E.L. ROBINSON
ENGINEERING

Computation for: **ESTIMATED QUANTITIES**

SFN: **4903391**

Structure: **MAD-00071-08.740L**

PID: **107630**

Design:	**DTA/GA**	Date	**June 24, 2021**
Check:	**BCW/MRV**	Date	**June 24, 2021**
Update:		Date	
Recheck:		Date	

File Names

Comments

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 202E11203 **PAY UNIT:** LS
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
SPECIAL INSTRUCTIONS:	**TOTAL**	**LS**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 202E22900 **PAY UNIT:** SY
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: APPROACH SLAB REMOVED
SUPPLEMENTAL DESCRIPTION:

							SUBTOTAL	TOTAL
Rear Approach Slab								
Width =	38.00	ft						
Length =	25.50	ft						
Area =	969.00	ft^2	/	9	=	107.67 yd^2	108	108
Forward Approach Slab								
Width =	38.00	ft						
Length =	25.50	ft						
Area =	969.00	ft^2	/	9	=	107.67 yd^2	108	216

SPECIAL INSTRUCTIONS: **TOTAL** **216**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 503E11101 **PAY UNIT:** LS
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
SPECIAL INSTRUCTIONS:	**TOTAL**	**LS**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN:	DTA/GA	DATE:	6/24/21	UPDATE:		DATE:	
CHECK:	BCW/MRV	DATE:	6/24/21	RECHECK:		DATE:	
STRUCTURE:	MAD-00071-08.740L			SFN:	4903391	PID:	107630

ITEM: 503E21100 PAY UNIT: CY
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: UNCLASSIFIED EXCAVATION
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
Rear Abutment (@ Existing Abutment)		
Bottom El. = 886.00; Bot. Width (Front)= 3.00 ft; Front Slope Adj. = 2.25 sf		
Front Ex. El. = 891.50; Bot. Width (Back) = 1.50 ft; Front Bump out = 6.50 sf		
Back Ex. El. = 897.60; Bot. Length = 63.50 ft; Back Bump out = 1.50 sf		
Front Vol. = 492.13 ft^3; Back Vol. = 1009.65 ft^3		
Total Vol = 1501.78 ft^3 / 27 = 55.62 yd^3	56	56
Rear Abutment (@ Pr. Abutment)		
Area = 53.13 sf (measured in ORD); Length = 23.00 ft		
Vol = 1221.91 ft^3 / 27 = 45.26 yd^3	45	101
Pier 1		
Area = 151.90 sf (measured in ORD); Bot. Length = 69.33 ft		
Total Vol = 10531.71 ft^3 / 27 = 390.06 yd^3		
Ex. Pier 1 (Subtract)		
Area = 43.08 ft^2 (Measured in ORD); Length = 21.00 ft		
Total Vol = 904.65 ft^3 / 27 = 33.51 yd^3	357	457
Pier 2		
Area = 173.52 sf (measured in ORD); Bot. Length = 69.33 ft		
Total Vol = 12030.66 ft^3 / 27 = 445.58 yd^3		
Ex. Pier 2 (Subtract)		
Area = 47.94 ft^2 (Measured in ORD); Length = 21.00 ft		
Total Vol = 1006.78 ft^3 / 27 = 37.29 yd^3	408	866
Rear Abutment (@ Existing Abutment)		
Bottom El. = 884.00; Bot. Width (Front)= 3.00 ft; Front Slope Adj. = 2.25 sf		
Front Ex. El. = 888.20; Bot. Width (Back) = 1.50 ft; Front Bump out = 6.50 sf		
Back Ex. El. = 894.00; Bot. Length = 63.50 ft; Back Bump out = 1.50 sf		

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 503E21100 **PAY UNIT:** CY
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: UNCLASSIFIED EXCAVATION
SUPPLEMENTAL DESCRIPTION:

							SUBTOTAL	TOTAL
Front Vol. =	244.48	ft^3	Back Vol. =	857.25	ft^3			
Total Vol =	1101.73	ft^3	/ 27	=	40.80	yd^3	41	907
Rear Abutment (@ Pr. Abutment)								
Area =	66.01	sf	(measured in ORD)					
Length =	23.00	ft						
Vol =	1518.15	ft^3	/ 27	=	56.23	yd^3	56	963
SPECIAL INSTRUCTIONS:							**TOTAL**	**963**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 504E11101 **PAY UNIT:** SF
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: STEEL SHEET PILING LEFT IN PLACE, AS PER PLAN
SUPPLEMENTAL DESCRIPTION: ELASTIC SECTION MODULUS = 18.1 CU IN/FT

