CUY-014-0620 PID 13182
Calculated by: RAP
Checked by: MEM
KS #15286

Structure Estimated Quantities

Revised January 30, 2020

KS ASSOCIATES

Item	Extension	Quantity	Unit	Description
202	11203	LS		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN
202	38501	133	FT	BRIDGE RAILING REMOVED, AS PER PLAN
503	11100	LS		COFFERDAMS AND EXCAVATION BRACING
503	21101	636	CY	UNCLASSIFIED EXCAVATION, AS PER PLAN
509	10000	15949	LB	EPOXY COATED REINFORCING STEEL
509	20001	400	LB	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN
510	10000	290	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT
511	34411	40	CY	CLASS QC2 CONCRETE, SUPERSTRUCTURE, AS PER PLAN
511	51511	55	CY	CLASS QC2 CONCRETE, SIDEWALK, AS PER PLAN
511	71200	637	SF	CONCRETE, MISC.: ARCHITECTURAL TREATMENT
511	81300	2	EACH	CONCRETE, MISC.: ARCHITECTURAL MOCKUP
512	10050	130	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)
512	10101	289	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN
512	10601	100	FT	CONCRETE REPAIR BY EPOXY INJECTION, AS PER PLAN
512	44401	475	SY	TYPE B WATERPROOFING, AS PER PLAN
516	47001	LS		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN
517	75121	136	FT	RAILING (CONCRETE PARAPET WITH TWIN STEEL TUBE RAILING), AS PER PLAN
518	21200	22	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC
518	40000	120	FT	6" PERFORATED CORRUGATED PLASTIC PIPE
518	62100	54	FT	STRUCTURE DRAINAGE, MISC.:INSTALLING 3" NON-PERFORATED PVC PIPE, INCLUDING SPECIALS
518	62200	4	EACH	STRUCTURE DRAINAGE, MISC.: CLEANING BACKFILL DRAINAGE AND INSTALLATION OF 3 INCH HDPE PIPE
518	62400	412	SY	STRUCTURE DRAINAGE, MISC.: COMPOSITE DRAINAGE PANEL
519	11101	150	SF	PATCHING CONCRETE STRUCTURE, AS PER PLAN
SPECIAL	53000200	LS		STRUCTURES UTILITY PROTECTION AND SUPPORT
844	10001	648	SF	CONCRETE PATCHING WITH GALVANIC ANODE PROTECTION, AS PER PLAN

Revisions made January 30, 2020

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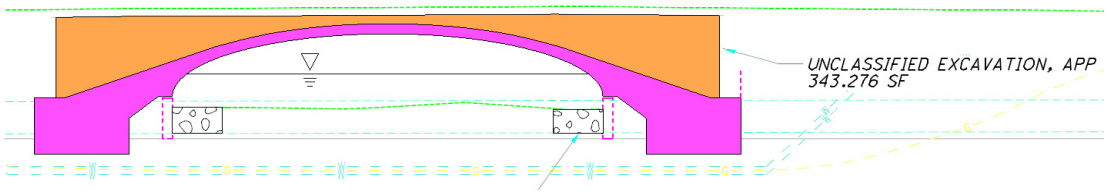
Items 202-510

KS ASSOCIATES

Item	Extension	Quantity	Unit	Description
202	11203	LS		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN
				95 CY REINFORCED CONCRETE (PER LD-4 AND PROPOSED QUANTITIES)
202	38501	133	FT	BRIDGE RAILING REMOVED, AS PER PLAN
				81'-3" LEFT, 50'-11" RIGHT, FROM EXISTING PLANS
503	11100	LS		COFFERDAMS AND EXCAVATION BRACING
				LUMP SUM BASED ON 636 CY EXCAVATION AS CALCULATED BELOW
503	21101	636	CY	UNCLASSIFIED EXCAVATION, AS PER PLAN
				CADD MEASURED CROSS SECTIONAL AREA = 343.276 SF (MEASURED 1' BEYOND PROPOSED TYPE B WATERPROOFING) x 50' TRANSVERSE WIDTH = 636 CY
509	10000	15949	LB	EPOXY COATED REINFORCING STEEL
				SEE REINFORCING STEEL TABLE, ATTACHED
509	20001	400	LB	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN
				A CONTINGENCY QUANTITY OF 400 LBS OF REINFORCING STEEL AND 10 DOWEL HOLES IS INCLUDED IN THE ESTIMATED QUANTITIES FOR THIS ITEM.
510	10000	290	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT
				Totals shown below



