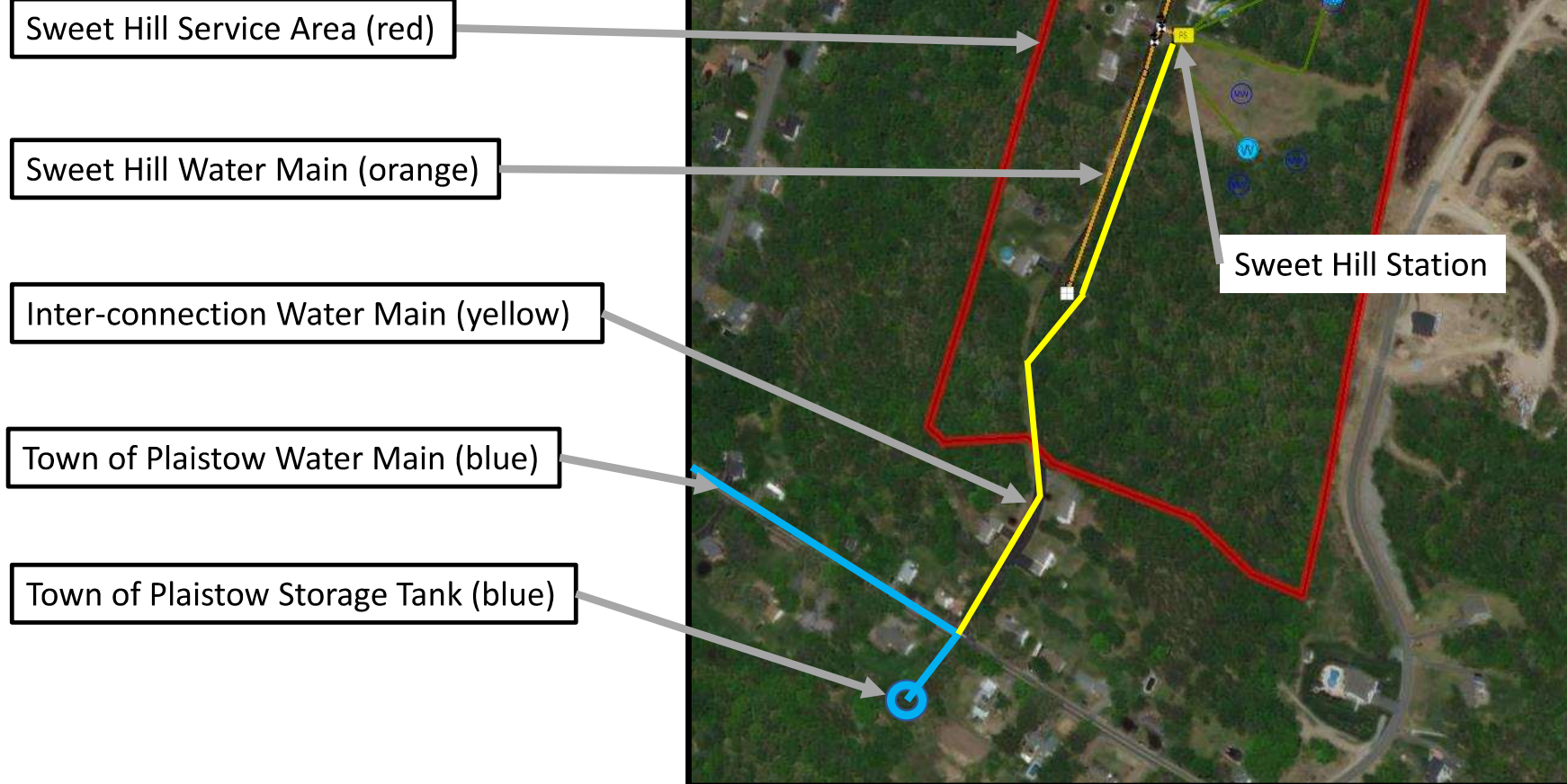


Figure 2 Sweet Hill Inter-connection



Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
1.256% Rate

Twin Ridge
Address: Connection will be made at the hydrant near the intersection of Walton Road and State Rt. 125 to the 8" main

Notes:
Max HGL: 320, Min HGL: 279, Future HGL: 286
Approx. 40 ft of 8" line
SRF PROJECT
No Booster Station Required

Porperty Tax Rates:
Plaistow: \$21.31/\$1000
State: \$6.6/\$1000

**must pay the MSDS charge + \$0.50/CCF and need either a 2" meter or 3" compound meter (160 gpm vs. 350 gpm)
~~Water Rates:~~
~~Plaistow: \$1.546/CCF (?)~~
~~PWW: \$3.66/CCF~~

Current Electrical Costs (2019 Total)			
PWW	Kilowatts		66888
acct # 2030410000 - Unitil -Delivery	Delviery Service	\$	4,139.49
acct # 7591033 - Constellation - Supply	Supplier Service	\$	5,591.83
PEU Well #7	Kilowatts		148
aact # 2034853000 - Unitil	Power & Demanc	\$	732.00
acct # 7591044 - Constellation	Power Charge	\$	12.28
PEU & PWW Total:		\$	10,475.60

Current Labor Costs (2019 Total)			
	Hours		723
	Wages	\$	24,790.28

Current Chemical Costs (2019 Total)			
Chemical	# of Gal or Bag	\$/ (Gal or Bag)	Cost
Chlorine	75	\$ 0.79	\$ 59.27
Caustic	20	\$ 1.28	\$ 25.55
Salt	944	\$ 8.13	\$ 7,676.61
Total:			\$ 7,761.42

Current Property Taxes			
Assest Value	\$	459,813.09	
Land Tax Payment	\$	2,049.00	2020 Tax Bill
Local Tax	\$	9,798.62	Local tax is \$21.31/\$1000
State Tax	\$	3,034.77	State tax is \$6.6/\$1000
Total Tax:	\$	14,882.38	

Current Annual PWW Twin Ridge Revenue Requirements

Property Tax Expense	\$	14,882.38
Electric Expense	\$	10,475.60
Labor Expense	\$	24,790.28
Chemical Expense	\$	7,761.42
Total Current PWW Expenses	\$	57,909.69

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
1.256% Rate

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Twin Ridge - Option 1 -100% Purchased Water, No Booster Pump

Construction Costs:

Item No.	Item	Unit	Quantity	Unit Price	Cost Extension	CoA
1	Mobilization	LS	1	\$ 20,000.00	\$ 20,000.00	331
2	Furnish & Install 8x8 MJ tap and sleeve	LS	1	\$ 10,000.00	\$ 10,000.00	331
3	Furnish and install 8" diameter DI water main	LF	120	\$ 200.00	\$ 24,000.00	331
4	Furnish and install 8" ductile iron, mechanical joint fittings	EA	4	\$ 750.00	\$ 3,000.00	331
5	Furnish and install 8" diameter MJ gate valves	EA	2	\$ 1,500.00	\$ 3,000.00	331
6	2" Air Release Assembly	EA	2	\$ 2,500.00	\$ 5,000.00	331
7	Meter Pit	EA	1	\$ 42,500.00	\$ 42,500.00	334
8	Trench Rock/Boulder Excavation and Dispsal	CY	50	\$ 175.00	\$ 8,750.00	331
9	Complete Road Reconstruction (gravels, asphalt, misc.)	LF	100	\$ 180.00	\$ 18,000.00	331
10	Well Decommissioning	VF	5250	\$ 11.00	\$ 57,750.00	COR
11	Station Demolition	LS	1	\$ 25,000.00	\$ 25,000.00	COR
Construction Total:					\$ 217,000.00	
Construction Contingency:					\$ 20,000.00	331
Engineering/Planning:					\$ 12,000.00	331
MSDC Fee (1.5" Meter):					\$ 8,973.00	306 or 309
Plastow Connection Fee (1.5" Meter):					\$ 3,200.00	306 or 309
Total Project Cost:					\$ 261,173.00	

If fee is based on gpd it is \$4.02/gpd for meters 3" or larger according to the MWW MSDC Rules and Regulations on page 39

Operations and Maintenance Costs:

Item No.	Item	Cost	Comments
1	Annual Property Taxes on New Construction (Local and State)	\$ 4,640.04	Local Property Tax is \$21.31/\$1000, State Tax is \$6.6/\$1000

Purchased Water Costs:

Item No.	Item	Rate	Quantity	Max monthly use + extra 30% for 3 summer months, max monthly use for remaining 9 months. There is no irrigation at the Condo Association.
1	Master Meter Flow	gal/year	7740000	Based on June 2021 usage of 600,000 gal
2	Annual Meter Charge (1.5" Meter)	\$283.50/quarter	\$ 1,134.00	
3	Annual Consumption Charge	\$7/1000 gal	\$ 54,180.00	
Annual Total:		\$	55,314.00	

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
1.256% Rate

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Twin Ridge - Option 2 - 100% Purchased Water with Booster Pump

Construction Costs:

Item No.	Item	Unit	Quantity	Unit Price	Cost Extension
1	Mobilization	LS	1	\$ 20,000.00	\$ 20,000.00
2	Furnish & Install 8x8 MJ tap and sleeve	LS	1	\$ 10,000.00	\$ 10,000.00
3	Furnish and install 8" diameter DI water main	LF	120	\$ 200.00	\$ 24,000.00
4	Furnish and install 8" ductile iron, mechanical joint fittings	EA	4	\$ 750.00	\$ 3,000.00
5	Furnish and install 8" diameter MJ gate valves	EA	2	\$ 1,500.00	\$ 3,000.00
6	2" Air Release Assembly	EA	2	\$ 2,500.00	\$ 5,000.00
7	Meter Pit	EA	1	\$ 42,500.00	\$ 42,500.00
8	Trench Rock/Boulder Excavation and Dispsal	CY	50	\$ 175.00	\$ 8,750.00
9	Complete Road Reconstruction (gravels, asphalt, misc.)	LF	100	\$ 180.00	\$ 18,000.00
10	Well Decommissioning	VF	5250	\$ 11.00	\$ 57,750.00
11	Station Upgrades (including boosters)	LS	1	\$ 75,000.00	\$ 75,000.00
Construction Total:					\$ 267,000.00
Construction Contingency:					\$ 24,000.00
Engineering/Planning:					\$ 12,000.00
MSDC Fee (1.5" Meter):					\$ 8,973.00
Plastow Connection Fee (1.5" Meter):					\$ 3,200.00
Total Project Cost:					\$ 315,173.00

