRIPTION
JCT	4/17/12	REVISED THE OWNER OF PARCEL 6.
FIELD REVIEW BY	DATE:	
OWNERSHIP VERIFIED BY	DATE:	
DATE COMPLETED		

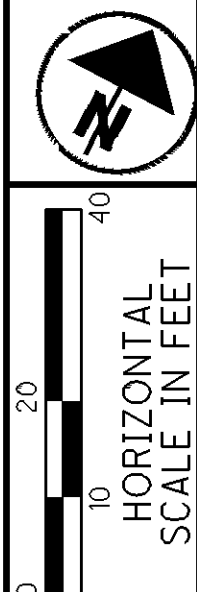
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PRE-CULVERTS FY-2014
SECTION 8 & 17 TOWN 9N RANGE 1W
JEFFERSON TOWNSHIP
PREBLE COUNTY, OHIO



⑦
Gregory & Judith Smith
APN# G2291084000004000
9823 St. Rt. 121

⑥
RIEGEL FEED & GRAIN INC.
APN# G2291084000006000
St. Rt. 121



PID NO. **86136**
R/W DESIGNER D.E.
R/W REVIEWER J.T.

RIGHT OF WAY PLAN
STA. 194+50 to 199+50

PRE-121-3.73

REV. BY	DATE	DESCRIPTION
JCT	4/17/12	REVISED THE OWNER OF PARCEL 6.
DATE COMPLETED		

10/26
56
72

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PRE-CULVERTS-FY-2014

SECTION 4, T9, R1
JEFFERSON TOWNSHIP
PREBLE COUNTY, OHIO

SETTING OF ALL MONUMENTS SHALL BE PERFORMED BY A SURVEYOR REGISTERED IN THE STATE OF OHIO. THE MONUMENT ASSEMBLIES AND REFERENCE MONUMENTS WILL BE INSTALLED BY THE CONTRACTOR AT THE TIME OF CONSTRUCTION.

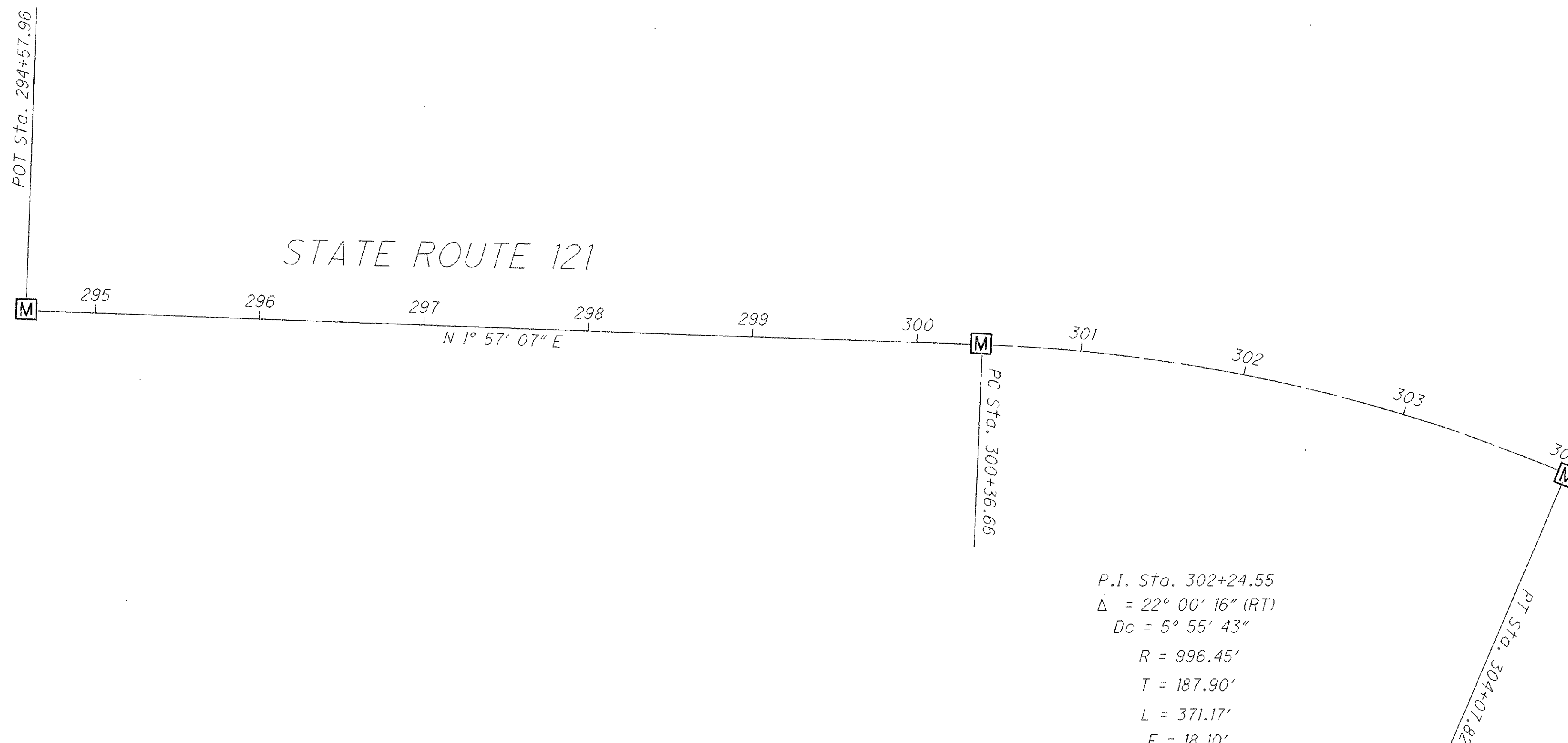
CHANGES OR ALTERATIONS TO THE LOCATION OF ANY MONUMENTS SHOWN IN THIS TABLE, REQUIRE PRIOR APPROVAL FROM THE DISTRICT REAL ESTATE ADMINISTRATOR OF THE OHIO DEPARTMENT OF TRANSPORTATION. IN THE EVENT THAT CHANGES OR ALTERATIONS ARE APPROVED, A REVISED CENTERLINE PLAT WITH THE NEW LOCATIONS SHALL BE RECORDED IN THE APPLICABLE COUNTY RECORDS AND THE OHIO DEPARTMENT OF TRANSPORTATION. SPECIFICATIONS FOR MONUMENT ASSEMBLIES, REFERENCE MONUMENTS AND RIGHT OF WAY MONUMENTS ARE SHOWN ON STANDARD CONSTRUCTION DRAWING RM-1.1.

MONUMENT TABLE							
E of 121		PROJECT COORDINATES SEE SURVEY CERTIFICATION		MONUMENTS TO BE SET DURING CONSTRUCTION		R/W MON. EXPECTED TO BE DISTURBED	
STATION	OFFSET	NORTH (Y)	EAST (X)	MON. ASSY.	REF. MON.	R/W MON.	DESCRIPTION
294+57.96	℄	704189.575	1332041.906	1			
300+36.66	℄	704767.934	1332061.615	1			
304+07.82	℄	705128.035	1332141.655	1			
TOTAL CARRIED TO GENERAL SUMMARY SHEET				3			

Scale Factor: 0.99993199

MONUMENT LEGEND

- ℄ EXISTING R/W MONUMENT BOX
- ▣ PROPOSED R/W MONUMENT BOX
- ⊙ EXISTING CONCRETE MONUMENT
- PROPOSED CONCRETE MONUMENT
- ⚡ RAILROAD SPIKE FOUND
- ⚡ RAILROAD SPIKE SET
- ⊙ I.P.F. IRON PIN FOUND
- ⊙ I.P.F. IRON PIN FOUND W/ ID CAP
- I.P.S. IRON PIN SET W/ ID CAP
- ⊙ I.P.F. IRON PIPE FOUND
- ⊙ I.P.S. IRON PIPE SET
- ⊙ P.K.F. P.K. NAIL FOUND
- P.K.S. P.K. NAIL SET

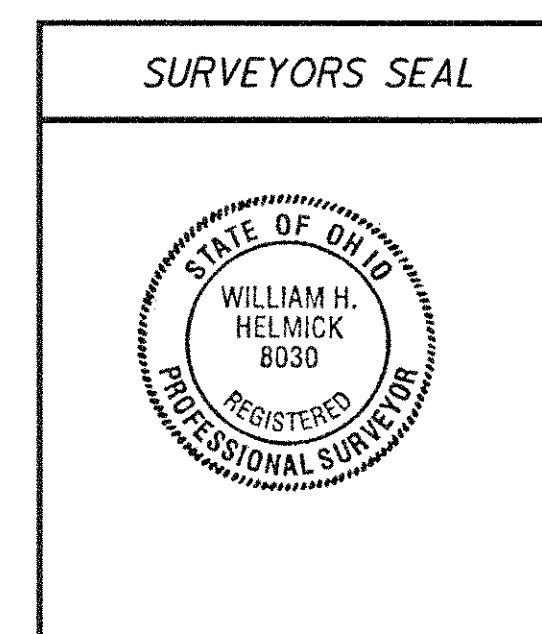


P.I. Sta. 302+24.55
 $\Delta = 22^\circ 00' 16''$ (RT)
 $D_c = 5^\circ 55' 43''$
 $R = 996.45'$
 $T = 187.90'$
 $L = 371.17'$
 $E = 18.10'$
 $C = 368.89'$
 $C.B. = N 12^\circ 31' 53'' E$

I, William Helmick P. S. No.8030 have conducted a survey of the existing conditions for the Ohio Department of Transportation on May 2010. The results of that survey are contained herein. As a part of this project I have reestablished the locations of the existing property lines and centerline of existing Right of Way for property takes contained herein.
 All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "A Minimum Standards for Boundary Surveys in the State of Ohio" unless noted. The words I and my as used herein are to mean either myself or someone working under my direct supervision.

William H. Helmick
 William Helmick, Professional Land Surveyor No. 8030

1/24/2012
 Date:



RECEIVED _____, 20____
 RECORDED _____, 20____
 BOOK _____ PAGE _____
 COUNTY RECORDER

REV. BY	DATE	DESCRIPTION

N

0 50 100
HORIZONTAL SCALE IN FEET

PID NO. **86136**

R/W DESIGNER D.E. J.T.
R/W REVIEWER

CENTERLINE PLAT

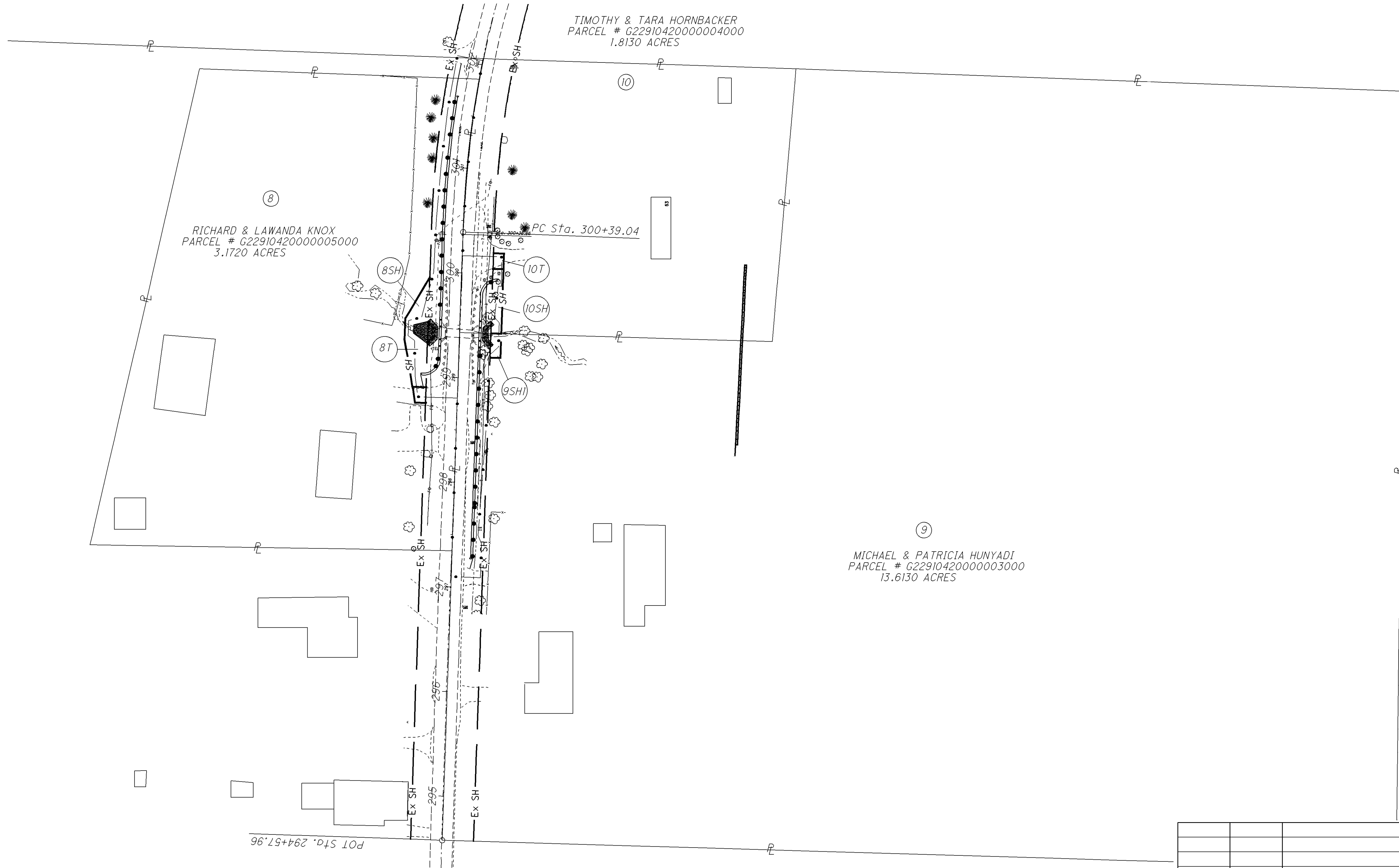
PRE-121-5.67

12 / 26

58
72

I:\projects\PRE\WIDE\PID86136\RW\Plans\PRE-121-5.67\86136RC5.67.dgn 25-JAN-2012 3:34PM jthompsf

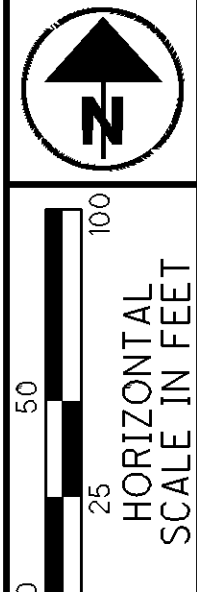
PRE-CULVERTS-FY2014
SECTION 4, TOWNSHIP 9 NORTH RANGE 1
JEFFERSON TOWNSHIP
PREBLE COUNTY, OHIO



TIMOTHY & TARA HORNBACKER
PARCEL # G2291042000004000
1.8130 ACRES

RICHARD & LAWANDA KNOX
PARCEL # G2291042000005000
3.1720 ACRES

MICHAEL & PATRICIA HUNYADI
PARCEL # G2291042000003000
13.6130 ACRES



PID NO. **86136**
R/W DESIGNER D.E.
R/W REVIEWER J.T.

PROPERTY MAP

PRE-121-5.67

13 / 26

59
72

REV. BY	DATE	DESCRIPTION
JCT	4/17/12	ELIMINATED PARCELS 9T & 9SH2

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TOTAL NUMBER OF :

3 OWNERSHIPS TOTAL TAKES
 7 PARCELS OWNERSHIPS W/ STRUCTURES INVOLVED

NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE

NET TAKE = GROSS TAKE - PRO IN TAKE

ALL AREAS IN

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD		AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE		TYPE FUND	REMARKS	AS ACQUIRED	
			BOOK	PAGE								LEFT	RIGHT			BOOK	PAGE
8SH	RICHARD AND LAWANDA KNOX	14,15	307	577	G2291042000 0005000	3.172	0.3107	0.0383	0.000	0.0383		2.8233					
8T	" "	14,15						0.0040	0.000								
9SH1	MICHAEL & PATRICIA HUNYADI	14,15	407	312	G2291042000 0003000	13.6130	0.3341	0.0053	0.000	0.0053							
							Total	0.0053	0.000	0.0053		13.2736					
10SH	TIMOTHY & TARA HORNBACKER	14,15	404	542	G2291042000 0004000	1.8130	0.1852	0.0142	0.000	0.0142		1.6136					
10T	" "	14,15						0.0034	0.000								

FEDERAL PROJECT NO. 86136
 PID NO. 86136
 STATE JOB NO.
 R/W DESIGNER D.E.
 R/W REVIEWER J.T.
SUMMARY OF ADDITIONAL RIGHT OF WAY
PRE-121-5.67

+ DENOTES REMOVAL ITEMS
 SEE CORRESPONDING RIGHT
 OF WAY PLAN SHEET FOR
 DESCRIPTION

(c) = CALCULATED AREA

* DENOTES RIGHT OF WAY ENCROACHMENT

GRANTEE:
 ALL RIGHT OF WAY ACQUIRED IN THE NAME OF _____
 UNLESS OTHERWISE SHOWN.

