

CONSTRUCTION DIVISION

ENGINEERING ESTIMATE: \$33,740,650.00
 ADVERTISED DATE: AUGUST 5, 2015
 BID OPENING DATE: SEPTEMBER 9, 2015

SPECIFICATION NO. 2771
 2016-2018 MARINE IMPROVEMENTS
 PROJ CONST MGR.: PETER OUK

	GRAND TOTAL		ITEM 1		ITEM 2	
	ITEM 1 - 116		CONSTRUCTION		TIMBER WHARF DISPOSAL	
			LUMP SUM		Tons Approx. Qty. =	1000
	\$	\$	\$	\$	\$/tons	
ENGINEERING ESTIMATE	\$	33,740,650.00	\$	1,150,000.00	\$ 245.00	245,000.00
1) MANSON CONSTRUCTION CO.	\$	29,218,930.00	\$	280,000.00	\$ 150.00	150,000.00
2) VORTEX MARINE CONST., INC.	\$	29,652,400.00	\$	611,000.00	\$ 250.00	250,000.00
1) AVERAGE BID	\$	29,435,665.00	\$	445,500.00	\$ 200.00	200,000.00
2) STANDARD DEVIATION	\$	306,509.58	\$	234,052.34	\$ 70.71	70,710.68
3) ENG. EST. - LOW BIDDER	\$	4,521,720.00	\$	870,000.00	\$ 95.00	95,000.00

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	ITEM 3		ITEM 4	
	CONCRETE WHARF DISPOSAL		TIMBER FENDER PILE REMOVAL	
	Cu. Yds. Approx. Qty. =	2500	Each Approx. Qty. =	200
	\$/cu yds		\$/ea	
ENGINEERING ESTIMATE	\$ 40.00	\$ 100,000.00	\$ 1,200.00	\$ 240,000.00
1) MANSON CONSTRUCTION CO.	\$ 59.00	\$ 147,500.00	\$ 630.00	\$ 126,000.00
2) VORTEX MARINE CONST., INC.	\$ 50.00	\$ 125,000.00	\$ 900.00	\$ 180,000.00
1) AVERAGE BID	\$ 54.50	\$ 136,250.00	\$ 765.00	\$ 153,000.00
2) STANDARD DEVIATION	\$ 6.36	\$ 15,909.90	\$ 190.92	\$ 38,183.77
3) ENG. EST. - LOW BIDDER	\$ (19.00)	\$ (47,500.00)	\$ 570.00	\$ 114,000.00

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	ITEM 5		ITEM 6	
	TIMBER BEARING PILE REMOVAL		24 INCH CONCRETE PILE REMOVAL	
	Each Approx. Qty. =	250	Each Approx. Qty.	100
	\$/ea		\$/ea	
ENGINEERING ESTIMATE	\$ 1,300.00	\$ 325,000.00	\$ 2,350.00	\$ 235,000.00
1) MANSON CONSTRUCTION CO.	\$ 675.00	\$ 168,750.00	\$ 2,000.00	\$ 200,000.00
2) VORTEX MARINE CONST., INC.	\$ 980.00	\$ 245,000.00	\$ 2,400.00	\$ 240,000.00
1) AVERAGE BID	\$ 827.50	\$ 206,875.00	\$ 2,200.00	\$ 220,000.00
2) STANDARD DEVIATION	\$ 215.67	\$ 53,916.89	\$ 282.84	\$ 28,284.27
3) ENG. EST. - LOW BIDDER	\$ 625.00	\$ 156,250.00	\$ 350.00	\$ 35,000.00

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	ITEM 7		ITEM 8	
	18 INCH CONCRETE PILE REMOVAL		DIVING	
	Each Approx. No. =	100	Days Approx. Qty. =	150
	\$/ea	\$/days	\$/days	\$/days
ENGINEERING ESTIMATE	\$ 1,750.00	\$ 175,000.00	\$ 3,275.00	\$ 491,250.00
1) MANSON CONSTRUCTION CO.	\$ 1,350.00	\$ 135,000.00	\$ 3,150.00	\$ 472,500.00
2) VORTEX MARINE CONST., INC.	\$ 2,200.00	\$ 220,000.00	\$ 2,800.00	\$ 420,000.00
1) AVERAGE BID	\$ 1,775.00	\$ 177,500.00	\$ 2,975.00	\$ 446,250.00
2) STANDARD DEVIATION	\$ 601.04	\$ 60,104.08	\$ 247.49	\$ 37,123.11
3) ENG. EST. - LOW BIDDER	\$ 400.00	\$ 40,000.00	\$ 125.00	\$ 18,750.00

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	ITEM 9		ITEM 10	
	MOBILIZATION & DEMOBILIZATION FOR TIMBER PILE REMOVAL USING FLOATING PLANT		MOBILIZATION & DEMOBILIZATION FOR CONCRETE PILE REMOVAL USING FLOATING PLANT	
	Each Approx. Qty. =	5	Each Approx. No. =	5
	\$/ea		\$/ea	
ENGINEERING ESTIMATE	\$ 30,000.00	\$ 150,000.00	\$ 40,000.00	\$ 200,000.00
1) MANSON CONSTRUCTION CO.	\$ 22,000.00	\$ 110,000.00	\$ 30,000.00	\$ 150,000.00
2) VORTEX MARINE CONST., INC.	\$ 35,000.00	\$ 175,000.00	\$ 35,000.00	\$ 175,000.00
1) AVERAGE BID	\$ 28,500.00	\$ 142,500.00	\$ 32,500.00	\$ 162,500.00
2) STANDARD DEVIATION	\$ 9,192.39	\$ 45,961.94	\$ 3,535.53	\$ 17,677.67
3) ENG. EST. - LOW BIDDER	\$ 8,000.00	\$ 40,000.00	\$ 10,000.00	\$ 50,000.00

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		ITEM 11		ITEM 12	
		FURNISH 24-INCH OCTAGONAL 24A CONCRETE PILES		INSTALL 24-INCH OCTAGONAL 24A CONCRETE PILES USING FLOATING PLANT	
		Lin. Ft. Approx. Qty. =	2500	Each Approx. Qty. =	50
		\$/lin ft		\$/lea	
ENGINEERING ESTIMATE		\$ 115.00	\$ 287,500.00	\$ 5,450.00	\$ 272,500.00
1) MANSON CONSTRUCTION CO.		\$ 115.00	\$ 287,500.00	\$ 3,500.00	\$ 175,000.00
2) VORTEX MARINE CONST., INC.		\$ 100.00	\$ 250,000.00	\$ 4,000.00	\$ 200,000.00
1) AVERAGE BID		\$ 107.50	\$ 268,750.00	\$ 3,750.00	\$ 187,500.00
2) STANDARD DEVIATION		\$ 10.61	\$ 26,516.50	\$ 353.55	\$ 17,677.67
3) ENG. EST. - LOW BIDDER		\$ -	\$ -	\$ 1,950.00	\$ 97,500.00

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	ITEM 13		ITEM 14	
	FURNISH 24-INCH OCTAGONAL 24B CONCRETE PILES	2500	INSTALL 24-INCH OCTAGONAL 24B CONCRETE PILES (LANDSIDE)	50
	Lin. Ft. Approx. Qty. =	\$/lin ft	Each Approx. Qty. =	\$/ea
ENGINEERING ESTIMATE	\$ 110.00	\$ 275,000.00	\$ 5,250.00	\$ 262,500.00
1) MANSON CONSTRUCTION CO.	\$ 115.00	\$ 287,500.00	\$ 2,400.00	\$ 120,000.00
2) VORTEX MARINE CONST., INC.	\$ 110.00	\$ 275,000.00	\$ 4,000.00	\$ 200,000.00
1) AVERAGE BID	\$ 112.50	\$ 281,250.00	\$ 3,200.00	\$ 160,000.00
2) STANDARD DEVIATION	\$ 3.54	\$ 8,838.83	\$ 1,131.37	\$ 56,568.54
3) ENG. EST. - LOW BIDDER	\$ (5.00)	\$ (12,500.00)	\$ 2,850.00	\$ 142,500.00

