

A large, solid blue geometric shape that resembles a stylized arrow or a large 'L' rotated 90 degrees counter-clockwise. It starts from the left edge of the page and extends towards the right, where it meets the text area.

# **SR-35 Columbia River Crossing - Estimate Report**

May 08, 2018



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# Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
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# Executive Summary

The bridge over the Columbia River on SR-35 connecting the communities of Hood River, Oregon and White Salmon and Bingen, Washington was originally built in 1924. This bridge is functionally obsolete and the structural condition is not deemed adequate for the increased traffic and load. The Port of Hood River, owner of the bridge since 1950, received a \$5-million appropriation from the Oregon legislature in 2017. This continues the regional effort to replace the bridge.

A study was performed in 2011 to identify the best approach and options available for the bridge replacement. Included in the 2011 study was a cost estimate for the proposed bridge replacement.

The Port of Hood River, as part of the NEPA environmental clearance process (Final EIS) and an analysis of financing options, has recently renewed its efforts to implement the bridge replacement and has tasked Mott MacDonald to update the 2011 estimate by performing a pre-preliminary engineering (PE) cost estimate based on the information available from the 2011 Study.

Mott MacDonald developed this estimate using the same item breakdown used in the 2011 study, identifying possible omissions from the original estimate, verifying original assumptions where possible and using current, 2017, construction costs obtained from a number of sources including both the Oregon and Washington DOTs.

The updated bridge cost is estimated at \$253,756,000 in 2020 \$

The full estimate is attached as Appendix C

# 1 Background

Mott MacDonald was tasked with preparing an updated pre-PE estimate for the replacement of the Hood River/White Salmon Interstate Bridge.

A Type-Size-Location (TS&L) study was prepared by WSP, formerly Parsons Brinckerhoff, in October 2011. Mott MacDonald identified a number of assumptions in the original cost estimate, developed in 2011, that needed further analysis and refinement. This report provides an updated pre-PE cost estimate and outlines the background information available, data collection, quantity and estimate assumptions.

## 1.1 Background Information and Data Sources

### 1.1.1 Background Information

The most comprehensive information available was found in the original study report prepared in 2011.

- SR-35 Columbia River Crossing Study – TS&L Final Report (October 2011) prepared by Parsons Brinckerhoff, now WSP, and
- SR-35 Columbia River Crossing Study – TS&L Final Report – Appendix (October 2011) prepared by Parsons Brinckerhoff, now WSP

No additional design or analysis has been performed since this report was published. Mott MacDonald also did not perform any additional design in developing the updated cost estimate.

### 1.1.2 Data Sources

The following resources were used to aid in developing quantity take-offs and associated costs:

- ODOT – Oregon Department of Transportation
  - Standard Details
  - Bridge Design and Drafting Manual (BDDM)
  - Bridge Cost Data – 2016
- WSDOT – Washington State Department of Transportation
  - Bridge and Structures Standard Details
- Caltrans – California Department of Transportation
  - Bridge Design Aids
  - Bridge Design Details
  - Bridge Design Practice
  - Bridge Design Specifications
  - Bridge Memo to Designers
  - Bridge Design Detail Sheets (XS Sheets)
  - Standard Details



## 2 Quantity Reconciliation and Take-Offs

Our approach was, as a first step, to identify and review all the quantities on the bid item list included in the SR-35 Columbia River Crossing Study – TS&L Final Report. The estimate update follows the same layout as in the original 2011 estimate.

Where discernable, all quantities on the original bid item list were recalculated and verified by Mott MacDonald and where information was not indicated on the drawings or included in the report, quantities from the 2011 estimate were used and noted as such within the estimate. Quantity take-off primarily focused on the following big-ticket items where we performed detailed take-offs because of the potential for impacts to the overall cost:

- Drilled and Driven Piles
- Cofferdams/Marine Support
- Structural Concrete
- Reinforcement

Mott MacDonald identified some items not adequately addressed in the in the original cost estimate. Mott MacDonald feels these items contribute additional cost that may not have been previously identified. The cost for these items is included in our updated estimate.

- Cofferdams, previously noted
- Bridge Deck Drainage

Items not explicitly called out on the 2011 estimate and excluded from the Mott MacDonald estimate are:

- Natural gas pipeline, and similar utilities attached to existing bridge
- Bridge deck lighting
- Agency communication systems
- Permanent traffic management and control
- Tolling facilities and systems
- Construction Phase Costs
  - Noise and vibration mitigation for pile driving operations in river
  - Construction phase traffic control

### 2.1 Assumptions

In developing the estimate, a number of assumptions could not be readily derived from the information included in the 2011 estimate. The following list notes some of the assumptions Mott MacDonald made for clarity.

- The current bridge contains lead paint.

- The roadwork improvements on the intersections at each end of the bridge was assumed to be nominal. No redesign and construction costs were included for this work.
- Precast pile caps are impractical for this application, hence the requirement for cofferdams
- With the limited information available, Mott MacDonald recommends, and has used, a 40% contingency for this estimate.
- Existing piers will be removed to river bottom elevation only.
- Coated reinforcement will be used on bridge deck only.

## 3 Cost Estimate

In the review of the previous study and 2011 cost estimate, the major scope items that contribute approximately 85% of the original base cost were identified. These items are:

- Bridge Removal
- Reinforcement
- Cofferdams/Marine Support
- General Structural Concrete
- Post-Tensioning

Mott MacDonald identified these high cost items for further reviewed to assure the costs were adequately allowed for in the 2011 estimate.

### 3.1 Estimating Software

Mott MacDonald used B2W Estimate for the development and preparation of the updated cost estimate. B2W has the capability to develop a bottom-up cost estimate utilizing user provided resource information (equipment types and rates, local labor rates, material costs, etc.) and applies industry production rates to build up costs. With the limited scope and information available from the 2011 Report, the full capabilities of the software could not be utilized.

### 3.2 Unit Price Resources

Our team used first quarter 2018 geographically adjusted unit price data from RS Means. In the cases of more complex items, the rationality of the compiled unit prices was checked by comparing to previous projects. None of the data consider the potential impacts of the recent steel tariffs imposed by the Federal Government. As a result, this estimate has not accounted for the potential impact of future steel prices (new or salvage) that could result from these tariffs.

### 3.3 Cost Summary

Item Description				Total
<b>SUBTOTAL - CONSTRUCTION ITEMS</b>				<b>\$113,903,451</b>
Mobilization			10%	\$11,390,000.00
<b>SUBTOTAL - ALL ITEMS</b>				<b>\$125,293,451</b>
Recommended Contingency (Design and Construction)			40%	\$50,117,000.00
<b>SUBTOTAL - ALL ITEMS + CONTINGENCY</b>				<b>\$175,410,451</b>
Sales Tax ** (assume WA half of project)			7.50%	\$6,578,000
Final Design			15%	\$26,312,000
Engineering Services During Construction			15%	\$26,312,000
<b>TOTAL COST IN 2018 DOLLARS</b>				<b>\$234,612,451</b>
Escalation to:	2020		4%	\$19,144,000
<b>TOTAL COST 2020 DOLLARS</b>				<b>\$253,756,000</b>

Cost information detailed tables are contained in the Appendices

- Appendix A - Bridge Construction Cost Estimate Summary
- Appendix B - Bridge Construction Cost Estimate Details
- Appendix C - Total Project Cost Estimate

## 4 General Notes/Observations

The general concept plans in the TS&L study do not present a structural design that can be considered complete and brought to construction. Mott MacDonald has not performed a structural analysis of the current proposed design. Mott MacDonald reviewed the plans knowing the level of the design effort and understands that further analysis and review will be required by the Port.

