BY:	TVB	6/24/2019
CHECKED:	LAW	9/20/2019

ESTIMATED QUANTITIES

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	PIERS	SUPERSTRUCTURE	GENERAL	SHEET REF.
202	11203	LS		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LS	2
202	22900	240	SY	APPROACH SLAB REMOVED				240	
202	23500	240	SY	WEARING COURSE REMOVED			240		
503	11100	LS		COFFERDAMS AND EXCAVATION BRACING				LS	
509	10000	106,810	LB	EPOXY COATED REINFORCING STEEL	10,317	1,309	91,824	3,360	
510	10000	362	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT	268	94			
511	34446	269	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK			269		
511	34450	45	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET)			45		
511	42510	12	CY	CLASS QC1 CONCRETE, PIER CAP		12			
511	45710	55	CY	CLASS QC1 CONCRETE, ABUTMENT	55				
511	51512	107	CY	CLASS QC2 CONCRETE WITH QC/QA, SIDEWALK			107		
512	10050	462	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)			462		
512	10100	1,082	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	492	120	470		
512	10600	33	FT	CONCRETE REPAIR BY EPOXY INJECTION	33				
512	33000	11	SY	TYPE 2 WATERPROOFING	11				
513	10280	254,683	LB	STRUCTURAL STEEL MEMBERS, LEVEL 4			254,683		
513	20000	3,168	EACH	WELDED STUD SHEAR CONNECTORS			3,168		
514	00060	14,468	SF	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT			14,468		
514	00066	14,468	SF	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT			14,468		
516	11210	101	FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL			101		
516	13600	86	SF	1" PREFORMED EXPANSION JOINT FILLER	86				
516	44100	12	EACH	ELASTOMERIC BEARING (10" X 16" X 2.0488") WITH INTERNAL LAMINATES (NEOPRENE) AND LOAD PLATE (11" X 19" X 1.5" MIN.)	12				
516	44200	6	EACH	ELASTOMERIC BEARING (18" X 20" X 3.1235") WITH INTERNAL LAMINATES (NEOPRENE) AND LOAD PLATE (19" X 30.5" X 1.5" MIN.)		6			
518	21200	45	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	45				
519	11101	537	SF	PATCHING CONCRETE STRUCTURE, AS PER PLAN	153	384			
526	30011	318	SY	REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=17"), AS PER PLAN				318	2
526	90010	96	FT	TYPE A INSTALLATION				96	
SPECIAL	530E13000	733	SF	FORMLINER			733		
607	39901	367	FT	VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN			367		3
625	25920	492	FT	CONDUIT, MISC.: CEI FIRST ENERGY CONDUITS			492		
SPECIAL	690E98000	11	EACH	DOMINION ENERGY ROLLER GUIDE/SUPPORT			11		
844	10001	743	SF	CONCRETE PATCHING WITH GALVANIC ANODE PROTECTION, AS PER PLAN	743				2

QUANTITY CALCULATIONS

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ms consultants, inc. engineers, architects, planners

PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN PAY UNIT LS

DESCRIPTION	SUB TOTAL	TOTAL
LUMP SUM ITEM		
TOTAL	-	**LS**

QUANTITY CALCULATIONS

MADE BY:	TVB	DATE:	6/24/19	ITEM NUMBER:	202E22900
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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME APPROACH SLAB REMOVED PAY UNIT SY

DESCRIPTION							SUB TOTAL	TOTAL
Location	**Length**	**Width**	**Area (SF)**	**Area (SY)**				
Rear Abutment	30.0	36.0	1080.0	120.0				
Fwd Abutment	30.0	36.0	1080.0	120.0				
			Total	240.00			240.0	
							TOTAL	240	**240**

QUANTITY CALCULATIONS

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engineers, architects, planners

PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME WEARING COURSE REMOVED PAY UNIT SY

DESCRIPTION							SUB TOTAL	TOTAL
Same as approach slab removed								
Location	**Length**	**Width**	**Area (SF)**	**Area (SY)**				
Rear Abutment	30.0	36.0	1080.0	120.0				
Fwd Abutment	30.0	36.0	1080.0	120.0				
			Total	240.00			240.0	
							TOTAL	240	**240**

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME COFFERDAMS AND EXCAVATION BRACING PAY UNIT LS

DESCRIPTION	SUB TOTAL	TOTAL
LUMP SUM ITEM		
TOTAL	-	**LS**

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME EPOXY COATED REINFORCING STEEL PAY UNIT LB

DESCRIPTION		SUB TOTAL	TOTAL
From Reinforcing Schedules			
	LB		
Abutments	10,317		
Pier Above Ftg	1,309		
Superstructure	83,870		
Railings	7,954		
Approach Slab Sidewalks	3,360		
TOTAL	106,810	106,810	
TOTAL		106,810	**106,810**

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT PAY UNIT EACH

DESCRIPTION										SUB TOTAL	TOTAL
Rear Abutment											
Top											
Width of Repair (ft.)	Horiz. Dowel Spacing (ft.)				Total No. of Dowels	Dowel Each Face					
49.00	1.0				50	2.00				100	
Forward Abutment											
Face											
Number of Columns	Number of Rows										
17.00	4.0									68	
Top											
Width of Repair (ft.)	Horiz. Dowel Spacing (ft.)				Total No. of Dowels	Dowel Each Face					
49.00	1.0				50	2.00				100	
Pier											
Top											
Length (ft.)	Horiz. Dowel Spacing (ft.)				Total No. of Dowels	Dowel Each Face					
46.00	1.0				47	2.00				94	
									TOTAL	362	**362**

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK PAY UNIT CY

DESCRIPTION										SUB TOTAL	TOTAL
Deck		(Area Measured from Microstation)				(includes Light pole pilasters)					
		Area (SF)	Thickness (ft)	Volume (ft^3)	Volume (CY)						
		9172.0	0.708	6496.8	241.0					241.0	
Typical Haunch											
	Girder #	Flange Width (in)	Fillet Width (in)	Height (in)	Area (sq in)	Length (ft)	Volume (ft^3)	Volume (CY)			
	1	18.0	0.0	2.929	52.7	183.2	67.1	3			
	2	18.0	0.0	2.929	52.7	183.2	67.1	3			
	3	18.0	0.0	2.929	52.7	183.2	67.1	3			
	4	18.0	0.0	2.929	52.7	183.2	67.1	3			
	5	18.0	0.0	2.929	52.7	183.2	67.1	3			
	6	18.0	0.0	2.929	52.7	183.2	67.1	3			
					0	Total =	402.4	18		18.0	
Additional Haunch Overhang											
	Girder #	Width (in)	Height (in)	Area (ft^2)	Length (ft)	Volume (ft^3)	Volume (CY)				
	1	36	2.5625	0.64	183.2	117.3	5				
	6	36	2.5625	0.64	183.2	117.3	5				
					Total =	234.7	10.0			10.0	
									TOTAL	269	**269**

