

PROJECT COST ESTIMATE - UPDATE					
SR-35 COLUMBIA RIVER CROSSING				Port of Hood River	
KEY NUMBER	BRIDGE NAME	BR #	DATE	ROADWAY DESIGNER	
	Hood River Bridge Replacement	--	2/15/2022	WSP/KMC	
ITEM NUMBER	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
TRAFFIC CONTROL					
A1	TRAFFIC CONTROL	LS	1	\$3,300,000.00	\$3,300,000
ROADWORK					
B1	CLEARING AND GRUBBING	ACRE	1.34	\$10,000.00	\$13,400
B2	EMBANKMENT IN PLACE	CUYD	12,756	\$35.00	\$446,460
DRAINAGE AND SEWERS					
C1	CONCRETE INLETS	EACH	8	\$2,100.00	\$16,800
C2	DIVERSION MANHOLES	EACH	2	\$10,000.00	\$20,000
C3	RETURN FLOW MANHOLES	EACH	2	\$3,000.00	\$6,000
C4	VAULT WITH INTERNALS	EACH	2	\$200,000.00	\$400,000
C5	PIPE, 12 INCH DIAMETER	FOOT	740	\$220.00	\$162,800
C6	PIPE, 15 INCH DIAMETER	FOOT	400	\$340.00	\$136,000
C7	PIPE, 18 INCH DIAMETER	FOOT	5,085	\$500.00	\$2,542,500
BRIDGES					
D1	SHORING, CRIBBING AND COFFERDAMS	LS	0	\$0	\$0
D2	STRUCTURE EXCAVATION	CUYD	303	\$75.85	\$22,984
D3	GRANULAR STRUCTURE BACKFILL	CUYD	96	\$113.78	\$10,923
D4	FURNISH DRILLING EQUIPMENT	EACH	1	\$10,205,090.11	\$10,205,090
D5	DRILLED SHAFT CONCRETE	CUYD	4,204	\$581.02	\$2,442,617
D6	DRILLED SHAFT REINFORCEMENT	LBS	527,100	\$2.99	\$1,573,750
D7	CSL TEST ACCESS TUBES	FOOT	20,360	\$9.28	\$189,004
D8	CSL TESTS	EACH	38	\$2,275.65	\$86,475
D9	DRILLED SHAFT EXCAVATION, 72 INCH DIAMETER	FOOT	1,637	\$3,370.05	\$5,516,777
D10	DRILLED SHAFT EXCAVATION, 96 INCH DIAMETER	FOOT	1,444	\$4,456.28	\$6,434,862
D11	FURNISH PILE DRIVING EQUIPMENT	EACH	1	\$1,464,650.05	\$1,464,650
D12	FURNISH PP 48 X 0.5 STEEL PILES	FOOT	11,610	\$482.76	\$5,604,890
D13	FURNISH PP 48 X 0.5 STEEL TEST PILES	FOOT	923	\$433.84	\$400,437
D14	DRIVE PP 48 X 0.5 STEEL PILES	FOOT	11,610	\$156.83	\$1,820,775
D15	DRIVE TEST PILES	FOOT	923	\$147.00	\$135,683
D16	PILE LOAD TEST (DYNAMIC)	EACH	6	\$22,756.50	\$136,539
D17	PP 48 X 0.5 STEEL PILE SPLICES	EACH	204	\$8,812.25	\$1,797,698
D18	REINFORCEMENT	LBS	7,882,790	\$2.16	\$17,004,270
D19	COATED REINFORCEMENT	LBS	1,612,435	\$2.54	\$4,089,759
D20	FOUNDATION CONCRETE, CLASS 4000	CUYD	10,027	\$1,669.33	\$16,738,395
D21	GENERAL STRUCTURAL CONCRETE, CLASS 4000	CUYD	34,479	\$1,733.11	\$59,755,909

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D22	REINFORCED CONCRETE END PANELS	SQYD	380	\$273.08	\$103,770		
D23	POST-TENSIONING	LBS	2,228,617	\$6.07	\$13,524,137		
D24	BEARING DEVICES, ABUTMENTS	EACH	2	\$12,895.35	\$25,791		
D25	BEARING DEVICES, BENT 2 & 14	EACH	2	\$21,239.40	\$42,479		
D26	2 INCH ELECTRICAL CONDUIT	FOOT	8,800	\$45.51	\$400,514		
D27	MODULAR EXPANSION JOINT SEALS	FOOT	113	\$485.47	\$54,858		
D28	COMBINATION BRIDGE RAIL	FOOT	8,780	\$204.81	\$1,798,218		
D29	HANDRAIL PEDESTRIAN ORNAMENTAL	FOOT	4,390	\$295.83	\$1,298,713		
D30	WORK BRIDGE, ALL ACCESS	LS	1	\$21,290,952.43	\$21,290,952		
D31	MARINE SUPPORT	LS	1	\$3,044,418.60	\$3,044,419		
D32	SHORESIDE EQUIPMENT SUPPORT FOR BRIDGE CONST.	LS	1	\$14,095,449.29	\$14,095,449		
BRIDGE DEMOLITION							
E1	BRIDGE REMOVAL	SQFT	92,778	\$81.44	\$7,555,656		
E2	RIPRAP REMOVAL	CUYD	13,478	\$169.40	\$2,283,109		
E3	SHORING, CRIBBING AND COFFERDAMS	LS	1	\$9,121,680.68	\$9,121,681		
E4	ALLOCATED CONTINGENCY FOR LEAD PAINT REMOVAL	SQFT	92,778	\$0	\$0		
E5	WORK BRIDGE	LS	1	\$0	\$0		
E6	BRIDGE FOUNDATION REMOVAL	LS	1	\$15,389,046	\$15,389,046		
E7	MARINE SUPPORT	LS	1	\$0	\$0		
RETAINING WALLS							
F1	NOISE WALL (PED)	SF	30,000	\$160.00	\$4,800,000		
F2	RETAINING WALLS, MSE	SF	12,835	\$80.00	\$1,026,800		
F3	RETAINING WALL - SOLDIER PILE (WASHINGTON SIDE)	SF	10,500	\$150.00	\$1,575,000		
BASES							
G1	AGGREGATE BASE	TON	1,922	\$35.00	\$67,270		
WEARING SURFACES							
H1	HMAC	TON	4,080	\$90.00	\$367,200		
H2	CONCRETE WALKS	SQFT	62,960	\$12.00	\$755,520		
H3	CONCRETE SIDEWALK RAMPS	EACH	4	\$4,000.00	\$16,000		
H4	CONCRETE CURBS, CURB AND GUTTER	FOOT	1,640	\$45.00	\$73,800		
PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES							
J1	CONCRETE BARRIER	FOOT	8,780	\$33.00	\$289,740		
J2	LONGITUDINAL PAVEMENT MARKINGS	FOOT	17,540	\$0.35	\$6,139		
PERMANENT SIGNALS AND ILLUMINATION SYSTEMS							
K1	SIGNAGE	SQFT	300	\$175.00	\$52,500		

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ITEM NUMBER	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
K2	TRAFFIC SIGNALS	LS	1	\$800,000	\$800,000
K3	ILLUMINATION SYSTEM	LS	1	\$1,200,000	\$1,200,000
UTILITIES					
L1	UTILITY RELOCATION	LS	1	\$1,500,000	\$1,500,000
L2	BRIDGE HANGER SYSTEM	LS	1	\$600,000	\$600,000
L3	BRIDGE LIGHTING	LS	1	\$2,600,000	\$2,600,000
L4	RENEWABLE POWER GENERATION	LS	1	\$500,000	\$500,000
L5	TOLLING SYSTEM	LS	1	\$0	\$0
RIGHT-OF-WAY DEVELOPMENT AND CONTROL					
M1	ROW	LS	1	\$0.00	\$0
M2	BNSF Permits and Flagging	LS	1	\$0.00	\$0
MITIGATION COSTS					
N1		LS	1	\$500,000.00	\$500,000
AESTHETICS COSTS					
P1	Bridge Aesthetics	LS	1	\$5,000,000.00	\$5,000,000
SUBTOTAL, Construction Items					\$254,234,207
	MOBILIZATION (Included in Bid Items)	LS	1	0%	\$0
SUBTOTAL, All Items					\$254,234,207
	CONTINGENCIES (Design & Construction)	LS	1	30%	\$76,271,000
SUBTOTAL, All Items + Contingencies					\$330,505,207
	SALES TAX, 7.5% - WA only (PCE assumes all materials purchased in WA)	LS	0.0	7.50%	\$0
	DESIGN ENGINEERING	LS	1	6%	\$19,831,000
	POST-DESIGN ENGINEERING (CSS)	LS	1	2%	\$6,611,000
TOTAL COST	2021\$				\$356,947,207
	ESCALATION (To mid-year of construction - see escalation tab)	YR	7	4.0%	\$97,215,944
TOTAL COST	Mid-year Construction				\$454,163,151
	PROGRAMMATIC COSTS				\$44,343,178
PROJECT COSTS					\$498,506,330

