CLIENT	ODOT District 12	PROJECT NO.	2122-1002-00		
PROJECT	CUY-8/10-2.24/8.69 (PID 113674)				
SUBJECT	Bridge No. CUY-10-0869	COMP. BY	JDA	DATE	10/27/2022
	Estimated Quantity Calculations	CHECKED BY	MJL	DATE	10/28/2022

REVISION HISTORY

Stage 1 Plans:	COMP. BY	JAM	DATE	2/20/2022
	CHECKED BY	TDA	DATE	2/22/2022
Stage 3 Plans:	REVISED BY	JDA	DATE	10/27/2022
	CHECKED BY	MJL	DATE	10/28/2022

The initials and dates listed in the sheet header reflect the most recent revision of the estimated quantity calculations.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

This item paid as a **LUMP SUM**.

					Factor		Length (ft)		Cost / ft					
Drainage Pipe Removal:					1.00	x	352	x	$2.00	=	$	704.00	LS
					Factor		Weight (lb)		Cost / LB					
Structural Steel Removal:					1.00	x	77,429	x	$2.00	=	$	154,858.00	LS
Expansion Joint Removal:	No.		Width (ft)		Depth (ft)		Length (ft)		Cost/ft^3					
Rear Abutment Removal	1	x	2.42	x	0.75	x	52	x		=	$	-	LS
Tower Joint Removal	5	x	1.83	x	0.75	x	52	x	$0.00	=	$	-	LS
Sidewalk Removal	14	x	1.83	x	0.75	x	5	x	$0.00	=	$	-	LS
Forward Abutment Removal	1	x	1.92	x	0.75	x	52	x	$0.00	=	$	-	LS
Total:											$	155,562.00	LS

Total for ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN: $ 160,000.00 LS

ITEM 509 - CONCRETE REINFORCEMENT, REPLACEMENT OF EXISTING CONCRETE REINFORCEMENT, AS PER PLAN

From CUY-10-0869 Rebar List.xlsx

A Bars	=	490.0	LB
Per Abutment	=	245.0	LB
Substructure Total	=	490.0	LB
S Bars	=	3,481.0	LB
Superstructure Total	=	200.0	LB

ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN

*Item will be bid as a lump sum

Pier Tower 4:

Cap:

	No.		Length (ft)		Weight (lb/ft)			
L4x3 1/2x5/16 Diagonal:	2	x	9.22	x	7.700	=	142.0	LB
L6x4x3/8 Horizontal:	0	x	6.00	x	12.300	=	0.0	LB
L4x3 1/2x5/16 (Bottom of Top Cap):	2	x	6.00	x	7.700	=	92.4	LB
Total for Cap:							234.4	LB

Columns:

	No.		Length (ft)		Weight (lb/ft)			
Diaphragm Members	1	x	1.00	x	5790.767	=	5,790.8	LB
L6"x4"x3/8" Vertical Diagonals	1	x	534.00	x	12.300	=	6,568.2	LB
Total for Columns:							12,359.0	LB
Total for Pier Tower 4:						Say:	**12,594**	LB

Pier Tower 5:

Cap:

	No.		Length (ft)		Weight (lb/ft)			
L4x3 1/2x5/16 Diagonal:	12	x	9.22	x	7.700	=	851.9	LB
L6x4x3/8 Horizontal:	2	x	6.00	x	12.300	=	147.6	LB
L4x3 1/2x5/16 (Bottom of Top Cap):	6	x	6.00	x	7.700	=	277.2	LB
Total for Cap:							1,276.7	LB

Columns:

	No.		Length (ft)		Weight (lb/ft)			
Diaphragm Members	1	x	1.00	x	3910.533	=	3,910.5	LB
L6"x4"x3/8"	1	x	10.33	x	12.300	=	127.1	LB
Total for Columns:							4,037.6	LB
Total for Pier Tower 5:						Say:	**5,315**	LB

Pier Tower 6:

Cap:

	No.		Length (ft)		Weight (lb/ft)			
L4x3 1/2x5/16 Diagonal (Vertical)	4	x	8.49	x	7.700	=	261.3	LB
L6x4x3/8 Horizontal:	8	x	6.00	x	12.300	=	590.4	LB
L4x3 1/2x5/16 (Top of Top Cap):	10	x	9.22	x	7.700	=	709.9	LB
L4x3 1/2x5/16 (Bottom of Top Cap):	4	x	6.00	x	7.700	=	184.8	LB
L4x3 1/2x5/16 (Bottom of Top Cap):	6	x	3.00	x	7.700	=	138.6	LB
Total for Cap:							1,746.5	LB

Columns:

	No.		Length (ft)		Weight (lb/ft)			
Diaphragm Members	1	x	1.00	x	13895.833	=	13,895.8	LB
Total for Columns:							13,895.8	LB
Total for Pier Tower 6:						Say:	**15,643**	LB

Pier Tower 7:

Cap:

	No.		Length (ft)		Weight (lb/ft)			
L4x3 1/2x5/16 Diagonal (vertical):	6	x	8.49	x	7.700	=	392.0	LB
L4x3 1/2x5/16 Diagonal:	4	x	9.22	x	7.700	=	284.0	LB
L6x4x3/8 Horizontal:	2	x	6.00	x	12.300	=	147.6	LB
L4x3 1/2x5/16 (Bottom of Cap):	1	x	3.00	x	7.700	=	23.1	LB
L4x3 1/2x5/16 (Bottom of Cap):	1	x	6.00	x	7.700	=	46.2	LB
Total for Cap:							892.9	LB

Columns:

	No.		Length (ft)		Weight (lb/ft)			
Diaphragm Members	1	x	1.00	x	21321.433	=	21,321.4	LB
L6x4x3/8 Diagonal:	1	x	485.00	x	12.300	=	5,965.5	LB
Total for Columns:							27,286.9	LB
Total for Pier Tower 7:						Say:	**28,180**	LB

Pier Tower 8:

Cap:

	No.		Length (ft)		Weight (lb/ft)			
L4x3 1/2x5/16 Diagonal (Vertical):	2	x	8.49	x	7.700	=	130.7	LB
L6x4x3/8 Horizontal:	6	x	6.00	x	12.300	=	442.8	LB
L4x3 1/2x5/16 (Top of Cap):	4	x	9.22	x	7.700	=	284.0	LB
L4x3 1/2x5/16 (Bottom of Cap):	4	x	6.00	x	7.700	=	184.8	LB
L4x3 1/2x5/16 (Bottom of Cap):	5	x	3.00	x	7.700	=	115.5	LB
Total for Cap:							1,157.7	LB

Columns:

	No.		Length (ft)		Weight (lb/ft)			
Diaphragm Members	1	x	1.00	x	9.800	=	10,983.7	LB
L6"x4"x3/8" Vertical Diagonals	1	x	289.00	x	12.300	=	3,554.7	LB
Total for Columns:							14,538.4	LB
Total for Pier Tower 8:						Say:	**15,697**	LB
Total Steel:						Say:	**77,429**	LB
Unit Cost (Ron Bauer Conversation 5/24/2021)							**20**	$/LB

Total for ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN: **$ 1,549,000** LS

ITEM 514 - SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL
ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT
ITEM 514 - FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT
ITEM 514 - FIELD PAINTING STRUCTURAL STEEL, FINISH COAT
*Quantity will be lump sum. Calculate rough areas to determine cost. Refine at Stage 3
*Increase area by 25% to account for misc plates and angles.

Total:		=	77,429	LB
Increase 25%:		=	19,357	LB
Total for Pier Towers:		Total:	**96,786**	LB

Total for ITEM 514 - SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL:	**96,786**	LB
Total for ITEM 514 - FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT:	**96,786**	LB
Total for ITEM 514 - FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT:	**96,786**	LB
Total for ITEM 514 - FIELD PAINTING STRUCTURAL STEEL, FINISH COAT:	**96,786**	LB

ITEM 514 - GRINDING FINS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL
*Average cap height = 6'

Total for Pier Towers:	Per 2020 BDM, Section 404.1.11, 1 minute per 1' of beam/girder to be coated.	Say:	**60**	MNHR

Total for ITEM 514 - GRINDING FINS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL: **60** MNHR

ITEM 514 - FINAL INSPECTION REPAIR
*Assume one each for each cap and column painted

	No.			
Tower Caps:	5	=	5	EACH
Tower Columns, 1 each per column painted):	10	=	10	EACH
Total for Pier Towers:		Say:	**15**	EACH

Total for ITEM 514 - FINAL INSPECTION REPAIR: **15** EACH

ITEM 516 - STRIP SEAL EXPANSION JOINT ANCHORED WITH ELASTOMERIC CONCRETE

Superstructure:

Rear Abutment Joint:	=	62.00	FT
Pier 4 Joint:	=	62.00	FT
Pier 5 Joint:	=	62.00	FT
Pier 6 Joint:	=	62.00	FT
Pier 7 Joint:	=	62.00	FT
Pier 8 Joint:	=	62.00	FT
Forward Abutment Joint:	=	62.00	FT
Total:		434.00	FT
Total for Superstructure:	Say:	**434**	FT

Total for ITEM 516 - STRIP SEAL EXPANSION JOINT ANCHORED WITH ELASTOMERIC CONCRETE: **434** FT

ITEM 518 - 8" PIPE DOWNSPOUT, INCLUDING SPECIALS

Superstructure:

Locations From Downspout Repairs Table:	=	10.00	FT
Subtotal:		10.00	FT
For preliminary calculations, add 20% contingency (and refine calculations at Stage 3):	=	2.00	FT
Total:		12.00	FT
Total for Superstructure:	Say:	**12**	FT

Total for ITEM 518 - 8" PIPE DOWNSPOUT, INCLUDING SPECIALS: **12** FT

ITEM 518 - STRUCTURE DRAINAGE, MISC.: 10" GALVANIZED STEEL PIPE, INCLUDING SPECIALS

Superstructure:

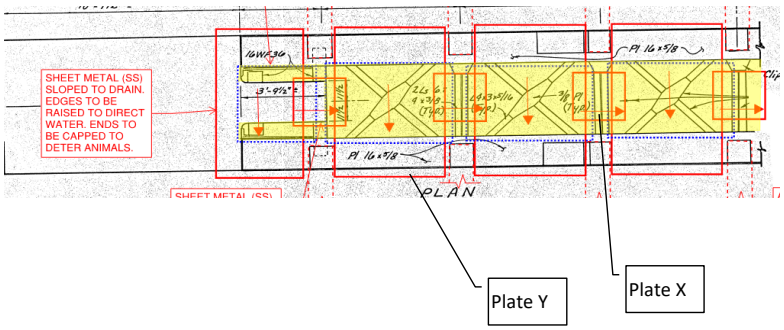
Locations From Downspout Repairs Table:	=	280.00	FT
Pier 3, South Side, Upper:	=	10.00	FT
Span 5 Column 10, North Side, Upper:	=	10.00	FT
Span 5 Column 11 - Pier 5, South Side, Lower:	=	10.00	FT
Pier 5 - Span 6 Column 1, North Side, Upper:	=	10.00	FT
Span 7 Column 12 - Pier 7, North Side, Upper:	=	10.00	FT
Span 8 Column 11, South Side, Upper:	=	10.00	FT
Subtotal:		340.00	FT
Total:		340.00	FT
Total for Superstructure:	Say:	**340**	FT
Total for ITEM 518 - STRUCTURE DRAINAGE, MISC.: 10" GALVANIZED STEEL PIPE, INCLUDING SPECIALS:		**340**	FT

ITEM 518 - STRUCTURE DRAINAGE, MISC.: PIER TOWER COVERINGS

This item paid as an each quantity for each tower. Say: **5** EACH

Sheet Metal:

Exterior Plate Y is 3.58 x 7.75
Interior Plate Y is 4.5 x 7.75
Plate X is 2 x 2
0.25" thick plates
2-Ext. Plate Ys, 6-Int. Plate Ys, and 7-Plate Xs per pier



Number of Exterior Plate Y = 10 Each
Number of Interior Plate Y = 30 Each
Number of Plate X = 35 Each

From Sheet metal Website link to the right unit cost:

Plate Y Unit Cost = $ 1,000
Plate Y Unit Cost = $ 1,000 Note I increased these as they were
Plate X Unit Cost = $ 200 surprisely cheap compared to the steel MetalsDepot® - 6061 Aluminum Sheet | 6061 Aluminum Plate

Increase cost by a factor of 1.5 for fabrication (bending & holes)
Installation cost:
Assume a three man crew can install 0.5 piers per day = $ 12,000 (assuming a $50/hr Labor Rate)

Total Sheet Metal cost = $ 82,500

2	= Number of Exterior Plate Y	$ 2,000	= Cost of Exterior Plate Y per pier
6	= Number of Interior Plate Y	$ 6,000	= Cost of Interior Plate Y per pier
7	= Number of Plate Xs	$ 1,400	= Cost of Plate X per pier
2	= Days to Install Plates	$ 2,400	= Installation Cost per pier
		$ 11,800	**per pier**

Vibration and Sound Damping:
https://acousticalsolutions.com/product/vibstop-vibration-damping-sheet/?utm_source=bing&utm_medium=cpc&utm_campaign=DSA_-_Bing&utm_content=All%20Pages&utm_term=acousticalsolutions&msclkid=8d86e8164d2c1e1328c1887d1b23b591
Apply to both Plate Y and Plate X
Total area = 1464.0 sf
Assume unit cost from link to the right = $ 6.00 /sf Assume 20% increase for installation which should be simply pealing and sticking on sheet metal

Total Vibration and Sound Damping Cost = $ 8,784

Total Cost = $ 91,284 Increase 20% for incidentals (bolts, connections, etc) Say: **$ 22,000** EACH

ITEM 518 - STRUCTURE DRAINAGE, MISC.: BRIDGE DRAINAGE SYSTEM CLEANING

This item paid as a **LUMP SUM**.