While reviewing the TS&L study prepared in October 2011, Mott MacDonald identified the following items that could affect the cost estimate:

- Span Length
- Depth of Proposed Reinforced Concrete Box Girder
- Thickness of Proposed Deck
- Construction Methodology

These items can all contribute to cost variations. In the updated estimate Mott MacDonald used averages for the noted information, recognizing that future design variations can have marked cost impacts. Once a final structural design has been developed, a more detailed and accurate cost can be developed.

The current estimate includes 7% sales tax for the Washington side of the bridge (assumed to be 50%) as a place holder. Note that depending on the final funding sources, this tax expense could vary greatly.

## 5 Conclusion Summary

The approach to developing this updated estimate was to use the best information available. The 2011 Study and TS&L Report offered the most comprehensive information available. We were unable to locate any additional studies and design work after this report was issued.

The cost data was assembled from several sources listed in Section of this report. This information was up to date in the first quarter of 2018, giving an updated cost estimate in 2018 dollars.

In reviewing the cost elements line by line against the 2011 estimate, it is of interest to note that unit prices have not changed much. The largest cost variations are based on either quantity variations or updated assumptions.

Mott MacDonald has reviewed the design and construction contingency and has increased the contingency percentage. Typical contingencies at this early stage of the design range between 40% and 50%. We recommend using at least a 40% design and construction contingency allowance. If an estimate range is desired, this can be increased to 50% which would effectively add \$18 million to the total project cost estimate for a high range estimate of \$271.8 million.

# APPENDIX A

## Bridge Construction Cost Estimate Summary



### Item Price Summary

<b>Project Name:</b> SR-35 Bridge Replacement Project	<b>Customer:</b> Port Of Hood River
<b>Job Number:</b>	<b>Billing Address:</b> 1000 E. Port Marina Drive
<b>Bid As:</b>	Hood River, OR 97031 USA
<b>Estimator:</b>	<b>Phone:</b> (541) 386-1645
<b>Project Address:</b>	<b>Contact:</b>
<b>Completion Date:</b>	

Pay Items						
Description	Job Cost ID	Task JCID	Bid Quantity	UM	Unit Bid Price	Total Bid Price
D 010 - Clearing And Grubbing			1.34	ACRE	\$16,699.60	\$22,377.46
D 020 - Embankment In Place			12,756.00	BCY	\$16.42	\$209,453.52
D 030 - Concrete Inlets			8.00	EACH	\$1,548.22	\$12,385.76
D 040 - Diversion Manholes			2.00	EACH	\$10,000.00	\$20,000.00
D 050 - Return Flow Manholes			2.00	EACH	\$3,000.00	\$6,000.00
D 060 - Vault With Internals			2.00	EACH	\$200,000.00	\$400,000.00
D 070 - Pipe, 12 Inch Diameter			740.00	LF	\$219.07	\$162,111.80
D 080 - Pipe, 15 Inch Diameter - Carried Previous Qty, Assume On Banks From Report			400.00	LF	\$342.30	\$136,920.00
D 090 - Pipe, 18 Inch Diameter			5,085.00	LF	\$492.91	\$2,506,447.35
D 100 - Bridge Removal			92,778.00	SF	\$134.31	\$12,461,013.18
D 100c - Allocated Contingency For Lead Paint Removal			92,778.00	SF	\$107.00	\$9,927,246.00
D 110 - Shoring, Cribbing, And Cofferdams			1.00	LS	\$5,440,360.15	\$5,440,360.15
D 120 - Structure Excavation			303.00	BCY	\$120.00	\$36,360.00
D 130 - Granular Structural Backfill			96.00	BCY	\$65.00	\$6,240.00
D 140 - Furnish Drilling Equipment			1.00	LS	\$50,688.00	\$50,688.00
D 150 - Drilled Shaft Concrete			3,514.00	CY	\$374.10	\$1,314,587.40
D 160 - Drilled Shaft Reinforcement			527,100.00	LB	\$1.45	\$764,295.00
D 170 - CSL Test Access Tubes			7,810.00	LF	\$10.75	\$83,957.50
D 180 - CSL Tests			38.00	EACH	\$2,157.89	\$81,999.82
D 190 - Drilled Shaft Excavation, 72 In Diameter			1,637.00	VF	\$749.79	\$1,227,406.23
D 200 - Drilled Shaft Excavation, 96 In Diameter			1,444.00	VF	\$1,109.17	\$1,601,641.48
D 210 - Furnish Pile Driving Equipment			1.00	LS	\$50,688.00	\$50,688.00
D 220 - Furnish PP 48 X 0.5 Steel Piles			5,532.00	VF	\$351.02	\$1,941,842.64
D 230 - Furnish PP 48 X 0.5 Steel Test Piles			923.00	VF	\$351.02	\$323,991.46
D 240 - Drive PP 48 X 0.5 Steel Piles			5,532.00	VF	\$208.06	\$1,150,987.92
D 250 - Drive Test Piles			923.00	VF	\$208.06	\$192,039.38
D 260 - Pile Load Dynamic			6.00	EACH	\$35,840.00	\$215,040.00
D 270 - PP 48 X 0.5 Steel Pile Splices			112.00	EACH	\$1,151.94	\$129,017.28
D 280 - Reinforcement			7,882,790.00	LB	\$1.47	\$11,587,701.30
D 290 - Coated Reinforcement			1,612,435.00	LB	\$1.59	\$2,563,771.65
D 300 - Foundation Concrete, Class 4000			9,401.00	CY	\$314.23	\$2,954,076.23
D 310 - General Structural Concrete, Class 4000			33,523.00	CY	\$714.96	\$23,967,604.08
D 320 - Reinforced Concrete End Panels			380.00	SY	\$285.63	\$108,539.40



### Item Price Summary

<b>Project Name:</b> SR-35 Bridge Replacement Project	<b>Customer:</b> Port Of Hood River
<b>Job Number:</b>	<b>Billing Address:</b> 1000 E. Port Marina Drive
<b>Bid As:</b>	Hood River, OR 97031 USA
<b>Estimator:</b>	<b>Phone:</b> (541) 386-1645
<b>Project Address:</b>	<b>Contact:</b>
<b>Completion Date:</b>	

Pay Items						
Description	Job Cost ID	Task JCID	Bid Quantity	UM	Unit Bid Price	Total Bid Price
D 330 - Post-Tensioning			2,228,617.00	LB	\$4.41	\$9,828,200.97
D 340 - Bearing Devices, Abutments			2.00	EACH	\$3,388.68	\$6,777.36
D 350 - Bearing Devices, Bent 2 & 14			2.00	EACH	\$2,259.12	\$4,518.24
D 360 - 2 Inch Electrical Conduit			8,800.00	LF	\$18.75	\$165,000.00
D 370 - Modular Expansion Joint Seals			113.00	LF	\$776.92	\$87,791.96
D 380 - Combination Bridge Rail			8,780.00	LF	\$397.83	\$3,492,947.40
D 390 - Handrail, Pedestrian Ornamental			4,390.00	LF	\$319.67	\$1,403,351.30
D 400 - Retaining Walls, MSE			12,835.00	SF	\$55.67	\$714,524.45
D 410 - Marine Support			1.00	LS	\$15,184,848.00	\$15,184,848.00
D 420 - Aggregate Base			1,922.00	TON	\$23.37	\$44,917.14
D 430 - HMAc			4,080.00	TON	\$85.15	\$347,412.00
D 440 - Concrete Walks			62,960.00	SF	\$5.11	\$321,725.60
D 450 - Concrete Sidewalk Ramps			4.00	EACH	\$4,000.00	\$16,000.00
D 460 - Concrete Curbs And Gutter			1,640.00	LF	\$12.14	\$19,909.60
D 470 - Concrete Barrier			8,780.00	LF	\$67.39	\$591,684.20
D 480 - Longitudinal Pavement Markings			17,540.00	LF	\$0.33	\$5,788.20
D 490 - Signage			300.00	SF	\$37.55	\$11,265.00
<b>Pay Items Total:</b>						<b>\$113,903,451.41</b>



