

CITY OF PORTSMOUTH

PEIRCE ISLAND WASTEWATER TREATMENT FACILITY UPGRADE



QUARTERLY REPORT

APRIL - JUNE 2017



INTRODUCTION

The City of Portsmouth awarded the construction contract for the Peirce Island Wastewater Treatment Facility (WWTF) Upgrade to Methuen Construction of Salem, NH, in August 2016. Construction began September 1st, and kicked off the largest construction project in the City's history. This four year construction project, when completed, will improve the quality of the effluent from the Peirce Island WWTF that is discharged into the Piscataqua River.

In this second quarterly update for 2017, a summary of construction progress is covered through pictures of installed and ongoing work. Other relevant aspects of the project are also presented. Construction work during this quarter included installation of: slope stabilization revetments at specific points at the site, temporary electrical facilities, new underground water, sewer, electrical and communication conduits, initial construction of Sludge Thickener No. 2 and the Headworks Building, and demolition of the original Filter Building, in preparation for excavation for the new secondary treatment system (Biological Aerated Filter (BAF) system). Construction on the project achieved a notable milestone during this quarter, with the completion of the demolition of the existing Filter Building. This was a key step in the complex project construction sequencing, since the construction of the new BAF Building could not commence until the existing Filter Building was demolished and removed.

The City remains committed to making this a successful project and mitigating construction impacts. Questions and comments are always welcome. They may be directed to City staff by phone, email, or through the City's project web page at <http://www.portsmouthwastewater.com/piupgrade-form.html>.

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BRICK FACADE ON HEADWORKS BLDG
BRICK WAS SELECTED FOR THE NEW BUILDING TO MATCH THE EXISTING FACILITIES THAT WILL REMAIN ON THE SITE. THIS FACILITY WILL BE THE MOST VISIBLE AT THE COMPLETION OF THE PROJECT AND WILL BE LOCATED JUST INSIDE THE ENTRANCE GATE.



SANITARY PUMP STATION NO. 2
THE PUMP STATION COLLECTS WASTEWATER AND PROCESS FLOWS GENERATED WITHIN THE WWTF AND PUMPS THEM TO THE WWTF INFLUENT FOR TREATMENT.



SANITARY PUMP STATION NO. 2



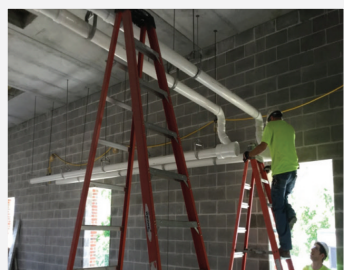
EXCAVATED STONE CRUSHED
OVER 8,000 CUBIC YARDS (ABOUT TWO OLYMPIC SIZE POOLS) OF ROCK WAS REMOVED FOR EXCAVATION OF THE BIOLOGICAL AERATED FILTER (BAF). MOST OF THIS MATERIAL WAS CRUSHED AND WILL BE RE-USED ON SITE, REDUCING TRUCK TRAFFIC.



CONCRETE WORK ON BAF BLDG
CONCRETE HAS TO BE PUMPED OVER AND DOWN TO THE BAF STRUCTURE WHERE THE BOTTOM IS APPROXIMATELY 25-FEET BELOW GRADE. THE CONCRETE DELIVERIES HAVE A SPECIFIC TIME FRAME THEY NEED TO MEET FROM THE TIME THEY LEAVE THE CONCRETE PLANT TO PLACEMENT IN THE CONCRETE FORMS.



