STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS:

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:
BR-2-15 DATED: 01-21-22
HW-2.2 DATED: 07-20-18

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO THE 9TH EDITION OF THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, (2020), AND THE ODOT BRIDGE DESIGN MANUAL, 2020.

DESIGN DATA: THE FOLLOWING DESIGN DATA IS ASSUMED:

INTERNAL ANGLE OF FRICTION OF BACKFILL SOIL, fbf = 30°
TOTAL UNIT WEIGHT OF BACKFILL SOIL = 120 PCF
INTERNAL ANGLE OF FRICTION (DRAINED), FOUNDATION SOIL, ff = 30°
UNDRAINED SHEAR STRENGTH (COHESIVE), FOUNDATION SOIL, Suf = 1500 PSF
UNIT WEIGHT OF CONCRETE = 150 PCF
SLOPE OF BACKFILL = 2:1 (TYPE A & B HEADWALLS)
HEIGHT OF LIVE LOAD SURCHARGE = 2 FT (TYPE C HEADWALLS)

CONCRETE - 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 GALVANIZED)

BASED ON THE ASSUMED DESIGN DATA, THE WINGWALLS ACHIEVE FACTORED BEARING RESISTANCES THAT ARE GREATER THAN THEIR RESPECTIVE BEARING PRESSURES. IF A BACKFILL MATERIAL WITH A HIGHER INTERNAL ANGLE OF FRICTION OR A LIGHTER TOTAL UNIT WEIGHT IS USED; OR IF A FOUNDATION SOIL WITH A HIGHER DRAINED INTERNAL ANGLE OF FRICTION OR A HIGHER UNDRAINED SHEAR STRENGTH IS ENCOUNTERED; THEN THE STABILITY OF THE WINGWALLS IS SATISFACTORY.

EXISTING STRUCTURE VERIFICATION

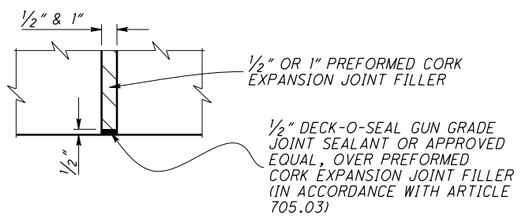
DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY , THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02 AND 513.04.

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

ITEM 516 ½" OR 1" PREFORMED EXPANSION JOINT FILLER, AS PER PLAN

ALL ½" OR 1" P.E.J.F. CALLED FOR IN THE PLANS SHALL BE PREFORMED CORK JOINT FILLER (IN ACCORDANCE WITH ARTICLE 705.03). RECESS JOINT FILLER ½" FOR ALL JOINTS (SEE DETAIL). SEAL ALL JOINTS WITH DECK-O-SEAL GUN GRADE-JOINT SEALANT OR AN APPROVED EQUAL. THE COLOR SHALL BE STONE GRAY. APPROVED MANUFACTURER'S APPLICATION METHODS SHALL BE FOLLOWED DURING SURFACE PREPARATION AND APPLICATION FOR MAXIMUM EFFECTIVENESS.

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



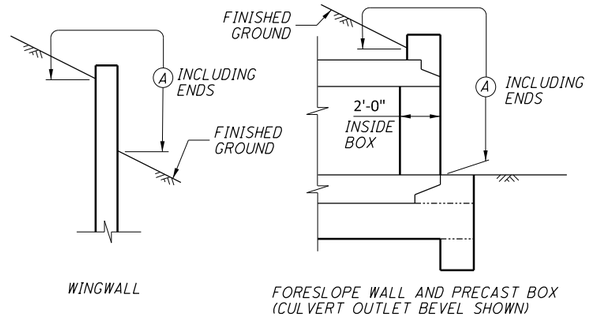
PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 516 - ½" OR 1" PEJF, A.P.P., SQ.FT., AND SHALL INCLUDE ALL LABOR, EQUIPMENT, AND INCIDENTALS REQUIRED TO COMPLETE THE WORK DESCRIBED.

ITEM 503 UNCLASSIFIED EXCAVATION

IN ADDITION TO THE REQUIREMENTS OF ITEM 503, THIS ITEM SHALL INCLUDE ANY SEDIMENT REMOVAL UNDER THE EXISTING STRUCTURE TO ALLOW FOR THE CONSTRUCTION/INSTALLATION OF THE PROPOSED STRUCTURE.

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.

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.



