

APPENDIX R

Detailed Breakdown of the Opinion of Probable Cost

WINNIPEG SEWPCC

Opinion of Probable Costs for Plant Expansion - IFAS BNR Option (formerly Option G)

Date: October 30, 2008

Work Includes:

- New Raw Sewage Pump
- New Vortex Grit Chambers (2), Heliscreens (2), Baffling
- Chemical Addition for Primary Clarification
- Convert Ex.HPO to IFAS BNR; Total BNR = 175 MLD, (4) Bioreactors, WAS pumping, blowers, mixers, submersible propeller pumps
- New Secondary Clarifiers (2) at 45.7m diameter; domes; retrofic existing clarifiers (3); new pumps
- Expand UV facility to 175 ML/D
- New DAF Units (4) and building; pumps
- New Fermentor Units (2) and domes, pumps
- Sludge Holding Tanks and pumps
- Outfall twinning, structures, and effluent station

Reference Values:

Excavation and Backfill	\$15 per m ³
Superstructure	\$1,500 per m ²
Substructure - Slabs	\$1,400 per m ³
Substructure - Walls	\$1,500 per m ³
Structure Piles	\$3,000 per pile
Void Form (200mm)	\$20 per m ²

Item No.	Description	Unit	Quantity	Material or Equipment Costs		Labour & Overhead	Total Costs
				Unit Price	Total Price		
1.0	General Requirements	LS	1				\$10,430,000
2.0	Siteworks						
2.1	Demolish Storage Building	LS	1	\$40,000	\$40,000	Included	\$40,000
2.2	Civil Works:						
	- Roads and Sidewalks	m ²	11,624	\$47	\$546,300	Included	\$546,300
	- Wastewater Sewer Service Piping Allowance	LS	1	\$50,000	\$50,000	Included	\$50,000
	- Watermain and Service Piping Allowance	LS	1	\$280,000	\$280,000	Included	\$280,000
	- Outfall (1000 m of 2100 mm Pipe)	m	1,000	\$4,500	\$4,500,000	Included	\$4,500,000
	- Outfall (1000 mm Pipe, 3 manholes, chamber at plant)	LS	1	\$610,000	\$610,000	Included	\$610,000
	- Flow Splitting Chamber Between Primary Clarifiers and Bioreactors	LS	1				\$550,000
	- Flood Protection (Berm and Sod Part of Snow Dump Work)	LS	1				\$70,000
	- Roadwork (Done as Part of Snow Dump Work)	LS	1				\$130,000
	- Fencing (6' chain link fence)	m	1,290	\$70	\$90,300	Included	\$90,000
2.3	Grading, Topsoil, and Sod	m ²	29,500	\$10	\$295,000	Included	\$295,000
2.4	Landscaping Allowance	each	50	\$450	\$22,500	Included	\$23,000
2.5	Dewatering Allowance	LS	1	\$750,000	\$750,000	Included	\$750,000
	Subtotal Siteworks						\$7,930,000

Item No.	Description	Unit	Quantity	Material or Equipment Costs		Labour & Overhead	Total Costs
				Unit Price	Total Price		
3.0 Effluent Sampling Station							
3.1	Excavation and Backfill	m ³	2,000	\$15	\$30,000	Included	\$30,000
3.2	Substructure (8x2 Mixing Chamber and Pipe Connection)	m ³	2	\$175,000	\$350,000	Included	\$350,000
3.3	Superstructure	m ²	30	\$1,500	\$45,000	Included	\$45,000
3.4	Structure Piles	each	12	\$3,000	\$36,000	Included	\$36,000
3.5	Void Form (200mm)	m ²	30	\$20	\$600	Included	\$600
3.6	Misc. Metals (Including Handrails and Grating)	LS	1	\$15,000	\$15,000	Included	\$15,000
3.7	Building Mechanical	LS	1	\$65,000	\$65,000	Included	\$65,000
3.8	Meter and Misc. Process Mechanical	LS	1	\$50,000	\$50,000	Included	\$50,000
	Subtotal Effluent Sampling Station						\$590,000
4.0 Hauled Liquid Waste Receiving Station (Under Separate Contract)							
4.1	All Items Carried Under Separate Contract (No Costs Related To This Project)						
	Although all costs are carried under a separate project, the odor control strategy and associated equipment was determined as part of the odour control TM.						
	Activated carbon is proposed with an installed cost of \$130,000.						
	Subtotal Hauled Liquid Waste Receiving Station						\$0
5.0 Headworks							
5.1	Excavation and Backfill	m ³	2,300	\$15	\$34,500	Included	\$35,000
5.2	Superstructure	m ²	364	\$1,500	\$546,000	Included	\$546,000
5.3	Substructure - Slabs	m ³	352	\$1,400	\$492,800	Included	\$493,000
5.4	Substructure - Walls	m ³	452	\$1,500	\$678,000	Included	\$678,000
5.5	Structure Piles	each	120	\$3,000	\$360,000	Included	\$360,000
5.6	Void Form (200mm)	m ²	364	\$20	\$7,300	Included	\$7,000
5.7	Administration Building Interior Renovations	LS	1	\$480,000	\$480,000	Included	\$480,000
5.8	Misc. Metals (Including Grating, Handrails, and Hand Stop Gates)	LS	1	\$75,000	\$75,000	Included	\$75,000
5.9	Replacement of Existing Influent Pump	LS	1	\$246,000	\$246,000	\$123,000	\$369,000
5.10	Piping and Valving to Incorporate New Pump	LS	1	\$90,000	\$90,000	\$65,000	\$155,000
5.11	Wet Well / Dry Pit Grit Pumping System	LS	1	\$80,000	\$80,000	\$55,000	\$135,000
5.12	Possible HVAC Upgrades in Dry Well	LS	1	\$75,000	\$75,000	\$75,000	\$150,000
5.13	Downward Opening Weir Gates	each	4	\$40,000	\$160,000	\$80,000	\$240,000
5.14	Vortex Grit Removal Systems	each	2	\$764,400	\$1,528,800	\$535,100	\$2,064,000
5.15	Grit Pumping System	each	2	\$50,000	\$100,000	\$50,000	\$150,000
5.16	Grit Classifiers	each	2	\$50,000	\$100,000	\$50,000	\$150,000
5.17	Bar Screens	each	2	\$200,000	\$400,000	\$200,000	\$600,000
5.18	Screenings Compactor	each	2	\$100,000	\$200,000	\$100,000	\$300,000
5.19	Conveyor Work (New Serpentix and Extension of Existing)	LS	1	\$80,000	\$80,000	\$40,000	\$120,000
5.20	HVAC Requirements	LS	1	\$57,000	\$57,000	\$57,000	\$114,000
	Subtotal Headworks						\$7,221,000