WSP - POHR Project PCE Escalation Analysis

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Self Perform Craft Labor	Period											Total Labor/Esc Cost
	1	2	3	4	5	6	7	8	9	10	11	
Period	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	
Fiscal Year	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	
Total Self Perform Craft Dollars Remaining	\$ 31,468,973	\$ 32,727,732	\$ 34,036,841	\$ 35,398,315	\$ 36,814,247	\$ 38,286,817	\$ 36,918,223	\$ 22,209,356	\$ 16,126,117	\$ 15,633,728	\$ 12,931,892	
Total Self Perform Craft Months	0	0	0	0	0	187.4	1045.9	450.5	73.5	215	61.2	
Average Cost per Craft Month	\$ 15,475.28	\$ 15,475.28	\$ 15,475.28	\$ 15,475.28	\$ 15,475.28	\$ 15,475.28	\$ 15,475.28	\$ 15,475.28	\$ 15,475.28	\$ 15,475.28	\$ 15,475.28	
Minus Labor Cost Previous Year	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,900,067	\$ 16,185,595	\$ 6,971,614	\$ 1,137,433	\$ 3,327,185	\$ 947,078	\$ 31,468,973
Escalation %	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	0%	
Total escalation cost this period	\$ 1,258,759	\$ 1,309,109	\$ 1,361,474	\$ 1,415,933	\$ 1,472,570	\$ 1,531,473	\$ 1,476,729	\$ 888,374	\$ 645,045	\$ 625,349	\$ -	\$ 11,984,814
Total Self Perform Craft \$ Plus esc	\$ 32,727,732	\$ 34,036,841	\$ 35,398,315	\$ 36,814,247	\$ 38,286,817	\$ 39,818,290	\$ 38,394,951	\$ 23,097,730	\$ 16,771,161	\$ 16,259,077	\$ 11,984,814	

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Overhead Staff Labor	Period											Total Labor/Esc Cost
	1	2	3	4	5	6	7	8	9	10	11	
Period	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	
Fiscal Year	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	
Total Overhead Staff Dollars Remaining	\$ 12,684,530	\$ 13,191,911	\$ 13,719,588	\$ 14,268,371	\$ 14,839,106	\$ 15,432,670	\$ 13,033,632	\$ 10,157,620	\$ 8,023,845	\$ 6,614,369	\$ 5,735,908	
Total Overhead Staff Months	0	0	0	0	0	190	214	160	109	72	54	
Average Cost per Overhead Staff Month	\$ 15,875.50	\$ 15,875.50	\$ 15,875.50	\$ 15,875.50	\$ 15,875.50	\$ 15,875.50	\$ 15,875.50	\$ 15,875.50	\$ 15,875.50	\$ 15,875.50	\$ 15,875.50	
Minus Overhead Staff Cost Previous Year	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,016,345	\$ 3,397,357	\$ 2,540,080	\$ 1,730,430	\$ 1,143,036	\$ 857,283	\$ 12,684,530
Escalation %	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	0%	
Total escalation cost this period	\$ 507,381	\$ 527,676	\$ 548,784	\$ 570,735	\$ 593,564	\$ 617,307	\$ 521,345	\$ 406,305	\$ 320,954	\$ 264,575	\$ -	\$ 4,878,626
Total Overhead Staff \$ Plus esc	\$ 13,191,911	\$ 13,719,588	\$ 14,268,371	\$ 14,839,106	\$ 15,432,670	\$ 16,049,977	\$ 13,554,977	\$ 10,563,925	\$ 8,344,799	\$ 6,878,944	\$ 4,878,626	

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Subcontractors Craft Labor	Period											Total Labor/Esc Cost
	1	2	3	4	5	6	7	8	9	10	11	
Period	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	
Fiscal Year	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	
Total Subcontr Craft Dollars Remaining	\$ 26,746,575	\$ 27,816,438	\$ 28,929,096	\$ 30,086,259	\$ 31,289,710	\$ 32,541,298	\$ 31,648,777	\$ 23,586,209	\$ 15,858,075	\$ 12,156,608	\$ 11,355,273	
Total Subcontractors Craft Months	0	0	0	0	0	167	710	660	330	98	70.7	
Average Cost per Craft Month	\$ 13,138.76	\$ 13,138.76	\$ 13,138.76	\$ 13,138.76	\$ 13,138.76	\$ 13,138.76	\$ 13,138.76	\$ 13,138.76	\$ 13,138.76	\$ 13,138.76	\$ 13,138.76	
Minus Labor Cost Previous Year	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,194,173	\$ 9,328,520	\$ 8,671,582	\$ 4,335,791	\$ 1,287,598	\$ 928,912	\$ 26,746,575
Escalation %	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	0%	
Total escalation cost this period	\$ 1,069,863	\$ 1,112,658	\$ 1,157,164	\$ 1,203,450	\$ 1,251,588	\$ 1,301,652	\$ 1,265,951	\$ 943,448	\$ 634,323	\$ 486,264	\$ -	\$ 10,426,362
Total Subcontractors Craft \$ Plus esc	\$ 27,816,438	\$ 28,929,096	\$ 30,086,259	\$ 31,289,710	\$ 32,541,298	\$ 33,842,950	\$ 32,914,728	\$ 24,529,657	\$ 16,492,398	\$ 12,642,872	\$ 10,426,362	

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Subcontractors PM,STS & Equip	Period											Total SUB PM,STS & Equip Cost
	1	2	3	4	5	6	7	8	9	10	11	
Period	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	
Fiscal Year	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	
Total Sub PM,STS & Equip Dollars Remaining	\$ 42,660,510	\$ 44,366,930	\$ 46,141,608	\$ 47,987,272	\$ 49,906,763	\$ 43,029,647	\$ 18,130,675	\$ 14,419,209	\$ -	\$ -	\$ -	
Percent of Sub PM,STS & Equip Dollars/Period	0	0	0	0	20%	60%	10%	10%	0	0	0	
Cost per Period	\$ -	\$ -	\$ -	\$ -	\$ 8,532,102	\$ 25,596,306	\$ 4,266,051	\$ 4,266,051	\$ -	\$ -	\$ -	\$ 42,660,510
Escalation %	4%	4%	4%	4%	4%	4%	4%	0%	0%	0%	0%	
Total escalation cost this period	\$ 1,706,420	\$ 1,774,677	\$ 1,845,664	\$ 1,919,491	\$ 1,654,986	\$ 697,334	\$ 554,585	\$ -	\$ -	\$ -	\$ -	\$ 10,153,158
Total Sub PM,STS & Equip Cost \$ Plus esc	\$ 44,366,930	\$ 46,141,608	\$ 47,987,272	\$ 49,906,763	\$ 43,029,647	\$ 18,130,675	\$ 14,419,209	\$ 10,153,158	\$ -	\$ -		

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Contractors Permanent Materials	Period											Total SUB PM,STS & Equip Cost
	1	2	3	4	5	6	7	8	9	10	11	
Period	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	
Fiscal Year	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	
Total Contractors PM Dollars Remaining	\$ 16,807,503	\$ 17,479,803	\$ 18,178,995	\$ 18,906,155	\$ 19,662,401	\$ 16,952,937	\$ -	\$ -	\$ -	\$ -	\$ -	
Percent of Contractors PM Dollars/Period	0	0	0	0	20%	80%	0%	0%	0	0	0	
Cost per Period	\$ -	\$ -	\$ -	\$ -	\$ 3,361,501	\$ 13,446,002	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 16,807,503
Escalation %	4%	4%	4%	4%	4%	4%	0%	0%	0%	0%	0%	
Total escalation cost this period	\$ 672,300	\$ 699,192	\$ 727,160	\$ 756,246	\$ 652,036	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,506,934
Total Contractors PM Cost \$ Plus esc	\$ 17,479,803	\$ 18,178,995	\$ 18,906,155	\$ 19,662,401	\$ 16,952,937	\$ 3,506,934	\$ -	\$ -	\$ -	\$ -	\$ -	

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Contractors Supplies (Consumables)	Period											Total SUB PM,STS & Equip Cost
	1	2	3	4	5	6	7	8	9	10	11	
Period	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	
Fiscal Year	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	
Total Contractors Supplies Dollars Remaining	\$ 37,729,531	\$ 39,238,712	\$ 40,808,261	\$ 42,440,591	\$ 44,138,215	\$ 38,056,001	\$ 12,111,142	\$ 10,633,653	\$ -	\$ -	\$ -	
Percent of Contractors Supply Dollars/Period	0	0	0	0	20%	70%	5%	5%	0	0	0	
Cost per Period	\$ -	\$ -	\$ -	\$ -	\$ 7,545,906	\$ 26,410,672	\$ 1,886,477	\$ 1,886,477	\$ -	\$ -	\$ -	\$ 37,729,531
Escalation %	4%	4%	4%	4%	4%	4%	4%	0%	0%	0%	0%	
Total escalation cost this period	\$ 1,509,181	\$ 1,569,548	\$ 1,632,330	\$ 1,697,624	\$ 1,463,692	\$ 465,813	\$ 408,987	\$ -	\$ -	\$ -	\$ -	\$ 8,747,176
Total Contractors Supplies Cost \$ Plus esc	\$ 39,238,712	\$ 40,808,261	\$ 42,440,591	\$ 44,138,215	\$ 38,056,001	\$ 12,111,142	\$ 10,633,653	\$ 8,747,176	\$ -	\$ -	\$ -	

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Contractors Owned & Rtd Equipment												
Period	Period											Total SUB PM,STS &Equip Cost
Fiscal Year	1	2	3	4	5	6	7	8	9	10	11	
Total Contractors Equip Dollars Remaining	\$ 41,429,385	\$ 43,086,560	\$ 44,810,023	\$ 46,602,424	\$ 48,466,521	\$ 41,787,869	\$ 26,224,760	\$ 22,965,094	\$ 19,575,042	\$ 16,049,388	\$ -	
Percent of Contractors Equip Dollars/Period	0	0	0	0	20%	40%	10%	10%	10%	10%	0	
Cost per Period	\$ -	\$ -	\$ -	\$ -	\$ 8,285,877	\$ 16,571,754	\$ 4,142,939	\$ 4,142,939	\$ 4,142,939	\$ 4,142,939	\$ -	\$ 41,429,385
Escalation %	4%	4%	4%	4%	4%	4%	4%	4%	4%	0%	0%	
Total escalation cost this period	\$ 1,657,175	\$ 1,723,462	\$ 1,792,401	\$ 1,864,097	\$ 1,607,226	\$ 1,008,645	\$ 883,273	\$ 752,886	\$ 617,284	\$ -	\$ -	\$ 11,906,449
Total Contractors Equip Cost \$ Plus esc	\$ 43,086,560	\$ 44,810,023	\$ 46,602,424	\$ 48,466,521	\$ 41,787,869	\$ 26,224,760	\$ 22,965,094	\$ 19,575,042	\$ 16,049,388	\$ 11,906,449		

