

1 Q. Notification of Change to Project Budget, page 1, states, “Failure to complete the condition
2 assessment will impair Hydro’s ability to determine an accurate scope and estimate for
3 refurbishment and may result in higher contract bids to account for the associated risk of the
4 unknown condition of the sumps.” Does Hydro have a Class 5 estimate of the refurbishment
5 work? If yes, provide a copy. If not, why not?

6
7
8 A. In 2023, Newfoundland and Labrador Hydro (“Hydro”) engaged Hatch to develop a Class 5
9 construction estimate for the completion of the concrete refurbishment work in the sumps. The
10 estimated total cost to complete the refurbishment of both pumphouses was estimated to be
11 approximately \$6.6 million. The estimate for Pumphouse 1 is provided as PUB-NLH-003,
12 Attachment 1.¹ In order to refine the estimate to a Class 3 level, Hydro requires a Level 2
13 Condition Assessment to fully define the potential project scope.

¹ The accuracy of an AACE Class 5 estimate is -50%/+100%. It is assumed that the cost to refurbish Pumphouse 2 would be approximately the same as that of Pumphouse 1.

FEED for HTGS Pumphouse - NL Hydro

Rev. A

Description	% OF TOTAL	PUMPHOUSE #1		Remarks
		Cost CAD- Option 1 96 Days - Shifts 8 hrs	Cost CAD- Option 2 48 Days - Shifts 8 hrs	
Mobilization -Demobilization	0.8%	\$30,000	\$15,000	Lumpsum Cost Assumed
Manpower Cost	59.7%	\$2,145,106	\$1,978,483	Double Shift during Scaffolding erection & Concrete works assumed. Assumed 20% of works can be done in parallel . Shifts of 8 hrs assumed
Materials Cost	7.3%	\$261,427	\$261,427	As per Market in house data
Direct Cost	67.8%	\$2,436,533	\$2,254,910	
Indirect Cost	15.5%	\$557,488	\$515,865	Assumed EPCM @14% , travel and board for 20% of
Contingency	16.7%	\$598,804	\$554,155	Assumed at 20% at this stage of project
CAPEX Total	100.0%	\$3,592,826	\$3,324,930	

NOTES

OPTIONS 96 DAYS & 48 DAYS WOULD HAVE BIGGER CREWS TO EXECUTE SOW IN LESS TIME

ASSUMED THAT WORKS DONE IN PARALLEL AND WOULD HAVE A SHARED COST OF FOREMAN

DAILY SHIFTS ASSUMED AT 8 HOURS

COST OF PUMPHOUSE 1 & 2 ASSUMED TO BE SIMILAR AND WORKS WOULD BE DONE ONE PUMPHOUSE AFTER THE OTHER

ESCALATION COST IS EXCLUDED FROM THIS CAPEX ESTIMATE

OWNER COST ASSUMED AT 4%, TO BE VALIDATED WITH CLIENT

EPCM COST ASSUMED AT 14% OF DIRECT COST

CONTINGENCY ASSUMED AT 20%.

