

Subject	By	Date	Job No.	Sheet
LUC-120-11.32	BCS	01/28/22	31537	
ESTIMATED QUANTITIES	Checked	Date	Rev.	Date
	CMH	02/03/22		

ITEM 202E22900 - Approach Slab Removed

Number	=	2	
Width	=	55	ft (See the existing plan)
Length	=	19	ft
Volume	=	2090	ft ²
	=	232	SY

ITEM 202E23500 - Wearing Course Removed

Length	=	166	ft
Width	=	55	ft
Volume	=	9130	ft ²
	=	1014	SY

ITEM 509E10000 - Epoxy Coated Reinforcing Steel - See Rebar Lists

Abutment			
CY		520	
Assume Abutment : 125 lb/CY		64,966	Lb
Deck			
CY		498	
Assume Deck : 260 lb/CY		129,541	Lb
Pier			
CY		142	
Assume Pier : 150 lb/CY		21,251	Lb
Rail			
LF		435	
Assume Rail : 30 lb/CY		13,050	Lb
Sidewalk			
CY		105	
Assume Sidewalk : 100 lb/CY		10543.11111	Lb
Total Rebar Quantity		239,351	Lb

ITEM 511E21522 - Class QC2 Concrete with QC/QA, Superstructure

Deck area = 13288 ft² (Measured in the Drawing)
Deck thickness = 8.5 in

Volume of concrete = **9412** ft³

Haunch concrete

Interior Haunch

Width of the haunch = 4.08 ft
Thickness of the haunch = 2.9 in Avg
Length = 159.169 ft

Volume = **157.069** ft³

Exterior Haunch

Width of the haunch = 4.38 ft (Measured in the Drawing)
Thickness of the haunch = 2.88 in Avg
Length = 159.169 ft

Volume = **167.127** ft³

Rear Abutment Diaphragm

Width of the diaphragm = 4.667
Length of the diaphragm = 82.531 (Measured along CL bearing)
Height of the diaphragm = 3.688 (Considerd the average ht)

Number of beams = 9.00
Area of the one beam = 878.30 in²
Length of the beam embedment = 3.17 ft

Volume of the concete to be deducted = 173.83 ft³

Volume of concrete = **1247** ft³

Forward Abutment Diaphragm

Width of the diaphragm = 4.667
Length of the diaphragm = 82.531 (Measured along CL bearing)
Height of the diaphragm = 3.69 (Considerd the average ht)

Number of beams = 9.00
Area of the one beam = 878.30 in²
Length of the beam embedment = 3.17 ft

Volume of the concete to be deducted = 173.83 ft³

Volume of concrete = **1247** ft³

Pier Dipahragm

No of pier diaphragms = 2 at both piers
Length of the diaphragm = 81.93 ft
Width of the diaphragm = 2.67 ft
Average Height = 3.28 ft

Area of the one beam = 878.30 in²
Length of the beam embedment = 1.08 ft
Number of Interior Beams at Pier = 16.00

Volume to be deducted = 211.44 ft³

Volume of concrete = **1222** ft³

BR-2-15 Barriers: Converted to Item 517 - Concrete Parapet with Twing Steel Tube Railing, APP (LF)

Number of the barriers	=	2	
Area of the barrier	=	2.25	ft ² BCS updated
Length	=	217.5	ft
Volume of concrete for Barriers	=	979	ft ³

Total Volume of QC2 Concrete	=	14431	ft ³	
	=	534	CY	
				<u>499</u> CY
				Not Incl. Barrier

ITEM 511E41010 - Class QC1 Concrete, Pier Above Footings

Pier 1 - Pier cap			
Area of the Pier cap	=	427	ft ² (Measured in the Drawing)
Width of the cap	=	4	ft
Pier 2 - Pier cap			ft ² (Measured in the Drawing)
Area of the Pier cap	=	427	
Width of the cap	=	4	ft
Volume of concrete	=	3415	ft ³
	=	126	CY
Pier 1 - Column	=	5	Columns
Height of the column	=	5'-11 1/4"	ft
Dia. Of the Column	=	3	ft
Volume	=	210	ft ³
Pier 2 - Column	=	5	Columns
Height of the column	=	5'-8"	ft
Dia. Of the Column	=	3	ft
Volume	=	200	ft ³
Total Volume of Columns	=	410	ft ³
	=	15	CY
Total Volume of Concrete	=	142	CY

ITEM 511E44112 - Class OC1 Concrete with QC/OA, Abutment not including footing

Stem Concrete

Girder	Rear Abutment Stem Ht	Forward Abutment Stem Ht
G1	9.402	11.302
G2	9.521	11.438
G3	9.64	11.573
G4	9.761	11.709
G5	9.882	11.845
G6	9.85	11.826
G7	9.674	11.663
G8	9.5	11.500
G9	9.326	11.338