	SUBTOTAL	TOTAL
Behind Existing Rear Abutment		
Top Elevation = 898.40		
Tip Elevation = 872.70		
Bot. Ftg. El. = 886.00		
Height = 25.70 ft		
Length = 14.40 ft		
Approach Slab Length = 25.00 ft		
Area = 642.50 ft^2	642	642
Behind Existing Forward Abutment		
Top Elevation = 896.20		
Tip Elevation = 870.20		
Bot. Ftg. El. = 884.00		
Height = 26.00 ft		
Length = 14.20 ft		
Approach Slab Length = 25.00 ft		
Area = 650.00 ft^2	650	1,293
SPECIAL INSTRUCTIONS:	**TOTAL**	**1,293**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 505E11100 **PAY UNIT:** LS
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: PILE DRIVING EQUIPMENT MOBILIZATION
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
SPECIAL INSTRUCTIONS:	**TOTAL**	**LS**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 507E00200 **PAY UNIT:** FT
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: STEEL PILES HP12X53, FURNISHED
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
Rear Abutment		
# Piles = 11 ea		
Length = 40.00 ft		
Total Length = 440.00 ft	440	440
Pier 1		
# Piles = 35 ea		
Length = 45.00 ft		
Total Length = 1575.00 ft	1,575	2,015
Pier 2		
# Piles = 35 ea		
Length = 35.00 ft		
Total Length = 1225.00 ft	1,225	3,240
Forward Abutment		
# Piles = 11 ea		
Length = 50.00 ft		
Total Length = 550.00 ft	550	3,790
SPECIAL INSTRUCTIONS:	**TOTAL**	**3,790**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 507E00250 **PAY UNIT:** FT
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: STEEL PILES HP12X53, DRIVEN
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
Rear Abutment		
# Piles = 11 ea		
Length = 35.00 ft		
Total Length = 385.00 ft	385	385
Pier 1		
# Piles = 35 ea		
Length = 40.00 ft		
Total Length = 1400.00 ft	1,400	1,785
Pier 2		
# Piles = 35 ea		
Length = 30.00 ft		
Total Length = 1050.00 ft	1,050	2,835
Forward Abutment		
# Piles = 11 ea		
Length = 45.00 ft		
Total Length = 495.00 ft	495	3,330
SPECIAL INSTRUCTIONS:	**TOTAL**	**3,330**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 509E10000 **PAY UNIT:** LB
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: EPOXY COATED REINFORCING STEEL
SUPPLEMENTAL DESCRIPTION:

			SUBTOTAL	TOTAL
Rear Abutment	7699	LBS	7,699	7,699
Fwd Abutment	7668	LBS	7,668	15,367
Rear Diaphragm	4115	LBS	4,115	19,482
fWD Diaphragm	4115	LBS	4,115	23,597
Deck	70912	LBS	70,912	94,509
Parapet	12851	LBS	12,851	107,360
Pier 1 incl. footing	31580	LBS	31,580	138,940
Pier 2 incl. footing	30795	LBS	30,795	169,735
SPECIAL INSTRUCTIONS:			**TOTAL**	**169,735**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 509E10001 **PAY UNIT:** LB
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: EPOXY COATED REINFORCING STEEL, AS PER PLAN
SUPPLEMENTAL DESCRIPTION:

			SUBTOTAL	TOTAL
Pier 1	7776	lbs	7,776	7,776
Pier 2	8111	lbs	8,111	15,887
Deck	41323	lbs	41,323	57,210
SPECIAL INSTRUCTIONS:			**TOTAL**	**57,210**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 509E30020 **PAY UNIT:** FT
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: NO. 4 GFRP DEFORMED BARS
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
Bar length = 8702.333 ft	8,702	8,702
SPECIAL INSTRUCTIONS:	**TOTAL**	**8,702**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN:	DTA/GA	**DATE:**	6/24/21	**UPDATE:**		**DATE:**	
CHECK:	BCW/MRV	**DATE:**	6/24/21	**RECHECK:**		**DATE:**	
STRUCTURE:	MAD-00071-08.740L			**SFN:**	4903391	**PID:**	107630

ITEM: 511E34446 **PAY UNIT:** CY
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK
SUPPLEMENTAL DESCRIPTION:

SUBTOTAL **TOTAL**

Deck

Thickness =	8.50	in
Length =	231.00	ft
Width =	59.33	ft
Total Volume =	9707.87	ft^3

Beam Haunch

H_1 =	2.00	in
H_2 =	2.18	in
Width =	11.50	in
Length =	231.00	ft
# Beams =	8	ea
Total Volume =	308.45	ft^3

Overhang

Additional Area =	0.54	ft^2
Length =	231.00	ft
# Locations =	2	ea
Total Volume =	249.48	ft^3

(measured in ORD)

Slope in front of Abutments

Height =	1.00	ft
Width =	1.00	ft
Length =	59.33	ft
# =	2	ea
Total Volume =	59.33	ft^3

Deck above Diaphragm

Thickness =	1.25	ft
Width =	2.50	ft
Length =	59.33	ft
# =	2	ea
Total Volume =	370.81	ft^3

Rear Abutment Diaphragm

Left Top El. =	898.03	
Crown Top El. =	898.39	
Right Top El. =	897.84	
Beam Seat El. =	893.10	
Deck Thickness =	1.25	ft
Left Length =	23.67	ft
Right Length =	35.67	ft
Bridge Rlg Width =	1.50	ft
Diaphragm Width =	3.00	ft
Total Volume =	674.87	ft^3

