

August 15, 2023

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Submitted via e-mail to planner@westfordvt.us

Stone Project No. 20231007

Subject: Westford Community Wastewater - Revised Construction and Total Project Cost Estimates

Dear Melissa,

We are pleased to present revised construction and total project cost estimates for the Westford Community Wastewater Disposal System. Green Mountain Engineering (GME) submitted the Supplemental Preliminary Engineering Report (PER) in March 2022. Upon receiving notice to proceed with preliminary engineering in March 2023, Stone Environmental, Inc. (Stone) advanced topographic and utility survey, bedrock probes, and interior structure inspections. In parallel with design work, we updated construction unit costs and quantities to reflect the proposed design. We also engaged On Point Engineering & Consulting, LLC to provide a third party audit of construction material quantities and unit costs.

Estimated collection and treatment system construction, disposal system construction, and total project costs are summarized below.

	Feb. 2022 Supplemental PER	August 2023 Preliminary Design
Collection System Construction	\$1,544,300	\$1,641,000
Control Building and Subsurface Drip Disposal Construction	\$541,000	\$699,800
Construction Contingency	\$208,500	\$702,300
Total Construction Cost	\$2,293,800	\$3,043,100
Total Project Cost	\$2,848,200	\$3,866,900

All cost values in this table rounded to nearest \$100.

Construction cost contingencies applied: 10% in Feb. 2022 Supplemental PER, 30% in August 2023 Preliminary Design.

The attached, preliminary Opinions of Probable Cost for the collection and treatment system, drip disposal system, and total project cost follow the format and level of detail provided in the February 2022 Supplemental PER. The following major changes are reflected in the August 2023 cost estimates:

- Bedrock probing completed in June 2023 allowed reduction in the total quantity of removal required. However, unit cost increases for bedrock removal led to a similar construction cost.

- Increased costs for concrete resulted in increased unit cost for septic tank effluent pump (STEP) tanks and control building/equalization tanks. Equalization tank sizes were also increased in consultation with vendors.
- A centralized pump station near the Town Common was removed from the design, and the collection system layout was simplified, following consultation with Orenco Systems and that vendor's completion of hydraulic grade line analysis for the proposed collection system.
- Material and labor costs increased for building and electrical connections at the control building and disposal area pump station.
- Construction cost contingency was increased from 10% to 30% due to observed volatility in the construction sector and following consultation with and guidance from Vermont DEC Water Investment Division personnel.

Though still preliminary in nature, the work undertaken to advance preliminary design has refined many of the substantial unknown factors remaining from GME's preliminary engineering work. We look forward to discussing the revised opinions of probable cost with you, the Planning Commission, Selectboard, and other stakeholders in the coming weeks.

Sincerely,



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Town of Westford
Westford Community Wastewater Disposal System - 24,300 GPD
Opinion of Probable Cost - Collection System
8/15/2023

Description	Unit	Quantity	Unit Price	Total Amount
A - Sewers				
A1 - 3" HDPE DR11 LPS	LF	1,300	61.00	79,300.00
A2 - 4" HDPE DR11 LPS	LF	3,300	63.50	209,550.00
A3 - 2" HDPE DR11 LPS	LF	4,000	36.00	144,000.00
A4 - 4" Gravity Sewer Services	LF	900	58.00	52,200.00
SUBTOTAL				485,050.00
B - Sewerline Appurtenances				
B1 - Air Release Valve and Enclosure	EA	4	10,287.00	41,148.00
B2 - Clean out assembly	EA	4	1,650.00	6,600.00
B3 - 2" Shut-off	EA	24	385.00	9,240.00
B4 - Sewer Stub	EA	6	600.50	3,603.00
B5 - 3" Isolation Valve	EA	3	1,056.00	3,168.00
B6 - Crossing Sleeve	LF	70	74.00	5,180.00
B7 - Cleanouts	EA	24	94.50	2,268.00
B8- 1,500 Gallon STEP Tanks	EA	21	12,127.00	254,667.00
B9 - 2,000 Gallon STEP Tanks	EA	3	13,502.00	40,506.00
B10 - 2,500 Gallon STEP Tanks	EA	1	16,083.00	16,083.00
B11 - 5,000 Gallon STEP Tank	EA	1	39,098.50	39,098.50
SUBTOTAL				421,561.50
C - Earthwork				
C1 - Bedrock Removal	CY	1,000	197.00	197,000.00
C2 - Boulder Excavation	CY	54	31.50	1,701.00
C3 - Misc. Extra and Below Grade Excavation	CY	34	42.50	1,445.00
C4 - Excavation & Replace Contaminated Soils	TON	230	192.50	44,275.00
C5 - Fine Grading / Mulching / Grass Seed	SY	9,225	7.00	64,575.00
SUBTOTAL				308,996.00
D - Roadwork				
D1 - Permanent Bit. Pavement Repair	SY	700	104.50	73,150.00
D2 - Permanent Gravel Road & Drive Repair	SY	3,200	27.50	88,000.00
SUBTOTAL				161,150.00
E - Incidental Work				
E1 - Class B Concrete	CY	10	550.00	5,500.00
E2 - Calcium Chloride	TON	2	880.00	1,760.00
E3 - Rigid Insulation	LF	9,005	6.50	58,532.50
E4 - Uniform Traffic Officers	HRS	20	93.00	1,860.00
E5 - Traffic Control	HRS	700	66.00	46,200.00
E6 - Silt Fence	LF	406	1.50	609.00
E7 - Degradable Erosion Control Blankets	SY	160	3.00	480.00
E8 - Temporary Stone Check Dams	EA	5	115.00	575.00
E9 - House Replumbs	EA	3	1,650.00	4,950.00
E10 - Septic Tank Deactivation	EA	26	1,320.00	34,320.00
SUBTOTAL				154,786.50
F - Lump Sum Items				
F1 - Tree Removal / Arborist	LS	1	9,900.00	9,900.00
F2 - Preparation of Site and Miscellaneous Work (5% of construction)	LS	1	76,577.00	76,577.00
F3 - Bonds (1.5% of construction)	LS	1	22,973.00	22,973.00
F4 - Contingency (30% of all)	LS	1	492,298.00	492,298.00
SUBTOTAL				601,748.00
TOTALS				2,133,292.00
USE				2,134,000.00

