

**WARWICK SEWER AUTHORITY**  
**Quarterly Report to City Council**  
**January 20, 2016**

**Major WSA Board Actions in Last Quarter**

In October, the Board approved some sewer usage abatements and several sewer assessment abatements, most of which were due to wetlands on the property and/or recorded conservation easements. The Board approved two change orders to Contract 91 (treatment facility and levee upgrades) which are detailed in the Contract 91 report section, below. The Board approved proposals from engineering firms for on-call services in numerous categories including wastewater collection system improvements (pipes and pumping stations), wastewater treatment facility improvements, electrical, mechanical and structural engineering, odor/corrosion control, pretreatment program assistance, inflow/infiltration, flow monitoring and illicit discharge detection and elimination programs, surveying, critical infrastructure vulnerability assessment, and construction administration/resident inspections.

At a special meeting in early November, Board discussions focused on the levee project. The Board approved several change orders including a credit for levee work not being performed under the original design. The Board also engaged the new design engineer, PARE, to perform construction observation and resident inspection services.

At the regular meeting in November, the Board approved another large sewer assessment abatement, reducing the assessment on a Spring Green Road property from acreage to frontage, based on the property area included in a recorded conservation easement. After lengthy discussions, the Board approved another two change orders to Contract 91, one of which was a value-added change requested by WSA operations staff (installation of automated phosphorus sampling and analysis equipment to be used to regulate chemical usage and better control the phosphorus removal process). Several capital purchases were also approved including a new pump for the Kilvert Street pumping station in the amount of \$10,572.

In December, the Board approved the abatement/reduction of a sewer assessment for a Church Avenue property based on documentation of wetlands (biologist's report and Class I survey). The Board approved the purchase of a new thickened sludge transfer pump (\$27,116), and oil dispensing unit (\$8,565) and 500 feet of hose for portable wastewater pumps (\$9,710).

**Treatment Facility Operations and Maintenance**

The treatment facility was in full compliance with the WSA discharge permit this past quarter, including the new nitrogen limit. Once WSA's Discharge Monitoring Report (DMR) for December has been submitted to the Rhode Island Department of Environmental Management (due January 15<sup>th</sup>), the WSA will prepare a permit compliance summary report and graphs for effluent quality. Through November 2015, flows have been averaging about 4.6 million gallons per day (plant capacity is 7.7 mgd).

## Outreach/Grants Efforts

The WSA assisted the Rhode Island Shellfisherman's Association to secure a \$2,500 grant from the New England Water Environment Association for their Greenwich Bay Oyster Seeding Project. Using volunteers and facilities based in Warwick, the Shellfisherman's Association, in collaboration with Roger Williams University and the Rhode Island Department of Environmental Management (Fish & Wildlife Division), will purchase and grow oyster seeds and then plant them in Greenwich Bay off Oakland Beach for eventual harvesting by recreational and commercial shellfishers. The WSA plans to match that grant which will allow the Association to purchase 500,000 oyster seeds. The project is expected to provide recreational, economic, and water quality benefits for the City of Warwick.

## Contract 91 (Treatment Facility Construction)

The most recent progress report from AECOM has been included with this report. The phosphorus removal system and other operational improvements are on track to meet new permit effluent limits in 2016.

## Contract 91 (Levee Improvements)

The most recent progress report from PARE Corporation has been included with this report. All permits were secured and work began again in early December. The construction work for the new levee design has been broken down into three (3) phases:

**Phase I** involves repairing/rebuilding the section of earthen levee damaged by previous attempts to install the floodwall sheeting as originally designed.

**Phase II** is the construction of the earthen levee section between Arthur W. Devine Boulevard and Interstate Route 95 South.

**Phase III** is construction of the remainder of the levee to protect the facility from a 500-year flood. This phase entails work on the western side of the facility and involves a number of different levee embankment designs, including concrete retaining walls in areas where the base of the existing levee is in close proximity to treatment tanks and other critical equipment such as the emergency generator.

Phase I work is now complete.

