

May 10 Water and Wastewater Bond Vote Informational Meeting

April 25, 2016

Article I

- Shall \$500,000 of the proceeds of bonds authorized by the Town of St. Johnsbury at the March 3, 2015 special meeting thereof be expended for wastewater treatment facility improvements and the replacement of the Hood Pump Station force main?

Article I

- Remaining grant funds from USDA RD loan grant program from the Screw Pump Project.
- Screw Pumps were Phase I of a larger overall Wastewater Treatment Evaluation.
- USDA RD will allow funds to be reused for other items identified in the evaluation including:
 - Undersized force main from Hood Pump Station
- Items constructed using these grant funds are eliminated from the overall Phase II project.

Article I

- Grant funds not utilized here in St Johnsbury will be returned to USDA to be used elsewhere in the United States for similar projects.

Article II

Phase II Wastewater Improvements and Infrastructure

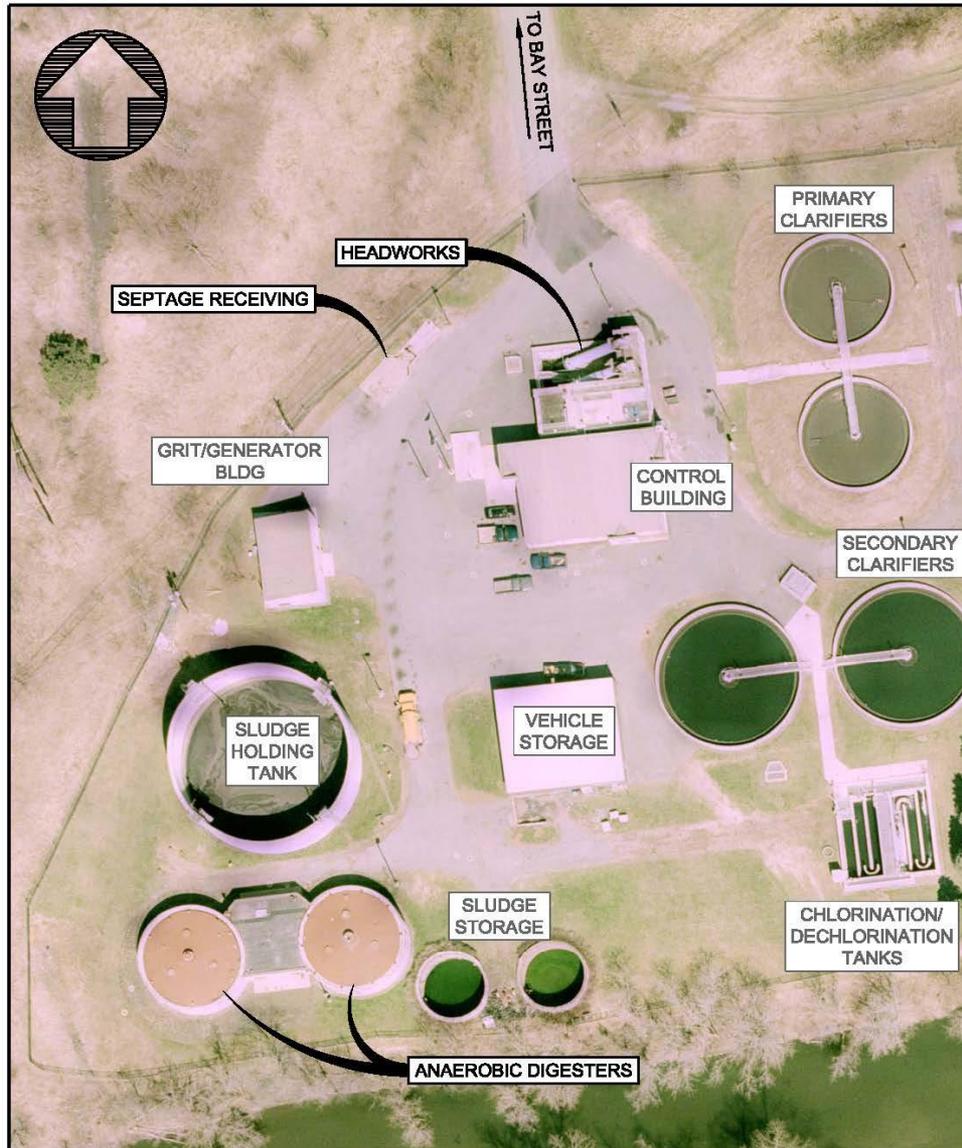
Article II

- Shall general obligation bonds of the Town of St. Johnsbury in an amount not to exceed Five Million Two Hundred Fifty Thousand Dollars (\$5,250,000), subject to reduction from available state and federal grants-in-aid, be issued for the purpose of financing the cost of primary treatment and solids processing improvements at the wastewater treatment facility, including digester, screening and boiler replacements, combined sewer separation within the Oak Street Drainage Area, replacement of the Oak Street sewer pump station and water line replacement, the aggregate estimated cost of such improvements being Five Million Two Hundred Fifty Thousand Dollars (\$5,250,000)?

