Town of Brandon Wastewater Treatment Facility Upgrade

Bond Vote Information Meeting

March 1, 2021

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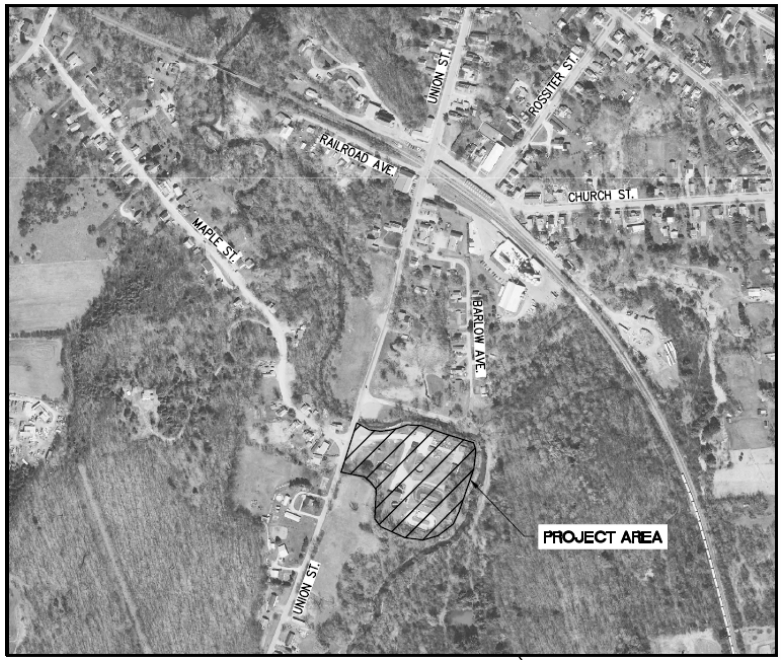

Source: "Brandon Wastewater Treatment Facility". **Google Earth**. Image Date: 5/12/2018. Accessed: 02/22/2021

BOND VOTE

IN-PERSON VOTING

American Legion Post #55, 550 Franklin St

Tuesday, March 2, 2021

10:00 am to 7:00 pm

ABSENTEE/EARLY VOTING

Must be returned by close of polls on March 2, 2021

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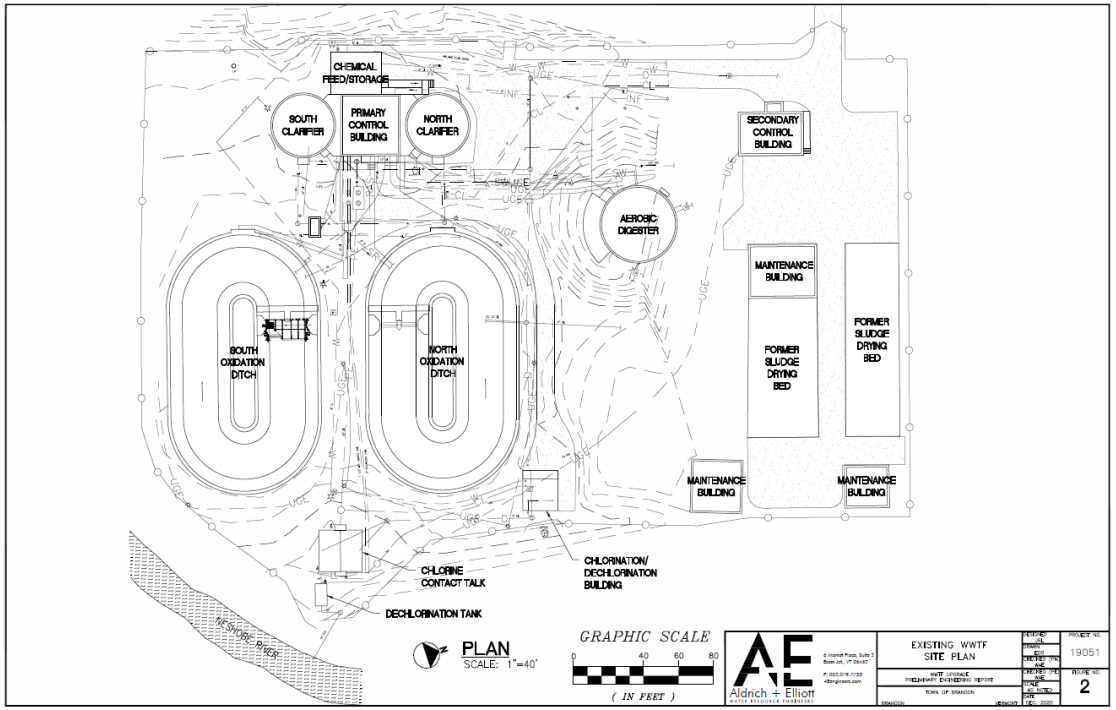
Project Overview

