


SHEET NUM.										PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
P.57		P.74		P.80						01/STR/10	02/STR/04						
STRUCTURE OVER 20 FOOT SPAN (DEL-00521-10.320)																	
LS										LS		202	11002	LS		STRUCTURE REMOVED, OVER 20 FOOT SPAN	P.54
111										111		202	22900	111	SY	APPROACH SLAB REMOVED	
LS										LS		503	11100	LS		COFFERDAMS AND EXCAVATION BRACING	
LS										LS		503	21300	LS		UNCLASSIFIED EXCAVATION	
LS										LS		505	11100	LS		PILE DRIVING EQUIPMENT MOBILIZATION	
560										560		507	00100	560	FT	STEEL PILES HP10X42, FURNISHED	
480										480		507	00150	480	FT	STEEL PILES HP10X42, DRIVEN	
31,405										31,405		509	26000	31,405	LB	GALVANIZED STEEL REINFORCEMENT	
105										105		511	34444	105	CY	CLASS QC2 CONCRETE, BRIDGE DECK	
78										78		511	43510	78	CY	CLASS QC1 CONCRETE, ABUTMENT INCLUDING FOOTING	
89										89		512	10050	89	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)	
11										11		512	33000	11	SY	TYPE 2 WATERPROOFING	
48,000										48,000		513	10261	48,000	LB	STRUCTURAL STEEL MEMBERS, LEVEL 3, AS PER PLAN	P.54
1,026										1,026		513	20000	1,026	EACH	WELDED STUD SHEAR CONNECTORS	
86										86		516	13200	86	SF	1/2" PREFORMED EXPANSION JOINT FILLER	
86										86		516	13600	86	SF	1" PREFORMED EXPANSION JOINT FILLER	
38										38		516	13900	38	SF	2" PREFORMED EXPANSION JOINT FILLER	
107										107		516	14020	107	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL	
12										12		516	44000	12	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (12" X 12" X 1.914")	
132										132		517	70100	132	FT	RAILING (THREE STEEL TUBE BRIDGE RAILING)	
4										4		518	21200	4	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	
127										127		SPECIAL	51822300	127	FT	STEEL DRIP STRIP	P.66
121										121		518	40000	121	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	
52										52		518	40010	52	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	
178										178		526	15001	178	SY	REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN	P.70
80										80		526	90031	80	FT	TYPE C INSTALLATION, AS PER PLAN	P.70
1										1		625	33000	1	EACH	STRUCTURE GROUNDING SYSTEM	
STRUCTURE 20 FOOT SPAN AND UNDER (DEL-00521-11.980)																	
		LS								LS		202	11000	LS		STRUCTURE REMOVED	
		LS								LS		503	11100	LS		COFFERDAMS AND EXCAVATION BRACING	
		63								63		503	21100	63	CY	UNCLASSIFIED EXCAVATION	
		3,696								3,696		509	10000	3,696	LB	EPOXY COATED STEEL REINFORCEMENT	
		12								12		511	46010	12	CY	CLASS QC1 CONCRETE, RETAINING/WINGWALL NOT INCLUDING FOOTING	
		27								27		511	46510	27	CY	CLASS QC1 CONCRETE, FOOTING	
		1								1		511	46610	1	CY	CLASS QC1 CONCRETE, HEADWALL	
		41								41		512	10050	41	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)	
		189								189		512	33000	189	SY	TYPE 2 WATERPROOFING	
		26								26		516	13600	26	SF	1" PREFORMED EXPANSION JOINT FILLER	
		6								6		518	21200	6	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	
		84								84		611	94936	84	FT	9' X 4' CONDUIT, TYPE A, 706.05	
STRUCTURE OVER 20 FOOT SPAN (DEL-00521-12.750)																	
				LS						LS		202	11002	LS		STRUCTURE REMOVED, OVER 20 FOOT SPAN	
				111						111		202	22900	111	SY	APPROACH SLAB REMOVED	
				LS						LS		503	11100	LS		COFFERDAMS AND EXCAVATION BRACING	
				605						605		503	21100	605	CY	UNCLASSIFIED EXCAVATION	
				19,112						19,112		509	10000	19,112	LB	EPOXY COATED STEEL REINFORCEMENT	
				313						313		511	46512	313	CY	CLASS QC1 CONCRETE WITH QC/QA, FOOTING	
				13						13		511	46010	13	CY	CLASS QC1 CONCRETE, RETAINING/WINGWALL NOT INCLUDING FOOTING	
				2						2		511	46610	2	CY	CLASS QC1 CONCRETE, HEADWALL	
				82						82		512	10050	82	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)	
				161						161		512	33000	161	SY	TYPE 2 WATERPROOFING	
				289						289		512	33010	289	SY	TYPE 3 WATERPROOFING	
				31						31		516	13600	31	SF	1" PREFORMED EXPANSION JOINT FILLER	
				13						13		518	21200	13	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	
				72						72		611	70000	72	FT	CONDUIT, TYPE A, PRECAST REINFORCED CONCRETE THREE SIDED FLAT TOPPED CULVERT (34'-0" SPAN X 10'-0" RISE)	