ITEM	UNIT
ITEM 509 – REINFORCING STEEL, REPLACEMENT OF THE EXISTING REINFORCING	400 LB
ITEM 510 – DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT	10 EACH

S605	4	
S606	12	
S607	48	
S608	24	
S611	10	
S620	88	
R601	94	
Cont.	10	Contingency per structure notes
Total	290	

CUY-014-0620 PID 13182
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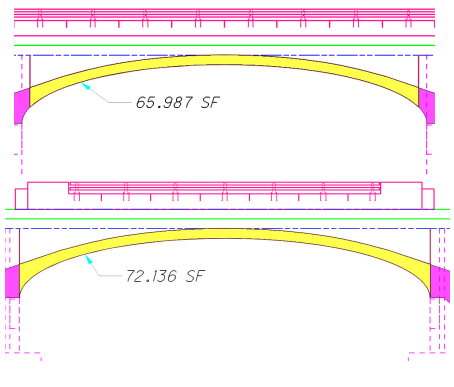
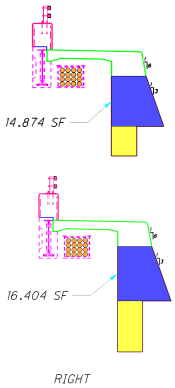
Item 511

Item	Extension	Quantity	Unit	Description
511	34411	40	CY	CLASS QC2 CONCRETE, SUPERSTRUCTURE, AS PER PLAN





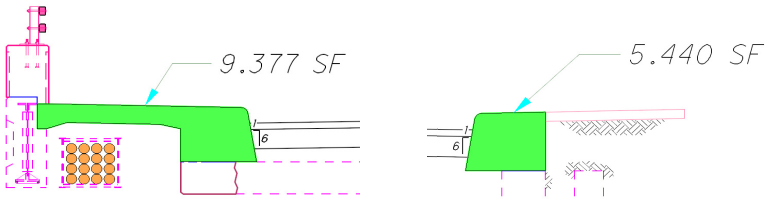
Arch Repair Concrete	Left	Right	
Face Area	65.987	72.136	SF
Repair width	2	2	FT
Volume	4.89	5.34	CY
Subtotal		10.2	

Spandrel Wall Repair (Average end area method)	Left	Right	
End trapezoid area	14.874	16.404	SF
Center trapezoid area	0	0	SF
Extrados Length	49.07	51.196	FT
Length (1/2 extrados)	24.535	25.598	FT
Each	2	2	EA
Volume	13.5	15.6	CY
Subtotal		29.1	CY

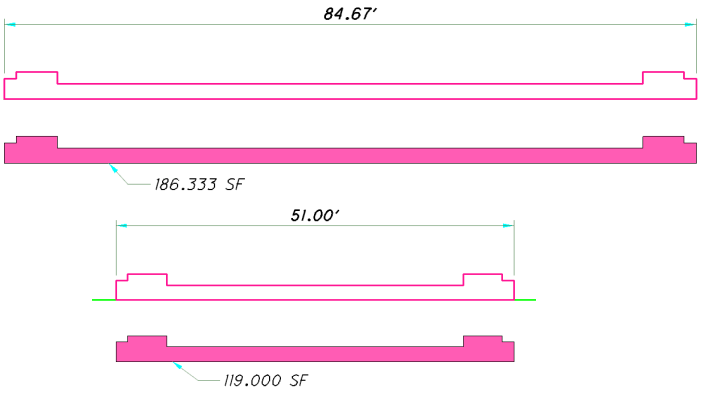
Total 39.30 CY

Item	Extension	Quantity	Unit	Description
511	51511	55	CY	CLASS QC2 CONCRETE, SIDEWALK, AS PER PLAN

