


SHEET NUM.								PART.	ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.
3	4	6	17				01/BRF/11		EXT	TOTAL				
													<b>ROADWAY</b>	
							LS	201	11000	LS			CLEARING AND GRUBBING	
		216					216	202	23000	216	SY		PAVEMENT REMOVED	
		255					255	202	30000	255	SF		WALK REMOVED	
		45					45	202	35100	45	FT		PIPE REMOVED, 24" AND UNDER	
		1					1	202	58100	1	EACH		CATCH BASIN REMOVED	
		68					68	203	10000	68	CY		EXCAVATION	
		9					9	203	20000	9	CY		EMBANKMENT	
		15					15	203	98000	15	CY		ROADWAY, MISC.: EXCAVATION FOR WATERMAIN TRENCH	4
		307					307	204	10000	307	SY		SUBGRADE COMPACTION	
		451					451	608	10000	451	SF		4" CONCRETE WALK	
		60					60	608	13000	60	SF		6" CONCRETE WALK	
													<b>EROSION CONTROL</b>	
		71					71	601	32200	71	CY		ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	
		27					27	659	00300	27	CY		TOPSOIL	
		239					239	659	10000	239	SY		SEEDING AND MULCHING	
		0.03					0.03	659	20000	0.03	TON		COMMERCIAL FERTILIZER	
		0.05					0.05	659	31000	0.05	ACRE		LIME	
		1.3					1.3	659	35000	1.3	MGAL		WATER	
							2,500	832	30000	2,500	EACH		EROSION CONTROL	
													<b>DRAINAGE</b>	
	30						30	611	00900	30	FT		6" CONDUIT, TYPE B, FOR DRAINAGE CONNECTION	
	30						30	611	01500	30	FT		6" CONDUIT, TYPE F, FOR DRAINAGE CONNECTION	
		56					56	611	04600	56	FT		12" CONDUIT, TYPE C	
		10					10	611	10600	10	FT		24" CONDUIT, TYPE C	
		1					1	611	98470	1	EACH		CATCH BASIN, NO. 2-2B	
													<b>PAVEMENT</b>	
		32					32	301	56000	32	CY		ASPHALT CONCRETE BASE, PG64-22, (449)	
		48					48	304	20000	48	CY		AGGREGATE BASE	
		33					33	407	10000	33	GAL		TACK COAT	
		23					23	441	70000	23	CY		ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22	
		17					17	452	12010	17	SY		8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P	
													<b>WATER WORK</b>	
		103					103	638	01720	103	FT		8" WATER MAIN POLYVINYL CHLORIDE PIPE AND FITTINGS, AWWA C900, DR18	
		20					20	638	05300	20	FT		3/4" POLYETHYLENE SERVICE BRANCH	
		2					2	638	98000	2	EACH		WATER WORK, MISC.: LINE STOP	4
													<b>STRUCTURE 20 FOOT SPAN AND UNDER (SFN 8860290)</b>	
			LS				LS	202	11002	LS			STRUCTURE REMOVED, OVER 20 FOOT SPAN	
			LS				LS	503	11100	LS			COFFERDAMS AND EXCAVATION BRACING	
			LS				LS	503	21300	LS			UNCLASSIFIED EXCAVATION	
			52				52	503	31100	52	CY		ROCK EXCAVATION	
			4,160				4,160	509	10000	4,160	LB		EPOXY COATED STEEL REINFORCEMENT	
			17				17	511	46010	17	CY		CLASS QC1 CONCRETE, RETAINING/WINGWALL NOT INCLUDING FOOTING	
			35				35	511	46510	35	CY		CLASS QC1 CONCRETE, FOOTING	
			62				62	512	10050	62	SY		SEALING OF CONCRETE SURFACES (NON-EPOXY)	
			180				180	512	33000	180	SY		TYPE 2 WATERPROOFING	
			38				38	516	13600	38	SF		1" PREFORMED EXPANSION JOINT FILLER	
			75				75	517	76300	75	FT		RAILING, MISC.: PEDESTRIAN RAILING	
			LS				LS	518	21230	LS			POROUS BACKFILL WITH GEOTEXTILE FABRIC	
			45				45	611	96478	45	FT		18' X 6' CONDUIT, TYPE A, 706.05	
													<b>MAINTENANCE OF TRAFFIC</b>	
10							10	410	12000	10	CY		TRAFFIC COMPACTED SURFACE, TYPE A OR B	
0.3							0.3	616	10000	0.3	MGAL		WATER	
													<b>INCIDENTALS</b>	
							LS	614	11000	LS			MAINTAINING TRAFFIC	
							3	619	16010	3	MNTH		FIELD OFFICE, TYPE B	
							LS	623	10000	LS			CONSTRUCTION LAYOUT STAKES AND SURVEYING	
							LS	624	10000	LS			MOBILIZATION	
							LS	623	50000	LS			PRECONSTRUCTION SURVEY MONUMENT VERIFICATION AND REPORT	
							LS	623	51000	LS			POST CONSTRUCTION SURVEY MONUMENT VERIFICATION AND REPORT	