If fee is based on gpd it is \$4.02/gpd for meters 3" or larger according to the MWW MSDC Rules and Regulations on page 39

Operations and Maintenance Costs:

Item No.	Item	Cost	Comments
1	Annual Property Taxes on Interconnection (Local and State)	\$ 6,844.93	Local Property Tax is \$21.31/\$1000, State Tax is \$6.6/\$1000
2	Annual Land Tax from 2020 Tax Bill	\$ 2,049.00	
3	Labor	\$ 12,395.14	50% of 2019 Total
4	Electric Costs	\$ 5,237.80	50% of 2019 Total
Total:		\$ 26,526.87	

Purchased Water Costs:

Item No.	Item	Rate	Quantity	Max monthly use + extra 30% for 3 summer months, max monthly use for remaining 9 months. There is no irrigation at the Condo Association.
1	Master Meter Flow	gal/year	7740000	Based on June 2021 usage of 600,000 gal
2	Annual Meter Charge (1.5" Meter)	\$283.50/quarter	\$ 1,134.00	
3	Annual Consumption Charge	\$7/1000 gal	\$ 54,180.00	
Annual Total:			\$ 55,314.00	

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
1.256% Rate

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Twin Ridge - Option 3 - Demolish and Rebuild Station

Construction Costs:

Item No.	Item	Unit	Quantity	Unit Price	Cost Extension	Comments
1	Mobilization	LS	1	\$ 20,000.00	\$ 20,000.00	
2	Furnish & Install 8x8 MJ tap and sleeve	LS	1	\$ 10,000.00	\$ 10,000.00	
3	Furnish and install 8" diameter DI water main	LF	120	\$ 200.00	\$ 24,000.00	
4	Furnish and install 8" ductile iron, mechanical joint fittings	EA	4	\$ 750.00	\$ 3,000.00	
5	Furnish and install 8" diameter MJ gate valves	EA	2	\$ 1,500.00	\$ 3,000.00	
6	2" Air Release Assembly	EA	2	\$ 2,500.00	\$ 5,000.00	
7	Meter Pit	EA	1	\$ 42,500.00	\$ 42,500.00	
8	Trench Rock/Boulder Excavation and Dispsal	CY	50	\$ 175.00	\$ 8,750.00	
9	Complete Road Reconstruction (gravels, asphalt, misc.)	LF	100	\$ 180.00	\$ 18,000.00	
10	Station Demolition	LS	1	\$ 25,000.00	\$ 25,000.00	
11	Station Rebuild	LS	1	\$ 650,000.00	\$ 650,000.00	
12	New Treatment System	LS	1	\$ 100,000.00	\$ 100,000.00	new pumps, composite vessels, filter heads, piping, chloramine removal
13	Well Decommissioning (all wells except well 8)	VF	4985	\$ 11.00	\$ 54,835.00	
Construction Total:					\$ 964,085.00	
Construction Contingency:					\$ 115,690.20	
Engineering/Planning:					\$ 12,000.00	
MSDC Fee (1.5" Meter):					\$ 8,973.00	based on amount of purchased water 180000 gal/month?
Plaistow Connection Fee (1.5" Meter):					\$ 3,200.00	
Total Project Cost:					\$ 1,103,948.20	

Operations and Maintenance Costs:

Item No.	Item	Cost	Comments
1	Annual Property Taxes on Interconnection (Local and State)	\$ 28,243.25	Local Property Tax is \$21.31/\$1000, State Tax is \$6.6/\$1000
2	Annual Land Tax from 2020 Tax Bill	\$ 2,049.00	
3	Labor	\$ 24,790.28	2019 Total, 723 hours worked on station
4	Chemical Costs	\$ 9,261.42	2019 Total + \$1500 for Cholarmine Treatment
5	Electric Costs	\$ 10,475.60	2019 Total
Total:		\$ 74,819.55	

Purchased Water Costs:

Item No.	Item	Rate	Quantity	Summer Usage Assumptions
1	Master Meter Flow	gal/year	540000	Well 8 Capacity: 20000 gpd 600000 gal/month
2	Annual Meter Charge (1.5" Meter)	\$283.50/quarter	\$ 1,134.00	Monthly Max + 30% for Summer Usage 780000 gal/month
3	Annual Consumption Charge	\$7/1000 gal	\$ 3,780.00	Difference (amount of purchased water): 180000 gal/month for 3 summer months
Annual Total:		\$	4,914.00	

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Option 1: 100% Purchased with no booster pumps

Repair/Replacement 2022 Cost		Inflation Value:		3%	
		Bond Int Rate		5%	
			Option 1	Option 2	Option 3
	Term (yrs)	20	\$ 261,173.00	\$ 315,173.00	\$ 1,103,948.20
	(SRF Interest Rate)	1.256%			
	SRF P&I		(\$14,848.82)	(\$17,056.31)	(\$17,056.31)
\$	3,000.00	Bond P&I	\$0.00	(\$1,217.52)	(\$64,510.88)
			(\$14,848.82)	(\$18,273.83)	(\$81,567.19)
\$	3,000.00				

		Operation and Maintenance Costs			Purchased Water Costs			Repair/Replacement		
Repair/Replacement 2022 Cost	Year	Option 1	Option 2	Option 3	Option 1	Option 2	Option 3	Option 1	Option 2	Option 3
	1	\$ 4,640.04	\$ 26,526.87	\$ 74,819.55	\$ 55,314.00	\$ 55,314.00	\$ 4,914.00	\$ 3,000.00	\$ 13,000.00	\$ 33,000.00
	2	\$ 4,779.24	\$ 27,322.67	\$ 77,064.14	\$ 56,973.42	\$ 56,973.42	\$ 5,061.42	\$ 3,090.00	\$ 13,390.00	\$ 33,990.00
	3	\$ 4,922.62	\$ 28,142.35	\$ 79,376.06	\$ 58,682.62	\$ 58,682.62	\$ 5,213.26	\$ 3,182.70	\$ 13,791.70	\$ 35,009.70
	4	\$ 5,070.29	\$ 28,986.62	\$ 81,757.35	\$ 60,443.10	\$ 60,443.10	\$ 5,369.66	\$ 3,278.18	\$ 14,205.45	\$ 36,059.99
	5	\$ 5,222.40	\$ 29,856.22	\$ 84,210.07	\$ 62,256.39	\$ 62,256.39	\$ 5,530.75	\$ 3,376.53	\$ 14,631.61	\$ 37,141.79
	6	\$ 5,379.08	\$ 30,751.91	\$ 86,736.37	\$ 64,124.09	\$ 64,124.09	\$ 5,696.67	\$ 3,477.82	\$ 15,070.56	\$ 38,256.04
\$ 3,000.00	7	\$ 5,540.45	\$ 31,674.47	\$ 89,338.46	\$ 66,047.81	\$ 66,047.81	\$ 5,867.57	\$ 3,582.16	\$ 15,522.68	\$ 39,403.73
	8	\$ 5,706.66	\$ 32,624.70	\$ 92,018.61	\$ 68,029.24	\$ 68,029.24	\$ 6,043.60	\$ 3,689.62	\$ 15,988.36	\$ 40,585.84
	9	\$ 5,877.86	\$ 33,603.44	\$ 94,779.17	\$ 70,070.12	\$ 70,070.12	\$ 6,224.91	\$ 3,800.31	\$ 16,468.01	\$ 41,803.41
	10	\$ 6,054.20	\$ 34,611.55	\$ 97,622.55	\$ 72,172.22	\$ 72,172.22	\$ 6,411.66	\$ 3,914.32	\$ 16,962.05	\$ 43,057.52
\$ 10,000.00	11	\$ 6,235.82	\$ 35,649.89	\$ 100,551.22	\$ 74,337.39	\$ 74,337.39	\$ 6,604.01	\$ 4,031.75	\$ 17,470.91	\$ 44,349.24
\$ 13,000.00	12	\$ 6,422.90	\$ 36,719.39	\$ 103,567.76	\$ 76,567.51	\$ 76,567.51	\$ 6,802.13	\$ 4,152.70	\$ 17,995.04	\$ 45,679.72
	13	\$ 6,615.58	\$ 37,820.97	\$ 106,674.79	\$ 78,864.54	\$ 78,864.54	\$ 7,006.19	\$ 4,277.28	\$ 18,534.89	\$ 47,050.11
Repair/Replacement 2022 Cost	14	\$ 6,814.05	\$ 38,955.60	\$ 109,875.04	\$ 81,230.47	\$ 81,230.47	\$ 7,216.37	\$ 4,405.60	\$ 19,090.94	\$ 48,461.61
	15	\$ 7,018.47	\$ 40,124.27	\$ 113,171.29	\$ 83,667.39	\$ 83,667.39	\$ 7,432.87	\$ 4,537.77	\$ 19,663.67	\$ 49,915.46
	16	\$ 7,229.03	\$ 41,328.00	\$ 116,566.43	\$ 86,177.41	\$ 86,177.41	\$ 7,655.85	\$ 4,673.90	\$ 20,253.58	\$ 51,412.92
	17	\$ 7,445.90	\$ 42,567.84	\$ 120,063.42	\$ 88,762.73	\$ 88,762.73	\$ 7,885.53	\$ 4,814.12	\$ 20,861.18	\$ 52,955.31
	18	\$ 7,669.27	\$ 43,844.87	\$ 123,665.32	\$ 91,425.61	\$ 91,425.61	\$ 8,122.09	\$ 4,958.54	\$ 21,487.02	\$ 54,543.97
	19	\$ 7,899.35	\$ 45,160.22	\$ 127,375.28	\$ 94,168.38	\$ 94,168.38	\$ 8,365.76	\$ 5,107.30	\$ 22,131.63	\$ 56,180.29
	20	\$ 8,136.33	\$ 46,515.02	\$ 131,196.54	\$ 96,993.43	\$ 96,993.43	\$ 8,616.73	\$ 5,260.52	\$ 22,795.58	\$ 57,865.70