Forward Abutment Diaphragm

Left Top El. =	895.86	
Crown Top El. =	896.21	
Right Top El. =	895.67	
Beam Seat El. =	890.92	
Deck Thickness =	1.25	ft
Left Length =	23.67	ft
Right Length =	35.67	ft
Bridge Rlg Width =	1.50	ft
Diaphragm Width =	3.00	ft
Total Volume =	675.80	ft^3

Grand Total Volume = 12046.61 ft^3 / 27 = 446.17 yd^3 — SUBTOTAL 447, TOTAL 447

SPECIAL INSTRUCTIONS: **TOTAL** **447**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 511E34451 **PAY UNIT:** CY
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET), AS PER PLAN
SUPPLEMENTAL DESCRIPTION:

							SUBTOTAL	TOTAL
On Deck								
Section Area =	4.08	ft^2						
Length =	236.00	ft						
Sides =	2	ea						
Total Volume =	1925.76	ft^3	/	27	=	71.32 yd^3	72	72
On Approach Slabs								
Section Area =	4.08	ft^2						
Length =	11.00	ft						
Locations =	4	ea						
Total Volume =	179.52	ft^3	/	27	=	6.65 yd^3	7	79
14' Transition Vol. =	1.74	yd^3						
Locations =	4	ea						
Total Volume =	6.96	yd^3			=	6.96 yd^3	7	86
SPECIAL INSTRUCTIONS:							**TOTAL**	**86**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 511E40513 **PAY UNIT:** CY
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: CLASS QC1 CONCRETE WITH QC/QA, PIER ABOVE FOOTINGS, AS PER PLAN
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL

Pier 1

Bottom Stem Elevation = 868.13
Beam Spacing = 7.67 ft

	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6	Beam 7	Beam 8	
Beam Seat El. =	893.05	893.18	893.30	893.35	893.23	893.11	892.98	892.86	
Length =	7.17	7.67	7.67	3.00	7.67	7.67	7.67	7.17	ft
Width =	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	ft
Radius =	1.00							1.00	ft
Total Volume =	485.84	480.33	482.63	189.15	481.29	478.99	476.50	482.13	ft^3

Grand Total = 3556.87 ft^3 / 27 = 131.74 yd^3 — SUBTOTAL: 132

Pier 2

Bottom Stem Elevation = 868.13
Beam Spacing = 7.67 ft

	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6	Beam 7	Beam 8	
Beam Seat El. =	892.22	892.34	892.46	892.52	892.39	892.27	892.15	892.02	
Length =	7.17	7.67	7.67	3.00	7.67	7.67	7.67	7.17	ft
Width =	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	ft
Radius =	1.00							1.00	ft
Total Volume =	469.65	464.23	466.53	182.93	465.19	462.88	460.58	465.75	ft^3

Grand Total = 3437.74 ft^3 / 27 = 127.32 yd^3 — SUBTOTAL: 128

SPECIAL INSTRUCTIONS: **TOTAL** **260**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN:	DTA/GA	DATE:	6/24/21	UPDATE:		DATE:	
CHECK:	BCW/MRV	DATE:	6/24/21	RECHECK:		DATE:	
STRUCTURE:	MAD-00071-08.740L			SFN:	4903391	PID:	107630

ITEM: 511E43512 PAY UNIT: CY
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT INCLUDING FOOTING
SUPPLEMENTAL DESCRIPTION:

							SUBTOTAL	TOTAL
Rear Abutment								
Footing								
Beam Seat Elevation =	893.08							
Bottom Footing Elevation =	886.00							
Width =	3.00	ft						
Length =	83.67	ft						
Total Volume =	1777.15	ft^3	/	27	=	65.82 yd^3	66	66
Left Wingwall						Right Wingwall		
Top Elevation =	898.03					Top Elevation = 897.84		
Top Length =	1.50	ft				Top Length = 1.50 ft		
End of Wall Elevation =	893.33					End of Wall Elevation = 893.33		
Sloped Length =	10.50	ft				Sloped Length = 10.50 ft		
Width =	3.00	ft				Width = 3.00 ft		
Bottom Elevation =	893.08					Bottom Elevation = 893.08		
Total Volume =	104.17	ft^3				Total Volume = 100.33 ft^3		
Total Volume =	204.50	ft^3	/	27	=	7.57 yd^3	8	74
Forward Abutment								
Footing								
Beam Seat Elevation =	890.91							
Bottom Footing Elevation =	884.00							
Width =	3.00	ft						
Length =	83.67	ft						
Total Volume =	1734.48	ft^3	/	27	=	64.24 yd^3	65	139
Left Wingwall						Right Wingwall		
Top Elevation =	895.84					Top Elevation = 895.64		
Top Length =	1.50	ft				Top Length = 1.50 ft		
End of Wall Elevation =	891.16					End of Wall Elevation = 891.16		
Sloped Length =	10.50	ft				Sloped Length = 10.50 ft		
Width =	3.00	ft				Width = 3.00 ft		
Bottom Elevation =	890.91					Bottom Elevation = 890.91		
Total Volume =	103.77	ft^3				Total Volume = 99.72 ft^3		
Total Volume =	203.49	ft^3	/	27	=	7.54 yd^3	8	147
SPECIAL INSTRUCTIONS:							TOTAL	147