GENERAL SUMMARY

DESIGN AGENCY  
  
 POGGEMEYER  
 DESIGN GROUP  
 A Kleinfelder Company

DESIGNER  
 HAC

REVIEWER  
 JTY 02/22/22

PROJECT ID  
 113765

SHEET TOTAL  
 5 26

SEEDING ITEM CALCULATIONS (CARRIED TO GENERAL SUMMARY)

TOPSOIL:	239 SY x 111 CY/1000SY	= 27 CU YD
COMMERCIAL FERTILIZER:	239 SY x 1 TON / 7410 SY	= 0.03 TONS
WATER:	239 SY x 0.0027 M. GAL/SY x 2 APP.	= 1.3 M. GAL.
LIME:	239 SY /4840 SY/ACRE	= 0.05 ACRE

EARTHWORK

SHEET NUMBER	STATION		203	203	659
	FROM	TO	EXCAVATION CY	EMBANKMENT CY	SEEDING AND MULCHING SY
9	102+50	103+00	0	0	20
10	103+08	103+50	40	3	103
11	103+59	104+00	28	6	116
TOTALS CARRIED TO GENERAL SUMMARY			68	9	239

DRAINAGE(D), EROSION CONTROL(ER) & WATER (WW)

SHEET NUMBER	DESIGNATION	STATION		SIDE	202	202	601	611	611	611	638	638	638	203
		FROM	TO/AT		PIPE REMOVED, 24" AND UNDER FT	CATCH BASIN REMOVED EACH	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER CU YD	12" CONDUIT, TYPE C FT	24" CONDUIT, TYPE C FT	CATCH BASIN, NO. 2-2B EACH	8" WATER MAIN POLYVINYL CHLORIDE PIPE AND FITTINGS, AWWA C900, DR18 FT	WATER WORK, MISC.: LINE STOP EACH	3/4" POLYETHYLENE SERVICE BRANCH FT	ROADWAY, MISC.: ROCK EXCAVATION FOR WATER MAIN TRENCH CU YD
7	D1	103+71	103+96	RT	25									
7	D2	103+42	103+98	RT	10	1		56		1				
7	D3	103+88	103+98	LT	10				10					
7	ER1	103+88	104+03	LT			13							
7	ER2	104+10	104+26	LT			14							
7	ER3	103+91	104+26	RT			44							
12	WW1		103+65	RT								1		
12	WW2	103+72	104+46	RT							103			15
12	WW3		104+48	RT							1			
12	WW4		103+71	RT								20		
TOTALS TO GENERAL SUMMARY					45	1	71	56	10	1	103	2	20	15

