

GENERAL NOTES

DESIGN SPECIFICATIONS: THIS STANDARD DRAWING CONFORMS TO "LRFD BRIDGE DESIGN SPECIFICATION" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND THE 2020 OHIO BRIDGE DESIGN MANUAL.

DESIGN DATA: THE FOLLOWING DESIGN DATA IS ASSUMED:

CONCRETE - COMPRESSIVE STRENGTH 4000 PSI - FOOTING
COMPRESSIVE STRENGTH 4500 PSI - CULVERT

REINFORCING STEEL - GRADE 60 MINIMUM YIELD STRENGTH
60,000 PSI (ALL REINFORCING SHALL BE EPOXY COATED)

DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN
INSTALL GALVANIZED DOWEL BARS ACCORDING TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR BLACK REBAR PUBLISHED IN THE ICC-ES REPORTS LISTED BELOW. THE HOLES FOR THE ADHESIVE ANCHORS SHALL BE DRILLED WITH A HAMMER DRILL AND CARBIDE BIT. PRIOR TO THE INSTALLATION OF THE ANCHORS, THE HOLES SHALL BE CLEANED AND DRIED IN A MANNER CONSISTENT WITH THE MANUFACTURER'S REQUIREMENTS FOR DRY CONCRETE.

SELECT FROM ONE OF THE FOLLOWING APPROVED PRODUCTS:

HILTI HIT-HY 200 ADHESIVE ANCHORS
(ICC-ES REPORT ESR-3187)

DEWALT PURE110+ EPOXY ADHESIVE ANCHOR SYSTEM
(ICC-ES REPORT ESR-3298)

SIMPSON STRONG-TIE SET-3G EPOXY ADHESIVE ANCHORS
(ICC-ES REPORT ESR-4057)

ATC ULTRABOND HS-1CC ADHESIVE ANCHOR SYSTEM
(ICC-ES REPORT ESR-4094)

THE MANUFACTURER'S INSTALLATION INSTRUCTION PUBLISHED IN THE ICC-ES REPORTS FOR ACCEPTABLE PRODUCTS ARE AVAILABLE AT:

<https://icc-es.org/evaluation-report-program/>

ITEM 611 - CONDUIT, MISC.: GRANULAR STRUCTURAL BACKFILL, 703.11

STRUCTURAL BACKFILL TYPE 1 CONSISTING OF CRUSHED CARBONATE STONE, THAT MEETS THE GRADATIONS OF ITEM 304 SHALL BE PLACED AS SHOWN IN THE DETAIL BELOW. QUANTITY SHALL BE BASED ON A TRENCH LENGTH OF 92 FEET MEASURED ALONG THE CENTERLINE OF THE CULVERT. PAYMENT FOR STRUCTURAL BACKFILL TYPE 1 AND THE EXCAVATION REQUIRED FOR THE PLACEMENT OF THE STRUCTURAL BACKFILL SHALL BE INCLUDED IN ITEM 611 FOR PAYMENT.

NEW CULVERT BOX SECTION:

POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN 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.

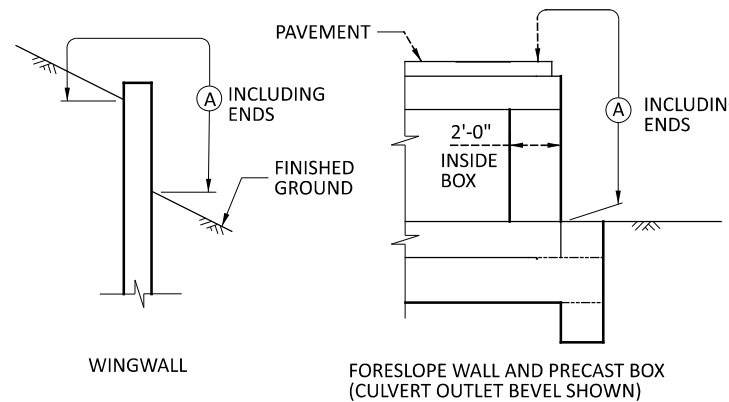
SEALING OF CULVERT BOX FACES AND WINGWALLS: ALL EXPOSED CULVERT BOX FACES AND WINGWALL CONCRETE SHALL BE SEALED WITH EPOXY-URETHANE SEALER. THE LIMITS SHALL BE AS SHOWN IN THE DIAGRAMS BELOW. PAYMENT FOR THE EPOXY-URETHANE SEALER SHALL BE PER ITEM 512 - SEALING OF CONCRETE SURFACES.

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 WINGWALL. PAYMENT FOR MATERIALS AND INSTALLATION SHALL BE INCLUDED WITH ITEM 516 - 1" PREFORMED EXPANSION JOINT FILLER.

WATERPROOFING: TYPE 2 WATERPROOFING, PER CMS 512.09 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.

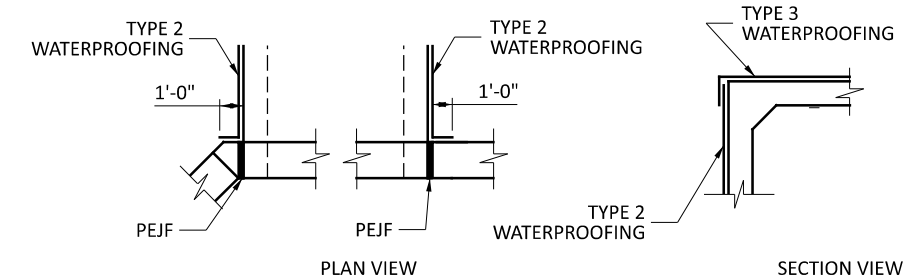
SINCE PAVEMENT WILL BE PLACED DIRECTLY ON TOP OF THE NEW CULVERT SECTION, TYPE 3 WATERPROOFING, PER CMS 512.10 AND 711.29 SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE NEW CULVERT SECTION AND SHALL EXTEND ONE FOOT VERTICALLY DOWN THE SIDES FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 3 WATERPROOFING.