Repair/Replacement 2022 Cost	
\$	3,000.00
\$	30,000.00
\$	<u>33,000.00</u>

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
1.256% Rate

Twin Ridge Options 1-3 Net Present Analysis

NPV Discount Rate 5 %
0.05

Option 1 - 100% Purchased Water with No Booster Pumps

	Year																				20	Net Present Value
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19			
Operations and Maintenance Costs	\$ (4,640.04)	\$ (4,779.24)	\$ (4,922.62)	\$ (5,070.29)	\$ (5,222.40)	\$ (5,379.08)	\$ (5,540.45)	\$ (5,706.66)	\$ (5,877.86)	\$ (6,054.20)	\$ (6,235.82)	\$ (6,422.90)	\$ (6,615.58)	\$ (6,814.05)	\$ (7,018.47)	\$ (7,229.03)	\$ (7,445.90)	\$ (7,669.27)	\$ (7,899.35)	\$ (8,136.33)	(\$74,077.19)	
Repair and Replacement Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (5,260.52)	(\$1,982.63)	
Purchased Water Costs	\$ (55,314.00)	\$ (56,973.42)	\$ (58,682.62)	\$ (60,443.10)	\$ (62,256.39)	\$ (64,124.09)	\$ (66,047.81)	\$ (68,029.24)	\$ (70,070.12)	\$ (72,172.22)	\$ (74,337.39)	\$ (76,567.51)	\$ (78,864.54)	\$ (81,230.47)	\$ (83,667.39)	\$ (86,177.41)	\$ (88,762.73)	\$ (91,425.61)	\$ (94,168.38)	\$ (96,993.43)	(\$883,076.04)	
P&I Payment	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$14,848.82)	(\$185,049.17)	
																					Total NPV= (\$1,144,185.03)	

Option 2 - 100% Purchased Water with Booster Pumps

Option 2 - 100% Purchased Water with Booster Pumps																					
	Year																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 Net Present Value	
Operations and Maintenance Costs	\$ (26,526.87)	\$ (27,322.67)	\$ (28,142.35)	\$ (28,986.62)	\$ (29,856.22)	\$ (30,751.91)	\$ (31,674.47)	\$ (32,624.70)	\$ (33,603.44)	\$ (34,611.55)	\$ (35,649.89)	\$ (36,719.39)	\$ (37,820.97)	\$ (38,955.60)	\$ (40,124.27)	\$ (41,328.00)	\$ (42,567.84)	\$ (43,844.87)	\$ (45,160.22)	\$ (46,515.02)	(\$423,495.70)
Repair and Replacement Costs	**\$200 for approximate annual pump maintenance**																				
Purchased Water Costs	\$ (55,314.00)	\$ (56,973.42)	\$ (58,682.62)	\$ (60,443.10)	\$ (62,256.39)	\$ (64,124.09)	\$ (66,047.81)	\$ (68,029.24)	\$ (70,070.12)	\$ (72,172.22)	\$ (74,337.39)	\$ (76,567.51)	\$ (78,864.54)	\$ (81,230.47)	\$ (83,667.39)	\$ (86,177.41)	\$ (88,762.73)	\$ (91,425.61)	\$ (94,168.38)	\$ (96,993.43)	(\$883,076.04)
P&I Payment	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$18,273.83)	(\$227,732.30)
																					Total NPV= (\$1,545,956.23)

Option 3 - Supplemental Source (Demolish and Rebuild Station)

Option 3 - Supplemental Source (Demolish and Rebuild Station)																				
	Year																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 Net Present Value
Operations and Maintenance Costs	\$ (74,819.55)	\$ (77,064.14)	\$ (79,376.06)	\$ (81,757.35)	\$ (84,210.07)	\$ (86,736.37)	\$ (89,338.46)	\$ (92,018.61)	\$ (94,779.17)	\$ (97,622.55)	\$ (100,551.22)	\$ (103,567.76)	\$ (106,674.79)	\$ (109,875.04)	\$ (113,171.29)	\$ (116,566.43)	\$ (120,063.42)	\$ (123,665.32)	\$ (127,375.28)	\$ (131,196.54)
Repair and Replacement Costs	**\$500 for approximate annual pump main. & media** \$ (500.00)	\$ (515.00)	\$ (530.45)	\$ (546.36)	\$ (562.75)	\$ (579.64)	\$ (597.03)	\$ (614.94)	\$ (633.39)	\$ (652.39)	\$ (671.96)	\$ (692.12)	\$ (712.88)	\$ (734.27)	\$ (756.29)	\$ (778.98)	\$ (802.35)	\$ (826.42)	\$ (851.22)	\$ (57,865.70)
Purchased Water Costs	\$ (4,914.00)	\$ (5,061.42)	\$ (5,213.26)	\$ (5,369.66)	\$ (5,530.75)	\$ (5,696.67)	\$ (5,867.57)	\$ (6,043.60)	\$ (6,224.91)	\$ (6,411.66)	\$ (6,604.01)	\$ (6,802.13)	\$ (7,006.19)	\$ (7,216.37)	\$ (7,432.87)	\$ (7,655.85)	\$ (7,885.53)	\$ (8,122.09)	\$ (8,365.76)	\$ (8,616.73)
P&I Payment	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)	(\$81,567.19)
																				Total NPV=
																				(\$1,016,507.50)
																				(\$2,318,897.36)

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
1.256% Rate

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Sweet Hill
Address: Connection will be made at the intersection of Partridge Lane and Sweet Hill Rd

Notes:
Max HGL: 337, Min HGL: 302, Future HGL: 286
Max Pressure: 72.7 psi, Min Pressure: 57.6 psi, Future Pressure: 51 psi
Booster Station Elevation is at 169 ft
Approx. 910 ft of 4" if we stay in the shoulder
PVC Pipe
SRF PROJECT

Second highest customer is at 173 ft in elevation.

Porperty Tax Rates:
Plaistow: \$21.31/\$1000
State: \$6.6/\$1000

**need to pay a meter charge for either a 1-1/2" or 2" master meter (100gpm max vs. 160 gpm max)

Current Electrical Costs (2019 Total)		
Kilowatts		
		25119
acct # 2031 Delivery Service	\$	2,270.28
acct # 7591 Supplier Service	\$	2,122.92
Total:	\$	4,393.20

Current Labor Costs		
Kilowatts SH		
		25119
Kilowatts TR		
		66888
% SH/TR		
		0.375538213
Wages TR	\$	24,790.28
Estimated Wages SH	\$	9,309.70

Labor Cost is estimated based on electrical usage

Current Chemical Costs		
Sodium Hypochlorite	\$	200.00

Estimated Current Labor Cost		
TR Labor Cost	\$	24,790.28
SH 50% Reduced Cost	\$	12,395.14

Current PWW Sweet Hill Revenue Requirements		
Property Tax Expense	\$	18,766.59
Electric Expense	\$	4,393.20
Labor Expense	\$	9,309.70
Chemical Costs		
Total Current PWW Expenses		

Current Property Taxes		
Assest Value	\$	360,537.26
Land Tax Payment	\$	8,704.00
Local Tax	\$	7,683.05
State Tax	\$	2,379.55
Total:	\$	18,766.59

2020 Tax Bill
Local tax is \$21.31/\$1000
State tax is \$6.6/\$1000

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
1.256% Rate

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Sweet Hill - Option 1 - 100% Purchased with Boosters

Construction Costs:

Item No.	Item	Unit	Quantity	Unit Price	Cost Extension
1	Mobilization	LS	1	\$ 15,000.00	\$ 15,000.00
2	Furnish & Install 12x4 MJ tap and sleeve and meter pit	LS	1	\$ 47,500.00	\$ 47,500.00
3	Furnish and install 4" diameter C-900 water main	LF	1600	\$ 60.00	\$ 96,000.00
4	Furnish and install 4" ductile iron, mechanical joint bend w/ retainer glands & thrust block	EA	4	\$ 350.00	\$ 1,400.00
5	Furnish and install 4" diameter MJ gate valves	EA	3	\$ 1,000.00	\$ 3,000.00
6	2" Air Release Assembly	EA	2	\$ 1,500.00	\$ 3,000.00
7	Furnish and install 4" ductile iron, solid sleeve couplings and accessories	EA	1	\$ 500.00	\$ 500.00
8	Trench Rock/Boulder Excavation and Dispsal	CY	50	\$ 175.00	\$ 8,750.00
9	Complete Road Reconstruction (gravels, asphalt, misc.)	LF	1600	\$ 90.00	\$ 144,000.00
10	Station Upgrades (incuding boosters)	LS	1	\$ 30,000.00	\$ 30,000.00
11	Well Decommissioning	VF	1550	\$ 11.00	\$ 17,050.00
Construction Total:					\$ 366,200.00
Construction Contingency:					\$ 43,944.00
Engineering/Planning:					\$ 12,000.00
MSDC Fee (1.5" Meter):					\$ 8,973.00
Plaistow Connection Fee (1.5" Meter):					\$ 3,200.00
Total Project Cost:					\$ 434,317.00

Operations and Maintenance Costs:

Item No.	Item	Cost	Comments
1	Annual Property Taxes on Interconnection (Local and State)	\$ 11,306.17	Local Property Tax is \$21.31/\$1000, State Tax is \$6.6/\$1000
2	Annual Land Tax from 2020 Tax Bill	\$ 8,704.00	
3	Labor	\$ 6,197.57	Assumed 25% of Twin Ridge Annual Labor Costs
5	Electric Costs	\$ 4,393.20	2019 Total
Total:		\$ 30,600.94	