### **CONTRACT 91 EXPENSE SUMMARY**

*As of December 31, 2015*

<b>Contractor</b>	<b>Original Contract Amount</b>	<b>Change Orders or Amendments</b>	<b>Total Contract Amount</b>	<b>Amount Paid to Date</b>	<b>%</b>	<b>Contract Amount Remaining</b>
AECOM	\$ 1,803,900	\$ -	\$ 1,803,900.00	\$ 1,225,584.46	67.9%	\$ 578,315.54
PARE	\$ 78,810	\$ 196,900.00	\$ 275,710.00	\$ 80,925.50	29.4%	\$ 194,784.50
Hart	\$14,479,000	\$ 740,060.96	\$15,219,060.96	\$10,977,454.99	72.1%	\$4,241,605.97

**CONTRACT 91 CHANGE ORDER SUMMARY**

<b>Change Order No.</b>	<b>Date</b>	<b>Amount</b>	<b>Reason</b>
1	10/23/2014	\$ 4,051.00	Raise drainage structure in levee for maintenance/access
2	11/20/2014	\$ 21,919.20	Additional clearing of area adjacent to Route 95 to facilitate levee maintenance
3	10/23/2014	\$ 22,247.07	Add drainage to north side of Animal Shelter
4	2/26/2015	\$(530,639.15)	Adjustments to Bid Item No. 8 for floodwall installation
5	<i>reserved</i>		Steel sheeting proposal
6	12/18/2014	\$ 13,198.87	Modifications to sludge grinder pump piping
7	2/26/2015	\$ 911.05	Increase grating area
8	3/26/2015	\$ (35,332.07)	Junction chamber relocation/reconfiguration
9	<i>rejected</i>		Duplex strainer
10	7/23/2015	\$ 29,151.29	Fiber optic line reroute
11	6/18/2015	\$ 40,100.20	PCB removal work
12	5/20/2015	\$ 3,472.42	Upgraded grinder pump
13	11/19/2015	\$ 58,240.18	Phosphorus analyzers
14	6/18/2015	\$ 61,547.41	New frac tank for sludge storage
15	7/23/2015	\$ 39,576.68	Pre-stressed concrete cylinder pipe
16	9/17/2015	\$ 4,819.68	Extend low pressure scum line
17	10/22/2015	\$ 59,433.79	Clarifier concrete repairs
18	11/19/2015	\$ 9,771.27	Center clarifier electrical work
19	10/22/2015	\$ 14,643.07	Hydrocone modifications
20	<i>withdrawn</i>		
21	<i>withdrawn</i>		
22	11/5/2015	\$(357,276.00)	Credit for levee work
23	<i>withdrawn</i>		
24	<i>withdrawn</i>		
25	<i>pending</i>		Scum Pipe Hole Core
26	11/5/2015	\$644,375.00	Phase I levee construction
27	11/5/2015	\$635,850.00	Phase II levee construction
<b>Total of Change Orders:</b>		<b>\$740,060.96</b>	

**Contract 93 (Influent Sewer Rehabilitation)**

The slip-lining of the influent pipe which runs under Interstate Route 95 was substantially completed on November 9<sup>th</sup>. The contractor, R. Zoppo Corp., will return in the spring to complete minor punch list items such as seeding/sodding. The project was completed on time and on budget.

**Sewer Extension Planning & Construction (projects included in \$33 million bond authorization)**

Governor Francis Farms Phase 3 (Contract 85 B) – The owner of the land where the WSA would like to locate the pumping station for this project has initiated the survey work required for the subdivision process that will result in a buildable lot to be acquired by the WSA.

East Natick Phase 3/O'Donnell Hill (Contract 69 A) – The wetlands permit for this project has been approved and recorded. The WSA awaits approval of the permit from the Rhode Island Department of Transportation (for crossing the bike path). Plans and specifications are being finalized for bidding. At the request of Councilman Gallucci, the WSA recently made a presentation to the Pawtuxet River Authority seeking possible financial support for the project and plans to meet with the property owners again soon.

Northwest Gorton Pond (Contract 88) – Currently proposed for construction in 2017. No recent activity.

Bayside – The WSA has approved a revised plan for sewerage this area which consists of two phases. Phase I (Contract 86A) is construction of the main interceptor sewer on Tidewater Drive and Phase II (Contract 86B) will be construction of lateral pressure sewers and connections for about 40 residential streets off Tidewater Drive.