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET) PAY UNIT CY

DESCRIPTION										SUB TOTAL	TOTAL
Railing		(Area Measured from Microstation)									
		Area (SF)	Length (ft)	Volume (ft^3)	Volume (CY)						
	left	3.0	183.167	549.5	20.35						
	right	3.0	183.167	549.5	20.35						
				Total	41.00					41	
Light Pole Pilasters											
		Width (ft)	Length (ft)	Height (ft)	Volume (ft^3)	Volume (CY)					
	1	1.6	2.917	2.7	12.31	0.46					
	2	1.6	2.917	2.7	12.31	0.46					
	3	1.6	2.917	2.7	12.31	0.46					
					Total	2.00				2	
Railing on Backwalls											
		Area (SF)	Length (ft)	Volume (ft^3)	Volume (CY)						
	left	3.00	5.0	15	0.56						
	right	3.00	5.0	15	0.56						
				Total	2.00					2	
									TOTAL	45	45

QUANTITY CALCULATIONS

MADE BY:	TVB	DATE:	6/24/19	ITEM NUMBER:	511E42510
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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME CLASS QC1 CONCRETE, PIER CAP PAY UNIT CY

DESCRIPTION							SUB TOTAL	TOTAL
Pier Cap								
Beam No.	Prop. EL.	Exist. EL.	Seat Length	Vol (CF)	Vol (CY)			
1	681.67	679.54	6.01	38.4	1.42			
2	681.80	679.60	8.51	56.2	2.08			
3	681.93	679.73	8.51	56.2	2.08			
4	681.92	679.72	8.51	56.2	2.08			
5	681.78	679.58	8.51	56.2	2.08			
6	681.64	679.50	6.01	38.6	1.43			
				total	12.0		12.0	
Cap Width =		3.0	ft.					
						TOTAL	12	**12**

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME CLASS QC1 CONCRETE, ABUTMENT PAY UNIT CY

DESCRIPTION										SUB TOTAL	TOTAL
Rear Abutment											
Seat:											
	Beam No.	Prop. EL.	Exist. EL.	Height							
	1	679.31	677.65	1.66		Seat Width =	3.75	ft			
	2	679.43	677.75	1.68		Length =	50	ft			
	3	679.55	677.85	1.70							
	4	679.53	677.93	1.60		Vol =	302.50	CF			
	5	679.38	677.83	1.55		Vol =	11.20	CY		11.20	
	6	679.22	677.73	1.49							
			avg	1.61							
Seismic Pedestal:											
			Length =	4.00	ft						
			Width =	2.00	ft						
			Ht =	0.54	ft	Vol =	8.67	CF			
			Qty =	2		Vol =	0.32	CY		0.32	
Backwall:					Deduct Approach Slab Seat:						
	Length =	50.00	ft			Length =	47.82	ft			
	Width =	1.75	ft			Width =	0.50	ft			
	Avg Ht =	4.23	ft			Avg Ht =	1.42	ft			
	Qty =	1	Vol =	370.13	CF		Vol =	33.87	CF		
							Total Vol =	12.4538	CY	12.45	
Curtain Wall:											
		Avg Ht =	3.040	ft.							
		L =	2.0	ft.							
		Thick =	1.125	ft.		Vol =	13.68	CF			
		Qty =	2			Vol =	0.51	CY		0.51	
Short Wing Wall:											
		Area (by CADD) =		29.69	sq. ft.						
			Thick =	1.125	ft.	Vol =	66.80	CF			
			Qty =	2		Vol =	2.47	CY		2.47	
Chamfer Removal:											
			Avg Ht =	0.25	ft.						
			L =	50.0	ft.						
			Thick =	0.25	ft.	Vol =	3.13	CF			
			Qty =	1		Vol =	0.12	CY		0.12	
									SHEET TOTAL	27	

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME CLASS QC1 CONCRETE, ABUTMENT PAY UNIT CY

DESCRIPTION										SUB TOTAL	TOTAL
Forward											
Seat:											
	Beam No.	Prop. EL.	Exist. EL.	Height							
	1	682.67	680.92	1.75		Seat Width =	3.75	ft			
	2	682.80	681.02	1.78		Length =	50	ft			
	3	682.93	681.12	1.81							
	4	682.93	681.13	1.80		Vol =	331.87	CF			
	5	682.79	681.03	1.76		Vol =	12.29	CY		12.29	
	6	682.65	680.93	1.72							
			avg	1.77							
Seismic Pedestal:											
			Length =	4.00	ft						
			Width =	2.00	ft						
			Ht =	0.54	ft	Vol =	8.67	CF			
			Qty =	2		Vol =	0.32	CY		0.32	
Backwall:					Deduct Approach Slab Seat:						
	Length =	50.00	ft			Length =	47.82	ft			
	Width =	1.75	ft			Width =	0.50	ft			
	Avg Ht =	4.23	ft			Avg Ht =	1.42	ft			
	Qty =	1	Vol =	370.13	CF		Vol =	33.87	CF		
							Total Vol =	12.4538	CY	12.45	
Curtain Wall:											
			Avg Ht =	2.974	ft.						
			L =	2	ft.	Vol =	13.38	CF			
			Thick =	1.125	ft.	Vol =	0.50	CY		0.50	
			Qty =	2							
Short Wing Wall:											
		Area (by CADD) =		29.14	sq. ft.						
			Thick =	1.125	ft.	Vol =	65.57	CF			
			Qty =	2		Vol =	2.43	CY		2.43	
									TOTAL	28	**55**

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME CLASS QC2 CONCRETE WITH QC/QA, SIDEWALK PAY UNIT CY

DESCRIPTION										SUB TOTAL	TOTAL
Sidewalk on Bridge											
		Area (SF)	Length (ft)	Volume (ft^3)	Volume (CY)						
	LT.	9.66	183.17	1768.86	66.00						
	RT.	5.65	183.17	1035.64	39.00						
			Total =	2805	105					105.0	
		(Area Measured from Microstation)									
Sidewalk on Abutment Backwalls											
		Area (SF)	Length (ft)	Volume (ft^3)	Volume (CY)						
	LT.	9.66	1.75	16.90	1.00						
	RT.	5.65	1.75	9.89	1.00						
			Total =	27	2					2.0	
									TOTAL	107	107