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	ITEM 15		ITEM 16	
	INSTALL 24 INCH OCTAGONAL CONCRETE BATTER PILES USING FLOATING PLANT		FURNISH 18-INCH OCTAGONAL 18A CONCRETE PILES	
	Each Approx. Qty. =	30	Lin. Ft. Approx. Qty. =	2500
	\$/ea	\$/lin ft	\$	\$
ENGINEERING ESTIMATE	\$ 5,280.00	\$ 158,400.00	\$ 90.00	\$ 225,000.00
1) MANSON CONSTRUCTION CO.	\$ 3,500.00	\$ 105,000.00	\$ 95.00	\$ 237,500.00
2) VORTEX MARINE CONST., INC.	\$ 4,200.00	\$ 126,000.00	\$ 75.00	\$ 187,500.00
1) AVERAGE BID	\$ 3,850.00	\$ 115,500.00	\$ 85.00	\$ 212,500.00
2) STANDARD DEVIATION	\$ 494.97	\$ 14,849.24	\$ 14.14	\$ 35,355.34
3) ENG. EST. - LOW BIDDER	\$ 1,780.00	\$ 53,400.00	\$ (5.00)	\$ (12,500.00)

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	ITEM 17		ITEM 18	
	INSTALL 18-INCH OCTAGONAL 18A CONCRETE PILES USING FLOATING PLANT		FURNISH 18-INCH OCTAGONAL 18B CONCRETE PILES	
	Each Approx. Qty. =	50	Lin. Ft. Approx. Qty. =	2500
	\$/ea	\$/lin ft		
ENGINEERING ESTIMATE	\$ 4,680.00	\$ 234,000.00	\$ 92.00	\$ 230,000.00
1) MANSON CONSTRUCTION CO.	\$ 3,400.00	\$ 170,000.00	\$ 90.00	\$ 225,000.00
2) VORTEX MARINE CONST., INC.	\$ 4,200.00	\$ 210,000.00	\$ 90.00	\$ 225,000.00
1) AVERAGE BID	\$ 3,800.00	\$ 190,000.00	\$ 90.00	\$ 225,000.00
2) STANDARD DEVIATION	\$ 565.69	\$ 28,284.27	\$ -	\$ -
3) ENG. EST. - LOW BIDDER	\$ 1,280.00	\$ 64,000.00	\$ 2.00	\$ 5,000.00

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		ITEM 19		ITEM 20	
		INSTALL 18-INCH OCTAGONAL 18B CONCRETE PILES (LANDSIDE)		INSTALL 18-INCH OCTAGONAL CONCRETE BATTER PILES USING FLOATING PLANT	
		Each Approx. Qty.=	50	Each Approx. Qty. =	30
		\$/ea	\$/ea	\$/ea	\$/ea
ENGINEERING ESTIMATE		\$ 5,000.00	\$ 250,000.00	\$ 5,100.00	\$ 153,000.00
1) MANSON CONSTRUCTION CO.		\$ 2,300.00	\$ 115,000.00	\$ 3,200.00	\$ 96,000.00
2) VORTEX MARINE CONST., INC.		\$ 4,000.00	\$ 200,000.00	\$ 4,200.00	\$ 126,000.00
1) AVERAGE BID		\$ 3,150.00	\$ 157,500.00	\$ 3,700.00	\$ 111,000.00
2) STANDARD DEVIATION		\$ 1,202.08	\$ 60,104.08	\$ 707.11	\$ 21,213.20
3) ENG. EST. - LOW BIDDER		\$ 2,700.00	\$ 135,000.00	\$ 1,900.00	\$ 57,000.00

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	ITEM 21		ITEM 22	
	MOBILIZATION & DEMOBILIZATION FOR CONCRETE PILE DRIVING USING FLOATING PLANT	MOBILIZATION & DEMOBILIZATION FOR CONCRETE PILE DRIVING (LANDSIDE)	MOBILIZATION & DEMOBILIZATION FOR CONCRETE PILE DRIVING (LANDSIDE)	MOBILIZATION & DEMOBILIZATION FOR CONCRETE PILE DRIVING (LANDSIDE)
	Each Approx. Qty. = \$/ea	10 Each Approx. Qty. = \$/ea	10 Each Approx. Qty. = \$	10 Each Approx. Qty. = \$
ENGINEERING ESTIMATE	\$ 45,000.00	\$ 450,000.00	\$ 43,000.00	\$ 430,000.00
1) MANSON CONSTRUCTION CO.	\$ 31,000.00	\$ 310,000.00	\$ 50,000.00	\$ 500,000.00
2) VORTEX MARINE CONST., INC.	\$ 45,000.00	\$ 450,000.00	\$ 30,000.00	\$ 300,000.00
1) AVERAGE BID	\$ 38,000.00	\$ 380,000.00	\$ 40,000.00	\$ 400,000.00
2) STANDARD DEVIATION	\$ 9,899.49	\$ 98,994.95	\$ 14,142.14	\$ 141,421.36
3) ENG. EST. - LOW BIDDER	\$ 14,000.00	\$ 140,000.00	\$ (7,000.00)	\$ (70,000.00)

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	ITEM 23		ITEM 24	
	DIFFERENTIAL COSTS TO DRIVE CONCRETE PILES THROUGH WHARF DECK	DIFFERENTIAL COSTS TO DRIVE CONCRETE PILES USING A PILE DRIVING ANALYSER (PDA)		
	Each Approx. Qty. =	100	Each Approx. Qty. =	10
	\$/ea	\$/ea	\$/ea	\$/ea
ENGINEERING ESTIMATE	\$ 2,000.00	\$ 200,000.00	\$ 3,500.00	\$ 35,000.00
1) MANSON CONSTRUCTION CO.	\$ 625.00	\$ 62,500.00	\$ 2,500.00	\$ 25,000.00
2) VORTEX MARINE CONST., INC.	\$ 2,000.00	\$ 200,000.00	\$ 5,000.00	\$ 50,000.00
1) AVERAGE BID	\$ 1,312.50	\$ 131,250.00	\$ 3,750.00	\$ 37,500.00
2) STANDARD DEVIATION	\$ 972.27	\$ 97,227.18	\$ 1,767.77	\$ 17,677.67
3) ENG. EST. - LOW BIDDER	\$ 1,375.00	\$ 137,500.00	\$ 1,000.00	\$ 10,000.00

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	ITEM 25		ITEM 26	
	RESTRIKE OCTAGONAL CONCRETE PILES		DIFFERENTIAL COSTS TO RESTRIKE OCTAGONAL CONCRETE PILES USING A PILE DRIVING ANALYZER (PDA)	
	Each Approx. Qty. =		10 Each Approx. Qty. =	10
	\$/ea		\$/ea	
ENGINEERING ESTIMATE	\$ 2,400.00	\$ 24,000.00	\$ 1,500.00	\$ 15,000.00
1) MANSON CONSTRUCTION CO.	\$ 1,700.00	\$ 17,000.00	\$ 3,300.00	\$ 33,000.00
2) VORTEX MARINE CONST., INC.	\$ 3,000.00	\$ 30,000.00	\$ 2,500.00	\$ 25,000.00
1) AVERAGE BID	\$ 2,350.00	\$ 23,500.00	\$ 2,900.00	\$ 29,000.00
2) STANDARD DEVIATION	\$ 919.24	\$ 9,192.39	\$ 565.69	\$ 5,656.85
3) ENG. EST. - LOW BIDDER	\$ 700.00	\$ 7,000.00	\$ (1,800.00)	\$ (18,000.00)

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	ITEM 27		ITEM 28	
	CONCRETE PILE BUILD UPS LESS THAN 4 FEET IN HEIGHT	CONCRETE PILE BUILD UPS GREATER THAN 4 FEET IN HEIGHT & LESS THAN 7 FEET IN HEIGHT	CONCRETE PILE BUILD UPS LESS THAN 4 FEET IN HEIGHT	CONCRETE PILE BUILD UPS GREATER THAN 4 FEET IN HEIGHT & LESS THAN 7 FEET IN HEIGHT
	Each Approx. Qty. = \$/ea	50	Each Approx. Qty. = \$/ea	50
ENGINEERING ESTIMATE	\$ 1,000.00 \$	50,000.00	\$ 1,500.00 \$	75,000.00
1) MANSON CONSTRUCTION CO.	\$ 1,000.00 \$	50,000.00	\$ 1,300.00 \$	65,000.00
2) VORTEX MARINE CONST., INC.	\$ 1,800.00 \$	90,000.00	\$ 2,000.00 \$	100,000.00
1) AVERAGE BID	\$ 1,400.00 \$	70,000.00	\$ 1,650.00 \$	82,500.00
2) STANDARD DEVIATION	\$ 565.69 \$	28,284.27	\$ 494.97 \$	24,748.74
3) ENG. EST. - LOW BIDDER	\$ - \$	-	\$ 200.00 \$	10,000.00