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PCE - Fees, Allowances & Profit												
Period	Period											Total SUB PM,STS &Equip Cost
Fiscal Year	1	2	3	4	5	6	7	8	9	10	11	
Total PCE Fee Dollars Remaining	\$ 44,707,200	\$ 46,495,488	\$ 48,355,308	\$ 50,289,520	\$ 52,301,101	\$ 54,393,145	\$ -	\$ -	\$ -	\$ -	\$ -	
Percent of Fee/Period	0	0	0	0	0%	100%	0%	0%	0	0	0	
Cost per Period	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 44,707,200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 44,707,200
Escalation %	4%	4%	4%	4%	4%	0%	0%	0%	0%	0%	0%	
Total escalation cost this period	\$ 1,788,288	\$ 1,859,820	\$ 1,934,212	\$ 2,011,581	\$ 2,092,044	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,685,945
Total PCE Fee Cost \$ Plus esc	\$ 46,495,488	\$ 48,355,308	\$ 50,289,520	\$ 52,301,101	\$ 54,393,145	\$ 9,685,945	\$ -	\$ -	\$ -	\$ -	\$ -	

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Contingencies												
Period	Period											Total SUB PM,STS &Equip Cost
Fiscal Year	1	2	3	4	5	6	7	8	9	10	11	
Total Contingency Dollars Remaining	\$ 76,271,000	\$ 79,321,840	\$ 82,494,714	\$ 85,794,502	\$ 66,344,982	\$ 68,998,782	\$ 40,029,997	\$ 41,631,197	\$ 31,398,169	\$ 32,654,095	\$ -	
Percent of Contingency/Period	0%	0%	0%	30%	0%	40%	0%	15%	0	15%	0	
Cost per Period	\$ -	\$ -	\$ -	\$ 22,881,300	\$ -	\$ 30,508,400	\$ -	\$ 11,440,650	\$ -	\$ 11,440,650	\$ -	\$ 76,271,000
Escalation %	4%	4%	4%	4%	4%	4%	4%	4%	4%	0%	0%	
Total escalation cost this period	\$ 3,050,840	\$ 3,172,874	\$ 3,299,789	\$ 3,431,780	\$ 2,653,799	\$ 1,539,615	\$ 1,601,200	\$ 1,207,622	\$ 1,255,927	\$ -	\$ -	\$ 21,213,445
Total Contingency Cost \$ Plus esc	\$ 79,321,840	\$ 82,494,714	\$ 85,794,502	\$ 66,344,982	\$ 68,998,782	\$ 40,029,997	\$ 41,631,197	\$ 31,398,169	\$ 32,654,095	\$ 21,213,445		

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Design Engineering	Period											Total SUB PM,STS &Equip Cost
	1	2	3	4	5	6	7	8	9	10	11	
Period	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	
Fiscal Year	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	
Total Design Engineering Dollars Remaining	\$ 19,831,000	\$ 18,641,140	\$ 15,420,586	\$ 11,377,124	\$ 6,874,459	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Percent of Fee/Period	10%	20%	25%	25%	20%	0%	0%	0%	0%	0%	0	
Cost per Period	\$ 1,983,100	\$ 3,966,200	\$ 4,660,285	\$ 4,957,750	\$ 4,263,665	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 19,831,000
Escalation %	4%	4%	4%	4%	4%	0%	0%	0%	0%	0%	0%	
Total escalation cost this period	\$ 793,240	\$ 745,646	\$ 616,823	\$ 455,085	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,610,794
Total Design Engineering Cost \$ Plus esc	\$ 18,641,140	\$ 15,420,586	\$ 11,377,124	\$ 6,874,459	\$ 2,610,794	\$ -	\$ -	\$ -	\$ -	\$ -		

11

Post-Design Engineering	Period											Total SUB PM,STS &Equip Cost
	1	2	3	4	5	6	7	8	9	10	11	
Period	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	
Fiscal Year	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	
Total Post-Design Engr Dollars Remaining	\$ 6,611,000	\$ 6,875,440	\$ 7,150,458	\$ 7,436,476	\$ 7,733,935	\$ 8,043,292	\$ 6,646,164	\$ 5,193,151	\$ 3,240,526	\$ 2,338,831	\$ 2,102,241	
Percent of Post Design Engr /Period	0%	0%	0%	0%	0%	25%	25%	25%	15%	5%	5%	
Cost per Period	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,652,750	\$ 1,652,750	\$ 2,077,260	\$ 991,650	\$ 236,590	\$ -	\$ 6,611,000
Escalation %	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	0%	
Total escalation cost this period	\$ 264,440	\$ 275,018	\$ 286,018	\$ 297,459	\$ 309,357	\$ 255,622	\$ 199,737	\$ 124,636	\$ 89,955	\$ -	\$ -	\$ 2,102,241
Total Post Design Engr Cost \$ Plus esc	\$ 6,875,440	\$ 7,150,458	\$ 7,436,476	\$ 7,733,935	\$ 8,043,292	\$ 6,646,164	\$ 5,193,151	\$ 3,240,526	\$ 2,338,831	\$ 2,102,241		

Total PCE Only Before Esc.(Items 1-8)	\$ 254,234,207
Total Contingency, Design Engineering & Post Design Engineering Before Esc. (Items 9-11)	\$ 102,713,000
Total All Costs before Escalation	\$ 356,947,207

Total Escalation for PCE on all Cost Types	\$ 97,215,944
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PROGRAMMATIC COSTS - UPDATE

SR-35 COLUMBIA RIVER CROSSING				Port of Hood River	
KEY NUMBER	BRIDGE NAME	BR #	DATE	ROADWAY DESIGNER	
	Hood River Bridge Replacement	--	12/16/2021	WSP/Port	
ITEM NUMBER	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	RIGHT OF WAY	LS			\$5,768,970
RW1	ROW (See appendix in Land Use report; preliminary referred alternative EC-2)	LS	1	\$2,500,000	\$2,500,000
RW2	LEASE FOR CONSTRUCTION ACCESS AT CURENT PORT OFFICE/SHOP AREA (7 years)	S.F.	75,000	\$0.35	\$183,750
RW3	LEASES FOR LOWER MILL LAYDOWN AREAS (4 Years; 6 Acres)	S.F.	261,360	\$0.25	\$261,360
RW4	LEASES FOR LAYDOWN AREA - WASHINGTON SIDE (4 Years; 6 Acres)	S.F.	261,360	\$0.25	\$261,360
RW5	PORT FACILITY RELOCATION (50-Percent based on Allowed Federal funds **)	LS	0.50	\$5,125,000.00	\$2,562,500
P1	NEW MAINTENANCE YARD	SQ. FT.	34,850	\$0	\$0
P2	DEMOLITION OF MARINA ONE	SQ. FT.	3,000	\$50	\$150,000
P3	NEW OFFICE BUILDING YARD (Change from commercial use)	SQ. Ft.	52,272	\$0	\$0
P4	NEW MAINTENANCE BUILDING	SQFT	4,000	\$120	\$480,000
P5	NEW OFFICE BUILDING (Large enough to account for old Office, Marina One, and extra Capacity)	SQFT	13,000	\$200	\$2,600,000
P6	RELOCATION - TOLL PLAZA POWER SUPPLY & EMERGENCY GENERATOR	EA	1	\$200,000	\$200,000
P7	DEMOLITION OF OFFICE BUILDING	LS	3,000	\$50	\$150,000
P8	DEMOLITION OF MAINTENANCE BUILDING	LS	4,000	\$30	\$120,000
P9	SOFT COST/AE/DESIGN/PERMITTING (30% of construction costs)	LS	30%	\$1,110,000	\$1,110,000
P10	FURNITURE, FIXTURES, INCIDENTALS	LS	1	100,000	\$100,000
P11	OFFICE / MAINTENANCE BUILDING RELOCATION	EA	1	15,000	\$15,000
P12	RELOCATION FINANCE COST	LS	1	\$200,000	\$200,000
	TOLLING SYSTEM	LS			\$2,000,000
SS EST	TRAFFIC AND TOLL REVENUE STUDIES	LS	1	\$825,000	\$825,000
SS EST	PROJECT FINANCE PLAN	LS	1	\$2,015,000	\$2,015,000
SS EST	GOVERNANCE	LS	1	\$680,000	\$680,000
	RBMC RESOURCES (Provided by PORT; entire duration)	LS	1	\$19,000,000	\$19,000,000
	PORT/BSBA FINANCE STAFF (12 Yrs. w/ average of 3 Finance Specialist Employees; fully burdened OHR)	LS	3	100000	\$3,600,000
	PORT/BSBA MANAGEMENT (12 Yrs. w/ average of 1.5 Senior Management Staff; fully burdened OHR)	LS	1.5	200000	\$3,600,000
	BNSF PERMITS AND FLAGGING	LS			\$1,500,000
RR1	PERMITS	LS	1	\$100,000	\$100,000
RR2	FLAGGING (5 Days for 5 Years)	DAY	1,000	\$1,400	\$1,400,000
	OTHER MITIGATION / COMMITMENTS	LS		\$0	\$0
	PORT INSURANCE (Assumed 1.5% of construction costs)	LS	1.5%	\$356,947,207	\$5,354,208
PROGRAMATIC COST					\$44,343,178