Item No.	Description	Unit	Quantity	Material or Equipment Costs		Labour & Overhead	Total Costs
				Unit Price	Total Price		
6.0 Primary Clarifiers							
6.1	Flash Mixers	each	1	\$20,000	\$20,000	\$10,000	\$30,000
6.2	Flocculators	each	6	\$15,000	\$90,000	\$45,000	\$135,000
6.3	Break Into Existing Concrete - Add Floor Hatches	LS	7	\$7,500	\$52,500	Included	\$52,500
6.4	Misc. Metals (Including Checker Plates, Handrails and Grating)	each	7	\$1,200	\$8,400	\$4,200	\$12,600
6.5	Primary Sludge Pump Drive Replacements	each	4	\$10,000	\$40,000	\$20,000	\$60,000
6.6	Primary Sludge Piping and Valving	LS	1	\$180,000	\$180,000	Included	\$180,000
6.7	Primary Scum Piping and Valving	LS	1	\$80,000	\$80,000	Included	\$80,000
6.8	In Channel Flow Meters	each	2	\$35,000	\$70,000	\$35,000	\$105,000
	Subtotal Primary Clarifiers						\$660,000
7.0 Chemical Feed Systems (Primary Clarifiers and Bioreactors)							
7.1	Excavation and Backfill	m ³	500	\$15	\$7,500	Included	\$7,500
7.2	Superstructure	m ²	325	\$1,500	\$487,500	Included	\$487,500
7.3	Substructure	m ³	137	\$1,500	\$205,500	Included	\$205,500
7.4	Structure Piles	each	39	\$3,000	\$117,000	Included	\$117,000
7.5	Void Form (200mm)	m ²	325	\$20	\$6,500	Included	\$6,500
7.6	Crane for Polymer Bag Handling	LS	1	\$35,000	\$35,000	\$17,500	\$52,500
7.7	Misc. Metals (Including Handrails and Grating)	LS	1	\$15,000	\$15,000	Included	\$15,000
7.8	Alum Storage Tanks	each	4	\$30,000	\$120,000	\$60,000	\$180,000
7.9	Alum Feed Pumps	each	4	\$8,000	\$32,000	\$16,000	\$48,000
7.10	Alum Tank Fill Piping and Valves	LS	1	\$10,000	\$10,000	Included	\$10,000
7.11	Alum Tank to Pump Piping and Valves	LS	1	\$4,000	\$4,000	Included	\$4,000
7.12	Alum Piping and Valves (from pumps to PC and BNR)	LS	1	\$35,000	\$35,000	Included	\$35,000
7.13	Polymer Feed System Including Pumps	LS	1	\$193,000	\$193,000	\$96,500	\$289,500
7.14	Polymer Piping and Valves	LS	1	\$15,000	\$15,000	Included	\$15,000
7.15	HVAC Requirements	LS	1	\$51,000	\$51,000	\$51,000	\$102,000
	Subtotal Chemical Feed Systems						\$1,580,000

