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QUANTITY CALCULATIONS	MADE BY:	JSE	DATE:	8/15/25	ITEM NUMBER:	511E45710	 ms consultants, inc. engineers, architects, planners		
	CHECKED BY:	SJR	DATE:	8/15/25	PAGE NUMBER:	13			
PID NO. <u>121474</u> PROJECT <u>MAH-680-0.00</u> STRUCTURE <u>MAH-00680-04.886 (SFN 5006872)</u> ITEM NAME <u>CLASS QC1 CONCRETE, ABUTMENT</u> PAY UNIT <u>CY</u>									
DESCRIPTION								SUB TOTAL	TOTAL
Fillet									
	Rear Abutment								
		Area (SF)	T/Fillet EL.	B/Fillet EL.	Volume (CF)	Volume (CY)			
	Right Bridge	1.68	885.75	878.13	12.79	0.47			
	Left Bridge	7.66	877.60	871.49	46.82	1.73			
					Total	2.2			2
	Forward Abutment								
		Area (SF)	T/Fillet EL.	B/Fillet EL.	Volume (CF)	Volume (CY)			
	Right Bridge	1.68	888.25	881.93	10.62	0.39			
	Left Bridge	1.68	885.00	879.33	9.53	0.35			
					Total	0.7			1
Curtain Wall									
	Rear Abutment								
		Area (SF)	T/Fillet EL.	B/Fillet EL.	Volume (CF)	Volume (CY)			
	Right Bridge	1.81	888.25	882.33	10.69	0.40			
	Left Bridge	1.81	879.79	875.12	8.43	0.31			
					Total	0.7			1
	Forward Abutment								
		Area (SF)	T/Fillet EL.	B/Fillet EL.	Volume (CF)	Volume (CY)			
	Right Bridge	1.81	891.31	885.20	11.03	0.41			
	Left Bridge	1.81	886.80	881.98	8.70	0.32			
					Total	0.7			1
Seismic Pedestals									
	Rear Abutment								
		Area (SF)	Width (FT)	Quantity (EACH)	Volume (CF)	Volume (CY)			
	Left Bridge	8.48	2.17	2.00	36.76	1.36			
	Right Bridge	8.70	2.17	2.00	37.70	1.40			
					Total	2.8			3
	Forward Abutment								
		Area (SF)	Width (FT)	Quantity (EACH)	Volume (CF)	Volume (CY)			
	Left Bridge	6.74	2.17	2.00	29.19	1.08			
	Right Bridge	7.08	2.17	2.00	30.67	1.14			
					Total	2.2			2
TOTAL								9	

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QUANTITY		MADE BY: JSE		DATE: 8/15/25		ITEM NUMBER: 512E10100		 ms consultants, inc. engineers, architects, planners				
CALCULATIONS		CHECKED BY: SJR		DATE: 8/15/25		PAGE NUMBER: 16						
PID NO.		121474		PROJECT		MAH-680-0.00		STRUCTURE		MAH-00680-04.886 (SFN 5006872)		
ITEM NAME		SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)							PAY UNIT		SY	
DESCRIPTION										SUB TOTAL	TOTAL	
Rear Abutment												
			Area (SF)	Area (SY)								
		Backwall	592.60	65.84								
		Beam Seat *	264.22	29.36	* includes top and inside face of curtain wall							
		Breastwall **	516.75	57.42	** includes front face of curtain wall							
		Total	152.6							153		
Forward Abutment												
			Area (SF)	Area (SY)								
		Backwall	587.47	65.27								
		Beam Seat *	257.37	28.60	* includes top and inside face of curtain wall							
		Breastwall **	151.76	16.86	** includes front face of curtain wall							
		Total	110.7							111		
Rear Abutment Wingwalls												
	Right Bridge											
			Area (SF)	Area (SY)								
		Top of Wingwall	24.90	2.77								
		Ends of Wingwall	10.44	1.16								
		Outside Face of Wingwall *	65.305	7.26	* includes outside face of curtain wall							
		Underside of Wingwall	1.275	0.14								
		Total	11.3							11		
	Left Bridge											
			Area (SF)	Area (SY)								
		Top of Wingwall	141.32	15.70								
		Ends of Wingwall	8.80	0.98								
		Outside Face of Wingwall *	1762.677	195.85	* includes outside face of curtain wall							
		Underside of Wingwall	180.593	20.07								
		Total	232.6							233		
Forward Abutment Wingwalls												
	Right Bridge											
			Area (SF)	Area (SY)								
		Top of Wingwall	23.00	2.56								
		Ends of Wingwall	9.32	1.04								
		Outside Face of Wingwall *	48.987	5.44	* includes outside face of curtain wall							
		Underside of Wingwall	0.781	0.09								
		Total	9.1							9		
	Left Bridge											
			Area (SF)	Area (SY)								
		Top of Wingwall	23.00	2.56								
		Ends of Wingwall	9.15	1.02								
		Outside Face of Wingwall *	50.762	5.64	* includes outside face of curtain wall							
		Underside of Wingwall	1.256	0.14								
		Total	9.4							9		
TOTAL										526		