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME SEALING OF CONCRETE SURFACES (NON-EPOXY) PAY UNIT SY

DESCRIPTION										SUB TOTAL	TOTAL
Superstructure											
	Right Sidewalk										
	Perimeter (ft)	Length (ft)	Area (ft^2)								
	6.514	183.00	1192.06		133.00	SY				133	
	Left Sidewalk										
	Perimeter (ft)	Length (ft)	Area (ft^2)								
	10.515	183.00	1924.25		214.00	SY				214	
						Superstructure Sidewalk Sealing =					347.00
Approach slabs											
	Right Sidewalk										
	Perimeter (ft)	Length (ft)	Area (ft^2)								
	6.51	60.00	390.84		44.00	SY				44	
	Left Sidewalk										
	Perimeter (ft)	Length (ft)	Area (ft^2)								
	10.52	60.00	630.90		71.00	SY				71	
						Approach Slab Sidewalk Sealing =					115.00
									TOTAL	462	**462**

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) PAY UNIT SY

DESCRIPTION										SUB TOTAL	TOTAL
Piers 1 Cap Areas (areas from Microstation measure tool)											
	Front (ft^2)	Back (ft^2)	Left End (ft^2)	Right End (ft^2)	Underside (ft^2)	Top (ft^2)	Total 1 Piers (SY)				
	309.90	309.90	17.01	16.92	117.82	139.34	101.21			101.21	
Pier 1 Columns											
	Avg. Height (ft)	Perimeter (ft)	No. of Columns	Area (ft^2)	Area (SY)						
	5.85	9.42	3.00	165.40	18.38					18.38	
							Total Pier Sealing =			119.59	120
Rear Abutment											
Breastwall Elevation Area											
	Avg. Seat EL.	T/Grade EL.	Length (ft)	Area (ft^2)	Area (YD^2)						
	679.37	663.50	50.1	794.81	88.31					88.31	
Backwall Elevation Area											
	Avg. Seat EL.	Avg. B/Joint Armor	Length (ft)	Area (ft^2)	Area (YD^2)						
	679.37	683.0	50.1	181.66	20.18					20.18	
Girder Seat Plan Area											
	Width (ft)	Length (ft)	Area (ft^2)	Area (YD^2)							
	2	50.1	100.20	11.13						11.13	
Sides of Curtain Walls											
	Width (ft)	Height (ft)	Sides	Area (ft^2)	Area (YD^2)						
	2.00	2.95	4	23.60	2.62					2.62	
Sides of Seismic Pedestals											
	Width (ft)	Height (ft)	Sides	Area (ft^2)	Area (YD^2)						
	2.00	0.552	4	4.42	0.49					0.49	
							Rear Abutment Sub-Total Sealing =			122.74	
									TOTAL		

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) PAY UNIT SY

DESCRIPTION										SUB TOTAL	TOTAL
(Rear Abutment Sealing Continued)											
Rear Abutment Wingwalls											
West Wingwall Front Face Elevation											
Area (ft^2) (by CADD)	Area (YD^2)										
514.38	57.15									57.15	
Top of West Wingwall and Vertical End											
Length (ft) (By CADD)	Width (ft)	Area (ft^2)	Area (YD^2)								
43.52	1.5	65.28	7.25							7.25	
Backside of West Wingwall											
Length (ft) (By CADD)	Height (ft)	Area (ft^2)	Area (YD^2)								
43.52	0.5	21.76	2.42							2.42	
East Wingwall Front Face Elevation											
Area (ft^2) (by CADD)	Area (YD^2)										
515.78	57.31									57.31	
Top of East Wingwall and Vertical End											
Length (ft) (By CADD)	Width (ft)	Area (ft^2)	Area (YD^2)								
43.68	1.5	65.52	7.28							7.28	
Backside of East Wingwall											
Length (ft) (By CADD)	Height (ft)	Area (ft^2)	Area (YD^2)								
43.68	0.5	21.84	2.43							2.43	
						Rear Abutment Sub-Total Sealing =				133.84	
									TOTAL		

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) PAY UNIT SY

DESCRIPTION										SUB TOTAL	TOTAL
	(Rear Abutment Sealing Continued)										
	Top of Abutment Parapet										
	Area (ft^2) (By CADD)	Locations	Area (ft^2)	Area (YD^2)							
	5.66	2	11.32	1.26						1.26	
	Sides of Abutment Parapets										
	Length (ft) (3 sides)	Height (ft)	Locations	Area (ft^2)	Area (YD^2)						
	10.85	3.5	2	75.95	8.44					8.44	
						Rear Abutment Sub-Total Sealing =				9.70	
						Total Rear Abutment Sealing =				266.28	267
									TOTAL		

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) PAY UNIT SY

DESCRIPTION										SUB TOTAL	TOTAL
Forward Abutment											
Breastwall Elevation Area											
Avg. Seat EL.	T/Grade EL.	Length (ft)	Area (ft^2)	Area (YD^2)							
682.80	670.00	50.1	640.90	71.21						71.21	
Backwall Elevation Area											
Avg. Seat EL.	Avg. B/Joint Armor	Length (ft)	Area (ft^2)	Area (YD^2)							
682.80	686.40	50.1	180.36	20.04						20.04	
Girder Seat Plan Area											
Width (ft)		Length (ft)	Area (ft^2)	Area (YD^2)							
2.00		50.1	100.20	11.13						11.13	
Sides of Curtain Walls											
Width (ft)	Height (ft)	Sides	Area (ft^2)	Area (YD^2)							
2.00	2.95	4	23.60	2.62						2.62	
Sides of Seismic Pedestals											
Width (ft)	Height (ft)	Sides	Area (ft^2)	Area (YD^2)							
2.00	0.552	4	4.42	0.49						0.49	
Forward Abutment Wingwalls											
West Wingwall Front Face											
Area (ft^2) (by CADD)	Area (YD^2)										
401.47	44.61									44.61	
Top of West Wingwall and Vertical End											
Length (ft) (By CADD)	Width (ft)	Area (ft^2)	Area (YD^2)								
38.9	1.5	58.35	6.48							6.48	
Backside of West Wingwall											
Length (ft) (By CADD)	Height (ft)	Area (ft^2)	Area (YD^2)								
38.9	0.5	19.45	2.16							2.16	
					Forward Abutment Sub-Total Sealing =					158.75	
									TOTAL		