FLOOR REFURBISHMENT PROJECT SCHEDULE

Rev. A

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Activity ID	Activity Name	Original Duration	Unit	Cost per Day CAD	Total Cost CAD	Remarks
FEED for HTGS Pumphouse - NL Hydro						
General						
PUMPHOUSE 1 Duration from 08-April 24 to 12-July 24						
A1000	Contract Award	0				
A1010	Project Setup / HSSE / Training / Planning	10				
A1020.0	Material Order	10				
A1020.1	Material Supply 1	10				
A1020.2	Material Supply 2	15				
A1030	Mobilization to Site	1	Lot	\$20,000	\$20,000	
A1140	Demobilize from site	1	Lot	\$10,000	\$10,000	
Unit 1 North West Sump						
A1040.1.1	Confined Space Entry for Unit 1 NW Sump	0	Day	\$8,461	\$8,461	Loss of productivity due to space constraints- One shift assumed
A1050.1.1	Scaffolding Setup for Access to Unit 1 NW Sump	2	Day	\$15,267	\$30,535	2 Days working double shift assumed, foreman " 50% - 20% time saving work in parallel
A1060.1.1	Demolition of deteriorated concrete - Unit 1 NW Sump	4	Day	\$24,196	\$96,782	Double shift assumed, 20% efficiency gained by working in parallel
A1070.1.1	Removal of loose/spalled concrete to sound concrete - Unit 1 NW Sump	5	Day	\$24,196	\$120,978	Activities assumed could be done partially in parallel and not necessary in sequence. Double shift assumed and 20 % efficiency gained by working simultaneously
A1080.1.1	Clean existing rebar, measure existing remaining - Unit 1 NW Sump					
A1090.1.1	Determine replacement / reinforcement requirements - Unit 1 NW Sump					
A1100.1.1	Replace / Reinforce rebar as required - Unit 1 NW Sump					
A1110.1.1	Grout beam to match original profile - Unit 1 NW Sump					
A1120.1.1	Install FRP wrap reinforcement - Unit 1 NW Sump					
A1130.1.1	Clean site and remove scaffolding - Unit 1 NW Sump	1	Day	\$7,634	\$7,634	Assumed single shift
Unit 1 North East Sump						
A1040.1.2	Confined Space Entry for Unit 1 NE Sump	0	Day	\$8,461	\$8,461	Loss of productivity due to space constraints- One shift assumed
A1050.1.2	Scaffolding Setup for Access to Unit 1 NE Sump	2	Day	\$15,267	\$30,535	2 Days working double shift assumed, foreman " 50% - 20% time saving work in parallel
A1060.1.2	Demolition of deteriorated concrete - Unit 1 NE Sump	4	Day	\$24,196	\$96,782	Double shift assumed, 20% efficiency gained by working in parallel
A1070.1.2	Removal of loose/spalled concrete to sound concrete - Unit 1 NE Sump	5	Day	\$24,196	\$120,978	Activities assumed could be done partially in parallel and not necessary in sequence. Double shift assumed and 20 % efficiency gained by working simultaneously
A1080.1.2	Clean existing rebar, measure existing remaining - Unit 1 NE Sump					
A1090.1.2	Determine replacement / reinforcement requirements - Unit 1 NE Sump					
A1100.1.2	Replace / Reinforce rebar as required - Unit 1 NE Sump					
A1110.1.2	Grout beam to match original profile - Unit 1 NE Sump					
A1120.1.2	Install FRP wrap reinforcement - Unit 1 NE Sump					
A1130.1.2	Clean site and remove scaffolding - Unit 1 NE Sump	1	Day	\$7,634	\$7,634	Assumed single shift