Item No.	Description	Unit	Quantity	Material or Equipment Costs		Labour & Overhead	Total Costs
				Unit Price	Total Price		
8.0	Bioreactors, Blower Room and Electrical Room						
8.1	Excavation and Backfill	m ³	37,000	\$15	\$555,000	Included	\$555,000
8.2	Superstructure (Blower Room)	m ²	263	\$1,500	\$393,800	Included	\$393,800
8.3	Superstructure (Electrical Room)	m ²	450	\$1,500	\$675,000	Included	\$675,000
8.4	Bioreactor Tank Concrete Covers (Double T's)	m ²	2,644	\$275	\$727,100	\$363,600	\$1,090,700
8.5	Bioreactor Tank Concrete Covers (Hollow Core)	m ²	1,198	\$100	\$119,800	\$119,800	\$239,600
8.6	Substructure - Slab	m ³	3,103	\$1,400	\$4,344,200	Included	\$4,344,200
8.7	Substructure - Walls	m ³	2,581	\$1,500	\$3,871,500	Included	\$3,871,500
8.8	Structure Piles	each	618	\$3,000	\$1,854,000	Included	\$1,854,000
8.9	Void Form (200mm)	m ²	5,323	\$20	\$106,500	Included	\$106,500
8.10	Demolition of Existing PSA Equipment, Mixers and Related Equipment	LS	1	\$250,000	\$250,000	Included	\$250,000
8.11	Demolition of Existing HPO Tank Internal Walls	LS	1	\$100,000	\$100,000	Included	\$100,000
8.12	Modification to Existing HPO Tank Structure for Retrofitting	LS	1	\$100,000	\$100,000	Included	\$100,000
8.13	Misc. Metals (Hatches Only)	each	40	\$1,200	\$48,000	\$24,000	\$72,000
8.14	Misc. Metals (Stairwells)	each	4	\$10,500	\$42,000	\$21,000	\$63,000
8.15	Air Blowers	each	4	\$257,495	\$1,030,000	\$360,500	\$1,390,500
8.16	Air Compressor for Power Tools	each	2	\$1,200	\$2,400	\$1,200	\$3,600
8.17	MLSS Recycle Pumps	each	4	\$64,000	\$256,000	\$128,000	\$448,000
8.18	Scum Pumps	each	4	\$10,000	\$40,000	\$20,000	\$70,000
8.19	Scum Collectors	each	4	\$20,000	\$80,000	\$40,000	\$120,000
8.20	Submersible Mixers	each	32	\$14,000	\$448,000	\$224,000	\$672,000
8.21	Air and Water Piping and Valving						
a	BNR Influent Piping and Valving	LS	1	\$481,000	\$481,000	\$160,500	\$641,500
b	Grit System Pipe and Valving	LS	1	\$1,054,000	\$1,054,000	\$162,000	\$1,216,000
c	MLSS Recirculation System Pipe and Valving	LS	1	\$1,380,000	\$1,380,000	\$269,000	\$1,649,000
d	Aeration Piping from Blower to Diffuser Branches	LS	1	\$1,200,000	\$1,200,000	Included	\$1,200,000
e	Piping Support	LS	32	\$1,000	\$32,000	\$16,000	\$48,000
f	Turblex Air Control Piping	LS	1	\$267,544	\$267,544	\$133,800	\$401,300
g	Air System Valves	LS	32	\$400	\$12,800	\$6,400	\$19,200
8.22	IFAS Media, Retention Screen and Associated Components	LS	1	\$9,300,000	\$9,300,000	\$930,000	\$10,230,000
8.23	Cranes	LS	1	\$50,000	\$50,000	\$25,000	\$75,000
8.24	Tank Ventilation	LS	1	\$150,000	\$150,000	\$75,000	\$225,000
8.25	HVAC Requirements (Galleries)	each	1	\$90,000	\$90,000	\$90,000	\$180,000
8.26	HVAC Requirements (Blower Room)	each	1	\$47,000	\$47,000	\$47,000	\$94,000
8.27	HVAC Requirements (Electrical Room)	each	1	\$53,000	\$53,000	\$53,000	\$106,000
	Subtotal Bioreactors, Blower Room and Electrical Room						\$32,500,000