* ROW reimbursement will be based on appraisal; Port to provide remaining cost for facility relocation/updates

SS EST Inserted from Steve Siegel's Analysis

Key

	Included in Port costs
	Rolled up into Port costs
	Rolled up into RW5



Project: Port of Hood River Bridge Replacement			
Subject:	PCE Update - Civil Quantities	Project #:	80550
Designed by:	AJD 9/24/2021	Updated by:	SCB 11/8/2021

CLEARING AND GRUBBING	ACRE
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Quantity: 1.34 ACRE Plug number from M&M estimate

EMBANKMENT IN PLACE	CUYD
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Quantity: 12756 CUYD Plug number from M&M estimate

CONCRETE INLETS	EACH
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Quantity: 8 EACH Plug number from M&M estimate

DIVERSION MANHOLES	EACH
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Quantity: 2 EACH Plug number from M&M estimate

RETURN FLOW MANHOLES	EACH
-----------------------------	-------------

Quantity: 2 EACH Plug number from M&M estimate

VAULT WITH INTERNALS	EACH
-----------------------------	-------------

Quantity: 2 EACH Plug number from M&M estimate

PIPE, 12 INCH DIAMETER	FOOT
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Quantity: 740 FOOT Plug number from M&M estimate

PIPE, 15 INCH DIAMETER	FOOT
-------------------------------	-------------

Quantity: 400 FOOT Plug number from M&M estimate

PIPE, 18 INCH DIAMETER	FOOT
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Quantity: 5085 FOOT Plug number from M&M estimate

AGGREGATE BASE	TON
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Quantity: 1922 TON Plug number from M&M estimate

HMAC	TON
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Quantity: 4080 TON Plug number from M&M estimate



Project: Port of Hood River Bridge Replacement			
Subject: PCE Update - Civil Quantities	Project #:	80550	
Designed by: AJD 9/24/2021	Updated by:	SCB	11/8/2021

CONCRETE WALKS	SQFT
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Quantity: 62960 SQFT Plug number from M&M estimate

CONCRETE SIDEWALK RAMPS	EACH
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Quantity: 4 EACH Plug number from M&M estimate

CONCRETE CURBS, CURB AND GUTTER	FOOT
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Quantity: 1640 FOOT Plug number from M&M estimate

CONCRETE BARRIER	FOOT
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Quantity: 8780 FOOT Plug number from M&M estimate

LONGITUDINAL PAVEMENT MARKINGS	FOOT
---------------------------------------	-------------

Quantity: 17540 FOOT Plug number from M&M estimate

SIGNAGE	SQFT
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Quantity: 300 SQFT Plug number from M&M estimate

OTHER LUMP SUM ITEMS	LS
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TRAFFIC SIGNALS	Quantity:	1	LS	Placeholder; discussion with Port
ILLUMINATION SYSTEMS	Quantity:	1	LS	Placeholder; discussion with Port
UTILITY RELOCATION	Quantity:	1	LS	Placeholder; discussion with Port
BRIDGE HANGER SYSTEM	Quantity:	1	LS	Placeholder; discussion with Port
BRIDGE LIGHTING	Quantity:	1	LS	Placeholder; discussion with Port
RENEWABLE POWER GENERATION	Quantity:	1	LS	Placeholder; discussion with Port
TOLLING SYSTEM	Quantity:	1	LS	Removed from PCE; added as line item for Port Costs
ROW	Quantity:	1	LS	Removed from PCE; added as line item for Port Costs
BNSF PERMITS & FLAGGING	Quantity:	1	LS	Removed from PCE; added as line item for Port Costs
MITIGATION COSTS	Quantity:	1	LS	Environmental mitigation costs



SHORING, CRIBBING AND COFFERDAMS

LS

Sheet Pile Install

Bent #	Area sqft	Unit Cost \$/sqft	Cost \$
2	0	\$ -	\$ -
3	0	\$ -	\$ -
4	0	\$ -	\$ -
5	0	\$ -	\$ -
6	0	\$ -	\$ -
7	0	\$ -	\$ -
8	0	\$ -	\$ -
9	0	\$ -	\$ -
10	0	\$ -	\$ -
11	0	\$ -	\$ -
12	0	\$ -	\$ -
13	5474	\$ -	\$ -
TOTAL			\$ -

Cofferdam Bracing

Bent #	Area sqft	Bracing Ratio lb/sqft	Unit Cost \$/lb	Cost \$
2	0	4.97	0	\$ -
3	0	4.97	0	\$ -
4	0	4.97	0	\$ -
5	0	4.97	0	\$ -
6	0	4.97	0	\$ -
7	0	4.97	0	\$ -
8	0	5.68	0	\$ -
9	0	5.68	0	\$ -
10	0	4.97	0	\$ -
11	0	5.96	0	\$ -
12	0	3.65	0	\$ -
13	5474	3.65	20000	\$ -
TOTAL				\$ -

STRUCTURE EXCAVATION

CUYD

Location	Shape	Length ft	Width ft	Depth ft	Volume cuyd
--	--				
Abut 1	Rectangular	64	16	4	151.7
Abut 15	Rectangular	64	16	4	151.7
TOTAL					303.4

GRANULAR STRUCTURE BACKFILL

CUYD

Location	Shape	Length ft	Width ft	Depth ft	Volume cuyd
--	--				
Abut 1	Rectangular	60	1	21.5	47.8
Abut 15	Rectangular	60	1	21.5	47.8
TOTAL					95.6

FURNISH DRILLING EQUIPMENT

EACH

Qty #
1



DRILLED SHAFT CONCRETE

CUYD

Assumptions: MM estimate uses 6 shafts/pier @ P8 and P9 (plans show 4/pier)

Risk: Deep foundation size and length based on limited boring information and geotechnical analysis (3/13 piers only); subject to change pending further geotechnical investigation and analysis

Pier/Bent #	Shaft Dia. ft	Shaft Qty #	Shaft Top El ft	Shaft Tip El ft	Shaft Volume (all shafts) cy	Shaft LF (EA) ft	Shaft Length ft
2	6	2	76.37	27	103	49	99
3	6	4	76.37	-2	328	78	313
4	6	4	76.37	-6	345	82	329
8	8	6	76.37	-70	1635	146	878
9	8	6	76.37	-10	965	86	518
10	6	4	76.37	20	236	56	225
11	6	4	76.37	10	278	66	265
12	6	4	76.37	32	186	44	177
13	6	4	76.37	46	127	30	121
TOTAL					4204	640	2928

* Plans show 4 shafts
1 barge drilled shaft team
2 landside drilled shaft teams

Table 5. Summary of Replacement Bridge Foundation Types and Quantities

Bent Number	Foundation Type	Location	Dimensions (ft)	Total Quantities		
				48" Steel Pipe Piles	72" Drilled Shaft	96" Drilled Shaft
Bent 1	Pile Supported	Terrestrial	12 x 56	5	0	0
Bent 2	Drilled Shaft	Below OHWM	12 x 30	0	2	0
Bent 3	Drilled Shaft	Below OHWM	30 x 30	0	4	0
Bent 4	Drilled Shaft	Below OHWM	30 x 30	0	4	0
Bent 5	Pile Supported	Below OHWM	56 x 56	25	0	0
Bent 6	Pile Supported	Below OHWM	56 x 56	25	0	0
Bent 7	Pile Supported	Below OHWM	56 x 56	25	0	0
Bent 8	Drilled Shaft	Below OHWM	40 x 64	0	0	6
Bent 9	Drilled Shaft	Below OHWM	40 x 64	0	0	6
Bent 10	Drilled Shaft	Below OHWM	30 x 30	0	4	0
Bent 11	Drilled Shaft	Below OHWM	30 x 30	0	4	0
Bent 12	Drilled Shaft	Below OHWM	30 x 30	0	4	0
Bent 13	Drilled Shaft	Below OHWM	30 x 30	0	4	0
Bent 14	Spread Footing	Below OHWM	20 x 28	0	0	0
Bent 15	Spread Footing	Terrestrial	12 x 56	0	0	0
NA	Contingency	Below OHWM	NA	8	3	1
Totals				88	29	13
Totals below OHWM				83	29	13

DRILLED SHAFT REINFORCEMENT

LBS

Assumptions: Quantity Based on 150 lb steel/cy concrete; MM estimate uses 6 shafts/pier @ P8 and P9 (plans show 4/pier)

Risk: Deep foundation size and length based on limited boring information and geotechnical analysis (3/13 piers only); subject to change pending further geotechnical investigation and analysis

Pier/Bent #	Shaft Volume (all shafts) cy	Reinf. Ratio lb/cy	Steel Weight ft
2	103	125	12925
3	328	125	41034
4	345	125	43129
8	1635	125	204371
9	965	125	120595
10	236	125	29515
11	278	125	34751
12	186	125	23232
13	127	125	15902
TOTAL			525455
		Used:	527100

CSL TEST ACCESS TUBES

FOOT

Assumptions: MM estimate assumes 3 access tubes/shaft; WSDOT and ODOT standards specify 1 access tube for each foot of shaft diameter; MM estimate includes additional ~4' length per shaft; MM estimate uses 6 shafts/pier @ P8 and P9 (plans show 4/pier)