# APPENDIX B

## Bridge Construction Cost Estimate Details


















































### Cost Detail

<b>Project Name:</b> SR-35 Bridge Replacement Project	<b>Customer:</b> Port Of Hood River
<b>Job Number:</b>	<b>Billing Address:</b> 1000 E. Port Marina Drive
<b>Bid As:</b>	Hood River, OR 97031 USA
<b>Estimator:</b>	<b>Phone:</b> (541) 386-1645
<b>Project Address:</b>	<b>Contact:</b>
<b>Completion Date:</b>	

### Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost
<b>D 010 - Clearing And Grubbing</b>	<b>1.34</b>	<b>ACRE</b>	<b>\$16,699.60</b>	<b>\$22,377.46</b>
D Clearing And Grubbing	1.34	ACRE	\$16,699.60	\$22,377.46
S C&G North Bank	0.41	ACRE	\$16,699.60	\$6,846.84
S C&G South Bank	0.93	ACRE	\$16,699.60	\$15,530.63
<b>D 020 - Embankment In Place</b>	<b>12,756.00</b>	<b>BCY</b>	<b>\$16.42</b>	<b>\$209,453.52</b>
D Embankment In Place	12,756.00	BCY	\$16.42	\$209,453.52
S Embankment North	7,278.00	BCY	\$16.42	\$119,504.76
S Embankment North	5,478.00	BCY	\$16.42	\$89,948.76
<b>D 030 - Concrete Inlets</b>	<b>8.00</b>	<b>EACH</b>	<b>\$1,548.22</b>	<b>\$12,385.76</b>
S Concrete Inlets - Carried Previous Quantity, Not Indicated On Drawings	8.00	EACH	\$1,548.22	\$12,385.76
<b>D 040 - Diversion Manholes</b>	<b>2.00</b>	<b>EACH</b>	<b>\$10,000.00</b>	<b>\$20,000.00</b>
S Diversion Manholes - Carried Previous Quantity And Cost, Not Indicated On Drawings Or Described.	2.00	EACH	\$10,000.00	\$20,000.00
<b>D 050 - Return Flow Manholes</b>	<b>2.00</b>	<b>EACH</b>	<b>\$3,000.00</b>	<b>\$6,000.00</b>
S Return Flow Manholes - Carried Previous Quantity And Cost, Not Indicated On Drawings Or Described.	2.00	EACH	\$3,000.00	\$6,000.00
<b>D 060 - Vault With Internals</b>	<b>2.00</b>	<b>EACH</b>	<b>\$200,000.00</b>	<b>\$400,000.00</b>
S Vault With Internals - Carried Previous Quantity And Cost, Not Indicated On Drawings Or Described.	2.00	EACH	\$200,000.00	\$400,000.00
<b>D 070 - Pipe, 12 Inch Diameter</b>	<b>740.00</b>	<b>LF</b>	<b>\$219.07</b>	<b>\$162,111.80</b>
D Pipe, 12 Inch Diameter	740.00	LF	\$219.07	\$162,111.80
S Pipe, 12 Inch Diameter - Laterals On Bridge 40ft/bent	600.00	LF	\$219.07	\$131,442.00
S Pipe, 12 Inch Diameter - Carried Previous Qty, Assume On Banks From Report	140.00	LF	\$219.07	\$30,669.80
<b>D 080 - Pipe, 15 Inch Diameter - Carried Previous Qty, Assume On Banks From Report</b>	<b>400.00</b>	<b>LF</b>	<b>\$342.30</b>	<b>\$136,920.00</b>
D Pipe, 15 Inch Diameter	400.00	LF	\$342.30	\$136,920.00
S Pipe, 15 Inch Diameter	400.00	LF	\$342.30	\$136,920.00
<b>D 090 - Pipe, 18 Inch Diameter</b>	<b>5,085.00</b>	<b>LF</b>	<b>\$492.91</b>	<b>\$2,506,447.35</b>
D Pipe, 18 Inch Diameter	5,085.00	LF	\$492.91	\$2,506,447.35
S Pipe, 18 Inch Diameter - Main Drainage Channel Under Bridge, Assume Full Length	4,385.00	LF	\$492.91	\$2,161,410.35

Description		Quantity	UM	Unit Direct Cost	Total Direct Cost
<b>(Item 090 - Pipe, 18 Inch Diameter continued)</b>					
	Pipe, 18 Inch Diameter - Carried Previous Qty, Assume On Banks From Report	700.00	LF	\$492.91	\$345,037.00
	<b>100 - Bridge Removal</b>	<b>92,778.00</b>	<b>SF</b>	<b>\$79.91</b>	<b>\$7,413,843.18</b>
	Bridge Removal - Assume Steel Is Salvaged, Net Zero After Other Disposal Costs	92,778.00	SF	\$79.91	\$7,413,843.18
	Bridge Demo Crew (300.00 SF/DY, 309.26 DY)	92,778.00	SF	\$78.83	\$7,313,843.18
	CRANE TRK HYD - 100 TON- 167' BOOM	6,185.20	HR	\$181.41	\$1,122,057.13
	WELDER E 60 AMP PLASMA CUTTER [5]	6,185.20	HR	\$1.09	\$33,709.34
	Crane Operator	6,185.20	HR	\$57.17	\$353,582.41
	Flagger [2]	6,185.20	HR	\$45.47	\$562,513.24
	Laborer - Foreman	6,185.20	HR	\$54.23	\$335,404.27
	Laborer - General [2]	6,185.20	HR	\$50.25	\$621,611.53
	Iron Worker - Foreman	6,185.20	HR	\$59.20	\$366,191.07
	Iron Worker - Journeyman [5]	6,185.20	HR	\$56.04	\$1,733,102.83
	Toplander	6,185.20	HR	\$51.20	\$316,684.65
	Bottomlander	6,185.20	HR	\$51.20	\$316,684.65
	Toplander	6,185.20	HR	\$51.20	\$316,684.65
	4X2 1 TON CONV GAS [7]	6,185.20	HR	\$2.30	\$99,581.72
	AIR HOSE 4.00" 100ft	6,185.20	HR	\$7.81	\$48,306.41
	AIR COMP 1300 CFM	6,185.20	HR	\$61.13	\$378,101.28
	HAMMERS- HYDRAULIC- 8000 FT-LBS	6,185.20	HR	\$39.98	\$247,284.30
	EXCAVATOR CAT 336FL - 3.15 CY	6,185.20	HR	\$63.43	\$392,327.24
	BUCKET- CLAMSHELL- 5.0 CY- HEAVY DUTY/DIGGING	6,185.20	HR	\$11.32	\$70,016.46
	Miscellaneous Material	1.00	EACH	\$100,000.00	\$100,000.00
	<b>100c - Allocated Contingency For Lead Paint Removal</b>	<b>92,778.00</b>	<b>SF</b>	<b>\$107.00</b>	<b>\$9,927,246.00</b>
	Lead Paint Removal - Based On The Cost Of Lead Paint Removal From The SR-99 Aurora Bridge, Less Repainting Cost.	92,778.00	SF	\$107.00	\$9,927,246.00
	<b>110 - Shoring, Cribbing, And Cofferdams</b>	<b>1.00</b>	<b>LS</b>	<b>\$5,440,360.15</b>	<b>\$5,440,360.15</b>
	Shoring, Cribbing, And Cofferdams	1.00	LS	\$5,440,360.15	\$5,440,360.15
	Cofferdam - Bent 02	1.00	LS	\$330,490.69	\$330,490.69
	Cofferdam Bracing	49,200.00	LB	\$0.34	\$16,728.00
	Sheet Pile Install - Marine	9,901.00	SF	\$31.69	\$313,762.69
	Cofferdam - Bent 03	1.00	LS	\$403,025.06	\$403,025.06
	Cofferdam Bracing	60,000.00	LB	\$0.34	\$20,400.00
	Sheet Pile Install - Marine	12,074.00	SF	\$31.69	\$382,625.06
	Cofferdam - Bent 04	1.00	LS	\$403,025.06	\$403,025.06
	Cofferdam Bracing	60,000.00	LB	\$0.34	\$20,400.00
	Sheet Pile Install - Marine	12,074.00	SF	\$31.69	\$382,625.06
	Cofferdam - Bent 05	1.00	LS	\$612,582.88	\$612,582.88
	Cofferdam Bracing	91,200.00	LB	\$0.34	\$31,008.00
	Sheet Pile Install - Marine	18,352.00	SF	\$31.69	\$581,574.88
	Cofferdam - Bent 06	1.00	LS	\$612,582.88	\$612,582.88
	Cofferdam Bracing	91,200.00	LB	\$0.34	\$31,008.00
	Sheet Pile Install - Marine	18,352.00	SF	\$31.69	\$581,574.88
	Cofferdam - Bent 07	1.00	LS	\$612,582.88	\$612,582.88
	Cofferdam Bracing	91,200.00	LB	\$0.34	\$31,008.00
	Sheet Pile Install - Marine	18,352.00	SF	\$31.69	\$581,574.88
	Cofferdam - Bent 08	1.00	LS	\$681,429.23	\$681,429.23
	Cofferdam Bracing	115,200.00	LB	\$0.34	\$39,168.00
	Sheet Pile Install - Marine	20,267.00	SF	\$31.69	\$642,261.23