Article II

- Preliminary Engineering Report June of 2013 completed to evaluate components of the Wastewater Treatment Facility identified by the Town's operator that required attention.
- This included two pump stations in the collection system.

FILE: P:\CADD Files\St. Johnsbury VT\Wastewater Basis of Design\3110004 - 2-1.dwg Jun 05, 2013 - 4:56pm



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WASTEWATER IMPROVEMENTS FIGURE 2-1

WWTF SITE PLAN

ST. JOHNSBURY, VERMONT

PROJECT NO. 3110004
PROJECT MGR. NRJ
SCALE 1"=60'
DATE MAY 2013
DRAWING NO. 3110004 - 2-1.dwg

WWTF Need for Project

- Hood Pump Station and Oak Street Pump Stations cannot meet design flow requirements with one pump out of service
- The Screw Pumps are at the end of their useful life
- The comminutor (sewage grinder) is obsolete and ineffective for rag removal
- The septage receiving station is not equipped with a flow meter
- The digester mixing system at the anaerobic digester is ineffective

WWTF Recommended Improvements

- ~~Upgrade the primary Screw Pumps~~
- Install fine screening and sewage grinder improvements
- ~~Install septage flow meter~~
- Replace digester mixing system
- Improvements at Hood and Oak Street Pump Stations

WWTF – Fine Screening and Sewage Grinder



WWTF Sewage Grinder

- Installed during construction of the facility and no longer make parts.
- Repairs require operation without the grinder, sometimes for months, resulting in rags accumulating in the digesters.
 - Resulting in operational problems with land application
 - Rags accumulated require removal by hand and trucked to landfill.

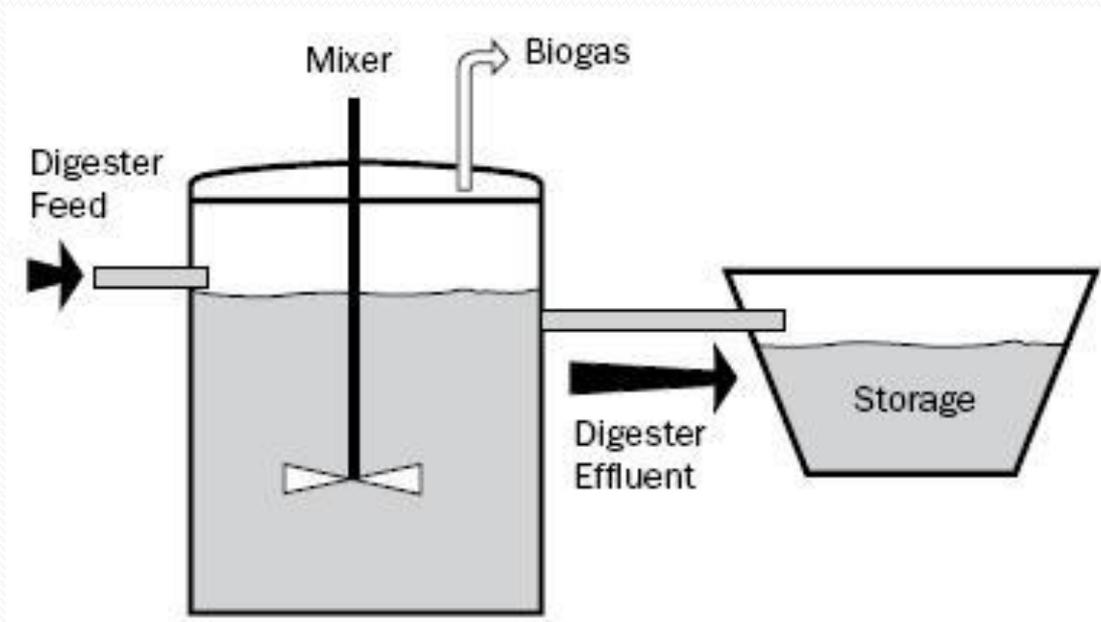
WWTF Anarobic Digester

- Exterior walls are in disrepair.
- Existing mixing system is undersized and ineffective.
 - Resulting in operational problems with land application
 - Requires cleaning and manual removal of sludge within digester.
- Precast concrete digester caps are deteriorated
- Methane boiler is inefficient and nearing the end of it's life expectancy