WINGWALL

FORESLOPE WALL AND PRECAST BOX (CULVERT OUTLET BEVEL SHOWN)

LIMITS OF ITEM 512-SEALING CONCRETE SURFACES

(A) - SEAL ENTIRE CONCRETE SURFACE AREA

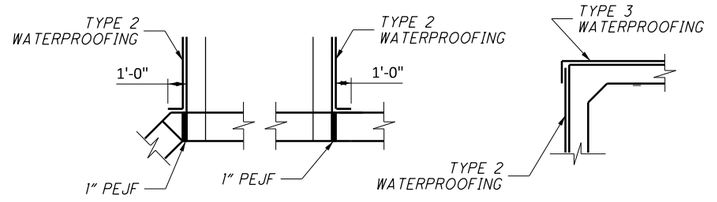
ITEM 203 EXCAVATION
ITEM 204 GRANULAR MATERIAL, TYPE C
ITEM 3014 AGGREGATE BASE

THE LISTED ITEMS HAVE BEEN INCLUDED TO BE USED UNDER BOTH THE INLET AND OUTLET FOOTINGS AS NECESSARY FOR CONSTRUCTION. THE ESTIMATED AREA OF UNDERCUT UNDER THE INLET IS 75 SF AND THE OUTLET IS 125 SF. ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED WITH PAYMENT OF THE LISTED ITEMS BELOW:

ITEM 203 EXCAVATION (2 FT DEEP)	15 CY
ITEM 204 GRANULAR MATERIAL, TYPE C (1.5 FT DEEP)	11 CY
ITEM 304 AGGREGATE BASE (6" DEEP)	4 CY

QUANTITIES CARRIED TO GENERAL SUMMARY

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.
IF PAVEMENT IS NOT PLACED DIRECTLY ON TOP OF THE CULVERT, TYPE 2 WATERPROOFING, PER CMS 512.09 AND 711.25 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 2 WATERPROOFING.
IF PAVEMENT IS TO BE USED DIRECTLY ON TOP OF THE CULVERT, TYPE 3 WATERPROOFING, PER CMS 512.10 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.



PLAN VIEW SECTION VIEW

WATERPROOFING DETAILS

ITEM 202 STRUCTURE REMOVED, AS PER PLAN

ALL REMOVALS UNDER CMS ITEM 202.03 SHALL BE INCLUDED WITH PAYMENT UNDER THIS ITEM. ALSO INCLUDED FOR REMOVAL WITH THIS ITEM IS APPROXIMATELY 4 FT OF EXISTING RETAINING WALL ALONG THE CONCRETE CHANNELIZED DITCH. CARE SHALL BE TAKEN TO PROVIDE A CLEAN JOINT CUT BETWEEN THE EXISTING AND PROPOSED RETAINING WALL. IN ADDITION THE REMOVAL OF THE EXISTING PARAPET AND BARRIER WALL ON THE OUTLET SIDE OF THE STRUCTURE ALONG THE WALK SHALL BE INCLUDED WITH PAYMENT FOR THIS ITEM.

ITEM 511 CLASS QC1 CONCRETE, RETAINING WALL OR WINGWALL INCLUDING FOOTING AS PER PLAN

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 QC1 CONCRETE, RETAINING WALL OR WINGWALL INCLUDING FOOTING).

ITEM 511 CLASS QC2 CONCRETE, SIDEWALK, AS PER PLAN

ALL CONCRETE REQUIRED TO CONSTRUCT THE SIDEWALK AND BARRIER WALL SHALL BE INCLUDED WITH ITEM 511 CLASS QC2 CONCRETE, SIDEWALK, AS PER PLAN

ESTIMATED QUANTITIES

ITEM	ITEM EXT	TOTAL	UNIT	DESCRIPTION
202	11001	LUMP		STRUCTURE REMOVED, AS PER PLAN
503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING
503	21300	LUMP		UNCLASSIFIED EXCAVATION
509	26000	3,210	LB.	GALVANIZED STEEL REINFORCEMENT
511	46211	22	CU. YD.	CLASS QC1 CONCRETE, RETAINING WALL OR WINGWALL INCLUDING FOOTING, AS PER PLAN
511	51511	9	CU. YD.	CLASS QC2 CONCRETE, SIDEWALK, AS PER PLAN
512	10100	40	SQ. YD.	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
512	33000	126	SQ. YD.	TYPE 2 WATERPROOFING
512	33010	110	SQ. YD.	TYPE 3 WATERPROOFING
516	13201	15	SQ. FT.	1/2" PREFORMED EXPANSION JOINT FILLER, AS PER PLAN
516	13601	42	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER, AS PER PLAN
518	21230	LUMP		POROUS BACKFILL WITH GEOTEXTILE FABRIC

NOTE: TOTALS CARRIED TO GENERAL SUMMARY SHEET

CALCULATED JKS CHECKED TAG

STRUCTURE NOTES

MUS-22-09.95