Contract 86A (Tidewater Drive Interceptor)

Preliminary engineering design is ongoing. The Board approved funding for additional archaeological investigations required on Tidewater Drive and those investigations, in conjunction with the Narragansett Indian Tribe, were completed in mid-December. The results are being compiled by WSA's archaeological subcontractor and a meeting is scheduled for January to review the results and determine the next steps. The Board also approved funding for an all-day "value engineering" workshop to review proposed construction technologies and possible cost-saving measures for this project.

See attached Construction Project Data Table for a summary of information related to projects with revenue bond funding authorization.

**WARWICK SEWER AUTHORITY  
CONTRACT 91: PHOSPHORUS REMOVAL UPGRADE / FLOOD  
CONTROL AND MITIGATION  
NOVEMBER/DECEMBER 2015 PROGRESS REPORT  
December 11, 2015**

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This Progress Report summarizes activity between November 14, 2015 and December 11, 2015 on Contract 91: Phosphorus Removal Upgrade/Flood Control & Mitigation Project, and provides a four week look ahead.

**Construction Progress**

- Overall, the project is approximately 78% complete;
- Continued to provide construction administration services such as reviewing and processing RFIs, shop drawings, change order proposals and contractor applications for payment; and field observation and specialty staff site visits for Building Code compliance;
- Held eighteenth progress meeting on December 3<sup>rd</sup> with Hart and WSA;
- Phosphorus Building, Levee and Other Work:
  - Phosphorus Building: completed tank tightness testing and repair; roofing work is almost complete; continued to install mechanical equipment and piping; painting, electrical, HVAC and plumbing work inside the building continues; exterior gas line has been installed; bypass pumping and installation of the new junction chamber has been completed; continue to install the exterior 48-inch piping;
  - Utility Building: new Rotary Drum Thickener, sludge pumping equipment and Frac tank have been installed;
  - Levee Work: preparations for change order work.

**Four Week Look Ahead-Phosphorus Building and Other Work**

- Continue interior work: equipment and piping installation, painting, electrical, HVAC and plumbing; complete roofing work. Exterior site work: complete exterior 48-inch piping and underground utilities;
- Utility Building: continue piping and electrical work for the Rotary Drum Thickener and sludge pump; complete concrete curbing for the sump pit;
- Next progress meeting scheduled for January 14<sup>th</sup>.

**Four Week Look Ahead-Levee**

- Install seepage cutoffs and place concrete at the drain inlet and outlet structures.

Warwick Wastewater Treatment Plant Levee Project  
*Warwick, Rhode Island*  
Pare Project No. 15069.00

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**Project Progress Update No. 7**  
Submitted December 15, 2015

CONSTRUCTION PHASE

The following activities have occurred since the last report:

- Pare continued coordinating with WSA and Hart relative to the impending work at Phase I.
- Pare reviewed submittals for
  - Portadam
  - Low permeability fill
  - Engineered fill
  - Geotextile
- Pare provided construction observation and field density testing on
  - December 8<sup>th</sup> through 11<sup>th</sup>, and December 14<sup>th</sup>
- Pare conducted progress meetings with Hart and WSA on
  - December 7<sup>th</sup> and December 15<sup>th</sup>
- Since commencing field activities on December 8<sup>th</sup>, construction by ECW under subcontract to Hart has included the following:

**December 8<sup>th</sup>**

- ECW began and completed stripping loam from the embankment of the levee between STA 20+25 and 21+80.
- ECW began excavating portions of the levee between STA 20+50 and 21+15, to approximately El. 23.5.

**December 9<sup>th</sup>**

- ECW began and completed stripping loam from the embankment of the levee between STA 21+80 and 22+25.
- ECW continued excavating portions of the levee between STA 20+50 and 22+25, to approximately El. 18.5.
- ECW continued to receive imported engineered fill material.

**December 10<sup>th</sup>**

- ECW continued to excavate the trench along the toe of the outbound slope to between elevation 15 and 16.
- ECW backfilled the trench along the toe of the outbound slope to between elevation 19 and 20
- ECW continued to receive imported engineered fill material.
- ECW cutoff the existing FRP sheet piles to approximately elevation 18.