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost
<b>(Item 110 - Shoring, Cribbing, And Cofferdams continued)</b>				
<b>D</b> Cofferdam - Bent 09	1.00	LS	\$681,429.23	\$681,429.23
<b>S</b> Cofferdam Bracing	115,200.00	LB	\$0.34	\$39,168.00
<b>S</b> Sheet Pile Install - Marine	20,267.00	SF	\$31.69	\$642,261.23
<b>D</b> Cofferdam - Bent 10	1.00	LS	\$403,025.06	\$403,025.06
<b>S</b> Cofferdam Bracing	60,000.00	LB	\$0.34	\$20,400.00
<b>S</b> Sheet Pile Install - Marine	12,074.00	SF	\$31.69	\$382,625.06
<b>D</b> Cofferdam - Bent 11	1.00	LS	\$339,645.06	\$339,645.06
<b>S</b> Cofferdam Bracing	60,000.00	LB	\$0.34	\$20,400.00
<b>S</b> Sheet Pile Install - Marine	10,074.00	SF	\$31.69	\$319,245.06
<b>D</b> Cofferdam - Bent 12	1.00	LS	\$180,271.06	\$180,271.06
<b>S</b> Cofferdam Bracing	20,000.00	LB	\$0.34	\$6,800.00
<b>S</b> Sheet Pile Install - Marine	5,474.00	SF	\$31.69	\$173,471.06
<b>D</b> Cofferdam - Bent 13	1.00	LS	\$180,271.06	\$180,271.06
<b>S</b> Cofferdam Bracing	20,000.00	LB	\$0.34	\$6,800.00
<b>S</b> Sheet Pile Install - Marine	5,474.00	SF	\$31.69	\$173,471.06
<b>D 120 - Structure Excavation</b>	<b>303.00</b>	<b>BCY</b>	<b>\$120.00</b>	<b>\$36,360.00</b>
<b>S</b> Structure Excavation - Undeterminable From Drawings Carrying Previous Quantities And Cost	303.00	BCY	\$120.00	\$36,360.00
<b>D 130 - Granular Structural Backfill</b>	<b>96.00</b>	<b>BCY</b>	<b>\$65.00</b>	<b>\$6,240.00</b>
<b>S</b> Granular Structural Backfill - Undeterminable From Drawings Carrying Previous Quantities And Cost	96.00	BCY	\$65.00	\$6,240.00
<b>D 140 - Furnish Drilling Equipment</b>	<b>1.00</b>	<b>LS</b>	<b>\$50,688.00</b>	<b>\$50,688.00</b>
<b>D</b> Furnish Drilling Equipment	1.00	EACH	\$50,688.00	\$50,688.00
<b>S</b> Mobilize Drill Rig	1.00	EACH	\$50,688.00	\$50,688.00
<b>D 150 - Drilled Shaft Concrete</b>	<b>3,514.00</b>	<b>CY</b>	<b>\$374.10</b>	<b>\$1,314,587.40</b>
<b>D</b> Drilled Shaft Concrete	3,514.00	CY	\$374.10	\$1,314,587.40
<b>S</b> Bent 02 Drilled Shaft Concrete	112.00	CY	\$374.10	\$41,899.20
<b>S</b> Bent 03 Drilled Shaft Concrete	345.00	CY	\$374.10	\$129,064.50
<b>S</b> Bent 04 Drilled Shaft Concrete	362.00	CY	\$374.10	\$135,424.20
<b>S</b> Bent 08 Drilled Shaft Concrete	898.00	CY	\$374.10	\$335,941.80
<b>S</b> Bent 09 Drilled Shaft Concrete	898.00	CY	\$374.10	\$335,941.80
<b>S</b> Bent 10 Drilled Shaft Concrete	253.00	CY	\$374.10	\$94,647.30
<b>S</b> Bent 11 Drilled Shaft Concrete	295.00	CY	\$374.10	\$110,359.50
<b>S</b> Bent 12 Drilled Shaft Concrete	203.00	CY	\$374.10	\$75,942.30
<b>S</b> Bent 13 Drilled Shaft Concrete	148.00	CY	\$374.10	\$55,366.80
<b>D 160 - Drilled Shaft Reinforcement</b>	<b>527,100.00</b>	<b>LB</b>	<b>\$1.45</b>	<b>\$764,295.00</b>
<b>D</b> Drilled Shaft Reinforcement	527,100.00	LB	\$1.45	\$764,295.00
<b>S</b> Bent 02 Drilled Shaft Reinforcing	16,800.00	LB	\$1.45	\$24,360.00
<b>S</b> Bent 03 Drilled Shaft Reinforcing	51,750.00	LB	\$1.45	\$75,037.50
<b>S</b> Bent 04 Drilled Shaft Reinforcing	54,300.00	LB	\$1.45	\$78,735.00
<b>S</b> Bent 08 Drilled Shaft Reinforcing	134,700.00	LB	\$1.45	\$195,315.00
<b>S</b> Bent 09 Drilled Shaft Reinforcing	134,700.00	LB	\$1.45	\$195,315.00
<b>S</b> Bent 10 Drilled Shaft Reinforcing	37,950.00	LB	\$1.45	\$55,027.50
<b>S</b> Bent 11 Drilled Shaft Reinforcing	44,250.00	LB	\$1.45	\$64,162.50
<b>S</b> Bent 12 Drilled Shaft Reinforcing	30,450.00	LB	\$1.45	\$44,152.50
<b>S</b> Bent 13 Drilled Shaft Reinforcing	22,200.00	LB	\$1.45	\$32,190.00
<b>D 170 - CSL Test Access Tubes</b>	<b>7,810.00</b>	<b>LF</b>	<b>\$10.75</b>	<b>\$83,957.50</b>
<b>D</b> CSL Test Access Tubes	7,810.00	LF	\$10.75	\$83,957.50
<b>S</b> Bent 02 CSL Tubes	320.00	LF	\$10.75	\$3,440.00