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		ITEM 29		ITEM 30	
		PERFORM CONCRETE PILE CUTOFFS OVER 6 FEET LONG AND LESS THAN 10 FEET LONG		FURNISH TIMBER FENDER PILES	
		Each Approx. Qty. =	50	Lin. Ft. Apprx. Qty. =	2500
		\$/ea	\$/lin ft		
ENGINEERING ESTIMATE		\$ 450.00	\$ 22,500.00	\$ 35.00	\$ 87,500.00
1) MANSON CONSTRUCTION CO.		\$ 325.00	\$ 16,250.00	\$ 40.00	\$ 100,000.00
2) VORTEX MARINE CONST., INC.		\$ 1,000.00	\$ 50,000.00	\$ 35.00	\$ 87,500.00
1) AVERAGE BID		\$ 662.50	\$ 33,125.00	\$ 37.50	\$ 93,750.00
2) STANDARD DEVIATION		\$ 477.30	\$ 23,864.85	\$ 3.54	\$ 8,838.83
3) ENG. EST. - LOW BIDDER		\$ 125.00	\$ 6,250.00	\$ (5.00)	\$ (12,500.00)

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	ITEM 31		ITEM 32	
	INSTALL TIMBER FENDER PILES		FURNISH AND INSTALL RUBBER FENDERS	
	Each Approx. Qty. =	100	Each Approx. Qty. =	25
	\$/ea		\$/ea	
ENGINEERING ESTIMATE	\$ 4,000.00	\$ 400,000.00	\$ 22,640.00	\$ 566,000.00
1) MANSON CONSTRUCTION CO.	\$ 2,000.00	\$ 200,000.00	\$ 35,000.00	\$ 875,000.00
2) VORTEX MARINE CONST., INC.	\$ 2,000.00	\$ 200,000.00	\$ 15,000.00	\$ 375,000.00
1) AVERAGE BID	\$ 2,000.00	\$ 200,000.00	\$ 25,000.00	\$ 625,000.00
2) STANDARD DEVIATION	\$ -	-	\$ 14,142.14	\$ 353,553.39
3) ENG. EST. - LOW BIDDER	\$ 2,000.00	\$ 200,000.00	\$ (12,360.00)	\$ (309,000.00)

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	ITEM 33		ITEM 34	
	FURNISH TIMBER BEARING AND BATTER PILES		INSTALL TIMBER BEARING PILES (LANDSIDE)	
	Lin. Ft. Approx. Qty. =	2500	Each Approx. Qty. =	25
	\$/lin ft		\$/lea	
ENGINEERING ESTIMATE	\$ 36.00	\$ 90,000.00	\$ 3,600.00	\$ 90,000.00
1) MANSON CONSTRUCTION CO.	\$ 40.00	\$ 100,000.00	\$ 2,000.00	\$ 50,000.00
2) VORTEX MARINE CONST., INC.	\$ 35.00	\$ 87,500.00	\$ 4,100.00	\$ 102,500.00
1) AVERAGE BID	\$ 37.50	\$ 93,750.00	\$ 3,050.00	\$ 76,250.00
2) STANDARD DEVIATION	\$ 3.54	\$ 8,838.83	\$ 1,484.92	\$ 37,123.11
3) ENG. EST. - LOW BIDDER	\$ (4.00)	\$ (10,000.00)	\$ 1,600.00	\$ 40,000.00

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	ITEM 35		ITEM 36	
	INSTALL TIMBER BEARING PILES USING FLOATING PLANT	INSTALL TIMBER BATTER PILES USING FLOATING PLANT	INSTALL TIMBER BEARING PILES USING FLOATING PLANT	INSTALL TIMBER BATTER PILES USING FLOATING PLANT
	Each Approx. Qty. =	25	Each Approx. Qty. =	50
	\$/ea		\$/ea	
ENGINEERING ESTIMATE	\$ 4,200.00	\$ 105,000.00	\$ 4,580.00	\$ 229,000.00
1) MANSON CONSTRUCTION CO.	\$ 1,900.00	\$ 47,500.00	\$ 2,500.00	\$ 125,000.00
2) VORTEX MARINE CONST., INC.	\$ 4,300.00	\$ 107,500.00	\$ 4,300.00	\$ 215,000.00
1) AVERAGE BID	\$ 3,100.00	\$ 77,500.00	\$ 3,400.00	\$ 170,000.00
2) STANDARD DEVIATION	\$ 1,697.06	\$ 42,426.41	\$ 1,272.79	\$ 63,639.61
3) ENG. EST. - LOW BIDDER	\$ 2,300.00	\$ 57,500.00	\$ 2,080.00	\$ 104,000.00

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	ITEM 37		ITEM 38	
	TIMBER BEARING PILE REPAIR		TIMBER BEARING PILE OFFSET INSTALLATION	
	Each Approx. Qty. =	25	Each Approx. Qty. =	40
	\$/ea		\$/ea	
ENGINEERING ESTIMATE	\$ 9,000.00	\$ 225,000.00	\$ 5,600.00	\$ 224,000.00
1) MANSON CONSTRUCTION CO.	\$ 7,600.00	\$ 190,000.00	\$ 4,100.00	\$ 164,000.00
2) VORTEX MARINE CONST., INC.	\$ 5,000.00	\$ 125,000.00	\$ 4,300.00	\$ 172,000.00
1) AVERAGE BID	\$ 6,300.00	\$ 157,500.00	\$ 4,200.00	\$ 168,000.00
2) STANDARD DEVIATION	\$ 1,838.48	\$ 45,961.94	\$ 141.42	\$ 5,656.85
3) ENG. EST. - LOW BIDDER	\$ 1,400.00	\$ 35,000.00	\$ 1,500.00	\$ 60,000.00

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	ITEM 39		ITEM 40	
	MOBILIZATION & DEMOBILIZATION FOR TIMBER PILE DRIVING USING FLOATING PLANT		MOBILIZATION & DEMOBILIZATION FOR TIMBER PILE DRIVING (LANDSIDE)	
	Each Approx. Qty. =	10	Each Approx. Qty. =	10
	\$/ea		\$/ea	
ENGINEERING ESTIMATE	\$ 20,000.00	\$ 200,000.00	\$ 15,000.00	\$ 150,000.00
1) MANSON CONSTRUCTION CO.	\$ 16,000.00	\$ 160,000.00	\$ 40,000.00	\$ 400,000.00
2) VORTEX MARINE CONST., INC.	\$ 40,000.00	\$ 400,000.00	\$ 30,000.00	\$ 300,000.00
1) AVERAGE BID	\$ 28,000.00	\$ 280,000.00	\$ 35,000.00	\$ 350,000.00
2) STANDARD DEVIATION	\$ 16,970.56	\$ 169,705.63	\$ 7,071.07	\$ 70,710.68
3) ENG. EST. - LOW BIDDER	\$ 4,000.00	\$ 40,000.00	\$ (25,000.00)	\$ (250,000.00)

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	ITEM 41		ITEM 42	
	TIMBER PILE WRAP		TIMBER PILE TIDAL WRAP	
	Each Approx. Qty. =	100	Each Approx. Qty. =	100
	\$/ea		\$/ea	
ENGINEERING ESTIMATE	\$ 1,500.00	\$ 150,000.00	\$ 680.00	\$ 68,000.00
1) MANSON CONSTRUCTION CO.	\$ 1,205.00	\$ 120,500.00	\$ 515.00	\$ 51,500.00
2) VORTEX MARINE CONST., INC.	\$ 1,700.00	\$ 170,000.00	\$ 1,000.00	\$ 100,000.00
1) AVERAGE BID	\$ 1,452.50	\$ 145,250.00	\$ 757.50	\$ 75,750.00
2) STANDARD DEVIATION	\$ 350.02	\$ 35,001.79	\$ 342.95	\$ 34,294.68
3) ENG. EST. - LOW BIDDER	\$ 295.00	\$ 29,500.00	\$ 165.00	\$ 16,500.00