NOTE: ALL TEMPORARY PARCELS TO
 BE OF 12 MONTH DURATION.

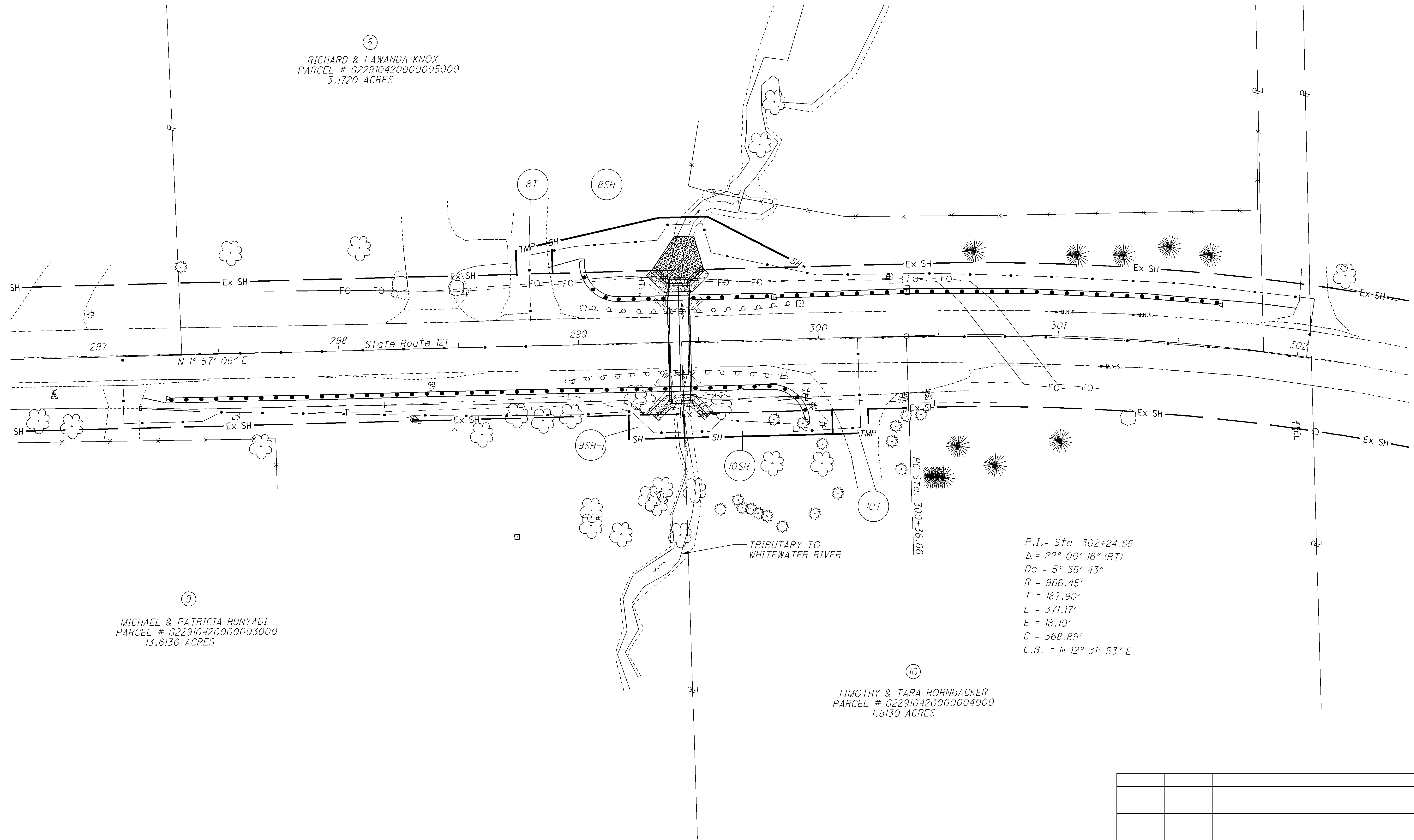
NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY
 EASEMENTS TO BE USED FOR STORAGE OF
 MATERIAL OR EQUIPMENT BY THE CONTRACTOR
 UNLESS NOTED OTHERWISE.

JCT	4/17/12	ELIMINATED PARCELS 9T & 9SH2
REV. BY	DATE	DESCRIPTION
FIELD REVIEW BY	DATE:	
OWNERSHIP VERIFIED BY	DATE:	
DATE COMPLETED		

14 / 26
 60
 72

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PRE-CULVERTS-FY 2014
SECTION 4, T9, R1
JEFFERSON TOWNSHIP
PREBLEC COUNTY, OHIO

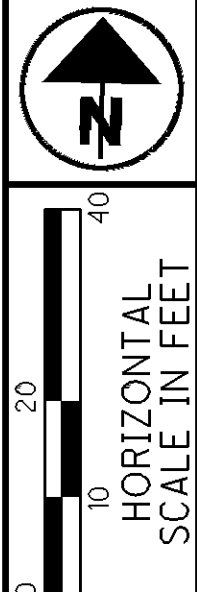


⑧
RICHARD & LAWANDA KNOX
PARCEL # G22910420000005000
3.1720 ACRES

⑨
MICHAEL & PATRICIA HUNYADI
PARCEL # G22910420000003000
13.6130 ACRES

⑩
TIMOTHY & TARA HORNBACKER
PARCEL # G22910420000004000
1.8130 ACRES

P.I. = Sta. 302+24.55
Δ = 22° 00' 16" (RT)
Dc = 5° 55' 43"
R = 966.45'
T = 187.90'
L = 371.17'
E = 18.10'
C = 368.89'
C.B. = N 12° 31' 53" E



PID NO. **86136**
R/W DESIGNER D.E.
R/W REVIEWER J.T.

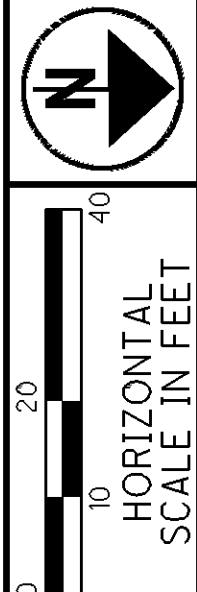
RIGHT OF WAY PLAN
STA. 297+00 TO 302+00

PRE-121-5.67

REV. BY	DATE	DESCRIPTION
JCT	4/17/12	REMOVED PARCELS 9T & 9SH-2
DATE COMPLETED		

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PRE-CULVERTS - FY 2014
SECTION 4, T9, R1
JEFFERSON TOWNSHIP
PREBLE COUNTY, OHIO



PID NO. **86136**
R/W DESIGNER D.E. J.T.
R/W REVIEWER J.T.

RIGHT OF WAY BOUNDARY SHEET
STA. 297+00 TO 302+00

PRE-121-5.67

16 / 26
62
72

PARCEL 8T
23 N 88°02'54"W 10.00'
24 N 9°21'29"W 15.30'
25 S 1°57'07"W 15.00'

8
RICHARD & LAWANDA KNOX
PARCEL # G22910420000005000
3.1720 ACRES

PARCEL 8SH
18 N 88°02'54"W 13.00'
19 N 9°21'29"W 45.89'
20 N 1°57'07"E 20.00'
21 N 30°45'45"E 45.65'
22 S 1°57'07"W 105.00'

9
MICHAEL & PATRICIA HUNYADI
PARCEL # G22910420000003000
13.6130 ACRES

10
TIMOTHY & TARA HORNBACKER
PARCEL # G22910420000004000
1.8130 ACRES

PARCEL 9SH1
8 S 88°02'54"E 10.00'
9 N 1°57'07"E 23.16'
10 S 1°57'07"W 23.11'

PARCEL 10SH
5 S 1°57'07"W 61.89'
6 S 88°20'05"E 10.00'
7 N 1°57'07"E 61.84'

PARCEL 10T
1 S 88°02'54"E 10.00'
2 N 1°57'07"E 15.00'
3 N 88°02'54"W 10.00'
4 S 1°57'07"W 15.00'

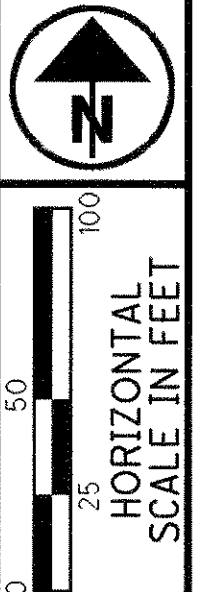
CENTERLINE
P.I. = Sta. 302+24.55
 $\Delta = 22^\circ 00' 16''$ (RT)
 $D_c = 5^\circ 55' 43''$
 $R = 966.45'$
 $T = 187.90'$
 $L = 371.17'$
 $E = 18.10'$
 $C = 368.89'$
 $C.B. = N 12^\circ 31' 53'' E$

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REV. BY	DATE	DESCRIPTION
JCT	4/17/12	REMOVED PARCEL 9T & 9SH-2

PRE-CULVERTS-FY-2014

SECTION 24, T7, R1
DIXON TOWNSHIP
PREBLE COUNTY, OHIO



SETTING OF ALL MONUMENTS SHALL BE PERFORMED BY A SURVEYOR REGISTERED IN THE STATE OF OHIO. THE MONUMENT ASSEMBLIES AND REFERENCE MONUMENTS WILL BE INSTALLED BY THE CONTRACTOR AT THE TIME OF CONSTRUCTION. THE IRON PIN AND CAP (WHEN REQUIRED) ARE TO BE INSTALLED BY THE CONTRACTOR'S SURVEYOR.

CHANGES OR ALTERATIONS TO THE LOCATION OF ANY MONUMENTS SHOWN IN THIS TABLE, REQUIRE PRIOR APPROVAL FROM THE DISTRICT REAL ESTATE ADMINISTRATOR OF THE OHIO DEPARTMENT OF TRANSPORTATION. IN THE EVENT THAT CHANGES OR ALTERATIONS ARE APPROVED, A REVISED CENTERLINE PLAT WITH THE NEW LOCATIONS SHALL BE RECORDED IN THE APPLICABLE COUNTY RECORDS AND THE OHIO DEPARTMENT OF TRANSPORTATION. SPECIFICATIONS FOR MONUMENT ASSEMBLIES, REFERENCE MONUMENTS AND RIGHT OF WAY MONUMENTS ARE SHOWN ON STANDARD CONSTRUCTION DRAWING RM-1.1.

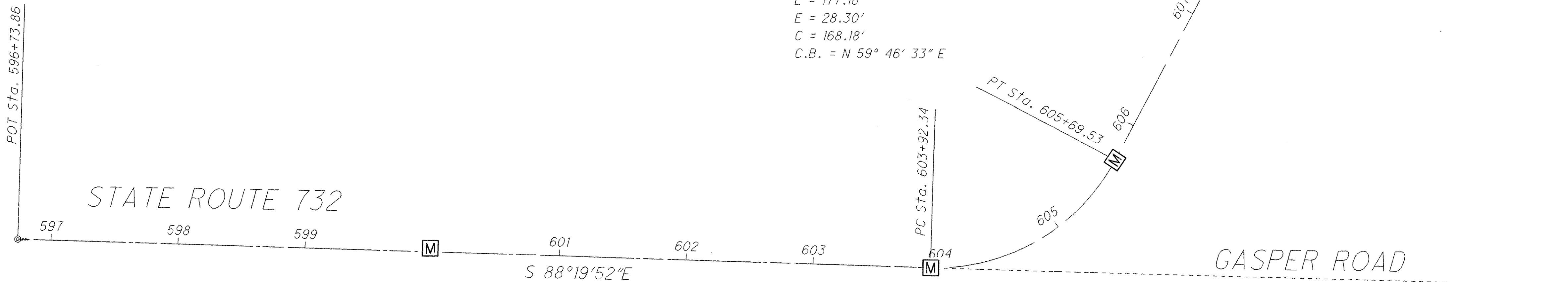
PID NO. **86136**
R/W DESIGNER D.E.
R/W REVIEWER J.T.

MONUMENT TABLE							
Sheet of <u>732</u>		PROJECT GRID COORDINATES SEE SURVEY CERTIFICATION		MONUMENTS TO BE SET DURING CONSTRUCTION		R/W MON. EXPECTED TO BE DISTURBED	
STATION	OFFSET	NORTH (Y)	EAST (X)	MON. ASSY.	REF. MON.	R/W MON.	DESCRIPTION
600+00	Q	623925.774	1346132.973	1			
603+92.34	Q	623914.346	1346525.150	1			
605+69.53	Q	623999.003	1346670.464	1			
TOTAL CARRIED TO GENERAL SUMMARY SHEET				3			

Scale Factor: 0.99990362

MONUMENT LEGEND

- ☐ EXISTING R/W MONUMENT BOX
- ▣ PROPOSED R/W MONUMENT BOX
- ⊙ EXISTING CONCRETE MONUMENT
- PROPOSED CONCRETE MONUMENT
- ⚡ RAILROAD SPIKE FOUND
- ⚡ RAILROAD SPIKE SET
- I.P.F. IRON PIN FOUND
- ⊙ I.P.F. IRON PIN FOUND W/ ID CAP
- I.P.S. IRON PIN SET W/ ID CAP
- ⊙ I.P.F. IRON PIPE FOUND
- ⊙ I.P.S. IRON PIPE SET
- ⊙ P.K.F. P.K. NAIL FOUND
- P.K.S. P.K. NAIL SET



P.I. Sta. 604+91.38
 $\Delta = 63^\circ 47' 11''$ (LT)
 $D_c = 36^\circ 00' 00''$
 $R = 159.15'$
 $T = 99.04'$
 $L = 177.18'$
 $E = 28.30'$
 $C = 168.18'$
 $C.B. = N 59^\circ 46' 33'' E$

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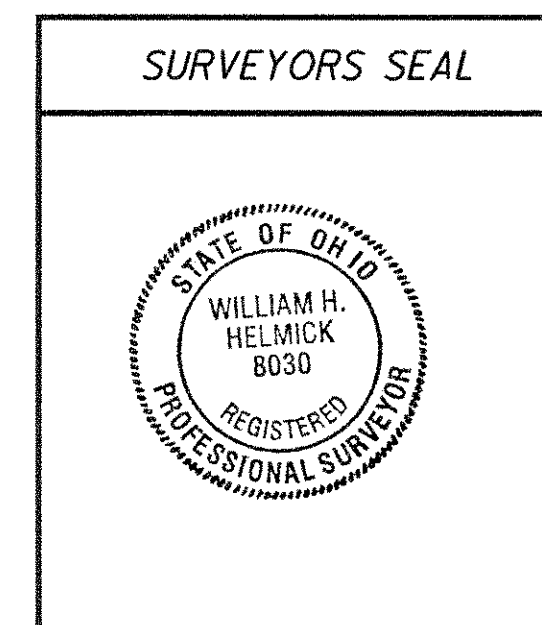
CENTERLINE PLAT

PRE-732-11.42

I, William Helmick P. S. No. 8030 have conducted a survey of the existing conditions for the Ohio Department of Transportation on May 2010. The results of that survey are contained herein. As a part of this project I have reestablished the locations of the existing property lines and centerline of existing Right of Way for property takes contained herein. All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "A Minimum Standards for Boundary Surveys in the State of Ohio" unless noted. The words I and my as used herein are to mean either myself or someone working under my direct supervision.