PAVEMENT, DRIVE (DR), WALK (W) QUANTITIES

SHEET NUMBER	DESIGNATION	STATION		SIDE	WIDTH (FT.)	202	202	204	301	304	407	441	452	608	608
		FROM	TO/AT			PAVEMENT REMOVED SY	WALK REMOVED SF	SUBRADE COMPACTION SY	ASPHALT CONCRETE BASE, PG64-22, (449) CY	AGGREGATE BASE CY	TACK COAT GAL	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449) PG64-22 (TWO COURSES) CY	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P SY	4" CONCRETE WALK SF	6" CONCRETE WALK SF
		103+50	104+35	LT&RT	24.00			255	26	40	27	18.9			
		104+35	104+50	LT&RT	24.55			46	5	7	5	3.4			
		103+50	103+93	LT&RT	VARIES	123									
		104+20	104+50	LT&RT	VARIES	87									
12	W1	103+50	104+51	RT	-		255							451	60
12	DR1	103+50	103+77	LT	-								17		
12	DR2	103+50	103+70	RT	-	6		6	1	1	1	0.5			
TOTALS TO GENNERAL SUMMARY						216	255	307	32	48	33	23	17	451	60



**DESIGN SPECIFICATIONS:** THIS STRUCTURE CONFORMS TO "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 LOADING:** HL-93

**OPERATIONAL IMPORTANCE:** A LOAD MODIFIER OF 1.0 HAS BEEN ASSUMED FOR THE DESIGN OF THIS STRUCTURE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 1.3.5 AND THE ODOT BRIDGE DESIGN MANUAL, 2020.

**DESIGN DATA:** THE FOLLOWING DESIGN DATA IS ASSUMED:

INTERNAL ANGLE OF FRICTION OF BACKFILL SOIL,  $\phi_{br} = 30^\circ$   
 TOTAL UNIT WEIGHT OF BACKFILL SOIL = 120 PCF  
 INTERNAL ANGLE OF FRICTION (DRAINED), FOUNDATION SOIL,  $\phi_f = 28^\circ$   
 NORMAL BEARING CAPACITY = 80 KSF  
 UNIT WEIGHT OF CONCRETE = 150 PCF  
 HEIGHT OF LIVE LOAD SURCHARGE = 2 ft.

CONCRETE CLASS QC1 - 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)

**PRECAST CONCRETE:** AT THE OPTION OF THE CONTRACTOR, PRECAST WINGWALLS MAY BE USED IN ACCORDANCE WITH CMS 602.03.E.

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

THREADED INSERTS OR NON-PROTRUDING MECHANICAL CONNECTORS CAPABLE OF DEVELOPING AT LEAST 125 PERCENT OF THE SPECIFIED YIELD STRENGTH OF THE REINFORCEMENT SHOWN ARE AN ACCEPTABLE ALTERNATIVE TO RESIN BONDING. MAINTAIN A MINIMUM COVER OF 3 INCHES AT THE BOTTOM OF THE CULVERT SLAB. MECHANICAL CONNECTORS SHALL HAVE AN "L-SHAPED" BAR INSIDE THE CULVERT WITH A MINIMUM HORIZONTAL LENGTH OF 12 INCHES. THE DEPARTMENT WILL CONSIDER PAYMENT FOR INSERTS OR MECHANICAL CONNECTORS AS INCIDENTAL TO 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 GEOTEXTILE FABRIC:** 1'-6" THICK SHALL BE PLACED BEHIND THE WINGWALLS ONLY AND SHALL EXTEND TO 12" BELOW THE EMBANKMENT SURFACE. GEOTEXTILE FABRIC, TYPE A 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:** 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 NON-EPOXY SEALER. THE LIMITS SHALL BE AS SHOWN IN THE DIAGRAMS BELOW. PAYMENT FOR THE NON-EPOXY SEALER SHALL BE PER ITEM 512 - SEALING OF CONCRETE SURFACES.

**LOAD RATING:** IN ACCORDANCE WITH CMS 611.04, A LOAD RATING REPORT SHALL BE PROVIDED FOR THE PRECAST CONCRETE BOX CULVERT.