- Headworks Screening
- Grit Removal System
- North Oxidation Ditch Rotor
- Secondary Clarifiers
- Control Building
- Site Electrical
- Control and Data Systems



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History and Background

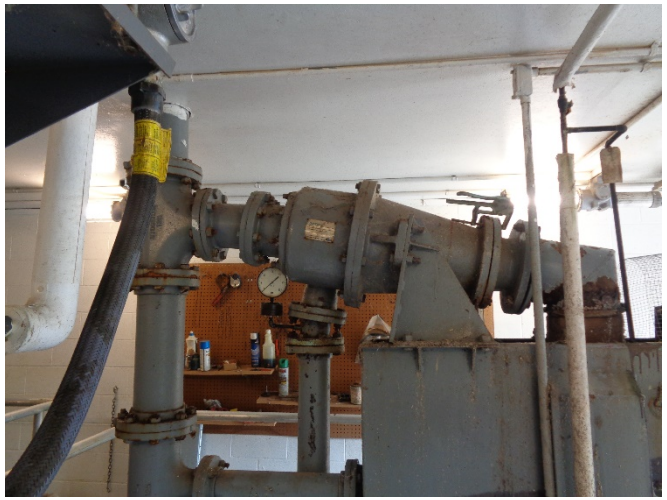
- 1960: Wastewater Treatment Facility originally constructed.
- 1974: Wastewater Treatment Facility upgraded to Oxidation Ditch Facility. Original construction of Oxidation Ditch and Secondary Clarifiers.
- 1992: Disinfection System improvement project completed
- 2000: Phosphorus Removal Improvement project completed
- 2005: Wastewater Treatment Facility Refurbishment project completed
- 2018: Town went through a Qualifications Based Selection process for engineers and initiated a 20-year evaluation and subsequent preliminary engineering report for the WWTF using State CWSRF planning funds.

Purpose and Need – Screening

- Flow currently enters the facility and is sent through influent pumps for further treatment.
- Proposed screening will protect downstream equipment and remove inorganic materials (plastics, etc.) unable to be treated or removed by the oxidation ditches.

Purpose and Need – Grit Removal

- Grit includes sand, gravel, or other heavy solid materials that are heavier than organic biodegradable solids. Removal prevents unnecessary abrasion and wear of mechanical equipment.
- The existing grit removal system remains in use from original construction in 1975 and is well past its expected life.



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Purpose and Need – Oxidation Ditch Rotor

- Oxidation ditches provide a suitable environment for biological treatment of wastewater.
- Adequate aeration and mixing is imperative for proper functioning of the system, and the components are past expected service life.
- Replacement will improve reliability of the system and reduce energy usage by incorporating a variable frequency drive.

Purpose and Need – Secondary Clarifiers

- Secondary Clarifiers separate treated water from solids.
- The two existing secondary clarifiers remain in service from 1975 and are past their expected service life.
- The secondary clarifiers are unable to adequately separate solids during heavy flows during wet weather events.

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Purpose and Need – Chemical Systems

- Chemical storage tanks hold chemicals used for phosphorus removal, and disinfection throughout the process stream.
- The existing dechlorination tank configuration requires operators to manually transfer chemical during tank fill up. This creates a caustic environment within the structure.