CADD MEASURED WALK AVERAGE CROSS SECTIONAL AREAS = 9.377 SF, GRADE BEAM = 5.440 SF x LENGTHS - LEFT= 85.46', RIGHT= 53.45', GRADE BEAMS = (16.92' AND 13.12')



Item	Extension	Quantity	Unit	Description
511	71200	637	SF	CONCRETE, MISC.: ARCHITECTURAL TREATMENT



	Left	Right	
Railing Face Area			
CADD Measured	186.333	119	SF
Each			
	2	2	EA
End Face Area			
	4.08	4.08	SF
Each			
	2	2	
Upper interior face area			
	2.313	2.313	SF
Each			
	2	2	EA
Area			
	385.5	250.8	SF
Total	636.2		SF

Item	Extension	Quantity	Unit	Description
511	81300	2	EACH	CONCRETE, MISC.: ARCHITECTURAL MOCKUP

PAYMENT FOR ALL WORK DESCRIBED HEREIN, INCLUDING ANY ADDITIONAL CONCRETE NEEDED TO CREATE THE FORM LINED AESTHETIC TREATMENT THAT DOES NOT CONTRIBUTE TO THE CORE DESIGN OF THE PARAPET, BARRIER, ETC. TO WHICH IT IS APPLIED, SHALL BE PAID PER THE SQUARE FOOT UNIT PRICE BID FOR ITEM 511 – CONCRETE, MISC.: ARCHITECTURAL TREATMENT. ALL WORK, DESCRIBED HEREIN FOR THE COST OF CONSTRUCTING AND DISPOSING THE MOCKUP SHALL BE INCLUDED IN THE EACH UNIT PRICE BID FOR ITEM 511 – CONCRETE, MISC.: ARCHITECTURAL MOCKUP. FOR THIS PROJECT BOTH BRIDGES ARE TO RECEIVE THE SAME ARCHITECTURAL TREATMENT. THE MOCKUPS WILL BE PAID FOR WITH BRIDGE CUY-14-06.20.

ITEM	*UNIT*
ITEM 511 - CONCRETE, MISC.: ARCHITECTURAL TREATMENT	*637 SF*
ITEM 511 – CONCRETE, MISC.: ARCHITECTURAL MOCKUP	*2 EACH*

CUY-014-0620 PID 13182
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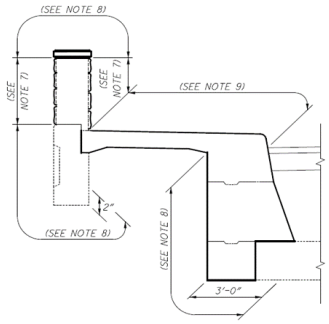
Item 512

KS ASSOCIATES

Item	Extension	Quantity	Unit	Description
512	10050	130	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)

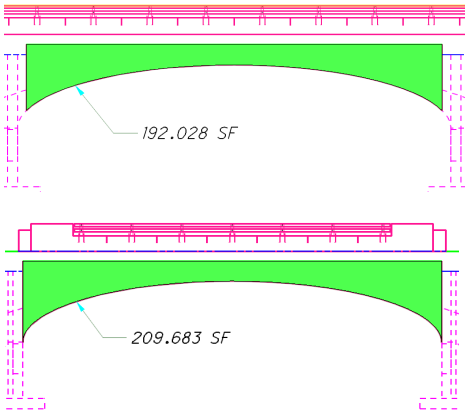


SEALING DETAIL

	Left	Right	Grade Beam	
	Avg. xsection length			
	7.736	7.736	2.935	FT
	Section length			
	85.5	53.45	30.04	FT
	Area			
	73.5	45.9	9.8	SY
Total		129.2		SY

7. ITEM 511 - CONCRETE MISC.: ARCHITECTURAL TREATMENT
8. ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN
9. ITEM 512 - SEALING OF CONCRETE SURFACES (NON-EPOXY)

512	10101	289	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN



Item 512 Sealing of Concrete Surfaces (epoxy urethane)