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost
<b>(Item 170 - CSL Test Access Tubes continued)</b>				
<b>S</b> Bent 03 CSL Tubes	988.00	LF	\$10.75	\$10,621.00
<b>S</b> Bent 04 CSL Tubes	1,036.00	LF	\$10.75	\$11,137.00
<b>S</b> Bent 08 CSL Tubes	1,447.00	LF	\$10.75	\$15,555.25
<b>S</b> Bent 09 CSL Tubes	1,447.00	LF	\$10.75	\$15,555.25
<b>S</b> Bent 10 CSL Tubes	724.00	LF	\$10.75	\$7,783.00
<b>S</b> Bent 11 CSL Tubes	844.00	LF	\$10.75	\$9,073.00
<b>S</b> Bent 12 CSL Tubes	580.00	LF	\$10.75	\$6,235.00
<b>S</b> Bent 13 CSL Tubes	424.00	LF	\$10.75	\$4,558.00
<b>D 180 - CSL Tests</b>	<b>38.00</b>	<b>EACH</b>	<b>\$2,157.89</b>	<b>\$82,000.00</b>
<b>D</b> CSL Tests	38.00	EACH	\$2,157.89	\$82,000.00
<b>S</b> Bent 02 CSL Testing	2.00	EACH	\$2,000.00	\$4,000.00
<b>S</b> Bent 03 CSL Testing	4.00	EACH	\$2,000.00	\$8,000.00
<b>S</b> Bent 04 CSL Testing	4.00	EACH	\$2,000.00	\$8,000.00
<b>S</b> Bent 08 CSL Testing	6.00	EACH	\$2,500.00	\$15,000.00
<b>S</b> Bent 09 CSL Testing	6.00	EACH	\$2,500.00	\$15,000.00
<b>S</b> Bent 10 CSL Testing	4.00	EACH	\$2,000.00	\$8,000.00
<b>S</b> Bent 11 CSL Testing	4.00	EACH	\$2,000.00	\$8,000.00
<b>S</b> Bent 12 CSL Testing	4.00	EACH	\$2,000.00	\$8,000.00
<b>S</b> Bent 13 CSL Testing	4.00	EACH	\$2,000.00	\$8,000.00
<b>D 190 - Drilled Shaft Excavation, 72 In Diameter</b>	<b>1,637.00</b>	<b>VF</b>	<b>\$749.79</b>	<b>\$1,227,406.23</b>
<b>D</b> Drilled Shaft Excavation, 72 In Diameter	1,637.00	VF	\$749.79	\$1,227,406.23
<b>D</b> Bent 02 Drilled Shafts	107.00	VF	\$749.79	\$80,227.53
<b>S</b> 6ft Dia Drilled Shafts	107.00	VF	\$749.79	\$80,227.53
<b>D</b> Bent 03 Drilled Shafts	329.00	VF	\$749.79	\$246,680.91
<b>S</b> 6ft Dia Drilled Shafts	329.00	VF	\$749.79	\$246,680.91
<b>D</b> Bent 04 Drilled Shafts	345.00	VF	\$749.79	\$258,677.55
<b>S</b> 6ft Dia Drilled Shafts	345.00	VF	\$749.79	\$258,677.55
<b>D</b> Bent 10 Drilled Shafts	241.00	VF	\$749.79	\$180,699.39
<b>S</b> 6ft Dia Drilled Shafts	241.00	VF	\$749.79	\$180,699.39
<b>D</b> Bent 11 Drilled Shafts	281.00	VF	\$749.79	\$210,690.99
<b>S</b> 6ft Dia Drilled Shafts	281.00	VF	\$749.79	\$210,690.99
<b>D</b> Bent 12 Drilled Shafts	193.00	VF	\$749.79	\$144,709.47
<b>S</b> 6ft Dia Drilled Shafts	193.00	VF	\$749.79	\$144,709.47
<b>D</b> Bent 13 Drilled Shafts	141.00	VF	\$749.79	\$105,720.39
<b>S</b> 6ft Dia Drilled Shafts	141.00	VF	\$749.79	\$105,720.39
<b>D 200 - Drilled Shaft Excavation, 96 In Diameter</b>	<b>1,444.00</b>	<b>VF</b>	<b>\$1,109.17</b>	<b>\$1,601,641.48</b>
<b>D</b> Drilled Shaft Excavation, 96 In Diameter	1,444.00	VF	\$1,109.17	\$1,601,641.48
<b>D</b> Bent 08 Drilled Shafts	902.00	VF	\$1,109.17	\$1,000,471.34
<b>S</b> 8ft Dia Drilled Shafts	902.00	VF	\$1,109.17	\$1,000,471.34
<b>D</b> Bent 09 Drilled Shafts	542.00	VF	\$1,109.17	\$601,170.14
<b>S</b> 8ft Dia Drilled Shafts	542.00	VF	\$1,109.17	\$601,170.14
<b>D 210 - Furnish Pile Driving Equipment</b>	<b>1.00</b>	<b>LS</b>	<b>\$50,688.00</b>	<b>\$50,688.00</b>
<b>D</b> Furnish Pile Driving Equipment	1.00	EACH	\$50,688.00	\$50,688.00
<b>S</b> Mobilize Pile Driving Rig	1.00	EACH	\$50,688.00	\$50,688.00
<b>D 220 - Furnish PP 48 X 0.5 Steel Piles</b>	<b>5,532.00</b>	<b>VF</b>	<b>\$351.02</b>	<b>\$1,941,842.64</b>
<b>D</b> Furnish PP 48 X 0.5 Steel Piles	5,532.00	VF	\$351.02	\$1,941,842.64
<b>S</b> Bent 05 Furnish 4ft Dia. Steel Pipe Piles	1,384.00	VF	\$351.02	\$485,811.68
<b>S</b> Bent 06 Furnish 4ft Dia. Steel Pipe Piles	2,092.00	VF	\$351.02	\$734,333.84
<b>S</b> Bent 07 Furnish 4ft Dia. Steel Pipe Piles	2,056.00	VF	\$351.02	\$721,697.12