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QUANTITY CALCULATIONS	MADE BY:	JSE	DATE:	8/15/25	ITEM NUMBER:	512E10100	
	CHECKED BY:	SJR	DATE:	8/15/25	PAGE NUMBER:	19	


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PID NO.	121474	PROJECT	MAH-680-0.00	STRUCTURE	MAH-00680-04.886 (SFN 5006872)
ITEM NAME	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)				PAY UNIT SY

DESCRIPTION										SUB TOTAL	TOTAL
Pier 1 Right											
Wall											
			Perimeter (FT)	Avg. Height (FT)	Area (SF)	Area (SY)					
			55.43	22.34	1238.19	137.58				138	
Pier 2 Left											
Cap											
			Perimeter (FT)	Length (FT)	Area (SF)	Area (SY)					
		Sides	29.77	3.00	89.30	9.92					
		Faces			575.62	63.96					
					Total	73.88				74	
Wall											
			Perimeter (FT)	Avg. Height (FT)	Area (SF)	Area (SY)					
			55.43	24.05	1332.75	148.08				148	
Pier 2 Right											
Cap											
			Perimeter (FT)	Length (FT)	Area (SF)	Area (SY)					
		Sides	30.89	3.00	92.66	10.30					
		Faces			589.34	65.48					
					Total	75.78				76	
Wall											
			Perimeter (FT)	Avg. Height (FT)	Area (SF)	Area (SY)					
			55.43	27.72	1536.38	170.71				171	
Pier 3 Left											
Cap											
			Perimeter (FT)	Length (FT)	Area (SF)	Area (SY)					
		Sides	29.77	3.00	89.30	9.92					
		Faces			575.62	63.96					
					Total	73.88				74	
Wall											
			Perimeter (FT)	Avg. Height (FT)	Area (SF)	Area (SY)					
			55.43	24.61	1363.79	151.53				152	
										831	

QUANTITY CALCULATIONS	MADE BY:	JSE	DATE:	8/15/25	ITEM NUMBER:	512E10100	 ms consultants, inc. engineers, architects, planners
	CHECKED BY:	SJR	DATE:	8/15/25	PAGE NUMBER:	20	

PID NO.	121474	PROJECT	MAH-680-0.00	STRUCTURE	MAH-00680-04.886 (SFN 5006872)
ITEM NAME	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)				PAY UNIT SY