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 511E46512 **PAY UNIT:** CY
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: CLASS QC1 CONCRETE WITH QC/QA, FOOTING
SUPPLEMENTAL DESCRIPTION:

							SUBTOTAL	TOTAL
Pier 1								
Top of Footing Elevation =	868.13							
Bottom of Footing Elevation =	865.13							
Footing Length =	59.00	ft						
Footing Width =	14.50	ft						
Total Volume =	2566.50	ft^3	/	27	=	95.06 yd^3	96	96
Pier 2								
Top of Footing Elevation =	868.13							
Bottom of Footing Elevation =	865.13							
Footing Length =	59.00	ft						
Footing Width =	14.50	ft						
Total Volume =	2566.50	ft^3	/	27	=	95.06 yd^3	96	192
SPECIAL INSTRUCTIONS:							**TOTAL**	**192**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 512E10100 **PAY UNIT:** SY
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
SUPPLEMENTAL DESCRIPTION:

								SUBTOTAL	TOTAL
Rear Abutment			**Forward Abutment**						
Front Face Area =	217.64	ft²	Front Face Area =	287.09	ft²				
(measured in ORD)			(measured in ORD)						
Width =	3.00	ft	Width =	3.00	ft				
Length =	15.25	ft	Length =	16.17	ft				
Left Wingwall Top Area =	45.75	ft²	Left Wingwall Top Area =	48.51	ft²				
Width =	0.50	ft	Width =	0.50	ft				
Length =	12.92	ft	Length =	13.00	ft				
Leftt Wingwall Back Area =	6.46	ft²	Leftt Wingwall Back Area =	6.50	ft²				
Width =	3.00	ft	Width =	3.00	ft				
Length =	15.33	ft	Length =	16.08	ft				
Right Wingwall Top Area =	45.99	ft²	Right Wingwall Top Area =	48.24	ft²				
Width =	0.50	ft	Width =	0.50	ft				
Length =	13.00	ft	Length =	12.92	ft				
Right Wingwall Back Area =	6.50	ft²	Right Wingwall Back Area =	6.46	ft²				
Total Area =	719.13	ft²	/ 9 =	79.90	yd³			80	80
Pier 1			**Pier 2**						
Front Face Area =	1379.48	ft²	Front Face Area =	1333.13	ft²				
(measured in ORD)			(measured in ORD)						
Sides =	2	ea	Sides =	2	ea				
Front & Back Face Area =	2758.96	ft²	Front & Back Face Area =	2666.26	ft²				
Beam 1 Seat El. =	893.07		Beam 1 Seat El. =	892.23					
Bottom El. =	868.13		Bottom El. =	868.13					
Diameter =	2.00	ft	Diameter =	2.00	ft				
Left Side Radius Area =	156.70	ft²	Left Side Radius Area =	151.42	ft²				
Beam 8 Seat El. =	892.88		Beam 8 Seat El. =	892.04					
Bottom El. =	868.13		Bottom El. =	868.13					
Diameter =	2.00	ft	Diameter =	2.00	ft				
Right Side Radius Area =	155.51	ft²	Right Side Radius Area =	150.23	ft²				
Total Area =	6039.09	ft²	/ 9 =	671.01	yd³			675	755
Rear Diaphragm			**Forward Diaphragm**						
Front Face Area =	250.22	ft²	Front Face Area =	250.22	ft²				
(measured in ORD)			(measured in ORD)						
Total Area =	500.45	ft²	/ 9 =	55.61	yd³			56	
Bridge Railing									
Main Perimeter =	7.83	ft	Main Length =	258.00	ft				
Section C-C & D-D Perimeter =	0.00	ft	Section B-B to C-C Length =	0.00	ft				
Section E-E Perimeter	0.00	ft	Section C-C to D-D Length =	0.00	ft				
			Section D-D to E-E Length =	0.00	ft				

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 512E10100 **PAY UNIT:** SY
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
SUPPLEMENTAL DESCRIPTION:

								SUBTOTAL	TOTAL
Sides =	2	ea							
Ends =	0	ea							
Area =	4040.28	ft^2	/	9	=	448.92	yd^3	450	1,205
Approach Slab Railing									
Main Perimeter =	7.83	ft		Main Length =		11.00	ft		
Section C-C & D-D Perimeter =	6.58	ft		Section B-B to C-C Length =		10.00	ft		
Section E-E Perimeter	6.65	ft		Section C-C to D-D Length =		2.50	ft		
				Section D-D to E-E Length =		1.50	ft		
Sides =	2	ea							
Ends =	2	ea							
Area =	565.95	ft^2	/	9	=	62.88	yd^3	70	1,275
SPECIAL INSTRUCTIONS:								**TOTAL**	**1,331**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 512E33000 **PAY UNIT:** SY
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: TYPE 2 WATERPROOFING
SUPPLEMENTAL DESCRIPTION:

							SUBTOTAL	TOTAL
Rear Abutment			Width =	3.00	ft			
Top of Pavement El. =	898.39		Wingwall Length =	12.00	ft			
Bottom of Footing El. =	886.00		# Wingwalls =	2	ea			
Top of Pavement El. =	898.34							
Beam Seat El. =	893.10							
Area =	124.89	ft²	/ 9	=	13.88	yd²	14	14
Forward Abutment			Width =	3.00	ft			
Top of Pavement El. =	896.21		Wingwall Length =	12.00	ft			
Bottom of Footing El. =	884.00		# Wingwalls =	2	ea			
Top of Pavement El. =	896.16							
Beam Seat El. =	890.92							
Area =	124.35	ft²	/ 9	=	13.82	yd²	14	28
SPECIAL INSTRUCTIONS:							**TOTAL**	**28**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 513E10241 **PAY UNIT:** LB
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: STRUCTURAL STEEL MEMBERS, LEVEL 2, AS PER PLAN
SUPPLEMENTAL DESCRIPTION:

										SUBTOTAL	TOTAL
W33x130 Beams											
Weight / foot =	210.00	lb									
Length / Beam =	235.00	ft									
# Beams =	8	ea									
Total Weight=	394800	lb									
Intermediate Diaphragm - L 4 x 4 x 7/16											
Weight / foot =	11.30	lb									
Length / Beam =	7.58	ft									
# Angles per =	3	ea									
# Xframes / location =	7	ea									
# Locations =	15	ea									
Total Weight=	26981	lb									
Connection Plates							Plate Weight =	490.00	lb/ft³		
Thickness =	0.03	ft									
Area =	1.40	ft²									
# Xframes / location =	14	ea									
# Locations =	15	ea									
Total Weight=	4502	lb									
Splice Plates											
PL (1 1/8" x 11" x 3'-8") Vol =	0.09	ft	x	0.92	ft	x	3.67	ft	= 0.32	ft³	
# Plates / Location =	2	ea									
PL (1 1/8" x 4" x 3'-8") Vol =	0.09	ft	x	0.33	ft	x	3.67	ft	= 0.11	ft³	
# Plates / Location =	4	ea									
PL (5/8" x 1'-2" x 2'-4 3/4") Vol =	0.05	ft	x	1.17	ft	x	2.40	ft	= 0.15	ft³	
# Plates / Location =	2	ea									
# Beams =	8	ea									
# Locations / Beam =	2	ea									
Total Weight=	10817	lb									
Bolts											
Splices - 1% Contingency =	108	lb									
Xframes - 1% Contingency =	270	lb									
Beam - 1% Contingency =	3948	lb									
Total Weight =	441426	lb								441,500	441,500
SPECIAL INSTRUCTIONS:										**TOTAL**	**441,500**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 513E20000 **PAY UNIT:** EACH
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: WELDED STUD SHEAR CONNECTORS
SUPPLEMENTAL DESCRIPTION:

			SUBTOTAL	TOTAL
# Shear Studs / Location =	3	ea		
# Locations / Beam =	328	ea		
# Beams =	8	ea		
Total =	**7872**	ea	7,872	7,872
SPECIAL INSTRUCTIONS:			**TOTAL**	**7,872**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN:	DTA/GA	**DATE:**	6/24/21	**UPDATE:**		**DATE:**	
CHECK:	BCW/MRV	**DATE:**	6/24/21	**RECHECK:**		**DATE:**	
STRUCTURE:	MAD-00071-08.740L			**SFN:**	4903391	**PID:**	107630

ITEM: 514E00061 **PAY UNIT:** SF
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT, AS PER PLAN
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
Fascia Beam Coating (Beam 8)		
Beam Height = 36.70 in; Beam Length = 229.00 ft		
Beam Width = 12.20 in		
Web Thickness = 0.83 in		
Flange Thickness = 1.36 in		
Back side Distance = 6.00 in		
Beam Painting Perimeter = 73.20 in / 12 = 6.10 ft		
Area = 1396.90 ft²	1,397	1,397
Fascia Beam Coating @ Splices		
Extra Beam Height (Inside) = 27.98 in		
Length = 5.00 ft		
# Splices = 2 ea		
Area = 23.32 ft²	23	1,420
Beam Ends (Beams 1-8)		
Beam Height = 36.70 in; Beam Length = 3.00 ft		
Beam Width = 12.20 in; # of Beam Ends = 16.00 ea		
Web Thickness = 0.83 in		
Flange Thickness = 1.36 in		
Back side Distance = 6.00 in		
Beam Painting Perimeter = 110.00 in / 12 = 9.17 ft		
Area = 440.00 ft²	440	1,860
SPECIAL INSTRUCTIONS:	**TOTAL**	**1,860**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN:	DTA/GA	**DATE:**	6/24/21	**UPDATE:**		**DATE:**	
CHECK:	BCW/MRV	**DATE:**	6/24/21	**RECHECK:**		**DATE:**	
STRUCTURE:	MAD-00071-08.740L			**SFN:**	4903391	**PID:**	107630