Item No.	Description	Unit	Quantity	Material or Equipment Costs		Labour & Overhead	Total Costs
				Unit Price	Total Price		
9.0	Secondary Clarifiers	Based on 2 # 45.7 (FST No. 4 and FST No. 5)					
9.1	Excavation and Backfill	m ³	30,178	\$15	\$452,700	Included	\$452,700
9.2	Dome Covers	each	2	\$1,440,000	\$2,880,000	\$1,008,000	\$3,888,000
9.3	Substructure - Slab	m ³	3,165	\$1,400	\$4,431,000	Included	\$4,431,000
9.4	Substructure - Walls	m ³	1,677	\$1,500	\$2,516,100	Included	\$2,516,100
9.5	Structure Piles	each	684	\$3,000	\$2,052,000	Included	\$2,052,000
9.6	Void Form (200mm)	m ²	4,850	\$20	\$97,000	Included	\$97,000
9.7	Misc. Metals (Including Checker Plates, Handrails and Grating)	LS	1	\$100,000	\$100,000	Included	\$100,000
9.8	Misc. Metals (Stairwells)	each	2	\$10,500	\$21,000	\$10,500	\$31,500
9.9	Circular Secondary Clarifier Mechanism (45.7 m dia.)	each	2	\$720,000	\$1,440,000	\$576,000	\$2,016,000
9.10	Circular Secondary Clarifier Mechanism (45.7 m dia.) Retrofit	each	1	\$540,000	\$540,000	\$270,000	\$810,000
9.11	Circular Secondary Clarifier Mechanism (33.5 m dia.) Retrofit	each	2	\$300,000	\$600,000	\$300,000	\$900,000
9.12	RAS Pumps	each	3	\$46,000	\$138,000	\$138,000	\$276,000
9.13	Scum Pumps	each	2	\$30,000	\$60,000	\$60,000	\$120,000
9.14	FST No. 4 Influent Piping and Valves	LS	1	\$190,000	\$190,000	Included	\$190,000
9.15	FST No. 4 RAS Piping and Valves	LS	1	\$115,000	\$115,000	Included	\$115,000
9.16	FST No. 4 Drain Lines	LS	1	\$60,000	\$60,000	Included	\$60,000
9.17	FST No. 4 Scum Piping and Valves	LS	1	\$55,000	\$55,000	Included	\$55,000
9.18	FST No. 4 Scum Tank and Miscellaneous	LS	1	\$85,000	\$85,000	Included	\$85,000
9.19	FST No. 5 Influent Piping and Valves	LS	1	\$190,000	\$190,000	Included	\$190,000
9.20	FST No. 5 RAS Piping and Valves	LS	1	\$700,000	\$700,000	Included	\$700,000
9.21	FST No. 5 Drain Lines	LS	1	\$190,000	\$190,000	Included	\$190,000
9.22	FST No. 5 Scum Piping and Valves	LS	1	\$65,000	\$65,000	Included	\$65,000
9.23	FST No. 5 Scum Tank and Miscellaneous	LS	1	\$85,000	\$85,000	Included	\$85,000
9.25	Flushing Water Connection and Heat Exchange Equipment	LS	1	\$100,000	\$100,000	Included	\$100,000
9.26	Cranes	LS	1	\$60,000	\$60,000	\$30,000	\$90,000
9.27	HVAC Requirements	each	2	\$175,000	\$350,000	\$350,000	\$700,000
	Subtotal Secondary Clarifiers						\$20,315,000
10.0	UV Disinfection Systems						
10.1	Excavation and Backfill	m ³	2,626	\$15	\$39,400	Included	\$39,400
10.2	Superstructure	m ²	160	\$1,500	\$240,000	Included	\$240,000
10.3	Substructure - Slab	m ³	75	\$1,400	\$105,000	Included	\$105,000
10.4	Substructure - Walls	m ³	85	\$1,500	\$127,500	Included	\$127,500
10.5	Structure Piles	each	30	\$3,000	\$90,000	Included	\$90,000
10.6	Void Form (200mm)	m ²	160	\$20	\$3,200	Included	\$3,200
10.7	Misc. Metals (Checker Plating)	m ²	52	\$400	\$20,800	\$10,400	\$31,200
10.8	Stoplogs	LS	2	\$10,800	\$21,600	\$10,800	\$32,400
10.9	Sluice and Slide Gates	each	2	\$35,000	\$70,000	\$35,000	\$105,000
10.10	Replace Existing Weir	LS	1	\$80,000	\$80,000	Included	\$80,000
10.11	UV System Expansion	LS	1	\$1,560,000	\$1,560,000	\$624,000	\$2,184,000
10.12	HVAC Requirements	LS	1	\$24,000	\$24,000	\$24,000	\$48,000
	Subtotal UV Disinfection Systems						\$3,090,000

Item No.	Description	Unit	Quantity	Material or Equipment Costs		Labour & Overhead	Total Costs
				Unit Price	Total Price		
11.0	Electrical Room and DAF Polymer Feed Room						
11.1	Excavation and Backfill	m ³	600	\$15	\$9,000	Included	\$9,000
11.2	Substructure - Slab	m ³	206	\$1,400	\$288,400	Included	\$288,400
11.3	Superstructure	m ³	544	\$1,500	\$816,000	Included	\$816,000
11.4	Structure Piles	each	56	\$3,000	\$168,000	Included	\$168,000
11.5	Void Form (200mm)	m ²	206	\$20	\$4,100	Included	\$4,100
11.6	Misc. Metals (Including Handrails and Grating)	LS	1	\$15,000	\$15,000	Included	\$15,000
11.7	Polymer Feed System Including Pumps, Valving, Metering	LS	1	\$125,000	\$125,000	\$62,500	\$187,500
11.8	Polymer Piping and Valves	LS	1	\$15,000	\$15,000	Included	\$15,000
11.9	Cranes	LS	1	\$35,000	\$35,000	\$17,500	\$52,500
11.10	HVAC Requirements (Electrical Room)	LS	1	\$43,500	\$43,500	\$43,500	\$87,000
11.11	HVAC Requirements (Polymer Feed Room)	LS	1	\$17,500	\$17,500	\$17,500	\$35,000
	Subtotal Electrical Room and DAF Polymer Feed Room						\$1,680,000
12.0	Odor Control						
12.1	Excavation and Backfill	m ³	5,000	\$15	\$75,000	Included	\$75,000
12.2	Substructure - Slab	m ³	350	\$1,400	\$490,000	Included	\$490,000
12.3	Substructure - Walls	m ³	300	\$1,500	\$450,000	Included	\$450,000
12.4	Structure Piles	each	150	\$3,000	\$450,000	Included	\$450,000
12.5	Void Form (200mm)	m ²	350	\$20	\$7,000	Included	\$7,000
12.6	Misc. Metals (Including Handrails and Grating)	LS	1	\$15,000	\$15,000	Included	\$15,000
12.7	Odor Control Equipment	LS	1	\$1,250,000	\$1,250,000	\$625,000	\$1,875,000
12.8	Ductwork Allowance	LS	1	\$500,000	\$500,000	Included	\$500,000
	Subtotal Odor Control						\$3,860,000
13.0	Solids Handling (DAF)						
13.1	Excavation and Backfill	m ³	825	\$15	\$12,400	Included	\$12,400
13.2	Substructure - Slab	m ³	318	\$1,400	\$445,200	Included	\$445,200
13.3	Superstructure	m ³	775	\$1,500	\$1,162,500	Included	\$1,162,500
13.4	Structure Piles	each	106	\$3,000	\$318,000	Included	\$318,000
13.5	Void Form (200mm)	m ²	318	\$20	\$6,400	Included	\$6,400
13.6	Misc. Metals (Including Checker Plates, Handrails and Grating)	LS	1	\$40,000	\$40,000	Included	\$40,000
13.7	DAF Systems	each	4	\$398,000	\$1,592,000	\$636,800	\$2,228,800
13.8	DAF WAS Pumps	each	5	\$13,300	\$66,500	\$33,300	\$99,800
13.9	DAF TWAS Pumps	each	5	\$5,500	\$27,500	\$13,800	\$41,300
13.10	DAF Subnatant Pumps	each	5	\$18,000	\$90,000	\$45,000	\$135,000
13.11	Piping and Valving	LS	1	\$200,000	\$200,000	Included	\$200,000
13.12	HVAC Requirements	LS	1	\$136,400	\$136,400	\$136,400	\$272,800
	Subtotal Solids Handling (DAF)						\$4,960,000

