

**Project:** 2019-0411  
PID No. 104880  
BRO-774-1050  
SFN: 0804291

**Submittal:** Final  
**Date:** Sep 22, 2020  
**By:** EAT  
**Checked:** CAB

---

### Bridge Quantity Calculations

---

ITEM 202E11203 PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN (LS)

LUMP SUM

---

	<u>TOTAL</u>	<u>LUMP</u>
--	--------------	-------------

---

ITEM 202E22900 APPROACH SLAB REMOVED (SY)

2 X 15.00 X 24.00 = 720.00 SQ. FT. /9= 80.00 SY

---

	<u>TOTAL</u>	<u>80 SY</u>
--	--------------	--------------

---

ITEM 202E23500 WEARING COURSE REMOVED (SY)

95.84 X 24.00 = 2300.16 SQ. FT. /9= 255.57 SY

---

	<u>TOTAL</u>	<u>256 SY</u>
--	--------------	---------------

---

ITEM 503E11100 COFFERDAMS AND EXCAVATION BRACING (LS)

LUMP SUM

---

	<u>TOTAL</u>	<u>LUMP</u>
--	--------------	-------------

---

ITEM 503E21301 UNCLASSIFIED EXCAVATION, AS PER PLAN (LS)

LUMP SUM

---

	<u>TOTAL</u>	<u>LUMP</u>
--	--------------	-------------

---

**Project:** 2019-0411  
 PID No. 104880  
 BRO-774-1050  
 SFN: 0804291

**Submittal:** Final  
**Date:** Sep 22, 2020  
**By:** EAT  
**Checked:** CAB

### Bridge Quantity Calculations

ITEM 509E10000 EPOXY COATED REINFORCING STEEL (LB)

RA	4983	
FA	4920	
SUP	<u>11062</u>	
	20965	POUND

**TOTAL** 20965 LB

ITEM 510E10000 DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT (EACH)

RA	17	EACH
FA	<u>17</u>	EACH
	34	EACH

**TOTAL** 34 EACH

ITEM 511E31611 CLASS QC2 CONCRETE, SUPERSTRUCTURE, AS PER PLAN (CY)

		0.56	X	32.00	X	87.00	=	1566.00	CU. FT.
2	X	1.25	X	32.00	X	1.00	=	80.00	CU. FT.
2	X	2.29	X	32.00	X	1.50	=	219.84	CU. FT.
2	X	3.57	X	1.67	X	3.00	=	35.70	CU. FT.
2	X	3.57	X	2.17	X	3.00	=	<u>46.41</u>	CU. FT.

1947.95 /27= 72.15 CY

**TOTAL** 72 CY

**Project:** 2019-0411  
 PID No. 104880  
 BRO-774-1050  
 SFN: 0804291

**Submittal:** Final  
**Date:** Sep 22, 2020  
**By:** EAT  
**Checked:** CAB

### Bridge Quantity Calculations

ITEM 511E43510 CLASS QC1 CONCRETE, ABUTMENT INCLUDING FOOTING (CY)

Footings											
STEM	2	X	34.33	X	4.50	X	3.00	=	927.00	CU. FT.	
S WW	2	X	4.00	X	6.42	X	3.00	=	154.00	CU. FT.	
N WW	2	X	4.00	X	6.42	X	3.00	=	154.00	CU. FT.	
									1235.00	/27=	45.74 CY
Rear Abutment											
STEM	1	X	36.17	X	3.00	X	5.65	=	613.02	CU. FT.	
STEM	1	X	4.17	X	2.83	X	8.86	=	104.60	CU. FT.	
S WW	1	X	1.50	X	5.61	X	6.25	=	52.60	CU. FT.	
S WW	-0.5	X	1.17	X	8.86	X	1.17	=	-6.03	CU. FT.	
N WW	1	X	1.50	X	13.75	X	8.79	=	181.19	CU. FT.	
									945.39	/27=	35.01 CY
Forward Abut.											
STEM	1	X	36.17	X	3.00	X	5.55	=	601.63	CU. FT.	
STEM	1	X	4.17	X	2.83	X	8.88	=	104.83	CU. FT.	
S WW	1	X	1.50	X	5.31	X	6.25	=	49.78	CU. FT.	
S WW	-0.5	X	1.17	X	8.97	X	1.17	=	-6.10	CU. FT.	
N WW	1	X	1.50	X	13.00	X	8.73	=	170.24	CU. FT.	
									920.38	/27=	34.09 CY
										= 114.84	CY
<b>TOTAL</b>										<b>115 CY</b>	