	Left	Right	Wingwalls RT Rear	Wingwalls RT Fwd	
	Cap perimeter		Length		
	2.21	2.21 FT	38	38	FT
	Cap length		Height		
	84.67	51 FT	14	14	FT
	Fascia beam perimeter		Area		
	5.17	5.17 FT			
	Fascia beam length		Subtotals	59.11	59.11 SY
	50	50 FT			
	Arch face				
	192.028	209.683 SF			
	Intrados length				
	50.182	55.078 FT			
	Intrados width				
	3	3 FT			
	Area				
Subtotals	87.54	82.88 SY			
Total	288.6 SY				

512	10601	100	FT	CONCRETE REPAIR BY EPOXY INJECTION, AS PER PLAN

ITEM 512 – CONCRETE REPAIR BY EPOXY INJECTION, AS PER PLAN

IN ADDITION TO THE LOCATIONS SHOWN ON THE PLANS, SEAL CRACKS IN CONCRETE ON THE TOP SURFACE OF THE ARCH AND THE INSIDE SURFACES OF THE SPANDREL WALLS TO REMAIN AS DIRECTED BY THE ENGINEER.

A CONTINGENCY QUANTITY OF 100 FT IS INCLUDED IN THE ESTIMATED QUANTITIES FOR THIS ITEM.

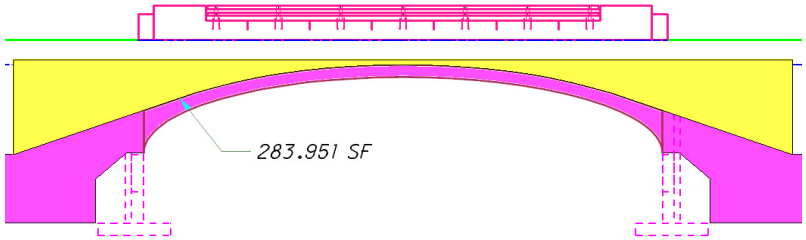
ITEM	UNIT
ITEM 512 – CONCRETE REPAIR BY EPOXY INJECTION, AS PER PLAN	100 FT

512	44401	475	SY	TYPE B WATERPROOFING, AS PER PLAN

CADD measured from structure elevation (area bounded between top of arch to a point 6" above construction joint B, toe to toe of extrados)
284 SF (2 EA)
Length of line extending between extrados toes
78 LF
Width of bridge normal to CL between spandrel wall toes
47.5 LF

474.78 SY TYPE B

411.67 SY PANELS (area not including spandrel walls)



CUY-014-0620 PID 13182
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Items 516-844

KS ASSOCIATES

Item	Extension	Quantity	Unit	Description
516	47001	LS		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN

ITEM 516 – JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN

ALL PROVISIONS OF ITEM 508 FALSEWORK AND FORMS SHALL APPLY, WITH THE FOLLOWING ADDITIONS TO THE 516 JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE SPECIFICATION.

THIS WORK CONSISTS OF SUPPORTING EXISTING STRUCTURE PORTIONS TO REMAIN AS DEFINED IN THE PROJECT PLANS. INCLUDED IN THIS ITEM IS THE TEMPORARY SUPPORT FOR THE EDGE OF THE CONCRETE ARCH, SPANDREL WALLS TO REMAIN, AND FASCIA GIRDERS. SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH CMS 501.05.

THE EDGE OF THE CONCRETE ARCH AND SPANDREL WALL IS AN EDGE BEAM TO SUPPORT THE SKEWED PORTION OF THE ARCH. THE CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORTS TO SUPPORT THE EDGE OF THE ARCH TO REMAIN UNTIL THE NEW CONCRETE ARCH AND SPANDREL WALL MEET THE REQUIREMENTS FOR LOADING UNDER CMS TABLE 511.14-1A. THIS SUPPORT SHALL BE REMOVED PRIOR TO THE PLACEMENT OF ANY CURB, SIDEWALK, OR FILL ABOVE THE BOTTOM OF THE ITEM 305 - CONCRETE BASE.