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Unit 1 South West Sump						\$264,388						Loss of productivity due to space constraints- One shift assumed
A1040.1.3	Confined Space Entry for Unit 1 SW Sump	0	Day			\$8,461						
A1050.1.3	Scaffolding Setup for Access to Unit 1 SW Sump	2	Day			\$15,267						2 Days working double shift assumed, foreman " 50% - 20% time saving work in parallel
A1060.1.3	Demolition of deteriorated concrete - Unit 1 SW Sump	4	Day			\$24,196						Double shift assumed, 20% efficiency gained by working in parallel
A1070.1.3	Removal of loose/spalled concrete to sound concrete - Unit 1 SW Sump	5	Day			\$24,196						Activities assumed could be done partially in parallel and not necessary in sequence. Double shift assumed and 20 % efficiency gained by working simultaneously
A1080.1.3	Clean existing rebar, measure existing remaining - Unit 1 SW Sump											
A1090.1.3	Determine replacement / reinforcement requirements - Unit 1 SW Sump											
A1100.1.3	Replace / Reinforce rebar as required - Unit 1 SW Sump											
A1110.1.3	Grout beam to match original profile - Unit 1 SW Sump											
A1120.1.3	Install FRP wrap reinforcement - Unit 1 SW Sump											
A1130.1.3	Clean site and remove scaffolding - Unit 1 SW Sump	1	Day			\$7,634						Assumed single shift
Unit 1 South East Sump						\$264,388						
A1040.1.4	Confined Space Entry for Unit 1 SE Sump	0	Day			\$8,461						Loss of productivity due to space constraints- One shift assumed
A1050.1.4	Scaffolding Setup for Access to Unit 1 SE Sump	2	Day			\$15,267						2 Days working double shift assumed, foreman " 50% - 20% time saving work in parallel
A1060.1.4	Demolition of deteriorated concrete - Unit 1 SE Sump	4	Day			\$24,196						Double shift assumed, 20% efficiency gained by working in parallel
A1070.1.4	Removal of loose/spalled concrete to sound concrete - Unit 1 SE Sump	5	Day			\$24,196						Activities assumed could be done partially in parallel and not necessary in sequence. Double shift assumed and 20 % efficiency gained by working simultaneously
A1080.1.4	Clean existing rebar, measure existing remaining - Unit 1 SE Sump											
A1090.1.4	Determine replacement / reinforcement requirements - Unit 1 SE Sump											
A1100.1.4	Replace / Reinforce rebar as required - Unit 1 SE Sump											
A1110.1.4	Grout beam to match original profile - Unit 1 SE Sump											
A1120.1.4	Install FRP wrap reinforcement - Unit 1 SE Sump											
A1130.1.4	Clean site and remove scaffolding - Unit 1 SE Sump	1	Day			\$7,634						Assumed single shift
Unit 2 North West Sump						\$264,388						
A1040.2.1	Confined Space Entry for Unit 2 NW Sump	0	Day			\$8,461						Loss of productivity due to space constraints- One shift assumed
A1050.2.1	Scaffolding Setup for Access to Unit 2 NW Sump	2	Day			\$15,267						2 Days working double shift assumed, foreman " 50% - 20% time saving work in parallel
A1060.2.1	Demolition of deteriorated concrete - Unit 2 NW Sump	4	Day			\$24,196						Double shift assumed, 20% efficiency gained by working in parallel
A1070.2.1	Removal of loose/spalled concrete to sound concrete - Unit 2 NW Sump	5	Day			\$24,196						Activities assumed could be done partially in parallel and not necessary in sequence. Double shift assumed and 20 % efficiency gained by working simultaneously
A1080.2.1	Clean existing rebar, measure existing remaining - Unit 2 NW Sump											
A1090.2.1	Determine replacement / reinforcement requirements - Unit 2 NW Sump											
A1100.2.1	Replace / Reinforce rebar as required - Unit 2 NW Sump											
A1110.2.1	Grout beam to match original profile - Unit 2 NW Sump											
A1120.2.1	Install FRP wrap reinforcement - Unit 2 NW Sump											
A1130.2.1	Clean site and remove scaffolding - Unit 2 NW Sump	1	Day			\$7,634						Assumed single shift

A	Total Manpower Cost					\$2,145,106
B	Total Materials					\$261,427
1	Concrete Pumphouse 1	5.6	m3	\$2,600		\$14,560
2	FRP	107.5	m2	\$700		\$75,274
3	Grating	47.5	m2	\$450		\$21,383
4	Grouting	1.4	m3	\$7,500		\$10,788
1	Concrete Pumphouse 2	6.3	m3	\$2,600		\$16,271
2	FRP	122.0	m2	\$700		\$85,432
3	Grating	55.5	m2	\$450		\$24,970
4	Grouting	1.7	m3	\$7,500		\$12,749
C	Total Direct Cost C=A+B+ Mob					\$2,436,533
	INDIRECT COST					
1	HATCH-EPCM (14% of direct). Includes for Site Visit & Structural assessment, Preparation of detailed design drawings for concrete repair Engineering supervision, procurement services, project controls, construction supervision & management	1.00	%	14%		\$341,115
2	Temporary Site Facilities and services (4%)	1.00	%	4%		\$97,461
3	Owner's Costs (4% of direct)	1.00	%	4%		\$97,461
4	Travel and board (5.0% of Manpower Cost)- 20% of workers only	1.00	%	5%		\$21,451
D	Total Indirect Cost					\$557,488
E	CONTINGENCY					
1	Contingency (20% of direct and indirect)	1.00	%	20%		\$598,804
F=C+D+E	CAPEX GRAND TOTAL					\$3,592,826