Purchased Water Costs:

Item No.	Item	Rate	Quantity
1	Master Meter Flow	gal/year	3555000
2	Annual Meter Charge (1.5" Meter)	\$283.50/quarter	\$ 1,134.00
3	Annual Consumption Charge	\$7/1000 gal	\$ 24,885.00
Annual Total:		\$	26,019.00

Summer Usage Assumptions

Number of Summer Usage Months:	5 months
Average GPD without outside usage:	150 gpd per household
Average GPD with outside usage:	1000 gpd per household
Number of Customers:	30
Odd/Even Watering:	15 Customers watering per day
Summer Usage per Day:	17250 gpd
Summer Usage per Month:	517500 gal per month, assumed 30 days per month
Total Summer Usage:	2587500 gal
Total Non-Summer Usage:	967500 gal, assumed 30 days per month in summer months
Total Annual Usage:	3555000 gal/year

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
1.256% Rate

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Sweet Hill - Option 2 - Supplemental Source

Construction Costs:

Item No.	Item	Unit	Quantity	Unit Price	Cost Extension	CoA
1	Mobilization	LS	1	\$ 15,000.00	\$ 15,000.00	309
2	Furnish & Install 12x4 MJ tap and sleeve and meter pit	LS	1	\$ 47,500.00	\$ 47,500.00	309
3	Furnish and install 4" diameter C-900 water main	LF	1600	\$ 60.00	\$ 96,000.00	309
4	Furnish and install 4" ductile iron, mechanical joint bend w/retainer glands & thrust block	EA	4	\$ 350.00	\$ 1,400.00	309
5	Furnish and install 4" diameter MJ gate valves	EA	3	\$ 1,000.00	\$ 3,000.00	309
6	2" Air Release Assembly	EA	2	\$ 1,500.00	\$ 3,000.00	309
7	Furnish and install 4" ductile iron, solid sleeve couplings and accessories	EA	1	\$ 500.00	\$ 500.00	309
8	Trench Rock/Boulder Excavation and Dispsal	CY	50	\$ 175.00	\$ 8,750.00	309
9	Complete Road Reconstruction (gravels, asphalt, misc.)	LF	1600	\$ 90.00	\$ 144,000.00	309
10	Station Upgrades (incuding boosters)	LS	1	\$ 30,000.00	\$ 30,000.00	311
11	New Treatment System	LS	1	\$ 50,000.00	\$ 50,000.00	320
Construction Total:					\$ 399,150.00	
Construction Contingency:					\$ 47,898.00	309
Engineering/Planning:					\$ 12,000.00	309
MSDC Fee (3/4" Meter):					\$ 2,324.00	306 or 309
Plaistow Connection Fee (3/4" Meter):					\$ 1,300.00	306 or 309
Total Project Cost:					\$ 462,672.00	

Operations and Maintenance Costs:

Item No.	Item	Cost	Comments
1	Annual Property Taxes on Interconnection (Local and State)	\$ 12,812.03	Local Property Tax is \$21.31/\$1000, State Tax is \$6.6/\$1000
2	Annual Land Tax from 2020 Tax Bill	\$ 8,704.00	
3	Labor	\$ 12,395.14	Assumed 50% of Twin Ridge Annual Labor Costs
4	Chemical Costs	\$ 200.00	
5	Electric Costs	\$ 4,393.20	2019 Total
Total:		\$ 38,504.37	

Purchased Water Costs:

Item No.	Item	Rate	Quantity
1	Master Meter Flow	gal/year	2666250
2	Annual Meter Charge (3/4" Meter)	\$63/quarter	\$ 252.00
3	Annual Consumption Charge	\$7/1000 gal	\$ 18,663.75
Annual Total:			\$ 18,915.75

Summer Usage Assumptions	
Number of Summer Usage Months:	5 months
Average GPD without outside usage:	150 gpd per household
Average GPD with outside usage:	1000 gpd per household
Number of Customers:	30
Odd/Even Watering:	15 Customers watering per day
Summer Usage per Day:	17250 gpd
Summer Usage per Month:	517500 gal per month, assumed 30 days per month
Total Summer Usage:	2587500 gal
Total Non-Summer Usage:	967500 gal, assumed 30 days per month in summer months
Total Annual Usage:	3555000 gal/year
Amount of Purchased Water:	2666250 gal/year, assumed 75% purchased water
Amount of PEU Water:	888750 gal/year

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
1.256% Rate

Sweet Hill Options 1 and 2 Net Present Value Analysis for PWW Expenses

Option 1: 100% Purchased Water with Booster Pumps

Item No.	Item	Unit	Quantity	Unit Price	Cost Extension
1	Mobilization	LS	1	\$ 15,000.00	\$ 15,000.00
2	Furnish & Install 12x4 MJ tap and sleeve	LS	1	\$ 47,500.00	\$ 47,500.00
3	Furnish and install 4" diameter C-900 water main	LF	1600	\$ 60.00	\$ 96,000.00
4	Furnish and install 4" ductile iron, mechanical joint bend w/ retainer glands & thrust block	EA	4	\$ 350.00	\$ 1,400.00
5	Furnish and install 4" diameter MJ gate valves	EA	3	\$ 1,000.00	\$ 3,000.00
6	2" Air Release Assembly	EA	2	\$ 1,500.00	\$ 3,000.00
7	Furnish and install 4" ductile iron, solid sleeve couplings and accessories	EA	1	\$ 500.00	\$ 500.00
8	Trench Rock/Boulder Excavation and Dispsal	CY	50	\$ 175.00	\$ 8,750.00
9	Complete Road Reconstruction (gravels, asphalt, misc.)	LF	1600	\$ 90.00	\$ 144,000.00
10	Station Upgrades (including boosters)	LS	1	\$ 30,000.00	\$ 30,000.00
11	Well Decommissioning	VF	1550	\$ 11.00	\$ 17,050.00
Estimated Capital Cost:					\$ 366,200.00

Option 2: Supplemental Source

Item No.	Item	Unit	Quantity	Unit Price	Cost Extension
1	Mobilization	LS	1	\$ 15,000.00	\$ 15,000.00
2	Furnish & Install 12x4 MJ tap and sleeve	LS	1	\$ 47,500.00	\$ 47,500.00
3	Furnish and install 4" diameter C-900 water main	LF	1600	\$ 60.00	\$ 96,000.00
4	Furnish and install 4" ductile iron, mechanical joint bend w/ retainer glands & thrust block	EA	4	\$ 350.00	\$ 1,400.00
5	Furnish and install 4" diameter MJ gate valves	EA	3	\$ 1,000.00	\$ 3,000.00
6	2" Air Release Assembly	EA	2	\$ 1,500.00	\$ 3,000.00
7	Furnish and install 4" ductile iron, solid sleeve couplings and accessories	EA	1	\$ 500.00	\$ 500.00
8	Trench Rock/Boulder Excavation and Dispsal	CY	50	\$ 175.00	\$ 8,750.00
9	Complete Road Reconstruction (gravels, asphalt, misc.)	LF	1600	\$ 90.00	\$ 144,000.00
10	Station Upgrades (including boosters)	LS	1	\$ 30,000.00	\$ 30,000.00
11	New Treatment System	LS	1	\$ 50,000.00	\$ 50,000.00
Estimated Capital Cost:					\$ 399,150.00

Repair/Replacement 2022 Cost

Inflation Value: 3%

		Option 1		Option 2		Term (yrs)		Option 1		Option 2			
		20		\$ 434,317.00		\$ 462,672.00							
		Interest Rate:		1.256%		SRF		P&I				5% Bond Int Rate	
		Option 1		Option 2		SRF		P&I					
\$		240,000.00		\$		240,000.00		P&I		(\$13,645.05)		(\$13,645.05)	
\$		184,317.00		\$		222,672.00		Bond		P&I		(\$14,790.07)	
												(\$17,867.78)	
												(\$28,435.12)	
												(\$31,512.82)	