Pier/Bent #	Shaft Dia. ft	Shaft Qty #	CSL Tube Qty #	Shaft Top El ft	Shaft Tip El ft	Shaft Length (all tubes) ft	MM Length
2	6	2	12	76.37	27	592.44	320
3	6	4	24	76.37	-2	1880.88	988
4	6	4	24	76.37	-6	1976.88	1036
8	8	6	48	76.37	-70	7025.76	1447
9	8	6	48	76.37	-10	4145.76	1447
10	6	4	24	76.37	20	1352.88	724
11	6	4	24	76.37	10	1592.88	844
12	6	4	24	76.37	32	1064.88	580
13	6	4	24	76.37	46	728.88	424
TOTAL						20361.24	



CSL TESTS **EACH**

Assumptions: 1 test per shaft; MM estimate uses 6 shafts/pier @ P8 and P9 (plans show 4/pier)

Pier/Bent #	Shaft Qty #	CSL Tube Qty #
2	2	2
3	4	4
4	4	4
8	6	6
9	6	6
10	4	4
11	4	4
12	4	4
13	4	4
TOTAL	38	38

DRILLED SHAFT EXCAVATION, 72 INCH DIAMETER **FOOT**

Assumptions: 3'-0" shaft embed into cap; MM estimate includes additional ~4' length per shaft

Risk: Deep foundation type, diameter, quantity, and length based on limited boring information and geotechnical analysis (3/13 piers only); subject to change pending further geotechnical investigation and analysis

Pier/Bent #	Qty #	Shaft Top El ft	Shaft Tip El ft	Shaft Length (all shafts) ft	MM Length
2	2	76.37	27	98.74	107
3	4	76.37	-2	313.48	329
4	4	76.37	-6	329.48	345
10	4	76.37	20	225.48	241
11	4	76.37	10	265.48	281
12	4	76.37	32	177.48	193
13	4	76.37	46	121.48	141
TOTAL				1531.62	
			Used:	1637	

DRILLED SHAFT EXCAVATION, 96 INCH DIAMETER **FOOT**

Assumptions: MM estimate uses 6 shafts/pier @ P8 and P9 (plans show 4/pier)

Risk: Deep foundation type, diameter, quantity, and length based on limited boring information and geotechnical analysis (3/13 piers only); subject to change pending further geotechnical investigation and analysis

Pier/Bent #	Qty #	Shaft Top El ft	Shaft Tip El ft	Shaft Length (all shafts) ft
8	6	76.37	-70	878.22
9	6	76.37	-10	518.22
TOTAL				1396.44
			Used:	1444

FURNISH PILE DRIVING EQUIPMENT **EACH**

Qty #	Description
1	2 barge pile teams included in quantity



FURNISH PP 48 X 0.5 STEEL PILES

FOOT

Assumptions: MM estimate uses 12 piles/ pier (plans show 25/pier)

Risk: Deep foundation type, diameter, quantity, and length based on limited boring information and geotechnical analysis (3/13 piers only); subject to change pending further geotechnical investigation and analysis

Pier/Bent #	Qty #	Pile Top El ft	Pile Tip El ft	Pile Length (all piles) ft
1	5	76.37	0	381.85
5	25	76.37	-35	2784.25
6	25	76.37	-94	4259.25
7	25	76.37	-91	4184.25
TOTAL				11609.6

MM Est. uses 12 piles
MM Est. uses 12 piles
MM Est. uses 12 piles

Table 5. Summary of Replacement Bridge Foundation Types and Quantities

Bent Number	Foundation Type	Location	Dimensions (ft)	Total Quantities		
				48" Steel Pipe Piles	72" Drilled Shaft	96" Drilled Shaft
Bent 1	Pile Supported	Terrestrial	12 x 56	5	0	0
Bent 2	Drilled Shaft	Below OHWM	12 x 30	0	2	0
Bent 3	Drilled Shaft	Below OHWM	30 x 30	0	4	0
Bent 4	Drilled Shaft	Below OHWM	30 x 30	0	4	0
Bent 5	Pile Supported	Below OHWM	56 x 56	25	0	0
Bent 6	Pile Supported	Below OHWM	56 x 56	25	0	0
Bent 7	Pile Supported	Below OHWM	56 x 56	25	0	0

FURNISH PP 48 X 0.5 STEEL TEST PILES

FOOT

Risk: Deep foundation type, diameter, quantity, and length based on limited boring information and geotechnical analysis (3/13 piers only); subject to change pending further geotechnical investigation and analysis

Pier/Bent #	Qty #	Pile Top El ft	Pile Tip El ft	Pile Length (all piles) ft
1	1	76.37	0	76.37
5	2	76.37	-35	222.74
6	2	76.37	-94	340.74
7	2	76.37	-91	334.74
TOTAL				974.59
Used:				923

MM Length
231
349
343

DRIVE PP 48 X 0.5 STEEL PILES

FOOT

Assumptions: MM estimate uses 12 piles/ pier (plans show 25/pier)

Risk: Deep foundation type, diameter, quantity, and length based on limited boring information and geotechnical analysis (3/13 piers only); subject to change pending further geotechnical investigation and analysis

Pier/Bent #	Qty #	Pile Top El ft	Pile Tip El ft	Pile Length (all piles) ft
1	5	76.37	0	381.85
5	25	76.37	-35	2784.25
6	25	76.37	-94	4259.25
7	25	76.37	-91	4184.25
TOTAL				11609.6

MM Est. uses 12 piles
MM Est. uses 12 piles
MM Est. uses 12 piles

DRIVE TEST PILES

FOOT

Assumptions: 2 test piles per pile group

Risk: Deep foundation type, diameter, quantity, and length based on limited boring information and geotechnical analysis (3/13 piers only); subject to change pending further geotechnical investigation and analysis

Pier/Bent #	Qty #	Pile Top El ft	Pile Tip El ft	Pile Length (all piles) ft
1	1	76.37	0	76.37
5	2	76.37	-35	222.74
6	2	76.37	-94	340.74
7	2	76.37	-91	334.74
TOTAL				974.59
Used:				923



Project: Port of Hood River Bridge Replacement

Subject: **PCE Update - Structural Quantities**

Project #: 80550

Designed by: AJD

9/24/2021

Updated by: SCB 11/16/2021

PILE LOAD TEST (DYNAMIC)

EACH

Assumptions: 400 ton test capacity, 2 per pile group

Risk:

Unit Cost Basis:

Quantity:

Pier/Bent #	Qty #
5	2
6	2
7	2
TOTAL	6

PP 48 X 0.5 STEEL PILE SPLICES

EACH

Assumptions: Splice every 60 ft; MM estimate uses 12 piles/ pier (plans show 25/pier)

Risk: Deep foundation type, diameter, quantity, and length based on limited boring information and geotechnical analysis (3/13 piers only); subject to change pending further geotechnical investigation and analysis

Pier/Bent #	Qty Piles* #	Pile Top El ft	Pile Tip El ft	Pile Length (all piles) ft	# Splices #
5	27	76.37	-35	3006.99	51
6	27	76.37	-94	4599.99	77
7	27	76.37	-91	4518.99	76
				TOTAL	204

*Test piles included

REINFORCEMENT

LBS

Assumptions: Based on ratio of steel weight to concrete volume; sum of superstructure and substructure reinforcement, drilled shafts excluded

Risk: Quantities are ROM estimates, subject to change during final design

Superstructure

Element	Concrete Volume cuyd	Reinf Ratio lbs/cuyd	Steel Weight lbs
--			
Box Girder	23176	200	4635122
		TOTAL	4635122

Superstructure

Element	Concrete Volume cuyd	Reinf Ratio lbs/cuyd	Steel Weight lbs
--			
Pile Caps	6238	150	935733
Abutment Footings	257	120	30862
Abutment Stemwalls	629	90	56613
Columns	7169	225	1612928
Pile Caps, precast	2902	150	435317
		TOTAL	3071454

~1.7% reinf

Summary

Element	Steel Weight lbs
--	
Superstructure	4635122
Substructure	3071454
TOTAL	7706576
Used:	7882790



COATED REINFORCEMENT LBS

Assumptions: Based on ratio of steel volume to deck surface area; coated reinforcement used for bridge deck only

Risk: Quantities are ROM estimates, subject to change during final design

Start Sta STA	End Sta STA	Deck Length ft	Deck Width ft	Deck Area sqft	Reinf Ratio in2/sqft	Steel Unit Weight pcf	Steel Weight lb
23+43.70	67+33.70	4390	56.33	247303	23	490	1612910
							Used: 1612435

FOUNDATION CONCRETE, CLASS 4000 CUYD

Risk: Pile cap dimensions are approximated, subject to change during final design

Pile Caps/ Footings - CIP

Location	L ft	W ft	D ft	V cuyd	
--					
Bent 2 Pile Cap	8	26	8	62	
Bent 3 Pile Cap	26	26	10	250	
Bent 4 Pile Cap	26	26	10	250	
Bent 5 Pile Cap	52	52	10	1001	
Bent 6 Pile Cap	52	52	10	1001	
Bent 7 Pile Cap	52	52	10	1001	
Bent 8 Pile Cap	36	58	10	773	W = 52' per plan
Bent 9 Pile Cap	36	58	10	773	W = 52' per plan
Bent 10 Pile Cap	26	26	10	250	
Bent 11 Pile Cap	26	26	10	250	
Bent 12 Pile Cap	26	26	10	250	
Bent 13 Pile Cap	26	26	10	250	
Bent 14 Pile Cap	16	26	8	123	W = 28' per plan
TOTAL				6238	

Abutment Footings

Location	L ft	W ft	D ft	V cuyd
--				
Abut 1	14	62	4	129
Abut 15	14	62	4	129
TOTAL				257