Item No.	Description	Unit	Quantity	Material or Equipment Costs		Labour & Overhead	Total Costs
				Unit Price	Total Price		
14.0 Fermenters and Adjacent Building							
14.1	Excavation and Backfill	m ³	9,000	\$15	\$135,000	Included	\$135,000
14.2	Superstructure	m ²	300	\$1,500	\$450,000	Included	\$450,000
14.3	Substructure - Slab	m ³	565	\$1,400	\$791,000	Included	\$791,000
14.4	Substructure - Walls	m ³	480	\$1,500	\$720,000	Included	\$720,000
14.5	Structure Piles	each	198	\$3,000	\$594,000	Included	\$594,000
14.6	Void Form (200mm)	m ²	993	\$20	\$19,900	Included	\$19,900
14.7	Dome Covers	each	2	\$215,000	\$430,000	\$215,000	\$645,000
14.8	Misc. Metals (Hatches Only)	each	8	\$1,200	\$9,600	\$4,800	\$14,400
14.9	Misc. Metals (Stairwells)	each	2	\$10,500	\$21,000	\$10,500	\$31,500
14.10	Circular Fermenter Mechanism	each	2	\$240,000	\$480,000	\$240,000	\$720,000
14.11	Fermenter Supernatant Pumps	each	4	\$10,000	\$40,000	\$20,000	\$60,000
14.12	Fermenter Sludge Pumps	each	4	\$24,000	\$96,000	\$48,000	\$144,000
14.13	Elutrition Water Piping and Valving	LS	1	\$40,000	\$40,000	Included	\$40,000
14.14	Fermenter Sludge Piping and Valving	LS	1	\$215,000	\$215,000	Included	\$215,000
14.15	Fermenter Supernatent Piping and Valving	LS	1	\$150,000	\$150,000	Included	\$150,000
14.16	Cranes	LS	1	\$50,000	\$50,000	\$25,000	\$75,000
14.17	HVAC Requirements	LS	1	\$80,300	\$80,300	\$80,300	\$160,600
Subtotal Fermenters and Adjacent Building							\$4,970,000
15.0 Sludge Holding Tanks and Storage Building							
15.1	Excavation and Backfill	m ³	7,000	\$15	\$105,000	Included	\$105,000
15.2	Superstructure	m ²	1,000	\$1,500	\$1,500,000	Included	\$1,500,000
15.3	Substructure - Slab	m ³	827	\$1,400	\$1,157,800	Included	\$1,157,800
15.4	Substructure - Walls	m ³	295	\$1,500	\$442,500	Included	\$442,500
15.5	Structure Piles	each	200	\$3,000	\$600,000	Included	\$600,000
15.6	Void Form (200mm)	m ²	1,000	\$20	\$20,000	Included	\$20,000
15.7	Misc. Metals (Stairs and Access Hatches)	LS	1	\$35,000	\$35,000	Included	\$35,000
15.8	Sludge Pumps	each	4	\$85,000	\$340,000	\$170,000	\$510,000
15.9	Piping and Valving	LS	1	\$175,000	\$175,000	Included	\$175,000
15.10	Cranes	LS	1	\$45,000	\$45,000	\$22,500	\$67,500
15.11	HVAC Requirements (Storage Area)	LS	1	\$51,600	\$51,600	\$51,600	\$103,200
15.12	HVAC Requirements (Hallway)	LS	1	\$41,500	\$41,500	\$41,500	\$83,000
15.13	HVAC Requirements (Truck Bay)	LS	1	\$25,000	\$25,000	\$25,000	\$50,000
Subtotal Sludge Holding Tanks and Storage Building							\$4,850,000
16.0 Electrical, Control, Instrumentation							
16.1	General Allowance for Electrical, Control and Instrumentation	LS	1				\$17,520,000
16.2	Modification To Existing Primary Hydro Feed						
	- New Transformers	each	2	\$125,000	\$250,000	Included	\$250,000
	- Switchgear Replacement	LS	1	\$400,000	\$400,000	Included	\$400,000
	- Hydro Service Cost	LS	1	\$250,000	\$250,000	Included	\$250,000
	- Connections, Misc Equipment and Wiring	LS	1	\$100,000	\$100,000	Included	\$100,000
Subtotal Electrical, Control, Instrumentation							\$18,520,000