\$ 15,000.00

Operation and Maintenance Costs

Purchased Water Costs

Repair/Replacement

Station Rebuild Costs

Year	Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	Option 1	Option 2
1	\$ 30,600.94	\$ 38,504.37	\$ 26,019.00	\$ 18,915.75	\$ 15,000.00	\$ 10,000.00	\$ 200,000.00	\$ 260,000.00	\$ 200,000.00	\$ 260,000.00
2	\$ 31,518.97	\$ 39,659.50	\$ 26,799.57	\$ 19,483.22	\$ 15,450.00	\$ 10,300.00	\$ 206,000.00	\$ 267,800.00	\$ 206,000.00	\$ 267,800.00
3	\$ 32,464.54	\$ 40,849.29	\$ 27,603.56	\$ 20,067.72	\$ 15,913.50	\$ 10,609.00	\$ 212,180.00	\$ 275,834.00	\$ 212,180.00	\$ 275,834.00
4	\$ 33,438.48	\$ 42,074.76	\$ 28,431.66	\$ 20,669.75	\$ 16,390.91	\$ 10,927.27	\$ 218,545.40	\$ 284,109.02	\$ 218,545.40	\$ 284,109.02
5	\$ 34,441.63	\$ 43,337.01	\$ 29,284.61	\$ 21,289.84	\$ 16,882.63	\$ 11,255.09	\$ 225,101.76	\$ 292,632.29	\$ 225,101.76	\$ 292,632.29
6	\$ 35,474.88	\$ 44,637.12	\$ 30,163.15	\$ 21,928.54	\$ 17,389.11	\$ 11,592.74	\$ 231,854.81	\$ 301,411.26	\$ 231,854.81	\$ 301,411.26
7	\$ 36,539.13	\$ 45,976.23	\$ 31,068.05	\$ 22,586.39	\$ 17,910.78	\$ 11,940.52	\$ 238,810.46	\$ 310,453.60	\$ 238,810.46	\$ 310,453.60
8	\$ 37,635.30	\$ 47,355.52	\$ 32,000.09	\$ 23,263.99	\$ 18,448.11	\$ 12,298.74	\$ 245,974.77	\$ 319,767.21	\$ 245,974.77	\$ 319,767.21
9	\$ 38,764.36	\$ 48,776.18	\$ 32,960.09	\$ 23,961.91	\$ 19,001.55	\$ 12,667.70	\$ 253,354.02	\$ 329,360.22	\$ 253,354.02	\$ 329,360.22
10	\$ 39,927.29	\$ 50,239.47	\$ 33,948.89	\$ 24,680.76	\$ 19,571.60	\$ 13,047.73	\$ 260,954.64	\$ 339,241.03	\$ 260,954.64	\$ 339,241.03
11	\$ 41,125.11	\$ 51,746.65	\$ 34,967.36	\$ 25,421.19	\$ 20,158.75	\$ 13,439.16	\$ 268,783.28	\$ 349,418.26	\$ 268,783.28	\$ 349,418.26
12	\$ 42,358.86	\$ 53,299.05	\$ 36,016.38	\$ 26,183.82	\$ 20,763.51	\$ 13,842.34	\$ 276,846.77	\$ 359,900.81	\$ 276,846.77	\$ 359,900.81
13	\$ 43,629.63	\$ 54,898.02	\$ 37,096.87	\$ 26,969.34	\$ 21,386.41	\$ 14,257.61	\$ 285,152.18	\$ 370,697.83	\$ 285,152.18	\$ 370,697.83
14	\$ 44,938.52	\$ 56,544.96	\$ 38,209.78	\$ 27,778.42	\$ 22,028.01	\$ 14,685.34	\$ 293,706.74	\$ 381,818.77	\$ 293,706.74	\$ 381,818.77
15	\$ 46,286.67	\$ 58,241.31	\$ 39,356.07	\$ 28,611.77	\$ 22,688.85	\$ 15,125.90	\$ 302,517.94	\$ 393,273.33	\$ 302,517.94	\$ 393,273.33
16	\$ 47,675.27	\$ 59,988.55	\$ 40,536.75	\$ 29,470.12	\$ 23,369.51	\$ 15,579.67	\$ 311,593.48	\$ 405,071.53	\$ 311,593.48	\$ 405,071.53
17	\$ 49,105.53	\$ 61,788.21	\$ 41,752.86	\$ 30,354.23	\$ 24,070.60	\$ 16,047.06	\$ 320,941.29	\$ 417,223.67	\$ 320,941.29	\$ 417,223.67
18	\$ 50,578.70	\$ 63,641.86	\$ 43,005.44	\$ 31,264.85	\$ 24,792.71	\$ 16,528.48	\$ 330,569.53	\$ 429,740.38	\$ 330,569.53	\$ 429,740.38
19	\$ 52,096.06	\$ 65,551.11	\$ 44,295.61	\$ 32,202.80	\$ 25,536.50	\$ 17,024.33	\$ 340,486.61	\$ 442,632.60	\$ 340,486.61	\$ 442,632.60
20	\$ 53,658.94	\$ 67,517.65	\$ 45,624.47	\$ 33,168.88	\$ 26,302.59	\$ 17,535.06	\$ 350,701.21	\$ 455,911.57	\$ 350,701.21	\$ 455,911.57

Station Rebuild Costs

Option 2 Station Rebuild:
Station Rebuild 2022 Cost
Station Built in 1996
Replace at year 40 or 2036
Analysis year 2036-2022=14
P&I at 5% interest

\$ 260,000.00

\$ 381,818.77 Int=
(\$30,638.13)

0.05

Option 1 Station Rebuild:
New Station no Tank 2022 cost
14 Year Rebuild
P&I at 5% Interest

\$ 200,000.00 Int=
\$ 293,706.74
(\$23,567.79)

0.05

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5 %
0.05

Replacement year
Need to add water main P&I to Station rebuild P&I

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
2.50% Rate

Twin Ridge
Address: Connection will be made at the hydrant near the intersection of Walton Road and State Rt. 125 to the 8" main

Notes:
Max HGL: 320, Min HGL: 279, Future HGL: 286
Approx. 40 ft of 8" line
SRF PROJECT
No Booster Station Required

Porperty Tax Rates:
Plaistow: \$21.31/\$1000
State: \$6.6/\$1000

**must pay the MSDS charge + \$0.50/CCF and need either a 2" meter or 3" compound meter (160 gpm vs. 350 gpm)
~~Water Rates:~~
~~Plaistow: \$1.546/CCF (?)~~
~~PWW: \$3.66/CCF~~

Current Electrical Costs (2019 Total)			
PWW	Kilowatts		66888
acct # 2030410000 - Unitil -Delivery	Delviery Service	\$	4,139.49
acct # 7591033 - Constellation - Supply	Supplier Service	\$	5,591.83
PEU Well #7	Kilowatts		148
aact # 2034853000 - Unitil	Power & Demanc	\$	732.00
acct # 7591044 - Constellation	Power Charge	\$	12.28
PEU & PWW Total:		\$	10,475.60

Current Labor Costs (2019 Total)			
	Hours		723
	Wages	\$	24,790.28

Current Chemical Costs (2019 Total)			
Chemical	# of Gal or Bag	\$/ (Gal or Bag)	Cost
Chlorine	75	\$ 0.79	\$ 59.27
Caustic	20	\$ 1.28	\$ 25.55
Salt	944	\$ 8.13	\$ 7,676.61
Total:			\$ 7,761.42

Current Property Taxes			
Assest Value	\$	459,813.09	
Land Tax Payment	\$	2,049.00	2020 Tax Bill
Local Tax	\$	9,798.62	Local tax is \$21.31/\$1000
State Tax	\$	3,034.77	State tax is \$6.6/\$1000
Total Tax:	\$	14,882.38	

Current Annual PWW Twin Ridge Revenue Requirements

Property Tax Expense	\$	14,882.38
Electric Expense	\$	10,475.60
Labor Expense	\$	24,790.28
Chemical Expense	\$	7,761.42
Total Current PWW Expenses	\$	57,909.69

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
2.50% Rate

Twin Ridge - Option 1 -100% Purchased Water, No Booster Pump

Construction Costs:

Item No.	Item	Unit	Quantity	Unit Price	Cost Extension	CoA
1	Mobilization	LS	1	\$ 20,000.00	\$ 20,000.00	331
2	Furnish & Install 8x8 MJ tap and sleeve	LS	1	\$ 10,000.00	\$ 10,000.00	331
3	Furnish and install 8" diameter DI water main	LF	120	\$ 200.00	\$ 24,000.00	331
4	Furnish and install 8" ductile iron, mechanical joint fittings	EA	4	\$ 750.00	\$ 3,000.00	331
5	Furnish and install 8" diameter MJ gate valves	EA	2	\$ 1,500.00	\$ 3,000.00	331
6	2" Air Release Assembly	EA	2	\$ 2,500.00	\$ 5,000.00	331
7	Meter Pit	EA	1	\$ 42,500.00	\$ 42,500.00	334
8	Trench Rock/Boulder Excavation and Dispsal	CY	50	\$ 175.00	\$ 8,750.00	331
9	Complete Road Reconstruction (gravels, asphalt, misc.)	LF	100	\$ 180.00	\$ 18,000.00	331
10	Well Decommissioning	VF	5250	\$ 11.00	\$ 57,750.00	COR
11	Station Demolition	LS	1	\$ 25,000.00	\$ 25,000.00	COR
Construction Total:					\$ 217,000.00	
Construction Contingency:					\$ 20,000.00	331
Engineering/Planning:					\$ 12,000.00	331
MSDC Fee (1.5" Meter):					\$ 8,973.00	306 or 309
Plastow Connection Fee (1.5" Meter):					\$ 3,200.00	306 or 309
Total Project Cost:					\$ 261,173.00	

If fee is based on gpd it is \$4.02/gpd for meters 3" or larger according to the MWW MSDC Rules and Regulations on page 39

Operations and Maintenance Costs:

Item No.	Item	Cost	Comments
1	Annual Property Taxes on New Construction (Local and State)	\$ 4,640.04	Local Property Tax is \$21.31/\$1000, State Tax is \$6.6/\$1000

Purchased Water Costs:

Item No.	Item	Rate	Quantity	Max monthly use + extra 30% for 3 summer months, max monthly use for remaining 9 months. There is no irrigation at the Condo Association.
1	Master Meter Flow	gal/year	7740000	Based on June 2021 usage of 600,000 gal
2	Annual Meter Charge (1.5" Meter)	\$283.50/quarter	\$ 1,134.00	
3	Annual Consumption Charge	\$7/1000 gal	\$ 54,180.00	
Annual Total:		\$	55,314.00	

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
2.50% Rate

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Twin Ridge - Option 2 - 100% Purchased Water with Booster Pump

Construction Costs:

Item No.	Item	Unit	Quantity	Unit Price	Cost Extension	
1	Mobilization	LS	1	\$ 20,000.00	\$ 20,000.00	
2	Furnish & Install 8x8 MJ tap and sleeve	LS	1	\$ 10,000.00	\$ 10,000.00	
3	Furnish and install 8" diameter DI water main	LF	120	\$ 200.00	\$ 24,000.00	
4	Furnish and install 8" ductile iron, mechanical joint fittings	EA	4	\$ 750.00	\$ 3,000.00	
5	Furnish and install 8" diameter MJ gate valves	EA	2	\$ 1,500.00	\$ 3,000.00	
6	2" Air Release Assembly	EA	2	\$ 2,500.00	\$ 5,000.00	
7	Meter Pit	EA	1	\$ 42,500.00	\$ 42,500.00	
8	Trench Rock/Boulder Excavation and Dispsal	CY	50	\$ 175.00	\$ 8,750.00	
9	Complete Road Reconstruction (gravels, asphalt, misc.)	LF	100	\$ 180.00	\$ 18,000.00	
10	Well Decommissioning	VF	5250	\$ 11.00	\$ 57,750.00	
11	Station Upgrades (including boosters)	LS	1	\$ 75,000.00	\$ 75,000.00	
Construction Total:					\$ 267,000.00	
Construction Contingency:					\$ 24,000.00	
Engineering/Planning:					\$ 12,000.00	
MSDC Fee (1.5" Meter):					\$ 8,973.00	If fee is based on gpd it is \$4.02/gpd for meters 3" or larger according to the MWW MSDC Rules and Regulations on page 39
Plaistow Connection Fee (1.5" Meter):					\$ 3,200.00	
Total Project Cost:					\$ 315,173.00	