ITEM: 514E00067 **PAY UNIT:** SF
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: FIELD PAINTING STRUCTURAL STEEL, FINISH COAT, AS PER PLAN
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
Fascia Beam Coating (Beam 8)		
Beam Height = 36.70 in; Beam Length = 229.00 ft; Beam Width = 12.20 in; Web Thickness = 0.83 in; Flange Thickness = 1.36 in; Back side Distance = 6.00 in		
Beam Painting Perimeter = 73.20 in / 12 = 6.10 ft		
Area = 1396.90 ft²	1,397	1,397
Fascia Beam Coating @ Splices		
Extra Beam Height (Inside) = 27.98 in; Length = 5.00 ft; # Splices = 2 ea		
Area = 23.32 ft²	23	1,420
Beam Ends (Beams 1-8)		
Beam Height = 36.70 in; Beam Length = 3.00 ft; Beam Width = 12.20 in; # of Beam Ends = 16.00 ea; Web Thickness = 0.83 in; Flange Thickness = 1.36 in; Back side Distance = 6.00 in		
Beam Painting Perimeter = 110.00 in / 12 = 9.17 ft		
Area = 440.00 ft²	440	1,860
SPECIAL INSTRUCTIONS:	**TOTAL**	**1,860**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 516E10010 **PAY UNIT:** FT
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: ARMORLESS PREFORMED JOINT SEAL
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
Joint Seal Length = 57.00 ft # Locations = 2 ea Total = 114.00 ft	114	114
SPECIAL INSTRUCTIONS:	**TOTAL**	**114**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 516E13200 **PAY UNIT:** SF
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: 1/2" PREFORMED EXPANSION JOINT FILLER
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
Rear Abutment		
Width = 0.83 ft		
Length = 59.67 ft		
Area = 49.72 ft²		
Forward Abutment		
Width = 0.83 ft		
Length = 59.67 ft		
Area = 49.72 ft²		
Total Area = 99.44 ft²	100	100
SPECIAL INSTRUCTIONS:	**TOTAL**	**100**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 516E13600 **PAY UNIT:** SF
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: 1" PREFORMED EXPANSION JOINT FILLER
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
Rear Abutment		
Width = 0.83 ft		
Length = 59.67 ft		
Area = 49.72 ft²		
Forward Abutment		
Width = 0.83 ft		
Length = 59.67 ft		
Area = 49.72 ft²		
Total Area = 99.44 ft²	100	100
Railing @ Approach Slab		
Railing Area = 4.08 ft²		
# Locations = 4 ea		
Total Area = 16.32 ft²	20	120
SPECIAL INSTRUCTIONS:	**TOTAL**	**120**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 516E13900 **PAY UNIT:** SF
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: 2" PREFORMED EXPANSION JOINT FILLER
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
Rear Abutment		
Left Wingwall: Top El. = 898.04; Bottom El. = 893.10; Width = 2.50 ft; Area = 12.35 ft²		
Right Wingwall: Top El. = 897.85; Bottom El. = 893.10; Width = 2.50 ft; Area = 11.88 ft²		
Forward Abutment		
Left Wingwall: Top El. = 895.85; Bottom El. = 890.92; Width = 2.50 ft; Area = 12.33 ft²		
Right Wingwall: Top El. = 895.66; Bottom El. = 890.92; Width = 2.50 ft; Area = 11.85 ft²		
Total Area = 48.40 ft²	49	49
SPECIAL INSTRUCTIONS:	**TOTAL**	**49**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 516E14014 **PAY UNIT:** FT
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: INTEGRAL ABUTMENT EXPANSION JOINT SEAL
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
Rear Abutment		
@ Left Wingwall: Top El. = 898.04, Bottom El. = 893.10, Length = 4.94 ft		
@ Right Wingwall: Top El. = 897.85, Bottom El. = 893.10, Length = 4.75 ft		
Along Beam Seat: Width = 59.67 ft, Length = 59.67 ft		
Forward Abutment		
@ Left Wingwall: Top El. = 895.85, Bottom El. = 890.92, Length = 4.93 ft		
@ Right Wingwall: Top El. = 895.66, Bottom El. = 890.92, Length = 4.74 ft		
Along Beam Seat: Width = 59.67 ft, Length = 59.67 ft		
Total Length = 138.69 ft	139	139
SPECIAL INSTRUCTIONS:	**TOTAL**	**139**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 516E44100 **PAY UNIT:** EACH
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)
SUPPLEMENTAL DESCRIPTION: 13"x18"x2.499"

	SUBTOTAL	TOTAL
Rear Abutment		
# Bearings = 8 ea	8	8
Forward Abutment		
# Bearings = 8 ea	8	16
SPECIAL INSTRUCTIONS:	**TOTAL**	**16**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 516E44201 **PAY UNIT:** EACH
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN
SUPPLEMENTAL DESCRIPTION: 11"x14"x3.398"

	SUBTOTAL	TOTAL
Pier 1		
# Bearings = 8 ea	8	8
Pier 2		
# Bearings = 8 ea	8	16
SPECIAL INSTRUCTIONS:	**TOTAL**	**16**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 518E12301 **PAY UNIT:** EACH
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: SCUPPERS, INCLUDING SUPPORTS, AS PER PLAN
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
# Locations = 10 ea	10	10
SPECIAL INSTRUCTIONS:	**TOTAL**	**10**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN:	DTA/GA	**DATE:**	6/24/21	**UPDATE:**		**DATE:**	
CHECK:	BCW/MRV	**DATE:**	6/24/21	**RECHECK:**		**DATE:**	
STRUCTURE:	MAD-00071-08.740L			**SFN:**	4903391	**PID:**	107630

