

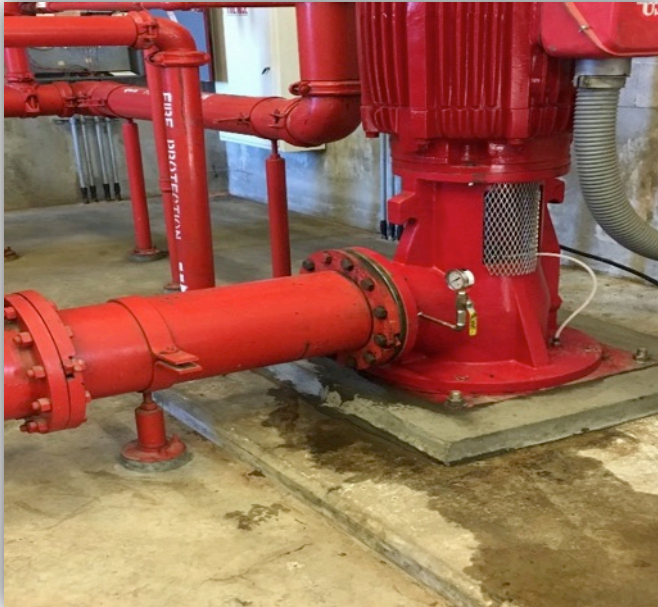




***Agency-Wide Technical Assistance  
Consulting Services  
Contracts 7498 and 7604***

April 18, 2018





Newly Installed Nut Island Fire Pump

## Nut Island Fire Pump Replacement

- Design and ESDC



Newly Installed Nut Island Fire Pump Controller



# Agency-Wide Technical Assistance – Completed Task Orders

## Cathodic Protection Replacement Shaft 5A/5

- Design/Bid
- Limited ESDC
- Survey



Date: 1/18/2017  
Security Operational - For MWRA use ONLY

MWRA System Map



Shaft 5/5A Site Plan





# Agency-Wide Technical Assistance – Completed Task Orders



**Completed Quincy Fuel Tank  
Replacement**

## Quincy and Hingham Pump Stations Fuel Tank Replacement

- **Site Evaluation**
- **Design**
- **Bidding**
- **Limited ESDC**



# Agency-Wide Technical Assistance – On Going Task Orders



**General Edwards Bridge Water  
Main Inspection**

## General Edwards Bridge Water Main Removal

- Design
- Permitting
- Bidding
- ESDC



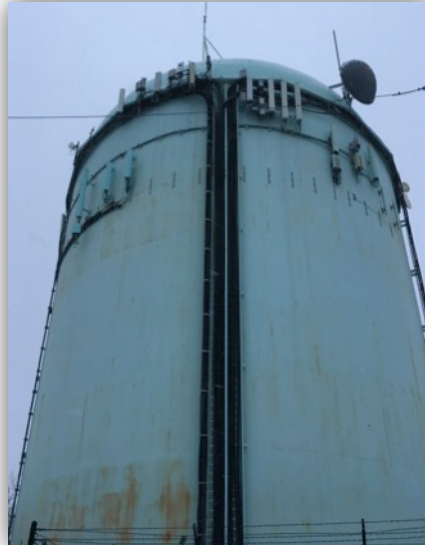
# Agency-Wide Technical Assistance – On Going Task Orders

## Painting for Deer Island, Turkey Hill, and Bellevue II Steel Water Storage Tanks

- Design and Bidding
- Limited ESDC/Testing – Deer Island



Deer Island Water Storage Tank



Turkey Hill Water Storage Tank - Arlington



Bellevue II Water Storage Tank – West Roxbury





# Agency-Wide Technical Assistance Consulting Services – 7498 & 7604

| PROPOSER                           | ORDER OF PREFERENCE | FINAL RANKING | SAMPLE COST EXERCISE  |
|------------------------------------|---------------------|---------------|-----------------------|
| <b>Hazen and Sawyer, P.C.</b>      | <b>5</b>            | <b>1</b>      | <b>\$1,726,188.14</b> |
| <b>Kleinfelder Northeast, Inc.</b> | <b>11</b>           | <b>2</b>      | <b>\$1,888,519.50</b> |
| CDM Smith Inc.                     | 18                  | 3             | \$1,907,398.68        |
| Stantec Consulting Services Inc.   | 19                  | 4             | \$1,762,403.96        |
| Arcadis U.S., Inc.                 | 22                  | 5             | \$1,970,327.04        |
| <b><i>Engineer's Estimate</i></b>  | <b>-</b>            | <b>-</b>      | <b>\$1,708,970.00</b> |