GENERAL SUMMARY

DESIGN AGENCY

 www.bgegroup.com
 5560 WILCOX PLACE, SUITE C
 DUBLIN, OHIO 43016

DESIGNER
 JEP

REVIEWER
 RG 08-28-24

PROJECT ID
 105433

SHEET TOTAL
 P.13 101

GENERAL NOTES:

DESIGN SPECIFICATION:

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

DESIGN DATA:

THE FOLLOWING DESIGN DATA IS ASSUMED:

INTERNAL ANGLE OF FRICTION, (ϕ_{bf}) = 30°
 TOTAL UNIT WEIGHT OF BACKFILL SOIL = 120 PCF
 INTERNAL ANGLE OF FRICTION (DRAINED), FOUNDATION SOIL, $\phi_f = 28^\circ$
 UNDRAINED SHEAR STRENGTH (COHESIVE), FOUNDATION SOIL, $S_{uf} = 1500$ 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 CLASS QC1 - REQUIRED 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)

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 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.

FORESLOPE WALL ANCHOR DOWELS:

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.

TYPICAL ABBREVIATIONS:

- C.J. - CONSTRUCTION JOINT
- CLR. - CLEAR
- DIA. - DIAMETER
- E.F. - EACH FACE
- EQ. - EQUAL
- F.F. - FAR FACE
- INV. - INVERT
- PEJF. - PREFORMED EXPANSION JOINT FILLER
- MIN. - MINIMUM
- N.F. - NEAR FACE
- SPA. - SPACING / SPACE
- T - TOP
- B - BOTTOM
- T&B - TOP AND BOTTOM
- TYP. - TYPICAL

POROUS BACKFILL WITH GEOTEXTILE FABRIC:

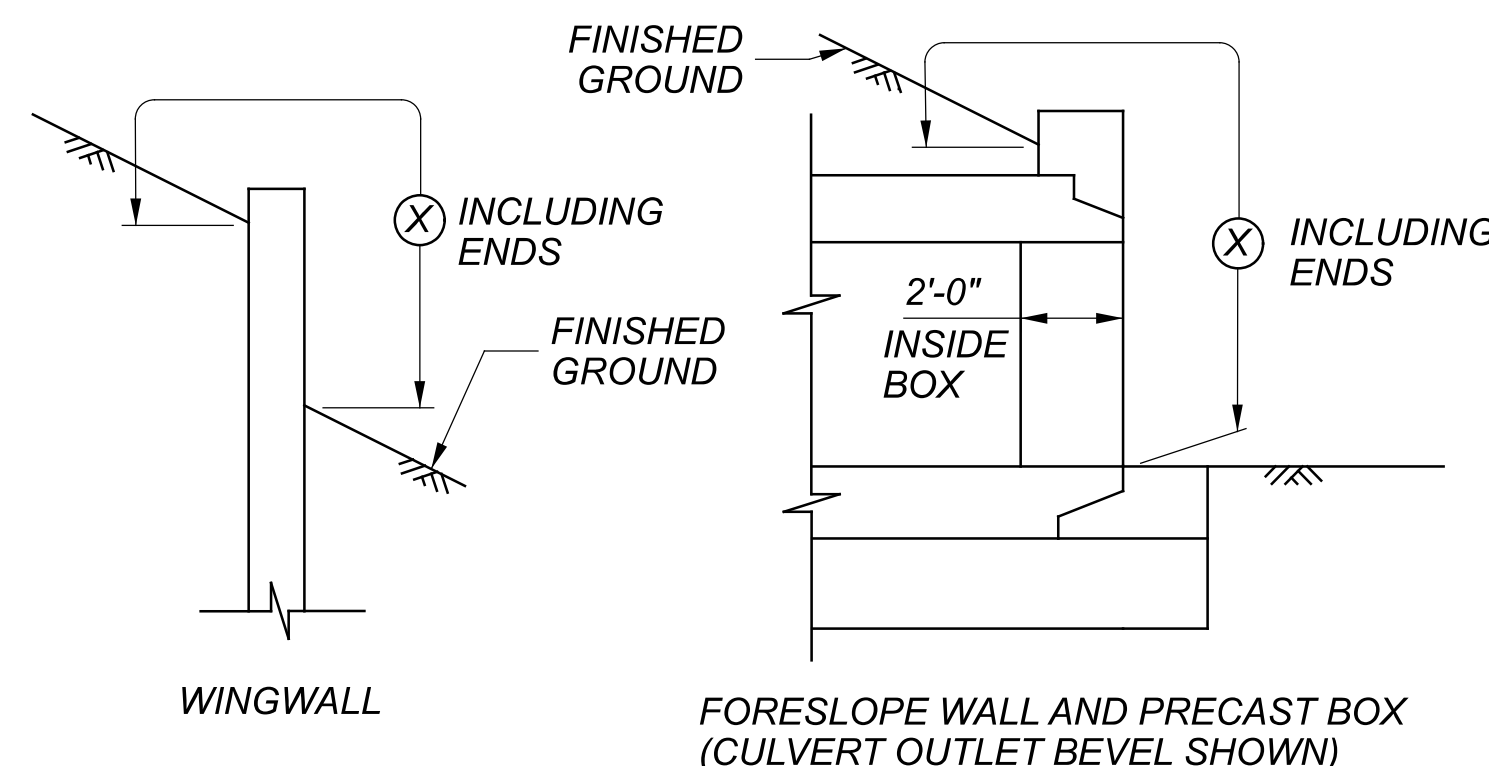
POROUS BACKFILL WITH GEOTEXTILE FABRIC 1'-6" THICK SHALL BE PLACED BEHIND THE WINGWALLS ONLY AND SHALL EXTEND TO 12" BELOW THE EMBANKMENT SURFACE. GEOTEXTILE FABRIC SHALL BE PLACED BETWEEN THE POROUS BACKFILL AND REPLACED EXCAVATION ADJACENT TO THE STRUCTURE. IT SHALL TURN UNDER THE BOTTOM OF THE POROUS 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: 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, (EPOXY-URETHANE).