Activity ID		Original Duration	Unit	Cost per Day CAD	Total Cost CAD	Remarks
FEED for HTGS Pumphouse - NL Hydro						
General						
PUMPHOUSE 1 Duration from 08- Apr 24 to 25- May 24						
A1000	Contract Award	0				
A1010	Project Setup / HSSE / Training / Planning	10				
A1020.0	Material Order	10				
A1020.1	Material Supply 1	10				
A1020.2	Material Supply 2	15				
A1030	Mobilization to Site	1	Lot	\$10,000	\$10,000	
A1140	Demobilize from site	1	Lot	\$5,000	\$5,000	
Unit 1 North West Sump						
A1040.1.1	Confined Space Entry for Unit 1 NW Sump	0	Day	\$8,461	\$8,461	Loss of productivity due to space constraints- One shift assumed
A1050.1.1	Scaffolding Setup for Access to Unit 1 NW Sump	1	Day	\$19,920	\$19,920	1 Day working double shift assumed, foreman " 50% - 20% time saving work in parallel. Bigger Crew
A1060.1.1	Demolition of deteriorated concrete - Unit 1 NW Sump	3	Day	\$29,917	\$89,752	Double shift assumed, 20% efficiency gained by working in parallel. Bigger Crew
A1070.1.1	Removal of loose/spalled concrete to sound concrete - Unit 1 NW Sump	4	Day	\$29,917	\$119,669	Activities assumed could be done partially in parallel and not necessary in sequence.
A1080.1.1	Clean existing rebar, measure existing remaining - Unit 1 NW Sump					Double shift assumed and 20 % efficiency gained by working simultaneously. Bigger Crew
A1090.1.1	Determine replacement / reinforcement requirements - Unit 1 NW Sump					
A1100.1.1	Replace / Reinforce rebar as required - Unit 1 NW Sump					
A1110.1.1	Grout beam to match original profile - Unit 1 NW Sump					
A1120.1.1	Install FRP wrap reinforcement - Unit 1 NW Sump					
A1130.1.1	Clean site and remove scaffolding - Unit 1 NW Sump	1	Day	\$7,634	\$7,634	Assumed single shift. Shared Foreman
Unit 1 North East Sump						
A1040.1.2	Confined Space Entry for Unit 1 NE Sump	0	Day	\$8,461	\$8,461	Loss of productivity due to space constraints- One shift assumed
A1050.1.2	Scaffolding Setup for Access to Unit 1 NE Sump	1	Day	\$19,920	\$19,920	1 Day working double shift assumed, foreman " 50% - 20% time saving work in parallel. Bigger Crew
A1060.1.2	Demolition of deteriorated concrete - Unit 1 NE Sump	3	Day	\$29,917	\$89,752	Double shift assumed, 20% efficiency gained by working in parallel. Bigger Crew
A1070.1.2	Removal of loose/spalled concrete to sound concrete - Unit 1 NE Sump	4	Day	\$29,917	\$119,669	Activities assumed could be done partially in parallel and not necessary in sequence.
A1080.1.2	Clean existing rebar, measure existing remaining - Unit 1 NE Sump					
A1090.1.2	Determine replacement / reinforcement requirements - Unit 1 NE Sump					