# Contract 7498 and 7604

| CONTRACT NUMBER | CONSULTANT                     | BUDGET  | DURATION  |
|-----------------|--------------------------------|---------|-----------|
| 7498            | Hazen and Sawyer,<br>P.C.      | \$2.5 M | 24 Months |
| 7604            | Kleinfelder<br>Northeast, Inc. | \$2.5 M | 24 Months |





***Repair of Three Digester Mixer Assemblies  
at Deer Island***

April 18, 2018





# Egg-Shaped Digesters





# Mixer assembly after sandblasting, showing substantial impeller wear and pitting







***Gravity Thickener Rehabilitation  
Deer Island Treatment Plant  
Contract 7428***

April 18, 2018





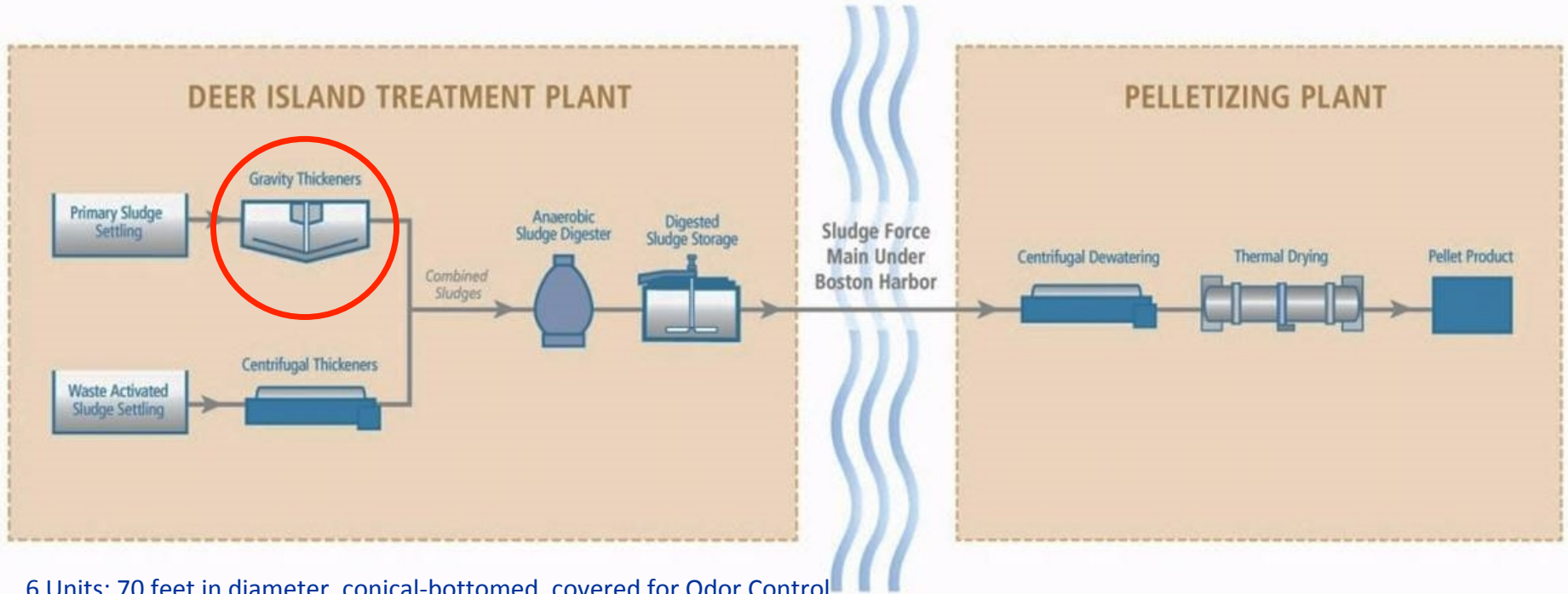
# Deer Island Gravity Thickeners





# Where Are Gravity Thickeners In The Deer Island Process?

## Existing Solids Process Flow Diagram



6 Units: 70 feet in diameter, conical-bottomed, covered for Odor Control