Abutment Stemwalls

Location	Element	Qty ea	L ft	W ft	D ft	V cuyd
--	--					
Abut 1	Backwall	1	58	2	9.5	40.8
	Abut Seat	1	58	10	12	257.8
	Cheekwall	2	10	1	21.5	15.9
Abut 15	Backwall	1	58	2	9.5	40.8
	Abut Seat	1	58	10	12	257.8
	Cheekwall	2	10	1	21.5	15.9
TOTAL						629

Summary

Location	Concrete Volumes cuyd
--	
Pile Caps	6238
Abutment Footings	257
Abutment Stemwalls	629
Total Concrete	7124



Pile Caps/ Footings - Precast

Location	Outside Volume				Void Volume				V cuyd
	L ft	W ft	D ft	V cuyd	L ft	W ft	D ft	V cuyd	
Bent 2 Pile Cap	12	30	10	133	8	26	8	-62	72
Bent 3 Pile Cap	30	30	12	400	26	26	10	-250	150
Bent 4 Pile Cap	30	30	12	400	26	26	10	-250	150
Bent 5 Pile Cap	56	56	12	1394	52	52	10	-1001	392
Bent 6 Pile Cap	56	56	12	1394	52	52	10	-1001	392
Bent 7 Pile Cap	56	56	12	1394	52	52	10	-1001	392
Bent 8 Pile Cap	40	62	12	1102	36	58	10	-773	329
Bent 9 Pile Cap	40	62	12	1102	36	58	10	-773	329
Bent 10 Pile Cap	30	30	12	400	26	26	10	-250	150
Bent 11 Pile Cap	30	30	12	400	26	26	10	-250	150
Bent 12 Pile Cap	30	30	12	400	26	26	10	-250	150
Bent 13 Pile Cap	30	30	12	400	26	26	10	-250	150
Bent 14 Pile Cap	20	30	10	222	16	26	8	-123	98
								TOTAL	2902

Adjusted to match KMC

Summary

Location	V cuyd
--	
Pile Caps, Precast	2902

Total
cuyd
10027

GENERAL STRUCTURAL CONCRETE, CLASS 4000 **CUYD**

Assumptions: Taken as superstructure for this backup; unable to directly replicate MM estimate quantity, but calculated backup is within 5% of MM estimate

Risk: Box geometry is subject to revision

Columns

Bent #	Segment	Top Elev. ft	Bot. Elev. ft	Top Cross Section Area sqft	Bot. Cross Section Area sqft	Column Qty #	Volume cuyd
2	Top	112.54	100.54	190.67	126.67	1	70.5
	Middle	100.54	85.37	448.61	268.32	1	201.4
	Bottom	85.37	85.37	268.32	152.00	1	0.0
3	Top	123.64	111.64	190.67	126.67	1	70.5
	Middle	111.64	85.37	448.61	162.64	1	297.4
	Bottom	85.37	85.37	162.64	152.00	1	0.0
4	Top	134.74	122.74	190.67	126.67	1	70.5
	Middle	122.74	94.74	448.61	152.00	1	311.4
	Bottom	94.74	85.37	152.00	169.26	1	55.7
5	Top	145.84	133.84	190.67	126.67	1	70.5
	Middle	133.84	105.84	448.61	152.00	1	311.4
	Bottom	105.84	85.37	152.00	190.71	1	129.9
6	Top	156.94	144.94	190.67	126.67	1	70.5
	Middle	144.94	116.94	448.61	152.00	1	311.4
	Bottom	116.94	85.37	152.00	213.26	1	213.5
7	Top	168.04	156.04	190.67	126.67	1	70.5
	Middle	156.04	128.04	448.61	152.00	1	311.4
	Bottom	128.04	85.37	152.00	236.90	1	307.3
8	Top	181.00	170.00	32.00	32.00	2	26.1
	Middle	170.00	142.00	113.33	80.00	2	200.5
	Bottom	142.00	85.37	80.00	95.10	2	367.3
9	Top	178.00	167.00	32.00	32.00	2	26.1
	Middle	167.00	139.00	113.33	80.00	2	200.5
	Bottom	139.00	85.37	80.00	94.30	2	346.2
10	Top	171.54	159.54	190.67	126.67	1	70.5
	Middle	159.54	131.54	448.61	152.00	1	311.4
	Bottom	131.54	85.37	152.00	244.58	1	339.1
11	Top	165.93	153.93	190.67	126.67	1	70.5
	Middle	153.93	125.93	448.61	152.00	1	311.4
	Bottom	125.93	85.37	152.00	232.32	1	288.7



Project: Port of Hood River Bridge Replacement

Subject: PCE Update - Structural Quantities

Project #: 80550

Designed by: AJD

9/24/2021

Updated by: SCB 11/16/2021

12	Top	160.32	148.32	190.67	126.67	1	70.5
	Middle	148.32	120.32	448.61	152.00	1	311.4
	Bottom	120.32	85.37	152.00	220.34	1	241.0
13	Top	154.71	142.71	190.67	126.67	1	70.5
	Middle	142.71	114.71	448.61	152.00	1	311.4
	Bottom	114.71	85.37	152.00	208.64	1	195.9
14	Top	149.10	137.10	190.67	126.67	1	70.5
	Middle	137.10	109.10	448.61	152.00	1	311.4
	Bottom	109.10	85.37	152.00	197.22	1	153.5
						TOTAL	7168.6

Approach Spans

Box Section	Qty	Length	Max Thickness	Min Thickness	Avg. Thickness	Area	
--	#	ft	in	in	in	sqft	
Overhang L	1	14.00	24.00	10.00	17.00	19.83	
Overhang R	1	14.00	24.00	10.00	17.00	19.83	
Top Slab	1	28.33	10.00	10.00	10.00	23.61	
Top Fillet	2	2.00	24.00	0.00	12.00	4.00	
Bottom Fillet	2	4.00	22.00	0.00	11.00	7.33	
Bottom Slab, Midspan	1	24.33	30.00	30.00	30.00	60.83	
Bottom Slab, @ Pier	1	19.67	30.00	30.00	30.00	49.17	
Webs, Midspan	2	4.92	14.00	14.00	14.00	11.48	
Webs, @ Pier	2	12.30	14.00	14.00	14.00	28.69	
						TOTAL, Midspan	146.92
						TOTAL, Pier	152.47
						Avg Area	149.70

Pier Table Section	Qty	Length/Height	Max Thickness	Min Thickness	Avg. Thickness	Area	
--	#	ft	in	in	in	sqft	
Overhang L	1	14.00	24.00	10.00	17.00	19.83	
Overhang R	1	14.00	24.00	10.00	17.00	19.83	
Top Slab	1	28.33	24.00	24.00	24.00	56.67	
Box Diaphragm	1	13.00	340.00	236.00	288.00	312.00	
						TOTAL, Pier	408.33

Span 7, 9

Box Section	Qty	Length	Max Thickness	Min Thickness	Avg. Thickness	Area	
--	#	ft	in	in	in	sqft	
Overhang L	1	14.00	24.00	10.00	17.00	19.83	
Overhang R	1	14.00	24.00	10.00	17.00	19.83	
Top Slab	1	28.33	10.00	10.00	10.00	23.61	
Top Fillet	2	2.00	24.00	0.00	12.00	4.00	
Bottom Fillet	2	4.00	22.00	0.00	11.00	7.33	
Bottom Slab, @ Pier 7, 10	1	19.67	30.00	30.00	30.00	49.17	
Bottom Slab, Midspan	1	23.67	30.00	30.00	30.00	59.17	
Bottom Slab, @ Pier 8, 9	1	14.33	36.00	36.00	36.00	43.00	
Webs, @ Pier 7, 10	2	12.30	14.00	14.00	14.00	28.69	
Webs, Midspan	2	5.97	14.00	14.00	14.00	13.94	
Webs, @ Pier 8, 9	2	20.73	14.00	14.00	14.00	48.37	
						TOTAL, Pier 7, 10	152.47
						TOTAL, Midspan	147.72
						TOTAL, Pier	165.98
						Avg Area	153.47



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Main Span

Box Section	Qty	Length	Max Thickness	Min Thickness	Avg. Thickness	Area
--	#	ft	in	in	in	sqft
Overhang L	1	14.00	24.00	10.00	17.00	19.83
Overhang R	1	14.00	24.00	10.00	17.00	19.83
Top Slab	1	28.33	10.00	10.00	10.00	23.61
Top Fillet	2	2.00	2.00	0.00	1.00	0.33
Bottom Fillet	2	4.00	22.00	0.00	11.00	7.33
Bottom Slab, Midspan	1	23.00	36.00	36.00	36.00	69.00
Bottom Slab, @ Pier	1	14.33	36.00	36.00	36.00	43.00
Webs, Midspan	2	7.03	14.00	14.00	14.00	16.40
Webs, @ Pier	2	20.73	14.00	14.00	14.00	48.37
TOTAL, Midspan						156.34
TOTAL, Pier						162.32
Avg Area						159.33

Pier Diaphragm

Pier Table Section	Qty	Length/Height	Max Thickness	Min Thickness	Avg. Thickness	Area
--	#	ft	in	in	in	sqft
Overhang L	1	14.00	24.00	10.00	17.00	19.83
Overhang R	1	14.00	24.00	10.00	17.00	19.83
Top Slab	1	28.33	24.00	24.00	24.00	56.67
Box Diaphragm	1	21.00	340.00	172.00	256.00	448.00
TOTAL, Pier						544.33

Concrete Volumes

Span	Avg. Area	Span Length*	Volume
#	sqft	ft	cuyd
1	149.70	170	943
2	149.70	280	1552
3	149.70	280	1552
4	149.70	280	1552
5	149.70	280	1552
6	149.70	280	1552
7	153.47	380	2160
8	159.33	480	2833
9	153.47	380	2160
10	149.70	280	1552
11	149.70	280	1552
12	149.70	280	1552
13	149.70	280	1552
14	149.70	200	1109
TOTAL			23176

PCE Update uses:

9401	Foundation Concrete, Class 4000
33523	General Structural Concrete, Class 4000
42924	Total

44505 Total here (Foundation, Precast, and Super)

*does not include length of pier tables (20'-0" ea. pier)

Span	Area	Table Length	Qty	Volume
#	sqft	ft	ea.	cuyd
Appr. Spans	408.33	20	11	3327
Main Span	544.33	20	2	807
TOTAL				4135

Adjusted to match KMC

Columns	7169
Box Spans	23176
Pier Tables	4135
TOTAL	34479



Project: Port of Hood River Bridge Replacement

Subject: PCE Update - Structural Quantities

Project #: 80550

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9/24/2021

Updated by: SCB 11/16/2021

REINFORCED CONCRETE END PANELS SQYD

Assumptions: 18" thickness

Location	Length ft	Width ft	Area sqyd
--			
South End	30.33	56.33	190
North End	30.33	56.33	190
TOTAL			380

POST-TENSIONING LBS

Assumptions: Longitudinal PT calculated based on 200' span length; calculated based on ratio of PT weight to sqft deck surface.