ITEM 512E10100 SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) (SY)

Rear Abutment									
Face of Abutment					Beam Seat				
1.64	X	38.83	+	1.50	X	35.83	=	117.44	SQ. FT.
Face Abut., S. Corner					Face Abut, N. Corner				
4.17	X	3.56	+	2.17	X	3.57	=	22.57	SQ. FT.
Top of Abutment, South Corner									
0.58	X	1.17	+	1.17	X	3.00	=	4.18	SQ. FT.

**Project:** 2019-0411  
 PID No. 104880  
 BRO-774-1050  
 SFN: 0804291

**Submittal:** Final  
**Date:** Sep 22, 2020  
**By:** EAT  
**Checked:** CAB

### Bridge Quantity Calculations

#### Top of Abutment @ Railing

$$1.67 \times 3.00 + 2.17 \times 3.00 = 11.50 \text{ SQ. FT.}$$

#### Back of Abutment

$$1.65 \times 0.50 + 3.83 \times 0.50 = 2.74 \text{ SQ. FT.}$$

#### Top of South WW Back of South WW

$$1.51 \times 10.42 + 1.50 \times 0.50 = 16.48 \text{ SQ. FT.}$$

#### Top of North WW Back of North WW

$$1.51 \times 13.76 + 1.50 \times 0.50 = 21.52 \text{ SQ. FT.}$$

#### South Face of S. WW

$$5.19 \times 10.42 \times 0.50 = 27.01 \text{ SQ. FT.}$$

#### North Face of S. WW North Face of N. WW

$$0.50 \times 6.25 + 0.50 \times 13.75 = 10.00 \text{ SQ. FT.}$$

#### South Face of N. WW

$$8.79 \times 10.75 - 1.54 \times 10.75 = 77.93 \text{ SQ. FT.}$$

$$\frac{311.36}{9} = 34.60 \text{ SY}$$

#### Forward Abutment

##### Face of Abutment

##### Beam Seat

$$1.64 \times 38.83 + 1.50 \times 35.83 = 117.44 \text{ SQ. FT.}$$

#### Face Abut., S. Corner Face Abut, N. Corner

$$4.17 \times 3.57 + 2.17 \times 3.56 = 22.59 \text{ SQ. FT.}$$

#### Top of Abutment, South Corner

$$0.58 \times 1.17 + 1.17 \times 3.00 = 4.18 \text{ SQ. FT.}$$

#### Top of Abutment @ Railing

$$1.67 \times 3.00 + 2.17 \times 3.00 = 11.50 \text{ SQ. FT.}$$

#### Back of Abutment

$$1.65 \times 0.50 + 3.83 \times 0.50 = 2.74 \text{ SQ. FT.}$$

#### Top of South WW Back of South WW

$$1.51 \times 10.42 + 1.50 \times 0.50 = 16.48 \text{ SQ. FT.}$$

#### Top of North WW Back of North WW

$$1.51 \times 13.01 + 1.50 \times 0.50 = 20.38 \text{ SQ. FT.}$$

#### South Face of S. WW

$$5.52 \times 10.42 \times 0.50 = 28.75 \text{ SQ. FT.}$$

#### North Face of S. WW North Face of N. WW

$$0.50 \times 6.25 + 0.50 \times 13.00 = 9.63 \text{ SQ. FT.}$$

#### South Face of N. WW

$$8.73 \times 10.00 - 1.43 \times 10.00 = 73.01 \text{ SQ. FT.}$$

$$\frac{306.70}{9} = 34.08 \text{ SY}$$



**CALCULATIONS**

**Project:** 2019-0411  
PID No. 104880  