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		ITEM 43		44	
		TIMBER PILE SUBMERGED WRAP TERMINATION		TIMBER PILE ROCKLINE CRATER DIGGING & SUBMERGED WRAP TERMINATION	
		Each Approx. Qty. =	100	Each Approx. Qty. =	100
		\$/ea		\$/ea	
ENGINEERING ESTIMATE		\$ 1,000.00	\$ 100,000.00	\$ 800.00	\$ 80,000.00
1) MANSON CONSTRUCTION CO.		\$ 750.00	\$ 75,000.00	\$ 500.00	\$ 50,000.00
2) VORTEX MARINE CONST., INC.		\$ 1,950.00	\$ 195,000.00	\$ 1,100.00	\$ 110,000.00
1) AVERAGE BID		\$ 1,350.00	\$ 135,000.00	\$ 800.00	\$ 80,000.00
2) STANDARD DEVIATION		\$ 848.53	\$ 84,852.81	\$ 424.26	\$ 42,426.41
3) ENG. EST. - LOW BIDDER		\$ 250.00	\$ 25,000.00	\$ 300.00	\$ 30,000.00

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	ITEM 45		46	
	TIMBER BULLRAIL		FURNISH AND PLACE QUARRY RUN (2,000 TONS OR LESS PER ORDER)	
	Lin. Ft. Approx. Qty. =	1000	Tons Approx. Qty. =	3000
	\$/lin ft		\$/tons	
ENGINEERING ESTIMATE	\$ 75.00	\$ 75,000.00	\$ 68.00	\$ 204,000.00
1) MANSON CONSTRUCTION CO.	\$ 50.00	\$ 50,000.00	\$ 50.00	\$ 150,000.00
2) VORTEX MARINE CONST., INC.	\$ 70.00	\$ 70,000.00	\$ 60.00	\$ 180,000.00
1) AVERAGE BID	\$ 60.00	\$ 60,000.00	\$ 55.00	\$ 165,000.00
2) STANDARD DEVIATION	\$ 14.14	\$ 14,142.14	\$ 7.07	\$ 21,213.20
3) ENG. EST. - LOW BIDDER	\$ 25.00	\$ 25,000.00	\$ 18.00	\$ 54,000.00

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS
PROJ CONST MGR.: PETER OUK

	ITEM 47		ITEM 48	
	FURNISH AND PLACE QUARRY RUN (GREATER THAN 2,000 TONS PER ORDER)		FURNISH AND PLACE RIPRAP	
	Tons Approx. Qty. =	3000	Tons Approx. Qty. =	3000
	\$/tons		\$/tons	
ENGINEERING ESTIMATE	\$ 70.00	\$ 210,000.00	\$ 80.00	\$ 240,000.00
1) MANSON CONSTRUCTION CO.	\$ 45.00	\$ 135,000.00	\$ 60.00	\$ 180,000.00
2) VORTEX MARINE CONST., INC.	\$ 70.00	\$ 210,000.00	\$ 60.00	\$ 180,000.00
1) AVERAGE BID	\$ 57.50	\$ 172,500.00	\$ 60.00	\$ 180,000.00
2) STANDARD DEVIATION	\$ 17.68	\$ 53,033.01	\$ -	\$ -
3) ENG. EST. - LOW BIDDER	\$ 25.00	\$ 75,000.00	\$ 20.00	\$ 60,000.00

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS
PROJ CONST MGR.: PETER OUK

	ITEM 49		ITEM 50	
	MOBILIZATION & DEMOBILIZATION FOR PLACING QUARRY RUN AND RIPRAP		FURNISH AND INSTALL SHEET PILES IN WATER (25 TONS OR LESS PER ORDER)	
	Each Approx. Qty. =	7	Tons Approx. Qty. =	50
	\$/ea		\$/tons	
ENGINEERING ESTIMATE	\$ 20,000.00	\$ 140,000.00	\$ 4,800.00	\$ 240,000.00
1) MANSON CONSTRUCTION CO.	\$ 23,000.00	\$ 161,000.00	\$ 3,800.00	\$ 190,000.00
2) VORTEX MARINE CONST., INC.	\$ 18,000.00	\$ 126,000.00	\$ 6,000.00	\$ 300,000.00
1) AVERAGE BID	\$ 20,500.00	\$ 143,500.00	\$ 4,900.00	\$ 245,000.00
2) STANDARD DEVIATION	\$ 3,535.53	\$ 24,748.74	\$ 1,555.63	\$ 77,781.75
3) ENG. EST. - LOW BIDDER	\$ (3,000.00)	\$ (21,000.00)	\$ 1,000.00	\$ 50,000.00

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS
PROJ CONST MGR.: PETER OUK

	ITEM 51		ITEM 52	
	FURNISH AND INSTALL SHEET PILES IN WATER (GREATER THAN 25 TONS PER ORDER)		MOBILIZATION AND DEMOBILIZATION FOR SHEET PILE DRIVING USING FLOATING PLANT	
	Tons Approx. Qty. =	50	Each Approx. Qty. =	3
	\$/tons		\$/each	
ENGINEERING ESTIMATE	\$ 4,600.00	\$ 230,000.00	\$ 40,000.00	\$ 120,000.00
1) MANSON CONSTRUCTION CO.	\$ 3,800.00	\$ 190,000.00	\$ 36,000.00	\$ 108,000.00
2) VORTEX MARINE CONST., INC.	\$ 5,500.00	\$ 275,000.00	\$ 45,000.00	\$ 135,000.00
1) AVERAGE BID	\$ 4,650.00	\$ 232,500.00	\$ 40,500.00	\$ 121,500.00
2) STANDARD DEVIATION	\$ 1,202.08	\$ 60,104.08	\$ 6,363.96	\$ 19,091.88
3) ENG. EST. - LOW BIDDER	\$ 800.00	\$ 40,000.00	\$ 4,000.00	\$ 12,000.00

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS
PROJ CONST MGR.: PETER OUK

	ITEM 53		ITEM 54	
	SHOTCRETE REPAIRS		MOBILIZATION AND DEMOBILIZATION FOR SHOTCRETE	
	Sq. Ft. In. Approx. Qty. =	2500	Each Approx. Qty. =	5
	\$/sq ft in		\$/ea	
ENGINEERING ESTIMATE	\$ 60.00	\$ 150,000.00	\$ 10,000.00	\$ 50,000.00
1) MANSON CONSTRUCTION CO.	\$ 53.00	\$ 132,500.00	\$ 10,500.00	\$ 52,500.00
2) VORTEX MARINE CONST., INC.	\$ 60.00	\$ 150,000.00	\$ 10,000.00	\$ 50,000.00
1) AVERAGE BID	\$ 56.50	\$ 141,250.00	\$ 10,250.00	\$ 51,250.00
2) STANDARD DEVIATION	\$ 4.95	\$ 12,374.37	\$ 353.55	\$ 1,767.77
3) ENG. EST. - LOW BIDDER	\$ 7.00	\$ 17,500.00	\$ (500.00)	\$ (2,500.00)

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS
PROJ CONST MGR.: PETER OUK

	ITEM 55		ITEM 56	
	CAST-IN-PLACE CONCRETE REPAIRS		JACKET ENCASUREMENT REPAIRS - (18-INCH OCTAGONAL PILE TYPE 1)	
	Cu. Yds. Approx. Qty. =	500	Lin. Ft. Approx. Qty. =	500
	\$/cu yds		\$/lin ft	
ENGINEERING ESTIMATE	\$ 1,200.00	\$ 600,000.00	\$ 1,125.00	\$ 562,500.00
1) MANSON CONSTRUCTION CO.	\$ 825.00	\$ 412,500.00	\$ 810.00	\$ 405,000.00
2) VORTEX MARINE CONST., INC.	\$ 1,500.00	\$ 750,000.00	\$ 850.00	\$ 425,000.00
1) AVERAGE BID	\$ 1,162.50	\$ 581,250.00	\$ 830.00	\$ 415,000.00
2) STANDARD DEVIATION	\$ 477.30	\$ 238,648.54	\$ 28.28	\$ 14,142.14
3) ENG. EST. - LOW BIDDER	\$ 375.00	\$ 187,500.00	\$ 315.00	\$ 157,500.00