Description		Quantity	UM	Unit Direct Cost	Total Direct Cost
<b>D</b>	<b>230 - Furnish PP 48 X 0.5 Steel Test Piles</b>	<b>923.00</b>	<b>VF</b>	<b>\$351.02</b>	<b>\$323,991.46</b>
<b>D</b>	Furnish PP 48 X 0.5 Steel Test Piles	923.00	VF	\$351.02	\$323,991.46
<b>S</b>	Bent 05 Furnish 4ft Dia. Steel Pipe Piles	231.00	VF	\$351.02	\$81,085.62
<b>S</b>	Bent 06 Furnish 4ft Dia. Steel Pipe Piles	349.00	VF	\$351.02	\$122,505.98
<b>S</b>	Bent 07 Furnish 4ft Dia. Steel Pipe Piles	343.00	VF	\$351.02	\$120,399.86
<b>D</b>	<b>240 - Drive PP 48 X 0.5 Steel Piles</b>	<b>5,532.00</b>	<b>VF</b>	<b>\$208.06</b>	<b>\$1,150,987.92</b>
<b>D</b>	Drive PP 48 X 0.5 Steel Piles	5,532.00	VF	\$208.06	\$1,150,987.92
<b>S</b>	Bent 05 Drive Piles	1,384.00	VF	\$208.06	\$287,955.04
<b>S</b>	Bent 06 Drive Piles	2,092.00	VF	\$208.06	\$435,261.52
<b>S</b>	Bent 07 Drive Piles	2,056.00	VF	\$208.06	\$427,771.36
<b>D</b>	<b>250 - Drive Test Piles</b>	<b>923.00</b>	<b>VF</b>	<b>\$208.06</b>	<b>\$192,039.38</b>
<b>D</b>	Drive Test Piles	923.00	VF	\$208.06	\$192,039.38
<b>S</b>	Bent 05 Drive Test Piles	231.00	VF	\$208.06	\$48,061.86
<b>S</b>	Bent 06 Drive Test Piles	349.00	VF	\$208.06	\$72,612.94
<b>S</b>	Bent 07 Drive Test Piles	343.00	VF	\$208.06	\$71,364.58
<b>D</b>	<b>260 - Pile Load Dynamic</b>	<b>6.00</b>	<b>EACH</b>	<b>\$35,840.00</b>	<b>\$215,040.00</b>
<b>D</b>	Pile Load Dynamic	6.00	EACH	\$35,840.00	\$215,040.00
<b>S</b>	Pile Test 50 Ton Cap.	0.00	EACH	\$15,872.00	\$0.00
<b>S</b>	Pile Test 100 Ton Cap.	0.00	EACH	\$22,528.00	\$0.00
<b>S</b>	Pile Test 150 Ton Cap.	0.00	EACH	\$29,184.00	\$0.00
<b>S</b>	Pile Test 200 Ton Cap.	0.00	EACH	\$31,744.00	\$0.00
<b>S</b>	Pile Test 400 Ton Cap.	6.00	EACH	\$35,840.00	\$215,040.00
<b>D</b>	<b>270 - PP 48 X 0.5 Steel Pile Splices</b>	<b>112.00</b>	<b>EACH</b>	<b>\$1,151.94</b>	<b>\$129,017.28</b>
<b>D</b>	PP 48 X 0.5 Steel Pile Splices	112.00	EACH	\$1,151.94	\$129,017.28
<b>S</b>	Bent 05 Pile Splices	24.00	EACH	\$1,151.94	\$27,646.56
<b>S</b>	Bent 05 Test Splices	4.00	EACH	\$1,151.94	\$4,607.76
<b>S</b>	Bent 06 Pile Splices	36.00	EACH	\$1,151.94	\$41,469.84
<b>S</b>	Bent 06 Test Pile Splices	6.00	EACH	\$1,151.94	\$6,911.64
<b>S</b>	Bent 07 Pile Splices	36.00	EACH	\$1,151.94	\$41,469.84
<b>S</b>	Bent 07 Test Pile Splices	6.00	EACH	\$1,151.94	\$6,911.64
<b>D</b>	<b>280 - Reinforcement</b>	<b>7,882,790.00</b>	<b>LB</b>	<b>\$1.47</b>	<b>\$11,587,701.30</b>
<b>S</b>	Reinforcement	7,882,790.00	LB	\$1.47	\$11,587,701.30
<b>D</b>	<b>290 - Coated Reinforcement</b>	<b>1,612,435.00</b>	<b>LB</b>	<b>\$1.59</b>	<b>\$2,563,771.65</b>
<b>S</b>	Coated Reinforcement	1,612,435.00	LB	\$1.59	\$2,563,771.65
<b>D</b>	<b>300 - Foundation Concrete, Class 4000</b>	<b>9,401.00</b>	<b>CY</b>	<b>\$314.23</b>	<b>\$2,954,097.26</b>
<b>D</b>	Foundation Concrete, Class 4000	9,401.00	CY	\$314.23	\$2,954,097.26
<b>S</b>	Abutment Concrete	135.00	CY	\$374.10	\$50,503.50
<b>S</b>	Pile Cap Concrete	9,266.00	CY	\$313.36	\$2,903,593.76
<b>D</b>	<b>310 - General Structural Concrete, Class 4000</b>	<b>33,523.00</b>	<b>CY</b>	<b>\$714.96</b>	<b>\$23,967,605.75</b>
<b>D</b>	General Structural Concrete, Class 4000	33,523.00	CY	\$714.96	\$23,967,605.75
<b>S</b>	Box Girder Concrete	23,340.00	CY	\$771.71	\$18,011,711.40
<b>S</b>	Bents	6,708.00	CY	\$591.95	\$3,970,800.60
<b>S</b>	Miscellaneous Concrete	3,475.00	CY	\$571.25	\$1,985,093.75
<b>D</b>	<b>320 - Reinforced Concrete End Panels</b>	<b>380.00</b>	<b>SY</b>	<b>\$285.63</b>	<b>\$108,539.40</b>
<b>D</b>	Reinforced Concrete End Panels	380.00	SY	\$285.63	\$108,539.40
<b>S</b>	End Panels - North Approach - Assume 18" Thick	190.00	SY	\$285.63	\$54,269.70
<b>S</b>	End Panels - South Approach - Assume 18" Thick	190.00	SY	\$285.63	\$54,269.70
<b>D</b>	<b>330 - Post-Tensioning</b>	<b>2,228,617.00</b>	<b>LB</b>	<b>\$4.41</b>	<b>\$9,828,200.97</b>
<b>S</b>	Post-Tensioning - Assuming Grouted, 200-ft Spans	2,228,617.00	LB	\$4.41	\$9,828,200.97