Length of the abutment/Stem	=	82.875	ft	
Width of the stem	=	4.66667	ft	
Volume of Rear Abut. Stem	=	3720	ft ³	Avg Height is considered
Volume of Forward Abut. Stem	=	4477	ft ³	Avg Height is considered

Rear Abutment Wingwall View C-C

Area measured in the Open Roads	=	297	ft ²
Thickness of the wall	=	1.5	ft
Volume	=	445.0	ft ³

Rear Abutment Wingwall View D-D

Area measured in the Open Roads	=	255	ft ²
Thickness of the wall	=	1.5	ft
Volume	=	383	ft ³

Forward Abutment Wingwall View C-C

Area measured in the Open Roads	=	415	ft ²
Thickness of the wall	=	1.5	ft
Volume	=	622.4	ft ³

Forward Abutment Wingwall View D-D

Area measured in the Open Roads	=	420	ft ²
Thickness of the wall	=	1.5	ft
Volume	=	629	ft ³

Total Volume	=	10277	ft ³
	=	381	CY

ITEM 511E46510 - Class QC1 Concrete, Footing

Rear Abutment - Footing Concrete

Area of the Abutment & Wingwalls Footing =	=	592	ft ²	(Measured in the drawing)
Depth of the footing	=	3	ft	
Total Volume of concrete	=	1776	ft ³	

Forward Abutment - Footing Concrete

Area of the Abutment & Wingwalls Footing =	=	660	ft ²	(Measured in the drawing)
Depth of the footing	=	3	ft	
Total Volume of concrete	=	1980	ft ³	
Total Volume	=	3756	ft ³	
	=	139	CY	

ITEM 511E51510 - Class QC2 Concrete, Sidewalk

Multi Use Path & Sidewalk Concrete

Area of the sidewalk	=	4.45	ft ²	BCS updated
Area of the Multi Use Path	=	8.64	ft ²	BCS updated
Length	=	217.5	ft	
Volume of concrete for Sidewalk	=	967	ft ³	
Volume of concrete for Multi Use Path	=	1880	ft ³	
Total Volume	=	2847	ft ³	
	=	105	CY	

516E10100 - Sealing of concrete surfaces (Epoxy Urathane)

Pier 1 & 2 - Cap

<u>Top face</u>	Width	4	ft	
	Length	83.25	ft	
	Area	333	SF	
2 - Side faces	Height	3	ft	
	Width	4	ft	
	Area	24	SF	
2 - Sloped portions	Length	6.8406	ft	
	Width	4	ft	
	Area	54.7248	SF	
2 - Small portions	Length	0.5833	ft	
	Width	4	ft	
	Area	4.6664	SF	
4 - Portions b/w columns	Length	13.5	ft	
	Width	4	ft	
	Area	216	SF	
5 - Area around the columns		24.66	SF	
Total Cap		1265	SF	

Pier 1 - Columns

No	5		
Diameter	3	ft	
Height	5.94	ft	
Area	279.8	SF	$2*\pi*r*h$

Pier 2 - Columns

No	5		
Diameter	3	ft	
Height	5.67	ft	
Area	267.0	SF	

Columns 547 SF

Superstructure

Sidewalk & BR-2-15 Side

Total width	11.555	ft	$5+2+1+2+0.888+0.667$
Length	217.5	ft	
Area	2513	SF	5' non-epoxy
Deck Edge height + Beam Length of the deck	7.716	ft	Deck + Beam Ht + Beam width
	167.45	ft	
Area	1292	SF	

Multi use path & BR-2-15

Total width	16.76		10+2+1+2+1.093+0.667
Length	217.5	ft	
Area	3645	SF	10' non-epoxy
Deck Edge height + Beam	7.716	ft	Deck + Beam Ht + Beam
Length of the deck	167.45	ft	
Area	1292	SF	

Rear Abutment Stem

Length of the stem	82.875	ft	
Avg Height of the Rear Stem	9.62	ft	
Area to be sealed	797.0	SF	

Rear Abutment End Diaphragm

Length of the stem	82.875	ft	
Avg Height of the Rear End Diaphragm	3.69	ft	
Area of the WF36-49	6.1	ft ²	
Number of beams	9		
Area to be sealed	251	SF	

Rear Abutment Wingwall

Rear Abutment Wingwalls Above GL

Wingwall 1 Area Above GL	145	ft ²	(Measured in the drawing)
Wingwall 2 Area Above GL	112	ft ²	(Measured in the drawing)

Forward Abutment Stem

Length of the stem	82.875	ft	
Avg Height of the Rear Stem	11.58	ft	
Area to be sealed	959.5	SF	