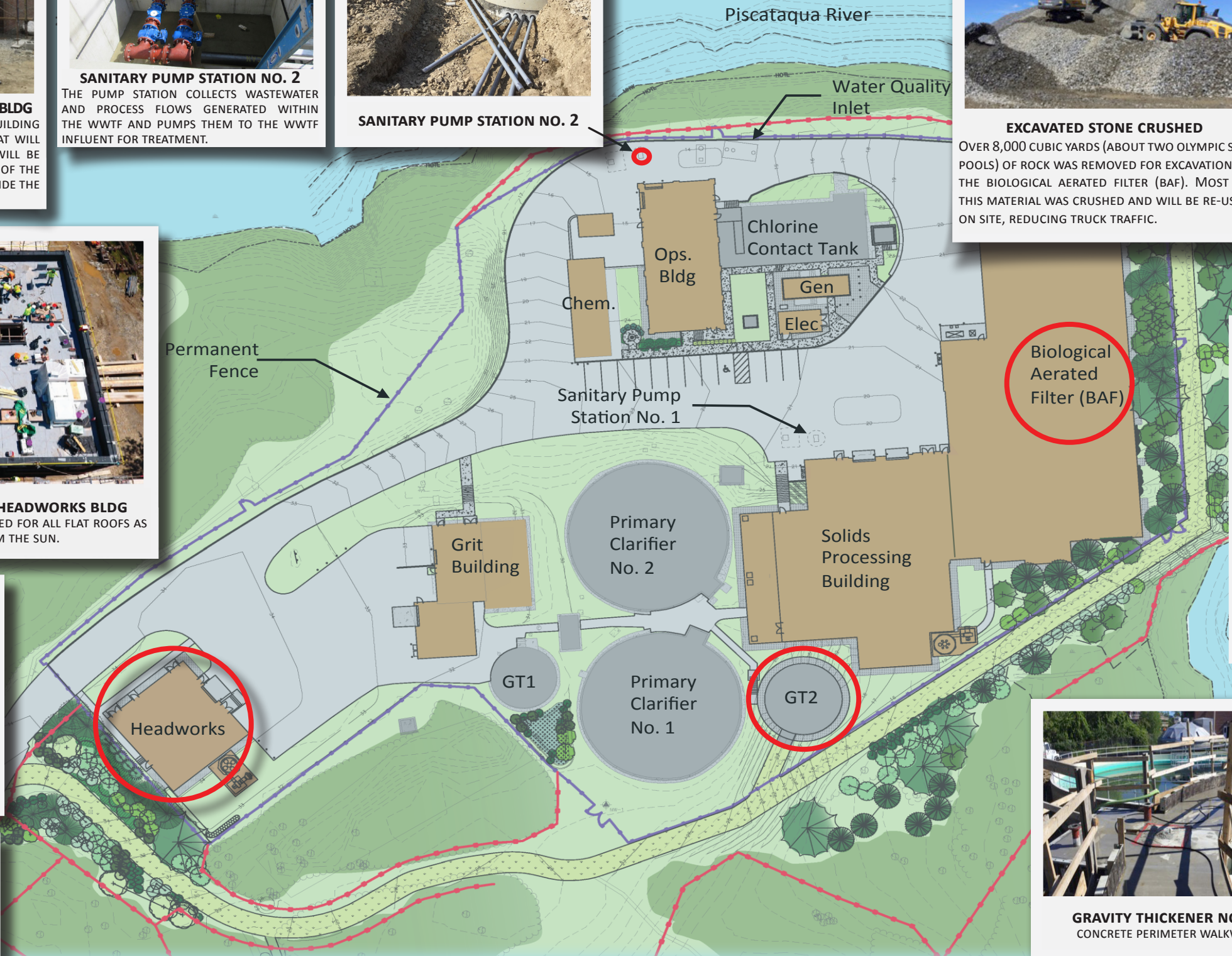
ROOFING INSTALLATION ON HEADWORKS BLDG
WHITE COLORED ROOFING WAS SELECTED FOR ALL FLAT ROOFS AS A MEANS TO MINIMIZE HEAT GAIN FROM THE SUN.



HEADWORKS BLDG
INTERIOR MECHANICAL, ELECTRICAL & PLUMBING WORK



PAVED ACCESS ROAD TO PLANT
NEW WATER MAIN, PRIMARY ELECTRICAL SERVICE, AND COMMUNICATION DUCT BANKS WERE INSTALLED BENEATH THE ROAD.



CONCRETE & REINFORCING STEEL FOR BAF BLDG
APPROXIMATELY 1,200 CUBIC YARDS OF CONCRETE HAVE BEEN PLACED FOR THE BAF THROUGH JUNE 2017.