**December 11<sup>th</sup>**

- ECW began to excavate the trench along the alignment of the proposed core material.
- ECW began to backfill the levee with engineered fill.
- ECW continued to receive imported engineered fill material.

**December 14<sup>th</sup>**

- ECW excavated the trench to accommodate the Type B-1 Embankment between STA 22+15 and 22+25.
- ECW began to backfill the low permeability core with low permeability fill.

- ECW began to receive imported low permeability fill material.

For a more detailed description of the work that was undertaken, as well as photos of the construction, please refer to the daily field summaries that have been previously submitted.

Two- Week Look Ahead

- **Continue construction of the embankment for phase 1**

**PROJECT STATUS**

Projects Included in \$33 Million Revenue Bond Authorization

Project Name	Design Completion Date	Design Percent Complete	Design Certificate of Approval	Construction Certificate of Approval	Order of Approval	Construction Completion Date	Construction Percent Complete
East Natick III (O'Donnell Hill)	Anticipated Spring 2016	95%					
Northwest Gorton Pond	Planning for 2017	10%					
Governor Francis III	Anticipated Spring 2016	90%	8/4/2008				
Bayside 86A-1 (Tidewater Interceptor)	05/01/15	100%	5/16/2006	7/7/2015	7/7/2015	09/04/15	100%
Bayside 86A-2 (Tidewater Interceptor)	Anticipated Spring 2016	20%	5/16/2006				
Bayside 86B (Lateral Pressure Sewers)	Anticipated Spring 2018	5%					

Projects Included in \$23 Million Revenue Bond Authorization

Project Name	Design Completion Date	Design Percent Complete	Design Certificate of Approval	Construction Certificate of Approval	Order of Approval	Construction Completion Date	Construction Percent Complete
AWT Phosphorus Upgrade		100%	N/A	3/14/2014	4/3/2013		70%
AWT Levee Improvement		100%	N/A	3/14/2014	4/3/2013		40%



**PROJECT EXPENSES**

Projects Included in \$33 Million Revenue Bond Authorization

Project Name	Design Expenditures	Land Acquisition	Construction Expenditures	Inspection Expenditures	Traffic Details Expenditures	Miscellaneous Expenditures	Expenditures to Date	RI Infrastructure Bank Payments	To be Reimbursed by FEMA
East Natick III (O'Donnell Hill)	\$23,460.00	N/A				\$800.00	\$24,260.00	\$0.00	N/A
Northwest Gorton Pond	\$160,569.77	N/A			\$1,427.43		\$161,997.20	\$0.00	N/A
Governor Francis III	\$185,133.37						\$185,133.37	\$18,730.20	N/A
Bayside 86A-1 (Tidewater Interceptor)	\$11,511.25	N/A	\$302,841.88	\$200,355.54	\$1,105.19	\$0.00	\$515,813.86	\$504,302.61	N/A
Bayside 86A-2 (Tidewater Interceptor)	\$96,313.48	N/A			\$10,890.08	\$65,705.00	\$172,908.56	\$172,908.56	N/A
Bayside 86B (Lateral Pressure Sewers)									

Projects Included in \$23 Million Revenue Bond Authorization

Project Name	Design Expenditures	Land Acquisition	Construction Expenditures	Inspection Expenditures	Traffic Details Expenditures	Miscellaneous Expenditures	Expenditures to Date	RI Infrastructure Bank Payments	To be Reimbursed by FEMA
AWT Phosphorus Upgrade	\$749,457.85	N/A	\$9,839,058.97	\$1,122,636.35	\$0.00	\$363,614.98	\$12,074,768.15	\$12,074,768.15	N/A
AWT Levee Improvement	\$80,925.50	N/A	\$1,138,396.02	\$102,648.11	\$0.00	\$0.00	\$1,321,969.63	\$0.00	\$1,189,772.67

Cost of Issuance and Debt Service Reserve for all borrowing: \$1,751,432.42  
 Total Bond Authorization Utilized: \$14,522,141.94  
 Total Bond Authorization Remaining (of \$53 Million): \$41,477,858.06