DESCRIPTION										SUB TOTAL	TOTAL
Pier 3 Right											
Cap											
			Perimeter (FT)	Length (FT)	Area (SF)	Area (SY)					
		Sides	30.89	3.00	92.66	10.30					
		Faces			589.34	65.48					
					Total	75.78				76	
Wall											
			Perimeter (FT)	Avg. Height (FT)	Area (SF)	Area (SY)					
			55.43	28.28	1567.42	174.16					
					Total	174.16				174	
Pier 4 Left											
Cap											
			Perimeter (FT)	Length (FT)	Area (SF)	Area (SY)					
		Sides	29.66	3.00	88.97	9.89					
		Faces			566.22	62.91					
					Total	72.80				73	
Wall											
			Perimeter (FT)	Avg. Height (FT)	Area (SF)	Area (SY)					
			55.43	34.26	1898.64	210.96					
					Total	210.96				211	
Pier 4 Right											
Cap											
			Perimeter (FT)	Length (FT)	Area (SF)	Area (SY)					
		Sides	30.82	3.00	92.45	10.27					
		Faces			580.53	64.50					
					Total	74.78				75	
Wall											
			Perimeter (FT)	Avg. Height (FT)	Area (SF)	Area (SY)					
			55.43	37.29	2066.80	229.64					
					Total	229.64				230	
										838	

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QUANTITY CALCULATIONS	MADE BY:	JSE	DATE:	8/15/25	ITEM NUMBER:	513E10281
	CHECKED BY:	SJR	DATE:	8/15/25	PAGE NUMBER:	25



PID NO.	121474	PROJECT	MAH-680-0.00	STRUCTURE	MAH-00680-04.886 (SFN 5006872)
ITEM NAME	STRUCTURAL STEEL MEMBERS, LEVEL 4, AS PER PLAN				PAY UNIT LB

DESCRIPTION								SUB TOTAL	TOTAL
Rear Abutment									
Left Bridge									
			Weight (lb/ft)	Length (FT)	Quantity (each)	Weight (LB)			
	Bottom Angle		16.2	8.60	5.00	696.60			
	Diagonal Angle		16.2	12.50	5.00	1012.50			
					Total	1709.1		1,709	
			Weight (PCF)	Area (ft^2)	Thickness (in.)	Quantity (each)	Weight (LB)		
	Top Gusset Plates		490	2.30	0.50	10	469.58		
	Bot. Lt. & Rt. Gusset Plate		490	1.25	0.50	10	255.21		
	Bot. Middle Gusset Plate		490	2.20	0.50	5	224.58		
	Partial Height Stiffener		490	0.80	0.625	10	204.17		
					Total	1153.5		1,154	
Right Bridge									
			Weight (lb/ft)	Length (FT)	Quantity (each)	Weight (LB)			
	Bottom Angle		16.2	8.83	5.00	715.23			
	Diagonal Angle		16.2	12.80	5.00	1036.80			
					Total	1752.0		1,752	
			Weight (PCF)	Area (ft^2)	Thickness (in.)	Quantity (each)	Weight (LB)		
	Top Gusset Plate		490	2.30	0.50	10	469.58		
	Bot. Lt. & Rt. Gusset Plate		490	1.25	0.50	10	255.21		
	Bot. Middle Gusset Plate		490	2.20	0.50	5	224.58		
	Partial Height Stiffener		490	0.80	0.625	10	204.17		
					Total	1153.5		1,154	
Forward Abutment									
Left Bridge									
			Weight (lb/ft)	Length (FT)	Quantity (each)	Weight (LB)			
	Bottom Angle		16.2	8.60	5.00	696.60			
	Diagonal Angle		16.2	12.50	5.00	1012.50			
					Total	1709.1		1,709	
			Weight (PCF)	Area (ft^2)	Thickness (in.)	Quantity (each)	Weight (LB)		
	Top Gusset Plate		490	2.30	0.50	10	469.58		
	Bot. Lt. & Rt. Gusset Plate		490	1.25	0.50	10	255.21		
	Bot. Middle Gusset Plate		490	2.20	0.50	5	224.58		
	Partial Height Stiffener		490	0.80	0.625	10	204.17		
					Total	1153.5		1,154	
TOTAL								8,631	