SPECIFICATION NO. 2771
 2016-2018 MARINE IMPROVEMENTS
 PROJ CONST MGR.: PETER OUK

	ITEM 57		ITEM 58	
	Lin. Ft. Approx. Qty. =	JACKET ENCASEMENT REPAIRS - (18-INCH OCTAGONAL PILE TYPE 2)	Lin. Ft. Approx. Qty. =	JACKET ENCASEMENT REPAIRS - (24-INCH OCTAGONAL PILE TYPE 1)
ENGINEERING ESTIMATE	\$/lin ft \$ 1,250.00	\$ 625,000.00	\$/lin ft \$ 1,500.00	\$ 750,000.00
1) MANSON CONSTRUCTION CO.	\$ 835.00	\$ 417,500.00	\$ 830.00	\$ 415,000.00
2) VORTEX MARINE CONST., INC.	\$ 850.00	\$ 425,000.00	\$ 1,100.00	\$ 550,000.00
1) AVERAGE BID	\$ 842.50	\$ 421,250.00	\$ 965.00	\$ 482,500.00
2) STANDARD DEVIATION	\$ 10.61	\$ 5,303.30	\$ 190.92	\$ 95,459.42
3) ENG. EST. - LOW BIDDER	\$ 415.00	\$ 207,500.00	\$ 670.00	\$ 335,000.00

SPECIFICATION NO. 2771
 2016-2018 MARINE IMPROVEMENTS
 PROJ CONST MGR.: PETER OUK

	ITEM 59		ITEM 60	
	JACKET ENCASUREMENT REPAIRS - (24-INCH OCTAGONAL PILE TYPE 2)	1000	JACKET ENCASUREMENT REPAIRS - (16-INCH SQUARE PILE TYPE 1)	550
	Lin. Ft. Approx. Qty. = \$/lin ft	Lin. Ft. Approx. Qty. = \$/lin ft	Lin. Ft. Approx. Qty. = \$/lin ft	Lin. Ft. Approx. Qty. = \$/lin ft
ENGINEERING ESTIMATE	\$ 1,650.00	\$ 1,650,000.00	\$ 1,000.00	\$ 550,000.00
1) MANSON CONSTRUCTION CO.	\$ 855.00	\$ 855,000.00	\$ 860.00	\$ 473,000.00
2) VORTEX MARINE CONST., INC.	\$ 1,100.00	\$ 1,100,000.00	\$ 750.00	\$ 412,500.00
1) AVERAGE BID	\$ 977.50	\$ 977,500.00	\$ 805.00	\$ 442,750.00
2) STANDARD DEVIATION	\$ 173.24	\$ 173,241.16	\$ 77.78	\$ 42,779.96
3) ENG. EST. - LOW BIDDER	\$ 795.00	\$ 795,000.00	\$ 140.00	\$ 77,000.00

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS
PROJ CONST MGR.: PETER OUK

	ITEM 61		ITEM 62	
	JACKET ENCASEMENT RPAIRS - (6-INCH SQUARE PILE TYPE 2)		FURNISH REINFORCING BARS	
	Lin. Ft. Approx. Qty. =	750	Pounds Approx. Qty. =	12000
	\$/lin ft		\$/pounds	
ENGINEERING ESTIMATE	\$ 1,100.00	\$ 825,000.00	\$ 5.00	\$ 60,000.00
1) MANSON CONSTRUCTION CO.	\$ 885.00	\$ 663,750.00	\$ 1.00	\$ 12,000.00
2) VORTEX MARINE CONST., INC.	\$ 750.00	\$ 562,500.00	\$ 2.00	\$ 24,000.00
1) AVERAGE BID	\$ 817.50	\$ 613,125.00	\$ 1.50	\$ 18,000.00
2) STANDARD DEVIATION	\$ 95.46	\$ 71,594.56	\$ 0.71	\$ 8,485.28
3) ENG. EST. - LOW BIDDER	\$ 215.00	\$ 161,250.00	\$ 4.00	\$ 48,000.00

SPECIFICATION NO. 2771
 2016-2018 MARINE IMPROVEMENTS
 PROJ CONST MGR.: PETER OUK

	ITEM 63		ITEM 64	
	REPLACEMENT OF REINFORCING BARS - WELD SPLICED		REPLACEMENT OF REINFORCING BARS - LAP SPLICED	
	Each Approx. Qty. =	50	Each Approx. Qty. =	200
	\$/each		\$/ea	
ENGINEERING ESTIMATE	\$ 450.00	\$ 22,500.00	\$ 25.00	\$ 5,000.00
1) MANSON CONSTRUCTION CO.	\$ 265.00	\$ 13,250.00	\$ 14.00	\$ 2,800.00
2) VORTEX MARINE CONST., INC.	\$ 350.00	\$ 17,500.00	\$ 30.00	\$ 6,000.00
1) AVERAGE BID	\$ 307.50	\$ 15,375.00	\$ 22.00	\$ 4,400.00
2) STANDARD DEVIATION	\$ 60.10	\$ 3,005.20	\$ 11.31	\$ 2,262.74
3) ENG. EST. - LOW BIDDER	\$ 185.00	\$ 9,250.00	\$ 11.00	\$ 2,200.00

SPECIFICATION NO. 2771
 2016-2018 MARINE IMPROVEMENTS
 PROJ CONST MGR.: PETER OUK

	ITEM 65		ITEM 66	
	REPLACEMENT OF REINFORCING BARS - DOWELS		EPOXY INJECTION REPAIRS	
	Each Approx. Qty. =	150	Cu. Ft. Approx. Qty. =	80
	\$/ea		\$/cu ft	
ENGINEERING ESTIMATE	\$ 220.00	\$ 33,000.00	\$ 2,200.00	\$ 176,000.00
1) MANSON CONSTRUCTION CO.	\$ 125.00	\$ 18,750.00	\$ 2,100.00	\$ 168,000.00
2) VORTEX MARINE CONST., INC.	\$ 330.00	\$ 49,500.00	\$ 1,500.00	\$ 120,000.00
1) AVERAGE BID	\$ 227.50	\$ 34,125.00	\$ 1,800.00	\$ 144,000.00
2) STANDARD DEVIATION	\$ 144.96	\$ 21,743.53	\$ 424.26	\$ 33,941.13
3) ENG. EST. - LOW BIDDER	\$ 95.00	\$ 14,250.00	\$ 100.00	\$ 8,000.00

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS
PROJ CONST MGR.: PETER OUK

	ITEM 67		ITEM 68	
	ASPHALT CONCRETE PAVEMENT (250 TONS OR LESS PER ORDER)		ASPHALT CONCRETE PAVEMENT (GREATER THAN 250 TONS PER ORDER)	
	Tons Approx. Qty. =	5000	Tons Approx. Qty. =	7500
	\$/tons	\$	\$/tons	\$
ENGINEERING ESTIMATE	\$ 110.00	\$ 550,000.00	\$ 100.00	\$ 750,000.00
1) MANSON CONSTRUCTION CO.	\$ 125.00	\$ 625,000.00	\$ 115.00	\$ 862,500.00
2) VORTEX MARINE CONST., INC.	\$ 110.00	\$ 550,000.00	\$ 100.00	\$ 750,000.00
1) AVERAGE BID	\$ 117.50	\$ 587,500.00	\$ 107.50	\$ 806,250.00
2) STANDARD DEVIATION	\$ 10.61	\$ 53,033.01	\$ 10.61	\$ 79,549.51
3) ENG. EST. - LOW BIDDER	\$ (15.00)	\$ (75,000.00)	\$ (15.00)	\$ (112,500.00)

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS
PROJ CONST MGR.: PETER OUK

	ITEM 69		ITEM 70	
	DEMOLISH & DISPOSE OF CONCRETE PAVEMENT 2 INCHES TO 7 INCHES THICK TO THE PIER 400 CRUSHER SITE		MOVE-IN AND MOVE-OUT PAVING EQUIPMENT	
	Cu. Yds. Approx. Qty. =	1500	Each Approx. Qty. =	10
	\$/cu yds		\$/ea	
ENGINEERING ESTIMATE	\$ 50.00	\$ 75,000.00	\$ 4,500.00	\$ 45,000.00
1) MANSON CONSTRUCTION CO.	\$ 60.00	\$ 90,000.00	\$ 1,200.00	\$ 12,000.00
2) VORTEX MARINE CONST., INC.	\$ 70.00	\$ 105,000.00	\$ 1,000.00	\$ 10,000.00
1) AVERAGE BID	\$ 65.00	\$ 97,500.00	\$ 1,100.00	\$ 11,000.00
2) STANDARD DEVIATION	\$ 7.07	\$ 10,606.60	\$ 141.42	\$ 1,414.21
3) ENG. EST. - LOW BIDDER	\$ (10.00)	\$ (15,000.00)	\$ 3,300.00	\$ 33,000.00