Operations and Maintenance Costs:

Item No.	Item	Cost	Comments
1	Annual Property Taxes on Interconnection (Local and State)	\$ 6,844.93	Local Property Tax is \$21.31/\$1000, State Tax is \$6.6/\$1000
2	Annual Land Tax from 2020 Tax Bill	\$ 2,049.00	
3	Labor	\$ 12,395.14	50% of 2019 Total
4	Electric Costs	\$ 5,237.80	50% of 2019 Total
Total:		\$ 26,526.87	

Purchased Water Costs:

Item No.	Item	Rate	Quantity	Max monthly use + extra 30% for 3 summer months, max monthly use for remaining 9 months. There is no irrigation at the Condo Association.
1	Master Meter Flow	gal/year	7740000	Based on June 2021 usage of 600,000 gal
2	Annual Meter Charge (1.5" Meter)	\$283.50/quarter	\$ 1,134.00	
3	Annual Consumption Charge	\$7/1000 gal	\$ 54,180.00	
Annual Total:			\$ 55,314.00	

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
2.50% Rate

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Twin Ridge - Option 3 - Demolish and Rebuild Station

Construction Costs:

Item No.	Item	Unit	Quantity	Unit Price	Cost Extension	Comments
1	Mobilization	LS	1	\$ 20,000.00	\$ 20,000.00	
2	Furnish & Install 8x8 MJ tap and sleeve	LS	1	\$ 10,000.00	\$ 10,000.00	
3	Furnish and install 8" diameter DI water main	LF	120	\$ 200.00	\$ 24,000.00	
4	Furnish and install 8" ductile iron, mechanical joint fittings	EA	4	\$ 750.00	\$ 3,000.00	
5	Furnish and install 8" diameter MJ gate valves	EA	2	\$ 1,500.00	\$ 3,000.00	
6	2" Air Release Assembly	EA	2	\$ 2,500.00	\$ 5,000.00	
7	Meter Pit	EA	1	\$ 42,500.00	\$ 42,500.00	
8	Trench Rock/Boulder Excavation and Dispsal	CY	50	\$ 175.00	\$ 8,750.00	
9	Complete Road Reconstruction (gravels, asphalt, misc.)	LF	100	\$ 180.00	\$ 18,000.00	
10	Station Demolition	LS	1	\$ 25,000.00	\$ 25,000.00	
11	Station Rebuild	LS	1	\$ 650,000.00	\$ 650,000.00	
12	New Treatment System	LS	1	\$ 100,000.00	\$ 100,000.00	new pumps, composite vessels, filter heads, piping, chloramine removal
13	Well Decommissioning (all wells except well 8)	VF	4985	\$ 11.00	\$ 54,835.00	
Construction Total:					\$ 964,085.00	
Construction Contingency:					\$ 115,690.20	
Engineering/Planning:					\$ 12,000.00	
MSDC Fee (1.5" Meter):					\$ 8,973.00	based on amount of purchased water 180000 gal/month?
Plaistow Connection Fee (1.5" Meter):					\$ 3,200.00	
Total Project Cost:					\$ 1,103,948.20	

Operations and Maintenance Costs:

Item No.	Item	Cost	Comments
1	Annual Property Taxes on Interconnection (Local and State)	\$ 28,243.25	Local Property Tax is \$21.31/\$1000, State Tax is \$6.6/\$1000
2	Annual Land Tax from 2020 Tax Bill	\$ 2,049.00	
3	Labor	\$ 24,790.28	2019 Total, 723 hours worked on station
4	Chemical Costs	\$ 9,261.42	2019 Total + \$1500 for Cholarmine Treatment
5	Electric Costs	\$ 10,475.60	2019 Total
Total:		\$ 74,819.55	

Purchased Water Costs:

Item No.	Item	Rate	Quantity	Summer Usage Assumptions
1	Master Meter Flow	gal/year	540000	Well 8 Capacity: 20000 gpd 600000 gal/month
2	Annual Meter Charge (1.5" Meter)	\$283.50/quarter	\$ 1,134.00	Monthly Max + 30% for Summer Usage 780000 gal/month
3	Annual Consumption Charge	\$7/1000 gal	\$ 3,780.00	Difference (amount of purchased water): 180000 gal/month for 3 summer months
Annual Total:		\$	4,914.00	

2022 PWW SRF Financings Petition
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Repair/Replacement 2022 Cost		Inflation Value:		3%	
		Bond Int Rate		5%	
			Option 1	Option 2	Option 3
	Term (yrs)	20	\$ 261,173.00	\$ 315,173.00	\$ 1,103,948.20
	(SRF Interest Rate)	2.500%			
	SRF P&I		(\$16,753.50)	(\$19,244.14)	(\$19,244.14)
\$	3,000.00	Bond P&I	\$0.00	(\$1,217.52)	(\$64,510.88)
			(\$16,753.50)	(\$20,461.66)	(\$83,755.02)
\$	3,000.00				

		Operation and Maintenance Costs			Purchased Water Costs			Repair/Replacement		
Repair/Replacement 2022 Cost	Year	Option 1	Option 2	Option 3	Option 1	Option 2	Option 3	Option 1	Option 2	Option 3
	1	\$ 4,640.04	\$ 26,526.87	\$ 74,819.55	\$ 55,314.00	\$ 55,314.00	\$ 4,914.00	\$ 3,000.00	\$ 13,000.00	\$ 33,000.00
	2	\$ 4,779.24	\$ 27,322.67	\$ 77,064.14	\$ 56,973.42	\$ 56,973.42	\$ 5,061.42	\$ 3,090.00	\$ 13,390.00	\$ 33,990.00
	3	\$ 4,922.62	\$ 28,142.35	\$ 79,376.06	\$ 58,682.62	\$ 58,682.62	\$ 5,213.26	\$ 3,182.70	\$ 13,791.70	\$ 35,009.70
	4	\$ 5,070.29	\$ 28,986.62	\$ 81,757.35	\$ 60,443.10	\$ 60,443.10	\$ 5,369.66	\$ 3,278.18	\$ 14,205.45	\$ 36,059.99
	5	\$ 5,222.40	\$ 29,856.22	\$ 84,210.07	\$ 62,256.39	\$ 62,256.39	\$ 5,530.75	\$ 3,376.53	\$ 14,631.61	\$ 37,141.79
	6	\$ 5,379.08	\$ 30,751.91	\$ 86,736.37	\$ 64,124.09	\$ 64,124.09	\$ 5,696.67	\$ 3,477.82	\$ 15,070.56	\$ 38,256.04
\$ 3,000.00	7	\$ 5,540.45	\$ 31,674.47	\$ 89,338.46	\$ 66,047.81	\$ 66,047.81	\$ 5,867.57	\$ 3,582.16	\$ 15,522.68	\$ 39,403.73
	8	\$ 5,706.66	\$ 32,624.70	\$ 92,018.61	\$ 68,029.24	\$ 68,029.24	\$ 6,043.60	\$ 3,689.62	\$ 15,988.36	\$ 40,585.84
	9	\$ 5,877.86	\$ 33,603.44	\$ 94,779.17	\$ 70,070.12	\$ 70,070.12	\$ 6,224.91	\$ 3,800.31	\$ 16,468.01	\$ 41,803.41
	10	\$ 6,054.20	\$ 34,611.55	\$ 97,622.55	\$ 72,172.22	\$ 72,172.22	\$ 6,411.66	\$ 3,914.32	\$ 16,962.05	\$ 43,057.52
\$ 10,000.00	11	\$ 6,235.82	\$ 35,649.89	\$ 100,551.22	\$ 74,337.39	\$ 74,337.39	\$ 6,604.01	\$ 4,031.75	\$ 17,470.91	\$ 44,349.24
\$ 13,000.00	12	\$ 6,422.90	\$ 36,719.39	\$ 103,567.76	\$ 76,567.51	\$ 76,567.51	\$ 6,802.13	\$ 4,152.70	\$ 17,995.04	\$ 45,679.72
	13	\$ 6,615.58	\$ 37,820.97	\$ 106,674.79	\$ 78,864.54	\$ 78,864.54	\$ 7,006.19	\$ 4,277.28	\$ 18,534.89	\$ 47,050.11
Repair/Replacement 2022 Cost	14	\$ 6,814.05	\$ 38,955.60	\$ 109,875.04	\$ 81,230.47	\$ 81,230.47	\$ 7,216.37	\$ 4,405.60	\$ 19,090.94	\$ 48,461.61
	15	\$ 7,018.47	\$ 40,124.27	\$ 113,171.29	\$ 83,667.39	\$ 83,667.39	\$ 7,432.87	\$ 4,537.77	\$ 19,663.67	\$ 49,915.46
	16	\$ 7,229.03	\$ 41,328.00	\$ 116,566.43	\$ 86,177.41	\$ 86,177.41	\$ 7,655.85	\$ 4,673.90	\$ 20,253.58	\$ 51,412.92
	17	\$ 7,445.90	\$ 42,567.84	\$ 120,063.42	\$ 88,762.73	\$ 88,762.73	\$ 7,885.53	\$ 4,814.12	\$ 20,861.18	\$ 52,955.31
	18	\$ 7,669.27	\$ 43,844.87	\$ 123,665.32	\$ 91,425.61	\$ 91,425.61	\$ 8,122.09	\$ 4,958.54	\$ 21,487.02	\$ 54,543.97
	19	\$ 7,899.35	\$ 45,160.22	\$ 127,375.28	\$ 94,168.38	\$ 94,168.38	\$ 8,365.76	\$ 5,107.30	\$ 22,131.63	\$ 56,180.29
	20	\$ 8,136.33	\$ 46,515.02	\$ 131,196.54	\$ 96,993.43	\$ 96,993.43	\$ 8,616.73	\$ 5,260.52	\$ 22,795.58	\$ 57,865.70