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) PAY UNIT SY

DESCRIPTION										SUB TOTAL	TOTAL
(Forward Abutment Sealing Continued)											
East Wingwall Front Face Elevation											
Area (ft^2) (by CADD)	Area (YD^2)										
424.81	47.20									47.20	
Top of East Wingwall and Vertical End											
Length (ft) (By CADD)	Width (ft)	Area (ft^2)	Area (YD^2)								
39.39	1.5	59.085	6.57							6.57	
Backside of East Wingwall											
Length (ft) (By CADD)	Height (ft)	Area (ft^2)	Area (YD^2)								
39.39	0.5	19.695	2.19							2.19	
Top of Abutment Parapet											
Area (ft^2) (By CADD)	Locations	Area (ft^2)	Area (YD^2)								
5.66	2	11.32	1.26							1.26	
Sides of Abutment Parapets											
Length (ft) (3 sides)	Height (ft)	Locations	Area (ft^2)	Area (YD^2)							
10.85	3.5	2	75.95	8.44						8.44	
									Forward Abutment Sub-Total Sealing =	65.65	
									Total Forward Abutment Sealing =		225
									TOTAL		

QUANTITY CALCULATIONS

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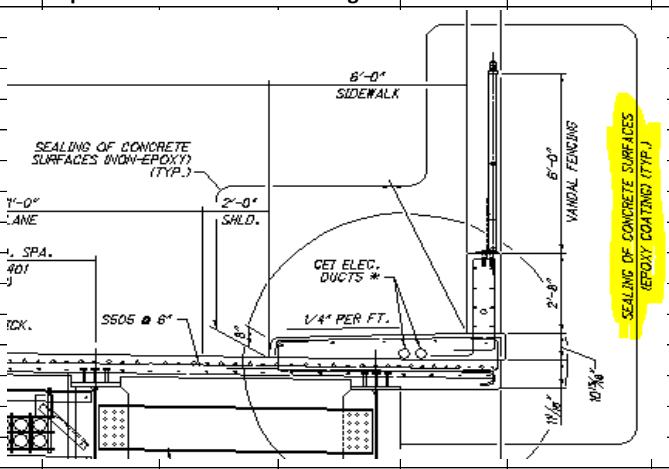
PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) PAY UNIT SY

Superstructure Concrete Sealing



Right Edge of Deck

Location	Perim. (ft)	Length (ft) (along edge of deck)	Area (ft^2)	Area (yd^2)	SUB TOTAL	TOTAL
Edge of Deck, Parapet and Pilasters	7.74	187.417	1450.61	161.18		
Top and Inside Face of Parapet	3.57	183.167	653.91	72.66		
Additional Plan Area of Pilasters			13.86	1.54		
			Sum	235.37	235.4	

Left Edge of Deck

Location	Perim. (ft)	Length (ft) (along edge of deck)	Area (ft^2)	Area (yd^2)	SUB TOTAL	TOTAL
Edge of Deck and Parapet	11.46	183.167	2099.09	234.00		
			Sum	234.00	234.0	
				Superstructure Sub-Total Sealing =	469.37	470
				TOTAL		1,082

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME CONCRETE REPAIR BY EPOXY INJECTION PAY UNIT FT

DESCRIPTION	SUB TOTAL	TOTAL
Rear Abutment		
Length* (ft)		
1.75	1.75	
Forward Abutment		
Length* (ft)		
31.5	31.50	
Pier		
Length* (ft)		
0.0	0.00	
*Area from patching plans.		
TOTAL	33	**33**

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME TYPE 2 WATERPROOFING PAY UNIT SY

Waterproofing at Abutment Corners

Location	Top/Wall EL.	Beam Seat EL.	Area (yd^2)	SUB TOTAL	TOTAL
R.A. Left	684.44	677.73	2.74	2.74	
R.A. Right	684.23	677.65	2.69	2.69	
F.A. Left	687.84	680.93	2.80	2.80	
F.A. Right	687.68	680.92	2.75	2.75	

NOTE: 3'-0" strip of waterproofing applied in wingwall outside corner from top of wingwall to 1'-6" below adjacent existing beam seat

TOTAL 11 **11**

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME STRUCTURAL STEEL MEMBERS, LEVEL 4 PAY UNIT LB

										SUB TOTAL	TOTAL
	Girders										
	The following weight taken from MDX output:										
			Girder Wt. (lbs)	Number of Girders							
			37,390	6		Total	224,340			224,340	
	Weight includes:	Top & Bott. Flanges, Web, weld, bearing stiffeners, intermediate transverse stiff and extensions.									
	Diaphrams Bay 1, 3 and 5 (per STD DWG GSD-1-19)										
			Area (ft^2)	Thickness (in)	Locations (each)	Weight (lbs)					
	Connection Plates		2.57	0.50	2.00	104.94					
			Length (ft)	Wt./ft (lb)		Weight					
	Diaphram Channel		8.29	42.70		353.98					
				Total Weight per frame		458.92	lb				
				Number of bays		3					
				Number of frames per bay		12					
				Total Weight for Bay 1, 3 and 5 =		16521.288				16,521	
	End Diaphragms Bay 1, 3 and 5 (per STD DWG GSD-1-19)										
		Top Conn. Plate Area (ft^2)	Plate Thickness (in)	Weight of Plate (lbs)	No. of Plates	No. of End Dia.	No. of Bays	Weight (lbs)			
		1.91	0.50	39.00	2	2	3	467.95			
		Bot. Conn. Plate Area (ft^2)	Plate Thickness (in)	Weight of Plate (lbs)	No. of Plates	No. of End Dia.	No. of Bays	Weight (lbs)			
		1.98	0.50	40.43	1	2	3	242.55			
		Bot. 4x4x3/8 Length (ft)	Weight of Angle/ft (lbs)	No. of Angles	No. of End Dia.	No. of Bays		Weight (lbs)			
		8.47	9.80	1	2	3		498.04			
		Mid. 4x4x3/8 Length (ft)	Weight of Angle/ft (lbs)	No. of Angles	No. of End Dia.	No. of Bays		Weight (lbs)			
		10.83	9.80	1	2	3		636.80			
				Total Weight End Diaphragms Bay 1, 3 and 5 =				1845.34		1,845	
									SHEET SUB TOTAL	242,707	