William H. Helmick
 William Helmick, Professional Land Surveyor No. 8030

1/26/2012
 Date:



RECEIVED _____, 20____
 RECORDED _____, 20____
 BOOK _____ PAGE _____
 COUNTY RECORDER

REV. BY	DATE	DESCRIPTION

17 / 26
 63
 72

TOTAL NUMBER OF :

3 OWNERSHIPS TOTAL TAKES
 3 PARCELS OWNERSHIPS W/ STRUCTURES INVOLVED

NET TAKE = GROSS TAKE - PRO IN TAKE

NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE

ALL AREAS IN

PARCEL NO.	OWNER	SHEET NO.	OWNERS BOOK	RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE		TYPE FUND	REMARKS	AS ACQUIRED	
												LEFT	RIGHT			BOOK	PAGE
11SH	Geraldine R. Schick	20,21	O.R.268	PG.857	A017124200000 13000	18.531	0.959	0.1057	0.00	0.1057		17.466					
12SH	Sugar Valley United Methodist Church	20,21	298	1221	A017124400000 02000	4.070	0.2987	0.1281	0.00	0.1281			3.643				
13SH	Barnefs Inc.	20,21	389	719	A017124400000 01000	115.46	0.6029	0.0589	0.00	0.0589			114.798				
					A017124400000 08000	10.00	0.3030	0.000	0.00	0.00			10.00				
					Total	125.46	0.9059	0.0589	0.00	0.0589			115.798				

FEDERAL PROJECT NO. 86136
 PID NO. 86136
 STATE JOB NO.
 R/W DESIGNER D.E.
 R/W REVIEWER J.T.
SUMMARY OF ADDITIONAL RIGHT OF WAY
PRE-732-11.42

NOTE: ALL TEMPORARY PARCELS TO BE OF 12 MONTH DURATION.

GRANTEE:
 ALL RIGHT OF WAY ACQUIRED IN THE NAME OF _____
 UNLESS OTHERWISE SHOWN.

NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

* DENOTES RIGHT OF WAY ENCROACHMENT

(c) = CALCULATED AREA

REV. BY	DATE	DESCRIPTION
JCT	4/17/12	REVISED PARCEL 12 DEED BOOK AND PAGE.
FIELD REVIEW BY	DATE:	
OWNERSHIP VERIFIED BY	DATE:	
DATE COMPLETED		

19/26
 65
 72

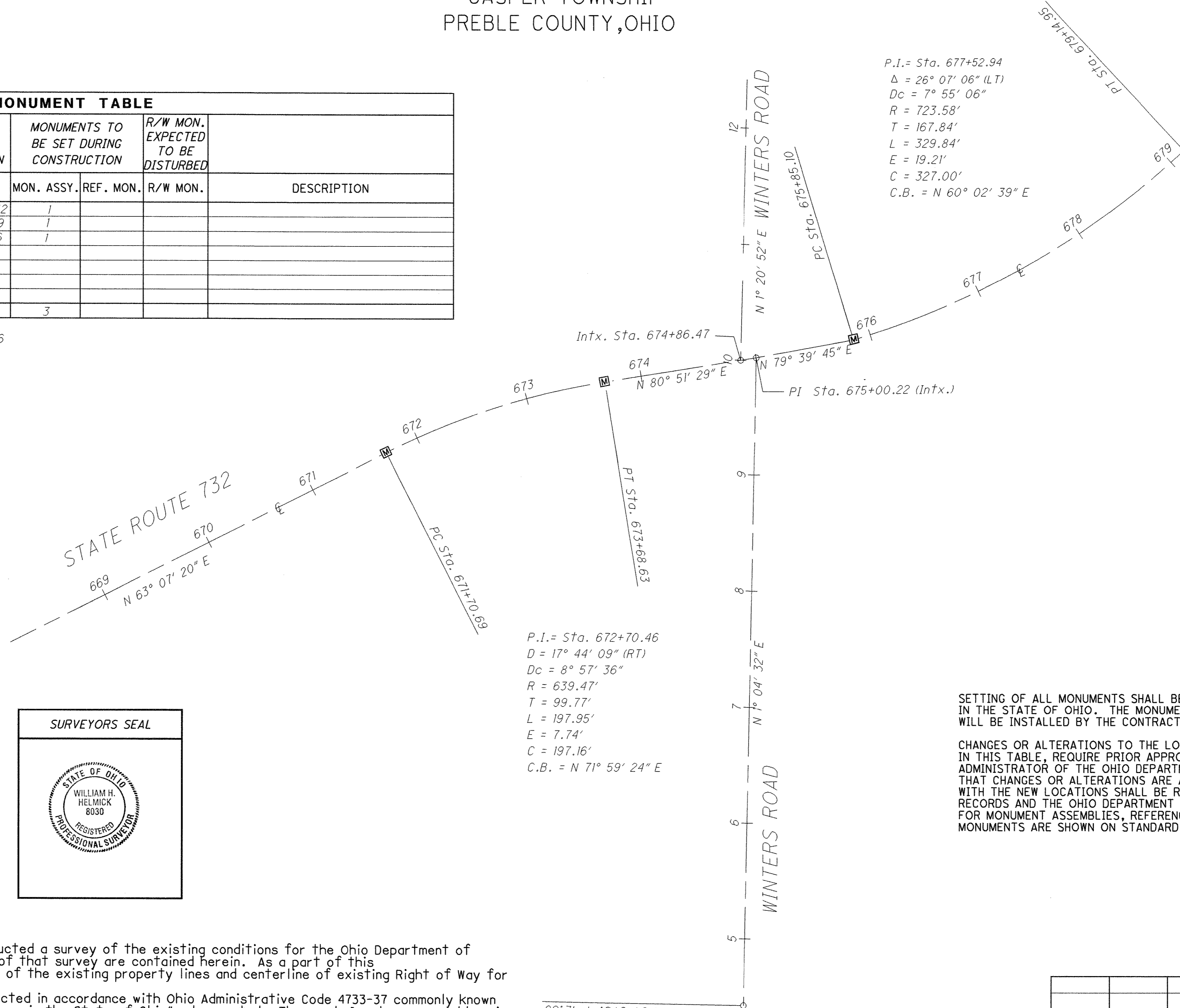
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PRE-CULVERTS FY14

SECTION 18,R2E, T7N
GASPER TOWNSHIP
PREBLE COUNTY, OHIO

MONUMENT TABLE							
Sheet of 732		PROJECT GRID COORDINATES SEE SURVEY CERTIFICATION		MONUMENTS TO BE SET DURING CONSTRUCTION		R/W MON. EXPECTED TO BE DISTURBED	
STATION	OFFSET	NORTH (Y)	EAST (X)	MON. ASSY.	REF. MON.	R/W MON.	DESCRIPTION
671+70.69	CL	628618.995	1350976.142	1			
673+68.63	CL	628679.953	1351163.639	1			
675+85.10	CL	628716.091	1351377.06	1			
TOTAL CARRIED TO GENERAL SUMMARY SHEET				3			

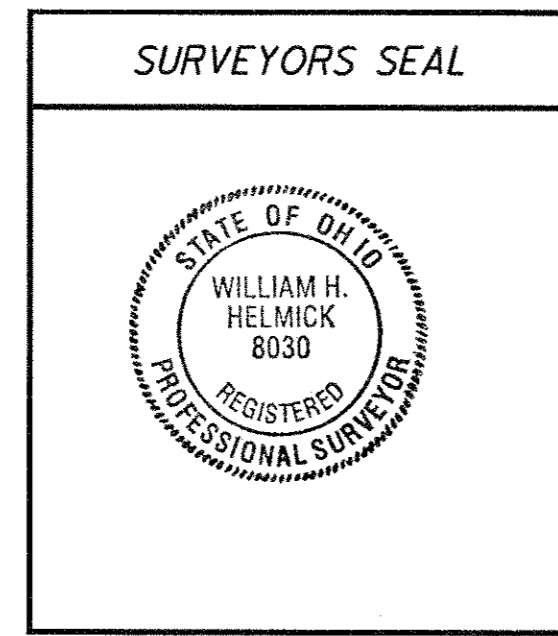
Scale Factor: 0.999906456



SETTING OF ALL MONUMENTS SHALL BE PERFORMED BY A SURVEYOR REGISTERED IN THE STATE OF OHIO. THE MONUMENT ASSEMBLIES AND REFERENCE MONUMENTS WILL BE INSTALLED BY THE CONTRACTOR AT THE TIME OF CONSTRUCTION.

CHANGES OR ALTERATIONS TO THE LOCATION OF ANY MONUMENTS SHOWN IN THIS TABLE, REQUIRE PRIOR APPROVAL FROM THE DISTRICT REAL ESTATE ADMINISTRATOR OF THE OHIO DEPARTMENT OF TRANSPORTATION. IN THE EVENT THAT CHANGES OR ALTERATIONS ARE APPROVED, A REVISED CENTERLINE PLAT WITH THE NEW LOCATIONS SHALL BE RECORDED IN THE APPLICABLE COUNTY RECORDS AND THE OHIO DEPARTMENT OF TRANSPORTATION. SPECIFICATIONS FOR MONUMENT ASSEMBLIES, REFERENCE MONUMENTS AND RIGHT OF WAY MONUMENTS ARE SHOWN ON STANDARD CONSTRUCTION DRAWING RM-1.1.

RECEIVED _____, 20____
RECORDED _____, 20____
BOOK _____ PAGE _____
COUNTY RECORDER



I, William Helmick P. S. No.8030 have conducted a survey of the existing conditions for the Ohio Department of Transportation on May 2010. The results of that survey are contained herein. As a part of this project I have reestablished the locations of the existing property lines and centerline of existing Right of Way for property takes contained herein.
All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "A Minimum Standards for Boundary Surveys in the State of Ohio" unless noted. The words I and my as used herein are to mean either myself or someone working under my direct supervision.

William Helmick
William Helmick, Professional Land Surveyor No. 8030

1/24/2012
Date:

REV. BY	DATE	DESCRIPTION

CENTERLINE PLAT

PRE-732-12.76

22 / 26

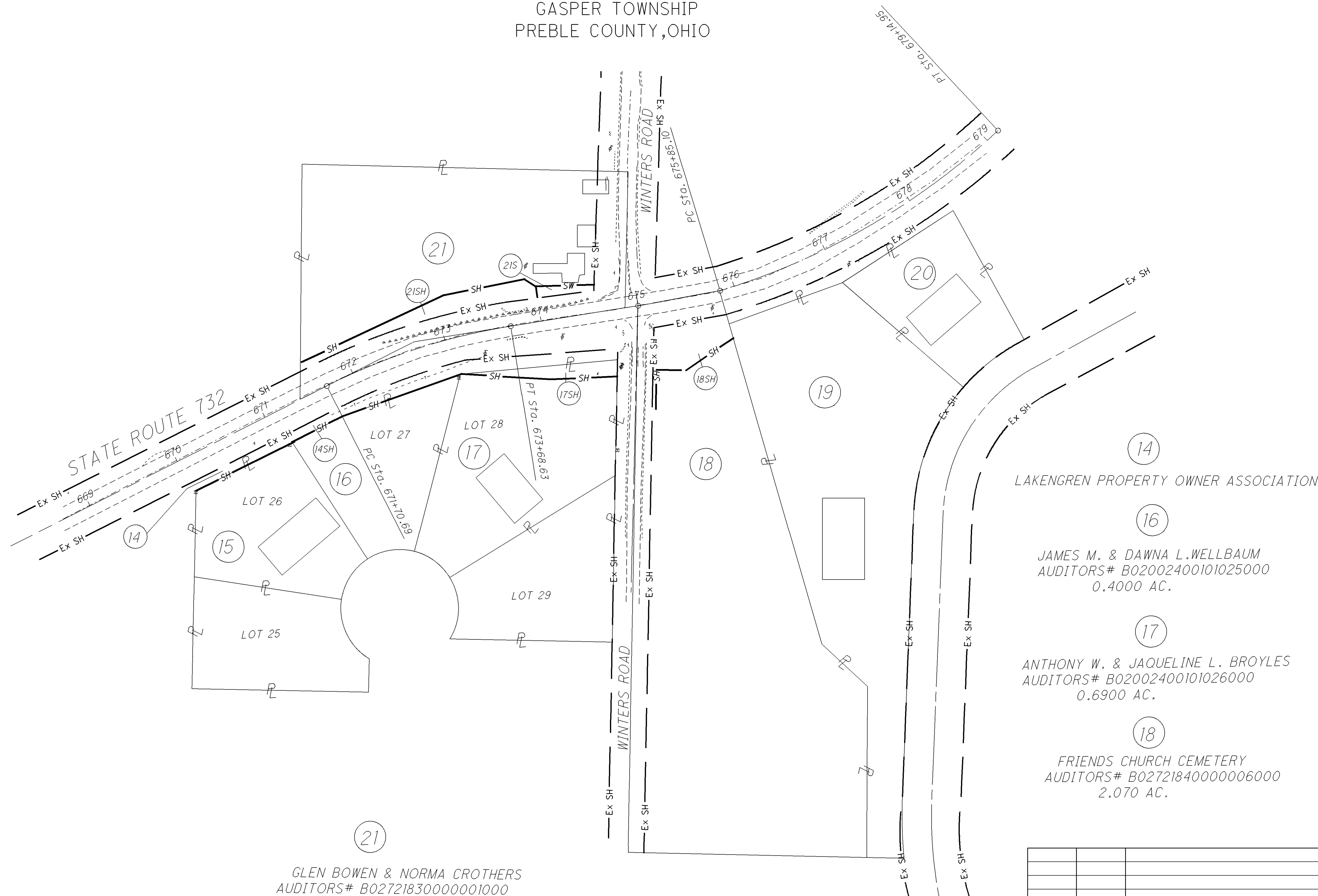
68
72

PID NO. 86136

R/W DESIGNER D.E. J.T.
R/W REVIEWER J.T.

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PRE-CULVERTS FY-2014
SECTION 18, R2E, T7N
GASPER TOWNSHIP
PREBLE COUNTY, OHIO



14
LAKENGREN PROPERTY OWNER ASSOCIATION


16
JAMES M. & DAWNA L. WELLBAUM
AUDITORS# B02002400101025000
0.4000 AC.

17
ANTHONY W. & JAQUELINE L. BROYLES
AUDITORS# B02002400101026000
0.6900 AC.

18
FRIENDS CHURCH CEMETERY
AUDITORS# B02721840000006000
2.070 AC.

21
GLEN BOWEN & NORMA CROTHERS
AUDITORS# B02721830000001000
1.337 AC.

REV. BY	DATE	DESCRIPTION
JCT	4/17/12	REVISE OWNERS OF PARCELS 14 & 21
DATE COMPLETED		



PID NO. **86136**


R/W DESIGNER D.E. J.T.
R/W REVIEWER J.T.

PROPERTY MAP

PRE-732-12.76

23 / 26

69
72



HORIZONTAL SCALE IN FEET

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TOTAL NUMBER OF :

4 OWNERSHIPS TOTAL TAKES
 5 PARCELS OWNERSHIPS W/ STRUCTURES INVOLVED

(c) = CALCULATED AREA

NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE
 NET TAKE = GROSS TAKE - PRO IN TAKE

ALL AREAS IN

PARCEL NO.	OWNER	SHEET NO.	OWNERS BOOK	RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE		TYPE FUND	REMARKS	AS ACQUIRED	
												LEFT	RIGHT			BOOK	PAGE
14SH	LAKENGREN PROPERTY OWNERS ASSC.	25,26	D.B.285	531	N/A	0.1	0.00	0.121	0.00	0.121			N/A		BUFFER ZONE #7		
15	JAMES M. & DAWNA L. WELLBAUM	25,26	D.B.410	212	B02002400101 024000										NO RIGHT OF WAY REQUIRED		
16	JAMES M. & DAWNA L. WELLBAUM	25,26	D.B.410	212	B02002400101 025000										NO RIGHT OF WAY REQUIRED		
17SH	ANTHONY W. & JACUELINE BROYLES	25,26	O.R.239	171	B02002400101 026000	0.69	0.00	0.039	0.00	0.039			0.651				
18SH	FRIENDS CHURCH CEMETARY	25,26	D.B.45	230	B02721840 000006000	2.071	0.254	0.078	0.00	0.078			1.739				
19	NO RIGHT OF WAY REQUIRED	25,26													NO RIGHT OF WAY REQUIRED		
20	NO RIGHT OF WAY REQUIRED	25,26													NO RIGHT OF WAY REQUIRED		
21SH	GLEN BOWEN & NORMA CROTHERS	25,26	307	1243	B02731830000 001000	1.337	0.267	0.082	0.00	0.082							
21S	" "	25,26	" "	" "	" "	" "	0.00	0.010	0.00	0.010							
					TOTAL	1.337	0.267	0.092	0.00	0.092			0.978				

FEDERAL PROJECT NO. 86136
 PID NO. 86136
 STATE JOB NO.
 R/W DESIGNER D.E. J.T.
 R/W REVIEWER J.T.
SUMMARY OF ADDITIONAL RIGHT OF WAY
PRE-732-12.76

NOTE: ALL TEMPORARY PARCELS TO BE OF 12 MONTH DURATION.
 NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

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

GRANTEE:
 ALL RIGHT OF WAY ACQUIRED IN THE NAME OF
STATE OF OHIO
 UNLESS OTHERWISE SHOWN.