CONTRACTOR TO DESIGN AND CONSTRUCT FORMWORK TO MATCH THE CONTOUR OF THE EXISTING ARCH WITH NO JOINT MARKS OR BREAK IN ARCH SHAPE. FORM AND PLACE SPANDREL WALLS UP TO THE BOTTOM OF ITEM 305 – CONCRETE BASE AND ALLOW TO CURE PRIOR TO RELEASING THE FORMS FOR THE CONCRETE ARCH.

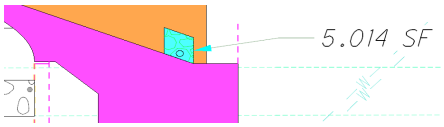
DO NOT CONSTRUCT ANY OTHER SECTION OF THE BRIDGE, SUCH AS SIDEWALKS AND RAILINGS, OR INSTALL FILL AND ROADWAY PAVEMENT UNTIL THE ARCHES AND SPANDREL WALLS ARE CURED AND FORMS AND THE SUPPORTING FALSEWORK ARE REMOVED.

CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE THE EXISTING AND NEW CONCRETE ARCHES DURING REMOVAL OF THE FORMWORK AND ITS SUPPORT.

THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE BID FOR ITEM 516 – JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

517	75121	136	FT	RAILING (CONCRETE PARAPET WITH TWIN STEEL TUBE RAILING), AS PER PLAN
				84'-8" LEFT, 51'-0" RIGHT
518	21200	22	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC

CADD MEASURED CROSS SECTION AREA = 5.014 x 2 EA, LENGTH ALONG SKEW (58') / 27 = 21.5 CY



518	40000	120	FT	6" PERFORATED CORRUGATED PLASTIC PIPE
				2 EACH @ 60' EACH = 120 FT
518	62100	54	FT	STRUCTURE DRAINAGE, MISC.:INSTALLING 3" NON-PERFORATED PVC PIPE, INCLUDING SPECIALS
				12 EACH @ 4.5' EACH = 54 FT
518	62200	4	EACH	STRUCTURE DRAINAGE, MISC.: CLEANING BACKFILL DRAINAGE AND INSTALLATION OF 3 INCH HDPE PIPE

ITEM 518 - STRUCTURE DRAINAGE, MISC.: CLEANING BACKFILL DRAINAGE AND INSTALLATION OF 3 INCH HDPE PIPE

DESCRIPTION:

THIS ITEM SHALL CONSIST OF FURNISHING ALL NECESSARY LABOR, MATERIALS, AND EQUIPMENT TO CLEAN THE EXISTING FOUR INCH DIAMETER BACKFILL DRAINAGE SYSTEM AND INSTALL THREE INCH (3") DIAMETER HDPE PIPE, AS SHOWN IN THE PLANS AND HEREIN SPECIFIED.

METHODS:

CLEAR THE EXISTING DRAINAGE CONDUIT OF ACCUMULATED OBSTRUCTIONS. THIS WORK SHALL PROCEED ONLY AFTER BOTH SIDES OF THE CONCRETE ARCH ARE EXPOSED. THE CONTRACTOR MAY USE RODS DRIVEN BY HAND OR PNEUMATIC HAMMERS UP TO 35 POUNDS, PRESSURE WASHING, OR OTHER SUITABLE METHODS THAT WILL NOT DAMAGE THE ARCH OR ENLARGE THESE EXISTING HOLES. UPON COMPLETION OF THE CLEANING, THE CONTRACTOR SHALL INSTALL THREE INCH (2") DIAMETER HDPE CONDUIT PIPE MEETING THE REQUIREMENTS OF 725.052. THE CONDUIT SHALL BE SECURED IN PLACE WITH GROUT CONFORMING TO CMS 510.02. THE GROUT SHALL EXTEND A MINIMUM OF 4 INCHES INTO THE HOLE AND AROUND THE CONDUIT AT THE INLET SIDE. THE CONDUIT SHALL BE CUT FLUSH WITH THE PROPOSED WATERPROOFING MATERIAL.