ITEM: 518E21200 **PAY UNIT:** CY
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: POROUS BACKFILL WITH GEOTEXTILE FABRIC
SUPPLEMENTAL DESCRIPTION:

						SUBTOTAL	TOTAL
Rear Abutment							
Under Approach Slab							
Left Top El. =	898.03	Appr. Slab + Subgrade Depth =	1.50	ft			
Crown El. =	898.39	Width =	2.00	ft			
Right Top El. =	897.84	Length Left =	23.83	ft			
Bottom of Ftg El. =	886.00	Length Right =	35.83	ft			
Left Vol =	510.51	ft^3	Right Vol =	760.74	ft^3		
Behind Left Wingwall							
Left Top El. =	898.03	Ground Depth =	1.50	ft			
Bot Slope El. =	893.35	Width =	2.00	ft			
Bottom of Ftg El. =	886.00	Top Length =	1.50	ft			
		Sloped Length =	10.50	ft			
Vol =	203.58	ft^3					
Behind Right Wingwall							
Left Top El. =	897.84	Ground Depth =	1.50	ft			
Bot Slope El. =	893.35	Width =	2.00	ft			
Bottom of Ftg El. =	886.00	Top Length =	1.50	ft			
		Sloped Length =	10.50	ft			
Vol =	201.02	ft^3					
Forward Abutment							
Under Approach Slab							
Left Top El. =	895.86	Appr. Slab + Subgrade Depth =	1.50	ft			
Crown El. =	896.21	Width =	2.00	ft			
Right Top El. =	895.67	Length Left =	23.83	ft			
Bottom of Ftg El. =	884.00	Length Right =	35.83	ft			
Left Vol =	502.17	ft^3	Right Vol =	748.20	ft^3		
Behind Left Wingwall							
Left Top El. =	895.86	Ground Depth =	1.50	ft			
Bot Slope El. =	891.17	Width =	2.00	ft			
Bottom of Ftg El. =	884.00	Top Length =	1.50	ft			
		Sloped Length =	10.50	ft			
Vol =	199.40	ft^3					
Behind Right Wingwall							
Left Top El. =	895.67	Ground Depth =	1.50	ft			
Bot Slope El. =	891.17	Width =	2.00	ft			
Bottom of Ftg El. =	884.00	Top Length =	1.50	ft			
		Sloped Length =	10.50	ft			
Vol =	196.83	ft^3					
Total Vol	3322.44	ft^3 /	27	=	123.05 yd^3	123	123
SPECIAL INSTRUCTIONS:						**TOTAL**	**123**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 518E40000 **PAY UNIT:** FT
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: 6" PERFORATED CORRUGATED PLASTIC PIPE
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
Rear Abutment		
Length = 83.67 ft		
Forward Abutment		
Length = 83.67 ft		
Total Length = 167.33 ft	168	168
SPECIAL INSTRUCTIONS:	**TOTAL**	**168**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 518E40011 **PAY UNIT:** FT
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
Rear Abutment		
Right WW Length = 5.00 ft		
Rt WW Ext. Length = 17.50 ft		
Left WW Length = 17.50 ft		
Forward Abutment		
Right WW Length = 5.00 ft		
Rt WW Ext. Length = 17.50 ft		
Left WW Length = 17.50 ft		
Total Length = 80.00 ft	80	80
SPECIAL INSTRUCTIONS:	**TOTAL**	**80**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 523E20000 **PAY UNIT:** EACH
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: DYNAMIC LOAD TESTING
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
# Tests = 2 ea	2	2
SPECIAL INSTRUCTIONS:	**TOTAL**	**2**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 526E25011 **PAY UNIT:** SY
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=15"), AS PER PLAN
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
Rear Abutment		
Length = 25.00 ft²		
Width = 59.33 ft²		
Area = 1483.33 ft²		
Forward Abutment		
Length = 25.00 ft²		
Width = 59.33 ft²		
Area = 1483.33 ft²		
Total Area = 2966.67 ft² / 9 = 329.63 yd²	330	330
SPECIAL INSTRUCTIONS:	**TOTAL**	**330**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 526E90031 **PAY UNIT:** FT
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: TYPE C INSTALLATION, AS PER PLAN
SUPPLEMENTAL DESCRIPTION:

	SUBTOTAL	TOTAL
Rear Abutment		
Length = 57.00 ft	57	57
Forward Abutment		
Length = 57.00 ft	57	114
SPECIAL INSTRUCTIONS:	**TOTAL**	**114**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 530E00200 **PAY UNIT:** LS
SUBJECT: ESTIMATED QUANTITIES