TYPES OF TITLE LEGEND:
 WL = FEE SIMPLE WITH LIMITATION OF ACCESS
 WD = WARRANTY DEED
 PRW = PROPERTY RIGHT FEE SIMPLE
 SH = STANDARD HIGHWAY EASEMENT
 LA = LIMITED ACCESS EASEMENT
 T = TEMPORARY EASEMENT
 CH = CHANNEL EASEMENT
 A = AERIAL EASEMENT
 SL = SLOPE EASEMENT
 PRE = PROPERTY RIGHT EASEMENT

REV. BY	DATE	DESCRIPTION
JVT	4/18/12	REVISIONS TO PARCEL 14 AND 21
FIELD REVIEW BY	DATE:	
OWNERSHIP VERIFIED BY	DATE:	
DATE COMPLETED		

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CENTERLINE CURVE 732
 P.I. = Sta. 672+70.46
 $\Delta = 17^\circ 44' 09''$ (RT)
 $Dc = 8^\circ 57' 36''$
 $R = 639.47'$
 $T = 99.77'$
 $L = 197.95'$
 $E = 7.74'$
 $C = 197.16'$
 C.B. = N 71° 59' 24" E

R/W CURVE (RT)
 $\Delta = 12^\circ 46' 45''$ (LT)
 $Dc = 9^\circ 19' 28''$
 $R = 614.47'$
 $T = 68.81'$
 $L = 137.05'$
 $E = 3.84'$
 $C = 136.77'$
 C.B. = N 69° 30' 43" E

R/W CURVE (LT)
 $\Delta = 17^\circ 44' 09''$ (LT)
 $Dc = 8^\circ 37' 22''$
 $R = 664.47'$
 $T = 103.67'$
 $L = 205.69'$
 $E = 8.04'$
 $C = 204.86'$
 C.B. = S 71° 59' 24" W

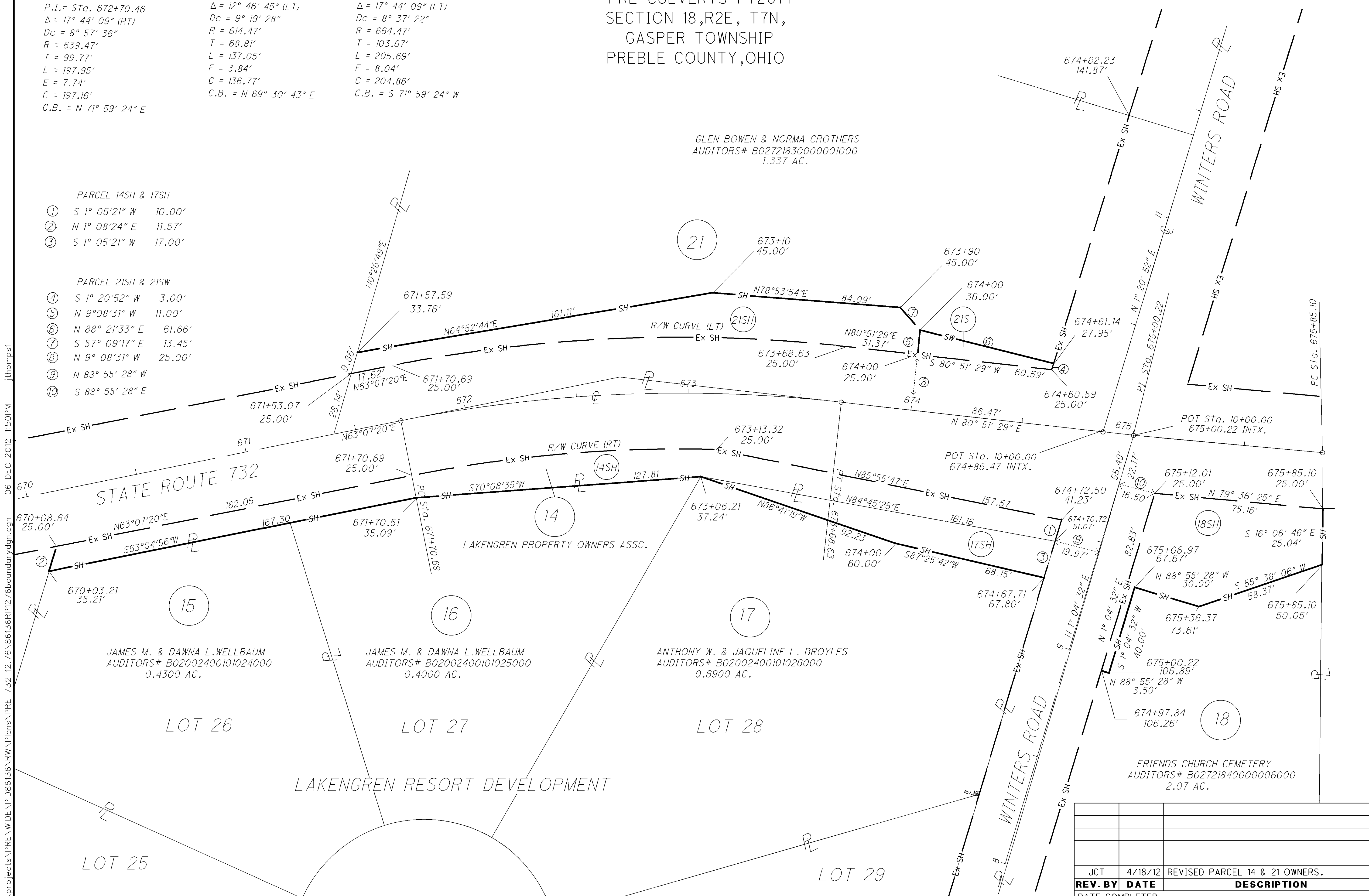
PRE-CULVERTS-FY2014
 SECTION 18,R2E, T7N,
 GASPER TOWNSHIP
 PREBLE COUNTY, OHIO


GLEN BOWEN & NORMA CROTHERS
 AUDITORS# B02721830000001000
 1.337 AC.

- PARCEL 14SH & 17SH
- ① S 1° 05' 21" W 10.00'
 - ② N 1° 08' 24" E 11.57'
 - ③ S 1° 05' 21" W 17.00'

- PARCEL 21SH & 21SW
- ④ S 1° 20' 52" W 3.00'
 - ⑤ N 9° 08' 31" W 11.00'
 - ⑥ N 88° 21' 33" E 61.66'
 - ⑦ S 57° 09' 17" E 13.45'
 - ⑧ N 9° 08' 31" W 25.00'
 - ⑨ N 88° 55' 28" W
 - ⑩ S 88° 55' 28" E

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HORIZONTAL SCALE IN FEET

0 10 20 40

PID NO. **86136**

R/W DESIGNER D.E. J.T.

R/W REVIEWER J.T.

RIGHT OF WAY PLAN

STATION 670+00 TO 675+85.10

PRE-732-12.76

26 / 26

REV. BY	DATE	DESCRIPTION
JCT	4/18/12	REVISED PARCEL 14 & 21 OWNERS.

DATE COMPLETED

PROJECT DESCRIPTION

REPLACE THREE CULVERTS ON SR-121 AND TWO CULVERTS ON SR-732 IN PREBLE COUNTY, OHIO. ALSO INCLUDES MINOR GRADING AND DRAINAGE IMPROVEMENTS.

HISTORIC RECORDS

HISTORIC DRAWINGS WERE PROVIDED BY DISTRICT 8 FOR TWO PROJECTS IN THE AREA PERFORMED IN 1980 AND 1996. THE BORINGS FOR THESE HISTORIC PROJECTS WERE USED FOR DETERMINING THE SCOPE AND DEPTH OF THE BORINGS.

GEOLOGY

THE SITES ARE LOCATED IN PREBLE COUNTY WHICH IS PART OF THE DISSECTED GLACIAL TILL PLAIN OF THE WISCONSIN AGE. GLACIAL TILL IS THE MOST EXTENSIVE MATERIAL IN THE COUNTY. ADDITIONALLY, DEPOSITS OF OUTWASH SAND AND GRAVEL WERE DEPOSITED DOWN IN STREAMS BY WATER. THE BEDROCK IN THE AREA IS ORDOVICIAN AND SILURIAN AGE LIMESTONE, DOLOMITE, AND SHALE.

RECONNAISSANCE

ON JANUARY 30, 2010 A SITE RECONNAISSANCE VISIT WAS MADE. THE SURROUNDING AREA AT THE 732-1142, 732-1276, AND 121-0246 SITES IS DESCRIBED AS RURAL/RESIDENTIAL. THE CREEK BANKS AT THESE LOCATIONS ARE TREE AND BRUSH COVERED AND GENTLY SLOPING. NO EVIDENCE OF SLOPE MOVEMENT WAS OBSERVED. THE SURROUNDING AREA AT THE REMAINING TWO SITES, 121-0373 AND 121-0567, IS RURAL/RESIDENTIAL. THE CREEK BANKS AT THESE LOCATIONS ARE GRASS COVERED WITH SMALL TREES AND BRUSH.

SUBSURFACE EXPLORATION

TWO TEST BORINGS AT EACH SITE WERE PERFORMED BETWEEN MARCH 25, 2010 AND APRIL 21, 2010. THE BORINGS WERE DRILLED USING AN ATV-MOUNTED ROTARY DRILLING RIG, USING 3/4 INCH I.D. HOLLOW STEM AUGERS TO ADVANCE THE HOLES THROUGH SOIL. DISTURBED SOIL SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE STANDARD PENETRATION TEST (AASHTO T206) AT 2.5 FOOT INTERVALS FOR THE SOIL PORTION OF THE SOIL BORINGS, WITH CONTINUOUS SAMPLING FOR SCOUR EVALUATION. THE HAMMER SYSTEM USED WAS CALIBRATED ON FEBRUARY 4, 2010, AND THE AVERAGE DRILL ROD ENERGY RATIO (ER) IS 67.1%. BEDROCK WAS NOT ENCOUNTERED IN THE TEST BORINGS.

EXPLORATION FINDINGS

GENERALLY, THE SOILS ENCOUNTERED AT THE THREE SITES ALONG SR-121 CONSISTED OF MORE GRANULAR SOILS WHILE THE SITES ALONG SR-732 WERE PREDOMINANTLY COHESIVE. THE SOILS AT THE SR-121 SITES TYPICALLY CONSISTED OF SANDY SILT, SILTY CLAY, COARSE AND FINE SAND, AND GRAVEL/ROCK FRAGMENTS WITH SAND. THE SOILS ENCOUNTERED AT THE SITES ALONG SR-732 GENERALLY CONSISTED OF SILT AND CLAY AND SANDY SILT. BEDROCK WAS NOT ENCOUNTERED WITHIN THE MAXIMUM DEPTH EXPLORED.

FREE WATER WAS OBSERVED IN A MAJORITY OF THE SOIL BORINGS. WATER WAS USED DURING DRILLING IN SEVERAL LOCATIONS, TO PREVENT GRANULAR SOILS FROM HEAVING IN THE AUGERS, THEREFORE, WATER LEVELS REPORTED DO NOT INDICATE THE LONG-TERM GROUNDWATER ELEVATION.

CONTINUOUS SPLIT-SPOON SOIL SAMPLING WAS PERFORMED IN EACH BORING FOR A 6-FOOT INTERVAL BELOW THE APPROXIMATE STREAM BED ELEVATION. D50 VALUES WHICH HAVE BEEN CALCULATED FOR THE SCOUR ANALYSIS ARE PRESENTED ON THIS PAGE.

SPECIFICATIONS

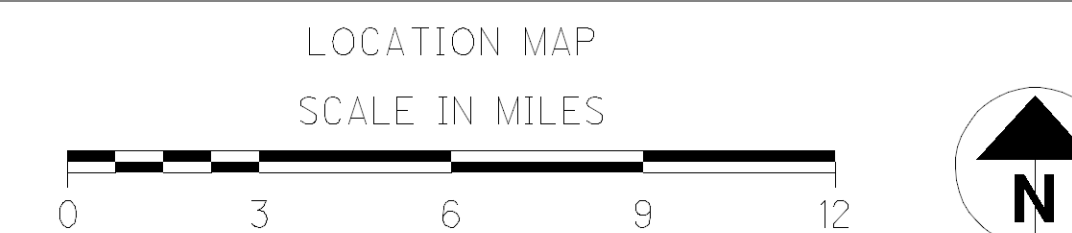
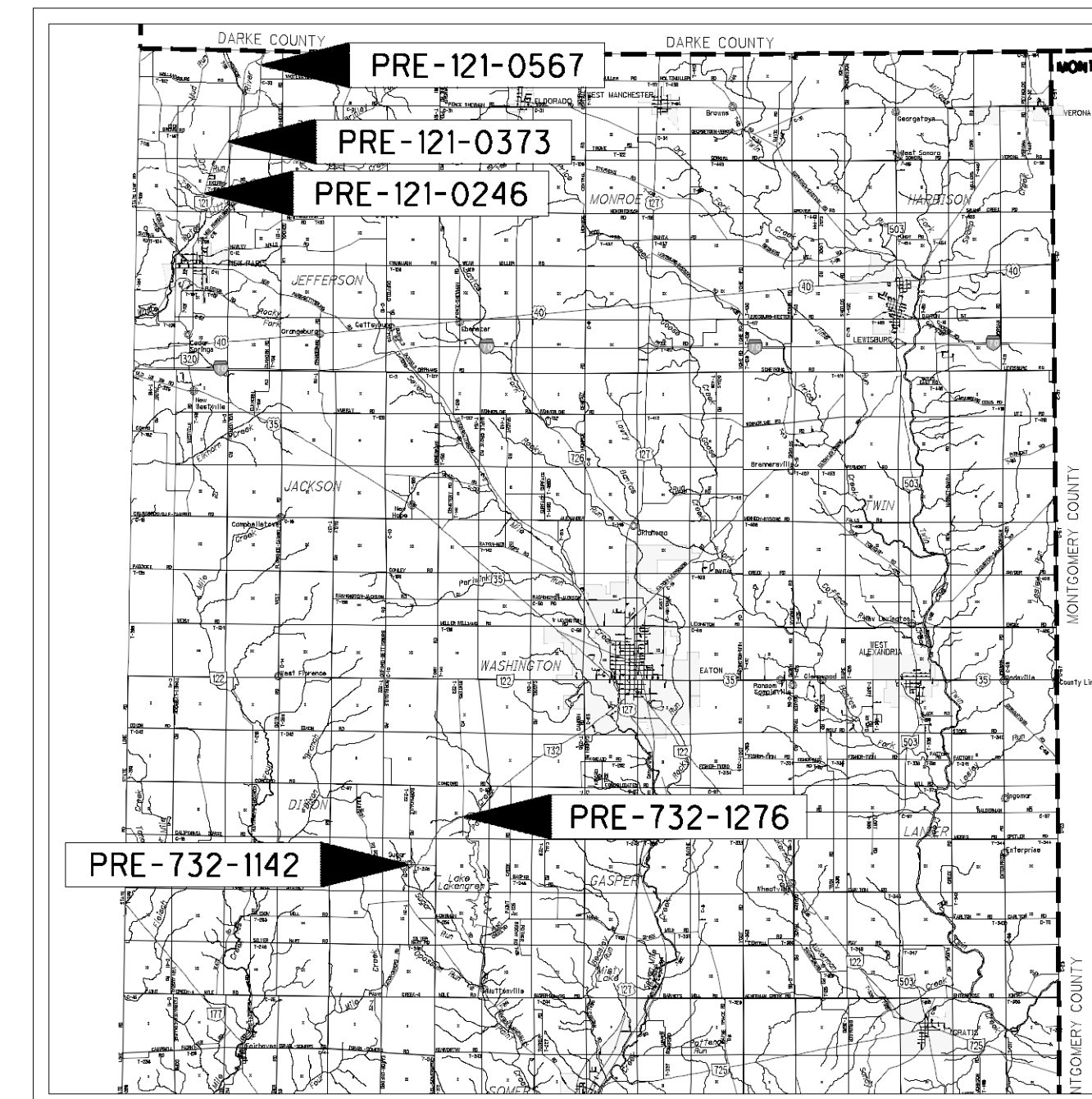
THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED OCTOBER 2009.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE EXPLORATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH./VISUAL
GRAVEL/STONE FRAGMENTS	A-1-a	0 17
GRAVEL/STONE FRAGMENTS W/SAND	A-1-b	2 16
GRAVEL/STONE FRAGMENTS W/SAND & SILT	A-2-4	3 5
FINE SAND	A-3	0 1
COARSE & FINE SAND	A-3a	2 10
SANDY SILT	A-4a	22 32
SILT & CLAY	A-6a	0 10
SILTY CLAY	A-6b	0 9
CLAY	A-7-6	1 1
	TOTAL	30 101
PAVEMENT OR BASE = X = APPROXIMATE THICKNESS	VISUAL	
SOD AND TOPSOIL = X = APPROXIMATE THICKNESS	VISUAL	
BORING LOCATION - PLAN VIEW		
DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.		
SS	INDICATES A SPLIT SPOON SAMPLE, STANDARD PENETRATION TEST.	
WC	INDICATES WATER CONTENT IN PERCENT.	
N ₆₀	INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.	
W	INDICATES FREE WATER ELEVATION.	
▼	INDICATES STATIC WATER ELEVATION.	