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QUANTITY CALCULATIONS	MADE BY:	JSE	DATE:	8/15/25	ITEM NUMBER:	514E00060	
	CHECKED BY:	SJR	DATE:	8/15/25	PAGE NUMBER:	30	


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PID NO.	121474	PROJECT	MAH-680-0.00	STRUCTURE	MAH-00680-04.886 (SFN 5006872)
ITEM NAME	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT				PAY UNIT SF

DESCRIPTION										SUB TOTAL	TOTAL
End of Girder Web Repair											
Left Bridge											
	Perimeter (FT)	Length (FT)	Locations (each)	Area (SF)							
Exterior Girders	12.69	1.00	4.00	50.75							
Contingency	12.69	1.00	1.00	12.69							
			Total	63.44						63	
Right Bridge											
	Perimeter (FT)	Length (FT)	Locations (each)	Area (SF)							
Exterior Girders	12.94	1.00	4.00	51.75							
Contingency	12.94	1.00	1.00	12.94							
			Total	64.7						65	
End Crossframe											
Rear Abutment											
Left Bridge											
	Perimeter (FT)	Length (FT)	Quantity (each)	Area (SF)							
Bottom Angle	1.67	8.60	5.00	71.67							
Diagonal Angle	1.67	12.50	5.00	104.17							
			Total	175.8						176	
		Area (ft^2)	Quantity (each)	Area (SF)							
Top Gusset Plate	4.85	10	48.50								
Bot. Lt. & Rt. Gusset Plate	2.71	10	27.08								
Bot. Middle Gusset Plate	4.65	5	23.25								
Partial Height Stiffener	1.81	10	18.08								
		Total	116.9							117	
Right Bridge											
	Perimeter (FT)	Length (FT)	Quantity (each)	Area (SF)							
Bottom Angle	1.67	8.83	5.00	73.58							
Diagonal Angle	1.67	12.80	5.00	106.67							
		Total	180.3							180	
		Area (ft^2)	Quantity (each)	Area (SF)							
Top Gusset Plate	4.85	10	48.50								
Bot. Lt. & Rt. Gusset Plate	2.71	10	27.08								
Bot. Middle Gusset Plate	4.65	5	23.25								
Partial Height Stiffener	1.81	10	18.08								
		Total	116.9							117	
TOTAL										718	

QUANTITY CALCULATIONS	MADE BY:	JSE	DATE:	8/15/25	ITEM NUMBER:	514E00060			
	CHECKED BY:	SJR	DATE:	8/15/25	PAGE NUMBER:	31			


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PID NO.	121474	PROJECT	MAH-680-0.00	STRUCTURE	MAH-00680-04.886 (SFN 5006872)					
ITEM NAME	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT								PAY UNIT	SF

DESCRIPTION									SUB TOTAL	TOTAL
End Crossframe										
Forward Abutment										
Left Bridge										
	Perimeter (FT)	Length (FT)	Quantity (each)	Area (SF)						
Bottom Angle	1.67	8.60	5.00	71.67						
Diagonal Angle	1.67	12.50	5.00	104.17						
			Total	175.8					176	
Area (ft^2) Quantity (each) Area (SF)										
Top Gusset Plate		4.85	10	48.50						
Bot. Lt. & Rt. Gusset Plate		2.71	10	27.08						
Bot. Middle Gusset Plate		4.65	5	23.25						
Partial Height Stiffener		1.81	10	18.08						
			Total	116.9					117	
Right Bridge										
	Perimeter (FT)	Length (FT)	Quantity (each)	Area (SF)						
Bottom Angle	1.67	8.83	5.00	73.58						
Diagonal Angle	1.67	12.80	5.00	106.67						
			Total	180.3					180	
Area (ft^2) Quantity (each) Area (SF)										
Top Gusset Plate		4.85	10	48.50						
Bot. Lt. & Rt. Gusset Plate		2.71	10	27.08						
Bot. Middle Gusset Plate		4.65	5	23.25						
Partial Height Stiffener		1.81	10	18.08						
			Total	116.9					117	
Pier 3 Crossframe										
Left Bridge										
	Perimeter (FT)	Length (FT)	Quantity (each)	Area (SF)						
Top Angle	1.33	8.80	5.00	58.68						
Bottom Angle	1.33	8.80	5.00	58.68						
Diagonal Angle	1.33	9.44	10.00	125.89						
			Total	243.3					243	
Right Bridge										
	Perimeter (FT)	Length (FT)	Quantity (each)	Area (SF)						
Top Angle	1.33	9.03	5.00	60.21						
Bottom Angle	1.33	9.03	5.00	60.21						
Diagonal Angle	1.33	9.66	10.00	128.75						
			Total	249.2					249	
TOTAL									1,082	1,800