SPECIFICATION NO. 2771
 2016-2018 MARINE IMPROVEMENTS
 PROJ CONST MGR.: PETER OUK

	ITEM 71		ITEM 72	
	CRACK SEALING REPAIRS		REMOVE AND REPLACE TIMBER DECKING	
	Lin. Ft. Approx. Qty. =	1000	Sq. Ft. Approx. Qty. =	7500
	\$/lin ft		\$/sq ft	
ENGINEERING ESTIMATE	\$ 50.00	\$ 50,000.00	\$ 40.00	\$ 300,000.00
1) MANSON CONSTRUCTION CO.	\$ 42.00	\$ 42,000.00	\$ 27.00	\$ 202,500.00
2) VORTEX MARINE CONST., INC.	\$ 20.00	\$ 20,000.00	\$ 30.00	\$ 225,000.00
1) AVERAGE BID	\$ 31.00	\$ 31,000.00	\$ 28.50	\$ 213,750.00
2) STANDARD DEVIATION	\$ 15.56	\$ 15,556.35	\$ 2.12	\$ 15,909.90
3) ENG. EST. - LOW BIDDER	\$ 8.00	\$ 8,000.00	\$ 13.00	\$ 97,500.00

SPECIFICATION NO. 2771
 2016-2018 MARINE IMPROVEMENTS
 PROJ CONST MGR.: PETER OUK

	ITEM 73		ITEM 74	
	MOBILIZATION & DEMOBILIZATION FOR REMOVING AND REPLACING TIMBER DECKING		MOBILIZATION AND DEMOBILIZATION FOR EXCAVATION	
	Each Approx. Qty. =	7	Each Approx. Qty. =	10
	\$/ea		\$/ea	
ENGINEERING ESTIMATE	\$ 1,500.00	\$ 10,500.00	\$ 7,500.00	\$ 75,000.00
1) MANSON CONSTRUCTION CO.	\$ 640.00	\$ 4,480.00	\$ 4,200.00	\$ 42,000.00
2) VORTEX MARINE CONST., INC.	\$ 700.00	\$ 4,900.00	\$ 6,000.00	\$ 60,000.00
1) AVERAGE BID	\$ 670.00	\$ 4,690.00	\$ 5,100.00	\$ 51,000.00
2) STANDARD DEVIATION	\$ 42.43	\$ 296.98	\$ 1,272.79	\$ 12,727.92
3) ENG. EST. - LOW BIDDER	\$ 860.00	\$ 6,020.00	\$ 3,300.00	\$ 33,000.00

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS
PROJ CONST MGR.: PETER OUK

	ITEM 75		ITEM 76	
	SOIL EXCAVATION (OFF DEPARTMENT PROPERTY)		EXCAVATE AND REUSE SOILS AS FILL	
	Cu. Yds. Approx. Qty. =	5000	Cu. Yds. Approx. Qty. =	20000
	\$/cu yds		\$/cu yds	
ENGINEERING ESTIMATE	\$ 36.00	\$ 180,000.00	\$ 15.00	\$ 300,000.00
1) MANSON CONSTRUCTION CO.	\$ 40.00	\$ 200,000.00	\$ 17.00	\$ 340,000.00
2) VORTEX MARINE CONST., INC.	\$ 25.00	\$ 125,000.00	\$ 16.00	\$ 320,000.00
1) AVERAGE BID	\$ 32.50	\$ 162,500.00	\$ 16.50	\$ 330,000.00
2) STANDARD DEVIATION	\$ 10.61	\$ 53,033.01	\$ 0.71	\$ 14,142.14
3) ENG. EST. - LOW BIDDER	\$ (4.00)	\$ (20,000.00)	\$ (2.00)	\$ (40,000.00)

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS
PROJ CONST MGR.: PETER OUK

	ITEM 77		ITEM 78	
	MOBILIZATION & DEMOBILIZATION FOR EXCAVATING AND REUSING SOIL AS FILL	EXCAVATE, STOCKPILE, & DISPOSE OF CALIFORNIA HAZARDOUS WASTE (NON-RCRA) SOIL	10 Tons Approx. Qty. =	15000
	Each Approx. Qty. =		\$/tons	
ENGINEERING ESTIMATE	\$ 20,000.00	\$ 200,000.00	\$ 120.00	\$ 1,800,000.00
1) MANSON CONSTRUCTION CO.	\$ 5,300.00	\$ 53,000.00	\$ 115.00	\$ 1,725,000.00
2) VORTEX MARINE CONST., INC.	\$ 5,000.00	\$ 50,000.00	\$ 140.00	\$ 2,100,000.00
1) AVERAGE BID	\$ 5,150.00	\$ 51,500.00	\$ 127.50	\$ 1,912,500.00
2) STANDARD DEVIATION	\$ 212.13	\$ 2,121.32	\$ 17.68	\$ 265,165.04
3) ENG. EST. - LOW BIDDER	\$ 14,700.00	\$ 147,000.00	\$ 5.00	\$ 75,000.00

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS
PROJ CONST MGR.: PETER OUK

	ITEM 79		ITEM 80	
	EXCAVATE, STOCKPILE, & DISPOSE OF RESOURCE CONSERVATION & RECOVERY ACT (RCRA) HAZARDOUS WASTE SOIL Tons Approx. Qty. = 1000 \$/tons		EXCAVATE, STOCKPILE, & DISP OR RECY CONTAMINATED/ NON-HAZ WASTE SOIL (INCL HYDROCARBON IMPACTED SOIL & VOLATILE ORGANIC COMPOUND (VOC) CONTAMINATED SOIL) Tons Approx. Qty. = 1000 \$/tons	
ENGINEERING ESTIMATE	\$ 240.00	\$ 240,000.00	\$ 55.00	\$ 55,000.00
1) MANSON CONSTRUCTION CO.	\$ 260.00	\$ 260,000.00	\$ 62.00	\$ 62,000.00
2) VORTEX MARINE CONST., INC.	\$ 200.00	\$ 200,000.00	\$ 85.00	\$ 85,000.00
1) AVERAGE BID	\$ 230.00	\$ 230,000.00	\$ 73.50	\$ 73,500.00
2) STANDARD DEVIATION	\$ 42.43	\$ 42,426.41	\$ 16.26	\$ 16,263.46
3) ENG. EST. - LOW BIDDER	\$ (20.00)	\$ (20,000.00)	\$ (7.00)	\$ (7,000.00)

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS

	ITEM 81		ITEM 82	
	EXCAVATE, STOCKPILE, & DISPOSE OF CA HAZ (NON-RCRA) & TSCA REGULATED WASTE SOIL CONTAINING PCB'S		EXCAVATE, STOCKPILE, & DISPOSE OF RCRA HAZARDOUS & TSCA REGULATED WASTE SOIL CONTAINING PCB'S	
	Tons Approx. Qty. =	1000	Cu. Yds. Approx. Qty. =	1000
	\$/tons		\$/cu yds	
ENGINEERING ESTIMATE	\$ 230.00	\$ 230,000.00	\$ 260.00	\$ 260,000.00
1) MANSON CONSTRUCTION CO.	\$ 140.00	\$ 140,000.00	\$ 300.00	\$ 300,000.00
2) VORTEX MARINE CONST., INC.	\$ 200.00	\$ 200,000.00	\$ 275.00	\$ 275,000.00
1) AVERAGE BID	\$ 170.00	\$ 170,000.00	\$ 287.50	\$ 287,500.00
2) STANDARD DEVIATION	\$ 42.43	\$ 42,426.41	\$ 17.68	\$ 17,677.67
3) ENG. EST. - LOW BIDDER	\$ 90.00	\$ 90,000.00	\$ (40.00)	\$ (40,000.00)

