

OLVER ASSOCIATES INC.

ENVIRONMENTAL

ENGINEERS

290 MAIN STREET

WINTERPORT, MAINE

CITY OF EASTPORT MAIN TREATMENT PLANT AND SEWER SYSTEM IMPROVEMENTS PROJECT

PROJECT FUNDED BY:
RURAL DEVELOPMENT (PENDING)
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PRESENTED TO:

EASTPORT CITY COUNCIL
FEBRUARY 8, 2017

BACKGROUND

- The City of Eastport originally retained our firm in 2011 to complete an overall Facilities Plan and in 2015 we were retained to complete an Infiltration and Inflow Study and Capital Sewer System Plan.
- We evaluated the City's Wastewater Treatment systems both at the City's Main Plant in Eastport and the Quoddy Village Treatment Facility.
- The City was required by the Department of Environmental Protection (DEP) to complete these studies and start the process of improving its sewer system.
- The City's treatment system has a primary level of treatment due to its 301(h) waiver from secondary treatment.
 - Requires 30% BOD removal versus 85% BOD removal.
 - Requires 50% TSS removal versus 85% TSS removal.
- The City's treatment systems were originally constructed back in 1990.

MAIN TREATMENT PLANT FACILITY AND SEWER SYSTEM ISSUES

- The main issues indentified in the Facilities Plan and Sewer System Evaluation were the following:
 1. Pump stations were in poor mechanical condition contributing to numerous sewer system overflows during rain events.
 2. Quoddy Village Treatment system had multiple deficiencies and mechanical issues.
 3. Eastport's Main Plant has significant ongoing deficiencies including obsolete and inoperable equipment, deteriorating equipment and poor design features making operations and compliance difficult.
 4. Eastport's Main Plant has had hydraulic issues resulting in overflows.
 5. The sewer system study determined that select areas were contributing significantly to the City's high flows and could be repaired. This includes manholes in wet areas acting like drainage systems for accumulated water, connections to the old sewer system were discovered due to new sewer systems that were not properly designed or constructed. Cross-connections of sanitary sewer systems to storm drain systems were also discovered.

IMPROVEMENTS TO-DATE

Since the process of upgrading the sewer system started in 2013, the City has completed extensive work to improve its infrastructure as summarized below:

PUMP STATION UPGRADES

- Snyder Street.
- Middle Street.
- Water Street.
- Dawson Street.
- Clark Street.
- High Street.
- Telemetry/Alarm Improvements.

QUODDY VILLAGE TREATMENT FACILITY UPGRADES

- Replaced Influent/Effluent Pump Station.
- Replaced Control Building.
- Brought chemical and flow monitoring systems into building instead of confined spaces.
- Completed Telemetry/Alarm Improvements.

MAIN TREATMENT FACILITY UPGRADES TO-DATE

- Due to hydraulic issues, removed effluent magnetic flow meter to improve capacity of the Main Plant from 1.2 MGD to 2.0 MGD. (Middle Street Pump Station pumps all flows to plant and at high flows can pump 2.0 MGD).
- Modified chlorine contact tank to facilitate new flow measurement system and to improve hydraulics.
- Completed required influent/effluent sampling improvements.
- Completed temporary skirt repairs to No. 2 Imhoff Tank.
- Completed sludge pump and scum pump upgrades.

PROPOSED EASTPORT MAIN PLANT IMPROVEMENTS **PROJECT**

- Upgrade/repair existing grit removal system.
- Add grinder to supplement existing hand raked bar screen.
- Replace failing Imhoff Tanks with primary clarifiers.
 - Renovate one Imhoff Tank to a new primary clarifier.
 - Add one new primary clarifier.
- Add larger sludge holding facilities:
 - Renovate one Imhoff tank to sludge holding.
- Add sludge dewatering press (type to be determined during design with Eastport) and building to house this equipment to improve options for sludge disposal.
- Add support systems, piping, etc. for all new construction.



Existing Manual Bar Screen



Example of Proposed Grinder



Existing Grit Removal System





Damaged Imhoff tank cone and temporary scum piping.