MEASUREMENT & PAYMENT:

THERE ARE FOUR LOCATIONS ANTICIPATED AT EACH BRIDGE, EACH DRAINAGE SYSTEM BEING TWELVE FEET MAXIMUM IN LENGTH.

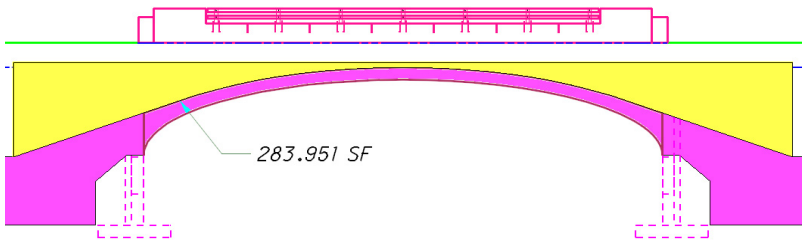
PAYMENT FOR ACCEPTED QUANTITIES, COMPLETE IN PLACE, SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR EACH ITEM 518-STRUCTURE DRAINAGE MISC.: CLEANING EXISTING BACKFILL DRAINAGE AND INSTALLATION OF 3 INCH HDPE PIPE. THIS SHALL INCLUDE ALL NECESSARY TOOLS, LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THIS ITEM OF WORK AS DESCRIBED AND TO THE SATISFACTION OF THE ENGINEER.

518	62400	412	SY	STRUCTURE DRAINAGE, MISC.: COMPOSITE DRAINAGE PANEL

CADD measured from structure elevation (area bounded between top of arch to a point 6" above construction joint B, toe to toe of extrados)
284 SF (2 EA)
Length of line extending between extrados toes
78 LF
Width of bridge normal to CL between spandrel wall toes
47.5 LF

474.78 SY TYPE B

411.67 SY PANELS (area not including spandrel walls)



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Items 516-844

519	11101	150	SF	PATCHING CONCRETE STRUCTURE, AS PER PLAN

ITEM 519 – PATCHING CONCRETE STRUCTURE, AS PER PLAN

IN ADDITION TO THE LOCATIONS SHOWN ON THE PLANS, PATCH CONCRETE SURFACES ON THE TOP SURFACE (EXTRADOS) OF THE ARCH AND THE INSIDE SURFACES OF THE SPANDREL WALLS TO REMAIN AS DIRECTED BY THE ENGINEER.

A CONTINGENCY QUANTITY OF 150 SF IS INCLUDED IN THE ESTIMATED QUANTITIES FOR THIS ITEM.

ITEM	*UNIT*
ITEM 519 – PATCHING CONCRETE STRUCTURE, AS PER PLAN	*150 SF*

SPECIAL	53000200	LS		STRUCTURES UTILITY PROTECTION AND SUPPORT

ITEM SPECIAL – STRUCTURES UTILITY PROTECTION AND SUPPORT

DESCRIPTION:

THIS ITEM SHALL CONSIST OF FURNISHING ALL NECESSARY LABOR, MATERIALS, AND EQUIPMENT TO DESIGN AND PROVIDE TEMPORARY PROTECTION AND SUPPORT TO UTILITIES AS SHOWN IN THE PLANS AND HEREIN SPECIFIED.

ON THE LEFT SIDE OF THE STRUCTURE IS A FIBER OPTIC TELECOMMUNICATION BANK. THE FIBER OPTIC LINES ARE SUPPORTED BY A UTILITY SUPPORT TRUSS BEAM. THE UTILITY TRUSS RUNS UNDER THE SIDEWALK AND ADJACENT TO THE LEFT SPANDREL WALL. THE CONTRACTOR SHALL PROTECT THE UTILITY TRUSS AND THE FIBER OPTIC LINES WITHIN USING A PROTECTIVE HOUSING SURROUNDING THE ENTIRE UTILITY TRUSS. THE PROTECTIVE HOUSING SHALL BE SUFFICIENT TO PROTECT THE UTILITIES AND THE UTILITY TRUSS FROM DAMAGE DURING THE REMOVAL AND CONSTRUCTION PROCESS.