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ITEM NAME STRUCTURAL STEEL MEMBERS, LEVEL 4 PAY UNIT LB

										SUB TOTAL	TOTAL
Structural Steel Members, Level 4 Continued											
Bay 2 Intermediate Crossframes Type A (Gas and Waterline supports)											
	Side Conn. Plate Area (ft^2)	Plate Thickness (in)	Weight of Plate (lbs)	No. of Plates	No. of Diaphagms	No. of Bays	Weight (lbs)				
	1.357	0.375	20.78	2	12	1	498.70				
	Top Conn. Plate Area (ft^2)	Plate Thickness (in)	Weight of Plate (lbs)	No. of Plates	No. of Diaphagms	No. of Bays	Weight (lbs)				
	0.286	0.375	4.38	2	12	1	105.11				
	Bot. MC4x13.8 Length (ft)	Weight of MC/ft (lbs)	No. of MCs / Dia.	No. of Diaphagms			Weight (lbs)				
	8.284	13.80	1	12			1371.83				
	Mid. 3x3x5/16 Length (ft)	Weight of Angle/ft (lbs)	No. of Angles	No. of Diaphagms			Weight (lbs)				
	2.58	6.10	2	12			377.71				
	Top 3x3x3/8 Length (ft)	Weight of Angle/ft (lbs)	No. of Angles	No. of Diaphagms			Weight (lbs)				
	8.28	7.20	1	12			715.65				
			Total Weight Intermediate Crossframes Bay 2 =				3069.00			3,069	
Bay 2 Support Crossframes Type B (Gas and Waterline supports)											
	Side Conn. Plate Area (ft^2)	Plate Thickness (in)	Weight of Plate (lbs)	No. of Plates	No. of Diaphagms	No. of Bays	Weight (lbs)				
	1.357	0.375	20.78	2	11	1	457.14				
	Bot. MC4x13.8 Length (ft)	Weight of MC/ft (lbs)	No. of MCs / Dia.	No. of Diaphagms			Weight (lbs)				
	8.284	13.80	1	11			1257.51				
			Total Weight Support Crossframes Bay 2 =				1714.65			1,715	
									SHEET SUB TOTAL	4,784	

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ITEM NAME STRUCTURAL STEEL MEMBERS, LEVEL 4 PAY UNIT LB

										SUB TOTAL	TOTAL
Structural Steel Members, Level 4 Continued											
Bay 2 End Diaphrams (Gas and Waterline supports)											
		Top Conn. Plate Area (ft^2)	Plate Thickness (in)	Weight of Plate (lbs)	No. of Plates	No. of End Dia.	No. of Bays	Weight (lbs)			
		1.81	0.50	36.95	2	2	1	147.82			
		Bot. Conn. Plate Area (ft^2)	Plate Thickness (in)	Weight of Plate (lbs)	No. of Plates	No. of End Dia.	No. of Bays	Weight (lbs)			
		0.84	0.50	17.15	2	2	1	68.60			
		Bot. 4x4x3/8 Length (ft)	Weight of Angle/ft (lbs)	No. of Angles	No. of End Dia.	No. of Bays		Weight (lbs)			
		8.47	9.80	1	2	1		166.01			
		Mid. 4x4x3/8 Length (ft)	Weight of Angle/ft (lbs)	No. of Angles	No. of End Dia.	No. of Bays		Weight (lbs)			
		9.91	9.80	1	2	1		194.20			
					Total Weight End Diaphragms Bay 2 =			576.63		577	
Bay 2 Utility Support Plates (Gas and Waterline supports)											
		Waterline Plate Area (ft^2)	Plate Thickness (in)	Weight of Plate (lbs)	No. of Plates		No. of Bays	Weight (lbs)			
		0.938	0.75	28.71	23		1	660.35			
		Gasline Plate Area (ft^2)	Plate Thickness (in)	Weight of Plate (lbs)	No. of Plates		No. of Bays	Weight (lbs)			
		0.625	0.50	12.76	11		1	140.36			
		Support Plate Area (ft^2)	Plate Thickness (in)	Weight of Plate (lbs)	No. of Plates		No. of Bays	Weight (lbs)			
		0.063	0.50	1.29	34		1	43.73			
					Total Weight End Diaphragms Bay 2 =			844.45		844	
									SHEET SUB TOTAL	1,421	

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ITEM NAME STRUCTURAL STEEL MEMBERS, LEVEL 4 PAY UNIT LB

										SUB TOTAL	TOTAL
Structural Steel Members, Level 4 Continued											
Bay 4 Intermediate Crossframes Type C (CPP Conduit supports)											
		Side Conn. Plate Area (ft^2)	Plate Thickness (in)	Weight of Plate (lbs)	No. of Plates	No. of Diaphagms	No. of Bays	Weight (lbs)			
		1.357	0.375	20.78	2	12	1	498.70			
		Top Conn. Plate Area (ft^2)	Plate Thickness (in)	Weight of Plate (lbs)	No. of Plates	No. of Diaphagms	No. of Bays	Weight (lbs)			
		0.347	0.375	5.31	2	12	1	127.52			
		Bot. L4x4x1/2 Length (ft)	Weight /ft (lbs)	No. of Angles	No. of Diaphagms			Weight (lbs)			
		8.289	12.80	1	12			1273.19			
		Mid. 3x3x5/16 Length (ft)	Weight of Angle/ft (lbs)	No. of Angles	No. of Diaphagms			Weight (lbs)			
		1.92	6.10	2	12			281.09			
		Top 31/2x31/2x 3/8 Length (ft)	Weight of Angle/ft (lbs)	No. of Angles	No. of Diaphagms			Weight (lbs)			
		8.28	8.50	1	12			844.87			
				Total Weight Intermediate Crossframes Bay 4 =				3025.36		3,025	
Bay 4 Support Crossframes Type D (CPP Conduit supports)											
		Side Conn. Plate Area (ft^2)	Plate Thickness (in)	Weight of Plate (lbs)	No. of Plates	No. of Diaphagms	No. of Bays	Weight (lbs)			
		1.357	0.375	20.78	2	11	1	457.14			
		Bot. L4x4x1/2 Length (ft)	Weight /ft (lbs)	No. of Angles	No. of Diaphagms			Weight (lbs)			
		8.289	12.80	1	11			1167.09			
				Total Weight Support Crossframes Bay 4 =				1624.23		1,625	
									SHEET SUB TOTAL	4,650	