RECON. - DWW - 1/30/10
 DRILLING - JJ - 3/25/10-4/21/10
 DRAWN - KM - 6/22/10
 REVIEWED - AJM - 6/22/10

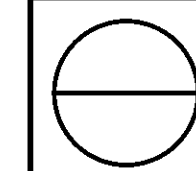
BORING NO.	SAMPLE NO.	ELEVATION	D ₅₀ VALUE
B-001-0-10	SS-3	1023.8'-1022.3'	3.1 mm
B-001-0-10	SS-4	1022.3'-1020.8'	1.54 mm
B-001-0-10	SS-5	1020.8'-1019.3'	1.97 mm
B-002-0-10	SS-2	1028.4'-1026.9'	0.914 mm
B-002-0-10	SS-3	1026.9'-1025.4'	0.0356 mm
B-002-0-10	SS-4	1025.4'-1023.9'	0.0175 mm

BORING NO.	SAMPLE NO.	ELEVATION	D ₅₀ VALUE
B-001-0-10	SS-2	947.1'-945.6'	0.0474 mm
B-001-0-10	SS-3	945.6'-944.1'	0.0377 mm
B-002-0-10	SS-3	947.7'-946.2'	0.067 mm
B-002-0-10	SS-7	940.7'-939.2'	0.0258 mm

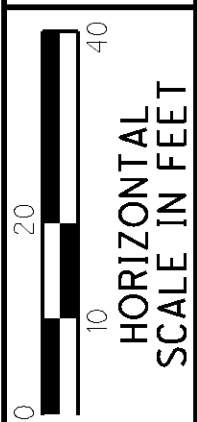
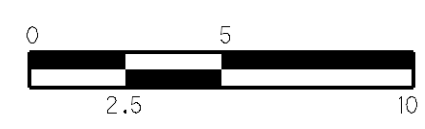
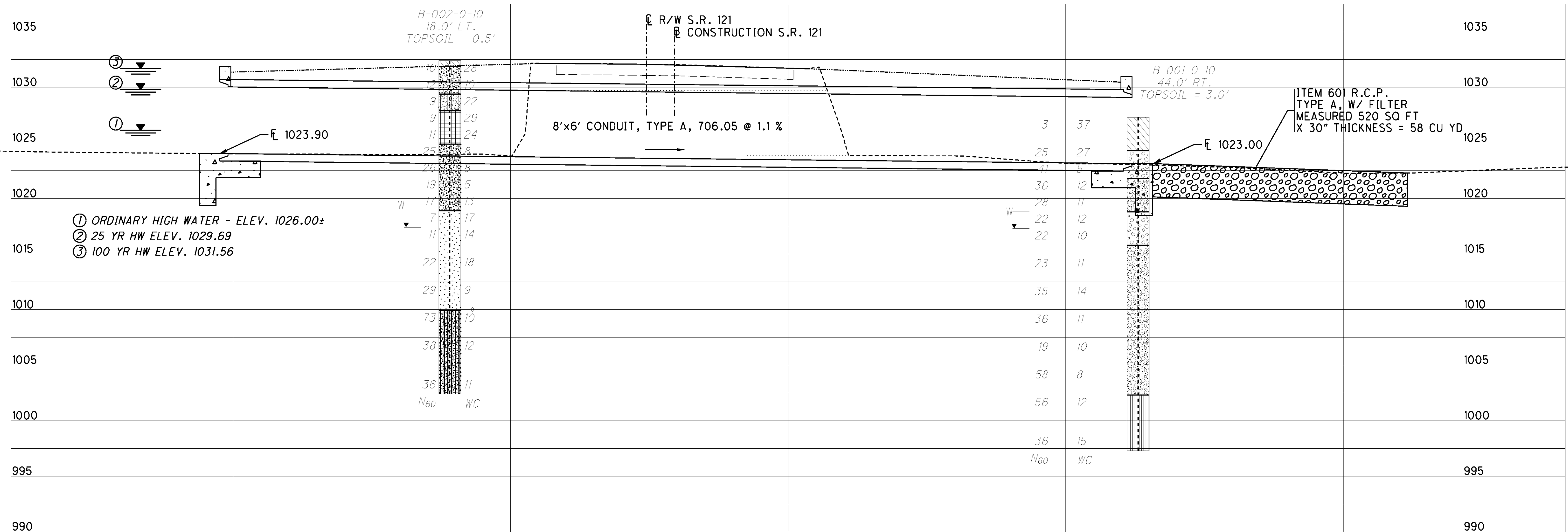
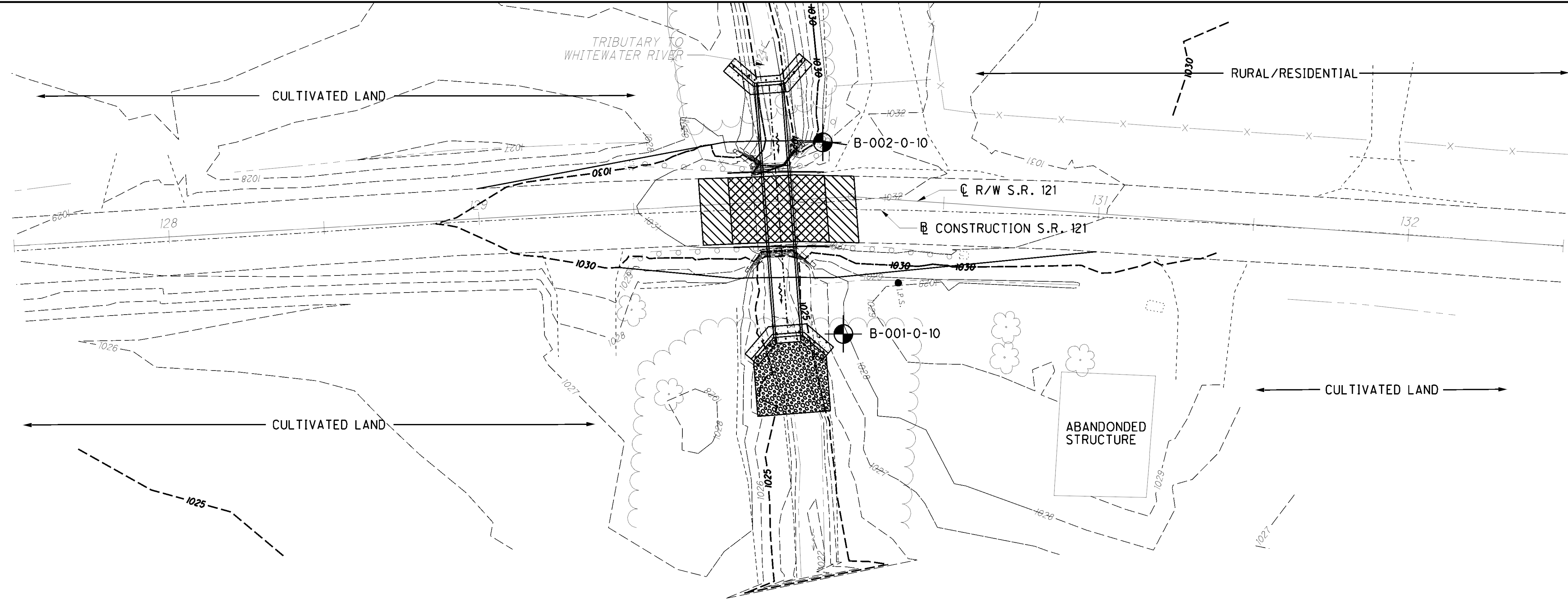
BORING NO.	SAMPLE NO.	ELEVATION	D ₅₀ VALUE
B-001-0-10	SS-3	1040.8'-1039.3'	0.184 mm
B-001-0-10	SS-5	1037.8'-1036.3'	0.268 mm
B-001-0-10	SS-6	1036.3'-1034.8'	0.266 mm
B-002-0-10	SS-3	1040.3'-1038.8'	0.516 mm
B-002-0-10	SS-4	1038.8'-1037.3'	0.873 mm
B-002-0-10	SS-5	1037.3'-1035.8'	1.75 mm

BORING NO.	SAMPLE NO.	ELEVATION	D ₅₀ VALUE
B-001-0-10	SS-2	1073.8'-1072.3'	0.267 mm
B-001-0-10	SS-3	1072.3'-1070.8'	10.177 mm
B-001-0-10	SS-4	1070.8'-1069.3'	0.12 mm
B-002-0-10	SS-2	1073.3'-1071.8'	0.0714 mm
B-002-0-10	SS-3	1071.8'-1070.3'	0.0445 mm
B-002-0-10	SS-4	1070.3'-1068.8'	0.0774 mm

BORING NO.	SAMPLE NO.	ELEVATION	D ₅₀ VALUE
B-001-0-10	SS-3	1082.5'-1081.0'	0.0466 mm
B-001-0-10	SS-4	1081.0'-1079.5'	0.0293 mm
B-001-0-10	SS-5	1079.5'-1078.0'	0.0341 mm
B-002-0-10	SS-3	1085.7'-1084.2'	16.3 mm



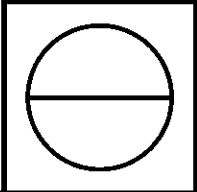
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HORIZONTAL SCALE IN FEET
DRAWN: KJM
CHECKED: AJM

STRUCTURE FOUNDATION EXPLORATION
PRE-121-0246

PRE-CULVERTS -
FY2014

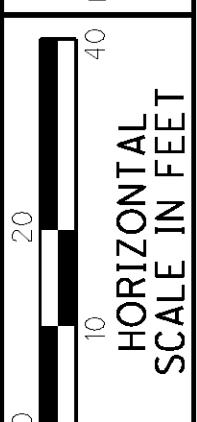
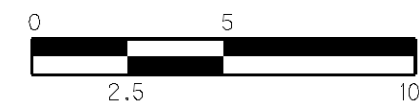
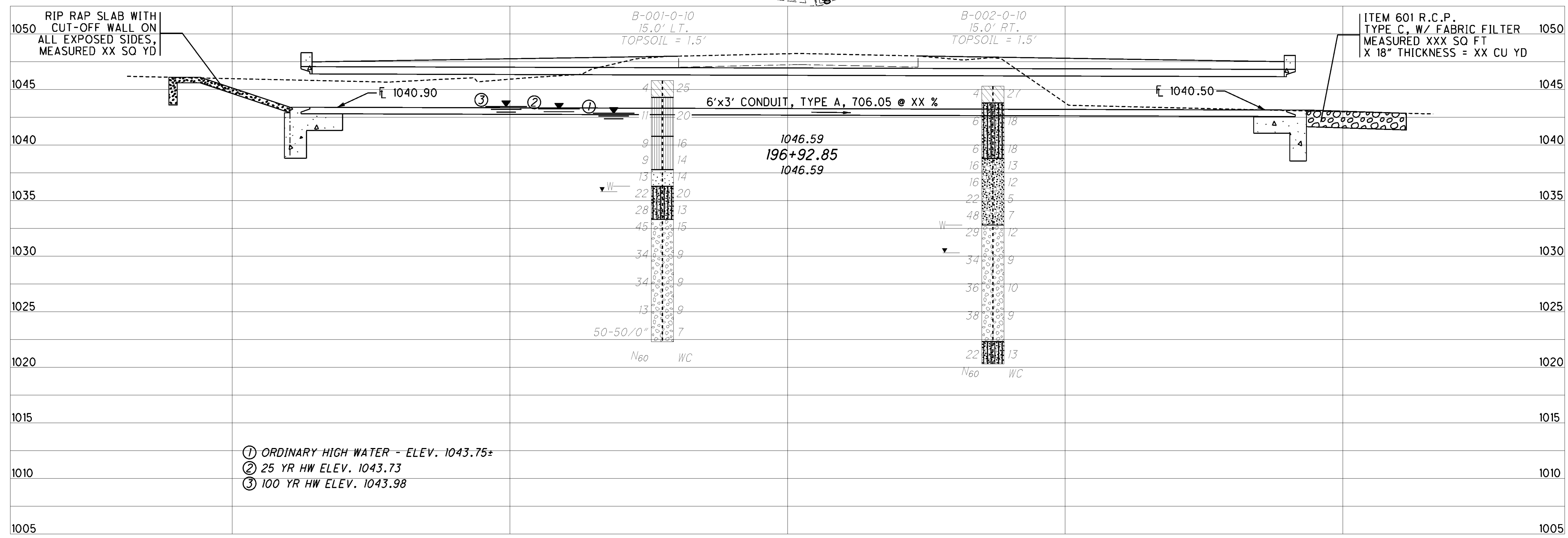
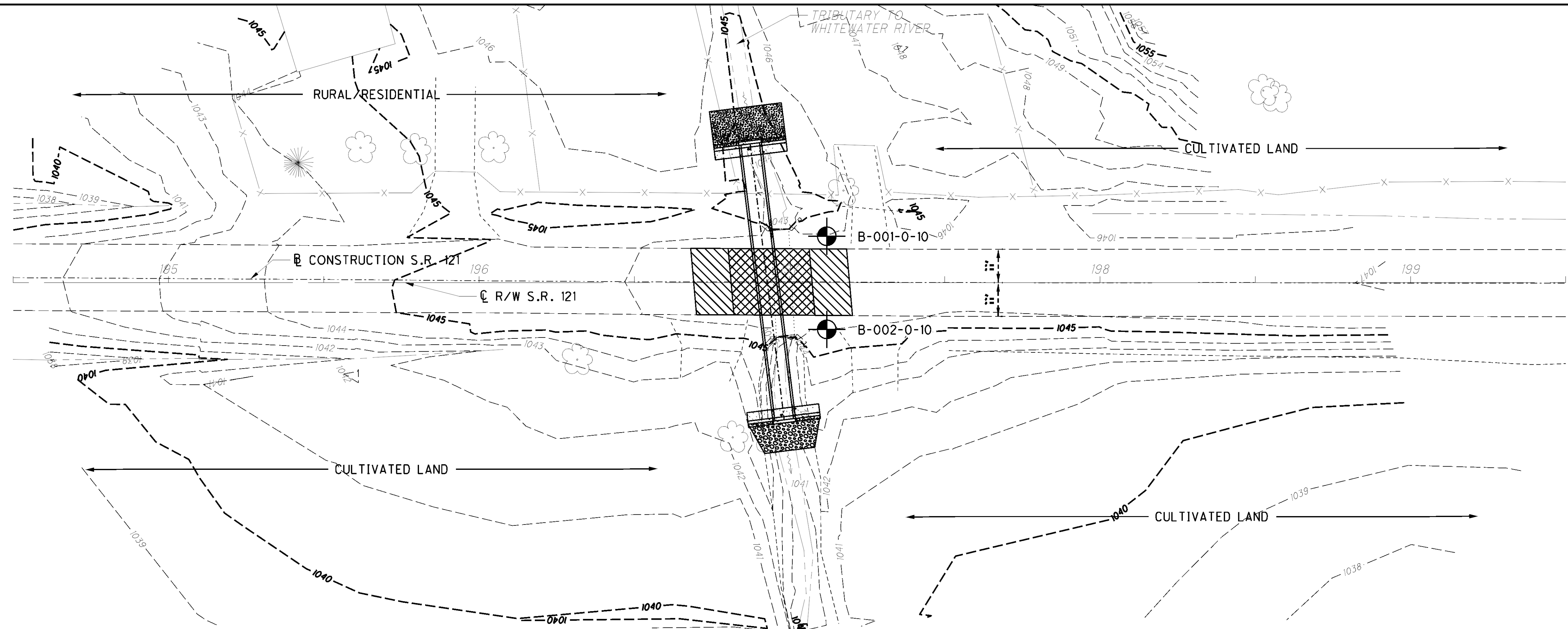