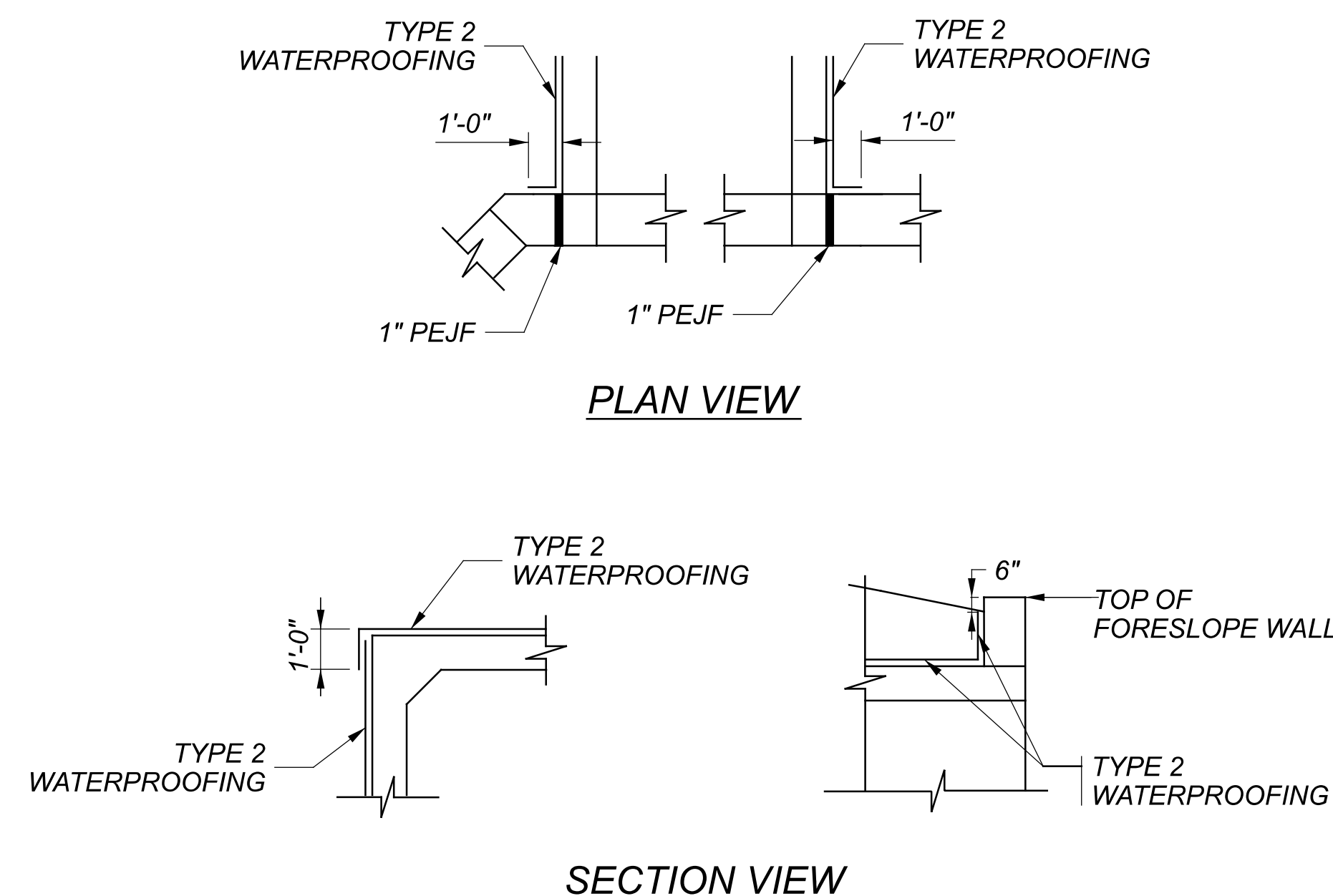
LIMITS OF ITEM 512-SEALING CONCRETE SURFACES WITH (EPOXY-URETHANE)

(X) - SEAL ENTIRE CONCRETE SURFACE AREA

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.



ESTIMATED QUANTITIES				PREPARED BY:	JEP	CHECKED:	MS
				DATE:	7/5/2023	DATE:	2/23/2024
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION			
202	11000	LUMP	LUMP	STRUCTURE REMOVED			
503	11100	LUMP	LUMP	COFFERDAMS AND EXCAVATION BRACING			
503	21100	63	CY	UNCLASSIFIED EXCAVATION			
509	10000	3696	LB	EPOXY COATED STEEL REINFORCEMENT			
511	46010	12	CY	CLASS QC1 CONCRETE, RETAINING/WINGWALL NOT INCLUDING FOOTING			
511	46510	27	CY	CLASS QC1 CONCRETE, FOOTING			
511	46610	1	CY	CLASS QC1 CONCRETE, HEADWALL			
512	10050	41	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)			
512	33000	189	SY	TYPE 2 WATERPROOFING			
516	13600	26	SF	1" PREFORMED EXPANSION JOINT FILLER			
518	21200	6	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC			
611	94936	84	FT	9' x 4' CONDUIT, TYPE A, 706.05			

GENERAL NOTES AND ESTIMATED QUANTITIES
 BRIDGE NO. DEL-00521-11.980
 S.R. 521 OVER ROSECRANS RUN

CFN
 XXXXXXXX
 DESIGN AGENCY

 www.bgggroup.com
 6960 WILCOX PLACE, SUITE C
 DUBLIN, OHIO 43016
 DESIGNER: MS
 CHECKER: RG
 REVIEWER:
 GTB 06-05-24
 PROJECT ID: 105433
 SUBSET: 2
 TOTAL: 6
 SHEET: P.74
 TOTAL: 101