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ITEM NAME STRUCTURAL STEEL MEMBERS, LEVEL 4 PAY UNIT LB

											SUB TOTAL	TOTAL
	Structural Steel Members, Level 4 Continued											
	Bay 4 End Diaphrams (CPP Conduit supports)											
		Top Conn. Plate Area (ft^2)	Plate Thickness (in)	Weight of Plate (lbs)	No. of Plates	No. of End Dia.	No. of Bays	Weight (lbs)				
		0.99	0.50	20.21	2	2	1	80.85				
		Mid. Conn. Plate Area (ft^2)	Plate Thickness (in)	Weight of Plate (lbs)	No. of Plates	No. of End Dia.	No. of Bays	Weight (lbs)				
		0.71	0.50	14.50	2	2	1	57.98				
		Bot. 4x4x3/8 Length (ft)	Weight of Angle/ft (lbs)	No. of Angles	No. of End Dia.	No. of Bays		Weight (lbs)				
		8.47	9.80	1	2	1		166.01				
		Mid. 4x4x3/8 Length (ft)	Weight of Angle/ft (lbs)	No. of Angles	No. of End Dia.	No. of Bays		Weight (lbs)				
		2.73	9.80	2	2	1		107.02				
		Mid. WT5x15 Length (ft)	Weight of WT/ft (lbs)	No. of WT's	No. of End Dia.	No. of Bays		Weight (lbs)				
		2.12	15.00	1	2	1		63.60				
					Total Weight End Diaphragms Bay 4 =			475.46			475	
	Weight of Bolts											
	Bays 1, 3, 5			No. of Bolts	Wt. per Bolt (lb)	No. of Frames	No. of Bays	Weight				
		Diaphragms		30	0.50	12	3	540				
	Bay 2											
		Intermediate X-Frame		8	0.50	12	1	48				
		Support X-Frame		2	0.50	11	1	11				
	Bay 4											
		Intermediate X-Frame		6	0.50	12	1	36				
		Support X-Frame		2	0.50	11	1	11				
						Total Weight of Bolts =		646			646	
										SHEET SUB TOTAL	1,121	
										TOTAL		**254683**

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME WELDED STUD SHEAR CONNECTORS PAY UNIT EACH

6.5" X 7/8 dia studs on Girders, 3 per row:

	Spaces	Number	SUB TOTAL	TOTAL
Girder 1	175	528		
Girder 2	175	528		
Girder 3	175	528		
Girder 4	175	528		
Girder 5	175	528		
Girder 6	175	528		
Total		**3168**	3,168	

TRUE

	SUB TOTAL	TOTAL
TOTAL	3,168	**3168**

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT PAY UNIT SF

									SUB TOTAL	TOTAL
Girders										
Girder Perimeter (ft.)		Length of Girders		Number of Girders		Total				
10.33		183		6		11,346			11,346	
Diaphrams Bay 1, 3 and 5 (per STD DWG GSD-1-19)										
	Area (ft^2)	Number of sides	No. of plates	Area (ft^2)						
Connection Plates	2.57	2	2	10.28						
	Perimeter (ft)	Length (ft)	Area (ft^2)							
Diaphram Channel	4.25	8.29	35.23							
Total Area per frame =				45.51	(ft^2)					
Number of bays =				3						
Number of frames per bay =				12						
Total Area for Bay 1, 3 and 5 =				1638.45	(ft^2)				1,639	
End Diaphragms Bay 1, 3 and 5 (per STD DWG GSD-1-19)										
Total Plate Area (ft^2)	Number of sides	Paint Area (ft^2)	No. of End Dia.	No. of Bays		Paint Area (ft^2)				
5.89	2	11.78	2	3		70.68				
Bot. 4x4x3/8 Length (ft)	Perimeter (ft)	No. of Angles	No. of End Dia.	No. of Bays		Paint Area (ft^2)				
8.47	1.33	1	2	3		67.59				
Mid. 4x4x3/8 Length (ft)	Perimeter (ft)	No. of Angles	No. of End Dia.	No. of Bays		Paint Area (ft^2)				
10.83	1.33	1	2	3		86.42				
Total paint Area End Diaphragms Bay 1, 3 and 5 =						224.69			225	
						SHEET SUB TOTAL			13,210	

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT PAY UNIT SF

										SUB TOTAL	TOTAL
	Field Painting Structural Steel, Intermediate Coat Continued										
	Bay 2 Intermediate Crossframes Type A (Gas and Waterline supports)										
		Side Conn. Plate Area (ft^2)	No. of Sides	No. of Plates	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		1.357	2	2	12	1		65.14			
		Top Conn. Plate Area (ft^2)	No. of Sides	No. of Plates	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		0.286	2	2	12	1		13.73			
		Bot. MC4x13.8 Length (ft)	Perimeter (ft)	No. of MCs / Dia.	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		8.284	1.50	1	12	1		149.11			
		Mid. 3x3x5/16 Length (ft)	Perimeter (ft)	No. of Angles	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		2.58	1.00	2	12	1		61.92			
		Top 3x3x3/8 Length (ft)	Perimeter (ft)	No. of Angles	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		8.28	1.00	1	12	1		99.40			
						Total Paint Area Intermediate Crossframes Bay 2 =		389.29		390	
	Bay 2 Support Crossframes Type B (Gas and Waterline supports)										
		Side Conn. Plate Area (ft^2)	No. of Sides	No. of Plates	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		1.357	2	2	11	1		59.71			
		Bot. MC4x13.8 Length (ft)	Perimeter (ft)	No. of MCs / Dia.	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		8.284	1.50	1	11	1		136.69			
						Total Weight Support Crossframes Bay 2 =		196.39		197	
									SHEET SUB TOTAL	587	

QUANTITY CALCULATIONS

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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT PAY UNIT SF

										SUB TOTAL	TOTAL
	Field Painting Structural Steel, Intermediate Coat Continued										
	Bay 2 End Diaphrams (Gas and Waterline supports)										
		Top Conn. Plate Area (ft^2)	No. of Sides	No. of Plates	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		1.81	2	2	2	1		14.48			
		Bot. Conn. Plate Area (ft^2)	No. of Sides	No. of Plates	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		0.84	2	2	2	1		6.72			
		Bot. 4x4x3/8 Length (ft)	Perimeter (ft)	No. of Angles	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		8.47	1.33	1	2	1		22.53			
		Mid. 4x4x3/8 Length (ft)	Perimeter (ft)	No. of Angles	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		9.91	1.33	1	2	1		26.36			
				Total Paint Area End Diaphragms Bay 2 =				70.09		71	
									SHEET SUB TOTAL	71	