PROJECT: PRE-CULVERTS-FY 2014 TYPE: CULVERT REPLACEMENT PID: 86136 BR ID: N/A START: 3/25/10 END: 3/25/10	DRILLING FIRM / OPERATOR: SAMPLING FIRM / LOGGER: DRILLING METHOD: SAMPLING METHOD:	HCN / JJ HCN / DWV 3.25" HSA SPT	ELEV. 1032.4 1031.9 1029.4 1027.9 1024.9 1018.9 1009.9 1002.4	DEPTHS	SPT/ RQD	REC SAMPLE ID	HP (tsf)	GRADATION (%)				ATTERBERG			WC	EXPLOSION ID B-002-0-10
								GR	CS	FS	SI	CL	LL	PL		
MATERIAL DESCRIPTION AND NOTES SOFT, DARK BROWN, SILT AND CLAY, TRACE SAND, SLIGHTLY ORGANIC, (TOPSOIL), MOIST MEDIUM DENSE, BROWN, GRAVEL AND/OR STONE FRAGMENTS WITH SAND, LITTLE SILT, LITTLE CLAY, (FILL), MOIST STIFF, BROWN, SANDY SILT, SOME CLAY, TRACE GRAVEL, (FILL), MOIST STIFF, BROWN, CLAY, LITTLE GRAVEL, LITTLE SAND, LITTLE SILT, (FILL), MOIST MEDIUM DENSE, BROWN, GRAVEL AND STONE FRAGMENTS WITH SAND, TRACE SILT, TRACE CLAY, MOIST LOOSE TO MEDIUM DENSE, BROWN, COARSE AND FINE SAND, AND STONE FRAGMENTS, WET DENSE TO VERY DENSE, BROWN, STONE FRAGMENTS WITH SAND AND SILT, WET BOTTOM OF BORING=30.0'	3	SS-1	2.50	-	-	-	-	-	-	-	-	-	-	28	A-4a (V)	
	4	SS-1	2.50	-	-	-	-	-	-	-	-	-	-	-	-	-
	5	SS-1	2.50	-	-	-	-	-	-	-	-	-	-	-	-	-
	7	SS-2	2.50	37	24	16	12	11	20	15	5	10	10	10	10	A-1-b (0)
	8	SS-3	2.00	10	15	18	33	24	28	20	8	22	22	22	22	A-4a (4)
	9	SS-4	2.75	15	12	15	16	42	47	22	25	29	29	29	29	A-7-6 (11)
	10	SS-5	2.50	-	-	-	-	-	-	-	-	-	-	-	24	A-7-6 (V)
	11	SS-6	-	-	-	-	-	-	-	-	-	-	-	-	8	A-1-b (V)
	12	SS-7	-	44	19	21	10	6	NP	NP	NP	8	8	8	8	A-1-b (0)
	13	SS-8	-	-	-	-	-	-	-	-	-	-	-	-	5	A-1-b (V)
	14	SS-9	-	-	-	-	-	-	-	-	-	-	-	-	13	A-1-b (V)
	15	SS-10	-	0	43	31	14	12	NP	NP	NP	17	17	17	17	A-3a (0)
	16	SS-11	-	-	-	-	-	-	-	-	-	-	-	-	14	A-3a (V)
	17	SS-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18	SS-12	-	-	-	-	-	-	-	-	-	-	-	-	18	A-3a (V)
	19	SS-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	20	SS-13	-	-	-	-	-	-	-	-	-	-	-	-	9	A-3a (V)
	21	SS-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	22	SS-14	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	SS-14	-	-	-	-	-	-	-	-	-	-	-	-	10	A-2-4 (V)
	24	SS-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	SS-15	-	-	-	-	-	-	-	-	-	-	-	-	12	A-2-4 (V)
	26	SS-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27	SS-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28	SS-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29	SS-16	-	-	-	-	-	-	-	-	-	-	-	-	11	A-2-4 (V)
	30	SS-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT GDT - 9/2/10 10:10 - N:\PROJECTS\2010\110\1105016\GINT\1121-0246\BORING LOGS 121-0246.GPJ

NOTES: WATER USED DURING DRILLING AT 13.0'
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH .5 BAG BENTONITE CHIPS; BACKFILLED WITH 3 BAGS CEMENT

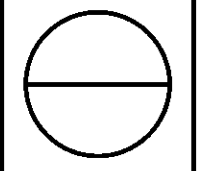
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DRAWN
 KJM
 CHECKED
 AJM

STRUCTURE FOUNDATION EXPLORATION
 PRE-121-0373

PRE-CULVERTS -
 FY2014



PROJECT: PRE-CULVERTS-FY 2014 TYPE: CULVERT REPLACEMENT PID: 86136 BR ID: N/A START: 3/27/10 END: 3/27/10	DRILLING FIRM / OPERATOR: HCN / JJ SAMPLING FIRM / LOGGER: HCN / DWV DRILLING METHOD: 3.25" HSA SAMPLING METHOD: SPT	DRILL RIG: CME 550X ATV HAMMER: CME AUTOMATIC CALIBRATION DATE: 2/4/10 ENERGY RATIO (%): 67.1	STATION / OFFSET: 197+12.15.0 LT ALIGNMENT: SR-121 ELEVATION: 1045.8 (MSL) EOB: 23.5 ft. LAT / LONG: 39.88930000, -84.78244000	EXPLORATION ID B-001-0-10				
MATERIAL DESCRIPTION AND NOTES		SPT/ RQD	REC SAMPLE HP ID (tsf)	GRADATION (%)	ATTERBERG	WC	HOLE CLASS (g)	SEAL
		DEPTH		GR CS FS SI CL	LL PL PI			
SOFT, DARK BROWN, SILT AND CLAY, TRACE SAND, SLIGHTLY ORGANIC, (TOPSOIL), MOIST		1						
		2	4	100	SS-1	0.50		25 A-6a (V)
MEDIUM DENSE BROWN, SANDY SILT, TRACE GRAVEL, (FILL), MOIST		3	5	11	SS-2			20 A-4a (V)
		4						
STIFF, BROWN, SANDY SILT, SOME CLAY, MOIST		5	3	9	SS-3	1.00	0	27 35 16 22 25 16 9 16 A-4a (1)
		6	3	5				
		7	4	9	SS-4	2.00		14 A-4a (V)
		8	3	5				
MEDIUM DENSE BROWN, COARSE AND FINE SAND, LITTLE SILT AND CLAY, MOIST		9	5	7	SS-5		0	36 34 14 16 NP NP NP 14 A-3a (0)
		10	7	10	SS-6		30	10 34 14 12 17 14 3 20 A-2-4 (0)
MEDIUM DENSE BROWN, GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT, LITTLE CLAY, WET		11	7	11	SS-7			13 A-2-4 (V)
		12	11	14				
MEDIUM DENSE TO DENSE BROWN, GRAVEL AND/OR STONE FRAGMENTS, TRACE SILT AND CLAY, WET		13	10	45	SS-8		56	16 15 8 5 NP NP NP 15 A-1-a (0)
		14	30					
		15	10	13	SS-9			9 A-1-a (V)
		16	13	17				
		17						
		18	15	34	SS-10		62	13 11 9 5 NP NP NP 9 A-1-a (0)
		19	15					
		20	7	13	SS-11			9 A-1-a (V)
		21	5					
		22						
		23	50		SS-12			7 A-1-a (V)
		24	50					
		25	50					

BOTTOM OF BORING=23.5'

NOTES: WATER USED DURING DRILLING AT 9.5'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH .5 BAG BENTONITE CHIPS, BACKFILLED WITH 2.5 BAGS CEMENT

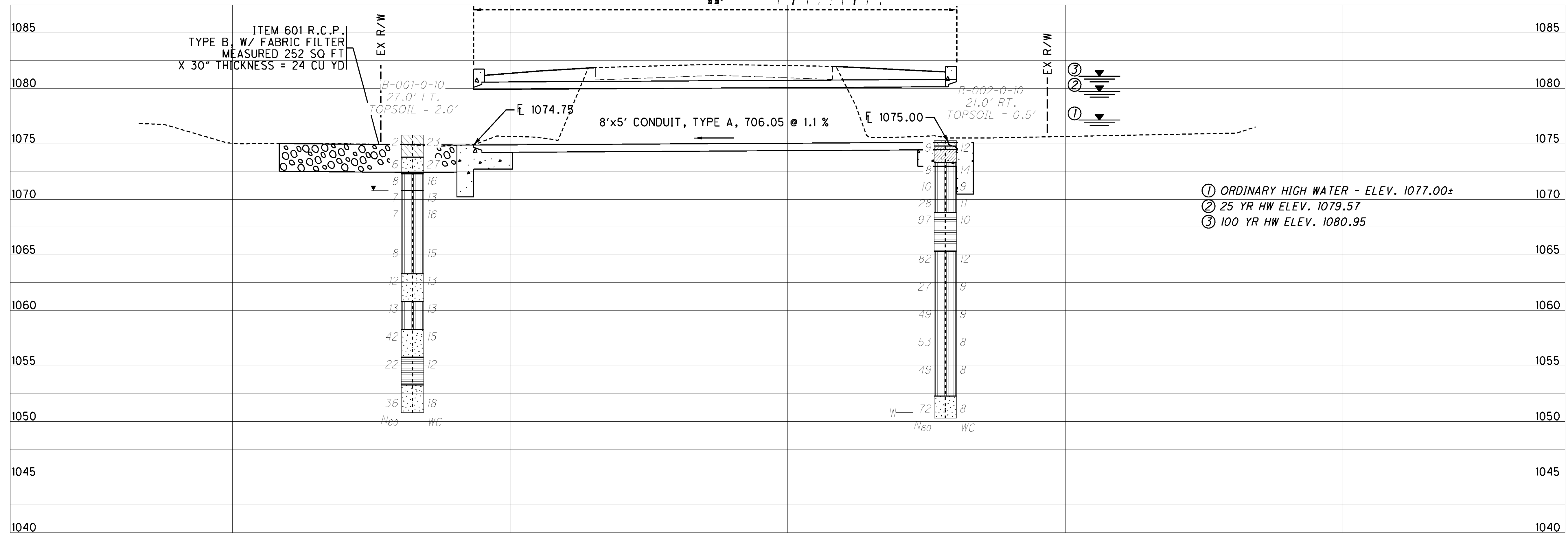
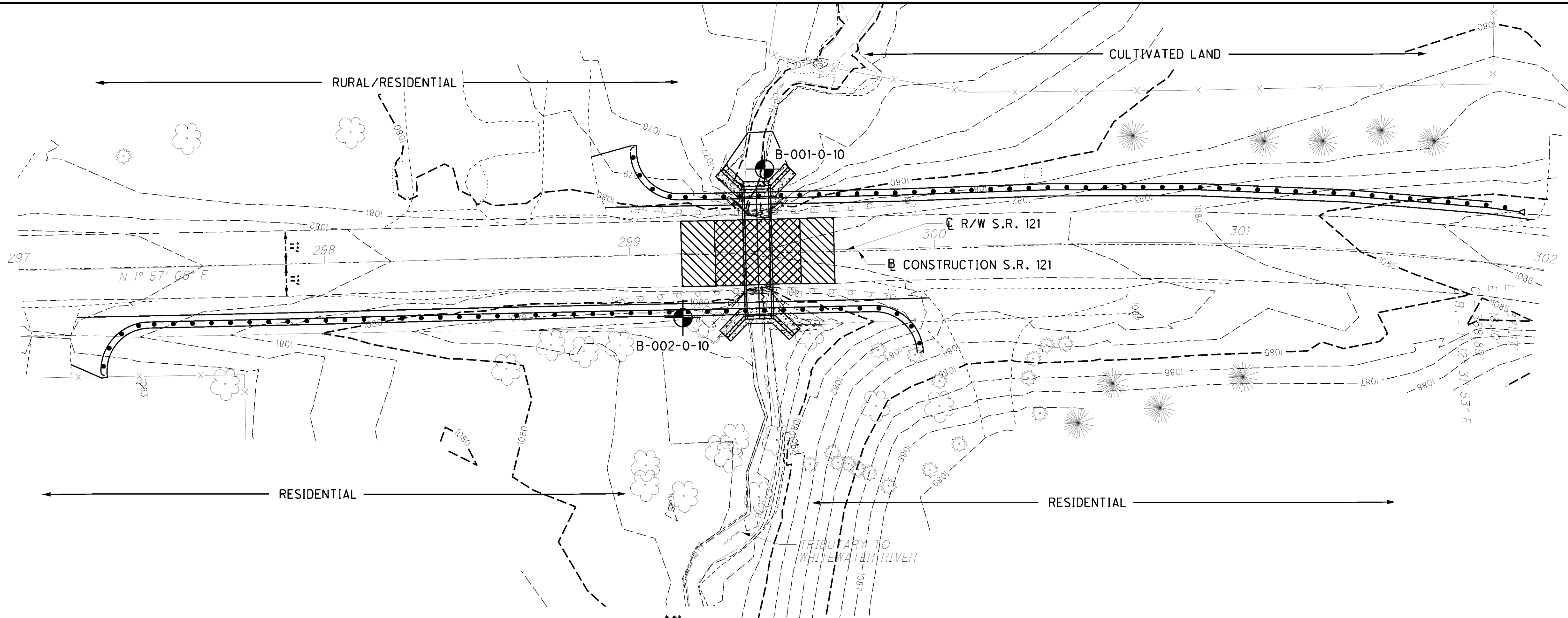
PROJECT: PRE-CULVERTS-FY 2014 TYPE: CULVERT REPLACEMENT PID: 86136 BR ID: N/A START: 3/27/10 END: 3/27/10	DRILLING FIRM / OPERATOR: HCN / JJ SAMPLING FIRM / LOGGER: HCN / DWV DRILLING METHOD: 3.25" HSA SAMPLING METHOD: SPT	DRILL RIG: CME 550X ATV HAMMER: CME AUTOMATIC CALIBRATION DATE: 2/4/10 ENERGY RATIO (%): 67.1	STATION / OFFSET: 197+12.15.0 RT ALIGNMENT: SR-121 ELEVATION: 1045.3 (MSL) EOB: 25.0 ft. LAT / LONG: 39.88930000, -84.78236000	EXPLORATION ID B-002-0-10				
MATERIAL DESCRIPTION AND NOTES		SPT/ RQD	REC SAMPLE HP ID (tsf)	GRADATION (%)	ATTERBERG	WC	HOLE CLASS (g)	SEAL
		DEPTH		GR CS FS SI CL	LL PL PI			
SOFT, DARK BROWN, SILT AND CLAY, (TOPSOIL), MOIST		1						
		2	4	33	SS-1	0.50		27 A-6a (V)
LOOSE, BROWN TO DARK BROWN, GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT, LITTLE CLAY, (FILL), MOIST		3	2	6	SS-2			18 A-2-4 (V)
		4						
MEDIUM DENSE TO DENSE BROWN, GRAVEL AND/OR STONE FRAGMENTS WITH SAND, TRACE TO LITTLE SILT AND CLAY, MOIST		5	2	6	SS-3		40	12 18 16 14 23 16 7 18 A-2-4 (0)
		6	2	3				
		7	8	6	SS-4		39	20 18 13 10 17 15 2 13 A-1-b (0)
		8	6	8				
MEDIUM DENSE TO DENSE BROWN, GRAVEL AND/OR STONE FRAGMENTS, TRACE SILT, TRACE CLAY, WET		9	7	16	SS-5		48	17 19 9 7 NP NP NP 12 A-1-b (0)
		10	17	10	SS-6			5 A-1-b (V)
		11	10	22				
		12	11	48	SS-7			7 A-1-b (V)
		13	19	24				
MEDIUM DENSE TO DENSE BROWN, GRAVEL AND/OR STONE FRAGMENTS, TRACE SILT, TRACE CLAY, WET		14	13	29	SS-8		63	14 13 5 5 NP NP NP 12 A-1-a (0)
		15	13					
		16	14					
		17	14	34	SS-9			9 A-1-a (V)
		18	15	36				
		19	17					
		20	34	15	SS-10			10 A-1-a (V)
		21	19					
		22	15	38	SS-11			9 A-1-a (V)
		23						
MEDIUM DENSE BROWN, GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT, LITTLE CLAY, MOIST		24	11	22	SS-12		31	13 22 20 14 18 13 5 13 A-2-4 (0)
		25	10					

BOTTOM OF BORING=25.0'

NOTES: WATER USED DURING DRILLING AT 12.5'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH .5 BAG BENTONITE CHIPS, BACKFILLED WITH 2.5 BAGS CEMENT