GRAVITY THICKENER NO. 2
CONCRETE PERIMETER WALKWAY



GRAVITY THICKENER NO. 2
GT2 WILL BE USED TEMPORARILY TO HOUSE SLUDGE PUMPS SO THE EXISTING ADMINISTRATION BUILDING, WHERE THESE PUMPS ARE CURRENTLY LOCATED, CAN BE DEMOLISHED. THIS WAS ONE OF THE MANY PROVISIONS PUT IN PLACE TO ALLOW THE CITY TO OPERATE THE TREATMENT FACILITY DURING CONSTRUCTION.

CONSTRUCTION SUMMARY

APRIL - JUNE 2017

FINANCES & PROJECT COST SUMMARY

During the second quarter, work on the WWTF upgrade was completed that reached a value of approximately \$19.6 million. This represents about 26% of the current construction contract value. Change Order No. 2 was executed, which addressed a number of items, including the addition of the Four Tree Island parking lot expansion to the construction contract. The City continues to utilize the NH Department of Environmental Services (DES) State Revolving Loan Fund (SRF) funding, consisting of a grant of \$3.75 million. The balance is funded through a low interest rate loan. Disbursement payments from the DES are being processed monthly.

On Monday, July 10, 2017, the City Council voted to adopt a Resolution Authorizing a Bond Issue and/or Notes of the City, under the Municipal Finance Act and/or Participation, in the State Revolving fund (SRF) Loan of up to Six Million Nine Hundred Thousand Dollars (\$6,900,000.00). It is anticipated that the SRF loan will be amended in FY18, FY19 and FY20. The City Council previously authorized \$85 million in borrowing for this project, \$10 million on August 5, 2013 (municipal bond), and \$75 million on March 14, 2016 (SRF Loan). At the time of the construction contract award, it was acknowledged additional funding would be needed to cover contingency and engineering costs beyond the first year of construction. Future CIP funding would reflect that need.

The borrowing authorization to increase the SRF loan covers costs for construction contingencies and construction engineering to complete the project. Previously, these funds were anticipated and presented as part of the FY18 Capital Improvement Plan (CIP). With City Council approval of the borrowing authorization, the total sewer funding for the project will be \$91.9 million, as shown on the adjacent table.

PROJECT CONSTRUCTION COSTS	
Original Contract Value	\$72,785,545.00
Change Order 1 – January 2017	\$367,290.42
Change Order 2 – May 2017	\$546,722.46
Revised Contract Value	\$73,699,557.88

Construction costs through June 30, 2017	\$19,630,457.12
% Spent through June 30, 2017 (based on Revised Contract Value)	26.64%

OVERALL PROJECT CAPITAL BUDGET SUMMARY	
Item	Cost (\$Millions)
Primary Clarifier Replacement	\$1.6
Peirce Island Bridge Improvements	\$0.6
WWTF Design Engineering	\$5.2
WWTF Construction Engineering	\$7.4
WWTF Construction (Current through CO2 – Sewer Funds)*	\$73.3
WWTF Construction Contingencies	\$3.5
WWTF Construction Mitigation & Public Art	\$0.3
Total	\$91.9
* \$0.4 million for water main improvements, included in the contract, but not paid from sewer funds – total contract dollar value to date is \$73.7 million as shown in the Project Construction Costs table above.	



PARKING MITIGATION FOUR TREE ISLAND PARKING LOT

The expansion of the Four Tree Island parking lot was constructed to mitigate the impacts from construction of the Peirce Island WWTF. The facility upgrade required using the existing Peirce Island public pool parking lot and the City's snow dump area for construction staging. This significantly reduced the parking area available for patrons and staff at the public pool.

A joint work session between the City Council, Peirce Island Committee, and the Recreation Department/Board agreed that the Four Tree Island parking lot should be expanded.

The existing Four Tree Island parking lot was not provided with facilities to collect and treat stormwater runoff from the paved surface. Even though the parking lot expansion was planned to be temporary, the proximity of the parking lot to water, and the duration of its use (approximately four years), triggered specific regulatory requirements for stormwater treatment. To address these requirements, the City decided to use pervious pavement, which allows water to flow through the pavement into three feet of porous material underneath. This material provides stormwater treatment by allowing the stormwater to infiltrate into the ground. Pervious pavement is a best management practice, having minimal impact and taking a "green" approach to stormwater treatment.