Risk: Quantities are ROM estimates, assumed span lengths are shorter than actual for majority of spans; geometry and PT design are subject to refinement during final design

Deck Area sqft	PT Ratio lb/sqft	PT Weight lb
247303	9	2225730
Used:		2228617

BEARING DEVICES, ABUTMENTS EACH

Assumptions: Cost calculated per abutment, based on approximate square footage of bearing area at each location

Risk: Bearings have not been sized so unit cost may not be representative; bearings are proprietary and cost may vary by manufacturer

Location	Qty #	
--		
Abut 1	1	
Abut 15	1	
TOTAL		2

BEARING DEVICES, BENT 2 & 14 EACH

Assumptions: Cost calculated per bent, based on approximate square footage of bearing area at each location

Risk: Bearings have not been sized so unit cost may not be representative; bearings are proprietary and cost may vary by manufacturer

Location	Qty #	
--		
Bent 2	1	
Bent 14	1	
TOTAL		2

2 INCH ELECTRICAL CONDUIT FOOT

Assumptions: Measured from back of pvmt seat to back of pvmt seat.

Start Sta STA	End Sta STA	Qty #	Length ft
23+43.70	67+33.70	2	8780
TOTAL			8780
Used:			8800



MODULAR EXPANSION JOINT SEALS **FOOT**

Assumptions: Taken as deck width, measured from out-to-out.

Location	Bridge Width ft
--	
Abut 1	56.33
Abut 15	56.33
TOTAL	113.00

COMBINATION BRIDGE RAIL **FOOT**

Assumptions: Measured from back of pvmt seat to back of pvmt seat.

Location	Start Sta STA	End Sta STA	Length ft
--			
East	23+43.70	67+33.70	4390
West	23+43.70	67+33.70	4390
TOTAL			8780

HANDRAIL PEDESTRIAN ORNAMENTAL **FOOT**

Assumptions: Measured from back of pvmt seat to back of pvmt seat. One side only.

Location	Start Sta STA	End Sta STA	Length ft
--			
West	23+43.70	67+33.70	4390
TOTAL			4390

NOISE WALL (PED) **SQFT**

Assumptions: Assumed to run on downstream side adjacent to the tribal lands; not currently shown on bridge plans

Low End		High End	
Area sqft		Area sqft	
5000		30000	

RETAINING WALLS, MSE **SQFT**

Location	Area sqft
--	
Southwest	2663
Southeast	2625
Northwest	1870
Northeast	3465
S Abut	507
N Abut	845
S End	410
N End	450
TOTAL	12835

RETAINING WALLS, SOLDIER PILE (WA SIDE) **SQFT**

Assumptions: Located on the hillside northeast of roundabout on WA side; may require capacity to resist landslides. High end size and costs assumed.

Location	Height ft	Length ft	Area sqft
--			
North of SR14	30	350	10500
TOTAL			10500



Project: Port of Hood River Bridge Replacement

Subject: **PCE Update - Structural Quantities**

Project #: 80550

Designed by: AJD

9/24/2021

Updated by: SCB 11/16/2021

WORK BRIDGE LS

Assumptions: Added to other work elements

MARINE SUPPORT LS

Assumptions: Added to other work elements

BRIDGE REMOVAL SQFT

Assumptions: Removal of truss superstructure only

Risk: Majority of cost is based on labor and equipment

Qty sqft	Deck	Truss	Feet	
19.5	19.5	22.83		
92778	Average	21.00	4418	92778 SF

RIPRAP REMOVAL SQFT

Assumptions: Quantities taken from as-built plans

Risk: Difficult to locate, grab, and remove

	Pier C	Pier B	Pier A	Pier 1	Pier 2	Pier 3	Pier 4		
Seal Conc	110.0	0.0	0.0	0.0	0.0	0.0	0.0		
Pier Conc	190.8	166.5	196.5	171.7	176.9	191.6	208.7		
Rip Rap	0	266	325	485	490	430	450		
	Pier 5	Pier 6	Pier 7	Pier 8	Pier 9	Pier 10	Pier 11	Pier 12	
Seal Conc	0.0	0.0	0.0	702.1	0.0	0.0	0.0	171.0	
Pier Conc	213.2	237.3	235.2	847.0	621.1	232.1	449.0	205.8	
Rip Rap	650	650	650	48046	30384	0	0	0	
	Pier 13	Pier 14	Pier 15	Pier 16	Pier 17		Total		
Seal Conc	0.0	0.0	0.0	0.0	0.0	Seal Conc	983.1	CY	
Pier Conc	150.1	64.7	72.5	54.1	25.0	Pier Conc	4709.7	CY	
Rip Rap	0	100	0	0	0	Rip Rap	82926.0	CY	



Project: Port of Hood River Bridge Replacement

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9/24/2021

Updated by: SCB 11/16/2021

SHORING, CRIBBING AND COFFERDAMS - REMOVE EXISTING PIERS

LS

Assumptions: Cofferdam height is taken as distance between "HW 1894" high water elevation and soffit of pile cap, plus 10'-0" additional key-in depth; 3'-0" clearance assumed between sheet pile and pile cap
Riprap at Piers 8 & 9 wraps 20ft around the perimeter of the foundations

Risk: Divers are not included
EIS requires removal 3ft below mud line.

Unit Cost Basis:

Quantity:

Sheet Pile Area

Bent	Bent Height A	Bent Height B	Top Width	Base Width	Base Length	Coffer Cell Clear Dist.	Coffer Cell Perimeter	"HW 1894" Elev.	Approx. Base Elev	Key Depth	Area		
#	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	sqft		
1	0	0	0	38	16	3	120.0	96.25	45	10	7350	968	2450
2	0	0	0	38	16	3	120.0	96.25	32.1	10	8898	968	2966
3	0	0	0	38	16	3	120.0	96.25	22	10	10110	968	3370
4	0	76.21	20	28.18	14	3	96.4	96.25	21.1	10	8204.273	683.508333	2734.758
5	0	88.28	20	28.68	14	3	97.4	96.25	20	10	8397.013	693.566667	2799.004
6	0	83.75	20	28.49	14	3	97.0	96.25	14.7	10	8878.443	689.791667	2959.481
7	0	88.44	20	28.69	14	3	97.4	96.25	15.3	10	8855.802	693.7	2951.934
8	0	95.32	20	28.97	14	3	97.9	96.25	8.2	10	9603.344	699.433333	3201.115
9	0	102.4	20	29.27	14	3	98.5	96.25	4.1	10	10065.18	705.333333	3355.06
10	0	105.98	20	29.42	14	3	98.8	96.25	3	10	10204.37	708.316667	3401.457
RipRap Limit	25.90	104.35	27.33	77.76	54	3	275.5	96.25	2.1	10	28695.49	5025.625	9565.165
RipRap Limit	25.90	108.35	27.33	77.93	54	3	275.9	96.25	-2.6	10	30026.73	5035.625	10008.91
13	0	103.75	20	29.32	14	3	98.6	96.25	-4	10	10875.7	706.458333	3625.234
14	0	59.25	20	27.47	14	3	94.9	96.25	34.1	10	6849.741	669.375	2283.247
15	0	0	0	34	14	3	108.0	96.25	24.1	10	8872.2	800	2957.4
16	0	0	0	34	14	3	108.0	96.25	14.8	10	9876.6	800	3292.2
17	0	0	0	32	14	3	104.0	96.25	59.8	10	4830.8	760	1610.267
18	0	0	0	30	15	3	102.0	96.25	42.3	10	6522.9	756	2174.3
19	0	0	0	30	14	3	100.0	96.25	53.2	10	5305	720	1768.333
20	0	0	0	30	14	3	100.0	96.25	73	10	3325	720	1108.333