EXTEND TYPE 2 AND 3 WATERPROOFING 1 FOOT BEYOND THE SECTION JOINT OF NEW AND EXISTING SECTIONS.



LIMITS OF ITEM 512-SEALING CONCRETE SURFACES

(A) - SEAL ENTIRE CONCRETE SURFACE AREA



WATERPROOFING DETAILS

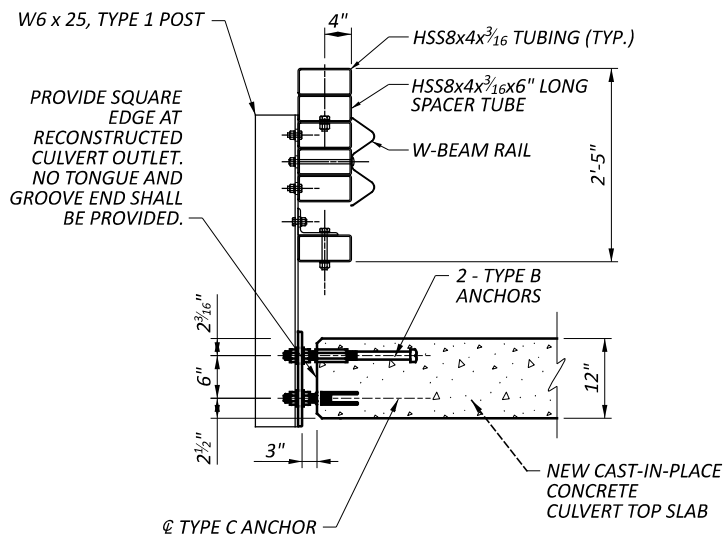
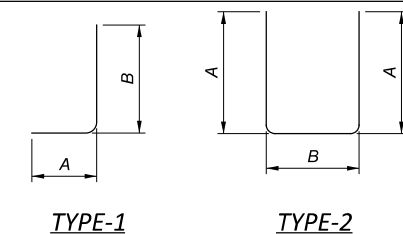
BASIS OF PAYMENT: ALL LABOR, EQUIPMENT AND INCIDENTALS REQUIRED TO CONSTRUCT THE FOOTING, SHALL BE INCLUDED WITH ITEM 511 - CLASS QC1 CONCRETE, FOOTING. PAYMENT FOR REINFORCING STEEL SHALL BE INCLUDED WITH ITEM 509 - EPOXY COATED REINFORCING STEEL.

ESTIMATED QUANTITIES (PLAN SPLIT 04/STR/04)

ITEM	ITEM EXT	TOTAL	UNIT	DESCRIPTION
202	11201	LUMP		PORTIONS OF STRUCTURE REMOVED
202	23000	11	SQ. YD.	PAVEMENT REMOVED
503	11101	LUMP		COFFERDAMS AND EXCAVATION BRACING
503	21300	LUMP		UNCLASSIFIED EXCAVATION
509	10001	1646	LB.	EPOXY COATED STEEL REINFORCEMENT
510	10001	13	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN
511	46510	0.5	CU. YD.	CLASS QC1 CONCRETE, FOOTING
511	33412	8	CU. YD.	CLASS QC2 CONCRETE, SUPERSTRUCTURE
512	74001	18	SQ. YD.	REMOVAL OF EXISTING COATINGS FROM CONCRETE SURFACES
512	10101	36	SQ. YD.	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
512	33001	9	SQ. YD.	TYPE 2 WATERPROOFING, AS PER PLAN
512	33011	32	SQ. YD.	TYPE 3 WATERPROOFING, AS PER PLAN
516	13600	13	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER
517	72300	18.75	LIN. FT.	RAILING (DEEP BEAM RAILING WITH STEEL TUBULAR BACKUP AND TYPE 2 STEEL POSTS AND ANCHOR BOLTS)
517	75600	18.75	LIN. FT.	DEEP BEAM BRIDGE RETROFIT RAILING
518	21201	3.24	CU. YD.	POROUS BACKFILL WITH GEOTEXTILE FABRIC
843	50000	3.24	SQ. YD.	PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR
878	25000	LUMP		INSPECTION AND COMPACTION TESTING OF UNBOUNDED MATERIALS

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS	
					A	B
REINFORCING STEEL LIST						
X501	14	10'-0"	146	STR		
X502	22	5'-2"	119	STR		
X602	28	12'-9"	536	STR		
Y501	14	4'-6"	66	STR		
Y601	28	17'-0"	715	2	5'-10"	5'-8"
F501	15	2'-4"	37	1	0'-8"	1'-10"
F502	2	12'-9"	27	STR		
SUB-TOTAL			1,646			

BENDING DIAGRAMS



CULVERT TOP - PARTIAL TRANSVERSE SECTION

SEE DBR-3-11 AND DBR-2-73 FOR ADDITIONAL DETAILS