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A1100.1.2	Replace / Reinforce rebar as required - Unit 1 NE Sump								Double shift assumed and 20% efficiency gained by working simultaneously. Bigger Crew
A1110.1.2	Grout beam to match original profile - Unit 1 NE Sump								
A1120.1.2	Install FRP wrap reinforcement - Unit 1 NE Sump								
A1130.1.2	Clean site and remove scaffolding - Unit 1 NE Sump	1	Day	\$7,634	\$7,634				Assumed single shift. Shared Foreman
Unit 1 South West Sump									
A1040.1.3	Confined Space Entry for Unit 1 SW Sump	0	Day	\$8,461	\$245,435				Loss of productivity due to space constraints- One shift assumed
A1050.1.3	Scaffolding Setup for Access to Unit 1 SW Sump	1	Day	\$19,920	\$19,920				1 Day working double shift assumed, foreman " 50% - 20% time saving work in parallel. Bigger Crew
A1060.1.3	Demolition of deteriorated concrete - Unit 1 SW Sump	3	Day	\$29,917	\$89,752				Double shift assumed, 20% efficiency gained by working in parallel. Bigger Crew
A1070.1.3	Removal of loose/spalled concrete to sound concrete - Unit 1 SW Sump	4	Day	\$29,917	\$119,669				Activities assumed could be done partially in parallel and not necessary in sequence.
A1080.1.3	Clean existing rebar, measure existing remaining - Unit 1 SW Sump								Double shift assumed and 20% efficiency gained by working simultaneously. Bigger Crew
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A1110.1.3	Grout beam to match original profile - Unit 1 SW Sump								
A1120.1.3	Install FRP wrap reinforcement - Unit 1 SW Sump								
A1130.1.3	Clean site and remove scaffolding - Unit 1 SW Sump	1	Day	\$7,634	\$7,634				Assumed single shift. Shared Foreman
Unit 1 South East Sump									
A1040.1.4	Confined Space Entry for Unit 1 SE Sump	0	Day	\$8,461	\$245,435				Loss of productivity due to space constraints- One shift assumed
A1050.1.4	Scaffolding Setup for Access to Unit 1 SE Sump	1	Day	\$19,920	\$19,920				1 Day working double shift assumed, foreman " 50% - 20% time saving work in parallel. Bigger Crew
A1060.1.4	Demolition of deteriorated concrete - Unit 1 SE Sump	3	Day	\$29,917	\$89,752				Double shift assumed, 20% efficiency gained by working in parallel. Bigger Crew
A1070.1.4	Removal of loose/spalled concrete to sound concrete - Unit 1 SE Sump	4	Day	\$29,917	\$119,669				Activities assumed could be done partially in parallel and not necessary in sequence.
A1080.1.4	Clean existing rebar, measure existing remaining - Unit 1 SE Sump								Double shift assumed and 20% efficiency gained by working simultaneously. Bigger Crew
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A1110.1.4	Grout beam to match original profile - Unit 1 SE Sump								
A1120.1.4	Install FRP wrap reinforcement - Unit 1 SE Sump								
A1130.1.4	Clean site and remove scaffolding - Unit 1 SE Sump	1	Day	\$7,634	\$7,634				Assumed single shift. Shared Foreman
Unit 2 North West Sump									
A1040.2.1	Confined Space Entry for Unit 2 NW Sump	0	Day	\$8,461	\$245,435				Loss of productivity due to space constraints- One shift assumed
A1050.2.1	Scaffolding Setup for Access to Unit 2 NW Sump	1	Day	\$19,920	\$19,920				1 Day working double shift assumed, foreman " 50% - 20% time saving work in parallel. Bigger Crew

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A1060.2.1	Demolition of deteriorated concrete - Unit 2 NW Sump	3	Day	\$29,917	\$89,752	Double shift assumed, 20% efficiency gained by working in parallel. Bigger Crew
A1070.2.1	Removal of loose/spalled concrete to sound concrete - Unit 2 NW Sump	4	Day	\$29,917	\$119,669	Activities assumed could be done partially in parallel and not necessary in sequence. Double shift assumed and 20% efficiency gained by working simultaneously. Bigger Crew
A1080.2.1	Clean existing rebar, measure existing remaining - Unit 2 NW Sump					
A1090.2.1	Determine replacement / reinforcement requirements - Unit 2 NW Sump					
A1100.2.1	Replace / Reinforce rebar as required - Unit 2 NW Sump					
A1110.2.1	Grout beam to match original profile - Unit 2 NW Sump					
A1120.2.1	Install FRP wrap reinforcement - Unit 2 NW Sump					
A1130.2.1	Clean site and remove scaffolding - Unit 2 NW Sump	1	Day	\$7,634	\$7,634	Assumed single shift. Shared Foreman
Unit 2 North East Sump						
A1040.2.2	Confined Space Entry for Unit 2 NE Sump	0	Day	\$8,461	\$245,435	Loss of productivity due to space constraints- One shift assumed
A1050.2.2	Scaffolding Setup for Access to Unit 2 NE Sump	1	Day	\$19,920	\$19,920	1 Day working double shift assumed, foreman " 50% - 20% time saving work in parallel. Bigger Crew
A1060.2.2	Demolition of deteriorated concrete - Unit 2 NE Sump	3	Day	\$29,917	\$89,752	Double shift assumed, 20% efficiency gained by working in parallel. Bigger Crew
A1070.2.2	Removal of loose/spalled concrete to sound concrete - Unit 2 NE Sump	4	Day	\$29,917	\$119,669	Activities assumed could be done partially in parallel and not necessary in sequence. Double shift assumed and 20% efficiency gained by working simultaneously. Bigger Crew
A1080.2.2	Clean existing rebar, measure existing remaining - Unit 2 NE Sump					
A1090.2.2	Determine replacement / reinforcement requirements - Unit 2 NE Sump					
A1100.2.2	Replace / Reinforce rebar as required - Unit 2 NE Sump					
A1110.2.2	Grout beam to match original profile - Unit 2 NE Sump					
A1120.2.2	Install FRP wrap reinforcement - Unit 2 NE Sump					
A1130.2.2	Clean site and remove scaffolding - Unit 2 NE Sump	1	Day	\$7,634	\$7,634	Assumed single shift. Shared Foreman
Unit 2 South West Sump						
A1040.2.4	Confined Space Entry for Unit 2 SW Sump	0	Day	\$8,461	\$245,435	Loss of productivity due to space constraints- One shift assumed
A1050.2.4	Scaffolding Setup for Access to Unit 2 SW Sump	1	Day	\$19,920	\$19,920	1 Day working double shift assumed, foreman " 50% - 20% time saving work in parallel. Bigger Crew
A1060.2.4	Demolition of deteriorated concrete - Unit 2 SW Sump	3	Day	\$29,917	\$89,752	Double shift assumed, 20% efficiency gained by working in parallel. Bigger Crew
A1070.2.4	Removal of loose/spalled concrete to sound concrete - Unit 2 SW Sump	4	Day	\$29,917	\$119,669	Activities assumed could be done partially in parallel and not necessary in sequence. Double shift assumed and 20% efficiency gained by working simultaneously. Bigger Crew
A1080.2.4	Clean existing rebar, measure existing remaining - Unit 2 SW Sump					
A1090.2.4	Determine replacement / reinforcement requirements - Unit 2 SW Sump					
A1100.2.4	Replace / Reinforce rebar as required - Unit 2 SW Sump					
A1110.2.4	Grout beam to match original profile - Unit 2 SW Sump					
A1120.2.4	Install FRP wrap reinforcement - Unit 2 SW Sump					
A1130.2.4	Clean site and remove scaffolding - Unit 2 SW Sump	1	Day	\$7,634	\$7,634	Assumed single shift. Shared Foreman