DESCRIPTION: SPECIAL - STRUCTURES
SUPPLEMENTAL DESCRIPTION: TEMPORARY SUPPORT SYSTEM

	SUBTOTAL	TOTAL
SPECIAL INSTRUCTIONS:	**TOTAL**	**LS**

E.L. ROBINSON ENGINEERING
950 Goodale Boulevard, Suite 180 • Columbus, Ohio 43212
614-586-0642 • Fax 614-586-0648

DESIGN: DTA/GA **DATE:** 6/24/21 **UPDATE:** **DATE:**
CHECK: BCW/MRV **DATE:** 6/24/21 **RECHECK:** **DATE:**
STRUCTURE: MAD-00071-08.740L **SFN:** 4903391 **PID:** 107630

ITEM: 601E32200 **PAY UNIT:** CY
SUBJECT: ESTIMATED QUANTITIES
DESCRIPTION: ROCK CHANNEL PROTECTION, TYPE C WITH FILTER
SUPPLEMENTAL DESCRIPTION:

								SUBTOTAL	TOTAL
Rear Abutment									
Area =	1896.92	ft^2	(measured in ORD)						
Depth =	2.00	ft							
Projection =	2120.82	ft^2							
Total Vol	4241.63	ft^3							
Forward Abutment									
Area =	1656.58	ft^2	(measured in ORD)						
Depth =	2.00	ft							
Projection =	1852.11	ft^2							
Total Vol	3704.23	ft^3							
Total Area =	7945.86	ft^3	/	27	=	294.29	yd^3	295	295
SPECIAL INSTRUCTIONS:								**TOTAL**	**295**

MADE BY: DTA/GA DATE: 6/24/2021
CHECKED BY: BCW/MRV DATE: 6/24/2021

ESTIMATED QUANTITIES - LEFT BRIDGE

STRUCTURAL FILE NUMBER: 4903391

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT.	PIER	SUPER.	GEN.	REFERENCE SHEET NO.
202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LUMP	4, 8, 9, AND 11-14 OF 55
202	22900	216	SY	APPROACH SLAB REMOVED				216	
503	11101	LUMP		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN				LUMP	4 AND 11 OF 55
503	21100	963	CY	UNCLASSIFIED EXCAVATION	198	765			
504	11101	1,293	SF	STEEL SHEET PILING LEFT IN PLACE, AS PER PLAN (ELASTIC SECTION MODULUS = 18.1 CU IN/FT)				1,293	11 OF 55
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP	
507	00200	3,790	FT	STEEL PILES HP12X53, FURNISHED	990	2,800			
507	00250	3,330	FT	STEEL PILES HP12X53, DRIVEN	880	2,450			
509	10000	169,735	LB	EPOXY COATED REINFORCING STEEL	15,367	62,375	91,993		
509	10001	57,210	LB	EPOXY COATED REINFORCING STEEL, AS PER PLAN		15,887	41,323		27 AND 40 OF 55
509	30020	8,702	FT	NO. 4 GFRP DEFORMED BARS			8,702		
511	34446	447	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK			447		
511	34451	86	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET), AS PER PLAN			86		49 OF 55
511	40513	260	CY	CLASS QC1 CONCRETE WITH QC/QA, PIER ABOVE FOOTINGS, AS PER PLAN		260			27 OF 55
511	43512	147	CY	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT INCLUDING FOOTING	147				
511	46512	192	CY	CLASS QC1 CONCRETE WITH QC/QA, FOOTING		192			
512	10100	1,331	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	80	675	56	520	
512	33000	28	SY	TYPE 2 WATERPROOFING	28				
513	10241	441,500	LB	STRUCTURAL STEEL MEMBERS, LEVEL 2, AS PER PLAN			441,500		41 OF 55
513	20000	7,872	EACH	WELDED STUD SHEAR CONNECTORS			7,872		
514	00061	1,860	SF	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT, AS PER PLAN			1,860		34 OF 55
514	00067	1,860	SF	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT, AS PER PLAN			1,860		34 OF 55
516	10010	114	FT	ARMORLESS PREFORMED JOINT SEAL				114	
516	13200	100	SF	1/2" PREFORMED EXPANSION JOINT FILLER	100				
516	13600	120	SF	1" PREFORMED EXPANSION JOINT FILLER	100			20	
516	13900	49	SF	2" PREFORMED EXPANSION JOINT FILLER	49				
516	14014	139	FT	INTEGRAL ABUTMENT EXPANSION JOINT SEAL	139				
516	44100	16	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (13"x18"x2.499")		16			
516	44201	16	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (11"x14"x3.398")	16				31 OF 55
518	12301	10	EACH	SCUPPERS, INCLUDING SUPPORTS, AS PER PLAN			10		41 OF 55
518	21200	123	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	123				
518	40000	168	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	168				
518	40011	80	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN	80				20 AND 24 OF 55
523	20000	2	EACH	DYNAMIC LOAD TESTING				2	
526	25011	330	SY	REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=15"), AS PER PLAN				330	49 OF 55
526	90031	114	FT	TYPE C INSTALLATION, AS PER PLAN				114	49 OF 55
SPECIAL	53000200	LUMP		STRUCTURES (TEMPORARY SUPPORT SYSTEM)				LUMP	15 OF 55
601	32200	295	CY	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER				295	