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost
<i>(Item 330 - Post-Tensioning continued)</i>				
<b>D 340 - Bearing Devices, Abutments</b>	<b>2.00</b>	<b>EACH</b>	<b>\$3,388.68</b>	<b>\$6,777.36</b>
D Bearing Devices, Abutments	2.00	EACH	\$3,388.68	\$6,777.36
S Bearing Pad - North Abutment	36.00	SF	\$94.13	\$3,388.68
S Bearing Pad - South Abutment	36.00	SF	\$94.13	\$3,388.68
<b>D 350 - Bearing Devices, Bent 2 &amp; 14</b>	<b>2.00</b>	<b>EACH</b>	<b>\$2,259.12</b>	<b>\$4,518.24</b>
D Bearing Devices, Bent 2 & 14	2.00	EACH	\$2,259.12	\$4,518.24
S Bearing Pad - Bent 02	24.00	SF	\$94.13	\$2,259.12
S Bearing Pad - Bent 14	24.00	SF	\$94.13	\$2,259.12
<b>D 360 - 2 Inch Electrical Conduit</b>	<b>8,800.00</b>	<b>LF</b>	<b>\$18.75</b>	<b>\$165,000.00</b>
S 2 Inch Electrical Conduit	8,800.00	LF	\$18.75	\$165,000.00
<b>D 370 - Modular Expansion Joint Seals</b>	<b>113.00</b>	<b>LF</b>	<b>\$776.92</b>	<b>\$87,791.96</b>
S Modular Expansion Joint Seals	113.00	UNIT	\$776.92	\$87,791.96
<b>D 380 - Combination Bridge Rail</b>	<b>8,780.00</b>	<b>LF</b>	<b>\$397.83</b>	<b>\$3,492,947.40</b>
S Combination Bridge Rail	8,780.00	LF	\$397.83	\$3,492,947.40
<b>D 390 - Handrail, Pedestrian Ornamental</b>	<b>4,390.00</b>	<b>LF</b>	<b>\$319.67</b>	<b>\$1,403,351.30</b>
S Handrail, Pedestrian Ornamental	4,390.00	LF	\$319.67	\$1,403,351.30
<b>D 400 - Retaining Walls, MSE</b>	<b>12,835.00</b>	<b>SF</b>	<b>\$55.67</b>	<b>\$714,524.45</b>
D Retaining Walls, MSE	12,835.00	SF	\$55.67	\$714,524.45
S MSE-Soutwest	2,663.00	SF	\$55.67	\$148,249.21
S MSE-Souteast	2,625.00	SF	\$55.67	\$146,133.75
S MSE-Northwest	1,870.00	SF	\$55.67	\$104,102.90
S MSE-Northeast	3,465.00	SF	\$55.67	\$192,896.55
S MSE-S Abutment	507.00	SF	\$55.67	\$28,224.69
S MSE-N Abutment	845.00	SF	\$55.67	\$47,041.15
S MSE-South End	410.00	SF	\$55.67	\$22,824.70
S MSE-North End	450.00	SF	\$55.67	\$25,051.50
<b>D 410 - Marine Support</b>	<b>1.00</b>	<b>LS</b>	<b>\$15,184,848.00</b>	<b>\$15,184,848.00</b>
D Marine Support	1.00	LS	\$15,184,848.00	\$15,184,848.00
S Barges - Monthly Rental Assume 16 Each For Approx. 2 Years	384.00	MO	\$12,560.00	\$4,823,040.00
S Small Tug - Daily Charge Assume 2 Small Tugs For Approx. 2 Years 250 Day/year	1,000.00	DY	\$10,240.00	\$10,240,000.00
D Marine Mobilization	1.00	LS	\$121,808.00	\$121,808.00
S Barge Mobe	1,600.00	MILE	\$76.13	\$121,808.00
<b>D 420 - Aggregate Base</b>	<b>1,922.00</b>	<b>TON</b>	<b>\$23.37</b>	<b>\$44,917.14</b>
D Aggregate Base	1,922.00	TON	\$23.37	\$44,917.14
S Aggregate Base - Roadway South	956.00	TON	\$23.37	\$22,341.72
S Aggregate Base - Roadway North	329.00	TON	\$23.37	\$7,688.73
S Aggregate Base - Sidewalk South	474.00	TON	\$23.37	\$11,077.38
S Aggregate Base - Sidewalk North	163.00	TON	\$23.37	\$3,809.31
<b>D 430 - HMAC</b>	<b>4,080.00</b>	<b>TON</b>	<b>\$85.15</b>	<b>\$347,412.00</b>
D HMAC	4,080.00	TON	\$85.15	\$347,412.00
S Roadway South	478.00	TON	\$85.15	\$40,701.70
S Sidewalk South	164.00	TON	\$85.15	\$13,964.60
S Bridge Deck	3,438.00	TON	\$85.15	\$292,745.70
<b>D 440 - Concrete Walks</b>	<b>62,960.00</b>	<b>SF</b>	<b>\$5.11</b>	<b>\$321,725.60</b>
D Concrete Walks	62,960.00	SF	\$5.11	\$321,725.60
S Sidewalk Roadway South	7,320.00	SF	\$5.11	\$37,405.20

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost
<b>(Item 440 - Concrete Walks continued)</b>				
<b>S</b> Sideway Roadway North	2,520.00	SF	\$5.11	\$12,877.20
<b>S</b> Bridge	52,620.00	SF	\$5.11	\$268,888.20
<b>S</b> Bridge Overlook	500.00	SF	\$5.11	\$2,555.00
<b>D</b> <b>450 - Concrete Sidewalk Ramps</b>	<b>4.00</b>	<b>EACH</b>	<b>\$4,000.00</b>	<b>\$16,000.00</b>
<b>S</b> Concrete Sidewalk Ramps - None Identified, Carried Previous Cost And Quantity	4.00	EACH	\$4,000.00	\$16,000.00
<b>D</b> <b>460 - Concrete Curbs And Gutter</b>	<b>1,640.00</b>	<b>LF</b>	<b>\$12.14</b>	<b>\$19,909.60</b>
<b>D</b> Concrete Curbs And Gutter	1,640.00	LF	\$12.14	\$19,909.60
<b>S</b> Curb And Gutter - Roadway South	1,220.00	LF	\$12.14	\$14,810.80
<b>S</b> Curb And Gutter - Sidewalk South	420.00	LF	\$12.14	\$5,098.80
<b>D</b> <b>470 - Concrete Barrier</b>	<b>8,780.00</b>	<b>LF</b>	<b>\$67.39</b>	<b>\$591,684.20</b>
<b>S</b> Concrete Barrier	8,780.00	LF	\$67.39	\$591,684.20
<b>D</b> <b>480 - Longitudinal Pavement Markings</b>	<b>17,540.00</b>	<b>LF</b>	<b>\$0.33</b>	<b>\$5,788.20</b>
<b>S</b> Longitudinal Pavement Markings	17,540.00	LF	\$0.33	\$5,788.20
<b>D</b> <b>490 - Signage</b>	<b>300.00</b>	<b>SF</b>	<b>\$37.55</b>	<b>\$11,265.00</b>
<b>S</b> Signage	300.00	SF	\$37.55	\$11,265.00

**Indirect Items**

Description	Quantity	UM	Unit Indirect Cost	Total Indirect Cost
<b>E</b> <b>Bridge Demo Indirect - Labor</b>	<b>1.00</b>	<b>LS</b>	<b>\$1,230,614.83</b>	<b>\$1,230,614.83</b>
<b>E</b> <b>Bridge Demo Indirect - Equipment</b>	<b>1.00</b>	<b>LS</b>	<b>\$597,845.97</b>	<b>\$597,845.97</b>



<b>Direct Cost Totals</b>		
	Amount	Percent of Direct Cost
<b>Labor:</b>	\$4,922,459.30	4.52%
<b>Equipment Owned:</b>	\$2,391,383.88	2.20%
<b>Equipment Rented:</b>	\$0.00	0.00%
<b>Materials Owned:</b>	\$0.00	0.00%
<b>Materials Purchased:</b>	\$100,000.00	0.09%
<b>Subcontracted:</b>	\$101,442,461.11	93.19%
<b>Trucking Owned:</b>	\$0.00	0.00%
<b>Trucking Hired:</b>	\$0.00	0.00%
<b>Miscellaneous:</b>	\$0.00	0.00%
<b>Plug:</b>	\$0.00	0.00%
<b>Direct Cost:</b>	<u>\$108,856,304.29</u>	