Notes: The estimate is based on PRELIMINARY DESIGN phase estimates for construction and engineering. The quantities noted in the estimate are based on survey and GIS scaled unit quantities from scenario's developed by Stone Environmental. The quantities and unit prices will likely vary based on the actual final design.

Town of Westford
Westford Community Wastewater Disposal System - 24,300 GPD
Opinion of Probable Cost - Drip Disposal System
8/15/2023

DESCRIPTION	Unit	Quantity	Unit Price	Total Amount
Silt Fence	LF	600	\$2	\$900
2" HDPE Forcemains, Multi-pipe trench	LF	2,200	\$34	\$73,700
Temporary Road				
1. Excavation	CY	530	\$20	\$10,335
2. Filter Fabric	SY	1,585	\$5	\$7,925
3. Gravel	CY	530	\$47	\$24,910
Mound sand allowance	CY	200	\$69	\$13,800
Topsoil, Fine Grade, Seed and Mulch	SY	7,000	\$7	\$49,000
Oakson Supplies Per Proposal (tubing, header, manifold, pumps etc.)	LS	1	\$198,000	\$198,000
Start-Up/Testing	LS	1	\$3,000	\$3,000
Control Building (16' x 16')	EA	1	\$75,000	\$75,000
Tanks (2) (10,000 Gallons)	L.S.	1	\$112,488	\$112,488
Excavation / Yard Piping	L.S.	1	\$16,500	\$16,500
Controls / Wiring / Telemetry	EA	1	\$22,000	\$22,000
New Electrical Service (new pump station)	EA	1	\$11,000	\$11,000
Backup Generators & Appurtenances	EA	1	\$16,500	\$16,500
Preparation of Site and Miscellaneous Work (8%)	LS	1	\$54,569	\$54,569
Bonds (1.5%)	LS	1	\$10,232	\$10,232
Contingency (30%)	LS	1	\$209,958	\$209,958
SUBTOTAL				\$909,817
USE				\$910,000

Notes: The estimate is based on PRELIMINARY DESIGN phase estimates for construction and engineering. The quantities noted in the estimate are based on survey and GIS scaled unit quantities from scenario's developed by Stone Environmental. The quantities and unit prices will likely vary based on the actual final design.

Town of Westford
Westford Community Wastewater Disposal System - 24,300 GPD
Opinion of Probable Total Project Cost
8/15/2023

Description	Total Cost
Construction	
Wastewater Collection System	\$ 2,134,000
Wastewater Disposal System	\$ 910,000
Construction Subtotal	\$ 3,044,000
STEP I - Preliminary Engineering	
STEP I - Preliminary Engineering Subtotal	\$ 39,050
STEP II - Preliminary and Final Design - GME Step II	
STEP II - Preliminary and Final Design - GME Step II Subtotal	\$ 86,764
STEP II - Preliminary and Final Design Engineering - Stone Step II	
Preliminary Design Standard Engineering Services (Basic and Special)	\$ 48,477
Preliminary Design Non-Standard Services (Basic and Special)	\$ 63,048
Final Design Standard Engineering Services (Basic and Special)	\$ 81,683
Final Design Non-Standard Services (Basic and Special)	\$ 40,430
STEP II - Preliminary and Final Design Subtotal	\$ 233,638
STEP III - Engineering Services	
Standard Engineering Services	\$ 200,000
Non-Standard Engineering Services	\$ 70,000
STEP III - Engineering Services Subtotal	\$ 270,000
Other Costs	
Legal	\$ 30,680
Easement Acquisition/Current Use Penalty	\$ 20,000
Outreach	\$ 5,000
Permit Fees	\$ 6,000
Short term interest	\$ 17,760
Birchline Planning - Step 2	\$ 49,500
Birchline Planning - Step 3	\$ 34,500
Bond Vote - Town expense - printing, tabulator, officials, mailings	\$ 10,000
Single Audit	\$ 20,000
Other Costs Subtotal	\$ 193,440
SUBTOTAL	\$ 3,866,892
USE	\$ 3,867,000

Notes: The estimate is based on PRELIMINARY DESIGN phase estimates for construction and engineering. The quantities noted in the estimate are based on survey and GIS scaled unit quantities from scenario's developed by Stone Environmental. The quantities and unit prices will likely vary based on the actual final design.