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Unit 2 South East Sump					\$245,435	
A1040.2.3	Confined Space Entry for Unit 2 SE Sump	0	Day	\$8,461	\$8,461	Loss of productivity due to space constraints- One shift assumed
A1050.2.3	Scaffolding Setup for Access to Unit 2 SE Sump	1	Day	\$19,920	\$19,920	1 Day working double shift assumed, foreman " 50% - 20% time saving work in parallel. Bigger Crew
A1060.2.3	Demolition of deteriorated concrete - Unit 2 SE Sump	3	Day	\$29,917	\$89,752	Double shift assumed, 20% efficiency gained by working in parallel. Bigger Crew
A1070.2.3	Removal of loose/spalled concrete to sound concrete - Unit 2 SE Sump	4	Day	\$29,917	\$119,669	Activities assumed could be done partially in parallel and not necessary in sequence.
A1080.2.3	Clean existing rebar, measure existing remaining - Unit 2 SE Sump					Double shift assumed and 20 % efficiency gained by working simultaneously. Bigger Crew
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A1100.2.3	Replace / Reinforce rebar as required - Unit 2 SE Sump					
A1110.2.3	Grout beam to match original profile - Unit 2 SE Sump					
A1120.2.3	Install FRP wrap reinforcement - Unit 2 SE Sump					
A1130.2.3	Clean site and remove scaffolding - Unit 2 SE Sump	1	Day	\$7,634	\$7,634	Assumed single shift. Shared Foreman
A	Total Manpower Cost				\$1,978,483	
B	Total Materials				\$261,427	
1	Concrete Pumphouse 1	5.6	m3	\$2,600	\$14,560	
2	FRP	107.5	m2	\$700	\$75,274	
3	Grating	47.5	m2	\$450	\$21,383	
4	Grouting	1.4	m3	\$7,500	\$10,788	
1	Concrete Pumphouse 2	6.3	m3	\$2,600	\$16,271	
2	FRP	122.0	m2	\$700	\$85,432	
3	Grating	55.5	m2	\$450	\$24,970	
4	Grouting	1.7	m3	\$7,500	\$12,749	
C	Total Direct Cost C=A+B+ Mob INDIRECT COST				\$2,254,910	
1	HATCH-EPCM (14% of direct). Includes for Site Visit & Structural assessment, Preparation of detailed design drawings for concrete repair Engineering supervision, procurement services, project controls, construction supervision & management	1.00	%	14%	\$315,687	
2	Temporary Site Facilities and services (4%)	1.00	%	4%	\$90,196	
3	Owner's Costs (4% of direct)	1.00	%	4%	\$90,196	
4	Travel and board (5.0% of Manpower Cost)- 20% of workers only	1.00	%	5%	\$19,785	
D	Total Indirect Cost				\$515,865	
E	CONTINGENCY					
1	Contingency (20% of direct and indirect)	1.00	%	20%	\$554,155	
F=C+D+E	CAPEX GRAND TOTAL				\$3,324,930	