Function: Concentrate primary sludge and scum using gravity

Pump thickened primary sludge from bottom, thickened scum from top surface – to anaerobic digesters (70% of total digester feed)

Sludge settling aided by circular motion of inner support structure.



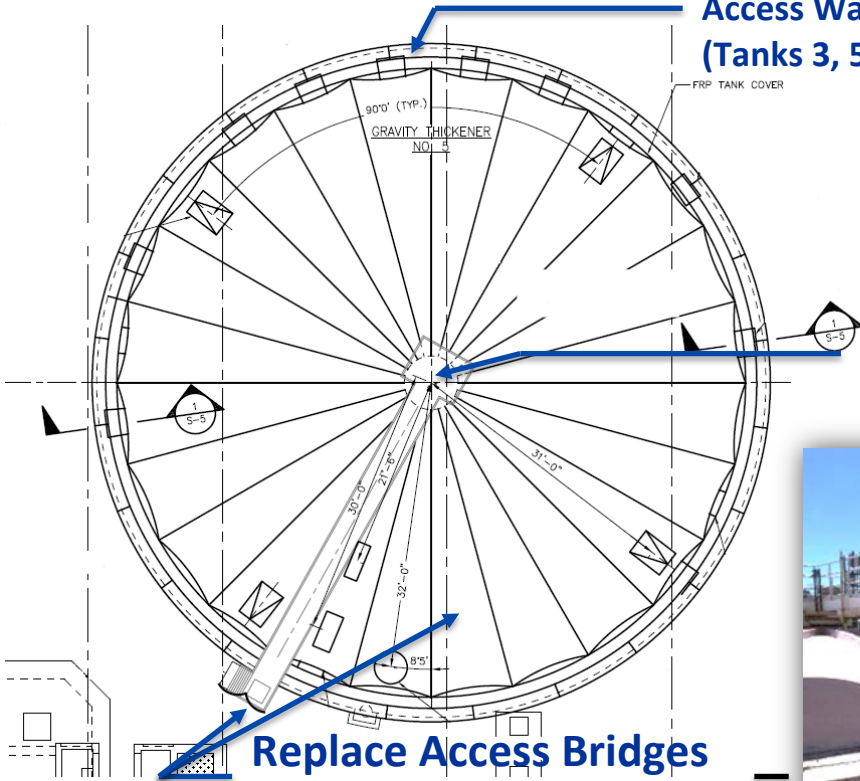
# Contract 7428 Gravity Thickener Rehabilitation

- **Gravity Thickener Rehabilitation**
  - Replace 5 of 6 FRP covers
  - Replacement of Scum/Sludge Mechanical Equipment
  - Concrete remediation/coating
  - Replacement of GT No 3, 4 and 5 Walkways
- **Digested Sludge and Gas Storage Tank No 1**
  - Replace 16” isolation valves



# Exterior Improvements

Replace Existing  
Access Walkways  
(Tanks 3, 5 & 6)