Repair/Replacement 2022 Cost	14	\$	6,814.05	\$	38,955.60	\$	109,875.04
	15	\$	7,018.47	\$	40,124.27	\$	113,171.29
	16	\$	7,229.03	\$	41,328.00	\$	116,566.43
	17	\$	7,445.90	\$	42,567.84	\$	120,063.42
	18	\$	7,669.27	\$	43,844.87	\$	123,665.32
	19	\$	7,899.35	\$	45,160.22	\$	127,375.28
	20	\$	8,136.33	\$	46,515.02	\$	131,196.54
\$	3,000.00						
\$	30,000.00						
\$	33,000.00						

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
2.50% Rate

Twin Ridge Options 1-3 Net Present Analysis

NPV Discount Rate 5 %
0.05

Option 1 - 100% Purchased Water with No Booster Pumps

	Year																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Net Present Value
Operations and Maintenance Costs	\$ (4,640.04)	\$ (4,779.24)	\$ (4,922.62)	\$ (5,070.29)	\$ (5,222.40)	\$ (5,379.08)	\$ (5,540.45)	\$ (5,706.66)	\$ (5,877.86)	\$ (6,054.20)	\$ (6,235.82)	\$ (6,422.90)	\$ (6,615.58)	\$ (6,814.05)	\$ (7,018.47)	\$ (7,229.03)	\$ (7,445.90)	\$ (7,669.27)	\$ (7,899.35)	\$ (8,136.33)	(\$74,077.19)
Repair and Replacement Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (5,260.52)	(\$1,982.63)
Purchased Water Costs	\$ (55,314.00)	\$ (56,973.42)	\$ (58,682.62)	\$ (60,443.10)	\$ (62,256.39)	\$ (64,124.09)	\$ (66,047.81)	\$ (68,029.24)	\$ (70,070.12)	\$ (72,172.22)	\$ (74,337.39)	\$ (76,567.51)	\$ (78,864.54)	\$ (81,230.47)	\$ (83,667.39)	\$ (86,177.41)	\$ (88,762.73)	\$ (91,425.61)	\$ (94,168.38)	\$ (96,993.43)	(\$883,076.04)
P&I Payment	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$16,753.50)	(\$208,785.62)
																					Total NPV= (\$1,167,921.48)

Option 2 - 100% Purchased Water with Booster Pumps

Total NPV= (\$1,573,221.43)																					
Year																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Net Present Value
Operations and Maintenance Costs	\$ (26,526.87)	\$ (27,322.67)	\$ (28,142.35)	\$ (28,986.62)	\$ (29,856.22)	\$ (30,751.91)	\$ (31,674.47)	\$ (32,624.70)	\$ (33,603.44)	\$ (34,611.55)	\$ (35,649.89)	\$ (36,719.39)	\$ (37,820.97)	\$ (38,955.60)	\$ (40,124.27)	\$ (41,328.00)	\$ (42,567.84)	\$ (43,844.87)	\$ (45,160.22)	\$ (46,515.02)	(\$423,495.70)
Repair and Replacement Costs	**\$200 for approximate annual pump maintenance** \$ (200.00)	\$ (206.00)	\$ (212.18)	\$ (218.55)	\$ (225.10)	\$ (231.85)	\$ (238.81)	\$ (245.97)	\$ (253.35)	\$ (260.95)	\$ (268.78)	\$ (276.85)	\$ (285.15)	\$ (293.71)	\$ (302.52)	\$ (311.59)	\$ (320.94)	\$ (330.57)	\$ (340.49)	\$ (22,795.58)	(\$11,652.19)
Purchased Water Costs	\$ (55,314.00)	\$ (56,973.42)	\$ (58,682.62)	\$ (60,443.10)	\$ (62,256.39)	\$ (64,124.09)	\$ (66,047.81)	\$ (68,029.24)	\$ (70,070.12)	\$ (72,172.22)	\$ (74,337.39)	\$ (76,567.51)	\$ (78,864.54)	\$ (81,230.47)	\$ (83,667.39)	\$ (86,177.41)	\$ (88,762.73)	\$ (91,425.61)	\$ (94,168.38)	\$ (96,993.43)	(\$883,076.04)
P&I Payment	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$20,461.66)	(\$254,997.50)

Option 3 - Supplemental Source (Demolish and Rebuild Station)

3 - Supplemental Source (Demolish and Rebuild Station)																					
	Year																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Net Present Value
Operations and Maintenance Costs	\$ (74,819.55)	\$ (77,064.14)	\$ (79,376.06)	\$ (81,757.35)	\$ (84,210.07)	\$ (86,736.37)	\$ (89,338.46)	\$ (92,018.61)	\$ (94,779.17)	\$ (97,622.55)	\$ (100,551.22)	\$ (103,567.76)	\$ (106,674.79)	\$ (109,875.04)	\$ (113,171.29)	\$ (116,566.43)	\$ (120,063.42)	\$ (123,665.32)	\$ (127,375.28)	\$ (131,196.54)	(\$1,194,477.98)
Repair and Replacement Costs	**\$500 for approximate annual pump main. & media** \$ (500.00)	\$ (515.00)	\$ (530.45)	\$ (546.36)	\$ (562.75)	\$ (579.64)	\$ (597.03)	\$ (614.94)	\$ (633.39)	\$ (652.39)	\$ (671.96)	\$ (692.12)	\$ (712.88)	\$ (734.27)	\$ (756.29)	\$ (778.98)	\$ (802.35)	\$ (826.42)	\$ (851.22)	\$ (57,865.70)	(\$29,460.93)
Purchased Water Costs	\$ (4,914.00)	\$ (5,061.42)	\$ (5,213.26)	\$ (5,369.66)	\$ (5,530.75)	\$ (5,696.67)	\$ (5,867.57)	\$ (6,043.60)	\$ (6,224.91)	\$ (6,411.66)	\$ (6,604.01)	\$ (6,802.13)	\$ (7,006.19)	\$ (7,216.37)	\$ (7,432.87)	\$ (7,655.85)	\$ (7,885.53)	\$ (8,122.09)	\$ (8,365.76)	\$ (8,616.73)	(\$78,450.95)
P&I Payment	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$83,755.02)	(\$1,043,772.70)
																					Total NPV= (\$2,346,162.56)

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
2.50% Rate

Sweet Hill
Address: Connection will be made at the intersection of Partridge Lane and Sweet Hill Rd

Notes:
Max HGL: 337, Min HGL: 302, Future HGL: 286
Max Pressure: 72.7 psi, Min Pressure: 57.6 psi, Future Pressure: 51 psi
Booster Station Elevation is at 169 ft
Approx. 910 ft of 4" if we stay in the shoulder
PVC Pipe
SRF PROJECT

Second highest customer is at 173 ft in elevation.

Porperty Tax Rates:
Plaistow: \$21.31/\$1000
State: \$6.6/\$1000

**need to pay a meter charge for either a 1-1/2" or 2" master meter (100gpm max vs. 160 gpm max)

Current Electrical Costs (2019 Total)		
Kilowatts		
		25119
acct # 2031 Delivery Service	\$	2,270.28
acct # 7591 Supplier Service	\$	2,122.92
Total:	\$	4,393.20

Current Labor Costs		
Kilowatts SH		
		25119
Kilowatts TR		
		66888
% SH/TR		0.375538213
Wages TR	\$	24,790.28
Estimated Wages SH	\$	9,309.70

Labor Cost is estimated based on electrical usage

Current Chemical Costs		
Assumed:	\$	200.00

Current Property Taxes		
Assest Value	\$	360,537.26
Land Tax Payment	\$	8,704.00
Local Tax	\$	7,683.05
State Tax	\$	2,379.55
Total:	\$	18,766.59

2020 Tax Bill
Local tax is \$21.31/\$1000
State tax is \$6.6/\$1000

Current PWW Sweet Hill Revenue Requirements		
Property Tax Expense	\$	18,766.59
Electric Expense	\$	4,393.20
Labor Expense	\$	9,309.70
Chemical Costs		
Total Current PWW Expenses		

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
2.50% Rate

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Sweet Hill - Option 1 - 100% Purchased with Boosters

Construction Costs:

Item No.	Item	Unit	Quantity	Unit Price	Cost Extension
1	Mobilization	LS	1	\$ 15,000.00	\$ 15,000.00
2	Furnish & Install 12x4 MJ tap and sleeve and meter pit	LS	1	\$ 47,500.00	\$ 47,500.00
3	Furnish and install 4" diameter C-900 water main	LF	1600	\$ 60.00	\$ 96,000.00
4	Furnish and install 4" ductile iron, mechanical joint bend w/ retainer glands & thrust block	EA	4	\$ 350.00	\$ 1,400.00
5	Furnish and install 4" diameter MJ gate valves	EA	3	\$ 1,000.00	\$ 3,000.00
6	2" Air Release Assembly	EA	2	\$ 1,500.00	\$ 3,000.00
7	Furnish and install 4" ductile iron, solid sleeve couplings and accessories	EA	1	\$ 500.00	\$ 500.00
8	Trench Rock/Boulder Excavation and Dispsal	CY	50	\$ 175.00	\$ 8,750.00
9	Complete Road Reconstruction (gravels, asphalt, misc.)	LF	1600	\$ 90.00	\$ 144,000.00
10	Station Upgrades (incuding boosters)	LS	1	\$ 30,000.00	\$ 30,000.00
11	Well Decommissioning	VF	1550	\$ 11.00	\$ 17,050.00
Construction Total:					\$ 366,200.00
Construction Contingency:					\$ 43,944.00
Engineering/Planning:					\$ 12,000.00
MSDC Fee (1.5" Meter):					\$ 8,973.00
Plaistow Connection Fee (1.5" Meter):					\$ 3,200.00
Total Project Cost:					\$ 434,317.00