BRO-774-1050  
SFN: 0804291

**Submittal:** Final  
**Date:** Sep 22, 2020  
**By:** EAT  
**Checked:** CAB

**Bridge Quantity Calculations**

Superstructure										
Super	0.56	+	2.75	+	0.50	+	0.00	=	3.81	
	2	X	84.00	X	3.81	=	640.50	SQ.FT.	/9=	71.17 SY
										<u>139.84 SY</u>
								<b>TOTAL</b>		<u>140.00 SY</u>

ITEM 512E33000 TYPE 2 WATERPROOFING (SY)

Rear Abutment										
Backwall										
	10.95	X	38.83	+	6.25	x	5.15	=	457.41	SQ. FT.
	6.41	X	10.57	+	7.33	x	7.57	=	123.27	SQ. FT.
								<u>580.68</u>	/9=	64.52 SY
Forward Abutment										
Backwall										
	10.85	X	38.83	+	6.25	x	5.15	=	453.53	SQ. FT.
	6.41	X	10.57	+	6.58	x	7.57	=	117.59	SQ. FT.
								<u>571.12</u>	/9=	63.46 SY
										<u>127.98 SY</u>
								<b>TOTAL</b>		<u>128.00 SY</u>

ITEM 515E12090 PRESTRESSED CONCRETE COMPOSITE BOX BEAM BRIDGE MEMBERS, LEVEL 1, CB33-48 (EACH)

1	X	8	=	8	EACH					
								<b>TOTAL</b>		<u>8 EACH</u>

**Project:** 2019-0411  
 PID No. 104880  
 BRO-774-1050  
 SFN: 0804291

**Submittal:** Final  
**Date:** Sep 22, 2020  
**By:** EAT  
**Checked:** CAB

### Bridge Quantity Calculations

ITEM	516E13900 2" PREFORMED EXPANSION JOINT FILLER (SF)									
RA	3.40	X	3.00	+	3.34	X	3.00	=	20.24	SQ. FT.
RA					8.50	X	1.50	=	12.75	SQ. FT.
FA	3.39	X	3.00	+	3.40	X	3.00	=	20.39	SQ. FT.
FA					8.49	X	1.50	=	12.74	SQ. FT.
									<u>66.12</u>	
									<b>TOTAL</b>	<b>66 SF</b>

ITEM	516E14020 SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL (FT)									
RA HORIZONTAL	1.50	+	35.83	+	1.50	=	38.83	FT.		
RA VERTICAL	2.31	-	0.21	+	1.50	=	3.60	FT.		
RA VERTICAL	2.32	-	0.21	+	1.50	=	3.61	FT.		
									<u>47</u>	FT.
FA HORIZONTAL	1.50	+	35.83	+	1.50	=	38.83	FT.		
RA VERTICAL	2.32	-	0.21	+	1.50	=	3.61	FT.		
RA VERTICAL	2.31	-	0.21	+	1.50	=	3.60	FT.		
									<u>47</u>	FT.
									<u>94</u>	FT.
									<b>TOTAL</b>	<b>94 FT.</b>

**Project:** 2019-0411  
 PID No. 104880  
 BRO-774-1050  
 SFN: 0804291

**Submittal:** Final  
**Date:** Sep 22, 2020  
**By:** EAT  
**Checked:** CAB

### Bridge Quantity Calculations

ITEM 516E43200 ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY (NEOPRENE) (EACH)

RA	2	X	8	=	16	EACH
FA	2	X	8	=	<u>16</u>	EACH
					32	EACH

**TOTAL** 32 EACH

ITEM 517E70001 RAILING (TWIN STEEL TUBE), AS PER PLAN (FT)

2 X( 87.50 + 4.91667 )= 184.83 FT

**TOTAL** 184.83 FT

ITEM 518E21200 POROUS BACKFILL WITH GEOTEXTILE FABRIC (CY)