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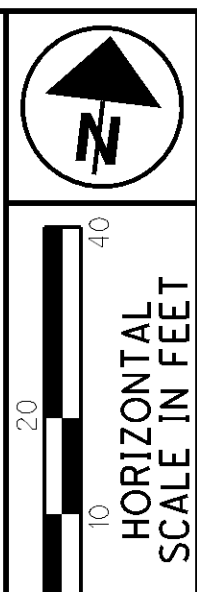
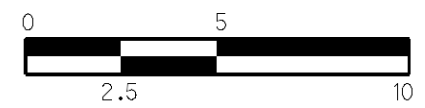
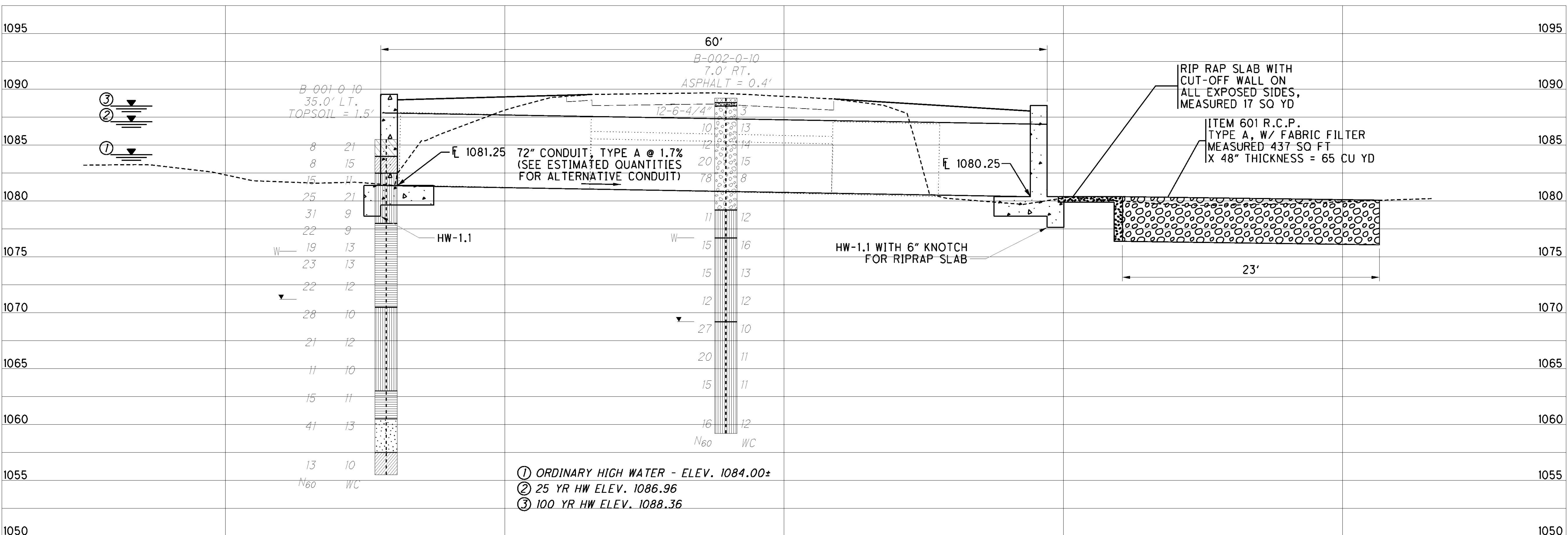
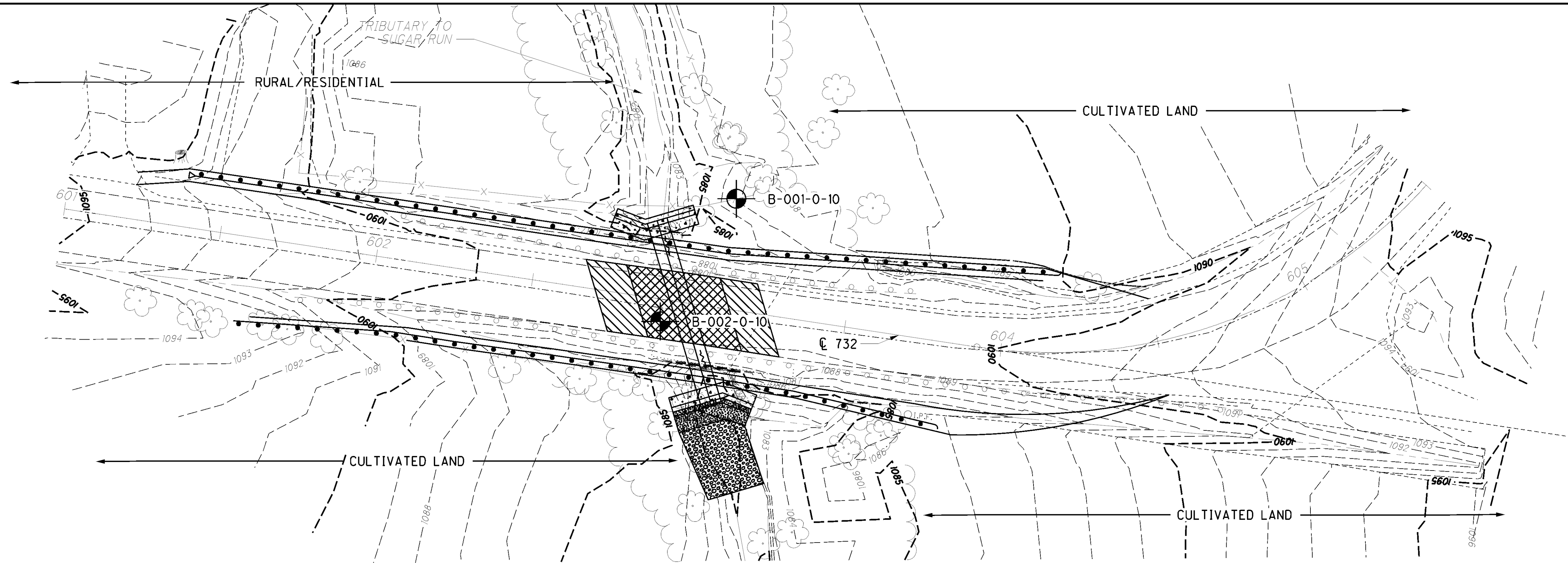
PROJECT: PRE-CULVERTS-FY 2014	DRILLING FIRM / OPERATOR: HCN / JJ	STATION / OFFSET: 299+45.27 0 LT	EXPLORATION ID B-001-0-10
TYPE: CULVERT REPLACEMENT	SAMPLING FIRM / LOGGER: HCN / DWW	ALIGNMENT: SR-121	
PID: 86136 BR ID: N/A	DRILLING METHOD: 3.25" HSA	ELEVATION: 1075.8 (MSL) EOB: 250 ft.	PAGE 1 OF 1
START: 4/5/10 END: 4/5/10	SAMPLING METHOD: SPT	LAT / LONG: 39.912890000, -84.769170000	
MATERIAL DESCRIPTION AND NOTES			
SOFT, DARK BROWN, SILT AND CLAY, LITTLE SAND, SLIGHTLY ORGANIC, (TOPSOIL), DAMP	ELEV. 1075.8	GRADATION (%)	ODOT CLASS (G) SEALED
LOOSE, BROWN, COARSE AND FINE SAND, LITTLE SILT, LITTLE CLAY, WET	1073.8	GR CS FS SI CL LL PL WC	A-6a (V)
LOOSE, BROWN AND GRAY, SANDY SILT, LITTLE CLAY, WET	1072.3	GR CS FS SI CL LL PL WC	A-3a (0)
LOOSE, BROWN, SANDY SILT, LITTLE CLAY, WET	1070.8	GR CS FS SI CL LL PL WC	A-3a (0)
MEDIUM DENSE, BROWN, COARSE AND FINE SAND, LITTLE SILT, TRACE GRAVEL, WET	1063.3	GR CS FS SI CL LL PL WC	A-4a (1)
MEDIUM DENSE, BROWN, SANDY SILT, TRACE GRAVEL, WET	1060.8	GR CS FS SI CL LL PL WC	A-4a (V)
DENSE, BROWN, COARSE AND FINE SAND, SOME SILT, LITTLE CLAY, WET	1058.3	GR CS FS SI CL LL PL WC	A-3a (0)
VERY STIFF, GRAY, SILTY CLAY, TRACE SAND, MOIST	1055.8	GR CS FS SI CL LL PL WC	A-6b (V)
DENSE, BROWN, COARSE AND FINE SAND, TRACE GRAVEL, WET	1052.8	GR CS FS SI CL LL PL WC	A-3a (V)
BOTTOM OF BORING= 25.0'	1050.8	GR CS FS SI CL LL PL WC	A-3a (V)

NOTES: WATER USED DURING DRILLING AT 5.0'
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH .5 BAG BENTONITE GROUT; BACKFILLED WITH 2.5 BAGS CEMENT

PROJECT: PRE-CULVERTS-FY 2014	DRILLING FIRM / OPERATOR: HCN / JJ	STATION / OFFSET: 299+17.21 0 RT	EXPLORATION ID B-002-0-10
TYPE: CULVERT REPLACEMENT	SAMPLING FIRM / LOGGER: HCN / DWW	ALIGNMENT: SR-121	
PID: 86136 BR ID: N/A	DRILLING METHOD: 3.25" HSA	ELEVATION: 1075.3 (MSL) EOB: 250 ft.	PAGE 1 OF 1
START: 4/5/10 END: 4/5/10	SAMPLING METHOD: SPT	LAT / LONG: 39.912890000, -84.769000000	
MATERIAL DESCRIPTION AND NOTES			
SOFT, BROWN, SILT AND CLAY, TRACE SAND, SLIGHTLY ORGANIC, (TOPSOIL), DAMP (FILL), DAMP	ELEV. 1075.3	GRADATION (%)	ODOT CLASS (G) SEALED
VERY STIFF, BROWN, SANDY SILT, SOME CLAY, MOIST	1074.8	GR CS FS SI CL LL PL WC	A-6a (V)
VERY STIFF, BROWN, SILTY CLAY, TRACE SAND, MOIST	1068.8	GR CS FS SI CL LL PL WC	A-4a (5)
HARD, GRAY, SANDY SILT, LITTLE CLAY, MOIST	1065.3	GR CS FS SI CL LL PL WC	A-4a (3)
VERY DENSE, GRAY, COARSE AND FINE SAND, TRACE SILT, TRACE CLAY, WET	1052.3	GR CS FS SI CL LL PL WC	A-4a (V)
BOTTOM OF BORING= 25.0'	1050.3	GR CS FS SI CL LL PL WC	A-3a (V)

NOTES: NONE
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH .5 BAG BENTONITE GROUT; BACKFILLED WITH 2.5 BAGS CEMENT

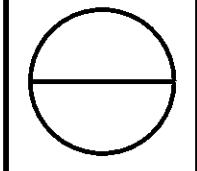
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CHECKED: AJM

STRUCTURE FOUNDATION EXPLORATION
PRE-732-1142

PRE-CULVERTS -
FY2014



PROJECT: PRE-CULVERTS-FY 2014 TYPE: CULVERT REPLACEMENT PID: 86136 BR ID: N/A START: 4/2/10 END: 4/21/10		DRILLING FIRM / OPERATOR: HCN / JJ SAMPLING FIRM / LOGGER: HCN / DWW DRILLING METHOD: 3.25" HSA SAMPLING METHOD: SPT		DRILL RIG: CME 580X ATV HAMMER: CME AUTOMATIC CALIBRATION DATE: 2/4/10 ENERGY RATIO (%): 67.1		STATION / OFFSET: 603+10.350 LT ALIGNMENT: SR-732 ELEVATION: 1085.5 (MSL) EOB: 30.0 ft. LAT / LONG: 39.692250000, -84.710730000										EXPLORATION ID B-001-0-10		
MATERIAL DESCRIPTION AND NOTES				REC SAMPLE HP (tsf)		GRADATION (%)										HOLE CLASS (G) SEALED		
				SPT/ROD	N ₆₀	GR	CS	FS	SI	CL	LL	PL	PI	WC	0001 CLASS (G) SEALED			
MEDIUM STIFF, BROWN, SILT AND CLAY, SLIGHTLY ORGANIC, (TOPSOIL), MOIST				2	8	-	-	-	-	-	-	-	-	-	-	21	A-6a (V)	
				5	100	SS-1	0.50	-	-	-	-	-	-	-	-	-	-	-
MEDIUM STIFF, BROWN, SILT AND CLAY, SOME SAND, MOIST				3	8	-	-	-	-	-	-	-	-	-	-	15	A-6a (V)	
				4	100	SS-2	-	-	-	-	-	-	-	-	-	-	-	-
VERY STIFF TO HARD, BROWN, SANDY SILT, LITTLE TO TRACE GRAVEL, SOME CLAY, MOIST				3	15	67	4.50	15	11	19	29	26	21	13	8	11	A-4a (4)	
				5	8	14	100	SS-4	4.00	9	11	19	33	28	23	14	9	21
VERY STIFF TO HARD, GRAY, SILTY CLAY, SOME SAND, TRACE GRAVEL, MOIST				10	31	100	4.50	7	11	22	34	26	19	13	6	9	A-4a (5)	
				12	16	-	-	-	-	-	-	-	-	-	-	-	-	-
VERY STIFF TO HARD, GRAY, SILTY CLAY, SOME SAND, TRACE GRAVEL, MOIST				10	22	100	4.50	-	-	-	-	-	-	-	-	9	A-6b (V)	
				10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VERY STIFF, GRAY, SANDY SILT, LITTLE GRAVEL, LITTLE CLAY, MOIST				7	8	19	100	SS-7	4.00	-	-	-	-	-	-	13	A-6b (V)	
				9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VERY STIFF, GRAY, SANDY SILT, LITTLE GRAVEL, LITTLE CLAY, MOIST				7	9	23	100	SS-8	4.50	-	-	-	-	-	-	13	A-6b (V)	
				12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VERY STIFF, GRAY, SANDY SILT, LITTLE GRAVEL, LITTLE CLAY, MOIST				4	7	22	67	SS-9	4.00	-	-	-	-	-	-	12	A-6b (V)	
				13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VERY STIFF, GRAY AND BROWN, SILTY CLAY, LITTLE SAND, TRACE GRAVEL, MOIST				9	11	28	100	SS-10	0.50	-	-	-	-	-	-	10	A-4a (V)	
				14	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VERY STIFF, GRAY AND BROWN, SILTY CLAY, LITTLE SAND, TRACE GRAVEL, MOIST				7	8	21	100	SS-11	4.00	19	16	22	26	17	16	12	4	A-4a (2)
				11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DENSE, BROWN, COARSE AND FINE SAND, SOME GRAVEL, WET				5	4	11	100	SS-12	3.50	-	-	-	-	-	-	10	A-4a (V)	
				6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VERY STIFF, BROWN, SILT AND CLAY, LITTLE SAND, TRACE GRAVEL, MOIST				5	5	15	100	SS-13	3.00	-	-	-	-	-	-	11	A-6b (V)	
				8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BOTTOM OF BORING=30.0'				13	18	41	67	SS-14	-	-	-	-	-	-	-	13	A-3a (V)	
				19	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				5	5	13	100	SS-15	2.50	-	-	-	-	-	-	10	A-6a (V)	
				7	-	-	-	-	-	-	-	-	-	-	-	-	-	-

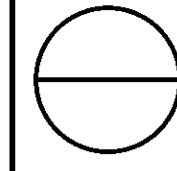
BOTTOM OF BORING=30.0'

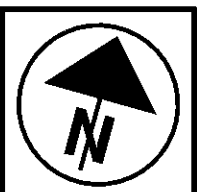
NOTES: WATER USED DURING DRILLING AT 10.0' ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH .5 BAG BENTONITE CHIPS; BACKFILLED WITH 3 BAGS CEMENT