**GENERAL NOTES**

**ITEM 517, RAILING, AS PER PLAN**  
 RAILING SHALL BE PROVIDED AND INSTALLED PER ODOT ITEM 517 RAILINGS, EXCEPT AS MODIFIED IN PLAN DOCUMENTS. THIS ITEM SHALL INCLUDE ALL MANPOWER, MATERIALS, EQUIPMENT, APPURTENANCES AND INCIDENTALS TO INSTALL THE PRESCRIBED RAILING COMPLETE AND IN PLACE PER PLAN.

RAILING SHALL BE FABRICATED FROM NOMINAL SIZE 1 1/2" DIAMETER, 0.145 INCHES WALL THICKNESS STEEL PIPE MEETING THE REQUIREMENTS OF THE SPECIFICATION FOR WELDED AND SEAMLESS STEEL PIPE ASTM A 53 STANDARD WEIGHT, SCHEDULE NUMBER 40, OR ALUMINUM PIPE MEETING THE REQUIREMENTS OF THE SPECIFICATION FOR ALUMINUM-ALLOY PIPE ASTM B 241, 6063 T6 ASA, SCHEDULE NUMBER 40.

STEEL RAILS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASTM A 123. SPLICES FOR STEEL RAILING SHALL BE FIELD-WELDED. AREAS ON WHICH THE SPELTER COATING HAS BEEN DAMAGED SHALL BE RE-GALVANIZED IN ACCORDANCE WITH AASHTO M 36 SECTION 24, METALIZING PROCESS OR THEY SHALL BE REPAIRED UNDER THE DIRECTION OF THE ENGINEER WITH SLICK-FORM GALVANIZING REPAIR COMPOUND MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION O-G-93.

SPLICES FOR RAILING SHALL BE PROVIDED WITH INTERNAL SLEEVES AND SHALL BE SMOOTH AND WATER TIGHT AFTER WELDING.

POSTS SHALL BE SET IN SOCKETS FILLED WITH NON-SHRINK EPOXY GROUT. THAT PORTION OF POST SET IN CONCRETE OR MORTAR SHALL BE GIVEN A HEAVY COATING OF ASPHALT VARNISH OR COAL-TAR PITCH PAINT, BOTH INSIDE AND OUTSIDE.

THE INSTALLED POSTS AND HANDRAILS SHALL BE FREE OF BURRS OR SHARP PROJECTIONS.

CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.

CONTRACTOR SHALL REPAIR ANY SCRATCHES OR CHIPPED PAINT PRIOR TO FINAL ACCEPTANCE. PAINTED SURFACE SHALL BE WARRANTED TO BE FREE OF BLISTERS AND FLAKING PAINT FOR ONE YEAR FROM DATE OF PROJECT ACCEPTANCE. SCRATCHES FROM USE AFTER FINAL PROJECT ACCEPTANCE ARE NOT PROTECTED BY WARRANTY.

ANY MODIFICATIONS TO RAILING DESIGN AND ANCHORING METHOD SHALL REQUIRE APPROVAL OF ENGINEERS.

**BASIS OF PAYMENT:** ALL MANPOWER, MATERIALS AND EQUIPMENT NECESSARY TO INSTALL RAILING COMPLETELY AND IN PLACE, INCLUDING PAINTING, ANCHORING, AND SITE RESTORATION SHALL BE INCLUDED IN THE UNIT PRICE PER FOOT (FT) OF RAILING INSTALLED, MEASURED LENGTH IS FROM OUTSIDE EDGE TO OUTSIDE EDGE OF INSTALLED RAILING SECTIONS.