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS

	ITEM 83		ITEM 84	
	IMPORT FILL SOIL		DEPARTMENT-FURNISHED CRUSHED MISCELLANEOUS BASE	
	Cu. Yds. Approx. Qty. =	70000	Cu. Yds. Approx. Qty. =	3000
	\$/cu yds		\$/cu yds	
ENGINEERING ESTIMATE	\$ 35.00	\$ 2,450,000.00	\$ 38.00	\$ 114,000.00
1) MANSON CONSTRUCTION CO.	\$ 37.00	\$ 2,590,000.00	\$ 26.00	\$ 78,000.00
2) VORTEX MARINE CONST., INC.	\$ 15.00	\$ 1,050,000.00	\$ 25.00	\$ 75,000.00
1) AVERAGE BID	\$ 26.00	\$ 1,820,000.00	\$ 25.50	\$ 76,500.00
2) STANDARD DEVIATION	\$ 15.56	\$ 1,088,944.44	\$ 0.71	\$ 2,121.32
3) ENG. EST. - LOW BIDDER	\$ (2.00)	\$ (140,000.00)	\$ 12.00	\$ 36,000.00

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS

	ITEM 85		ITEM 86	
	MOBILIZATION & DEMOBILIZATION FOR CRUSHED MISCELLANEOUS BASE		DREDGING & DISPOSING OF MATERIALS TO BERTHS 243-245 CONFINED DISPOSAL FACILITY (2,500 CU YDS OR LESS PER ORDER)	
	Cu. Yds. Approx. Qty. =	10 Cu. Yds. Approx. Qty. =		10000
	\$/cu yds	\$/cu yds		
ENGINEERING ESTIMATE	\$ 8,000.00	\$ 80,000.00	\$ 45.00	\$ 450,000.00
1) MANSON CONSTRUCTION CO.	\$ 7,400.00	\$ 74,000.00	\$ 43.00	\$ 430,000.00
2) VORTEX MARINE CONST., INC.	\$ 7,000.00	\$ 70,000.00	\$ 37.00	\$ 370,000.00
1) AVERAGE BID	\$ 7,200.00	\$ 72,000.00	\$ 40.00	\$ 400,000.00
2) STANDARD DEVIATION	\$ 282.84	2,828.43	\$ 4.24	\$ 42,426.41
3) ENG. EST. - LOW BIDDER	\$ 600.00	\$ 6,000.00	\$ 2.00	\$ 20,000.00

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS

	ITEM 87		ITEM 88	
	DREDGING & DISPOSING OF MATERIALS TO BERTHS 243-245 CONFINED DISPOSAL FACILITY (GREATER THAN 2,500 CU YDS PER ORDER) Cu. Yds. Approx. Qty. = 12000 \$/cu yds		DREDGING & DISPOSING OF MATERIALS TRANSPORTED OFF-SITE (2,500 CUBIC YARDS OR LESS PER ORDER) Cu. Yds. Approx. Qty. = 10000 \$/cu yds	
ENGINEERING ESTIMATE	\$ 43.00	\$ 516,000.00	\$ 50.00	\$ 500,000.00
1) MANSON CONSTRUCTION CO.	\$ 42.00	\$ 504,000.00	\$ 49.00	\$ 490,000.00
2) VORTEX MARINE CONST., INC.	\$ 39.00	\$ 468,000.00	\$ 44.00	\$ 440,000.00
1) AVERAGE BID	\$ 40.50	\$ 486,000.00	\$ 46.50	\$ 465,000.00
2) STANDARD DEVIATION	\$ 2.12	\$ 25,455.84	\$ 3.54	\$ 35,355.34
3) ENG. EST. - LOW BIDDER	\$ 1.00	\$ 12,000.00	\$ 1.00	\$ 10,000.00

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS

	ITEM 89		ITEM 90	
	DREDGING & DISPOSING OF MATERIALS TRANSPORTED OFF-SITE (GREATER THAN 2,500 CUBIC YARDS PER ORDER)		MOBILIZATION & DEMOBILIZATION FOR DREDGING	
	Cu. Yds/ Approx. Qty. =	\$/cu yds	12000	Each Approx. Qty. =
ENGINEERING ESTIMATE		\$ 48.00	\$ 576,000.00	\$/ea \$ 47,000.00
1) MANSON CONSTRUCTION CO.		\$ 48.00	\$ 576,000.00	\$ 340,000.00
2) VORTEX MARINE CONST., INC.		\$ 44.00	\$ 528,000.00	\$ 875,000.00
1) AVERAGE BID		\$ 46.00	\$ 552,000.00	\$ 607,500.00
2) STANDARD DEVIATION		\$ 2.83	\$ 33,941.13	\$ 378,302.13
3) ENG. EST. - LOW BIDDER		\$ -	\$ -	\$ 130,000.00

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS

	ITEM 91		ITEM 92	
	MOBILIZATION & DEMOBILIZATION FOR DREDGING IN SHALLOW WATERS		DREDGING IN SHALLOW WATERS & DISPOSING MATERIALS TRANSPORTED OFF-SITE	
	Each Approx. Qty. =	10 Cu. Yds. Approx. Qty. =		12000
	\$/ea	\$/cu yds		
ENGINEERING ESTIMATE	\$ 100,000.00	\$ 1,000,000.00	\$ 45.00	\$ 540,000.00
1) MANSON CONSTRUCTION CO.	\$ 46,000.00	\$ 460,000.00	\$ 68.00	\$ 816,000.00
2) VORTEX MARINE CONST., INC.	\$ 57,500.00	\$ 575,000.00	\$ 40.00	\$ 480,000.00
1) AVERAGE BID	\$ 51,750.00	\$ 517,500.00	\$ 54.00	\$ 648,000.00
2) STANDARD DEVIATION	\$ 8,131.73	\$ 81,317.28	\$ 19.80	\$ 237,587.88
3) ENG. EST. - LOW BIDDER	\$ 54,000.00	\$ 540,000.00	\$ (23.00)	\$ (276,000.00)

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS

	ITEM 93		ITEM 94	
	STREET SWEEPER SERVICES		WATER TRUCK (AND OPERATOR) - 4,000 GALLON (MINIMUM ORDER 4 HOURS)	
	Shifts Approx. Qty. =	120	Shifts Approx. Qty. =	1000
	\$/shifts		\$/shifts	
ENGINEERING ESTIMATE	\$ 800.00	\$ 96,000.00	\$ 340.00	\$ 340,000.00
1) MANSON CONSTRUCTION CO.	\$ 1,370.00	\$ 164,400.00	\$ 740.00	\$ 740,000.00
2) VORTEX MARINE CONST., INC.	\$ 800.00	\$ 96,000.00	\$ 500.00	\$ 500,000.00
1) AVERAGE BID	\$ 1,085.00	\$ 130,200.00	\$ 620.00	\$ 620,000.00
2) STANDARD DEVIATION	\$ 403.05	\$ 48,366.10	\$ 169.71	\$ 169,705.63
3) ENG. EST. - LOW BIDDER	\$ (570.00)	\$ (68,400.00)	\$ (400.00)	\$ (400,000.00)

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS

	ITEM 95		ITEM 96	
	CONCRETE WHARF DEMOLITION & REPAIRS (ALLOWANCE ITEM)		TIMBER WHARF DEMOLITION & REPAIRS (ALLOWANCE ITEM)	
ENGINEERING ESTIMATE	\$	200,000.00	\$	200,000.00
1) MANSON CONSTRUCTION CO.	\$	200,000.00	\$	200,000.00
2) VORTEX MARINE CONST., INC.	\$	200,000.00	\$	200,000.00
1) AVERAGE BID	\$	200,000.00	\$	200,000.00
2) STANDARD DEVIATION	\$	-	\$	-
3) ENG. EST. - LOW BIDDER	\$	-	\$	-

SPECIFICATION NO. 2771
 2016-2018 MARINE IMPROVEMENTS

	ITEM 97		ITEM 98	
	PERFORM MISCELLANEOUS UTILITY & STRUCTURES WORK (ALLOWANCE ITEM)		PERMIT, EXCAVATE, STOCKPILE, TEST, PRETREAT, STABILIZE, & DISPOSE OF CHEMICALLY IMPACTED MATLS (ALLOWANCE ITEM)	
ENGINEERING ESTIMATE	\$	700,000.00	\$	75,000.00
1) MANSON CONSTRUCTION CO.	\$	700,000.00	\$	75,000.00
2) VORTEX MARINE CONST., INC.	\$	700,000.00	\$	75,000.00
1) AVERAGE BID	\$	700,000.00	\$	75,000.00
2) STANDARD DEVIATION	\$	-	\$	-
3) ENG. EST. - LOW BIDDER	\$	-	\$	-