The cost for constructing pervious pavement is more than conventional pavement replacement because none of the original material is re-used as a base for new pavement. There are also costs for deeper excavation, material removal, and the materials underneath the permeable pavement.

As a result of this project, the larger parking area has improved the quality of stormwater runoff released to the surrounding environment.

Improved drainage facilities were also installed in the grass overflow parking area adjacent to the City's boat ramp. This area is also being used for temporary parking for patrons of the public pool. The parking lot paving and landscaping improvements will last beyond the time frame of this construction project, and can stay in place if the City Council wants to make it permanent. Construction began the week of May 8th and was completed on June 16th.

In an effort to help visitors and citizens with parking needs and questions while visiting the public pool, playground and Four Tree Island, the City has employed three staff members to serve as "Ambassadors." John, Deb and Dwayne, pictured below, are providing outstanding service. They will be on-site during the summer pool schedule. So far, the pool has operated successfully, with no problems reported.



PUBLIC CONSTRUCTION TOUR

JUNE 20, 2017

A public tour of the Peirce Island WWTF construction site was held on Tuesday, June 20, 2017, starting at 6:00 p.m. Approximately 35 people participated in the tour. Facilities and areas highlighted on the tour are shown below. Architectural renderings of the buildings viewed on the tour are available on the City's project web page. <http://www.portsmouthwastewater.com/resources.html>. The City anticipates holding similar tours every year in June as the project progresses.

PUBLIC CONSTRUCTION TOUR STOPS:	
Tour Stop No. 1	Headworks Building
Tour Stop No. 2	Grit Chambers, Primary Clarifiers, Gravity Thickeners and Solids Building
Tour Stop No. 3	Sanitary Pump Station, Revetments and Outfall
Tour Stop No. 4	Electrical Building, Generator, Chlorine Contact Tank and Operations / Lab Building
Tour Stop No. 5	Biological Aerated Filter (BAF)