THE UTILITY TRUSS IS SUPPORTED BY CONCRETE PIERS ATTACHED TO THE SPANDREL WALL. THE CONTRACTOR SHALL NOT DAMAGE THE PIERS, COLUMNS, OR PIER CAPS DURING REMOVAL OR CONSTRUCTION ACTIVITIES.

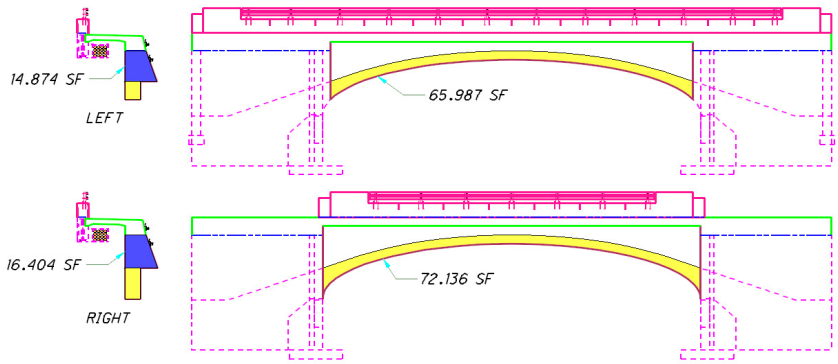
THERE IS A BRICK COMBINED SANITARY SEWER THAT RUNS ALONG THE LEFT SIDE OF THE STRUCTURE DIRECTLY BELOW THE SIDEWALK. THE CONCRETE PIERS ON THE LEFT SIDE OF THE STRUCTURE SPAN OVER THIS BRICK COMBINED SANITARY LINE. THE CONTRACTOR IS TO PROTECT THE BRICK COMBINED SANITARY LINE. THE CONTRACTOR SHALL CONSTRUCT A TEMPORARY PROTECTIVE SYSTEM OVER THE BRICK SANITARY LINE DURING REMOVAL AND CONSTRUCTION OPERATIONS THAT MAY CAUSE DAMAGE TO THE BRICK COMBINED SANITARY LINE. THE PROTECTIVE STRUCTURE SHALL BE SUFFICIENT TO PROTECT THE BRICK SANITARY LINE FROM DAMAGE DURING THE REMOVAL AND CONSTRUCTION PROCESS. THE CONTRACTOR IS TO SUBMIT THE PROTECTIVE STRUCTURE PLAN TO NEORSD FOR REVIEW AT LEAST 15 BUSINESS DAYS IN ADVANCE OF THE CONSTRUCTION FOR ACCEPTANCE OF THE PLAN.

MEASUREMENT & PAYMENT:

PAYMENT FOR ACCEPTED QUANTITIES, COMPLETE IN PLACE, SHALL BE MADE AT THE LUMP SUM PRICE BID FOR ITEM SPECIAL-STRUCTURES UTILITY PROTECTION AND SUPPORT. THIS SHALL INCLUDE ALL NECESSARY TOOLS, LABOR, EQUIPMENT, DESIGN, AND MATERIALS NECESSARY TO COMPLETE THIS ITEM OF WORK AS DESCRIBED AND TO THE SATISFACTION OF THE ENGINEER.

844	10001	648	SF	CONCRETE PATCHING WITH GALVANIC ANODE PROTECTION, AS PER PLAN

SEE PAYMENT LIMITS FROM STRUCTURE NOTES FOR ADDITIONAL DETAILS



	Arch Repair Left	Arch Repair Right		Spandrel Wall Repair Left	Spandrel Wall Repair Right	
Arch face area	65.987	72.136	SF			
Interface Area				14.874	16.404	SF
Intrados length	50.182	55.078	FT			
Interface (EA)				2	2	EA
Extrados length	49.070	51.196	FT			
2' Strip Height				4.293	4.653	FT
Strip width	2	2	FT			
Strip width				2	2	FT
Intrados strip	100.364	110.156	SF			
Strip (EA)				2	2	EA
Extrados strip	98.14	102.392	SF			
Total	264.491	284.684	SF	46.92	51.42	SF
	549.175		SF	98.34		SF
	647.515		SF			