Item Description	Projected Date of Required Upgrade		
	< 2 years	2 to 5 Years	6 to 10 years
Influent Pumping System			
Wet Well			
Influent Flow Meter		X	
Miscellaneous Metals	X		
Heating/Ventilation	X		
Gas Detection	X		
Dry Well			
Gas Detection	X		
Grit Removal System			
Paddle Drive	X		
Grit Pump	X		
Grit Washer	X		
Grit Classifier	X		
Heating/Ventilation	X		
Oxidation Ditches			
North Ditch Rotor		X	
North Ditch Rotor Drive		X	
North Ditch Weir		X	
South Ditch Weir		X	
Concrete Tanks		X	

Item Description	Projected Date of Required Upgrade		
	< 2 years	2 to 5 Years	6 to 10 years
Secondary Clarifiers			
North/South Clarifier Troughs	X		
North/South Clarifier Drive		X	
North/South Clarifier Mechanisms	X		
North/South Clarifier Walkway			X
Disinfection System Contact Tanks			
Wooden Hatchway	X		
Effluent Flow Meter		X	
Disinfection System Effluent Line			
Effluent Line and Meter Pit		X	
Solids Handling			
Solids Handling Pump		X	
Facility Structures			
Secondary Control Building		X	
Site			
Underground Electrical Conduit	X		
Pavement and Fence Repairs		X	

Alternatives Evaluated

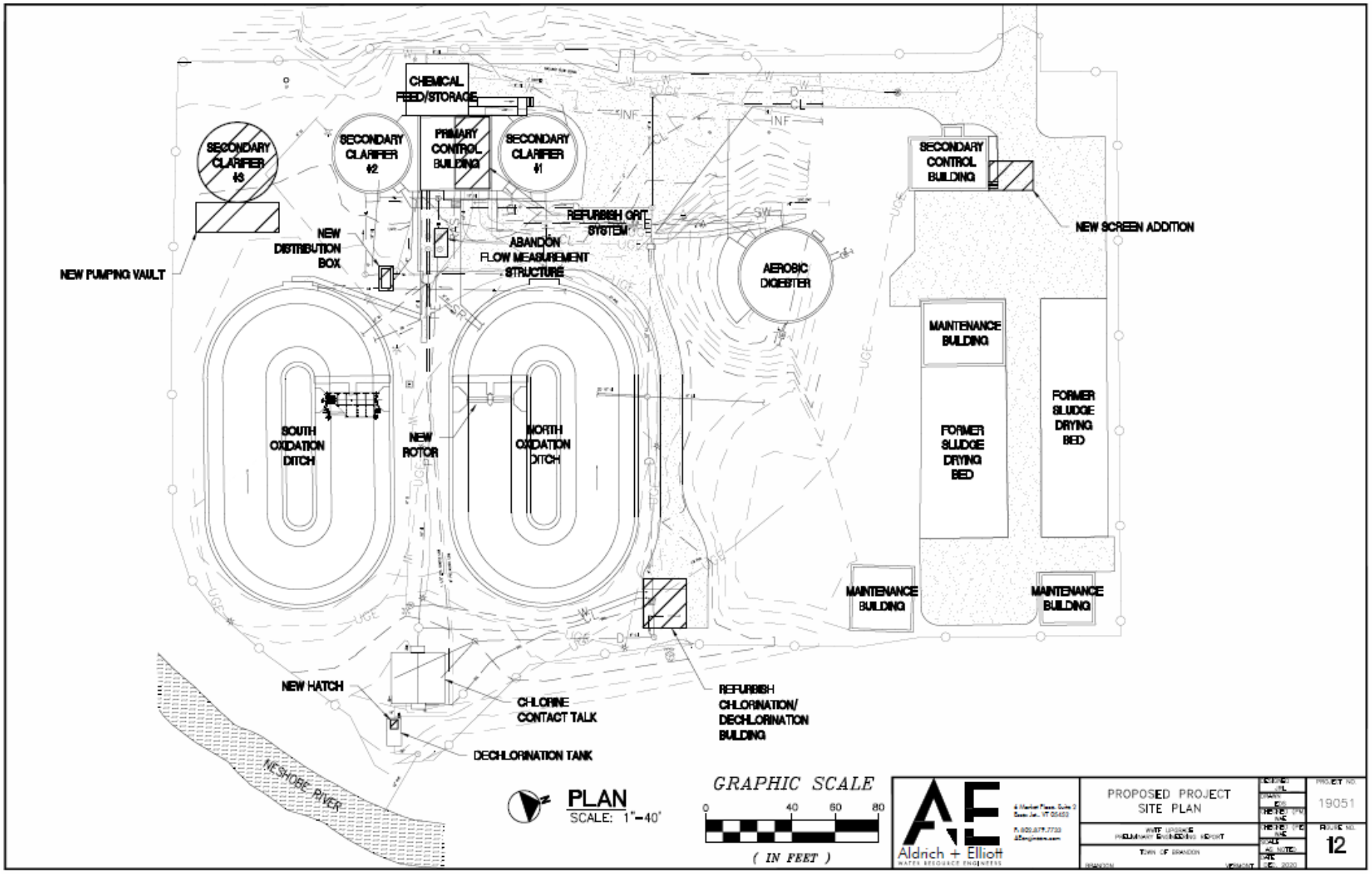
- Headworks
  - #1: Do nothing
  - #2: New Screening and Grit Removal Replacement
  - #3: New Communitor and Grit Removal Replacement
- Secondary Clarification
  - #1: Do nothing
  - #2: In-Kind Replacement
  - #3: Retrofit the Existing Secondary Clarifiers
  - #4: Increase Number of Secondary Clarifiers