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS

	ITEM 99		ITEM 100	
	ACCELERATION/OVERTIME (ALLOWANCE ITEM)		WATERPROOFING (ALLOWANCE ITEM)	
ENGINEERING ESTIMATE	\$	75,000.00	\$	100,000.00
1) MANSON CONSTRUCTION CO.	\$	75,000.00	\$	100,000.00
2) VORTEX MARINE CONST., INC.	\$	75,000.00	\$	100,000.00
1) AVERAGE BID	\$	75,000.00	\$	100,000.00
2) STANDARD DEVIATION	\$	-	\$	-
3) ENG. EST. - LOW BIDDER	\$	-	\$	-

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS

	ITEM 101	ITEM 102
	CAULERPA TAXIFOLIA SERVICES (ALLOWANCE ITEM)	PILE DRIVING TEMPLATES & FOLLOWERS (ALLOWANCE ITEM)
ENGINEERING ESTIMATE	\$ 75,000.00	\$ 100,000.00
1) MANSON CONSTRUCTION CO.	\$ 75,000.00	\$ 100,000.00
2) VORTEX MARINE CONST., INC.	\$ 75,000.00	\$ 100,000.00
1) AVERAGE BID	\$ 75,000.00	\$ 100,000.00
2) STANDARD DEVIATION	\$ -	\$ -
3) ENG. EST. - LOW BIDDER	\$ -	\$ -

SPECIFICATION NO. 2771
 2016-2018 MARINE IMPROVEMENTS

	ITEM 103		ITEM 104	
	WEB-BASED COLLABORATION (ALLOWANCE ITEM)		PERFORM WORK ASSOCIATED WITH REGULATORY AGENCY CHANGES & ADDITIONAL REQUIREMENTS (ALLOWANCE ITEM)	
ENGINEERING ESTIMATE	\$	45,000.00	\$	150,000.00
1) MANSON CONSTRUCTION CO.	\$	45,000.00	\$	150,000.00
2) VORTEX MARINE CONST., INC.	\$	45,000.00	\$	150,000.00
1) AVERAGE BID	\$	45,000.00	\$	150,000.00
2) STANDARD DEVIATION	\$	-	\$	-
3) ENG. EST. - LOW BIDDER	\$	-	\$	-

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS

	ITEM 105		ITEM 106	
	PROVIDE CATHODIC PROTECTION (ALLOWANCE ITEM)		UNDERWATER ROCK REMOVAL (ALLOWANCE ITEM)	
ENGINEERING ESTIMATE	\$	50,000.00	\$	100,000.00
1) MANSON CONSTRUCTION CO.	\$	50,000.00	\$	100,000.00
2) VORTEX MARINE CONST., INC.	\$	50,000.00	\$	100,000.00
1) AVERAGE BID	\$	50,000.00	\$	100,000.00
2) STANDARD DEVIATION	\$	-	\$	-
3) ENG. EST. - LOW BIDDER	\$	-	\$	-

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS

	ITEM 107		ITEM 108	
	DISPOSAL OF EXCESS EARTH & DREDGE MATERIAL OFF-SITE (ALLOWANCE ITEM)		SIGNAGE & PAVEMENT MARKINGS (ALLOWANCE ITEM)	
ENGINEERING ESTIMATE	\$	50,000.00	\$	300,000.00
1) MANSON CONSTRUCTION CO.	\$	50,000.00	\$	300,000.00
2) VORTEX MARINE CONST., INC.	\$	50,000.00	\$	300,000.00
1) AVERAGE BID	\$	50,000.00	\$	300,000.00
2) STANDARD DEVIATION	\$	-	\$	-
3) ENG. EST. - LOW BIDDER	\$	-	\$	-

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS

	ITEM 109	ITEM 110
	PAY STATE WATER RESOURCES CONTROL BOARD STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FEES (ALLOWANCE ITEM)	MECHANICAL SYSTEMS (ALLOWANCE ITEM)
ENGINEERING ESTIMATE	\$ 25,000.00	\$ 300,000.00
1) MANSON CONSTRUCTION CO.	\$ 25,000.00	\$ 300,000.00
2) VORTEX MARINE CONST., INC.	\$ 25,000.00	\$ 300,000.00
1) AVERAGE BID	\$ 25,000.00	\$ 300,000.00
2) STANDARD DEVIATION	\$ -	\$ -
3) ENG. EST. - LOW BIDDER	\$ -	\$ -

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS

	ITEM 111		ITEM 112	
	ELECTRICAL SYSTEMS (ALLOWANCE ITEM)		EMERGENCY ON-CALL WORK (ALLOWANCE ITEM)	
ENGINEERING ESTIMATE	\$	300,000.00	\$	300,000.00
1) MANSON CONSTRUCTION CO.	\$	300,000.00	\$	300,000.00
2) VORTEX MARINE CONST., INC.	\$	300,000.00	\$	300,000.00
1) AVERAGE BID	\$	300,000.00	\$	300,000.00
2) STANDARD DEVIATION	\$	-	\$	-
3) ENG. EST. - LOW BIDDER	\$	-	\$	-

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS

	ITEM 113	ITEM 114
	PILE TRANSPORTATION (ALLOWANCE ITEM)	REBAR COUPLERS (ALLOWANCE ITEM)
ENGINEERING ESTIMATE	\$ 200,000.00	\$ 200,000.00
1) MANSON CONSTRUCTION CO.	\$ 200,000.00	\$ 200,000.00
2) VORTEX MARINE CONST., INC.	\$ 200,000.00	\$ 200,000.00
1) AVERAGE BID	\$ 200,000.00	\$ 200,000.00
2) STANDARD DEVIATION	\$ -	\$ -
3) ENG. EST. - LOW BIDDER	\$ -	\$ -

SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS

	ITEM 115		ITEM 116	
	GRADING IN TIDAL ZONE (ALLOWANCE ITEM)		AIR MONITORING STATIONS (ALLOWANCE ITEM)	
ENGINEERING ESTIMATE	\$	500,000.00	\$	200,000.00
1) MANSON CONSTRUCTION CO.	\$	500,000.00	\$	200,000.00
2) VORTEX MARINE CONST., INC.	\$	500,000.00	\$	200,000.00
1) AVERAGE BID	\$	500,000.00	\$	200,000.00
2) STANDARD DEVIATION	\$	-	\$	-
3) ENG. EST. - LOW BIDDER	\$	-	\$	-

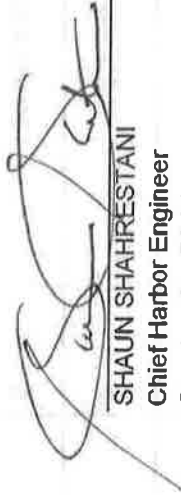
**SPECIFICATION NO. 2771
2016-2018 MARINE IMPROVEMENTS**

	GRAND TOTAL		LOCAL BUSINESS PREFERENCE
	BID ITEMS 1 -116		
ENGINEERING ESTIMATE	\$	33,740,650.00	\$ -
1) MANSON CONSTRUCTION CO.	\$	29,218,930.00	\$ (1,000,000.00)
2) VORTEX MARINE CONST., INC.	\$	29,652,400.00	\$ -
1) AVERAGE BID	\$	29,435,665.00	\$ (500,000.00)
2) STANDARD DEVIATION	\$	306,509.58	\$ 707,106.78
3) ENG. EST. - LOW BIDDER	\$	4,521,720.00	\$ 1,000,000.00

SPECIFICATION NO. 2771
 2016-2018 MARINE IMPROVEMENTS

	REDUCED BID AMOUNT
	GRAND TOTAL SUM LESS LOCAL BUSINESS PREFERENCE
ENGINEERING ESTIMATE	\$ 33,740,650.00
1) MANSON CONSTRUCTION CO.	\$ 28,218,930.00
2) VORTEX MARINE CONST., INC.	\$ 29,652,400.00

1) AVERAGE BID	\$ 28,935,665.00
2) STANDARD DEVIATION	\$ 1,013,616.36
3) ENG. EST. - LOW BIDDER	\$ 5,521,720.00



SHAUN SHAHRESTANI
 Chief Harbor Engineer
 Construction Division