Operations and Maintenance Costs:

Item No.	Item	Cost	Comments
1	Annual Property Taxes on Interconnection (Local and State)	\$ 11,306.17	Local Property Tax is \$21.31/\$1000, State Tax is \$6.6/\$1000
2	Annual Land Tax from 2020 Tax Bill	\$ 8,704.00	
3	Labor	\$ 6,197.57	Assumed 25% of Twin Ridge Annual Labor Costs
5	Electric Costs	\$ 4,393.20	2019 Total
Total:		\$ 30,600.94	

Purchased Water Costs:

Item No.	Item	Rate	Quantity
1	Master Meter Flow	gal/year	3555000
2	Annual Meter Charge (1.5" Meter)	\$283.50/quarter	\$ 1,134.00
3	Annual Consumption Charge	\$7/1000 gal	\$ 24,885.00
Annual Total:		\$	26,019.00

Summer Usage Assumptions

Number of Summer Usage Months:	5 months
Average GPD without outside usage:	150 gpd per household
Average GPD with outside usage:	1000 gpd per household
Number of Customers:	30
Odd/Even Watering:	15 Customers watering per day
Summer Usage per Day:	17250 gpd
Summer Usage per Month:	517500 gal per month, assumed 30 days per month
Total Summer Usage:	2587500 gal
Total Non-Summer Usage:	967500 gal, assumed 30 days per month in summer months
Total Annual Usage:	3555000 gal/year

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
2.50% Rate

2022 PWW SRF Financings Petition
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Sweet Hill - Option 2 - Supplemental Source

Construction Costs:

Item No.	Item	Unit	Quantity	Unit Price	Cost Extension	CoA
1	Mobilization	LS	1	\$ 15,000.00	\$ 15,000.00	309
2	Furnish & Install 12x4 MJ tap and sleeve and meter pit	LS	1	\$ 47,500.00	\$ 47,500.00	309
3	Furnish and install 4" diameter C-900 water main	LF	1600	\$ 60.00	\$ 96,000.00	309
4	Furnish and install 4" ductile iron, mechanical joint bend w/ retainer glands & thrust block	EA	4	\$ 350.00	\$ 1,400.00	309
5	Furnish and install 4" diameter MJ gate valves	EA	3	\$ 1,000.00	\$ 3,000.00	309
6	2" Air Release Assembly	EA	2	\$ 1,500.00	\$ 3,000.00	309
7	Furnish and install 4" ductile iron, solid sleeve couplings and accessories	EA	1	\$ 500.00	\$ 500.00	309
8	Trench Rock/Boulder Excavation and Dispsal	CY	50	\$ 175.00	\$ 8,750.00	309
9	Complete Road Reconstruction (gravels, asphalt, misc.)	LF	1600	\$ 90.00	\$ 144,000.00	309
10	Station Upgrades (incuding boosters)	LS	1	\$ 30,000.00	\$ 30,000.00	311
11	New Treatment System	LS	1	\$ 50,000.00	\$ 50,000.00	320
Construction Total:					\$ 399,150.00	
Construction Contingency:					\$ 47,898.00	309
Engineering/Planning:					\$ 12,000.00	309
MSDC Fee (3/4" Meter):					\$ 2,324.00	306 or 309
Plaistow Connection Fee (3/4" Meter):					\$ 1,300.00	306 or 309
Total Project Cost:					\$ 462,672.00	

Operations and Maintenance Costs:

Item No.	Item	Cost	Comments
1	Annual Property Taxes on Interconnection (Local and State)	\$ 12,812.03	Local Property Tax is \$21.31/\$1000, State Tax is \$6.6/\$1000
2	Annual Land Tax from 2020 Tax Bill	\$ 8,704.00	
3	Labor	\$ 12,395.14	Assumed 50% of Twin Ridge Annual Labor Costs
4	Chemical Costs	\$ 200.00	
5	Electric Costs	\$ 4,393.20	2019 Total
Total:		\$ 38,504.37	

Purchased Water Costs:

Item No.	Item	Rate	Quantity
1	Master Meter Flow	gal/year	2666250
2	Annual Meter Charge (3/4" Meter)	\$63/quarter	\$ 252.00
3	Annual Consumption Charge	\$7/1000 gal	\$ 18,663.75
Annual Total:		\$	18,915.75

Summer Usage Assumptions	
Number of Summer Usage Months:	5 months
Average GPD without outside usage:	150 gpd per household
Average GPD with outside usage:	1000 gpd per household
Number of Customers:	30
Odd/Even Watering:	15 Customers watering per day
Summer Usage per Day:	17250 gpd
Summer Usage per Month:	517500 gal per month, assumed 30 days per month
Total Summer Usage:	2587500 gal
Total Non-Summer Usage:	967500 gal, assumed 30 days per month in summer months
Total Annual Usage:	3555000 gal/year
Amount of Purchased Water:	2666250 gal/year, assumed 75% purchased water
Amount of PEU Water:	888750 gal/year

Pennichuck Water Works, Inc.
Twin Ridge and Sweet Hill Net Present Value Analysis
2.50% Rate

Sweet Hill Options 1 and 2 Net Present Value Analysis for PWW Expenses

Option 1: 100% Purchased Water with Booster Pumps

Item No.	Item	Unit	Quantity	Unit Price	
1	Mobilization	LS	1	\$	15,000.00
2	Furnish & Install 12x4 MJ tap and sleeve	LS	1	\$	47,500.00
3	Furnish and install 4" diameter C-900 water main	LF	1600	\$	60.00
4	Furnish and install 4" ductile iron, mechanical joint bend w/ retainer glands & thrust block	EA	4	\$	350.00
5	Furnish and install 4" diameter MJ gate valves	EA	3	\$	1,000.00
6	2" Air Release Assembly	EA	2	\$	1,500.00
7	Furnish and install 4" ductile iron, solid sleeve couplings and accessories	EA	1	\$	500.00
8	Trench Rock/Boulder Excavation and Dispsal	CY	50	\$	175.00
9	Complete Road Reconstruction (gravels, asphalt, misc.)	LF	1600	\$	90.00
10	Station Upgrades (including boosters)	LS	1	\$	30,000.00
11	Well Decommissioning	VF	1550	\$	11.00
Estimated Capital Cost:				\$	8,750.00
				\$	144,000.00
				\$	30,000.00
				\$	17,050.00

Option 2: Supplemental Source

Item No.	Item	Unit	Quantity	Unit Price	
1	Mobilization	LS	1	\$	15,000.00
2	Furnish & Install 12x4 MJ tap and sleeve	LS	1	\$	47,500.00
3	Furnish and install 4" diameter C-900 water main	LF	1600	\$	60.00
4	Furnish and install 4" ductile iron, mechanical joint bend w/ retainer glands & thrust block	EA	4	\$	350.00
5	Furnish and install 4" diameter MJ gate valves	EA	3	\$	1,000.00
6	2" Air Release Assembly	EA	2	\$	1,500.00
7	Furnish and install 4" ductile iron, solid sleeve couplings and accessories	EA	1	\$	500.00
8	Trench Rock/Boulder Excavation and Dispsal	CY	50	\$	175.00
9	Complete Road Reconstruction (gravels, asphalt, misc.)	LF	1600	\$	90.00
10	Station Upgrades (including boosters)	LS	1	\$	30,000.00
11	New Treatment System	LS	1	\$	50,000.00
Estimated Capital Cost:				\$	8,750.00
				\$	144,000.00
				\$	30,000.00
				\$	50,000.00
				\$	399,150.00

Repair/Replacement 2022 Cost

Inflation Value:

3%

		Option 1		Option 2			
Term (yrs)		20	\$	434,317.00	\$	462,672.00	
Interest Rate:		2.500%					5% Bond Int Rate
	P&I			(\$15,395.31)		(\$15,395.31)	
	P&I			(\$14,790.07)		(\$17,867.78)	
				(\$30,185.38)		(\$33,263.09)	

\$ 15,000.00

Operation and Maintenance Costs

Purchased Water Costs

Repair/Replacement

Station Rebuild Costs

Year	Option 1	Option 2
1	\$ 30,600.94	\$ 38,504.37
2	\$ 31,518.97	\$ 39,659.50
3	\$ 32,464.54	\$ 40,849.29
4	\$ 33,438.48	\$ 42,074.76
5	\$ 34,441.63	\$ 43,337.01
6	\$ 35,474.88	\$ 44,637.12
7	\$ 36,539.13	\$ 45,976.23
8	\$ 37,635.30	\$ 47,355.52
9	\$ 38,764.36	\$ 48,776.18
10	\$ 39,927.29	\$ 50,239.47
11	\$ 41,125.11	\$ 51,746.65
12	\$ 42,358.86	\$ 53,299.05
13	\$ 43,629.63	\$ 54,898.02
14	\$ 44,938.52	\$ 56,544.96
15	\$ 46,286.67	\$ 58,241.31
16	\$ 47,675.27	\$ 59,988.55
17	\$ 49,105.53	\$ 61,788.21
18	\$ 50,578.70	\$ 63,641.86
19	\$ 52,096.06	\$ 65,551.11
20	\$ 53,658.94	\$ 67,517.65

Repair/Replacement 2022 Cost

\$ 10,000.00

\$ 10,000.00

Station Rebuild Costs

Option 2 Station Rebuild:			
Station Rebuild 2022 Cost	\$	260,000.00	
Station Built in 1996			
Replace at year 40 or 2036			
Analysis year 2036-2022=14	\$	381,818.77	Int=
P&I at 5% interest		(\$30,638.13)	
Option 1 Station Rebuild:			
New Station no Tank 2022 cost	\$	200,000.00	Int=
14 Year Rebuild	\$	293,706.74	
P&I at 5% interest		(\$23,567.79)	

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5 %
0.05

Replacement year
Need to add water main P&I to Station rebuild P&I