QUANTITY CALCULATIONS	MADE BY: LAW	DATE: 9/26/19	ITEM NUMBER: 513E10280	ms consultants, inc. engineers, architects, planners
	CHECKED BY: TVB	DATE: 9/30/19	PAGE NUMBER: 1	

PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT PAY UNIT SF

										SUB TOTAL	TOTAL
	Field Painting Structural Steel, Intermediate Coat Continued										
	Bay 4 Intermediate Crossframes Type C (CPP Conduit supports)										
		Side Conn. Plate Area (ft^2)	No. of Sides	No. of Plates	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		1.357	2	2	12	1		65.14			
		Top Conn. Plate Area (ft^2)	No. of Sides	No. of Plates	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		0.347	2	2	12	1		16.66			
		Bot. L4x4x1/2 Length (ft)	Perimeter (ft)	No. of Angles / Dia.	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		8.289	1.33	1	12	1		132.29			
		Mid. 3x3x5/16 Length (ft)	Perimeter (ft)	No. of Angles / Dia.	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		1.92	1.00	2	12	1		46.08			
		Top 3.5x3.5x3/8 Length (ft)	Perimeter (ft)	No. of Angles / Dia.	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		8.28	1.00	1	12	1		99.40			
					Total Paint Area Intermediate Crossframes Bay 4 =			359.56		360	
	Bay 4 Support Crossframes Type D (CPP Conduit supports)										
		Side Conn. Plate Area (ft^2)	No. of Sides	No. of Plates	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		1.357	2	2	11	1		59.71			
		Bot. L4x4x1/2 Length (ft)	Perimeter (ft)	No. of Angles / Dia.	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		8.289	1.33	1	11	1		121.27			
					Total Paint Area Support Crossframes Bay 4 =			180.98		181	
								SHEET SUB TOTAL		541	

QUANTITY CALCULATIONS	MADE BY: LAW	DATE: 9/26/19	ITEM NUMBER: 513E10280	ms consultants, inc. engineers, architects, planners
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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT PAY UNIT SF

										SUB TOTAL	TOTAL
	Field Painting Structural Steel, Intermediate Coat Continued										
	Bay 4 End Diaphrams (CPP Conduit supports)										
		Top Conn. Plate Area (ft^2)	No. of Sides	No. of Plates	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		0.99	2	2	2	1		7.92			
		Mid. Conn. Plate Area (ft^2)	No. of Sides	No. of Plates	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		0.71	2	2	2	1		5.68			
		Bot. 4x4x3/8 Length (ft)	Perimeter (ft)	No. of Angles / Dia.	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		8.47	1.33	1	2	1		22.53			
		Mid. 4x4x3/8 Length (ft)	Perimeter (ft)	No. of Angles / Dia.	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		2.73	1.33	2	2	1		14.52			
		Mid. WT5x15 Length (ft)	Perimeter (ft)	No. of WT's / Dia.	No. of Diaphagms	No. of Bays		Paint Area (ft^2)			
		2.12	1.84	1	2	1		7.80			
						Total Paint Area End Diaphragms Bay 4 =		58.46		59	
									SHEET SUB TOTAL	59	
									TOTAL		**14468**

QUANTITY CALCULATIONS	MADE BY: LAW	DATE: 9/26/19	ITEM NUMBER: 514E00066	ms consultants, inc. engineers, architects, planners
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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME FIELD PAINTING STRUCTURAL STEEL, FINISH COAT PAY UNIT SF

	SUB TOTAL	TOTAL
(See calculations for Intermediate Field Painting Item 514E00060)		
TOTAL	-	**14468**

QUANTITY CALCULATIONS

MADE BY:	TVB	DATE:	6/24/19	ITEM NUMBER:	516E11210
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ms consultants, inc.
engineers, architects, planners

PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL PAY UNIT FT

DESCRIPTION										SUB TOTAL	TOTAL
Rear Abutment											
Length =	50.083	FT.								50.083	
Forward Abutment											
Length =	50.083	FT.								50.083	
										TOTAL	101	**101**

QUANTITY CALCULATIONS	MADE BY: TVB	DATE: 6/24/19	ITEM NUMBER: 516E13600	ms consultants, inc. engineers, architects, planners
	CHECKED BY: LAW	DATE: 9/20/19	PAGE NUMBER: 1	

PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME 1" PREFORMED EXPANSION JOINT FILLER PAY UNIT SF

DESCRIPTION				SUB TOTAL	TOTAL
Rear Abutment					
End of Parapet at Approach Slab	Avg. Length =	3.75	ft.		
	Avg. Height =	3	ft.		
	Total =	22.5	SF	23	
Between Curtain Wall & Ex. Wingwall	Avg. Width =	1.5	ft.		
	Avg. Height =	6.705	ft.		
	Total =	20.115	SF	20	
Forward Abutment					
End of Parapet at Approach Slab	Avg. Length =	3.75	ft.		
	Avg. Height =	3	ft.		
	Total =	22.5	SF	23	
Between Curtain Wall & Ex. Wingwall	Avg. Width =	1.5	ft.		
	Avg. Height =	6.715	ft.		
	Total =	20.145	SF	20	
NOTE: Placed between approach slab and end of parapet on turnback wingwall from top of sidewalk to bottom of approach slab; between existing wingwall and proposed curtain wall from top of existing wingwall to adjacent existing beam seat.					
			TOTAL	86	**86**

QUANTITY CALCULATIONS

MADE BY:	TVB	DATE:	6/24/19	ITEM NUMBER:	516E44100
CHECKED BY:	LAW	DATE:	9/20/19	PAGE NUMBER:	1

ms consultants, inc. engineers, architects, planners

PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME ELASTOMERIC BEARING (10" X 16" X 2.0488") WITH INTERNAL LAMINATES (NEOPRENE) AND LOAD PLATE (11" X 19" X 1.5" MIN.) PAY UNIT EACH

DESCRIPTION			SUB TOTAL	TOTAL
Rear Abutment				
No. of Beams	Bearings per Beam	Total		
6.0	1.0	6.0	6.00	
Forward Abutment				
No. of Beams	Bearings per Beam	Total		
6.0	1.0	6.0	6.00	
		TOTAL	12	**12**