Item No.	Description	Unit	Quantity	Material or Equipment Costs		Labour & Overhead	Total Costs
				Unit Price	Total Price		
17.0	Standby Emergency Power Upgrade						
17.1	Excavation and Backfill	m ³	200	\$15	\$3,000	Included	\$3,000
17.2	Superstructure	m ²	119	\$1,500	\$178,900	Included	\$178,900
17.3	Substructure - Slab	m ³	88	\$1,400	\$123,200	Included	\$123,200
17.4	Structure Piles	each	24	\$3,000	\$72,000	Included	\$72,000
17.5	Void Form (200mm)	m ²	119	\$20	\$2,400	Included	\$2,400
17.6	Connect to Existing Standby Power Building	LS	1	\$75,000	\$75,000	Included	\$75,000
17.7	Misc. Metals (Stairwells)	each	2	\$10,500	\$21,000	\$10,500	\$31,500
17.8	Domestic Plumbing	LS	1	\$2,000	\$2,000	Included	\$2,000
17.9	Mechanical For Cooling Water	LS	1	\$22,000	\$22,000	Included	\$22,000
17.10	Mechanical for Intercooler	LS	1	\$31,000	\$31,000	Included	\$31,000
17.11	Gas Piping and Valves	LS	1	\$3,000	\$3,000	Included	\$3,000
17.12	Generator Exhaust Piping	LS	1	\$17,000	\$17,000	Included	\$17,000
17.13	Generator Cooling Piping and Valves	LS	1	\$50,000	\$50,000	Included	\$50,000
17.14	Drain Piping and Valves	LS	1	\$4,000	\$4,000	Included	\$4,000
17.15	Generator	LS	1	\$500,000	\$500,000	\$250,000	\$750,000
17.16	Electrical Equipment Related to Generator	LS	1	\$450,000	\$450,000	\$225,000	\$675,000
17.17	Decommission 85kW Generator	LS	1	\$80,000	\$80,000	Included	\$80,000
17.18	HVAC Requirements	LS	1	\$125,000	\$125,000	\$125,000	\$250,000
	Subtotal Standby Emergency Power Upgrade						\$2,370,000
18.0	Ancillary Items (Permits)						
18.1	Asbestos Abatement and Reinsulation	Total cost is included in an alternate budget. Assumed that alternate budget includes reinsulation. The cost for asbestos abatement is \$190,000 and reinsulation \$75,000.					
18.2	Allowance for Leachate Treatment	No Allowance Included					
18.2	Allowance for Permits	each	95,000,000	\$0	\$760,000	N/A	\$760,000
	Subtotal Ancillary Items						\$760,000
	Subtotal						\$126,290,000
	Contingencies (10% of Subtotal)						\$12,629,000
	Engineering (15% of Subtotal & Contingencies)						\$20,838,000
	Estimating Allowance (15% of Subtotal, Cont. & Eng.)						\$23,964,000
	Inflation Allowance for 2009 -2012 Construction Period (15% Above)						\$27,558,000
	Total						\$211,279,000

Notes:

1. Costs are in 2008 Canadian Dollars.
2. Construction costs will vary depending on market conditions at the time of tender. Stantec has no control over those conditions.
3. RST has been included in the mechanical and electrical costs. GST is not included.
4. Construction cost for the fermenter domes is for uninsulated structures.

Item No.	Description	Unit	Quantity	Material or Equipment Costs		Labour & Overhead	Total Costs
				Unit Price	Total Price		

Items That Could Be Deferred (Included In Overall Cost Opinion)

5.0	Headworks - Admin Bldg. Renovation Only (Possible Deferral or Deletion)						
5.7	Administration Building Interior Renovations	LS	1	\$480,000	\$480,000	Included	\$480,000
	Subtotal Headworks - Admin Bldg. Renovation Only						\$480,000
16.0	Electrical and Controls	LS	1	\$86,400	\$86,400	Included	\$86,000
1.0	General Requirements	LS	1				\$51,000
	Totals with Factors						\$1,033,000
5.0	Headworks - Raw Water Pump Upgrades and Wet Well Grit Pump Upgrades						
5.9	Replacement of Existing Influent Pump	LS	1	\$246,000	\$246,000	\$123,000	\$369,000
5.10	Piping and Valving to Incorporate New Pump	LS	1	\$90,000	\$90,000	\$65,000	\$155,000
5.11	Wet Well / Dry Pit Grit Pumping System	LS	1	\$80,000	\$80,000	\$55,000	\$135,000
5.12	Possible HVAC Upgrades in Dry Well	LS	1	\$75,000	\$75,000	\$75,000	\$150,000
	Subtotal Headworks - Raw Water Pump Upgrades and Wet Well Grit Pump Upgrades						\$809,000
16.0	Electrical and Controls	LS	1	\$118,620	\$118,600	Included	\$119,000
1.0	General Requirements	LS	1				\$84,000
	Totals with Factors						\$1,693,000
9.0	Secondary Clarifiers - Cost saving If FST-5 Construction Is Deferred						\$9,288,000
16.0	Electrical and Controls	LS	1	\$1,671,840	\$1,671,800	Included	\$1,672,000
1.0	General Requirements	LS	1				\$986,000
	Totals with Factors						\$19,986,000

Item No.	Description	Unit	Quantity	Material or Equipment Costs		Labour & Overhead	Total Costs
				Unit Price	Total Price		

Secondary Clarifier Cost Provided Construction of FST-4 and FST-5 Is Phased

Construction of both secondary clarifiers is included in the overall cost projection but they could be phased which would affect the cost of both clarifiers.