WWTF Anarobic Digester



WWTF Anarobic Digester

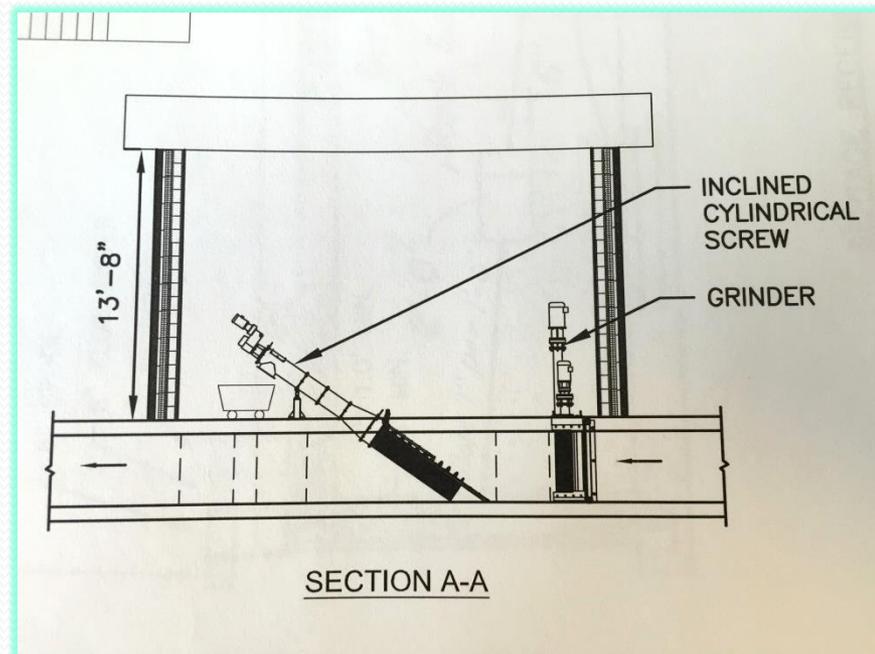


WWTF Pump Stations

- Both the Oak Street and Hood Pump Stations are undersized.
- Oak Street is nearly 50 years old and currently handles combined sewer flow.
 - Combined sewer includes runoff from Oak, St Johns, Southard, Union, Emmerson and Russell Streets.
 - Requires large pumps to handle storm runoff.

Proposed Improvements

- Replace existing comminutor with a new grinder and a cylindrical inclined screen.



Proposed Improvements

- Install new internal rooftop draft tube digester mixers.
- Replace the concrete wall cap
- Replace CMU exterior wall with an Exterior Insulation Finish System
- Replace existing methane boiler with a new more efficient boiler.

Proposed Improvements

- Construct new separate sewer and storm mains on Union, Russell, Southard, Emmerson and Oak Street to eliminate storm runoff from the Oak Street Pump Station.
- Replace the Oak Street Pump Station
- Replace 6” unlined cast iron water mains concurrently
- Replace one of the two pumps in the Hood Pump station and upgrade a section of 6-inch force main to 8-inch force main.

Article III-

Water Treatment Facility

Article III

- Shall general obligation bonds of the Town of St. Johnsbury in an amount not to exceed Four Million Seven Hundred Eighty Thousand Dollars (\$4,780,000), subject to reduction from the receipt of available state and federal grants-in-aid, be issued for the purpose of financing the cost of renovating and replacing water plant storage, treatment and processing systems, the aggregate estimated cost of such improvements being Four Million Seven Hundred Eighty Thousand Dollars (\$4,780,000).

Water Treatment Facility

- 2010 Evaluation recommended upgrades to rehabilitate or replace the filters, but State of Vermont would not allow for evaluation of membrane filtration.
- Since then the State of Vermont has now allowed St Johnsbury to evaluate membrane filtration.

Water Treatment Facility

- Since 2010 the Facility has not gotten better.



Water Treatment Facility

- St Johnsberry is not alone with water filter plant updates:
 - Royalton Fire District No. 1, VT
 - Woodsville, NH
 - Bellows Falls, VT
 - Hanover, NH
 - Bethlehem, NH
 - Laconia, NH
 - Burlington, VT
 - Champlain Water District, VT
 - Claremont, NH
 - Vergens-Panton, VT
 - Bennington, VT
 - Brattleboro VT
 - Montpelier, VT
 - Barre, VT

Water Treatment Facility

- Corrosive Environment



Water Treatment Facility

- Relocate bulk chemical storage and feed systems.
- Demolish existing filters and replace with membrane process.



Water Treatment Facility

- Benefits of membrane treatment
 - Reduced need for temporary water filter plant during construction
 - Flexibility in design flow
 - Will provide treatment for cryptosporidium oocysts and Giardia Lambilia cysts in the event of a chemical feed failure (physically cannot pass membranes)

Project Funding Alternatives

- USDA Rural Development
 - Northeast Kingdom is “REAP” Zone
 - Expires in 2018, may or may not be renewed.
 - Eligible for up to 45⁰% grant with low interest loan for remaining 55⁰%
 - Interest rate estimated to be 2.25⁰% through July
- CWSRF and DWSRF
 - CWSRF loan only- St Johnsbury eligible for 0% for CSO Work
 - DWSRF negative interest loan, St Johnsbury eligible for up to -negative 3⁰% interest rate (similar to 40⁰% grant with 0⁰% loan)



Impact on Rates

Additional Information

- Wastewater Treatment Facility Tour
 - Wednesday April 27, 2016 4:30 – 6:00 PM
- Water Treatment Facility Tour
 - Thursday April 28, 2016 4:30 – 6:00 PM
- Informational Meeting May 2, 2016, 6:00 PM at the Welcome Center
- Bond Vote- May 10, 2016, 10:00AM to 7:00PM
 - Town Garage- 217 Almshouse Road

Questions

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