QUANTITY CALCULATIONS	MADE BY: JSE	DATE: 8/15/25	ITEM NUMBER: 514E00066								
	CHECKED BY: SJR	DATE: 8/15/25	PAGE NUMBER: 32								
PID NO. 121474 PROJECT MAH-680-0.00 STRUCTURE MAH-00680-04.886 (SFN 5006872) ITEM NAME FIELD PAINTING STRUCTURAL STEEL, FINISH COAT PAY UNIT SF											
DESCRIPTION										SUB TOTAL	TOTAL
End of Girder Web Repair											
Left Bridge											
	Perimeter (FT)	Length (FT)	Locations (each)	Area (SF)							
Exterior Girders	12.69	1.00	4.00	50.75							
Contingency	12.69	1.00	1.00	12.69							
			Total	63.44					63		
Right Bridge											
	Perimeter (FT)	Length (FT)	Locations (each)	Area (SF)							
Exterior Girders	12.94	1.00	4.00	51.75							
Contingency	12.94	1.00	1.00	12.94							
			Total	64.7					65		
End Crossframe											
Rear Abutment											
Left Bridge											
	Perimeter (FT)	Length (FT)	Quantity (each)	Area (SF)							
Bottom Angle	1.67	8.60	5.00	71.67							
Diagonal Angle	1.67	12.50	5.00	104.17							
			Total	175.8					176		
		Area (ft^2)	Quantity (each)	Area (SF)							
Top Gusset Plate	4.85	10	48.50								
Bot. Lt. & Rt. Gusset Plate	2.71	10	27.08								
Bot. Middle Gusset Plate	4.65	5	23.25								
Partial Height Stiffener	1.81	10	18.08								
		Total	116.9						117		
Right Bridge											
	Perimeter (FT)	Length (FT)	Quantity (each)	Area (SF)							
Bottom Angle	1.67	8.83	5.00	73.58							
Diagonal Angle	1.67	12.80	5.00	106.67							
		Total	180.3						180		
		Area (ft^2)	Quantity (each)	Area (SF)							
Top Gusset Plate	4.85	10	48.50								
Bot. Lt. & Rt. Gusset Plate	2.71	10	27.08								
Bot. Middle Gusset Plate	4.65	5	23.25								
Partial Height Stiffener	1.81	10	18.08								
		Total	116.9						117		
TOTAL										718	

QUANTITY CALCULATIONS	MADE BY:	JSE	DATE:	8/15/25	ITEM NUMBER:	514E00066		
	CHECKED BY:	SJR	DATE:	8/15/25	PAGE NUMBER:	33		


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PID NO.	121474	PROJECT	MAH-680-0.00	STRUCTURE	MAH-00680-04.886 (SFN 5006872)		
ITEM NAME	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT					PAY UNIT	SF