Forward Abutment End Diaphragm

Length of the stem	82.875	ft	
Avg Height of the Rear End Dipahragm	3.69	ft	
Area of the WF36-49	6.1	ft ²	
Number of beams	9		

Area to be sealed **251** SF

Rear Abutment Wingwall

Forward Abutment Wingwalls Above GL

Wingwall 1 Area Above GL	221	ft ²	(Measured in the drawing)
Wingwall 2 Area Above GL	226	ft ²	(Measured in the drawing)

Total area to be sealed **1502** SY

ITEM 515E15070 - Draped Strand Prestressed Concrete I Beams

Draped Stand Prestress Concrete Bridge I beam members

No of beams required are = 27

ITEM 515E20000 - Intermediate Diaphragms

Number of intermediate Diaphragms = 21

516E13600 - 1" Preformed expansion joint filler

Area of the 5' Sidewalk	=	4.726	SF	(Measured in the drawing)
Area of BR-2-15 Barrier	=	2	SF	
Number	=	2	(Rear & Forward Abutment)	

Total area for 5' sidewalk = **13.452** SF

Area of the Multi - Use Path	=	9.801	SF	(Measured in the drawing)
Area of BR-2-15 Barrier	=	2	SF	
Number	=	2	(Rear & Forward Abutment)	

Total area for Multi Use Path = **23.602** SF

Total 1" PEJF Required = **37** SF

516E13900 - 2" Preformed expansion joint filler

Approach Slab

L1	=	25	ft	
L2	=	25	ft	
L3	=	25	ft	
L4	=	25	ft	
Thickness (T)	=	1.25	ft	
	=	125		SF

End Diaphragms:

Length	=	4.83	ft	
Height	=	3.69	ft	
No.	=	4		
	=	71.3		SF

Semi Integral Abutment Diaphragm

Width	=	3	ft	
Height	=	2		
Length	=	4'-10 1/4"		
Area	=	34		
Total	=	230		SF

516E14020 - Semi Integral Abutment Expansion joint seal

Length	=	82.875	ft	
Height	=	3.69	ft	(Avg)
No.	=	2		
Expansion Joint Seal	=	190	ft	

ITEM 516E44100

Number required	=	18	(9 Rear and 9 Forward)
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ITEM 516E44101

Number required	=	36	(18 Bearings at Pier 1 & Pier 2)
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ITEM 517E75121 - Railing (Concrete Parapet with TST), APP

Sidewalk		217.5	ft	
MUP		217.5	ft	
Total Length		435	ft	

518E21200 - Porous backfill with geotextile fabric

Rear Abutment

Width of the Geotextile fabric	=	2	ft	
Height	=	13.31	ft	(Ht of stem + end diaphragm)
Length	=	82.875	ft	

Volume	=	2205	CF	
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Rear Abutment - Wingwall 1

Width of the Geotextile fabric	=	2	ft	
Height	=	13.09	ft	(Total height - Ap slab thickness)
Length	=	18.5	ft	

Volume	=	484	CF	
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Rear Abutment - Wingwall 2

Width of the Geotextile fabric	=	2	ft	
Height	=	13.19	ft	
Length	=	15	ft	

Volume	=	396	CF	
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Forward Abutment

Width of the Geotextile fabric	=	2	ft	
Height	=	15.27	ft	(Ht of stem + end diaphragm)
Length	=	82.875	ft	

Volume	=	2530	CF	
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Forward Abutment - Wingwall 1

Width of the Geotextile fabric	=	2	ft	
Height	=	14.89	ft	(Total height - Ap slab thickness)
Length	=	23.75	ft	

Volume	=	707	CF	
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Forward Abutment - Wingwall 2

Width of the Geotextile fabric	=	2	ft	
Height	=	14.92	ft	
Length	=	23.47	ft	

Volume	=	700	CF	
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Total		7023	CF	
		260	CY	

ITEM 518E40000 - 6" Perforated Corrugated Plastic Pipe

Rear Abutment		117	ft	
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Forward Abutment		117	ft	
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Total Length		234	ft	
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ITEM 518E40011 - 6" Non - Perforated Corrugated Plastic Pipe

Assume 20' on each end of the abutment		80	ft	
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ITEM 601E32204 - Rock Channel Protection, Type C with Geotextile Fabric

Rear Abutment

Thickness (T)	2	ft	
Area (A)	1675	ft ²	(Measured in the Drawing)
Along the Slope	1977	ft ²	

Forward Abutment

Thickness (T)	2	ft	
Area (A)	2417	ft ²	(Measured in the Drawing)
Along the slope	2852.06		
Total Volume	252	CY	

ITEM 846E00110 - Polymer Modified Asphalt Expansion Joint System

Width	2	ft	
Thickness	4	in	
Length	25	ft	
No	2		
Volume	33		