RA	2.0	X	7.95	X	40.83	=	649.25	CU. FT.	
	2.0	X	7.29	X	13.75	=	<u>200.34</u>	CU. FT.	
							849.59	CU. FT.	/27 31.47 CY
FA	2.0	X	7.85	X	40.83	=	641.08	CU. FT.	
	2.0	X	7.23	X	13.00	=	<u>187.98</u>	CU. FT.	
							829.06	CU. FT.	/27 30.71 CY

62.17 CY

**TOTAL** 62 CY

**Project:** 2019-0411  
PID No. 104880  
BRO-774-1050  
SFN: 0804291

**Submittal:** Final  
**Date:** Sep 22, 2020  
**By:** EAT  
**Checked:** CAB

---

### Bridge Quantity Calculations

---

ITEM 518E22300 SPECIAL - STEEL DRIP STRIP (FT)

$$[( 2 \times 84.00 ) + ( 28 \times 1.5 )] = 210.00 \text{ FT.}$$

TOTAL 210 FT

---

ITEM 518E40000 6" PERFORATED CORRUGATED PLASTIC PIPE (FT)

RA	53.58	FT.
FA	<u>52.83</u>	FT.
	106.42	FT.

TOTAL 106 FT

---

ITEM 518E40010 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS (FT)

RA	9	FT.
FA	<u>9</u>	FT.
	18	FT.

TOTAL 18 FT

---



**Project:** 2019-0411  
PID No. 104880  
BRO-774-1050  
SFN: 0804291

**Submittal:** Final  
**Date:** Sep 22, 2020  
**By:** EAT  
**Checked:** CAB

---

### Bridge Quantity Calculations

---

ITEM 524E94704 DRILLED SHAFTS, 36" DIAMETER, INTO BEDROCK (FT)

RA	5	X	5	=	25	FT.
FA	5	X	5	=	25	FT.
					<u>50</u>	FT.

TOTAL 50 FT

---

ITEM 524E94802 DRILLED SHAFTS, 42" DIAMETER, ABOVE BEDROCK (FT)

RA	5	X	9.37	=	47	FT.
FA	5	X	9.02	=	45	FT.
					<u>92</u>	FT.

TOTAL 92 FT

---

ITEM 526E25000 REINFORCED CONCRETE APPROACH SLABS (T=15") (SY)

2	X	32.00	X	25.00	=	1600.00	SQ. FT.	/9=	177.78	SY
---	---	-------	---	-------	---	---------	---------	-----	--------	----

TOTAL 178 SY

---



**CALCULATIONS**

**Project:** 2019-0411  
PID No. 104880  
BRO-774-1050  
SFN: 0804291

**Submittal:** Final  
**Date:** Sep 22, 2020  
**By:** EAT  
**Checked:** CAB

**Bridge Quantity Calculations**

ITEM 526E90010 TYPE A INSTALLATION (FT)

2 X 32 = 64 FT.

TOTAL 64 FT

ITEM 601E21001 CONCRETE SLOPE PROTECTION, AS PER PLAN (SY)

RA	36.00	X	14.14	=	509.08	SQ. FT.		
RA	2.09	X	12.04	=	25.15	SQ. FT.		
RA	2.50	X	25.92	=	64.80	SQ. FT.		
					<u>599.03</u>	SQ. FT.	/9=	66.56 SY

FA	36.00	X	13.23	=	476.38	SQ. FT.		
FA	2.09	X	11.13	=	23.25	SQ. FT.		
FA	2.50	X	25.92	=	64.80	SQ. FT.		
					<u>564.42</u>	SQ. FT.	/9=	62.71 SY

129.27 SY

TOTAL 129 SY

ITEM 894E10000 THERMAL INTEGRITY PROFILING (TIP) TEST (EACH)

RA	1	=	1	EACH
FA	1	=	<u>1</u>	EACH
			2	EACH

TOTAL 2 EACH