DESCRIPTION								SUB TOTAL	TOTAL
End Crossframe									
Forward Abutment									
Left Bridge									
	Perimeter (FT)	Length (FT)	Quantity (each)	Area (SF)					
Bottom Angle	1.67	8.60	5.00	71.67					
Diagonal Angle	1.67	12.50	5.00	104.17					
			Total	175.8				176	
Area (ft^2) Quantity (each) Area (SF)									
Top Gusset Plate		4.85	10	48.50					
Bot. Lt. & Rt. Gusset Plate		2.71	10	27.08					
Bot. Middle Gusset Plate		4.65	5	23.25					
Partial Height Stiffener		1.81	10	18.08					
			Total	116.9				117	
Right Bridge									
	Perimeter (FT)	Length (FT)	Quantity (each)	Area (SF)					
Bottom Angle	1.67	8.83	5.00	73.58					
Diagonal Angle	1.67	12.80	5.00	106.67					
			Total	180.3				180	
Area (ft^2) Quantity (each) Area (SF)									
Top Gusset Plate		4.85	10	48.50					
Bot. Lt. & Rt. Gusset Plate		2.71	10	27.08					
Bot. Middle Gusset Plate		4.65	5	23.25					
Partial Height Stiffener		1.81	10	18.08					
			Total	116.9				117	
Pier 3 Crossframe									
Left Bridge									
	Perimeter (FT)	Length (FT)	Quantity (each)	Area (SF)					
Top Angle	1.33	8.80	5.00	58.68					
Bottom Angle	1.33	8.80	5.00	58.68					
Diagonal Angle	1.33	9.44	10.00	125.89					
			Total	243.3				243	
Right Bridge									
	Perimeter (FT)	Length (FT)	Quantity (each)	Area (SF)					
Top Angle	1.33	9.03	5.00	60.21					
Bottom Angle	1.33	9.03	5.00	60.21					
Diagonal Angle	1.33	9.66	10.00	128.75					
			Total	249.2				249	
TOTAL								1,082	1,800

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QUANTITY		MADE BY:	JSE	DATE:	8/15/25	ITEM NUMBER:	518E21200	
CALCULATIONS		CHECKED BY:	SJR	DATE:	8/15/25	PAGE NUMBER:	44	



PID NO.	121474	PROJECT	MAH-680-0.00	STRUCTURE	MAH-00680-04.886 (SFN 5006872)	
ITEM NAME	POROUS BACKFILL WITH GEOTEXTILE FABRIC				PAY UNIT	CY

DESCRIPTION										SUB TOTAL	TOTAL
Rear Abutment											
		Area (SF)	Width (FT)	Volume (CF)	Volume (CY)						
		705.94	0.50	352.97	13.07						
		715.51	0.42	298.13	11.04						
		725.08	0.58	422.96	15.67						
				Total	39.78					40	
Forward Abutment											
		Area (SF)	Width (FT)	Volume (CF)	Volume (CY)						
		574.03	0.50	287.02	10.63						
		583.72	0.42	243.21	9.01						
		593.40	0.58	346.15	12.82						
				Total	32.46					32	
Rear Abutment Fillet											
		Area (SF)	Height (FT)	Volume (CF)	Volume (CY)						
	Left	20.90	0.55	11.41	0.42						
		9.70	6.66	64.56	2.39						
	Right	3.80	0.26	0.97	0.04						
		3.80	7.88	29.93	1.11						
				Total	3.96					4	
Forward Abutment Fillet											
		Area (SF)	Height (FT)	Volume (CF)	Volume (CY)						
	Left	7.20	0.16	1.12	0.04						
		3.90	5.83	22.72	0.84						
	Right	7.20	0.21	1.48	0.05						
		3.90	6.53	25.45	0.94						
				Total	1.88					2	
Rear Abutment Wingwalls											
		Area (SF)	Height (FT)	Volume (CF)	Volume (CY)						
	Left	58.45	0.62	36.28	1.34						
		23.76	3.10	73.56	2.72						
		83.97	1.46	122.61	4.54						
		34.00	3.94	133.96	4.96						
		70.72	1.43	101.28	3.75						
		28.54	3.91	111.59	4.13						
	Right	3.00	0.39	1.17	0.04						
		6.74	7.88	53.08	1.97						
				Total	23.46					23	
TOTAL										102	

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]