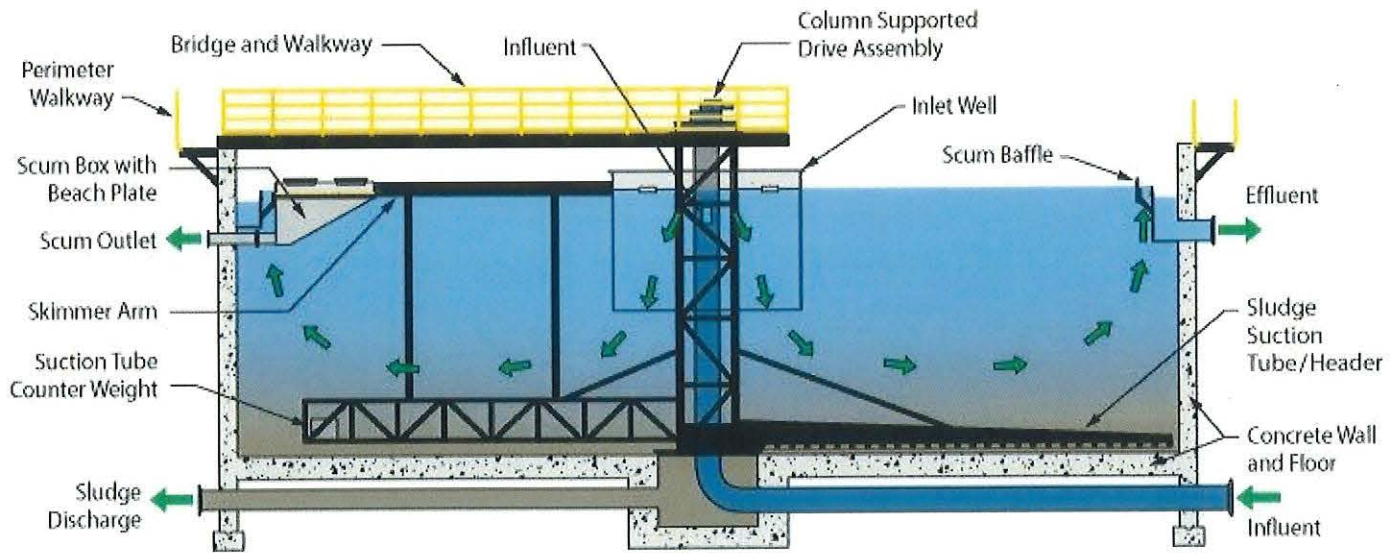
Corroded Imhoff Tank



Temporary Scum Line



Failing Imhoff tank



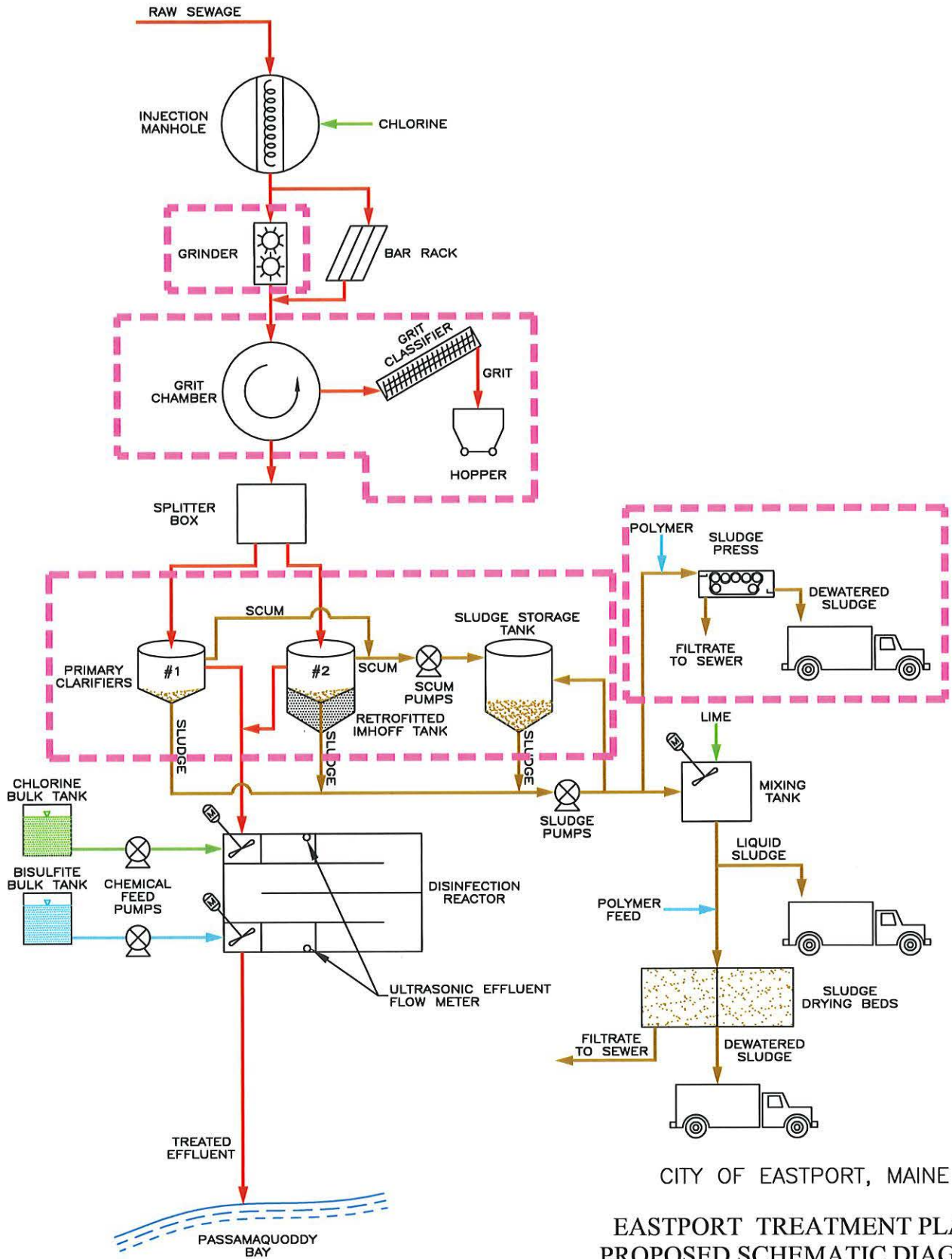
Proposed Primary Clarifier



Existing Sludge Drying Beds



Example of Proposed Sludge Press



EASTPORT TREATMENT PLANT
PROPOSED SCHEMATIC DIAGRAM

FIGURE 2

OLVER ASSOCIATES INC.

ENVIRONMENTAL ENGINEERS
290 MAIN STREET WINTERPORT, MAINE

COMPLETE SEWER SYSTEM REPAIRS AS SHOWN BELOW

Project Location	Project Description
Cleveland Street – MH No. 93	Rehabilitate, replace top risers and raise MH rim and cover.
Washington Street – MH No. 283	Rehabilitate MH
Water Street – MH 298	Rehabilitate MH
Middle Street Service	Excavate and Cap
Battery Street Clean-out	Install new cover
Hawkes/Third Street MH No. 105	Rehabilitate, replace top risers and raise MH rim and install watertight bolt down cover.
Water Street Downtown Buildings No. 32 Water Street - Beckett/Camick Buildings Eastern Maine Images, Gallery and Studio	These roof drains and gutters from these large buildings have historically been discharging to the sewer system. These gutters should be disconnected from the sewer system and connected to the storm drain system.
Dana Street/Water Street Sewer/Middle Street Sewer Issues	Dye test all homes in the vicinity of the old VC sewer to on Middle Street and determine if they can be properly reconnected to the Middle Street Sewer. If not, determine specific area of sewer that would need to be corrected. Dye test all homes along the cross-country sewer to ensure that they are not connected and abandon old sewer once all homes are tied into existing "new" sewers.

FUNDING FOR COMPLETED PROJECTS

Total Project Funding To-date

<u>Funding Agency/City</u>		<u>Amount</u>
City of Eastport	\$	125,000
2011 CDBG Grant		500,000
DEP Grant (Forgiveness) 2013 SR		490,114
DEP Loan 2013 SR		43,886
<u>2013 CDBG Grant</u>		<u>1,000,000</u>
<u>Total To-Date</u>	\$	<u>2,159,000</u>
7.8% City Funds (loan)	\$	168,886
92.2% Grant Funds	\$	1,990,114

STRETCH GOALS

- Rural Development requires stretch goals for left over project funds (contingency).
- These potential additional projects are listed on the following page.