Replace Drive Units



Replace Access Bridges  
and FRP Dome Covers

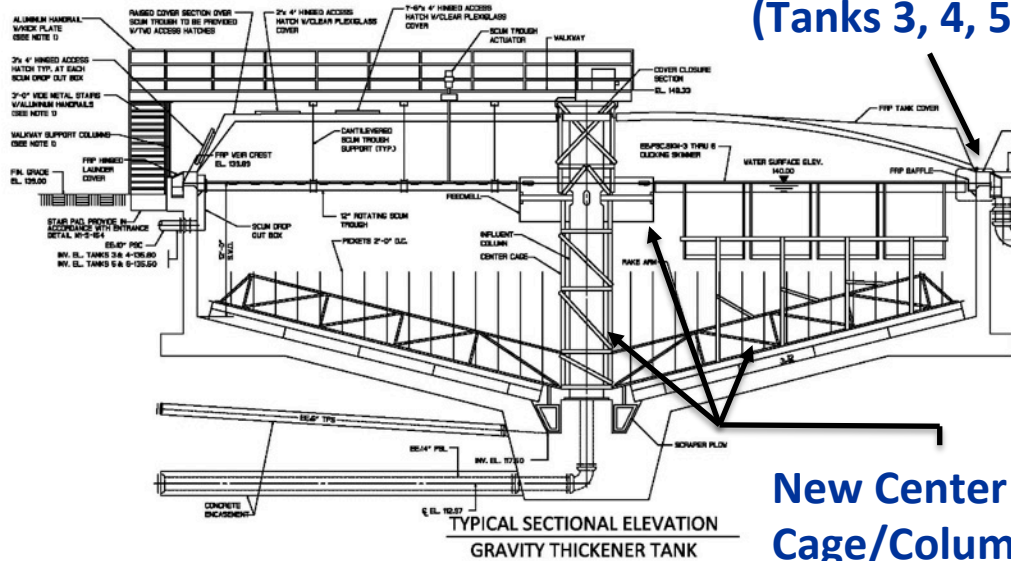






# Interior Improvements

## Effluent Launder Concrete Repair — (Tanks 3, 4, 5 & 6)

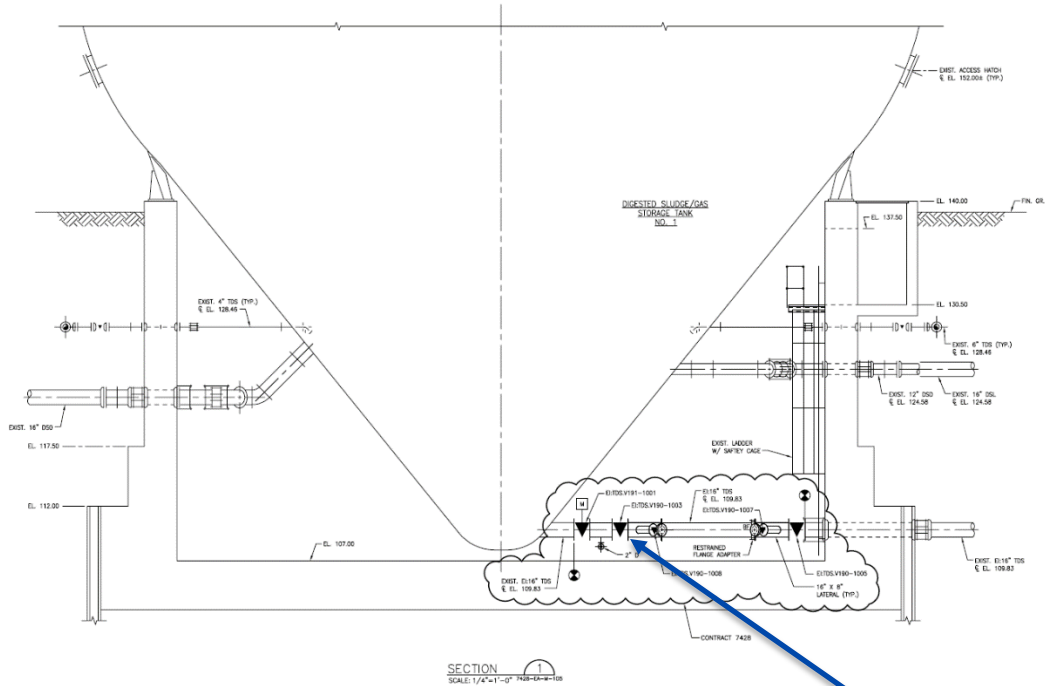


## New Center Cage/Column, — Rare Arms & Feed Well





# Distor No. 1 Improvements



**Valves and Controls added  
for improved reliability**





# Contract 7428 Gravity Thickener Improvements

- **Gravity Thickener Rehabilitation**
  - Covers manufacturers certified by Fiberglass Reinforced Plastics Institute (FRPI)
  - Use of stainless steel 316L in lieu of painted carbon steel
  - Use of advanced coating systems
- **Digested Sludge and Gas Storage Tank No 1**
  - Glass lined redundant valves