Headworks Building Perspective



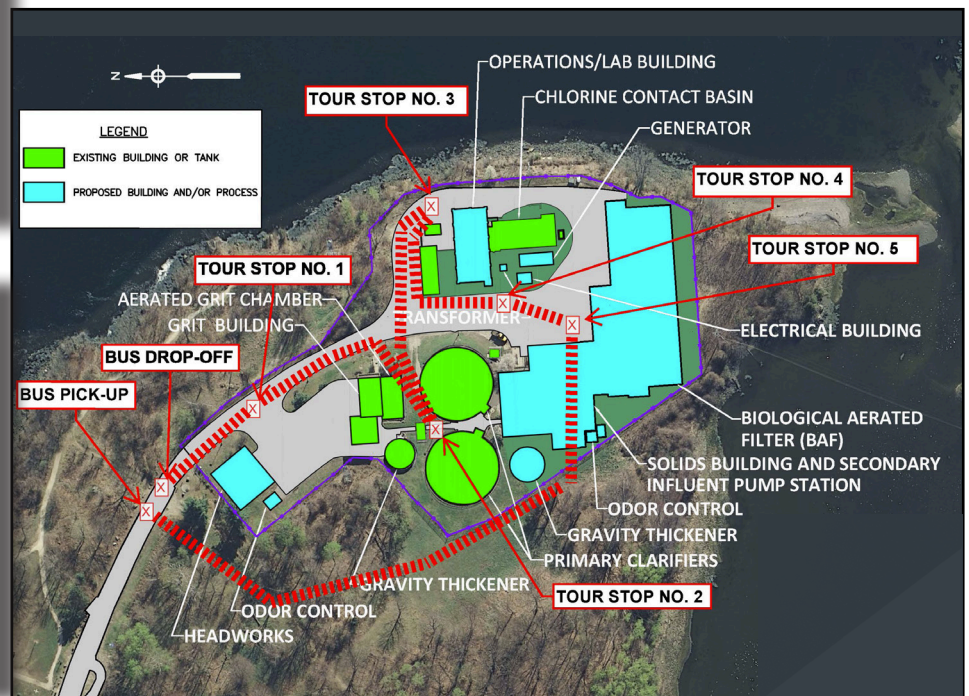
Solids Building Perspective



BAF Building Perspective



Operations / Lab Building Perspective



PUBLIC MEETINGS & COMMENTS

To foster communication with the public and business owners during the four year construction period, monthly public meetings have been held since starting the project. Meetings with City staff, the Contractor, and other officials involved in the project, have been moved to Conference Room A at City Hall. Meetings are held on the third Wednesday of each month at 11:00 a.m. A recorded broadcast of each meeting will still be available on the City's YouTube channel, with presentations and notes available on the Wastewater web page under Public Meetings.

As the construction season remains at peak level, City staff continue to address citizen concerns. Topics addressed during the second quarter included: the intersection configuration at Mechanic Street and Marcy Street, construction traffic traveling in the wrong direction on Court Street, and general construction traffic on designated routes.

To file a complaint, or log an issue related to the WWTF upgrade, please complete a Report Form online at the City's project web page, <http://www.portsmouthwastewater.com/piupgrade-form.html>. There have been 24 reports through the website since construction began in September 2016.

LEGAL UPDATE

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Late last year, a small number of Portsmouth residents opposed to the Peirce Wastewater Treatment Facility (WWTF) Upgrade brought a Clean Water Act claim against the Environmental Protection Agency, the State of New Hampshire and the City of Portsmouth (the defendants). This action is pending in the United States District Court for the District of New Hampshire.

Each defendant has filed a motion to dismiss the action. A hearing on these motions was held May 15, 2017. No order from the Court has been issued and there is no other activity in the case at this time.

Outside counsel fees to defend the action total over \$117,000. Outside counsel was engaged given both the nature of the federal claim and the potential damages from wrongfully stopping the project, which could result in the loss of millions of dollars.

CONSENT DECREE (CD) MITIGATION UPDATE:

The City continues to meet its obligations and deadlines outlined in the Consent Decree, Second Modification. Provided in the table below are mitigation initiatives outlined in the CD and a brief update on each.

CONSENT DECREE MITIGATION INITIATIVES

Consent Decree, Second Modification, No. 09-cv-283-PB, Paragraph 8

<http://www.portsmouthwastewater.com/September2016ConsentDecreeSecondModification.pdf>

- a) Interim Enhanced Primary Treatment: The Chemically Enhanced Primary Treatment (CEPT) Optimization Study Work Plan was submitted to EPA on March 13, 2017, and approved on March 30, 2017. The field data collection work is nearly complete.
- b) Nitrogen Removal: Beginning June 1, 2020, the EPA mandated specific seasonal average total nitrogen effluent concentrations and monthly average total nitrogen effluent concentrations for the Peirce Island WWTF.
- c) Stormwater Project: The City will implement a green infrastructure project(s) using innovative low-impact development approaches to significantly reduce stormwater pollution from one or more existing sites. The City is proposing improvements at the recently purchased property behind the Department of Public Works. The specific improvements are still in development and will be detailed in later reports. Work in this area will help to improve runoff water quality and will benefit Sagamore Creek.
- d) Sagamore Avenue Sewer Extension Project: Implement a sewer extension project to provide public sewer service to approximately 83 existing parcels adjacent to or near Sagamore Avenue. Construction shall begin no later than June 30, 2020, and shall be substantially completed on or before June 30, 2022. The preliminary design phase of the project will begin in the fall of 2019.
- e) Water Quality and Ecosystem Health Project: The City will provide funding to support activities that advance water quality in the Great Bay Estuary. Deputy City Attorney Suzanne Woodland and City Engineer Terry Desmarais submitted a memorandum on Consent Decree Mitigation Funding dated July 5, 2017. The memorandum was previously provided to City Council in the July 10, 2017 packet.
<http://www.cityofportsmouth.com/agendas/2017/citycouncil/cc071017cp.pdf>