<b>Indirect Cost Totals</b>		
	Amount	Percent of Indirect Cost
<b>Labor:</b>	\$1,230,614.83	67.30%
<b>Equipment Owned:</b>	\$597,845.97	32.70%
<b>Equipment Rented:</b>	\$0.00	0.00%
<b>Materials Owned:</b>	\$0.00	0.00%
<b>Materials Purchased:</b>	\$0.00	0.00%
<b>Subcontracted:</b>	\$0.00	0.00%
<b>Trucking Owned:</b>	\$0.00	0.00%
<b>Trucking Hired:</b>	\$0.00	0.00%
<b>Miscellaneous:</b>	\$0.00	0.00%
<b>Plug:</b>	\$0.00	0.00%
<b>Indirect Cost:</b>	<u>\$1,828,460.80</u>	

<b>Pay Item Summary</b>		
	Amount	Percent of Takeoff Price
<b>Total Direct Cost:</b>	\$108,856,304.29	95.57%
<b>Total DC Adds/Cuts:</b>	\$0.00	0.00%
<b>Total Indirect Cost:</b>	\$1,828,460.80	1.61%
<b>Total Bond:</b>	\$0.00	0.00%
<b>Total Overall Cost:</b>	<u>\$110,684,765.09</u>	97.17%
<b>Total Overhead:</b>	\$1,000,000.00	0.88%
<b>Total Profit:</b>	\$2,218,686.32	1.95%
<b>Total Margin:</b>	<u>\$3,218,686.32</u>	2.83%
<b>Total Takeoff Price:</b>	<u><u>\$113,903,451.41</u></u>	

# APPENDIX C

## Total Project Cost Estimate



**SR35 Columbia River Bridge  
Pre-PE Cost Estimate**

Item Description	Quantity	Unit	Unit Cost	Item Total	Total
Clearing And Grubbing	1	ACRE	\$16,700	\$22,377	
Embankment In Place	12,756	BCY	\$16	\$209,454	
<b>Roadwork</b>					<b>\$231,831</b>
Concrete Inlets	8	EACH	\$1,548	\$12,385.76	
Diversion Manholes	2	EACH	\$10,000	\$20,000.00	
Return Flow Manholes	2	EACH	\$3,000	\$6,000.00	
Vault With Internals	2	EACH	\$200,000	\$400,000.00	
Pipe, 12 Inch Diameter	740	LF	\$219	\$162,111.80	
Pipe, 15 Inch Diameter - Carried Previous Qty, Assume On Banks From Report	400	LF	\$342	\$136,920.00	
Pipe, 18 Inch Diameter	5,085	LF	\$493	\$2,506,447.35	
<b>Drainage And Sewers</b>					<b>\$3,243,865</b>
Bridge Removal	92,778	SF	\$134	\$12,461,013.18	
Allocated Contingency for Lead Paint *	1	LS	\$107	\$9,927,246.00	
Shoring, Cribbing, And Cofferdams	1	LS	\$5,440,360	\$5,440,360.15	
Structure Excavation	303	BCY	\$120	\$36,360.00	
Granular Structural Backfill	96	BCY	\$65	\$6,240.00	
Furnish Drilling Equipment	1	LS	\$50,688	\$50,688.00	
Drilled Shaft Concrete	3,514	CY	\$374	\$1,314,587.40	
Drilled Shaft Reinforcement	527,100	LB	\$1	\$764,295.00	
CSL Test Access Tubes	7,810	LF	\$11	\$83,957.50	
CSL Tests	38	EACH	\$2,158	\$81,999.82	
Drilled Shaft Excavation, 72 In Diameter	1,637	VF	\$750	\$1,227,406.23	
Drilled Shaft Excavation, 96 In Diameter	1,444	VF	\$1,109	\$1,601,641.48	
Furnish Pile Driving Equipment	1	LS	\$50,688	\$50,688.00	
Furnish PP 48 X 0.5 Steel Piles	5,532	VF	\$351	\$1,941,842.64	
Furnish PP 48 X 0.5 Steel Test Piles	923	VF	\$351	\$323,991.46	
Drive PP 48 X 0.5 Steel Piles	5,532	VF	\$208	\$1,150,987.92	
Drive Test Piles	923	VF	\$208	\$192,039.38	
Pile Load Dynamic	6	EACH	\$35,840	\$215,040.00	
PP 48 X 0.5 Steel Pile Splices	112	EACH	\$1,152	\$129,017.28	
Reinforcement	7,882,790	LB	\$1	\$11,587,701.30	
Coated Reinforcement	1,612,435	LB	\$2	\$2,563,771.65	
Foundation Concrete, Class 4000	9,401	CY	\$314	\$2,954,076.23	
General Structural Concrete, Class 4000	33,523	CY	\$715	\$23,967,604.08	
Reinforced Concrete End Panels	380	SY	\$285.63	\$108,539.40	
Post-Tensioning	2,228,617	LB	\$4.41	\$9,828,200.97	
Bearing Devices, Abutments	2	EACH	\$3,388.68	\$6,777.36	
Bearing Devices, Bent 2 & 14	2	EACH	\$2,259.12	\$4,518.24	
2 Inch Electrical Conduit	8,800	LF	\$18.75	\$165,000.00	
Modular Expansion Joint Seals	113	LF	\$776.92	\$87,791.96	
Combination Bridge Rail	8,780	LF	\$397.83	\$3,492,947.40	
Handrail, Pedestrian Ornamental	4,390	LF	\$319.67	\$1,403,351.30	
Retaining Walls, MSE	12,835	SF	\$55.67	\$714,524.45	
Marine Support	1	LS	\$15,184,848.00	\$15,184,848.00	
<b>Bridge</b>					<b>\$109,069,054</b>
Aggregate Base	1,922	TON	\$23.37	\$44,917.14	
<b>Bases</b>					<b>\$44,917</b>



**SR35 Columbia River Bridge  
Pre-PE Cost Estimate**

Item Description	Quantity	Unit	Unit Cost	Item Total	Total
HMAC	4,080	TON	\$85.15	\$347,412.00	
Concrete Walks	62,960	SF	\$5.11	\$321,725.60	
Concrete Sidewalk Ramps	4	EACH	\$4,000.00	\$16,000.00	
Concrete Curbs And Gutter	1,640	LF	\$12.14	\$19,909.60	
<i>Wearing Surfaces</i>					\$705,047
Concrete Barrier	8,780	LF	\$67.39	\$591,684.20	
Longitudinal Pavement Markings	17,540	LF	\$0.33	\$5,788.20	
<i>Permanent Traffic Safety and Guidance Devices</i>					\$597,472
Signage	300	SF	\$37.55	\$11,265.00	
<i>Permanent Traffic Control and Illumination Systems</i>					\$11,265
<i>Right of Way Development and Control</i>					\$0
<i>Future Life Cycle Costs</i>					\$0
<b>SUBTOTAL - CONSTRUCTION ITEMS</b>					<b>\$113,903,451</b>
Mobilization			10%		\$11,390,000.00
<b>SUBTOTAL - ALL ITEMS</b>					<b>\$125,293,451</b>
Recommended Contingency (Design and Construction)			40%		\$50,117,000.00
<b>SUBTOTAL - ALL ITEMS + CONTINGENCY</b>					<b>\$175,410,451</b>
Sales Tax ** (assume WA half of project)			7.50%		\$6,578,000
Final Design			15%		\$26,312,000
Engineering Services During Construction			15%		\$26,312,000
<b>TOTAL COST IN 2018 DOLLARS</b>					<b>\$234,612,451</b>
Escalation to:	2020		4%		\$19,144,000
<b>TOTAL COST 2020 DOLLARS</b>					<b>\$253,756,000</b>