# Contract 7428 Procurement

- **Three Bids received on March 28, 2018**

## Bid Results:

|                               |                              |
|-------------------------------|------------------------------|
| <b>Engineer's Estimate</b>    | <b>\$ 18,715,222</b>         |
| Methuen Construction          | \$ 19,256,800 (withdrew bid) |
| Walsh Construction Co. II     | \$ 19,633,050                |
| Barletta Heavy Division, Inc. | \$ 35,000,000                |

Lowest Responsible Bidder: **Walsh Construction Co. II \$ 19,633,050**





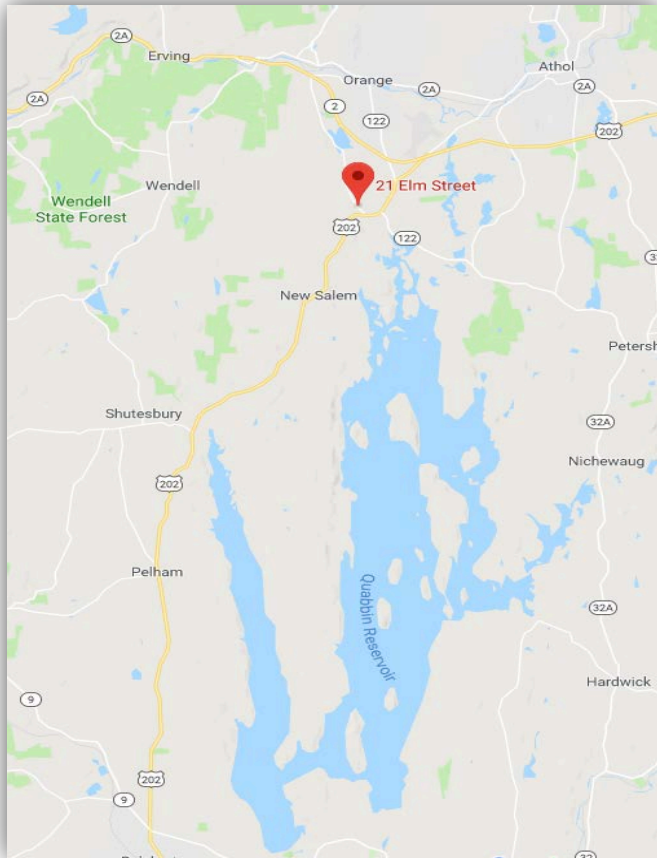


***Fire at DCR-Quabbin Watershed Facility***

April 18, 2018



# DCR Quabbin Field Office, 21 Elm Street, New Salem



Destroyed By Fire April 6, 2018





# 21 Elm Street - Pre-fire





April 5, 2018 at 9:15 PM



Photo - Worcester T&G





# Two Alarm Fire: 14 Area Fire Departments, 54 Firefighters Responded



Photo - Worcester T&G





# Water Supplied From Local Ponds: 40,000 Gallons Used



Photo - Worcester T&G



# Building And Contents Completely Destroyed







# Ten DCR Personnel Temporarily Re-assigned to Quabbin Admin Building





# Five Vehicles Lost







# Small Equipment and Tool Losses







# Cause of Fire Not Known





# Recovery Efforts

- MWRA:
  - Erected temporary fencing to secure the site
  - Loan of two vehicles
  - Will assist in recovery
  
- DCR:
  - Assessment of financial impact underway
  - Completed inventory of lost tools/equipment
  - Temporary re-assign vehicles from within DCR fleet
  - Pursuing temporary job trailer for site
  - Met with DCR site clean-up contractor
  - Looking at modular office building as permanent replacement