Crew Rates 2023

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Crew Rates Based on 10 hours per day and 5 days per week (50 hrs)					CREW RATES BASED ON 5 days per week (RT Standard 40 hrs)				
Typical Crew	Commodity Code	Labour Rate		Construction Equipment	Total Cost per hour	Total Cost per hour	Impact %	R3- Impact CAD 193,882 hrs	ESP8- Impact CAD 106,096 hrs
		Direct	Indirect						
Site Development	A	80.78 \$	64.63 \$	77.14 \$	222.55 \$	221.98 \$	0.3%		
Earthworks	E	79.79 \$	63.89 \$	110.28 \$	253.95 \$	262.93 \$	-3.4%		
Concrete Works	C	84.96 \$	70.56 \$	23.28 \$	178.81 \$	163.81 \$	9.2%		
Structural Steel	S	88.74 \$	75.13 \$	31.00 \$	194.87 \$	188.92 \$	3.2%		
Architectural Finishes	F	83.37 \$	69.32 \$	23.21 \$	175.90 \$	161.92 \$	8.6%		
Mechanical Components	M	85.18 \$	73.29 \$	20.72 \$	179.19 \$	231.76 \$	-22.7%		
Mechanical Plateworks	N	85.15 \$	73.26 \$	25.42 \$	183.83 \$	236.80 \$	-22.4%		
Piping and Fittings	P	80.10 \$	69.16 \$	15.08 \$	164.35 \$	144.63 \$	13.6%		
Electrical	L	83.31 \$	71.77 \$	22.70 \$	177.79 \$	163.95 \$	8.4%		
Cable Ladder, Tray & Conduit	R	81.33 \$	70.16 \$	4.90 \$	156.40 \$	136.62 \$	14.5%		
Wire and Cable	W	81.33 \$	70.16 \$	4.90 \$	156.40 \$	136.62 \$	14.5%		
Process Controls	J	80.56 \$	69.54 \$	17.76 \$	167.85 \$	141.23 \$	18.8%		
Foreman		88.42	75.13		196.64 \$		42.6%	\$1,353,775	\$740,812

CREW RATES BASED ON 5 days per week (RT Standard 40 hrs & 45 hrs Civil Works Only)						
Typical Crew	Commodity Code	Labour Rate		Construction Equipment	Total	
		Direct	Indirect			
Site Development	A	80.45 \$	50.72 \$	90.80 \$	221.98 \$	
Earthworks	E	80.55 \$	50.79 \$	131.58 \$	262.93 \$	
Concrete Works	C	82.43 \$	54.68 \$	26.70 \$	163.81 \$	
Structural Steel	S	90.20 \$	61.47 \$	37.25 \$	188.92 \$	
Architectural Finishes	F	81.27 \$	53.92 \$	26.74 \$	161.92 \$	
Mechanical Components	M	83.24 \$	57.72 \$	90.80 \$	231.76 \$	
Mechanical Plateworks	N	86.21 \$	59.78 \$	90.80 \$	236.80 \$	
Piping and Fittings	P	75.49 \$	52.34 \$	16.80 \$	144.63 \$	
Electrical	L	81.35 \$	56.41 \$	26.19 \$	163.95 \$	
Cable Ladder, Tray & Conduit	R	77.42 \$	53.68 \$	5.51 \$	136.62 \$	
Wire and Cable	W	77.42 \$	53.68 \$	5.51 \$	136.62 \$	
Process Controls	J	81.25 \$	56.34 \$	3.64 \$	141.23 \$	
					182.60 \$	

6

Scaffolders

Variation	Impact	R3- Impact CAD	ESP8- Impact CAD
%	%	193882 hr	106096 hrs
0.3%			
-3.4%			
9.2%			
3.2%			
8.6%			
-22.7%			
-22.4%			
13.1%			
0.2%			
30.1%			
14.5%			
10.7%			
41.4%	3%	\$1,221,563	\$668,463