QUANTITY CALCULATIONS

MADE BY:	TVB	DATE:	6/24/19	ITEM NUMBER:	516E44200
CHECKED BY:	LAW	DATE:	9/20/19	PAGE NUMBER:	1

ms consultants, inc.
engineers, architects, planners

PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME ELASTOMERIC BEARING (18" X 20" X 3.1235") WITH INTERNAL LAMINATES (NEOPRENE) AND LOAD PLATE (19" X 30.5" X 1.5" MIN.) PAY UNIT EACH

DESCRIPTION				SUB TOTAL	TOTAL
Pier					
No. of Beams	Bearings per Beam	Total			
6.0	1.0	6.0		6.00	
			TOTAL	6	**6**

QUANTITY CALCULATIONS

MADE BY:	TVB	DATE:	6/24/19	ITEM NUMBER:	518E21200
CHECKED BY:	LAW	DATE:	9/20/19	PAGE NUMBER:	1

ms consultants, inc. engineers, architects, planners

PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME POROUS BACKFILL WITH GEOTEXTILE FABRIC PAY UNIT CY

DESCRIPTION									SUB TOTAL	TOTAL
Rear Abutment										
Height (ft)	Width (ft)	Length (ft)	Volume (ft^3)	Volume (yd^3)						
5.8	2.0	50.6	588.47	22.00					22.00	
Forward Abutment										
Height (ft)	Width (ft)	Length (ft)	Volume (ft^3)	Volume (yd^3)						
6.0	2.0	50.6	606.67	23.00					23.00	
*Length includes backfill along backwall and behind turnback wingwalls.										
								TOTAL	45	**45**

QUANTITY CALCULATIONS

MADE BY:	TVB	DATE:	6/24/19	ITEM NUMBER:	519E11101
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ms consultants, inc.
engineers, architects, planners

PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME PATCHING CONCRETE STRUCTURE, AS PER PLAN PAY UNIT SF

DESCRIPTION										SUB TOTAL	TOTAL
Rear Abutment											
Measured Area* (ft^2)	Est. Area. (ft^2)										
118.4	150.0									150.00	
Forward Abutment			(SEE ITEM 844E10000 FOR BREASTWALL PATCHING)								
Measured Area* (ft^2)	Est. Area. (ft^2)										
2.00	3.0									3.00	
Pier											
Area* (ft^2)	Est. Area. (ft^2)										
307.0	384.0									384.00	
*Area from patching plans.											
									TOTAL	537	**537**

QUANTITY CALCULATIONS

MADE BY: TVB	DATE: 6/24/19	ITEM NUMBER: 526E30011	ms consultants, inc. engineers, architects, planners
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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=17"), AS PER PLAN PAY UNIT SY

DESCRIPTION			SUB TOTAL	TOTAL
Rear Approach Slab				
Length (ft.)	Width (ft.)	Area (yd^2)		
30.0	47.583	158.6	158.61	
Rear Approach Slab				
Length (ft.)	Width (ft.)	Area (yd^2)		
30.0	47.583	158.6	158.61	
		TOTAL	318	**318**

QUANTITY CALCULATIONS

MADE BY:	TVB	DATE:	6/24/19	ITEM NUMBER:	526E90010
CHECKED BY:	LAW	DATE:	9/20/19	PAGE NUMBER:	1

ms consultants, inc.
engineers, architects, planners

PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME TYPE A INSTALLATION PAY UNIT FT

DESCRIPTION	SUB TOTAL	TOTAL
Rear Approach Slab		
Length (ft.)		
47.583	47.58	
Rear Approach Slab		
Length (ft.)		
47.583	47.58	
TOTAL	96	**96**

QUANTITY CALCULATIONS

MADE BY: TVB	DATE: 6/24/19	ITEM NUMBER: 530E13000
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ms consultants, inc.
engineers, architects, planners

PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME SPECIAL - FORM LINER PAY UNIT SF

DESCRIPTION				SUB TOTAL	TOTAL
Railing					
LT. Railing Length (ft.)	Rt. Railing Length (ft)	Height (ft)	Total Area (ft^2)		
183.2	183.2	2.0	732.67	732.67	
			TOTAL	733	**733**

QUANTITY CALCULATIONS	MADE BY: TVB	DATE: 6/24/19	ITEM NUMBER: 607E39901	ms consultants, inc. engineers, architects, planners
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PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN PAY UNIT FT

DESCRIPTION		SUB TOTAL	TOTAL
Railing			
LT. Railing Length (ft.)	Rt. Railing Length (ft)		
183.2	183.2	366.33	
	TOTAL	367	**367**

QUANTITY CALCULATIONS

MADE BY:	TVB	DATE:	6/24/19	ITEM NUMBER:	690E98000
CHECKED BY:	LAW	DATE:	9/20/19	PAGE NUMBER:	1

ms consultants, inc. engineers, architects, planners

PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME CONDUIT, MISC: CEI FIRST ENERGY CONDUITS PAY UNIT EACH

DESCRIPTION										SUB TOTAL	TOTAL
	UTLITY CONDUITS										
		Conduits extend through sidewalks on approach slabs									
			Length Bridge Limts	No. of Conduits							
			246.00	2						492.00	
									TOTAL	492	**492**

QUANTITY CALCULATIONS	MADE BY: TVB	DATE: 6/24/19	ITEM NUMBER: 690E98000	ms consultants, inc. engineers, architects, planners
	CHECKED BY: LAW	DATE: 9/20/19	PAGE NUMBER: 1	

PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME SPECIAL - DOMINION ENERGY ROLLER GUIDE/SUPPORT PAY UNIT EACH

DESCRIPTION				SUB TOTAL	TOTAL
DOMINION ENERGY ROLLER GUIDE/SUPPORT					
	QUANTITY =	11.00	EACH	11.00	
			TOTAL	11	**11**

QUANTITY CALCULATIONS	MADE BY: TVB	DATE: 6/24/19	ITEM NUMBER: 844E10001	ms consultants, inc. engineers, architects, planners
	CHECKED BY: LAW	DATE: 9/20/19	PAGE NUMBER: 1	

PID NO. 105792 PROJECT CUY-090-13.45 STRUCTURE CUY-090-1345

ITEM NAME CONCRETE PATCHING WITH GALVANIC ANODE PROTECTION, AS PER PLAN PAY UNIT SF

DESCRIPTION				SUB TOTAL	TOTAL
Forward Abutment			(entire breastwall to be resurfaced)		
Avg. Height (ft)	Width (ft)	Area (ft^2)			
14.84	50.1	743.2		743.21	
*See Item 519E11101 for standard concrete patching quantities.					
			TOTAL	743	**743**