Proposed Project

- Headworks
  - Install a new screening unit and solids compactor.
  - Replace the existing grit removal system.
- Oxidation Ditch
  - Replace the existing oxidation ditch rotor and install new variable frequency drive.
  - Evaluate both ditches for any necessary valve or concrete repairs.
- Secondary Clarifiers
  - Replace all process components within the two existing secondary clarifiers.
  - Construct a third secondary clarifier structure to improve treatment and reliability during wet weather events.

Proposed Project

- Chemical Systems
  - The piping configuration will be changed to prevent physical redistribution of chemicals.
  - Sodium Aluminate storage tanks will be replaced.
- Age-Related Improvements
  - Primary Control building renovation.
  - Underground electrical conduits, distribution panels, and motor control centers will be consolidated and replaced.
  - Facility lighting will be replaced with energy efficient LED lighting.
  - Site repairs will include fence repairs and repaving of drivable surfaces.



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Proposed Project – Estimated Construction Costs (April 2022)

Headworks	$ 1,216,700
Oxidation Ditches	$ 431,200
Secondary Clarification	$ 1,676,700
Chemical Systems	$ 73,700
Age Related Refurbishments	$ 1,009,700
Total	$ 4,408,000
Estimated Construction Cost:	**$ 4,400,000**

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Total Project Cost Summary and Bond Amount

- Construction
- Construction contingency
  - Currently Assumed 10%
- Engineering
- Other Costs
  - Administration
  - Permit fees
  - Legal
  - Short term interest
- Total project cost: $ 5,700,000
- **Recommended Bond Amount: $ 5,700,000**

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Available Funding Sources

State of Vermont CWSRF (Revolving Loan)

- Project is on State Priority List.
- Loan
  - Term: 20 years
  - Administrative Fee: 2%
- Loan subsidy of up to 50% is available for preliminary engineering (Step I) and final design (Step II) fees

Available Funding Sources

USDA Rural Development (USDA RD)

- Loan and Grant Funding
  - Term: 30 years
  - Interest Rate: Market Based (Assumed 1.75%)
- Town is eligible for up to a 45% grant based on sewer rates and the Town's MHI.
- RD Apply application was submitted in December 2020. Requires positive bond vote prior to issuing funding offer.

Projected Funding Scenario

Item	USDA RD Joint Funded
Total Bond Amount	$5,700,000
Loan Interest Rate, Term	1 3/4%, 30 years
CWSRF Planning Subsidy	$170,000
USDA RD Grant (estimated 40%)	$2,212,000
USDA Loan Amount	$3,318,000
Annual Loan Payment (Estimated)	$143,000
Quarterly Increase in Sewer Flat Rate	$39

- Total grants and subsidy = $2.4 M

Only the sewer customers will repay the loan

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Project Schedule

Projected Date		Task
2021	March	Conduct bond vote
	April	Begin final design
2022	February	Complete final design
	March	Bid advertisement
	May	Start construction
2023	July	Complete construction

Next Steps

- Bond Vote on Tuesday, March 2nd, 2021 (in-person)
- Absentee/Early Voting encouraged!

QUESTIONS?