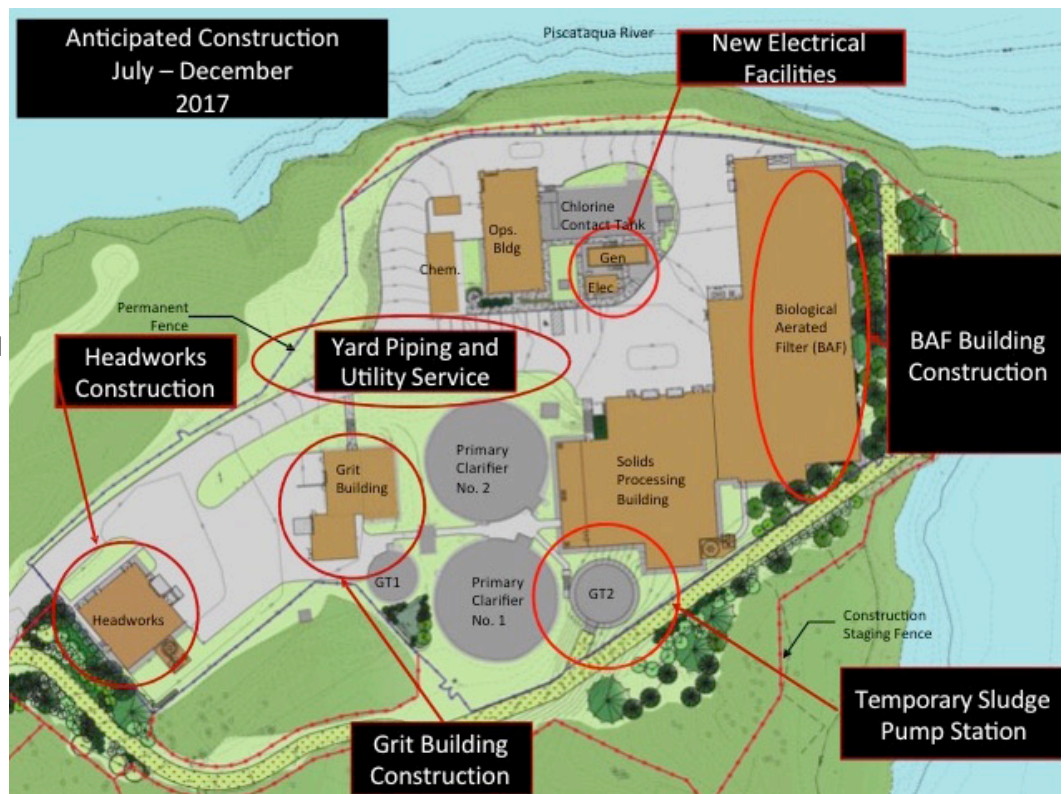


PROJECT SCHEDULE & UPCOMING WORK

CONSTRUCTION PROJECT SCHEDULE MILESTONES		
Milestone	Date	Status
Execute Contract to Construct Upgrades	09/01/2016	Complete
Submit Two Additional Milestones for EPA Review and Approval	12/01/2016	Complete
Additional Milestone 1: Transfer of the existing SCADA system to the new Headworks Building	11/21/2017	On Schedule
Additional Milestone 2: Start-up and testing of the Secondary Inflow Pump Station in the new Solids Building	05/09/2019	On Schedule
BAF Substantial Completion	12/01/2019	On Schedule
Achieve Compliance with NPDES Permit Limits	04/01/2020	On Schedule
Substantial Completion	05/31/2020	On Schedule
Final Completion	08/30/2020	On Schedule

CONSTRUCTION FOR THE NEXT SIX MONTHS WILL BE FOCUSED ON THE FOLLOWING FACILITIES AND BUILDINGS:

- Headworks Building: including Milestone No.1 to transfer existing SCADA system to new Headworks Building
- Grit Building modifications
- BAF Building construction
- Set up temporary trailers and utilities for staff at pool parking lot
- Demolition of existing Administration Building
- Solids Processing Building: begin excavation and yard piping
- Yard piping and utility service
- Stormwater treatment infrastructure
- Limited site paving
- New electrical facilities: Electrical Building, Generator and Transformer
- Temporary Sludge Pump Station at Gravity Thickener No. 2



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THE DEPARTMENT OF PUBLIC WORKS