PROJECT: PRE-CULVERTS-FY 2014		DRILLING FIRM / OPERATOR: HCN / JJ		DRILL RIG: CME 550X ATV		STATION / OFFSET: 602+92.7 0 RT		EXPLORATION ID										
TYPE: CULVERT REPLACEMENT		SAMPLING FIRM / LOGGER: HCN / DWV		HAMMER: CME AUTOMATIC		ALIGNMENT: SR-732		B-002-0-10										
PID: 86136 BR ID: N/A		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 2/4/10		ELEVATION: 1089.2 (MSL) EOB: 30.0 ft.		PAGE										
START: 3/26/10 END: 3/26/10		SAMPLING METHOD: SPT		ENERGY RATIO (%): 67.1		LAT / LONG: 39.69212000, -84.71085000		1 OF 1										
MATERIAL DESCRIPTION AND NOTES																		
ELEV.		DEPTHS		REC SAMPLE ID		GRADATION (%)		ATTERBERG		HOLE								
				(%)				LL PL PI		SEALING								
				N ₆₀		GR CS FS SI		CL		WC								
				RQD		GR CS FS SI		CL		WC								
ASPHALT (5")		1089.2	1	12	23	SS-1	-	-	-	-	3	A-1-a (V)						
LOOSE, BLACK, COARSE AND FINE SAND, SOME ASPHALT FRAGMENTS, (FILL), DAMP		1088.8	2	7	10	SS-2	-	-	-	-	13	A-1-a (V)						
MEDIUM DENSE, BROWN, STONE FRAGMENTS WITH SAND, SILT, AND CLAY, (FILL), MOIST		1088.5	3	4	33	SS-2	-	-	-	-	-	-						
			4	12	53	SS-3	-	80	8	4	5	3	NP NP NP	4	A-1-a (0)			
			5	6	20	SS-4	-	-	-	-	-	-	-	15	A-1-a (V)			
			6	9	53	SS-4	-	-	-	-	-	-	-	-	-			
			7	8	78	SS-5	-	-	-	-	-	-	-	8	A-1-a (V)			
			8	49	21													
			9															
			10	5	11	SS-6	3.00	8	10	18	35	29	21	12	9	12	A-4a (6)	
VERY STIFF, BROWN, SANDY SILT, TRACE GRAVEL, SOME CLAY, MOIST		1079.2	11	4	100	SS-6												
			12															
			13	6	15	SS-7	-	13	9	25	37	16	14	2	16	16	A-4a (4)	
MEDIUM DENSE, BROWN, SANDY SILT, LITTLE GRAVEL, LITTLE CLAY, WET		1076.7	14															
			15	3	15	SS-8	-	-	-	-	-	-	-	-	-	-	13	A-4a (V)
			16	6	7													
			17															
			18	3	12	SS-9	-	13	13	29	29	16	15	12	3	12	A-4a (2)	
VERY STIFF, BROWN, SANDY SILT, TRACE GRAVEL, SOME CLAY, MOIST		1069.2	19	5	100	SS-9												
			20	7	27	SS-10	3.00	-	-	-	-	-	-	-	-	-	10	A-4a (V)
			21	9	53	SS-10												
			22	15														
			23	6	20	SS-11	3.50	9	19	34	29	18	12	6	11	11	A-4a (6)	
			24	7	100	SS-11												
			25	11														
			26	5	15	SS-12	3.25	-	-	-	-	-	-	-	-	-	11	A-4a (V)
			27	6	7													
			28															
			29	4	16	SS-13	3.00	-	-	-	-	-	-	-	-	-	12	A-4a (V)
			30	7	100	SS-13												
BOTTOM OF BORING=30.0'		1059.2	EOB															

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT GDT - 9/2/10 10:14 - N:\PROJECTS\2010\110\1105016\1142\BORING LOGS\732-1142.GPJ

NOTES: WATER USED DURING DRILLING AT 15.0'
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH .5 BAG BENTONITE CHIPS, BACKFILLED WITH 3 BAGS CEMENT, PLACED 1 BAG QUICKCRETE





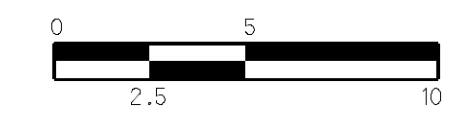
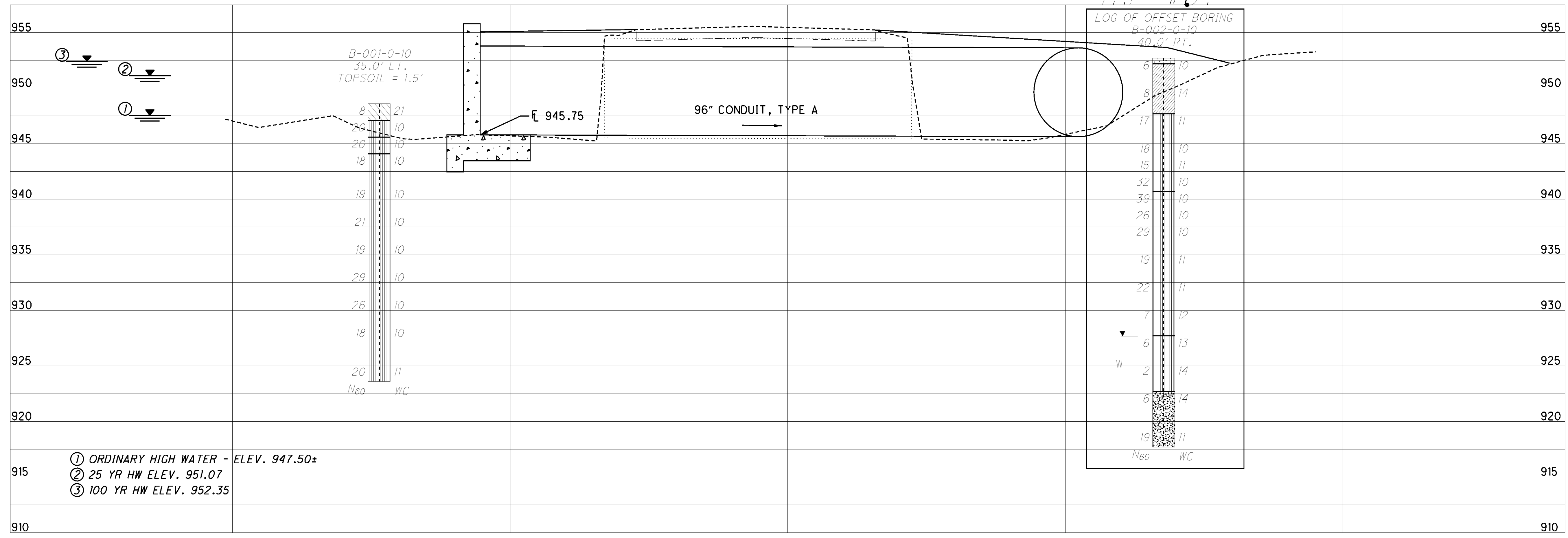
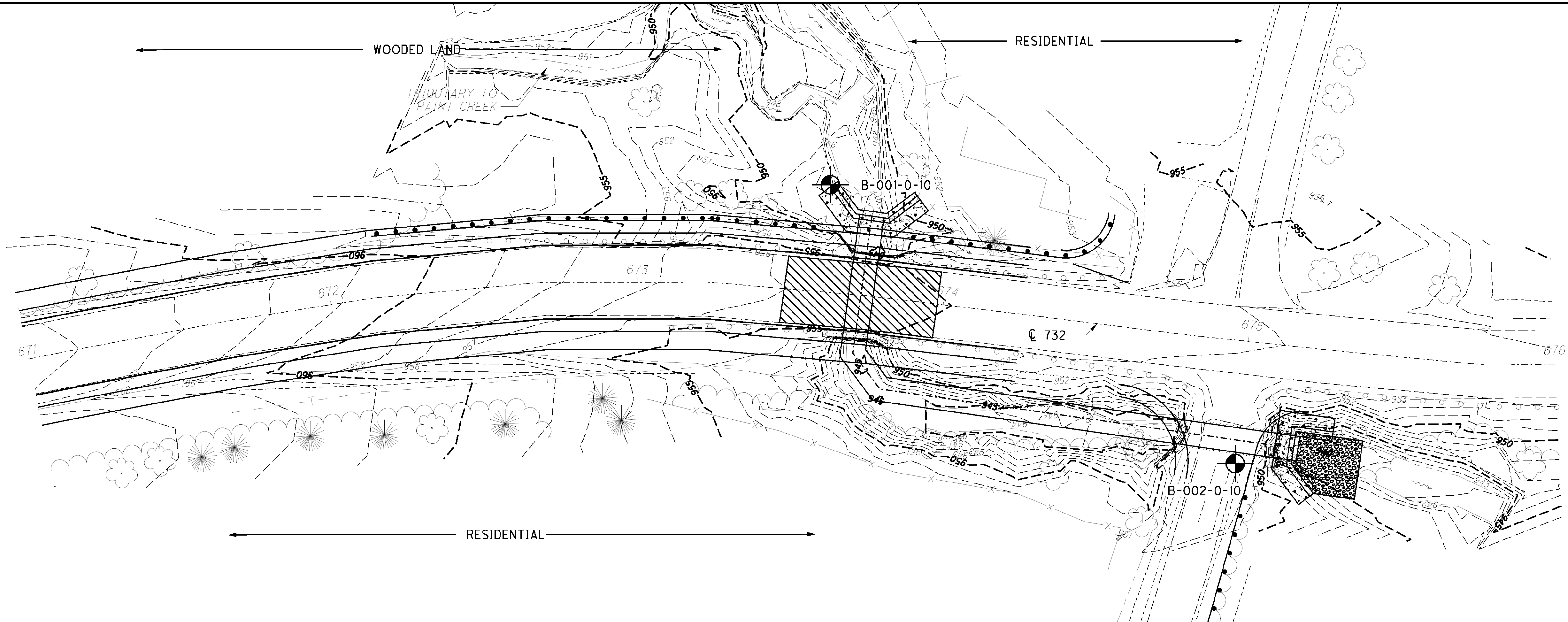
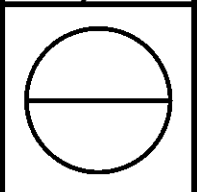
0 10 20 40
HORIZONTAL
SCALE IN FEET

DRAWN
KJM
CHECKED
AJM

STRUCTURE FOUNDATION EXPLORATION
PRE - 732 - 1276

PRE - CULVERTS -
FY 2014

12 / 14



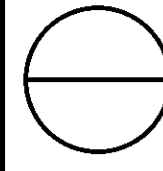
- ① ORDINARY HIGH WATER - ELEV. 947.50±
- ② 25 YR HW ELEV. 951.07
- ③ 100 YR HW ELEV. 952.35

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PROJECT: PRE-CULVERTS-FY 2014		DRILLING FIRM / OPERATOR: HCN / JJ		DRILL RIG: CME 550X ATV		STATION / OFFSET: 673+60.35.0 LT.		EXPLORATION ID							
TYPE: CULVERT REPLACEMENT		SAMPLING FIRM / LOGGER: HCN / DWW		HAMMER: CME AUTOMATIC		ALIGNMENT: SR-732		B-001-0-10							
PID: 86136 BR ID: N/A		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 2/4/10		ELEVATION: 948.6 (MSL) EOB: 25.0 ft.		PAGE							
START: 4/21/10 END: 4/21/10		SAMPLING METHOD: SPT		ENERGY RATIO (%): 67.1		LAT / LONG: 39.70562000, -84.69444000		1 OF 1							
MATERIAL DESCRIPTION AND NOTES															
MEDIUM STIFF, BROWN, SILT AND CLAY, TRACE SAND, SLIGHTLY ORGANIC, (TOPSOIL), MOIST															
VERY STIFF, BROWN, SANDY SILT, LITTLE GRAVEL AND LIMESTONE FRAGMENTS, SOME CLAY, MOIST															
VERY STIFF, BROWN AND GRAY, SANDY SILT, LITTLE GRAVEL AND LIMESTONE FRAGMENTS, SOME CLAY, MOIST															
HARD, GRAY, SANDY SILT, LITTLE GRAVEL, SOME CLAY, MOIST															
4	3	8	87	SS-1	0.50	-	-	-	-	21	A-6a (V)				
7	9	20	100	SS-2	4.00	15	11	19	30	25	12	8	10	A-4a (4)	
7	8	20	100	SS-3	4.50	11	11	20	29	29	19	12	7	10	A-4a (5)
7	8	18	100	SS-4	4.50	-	-	-	-	-	-	-	-	10	A-4a (V)
5	7	19	100	SS-5	4.50	-	-	-	-	-	-	-	-	10	A-4a (V)
6	8	21	100	SS-6	4.50	-	-	-	-	-	-	-	-	10	A-4a (V)
6	7	19	100	SS-7	4.50	15	10	18	28	29	20	12	8	10	A-4a (4)
11	13	29	100	SS-8	4.50	-	-	-	-	-	-	-	-	10	A-4a (V)
5	9	26	100	SS-9	4.50	-	-	-	-	-	-	-	-	10	A-4a (V)
5	6	18	100	SS-10	4.25	-	-	-	-	-	-	-	-	10	A-4a (V)
7	8	20	100	SS-11	4.50	-	-	-	-	-	-	-	-	11	A-4a (V)

BOTTOM OF BORING=25.0'

NOTES: NONE
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH .5 BAG BENTONITE CHIPS, BACKFILLED WITH 3 BAGS CEMENT



PROJECT: PRE-CULVERTS-FY 2014 TYPE: CULVERT REPLACEMENT PID: 86136 BR ID: N/A START: 3/26/10 END: 3/26/10		DRILLING FIRM / OPERATOR: HCN / JJ SAMPLING FIRM / LOGGER: HCN / DWW DRILLING METHOD: 3.25" HSA SAMPLING METHOD: SPT		DRILL RIG: CME 550X ATV HAMMER: CME AUTOMATIC CALIBRATION DATE: 2/4/10 ENERGY RATIO (%): 67.1		STATION / OFFSET: 675+00, 40.0 RT. ALIGNMENT: SR-732 ELEVATION: 952.7 (MSL) EOB: 35.0 ft. LAT / LONG: -39.705460000, -84.693890000										EXPLORATION ID B-002-0-10				
MATERIAL DESCRIPTION AND NOTES				SPT/ROD	N ₆₀	REC SAMPLE (%)	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ORPT CLASS(GI)	HOLE SEALED		
LOOSE, BROWN, COARSE AND FINE SAND, TRACE CLAY, TRACE GRAVEL, (FILL), MOIST STIFF BROWN SILT AND CLAY, TRACE SAND, TRACE ROCK FRAGMENTS, (FILL), MOIST				7	2	6	67	SS-1	-	-	-	-	-	-	-	-	10	A-3a (V)		
				8	3	8	100	SS-2	0.75	-	-	-	-	-	-	14	A-6a (V)			
				9	3	6	17	100	SS-3	4.00	12	22	28	23	13	7	11	A-4a (3)		
HARD, BROWN, SANDY SILT, LITTLE GRAVEL, SOME CLAY, MOIST				10	4	7	18	100	SS-4	4.50	-	-	-	-	-	-	10	A-4a (V)		
				11	9	11	15	100	SS-5	4.50	-	-	-	-	-	-	11	A-4a (V)		
				12	9	12	32	100	SS-6	4.50	-	-	-	-	-	-	10	A-4a (V)		
				13	14	15	39	100	SS-7	4.50	8	10	19	34	29	21	12	9	10	A-4a (6)
HARD, GRAY TRACE BROWN, SANDY SILT, LITTLE GRAVEL, SOME CLAY, MOIST				14	5	9	26	67	SS-8	3.50	-	-	-	-	-	-	10	A-4a (V)		
				15	7	10	29	100	SS-9	4.50	-	-	-	-	-	-	10	A-4a (V)		
				16	5	6	19	100	SS-10	4.25	15	10	17	31	27	20	12	8	11	A-4a (5)
				17	7	8	22	100	SS-11	4.50	-	-	-	-	-	-	11	A-4a (V)		
				18	3	2	7	100	SS-12	2.50	-	-	-	-	-	-	12	A-4a (V)		
				19	2	3	6	67	SS-13	-	17	12	19	27	25	19	12	7	13	A-4a (3)
VERY LOOSE TO LOOSE, GRAY, SANDY SILT, LITTLE GRAVEL, SOME CLAY, WET				20	1	1	2	67	SS-14	-	-	-	-	-	-	-	-	14	A-4a (V)	
				21	2	3	6	100	SS-15	-	15	11	19	30	25	NP	NP	14	A-4a (4)	
LOOSE TO MEDIUM DENSE, GRAY, SANDY SILT, LITTLE GRAVEL, SOME CLAY, WET				22	9	8	19	100	SS-16	-	-	-	-	-	-	-	-	11	A-4a (V)	
BOTTOM OF BORING=35.0'				23	8	9														

NOTES: WATER USED DURING DRILLING AT 27.5' ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH .5 BAG BENTONITE CHIPS, BACKFILLED WITH 3 BAGS CEMENT

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 9/2/10 10:20 - N:\PROJECTS\2010\110\1105016\GINT\732-1276\BORING LOGS\732-1276.GPJ