9.0 Secondary Clarifiers - Price To Construct FST-4 (Including FST-1, 2 & 3 Rerofits) With FST-5 Deferred							
9.1	Excavation and Backfill	m ³	22,633	\$15	\$339,500	Included	\$339,500
9.2	Dome Covers	each	1	\$1,440,000	\$1,440,000	\$504,000	\$1,944,000
9.3	Substructure - Slab	m ³	1,583	\$1,470	\$2,326,300	Included	\$2,326,300
9.4	Substructure - Walls	m ³	839	\$1,575	\$1,321,000	Included	\$1,321,000
9.5	Structure Piles	each	342	\$3,150	\$1,077,300	Included	\$1,077,300
9.6	Void Form (200mm)	m ²	2,425	\$20	\$48,500	Included	\$48,500
9.7	Misc. Metals (Including Checker Plates, Handrails and Grating)	LS	0.5	\$100,000	\$50,000	Included	\$50,000
9.8	Misc. Metals (Stairwells)	each	1	\$10,500	\$10,500	\$5,300	\$15,800
9.9	Circular Secondary Clarifier Mechanism (45.7 m dia.)	each	1	\$720,000	\$720,000	\$288,000	\$1,008,000
9.10	Circular Secondary Clarifier Mechanism (45.7 m dia.) Retrofit	each	1	\$540,000	\$540,000	\$270,000	\$810,000
9.11	Circular Secondary Clarifier Mechanism (33.5 m dia.) Retrofit	each	2	\$300,000	\$600,000	\$300,000	\$900,000
9.12	RAS Pumps	each	1	\$46,000	\$46,000	\$46,000	\$92,000
9.13	Scum Pumps	each	2	\$30,000	\$60,000	\$60,000	\$120,000
9.14	FST No. 4 Influent Piping and Valves	LS	1	\$190,000	\$190,000	Included	\$190,000
9.15	FST No. 4 RAS Piping and Valves	LS	1	\$115,000	\$115,000	Included	\$115,000
9.16	FST No. 4 Drain Lines	LS	1	\$60,000	\$60,000	Included	\$60,000
9.17	FST No. 4 Scum Piping and Valves	LS	1	\$55,000	\$55,000	Included	\$55,000
9.18	FST No. 4 Scum Tank and Miscellaneous	LS	1	\$85,000	\$85,000	Included	\$85,000
9.19	Flushing Water Connection and Heat Exchange Equipment	LS	1	\$100,000	\$100,000	Included	\$100,000
9.20	Cranes	LS	1	\$60,000	\$60,000	\$30,000	\$90,000
9.21	HVAC Requirements	each	1	\$140,000	\$140,000	\$140,000	\$280,000
	Subtotal Secondary Clarifiers - Construct FST-4 Only						\$11,027,000
16.0	Electrical and Controls	LS	1	\$1,984,932	\$1,984,900	Included	\$1,985,000
1.0	General Requirements	LS	1				\$1,171,000
	Totals with Factors						\$23,727,000

Item No.	Description	Unit	Quantity	Material or Equipment Costs		Labour & Overhead	Total Costs	
				Unit Price	Total Price			
9.0	Secondary Clarifiers - Price To Construct FST-5 Not In Conjunction With FST-4 (At Some Later Time)							
9.1	Excavation and Backfill	m ³	22,633	\$15	\$339,500	Included	\$339,500	
9.2	Dome Covers	each	1	\$1,440,000	\$1,440,000	\$504,000	\$1,944,000	
9.3	Substructure - Slab	m ³	1,741	\$1,540	\$2,680,800	Included	\$2,680,800	
9.4	Substructure - Walls	m ³	923	\$1,650	\$1,522,200	Included	\$1,522,200	
9.5	Structure Piles	each	342	\$3,300	\$1,128,600	Included	\$1,128,600	
9.6	Void Form (200mm)	m ²	2,425	\$20	\$48,500	Included	\$48,500	
9.7	Misc. Metals (Including Checker Plates, Handrails and Grating)	LS	0.5	\$100,000	\$50,000	Included	\$50,000	
9.8	Misc. Metals (Stairwells)	each	1	\$10,500	\$10,500	\$5,300	\$15,800	
9.9	Circular Secondary Clarifier Mechanism (45.7 m dia.)	each	1	\$720,000	\$720,000	\$288,000	\$1,008,000	
9.10	RAS Pumps	each	2	\$46,000	\$92,000	\$92,000	\$184,000	
9.11	Scum Pumps	each	2	\$30,000	\$60,000	\$60,000	\$120,000	
9.12	FST No. 5 Influent Piping and Valves	LS	1	\$190,000	\$190,000	Included	\$190,000	
9.13	FST No. 5 RAS Piping and Valves	LS	1	\$700,000	\$700,000	Included	\$700,000	
9.14	FST No. 5 Drain Lines	LS	1	\$190,000	\$190,000	Included	\$190,000	
9.15	FST No. 5 Scum Piping and Valves	LS	1	\$65,000	\$65,000	Included	\$65,000	
9.16	FST No. 5 Scum Tank and Miscellaneous	LS	1	\$85,000	\$85,000	Included	\$85,000	
9.17	Cranes	LS	1	\$60,000	\$60,000	\$30,000	\$90,000	
9.18	HVAC Requirements	each	1	\$140,000	\$140,000	\$140,000	\$280,000	
9.19	Flushing Water Connection and Heat Exchange Equipment	LS	1	\$100,000	\$100,000	Included	\$100,000	
	Subtotal Secondary Clarifiers - Construct FST-5 Only							\$10,741,000
16.0	Electrical and Controls	LS	1	\$1,915,452	\$1,915,500	Included	\$1,916,000	
1.0	General Requirements	LS	1				\$1,139,000	
	Totals with Factors							\$23,081,000