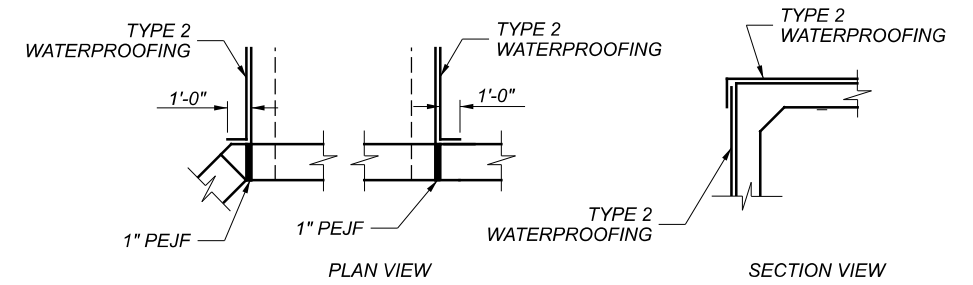
EXISTING STRUCTURE REMOVED, OVER 20 FOOT SPAN

REMOVAL OF THE EXISTING STRUCTURE SHALL INCLUDE REMOVAL OF THE EXISTING PEDESTRIAN BRIDGE.

**FOUNDATION BEARING RESISTANCE:** THE FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM SERVICE LIMIT STATE BEARING PRESURE OF 2.3 KIPS PER SQUARE FOOT AND A MAXIMUM STRENGTH LIMIT STATE BEARING PRESURE OF 3.7 KIPS PER SQUARE FOOT. THE FACTORED BEARING RESISTANCE IS 17.4 KIPS PER SQUARE FOOT.

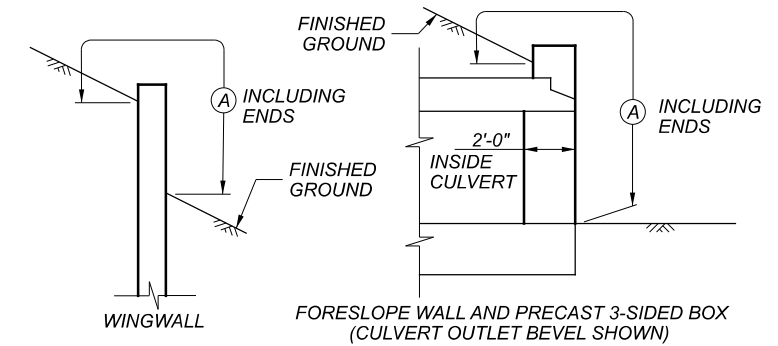
**WATERPROOFING:** TYPE 2 WATERPROOFING, PER CMS 512 AND 711.25, SHALL EXTEND VERTICALLY DOWN THE ENTIRE SIDES OF THE PRECAST CULVERT SECTIONS FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE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

TYPE 2 WATERPROOFING, PER CMS 512 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.



**WATERPROOFING DETAILS**

**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/ 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

**ESTIMATED QUANTITIES**

ITEM	EXT	TOTAL	UNIT	DESCRIPTION	SEE SHT.
202	11002	LUMP		STRUCTURE REMOVED, OVER 20 FOOT SPAN	
503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING	
503	21300	LUMP		UNCLASSIFIED EXCAVATION	
503	31100	52	CY	ROCK EXCAVATION	
509	10000	4160	POUNDS	EPOXY COATED STEEL REINFORCEMENT	
511	46010	17	CU. YD.	CLASS QC1 CONCRETE, RETAINING WINGWALL NOT INCLUDING FOOTING	
511	46510	35	CU. YD.	CLASS QC1 CONCRETE, FOOTING	
512	10050	62	SQ. YD.	SEALING OF CONCRETE SURFACES (NON-EPOXY)	
512	33000	180	SQ. YD.	TYPE 2 WATERPROOFING	
516	13600	38	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER	
517	76300	75	FT.	RAILING, MISC.: PEDESTRIAN RAILING	2 OF 6
518	21230	LUMP		POROUS BACKFILL WITH GEOTEXTILE FABRIC	
611	96478	45	FT.	18' x 6' CONDUIT, TYPE A, 706.05	