Benthic LF
Sheet pile 23770.7333 68582.2

Cofferdam Install and Bracing Lump Sum

Bent	Area	Sheet Pile Install Unit Cost	Bracing Unit Cost	Cost
#	sqft	\$/sqft	\$/sqft	\$
1	7350	\$ 28.00	\$ 5.00	\$ 242,550.00
2	8898	\$ 28.00	\$ 5.00	\$ 293,634.00
3	10110	\$ 28.00	\$ 5.00	\$ 333,630.00
4	8204	\$ 28.00	\$ 5.00	\$ 270,741.02
5	8397	\$ 28.00	\$ 5.00	\$ 277,101.41
6	8878	\$ 28.00	\$ 5.00	\$ 292,988.61
7	8856	\$ 28.00	\$ 5.00	\$ 292,241.45
8	9603	\$ 28.00	\$ 5.00	\$ 316,910.35
9	10065	\$ 28.00	\$ 5.00	\$ 332,150.94
10	10204	\$ 28.00	\$ 5.00	\$ 336,744.20
11	28695	\$ 28.00	\$ 5.00	\$ 946,951.33
12	30027	\$ 28.00	\$ 5.00	\$ 990,881.96
13	10876	\$ 28.00	\$ 5.00	\$ 358,898.20
14	6850	\$ 28.00	\$ 5.00	\$ 226,041.44
15	8872	\$ 28.00	\$ 5.00	\$ 292,782.60
16	9877	\$ 28.00	\$ 5.00	\$ 325,927.80
17	4831	\$ 28.00	\$ 5.00	\$ 159,416.40
18	6523	\$ 28.00	\$ 5.00	\$ 215,255.70
19	5305	\$ 28.00	\$ 5.00	\$ 175,065.00
20	3325	\$ 28.00	\$ 5.00	\$ 109,725.00
TOTAL				\$ 6,789,637.41

Summary

Item	Cost
--	\$
Sheet Pile Installation and Bracing	\$ 6,789,637.41
TOTAL	\$ 6,789,637.41
Used:	\$6,790,210



ALLOCATED CONTINGENCY FOR LEAD PAINT REMOVAL

SQFT

Assumptions: Include in bridge removal costs

Qty
sqft
92778

WORK BRIDGE

LS

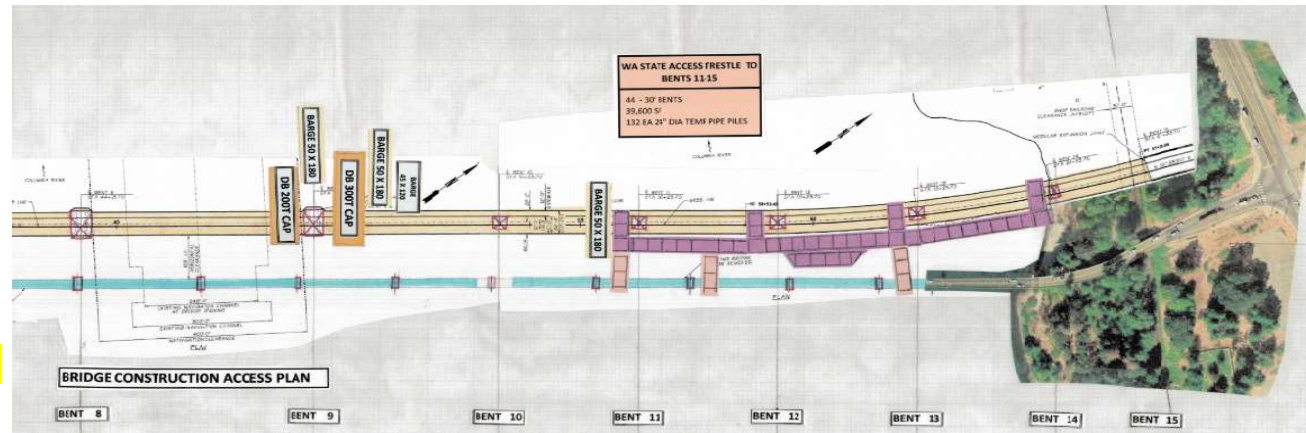
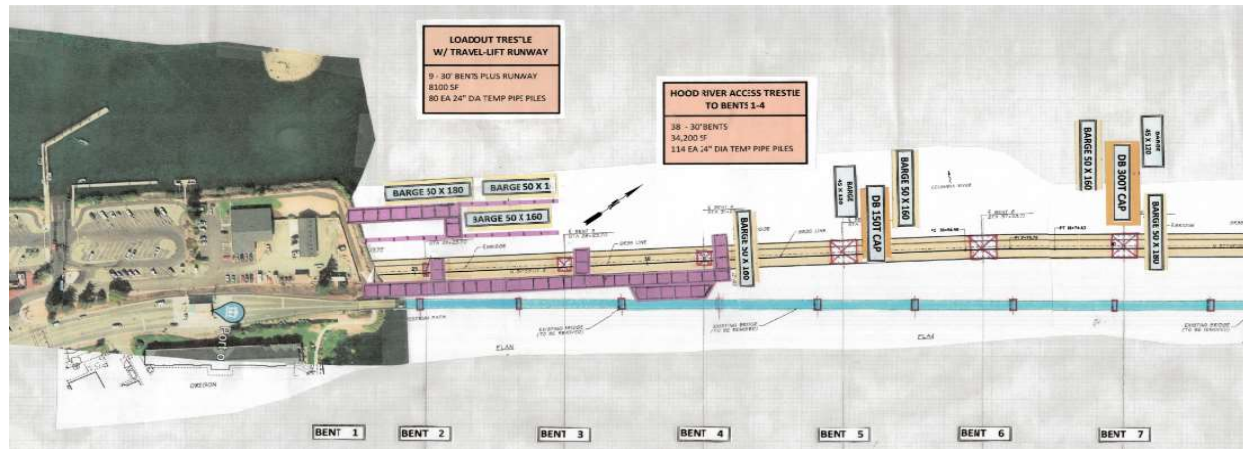
Assumptions: Added to other work elements

Oregon
Transi-Lift
Area (SF):
8100

Oregon
Area (SF):
34200

Washington
Area (SF):
39600

Total Area (SF)
81900



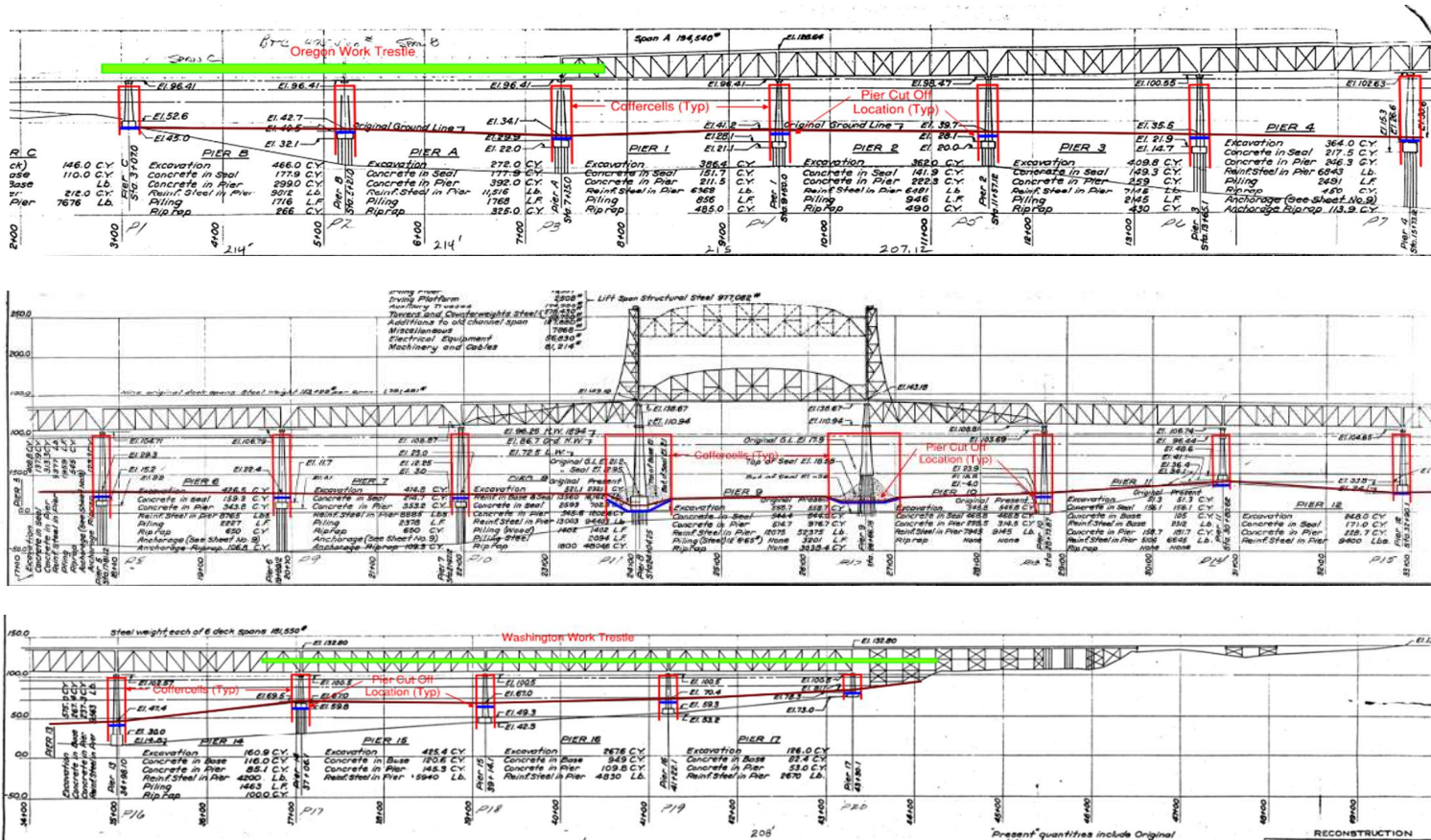


BRIDGE REMOVAL

SQFT

Assumptions: Removal of foundations within cofferdams; removal to depth of 3ft below mudline
 Use divers and wire-cutting techniques
 Removed segments hauled off to Portland area for demolition
 Blue lines show limits of removal (vertically)

See PCE details for costs at each Pier



MARINE SUPPORT

LS

Assumptions: Added to other work elements