Items That Could Be Deleted (Included In Overall Cost Opinion)

8.0	Bioreactors - Bioreactor Covers							
8.4	Bioreactor Tank Concrete Covers (Double T's)	m ²	2,644	\$275	\$727,100	\$363,600	\$1,090,700	
8.5	Bioreactor Tank Concrete Covers (Hollow Core)	m ²	1,198	\$100	\$119,800	\$119,800	\$239,600	
8.24	Not deleted. There would be no odour control required but additional concrete walkways for maintenance and railings would offset the cost.							
	Subtotal Bioreactor Covers							\$1,330,000
16.0	Electrical and Controls	LS	1	\$239,454	\$239,500	Included	\$240,000	
1.0	General Requirements	LS	1				\$141,000	
	Totals with Factors							\$2,862,000

Item No.	Description	Unit	Quantity	Material or Equipment Costs		Labour & Overhead	Total Costs
				Unit Price	Total Price		

Optional Items (Not Included In Overall Cost Opinion)

6.0	Primary Clarifiers - Modify PC#1 and 2 Scum Collection						
6.9	Scum Cross Removal System	each	2	\$100,000	\$200,000	Included	\$200,000
6.10	Modify Sludge Scraper and Scum Skimmer	each	2	\$40,000	\$80,000	Included	\$80,000
6.11	Scum Pit Concrete	each	2	\$10,000	\$20,000	Included	\$20,000
6.12	Scum Hopper	LS	1	\$130,000	\$130,000	Included	\$130,000
6.13	Scum Pumps	each	2	\$15,000	\$30,000	Included	\$30,000
6.14	Scum Recirculation Pump	LS	1	\$30,000	\$30,000	Included	\$30,000
6.15	Scum Piping and Valving	LS	1	\$30,000	\$30,000	Included	\$30,000
6.17	HVAC Requirements	LS	1	\$15,000	\$15,000	Included	\$15,000
	Subtotal Primary Clarifiers						\$540,000
16.0	Electrical and Controls	LS	1	\$96,300	\$96,300	Included	\$96,000
1.0	General Requirements	LS	1				\$57,000
	Totals with Factors						\$1,158,000
19.0	Connect UV to Secondary Clarifiers Underground Walkway						
19.1	Excavation and Backfill	m ³	1,374	\$15	\$20,600	Included	\$20,600
19.2	Superstructure	m ²	46	\$1,600	\$73,600	Included	\$73,600
19.3	Substructure - Slab	m ³	56	\$1,400	\$78,400	Included	\$78,400
19.4	Substructure - Walls	m ³	91	\$1,500	\$136,500	Included	\$136,500
19.5	Structure Piles	each	28	\$3,000	\$84,000	Included	\$84,000
19.6	Void Form (200mm)	m ²	46	\$20	\$900	Included	\$900
19.7	Misc. Metals (checker plating)	LS	1	\$50,000	\$50,000	\$25,000	\$75,000
19.8	Misc. Metals (Stairwells)	each	1	\$10,500	\$10,500	\$5,300	\$15,800
19.9	HVAC Requirements	LS	1	\$4,140	\$4,100	\$4,100	\$8,200
	Subtotal UV to Secondary Clarifier Underground Walkway						\$490,000
16.0	Electrical and Controls	LS	1	\$88,740	\$88,700	Included	\$89,000
1.0	General Requirements	LS	1				\$52,000
	Totals with Factors						\$1,056,000
20.0	Miscellaneous Items - PSA Salvage, Fall Arrest, Confined Space Equipment						
20.1	Salvage and dismantling of Existing PSA Equipment, Mixers and Related Equipment for Potential Reuse (in addition to demolition value carried in Item 8.10)	LS	1	\$350,000	\$350,000	Included	\$350,000
20.2	Fall Arrest Equipment	LS	1	\$75,000	\$75,000	Included	\$75,000
20.3	Confined Space Entry Equipment	LS	1	\$90,000	\$90,000	Included	\$90,000
	Subtotal Miscellaneous Items						\$515,000
16.0	Electrical and Controls	LS	1	\$92,700	\$92,700	Included	\$93,000
1.0	General Requirements	LS	1				\$55,000
	Totals with Factors						\$1,109,000