***Wachusett Aqueduct Pumping Station  
Construction Progress***

***Contract 7157***

April 18, 2018









# WAPS Construction Update





# CONSTRUCTION UPDATE – Pumps







# CONSTRUCTION UPDATE – Surge Tank





# CONSTRUCTION UPDATE – Surge Tank







# CONSTRUCTION UPDATE – Site Work







# CONSTRUCTION UPDATE – Hultman By Pass





# Solar Panels

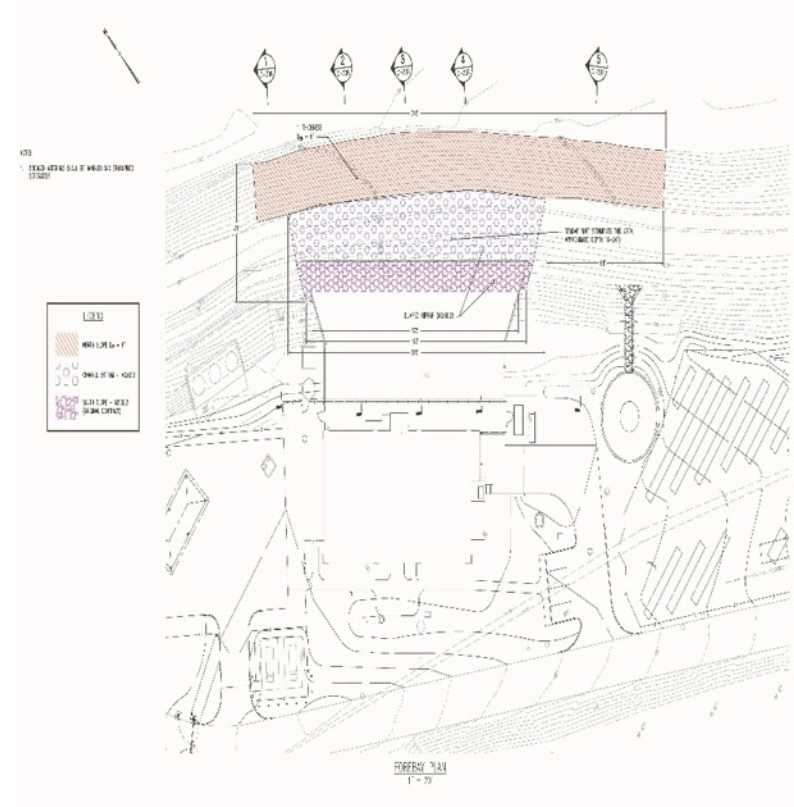
- Increase to 300 watts / 1000 volt panels
- Maintain Same Number of Panels
- Eliminates Panels on Covered Storage
- Increase Power Generation by 13.5 KW
- Estimated Cost to Upgrade - \$10,000
- Pay Back Period - 6 Years





# Fore Bay Rip Rap

- Add Rip Rap to North Side of Fore Bay
- Dredge Sediment from Fore Bay Channel
- Amend Permits from DEP and ACOE
- Provide Temporary Erosion Control across Fore Bay Channel and North Shore to Allow Pump Testing







# Tentative Schedule to Support Testing

- Field Test Control Valves Done
- Rotate Pump Motors Done
  
- Concrete Inlet Channel Spillway April
- Concrete Surge Tank Spillway April
- Clean Inlet Channel April
- Hultman By-Pass May
- Fore Bay Rip Rap and Temp Erosion Control May
- Run Individual Pumps May
- Noise / Vibration Testing May
- Surge Tank Precast and Roof June
- Run Multiple Pumps August / September
- SCADA/Security Monitoring Testing September – November
- System Operation Testing October - December



# Budget & Schedule Tracking FY 2018

|                                   |                               | Percent of Total |
|-----------------------------------|-------------------------------|------------------|
| Actual Expenditure as of 02/28/18 | \$ 40,077,874                 | 81.8%            |
|                                   |                               |                  |
| Time Elapsed                      | 730 days /<br>1080 days total | 66.5%            |
|                                   |                               |                  |



# Questions









# BC's Proposed Walking Path at Pine Tree Preserve