MAIN PLANT BUILDING IMPROVEMENT NEEDS

To provide reliable buildings to house the operations equipment and unit processes at the treatment facility, the following building components should be considered as part of a plant upgrade:

- The membrane roof on the main plant's Process Building is twenty-six years old and should be replaced.
- The asphalt roof shingles on the main plant's Operations Building are also twenty-six years old and should be replaced.
- Minor mortar pointing and block sealing of the Process Building's exterior walls would be beneficial to prolong their useful life.
- The wooden siding of the main plant's Operations Building should be sealed, stained or painted.
- Doors and frames throughout the main plant buildings, especially in areas where corrosive chemicals have been stored, are in poor condition and should be replaced.
- The entire main plant interior should be painted at the completion of the upgrade project.

MAIN PLANT UTILITY IMPROVEMENT NEEDS

The following components of the main plant's general utility systems should be addressed during the proposed upgrade:

- The plant's headworks building's lighting systems need to be upgraded to meet energy and code revisions that have occurred over the last two decades.
- The ventilation systems throughout the plant, especially in the headworks room, the chemical storage rooms, and the pump room need to be upgraded to meet current code requirements. The present systems are twenty-six years old, in poor condition, and do not appear to provide adequate air turnover rates in critical plant areas as required by updated codes.
- Replace Main plant headworks building boiler which is obsolete and over twenty-six years old.

MAIN PLANT EQUIPMENT NEEDS

The following components of the plant's general equipment should be addressed during the upgrade:

- While the plant's emergency power generator appears to be adequate at the present time, it would be beneficial to have an updated portable generator to be used at remote pump stations in the event of a prolonged power failure.
- The plant's laboratory equipment is essential for the proper compliance testing needed to operate the facility. Some of this equipment is in poor condition. Key equipment such as the lab's drying oven, autoclave and sampling equipment should be upgraded.

PROPOSED BUDGET AND FUNDING FOR CURRENT PROJECT

The Table below presents the overall budget summary including project costs such as legal, and interest and interim financing from all phases of funding:

PROJECT BUDGET SUMMARY

Construction	
• Main Plant Components	\$3,491,000
• Sewer System Improvements	392,000
Design Engineering	362,000
Construction Admin/Inspection	368,000
Geotechnical	11,000
Legal	10,000
Interim Financing Interest	25,000
Contingency (Possible stretch goals)	341,000
TOTAL	\$5,000,000

(Updated during RD application process)

- DEP funding has already been obtained for \$1,000,000, leaving \$4,000,000 left to fund through Rural Development.

DEP Forgiveness Grant	\$ 786,800
<u>DEP Loan</u>	<u>213,200</u>
Total DEP Funds	\$ 1,000,000
For current phase	

PRELIMINARY RURAL DEVELOPMENT FUNDING ESTIMATES

- We have been working with Rural Development to obtain a funding package acceptable to the City.
- The City currently has two payments coming due in 2019 (\$55,000 and \$19,500) for a total of \$74,500.
- Rural Development has indicated that they could offer the City a Loan/Grant package of 55.72% Grant/44.26% Loan which would be an approximate debt payment of \$86,560 (based on 28 years). The payment would not begin until after the loan closing.
- Current RD interest rates are lowest ever at 1.375% at time of funding offer.
- Total additional impact annually based on DEP loan and RD loan.

	<u>Payment Estimates</u>
(\$2,000,000 grant/\$2,000,000 loan) RD Loan	\$ 86,560
(\$786,800 grant/\$213,200 loan) DEP Loan	\$ 12,300
<u>Debt Retirement</u>	<u>(\$ 74,500)</u>
Total Added Budget Amount	\$ 24,360

- The City has been setting aside funds which may minimize the impact of the project on sewer fees.
- If all the additional cost cannot be absorbed, the additional cost would be approximately:

(\$44.62/user/year)
(\$11.15/user/quarter)

TENTATIVE IMPLEMENTATION SCHEDULE

Based on the assumption that the proposed plan will be approved and fully funded, the following tentative implementation schedule has been developed for preliminary planning purposes:

<u>ACTIVITY</u>	<u>TARGET DATE</u>
Complete PER/ER	October, 2016 (Done)
Submit for Local/Agency Review	November, 2016 (Done)
Apply for Project Funding	November, 2016 (Done)
Receive Project Funding	April, 2017 (Pending)
Complete Project Design	March, 2017
Advertise Project to Bid	April, 2018
Begin Construction	June, 2018
<u>Complete Construction</u>	<u>December, 2019</u>

- The above schedule will likely need to be modified in response to funding availability.