Pease Tradeport Water System
Drinking Water
Treatment System Update

City of Portsmouth

Pease RAB
March 14, 2018

Water Supply Treatment – Progress

- **Preliminary design for demonstration filters**
  - Complete (Feb. 2016)
- **Piloting for demonstration filters**
  - Complete (Sept. 2016)
  - Pilot Report on City Website
- **Demonstration filters for Harrison and Smith Wells**
  - Ongoing (Active since Sept. 2016)
  - Carbon Replacement in PV-2 scheduled for March 28th
- **Assessment of other municipal treatment systems**
  - Completed June 2017
  - Update will be completed Spring 2018
- **ECT_2 performing a pilot study on resins**
  - Completed on Harrison/Smith Wells
  - Ongoing at Haven Well
- **Final Treatment System Design – Grafton Road Drinking Water Treatment Plant**
  - Ongoing

Demonstration Project – Smith & Harrison Wells

- Active since September 2016
- Treated ~219 million gallons
- Current flow rate = 400 gpm
- Sampled every 1,000 BV
  = 5,239,000 gallons
  ~every 2 weeks
- 40 sample rounds
- GAC Replacement in Filter 2 - Scheduled for March 28th

GAC Treatment Demonstration Project Sampling: **March 1, 2016 Results**

Source Water: Harrison and Smith Wells

Well	PFOS	PFOA
Combined Influent	0.018	0.0095

Filter #1

Filter #1 Effluent

PFOS	PFOA
ND	ND

Filter #2

Water To Distribution System

PFOS	PFOA
ND	ND

Notes: All samples in parts-per-billion (ppb)
ND = Non Detect
All samples collected by Weston & Sampson and analyzed by Maxxam Laboratory

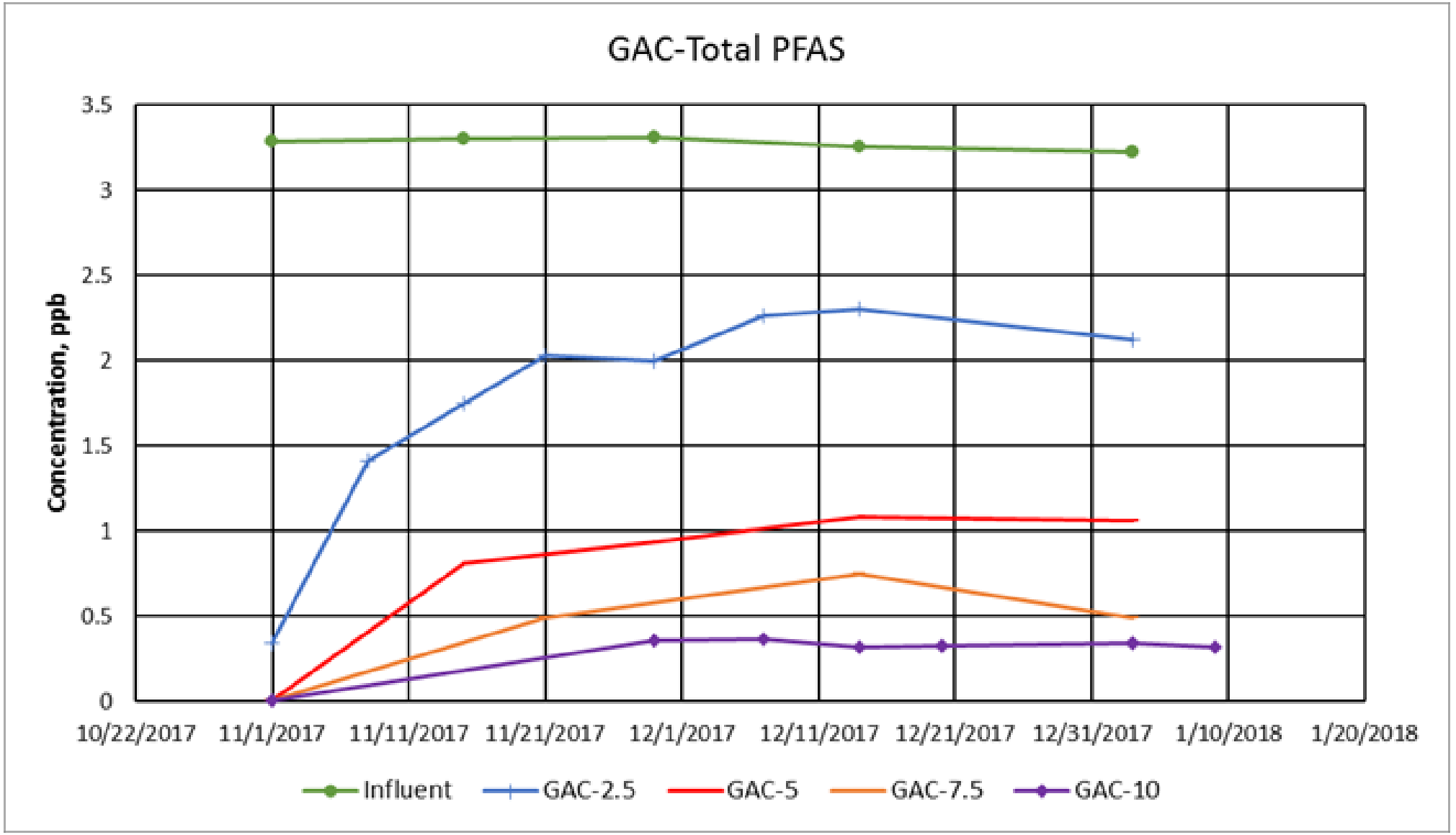
Pilot Testing Resin and GAC at Haven Well

- ECT_2
- Running since October 27th
- Media
  - Granular Activated Carbon (GAC)
  - Ion Exchange Resin
- Rate (4.75 gallons per hour)
- Columns for various EBCT's
- Discharge through GAC drum

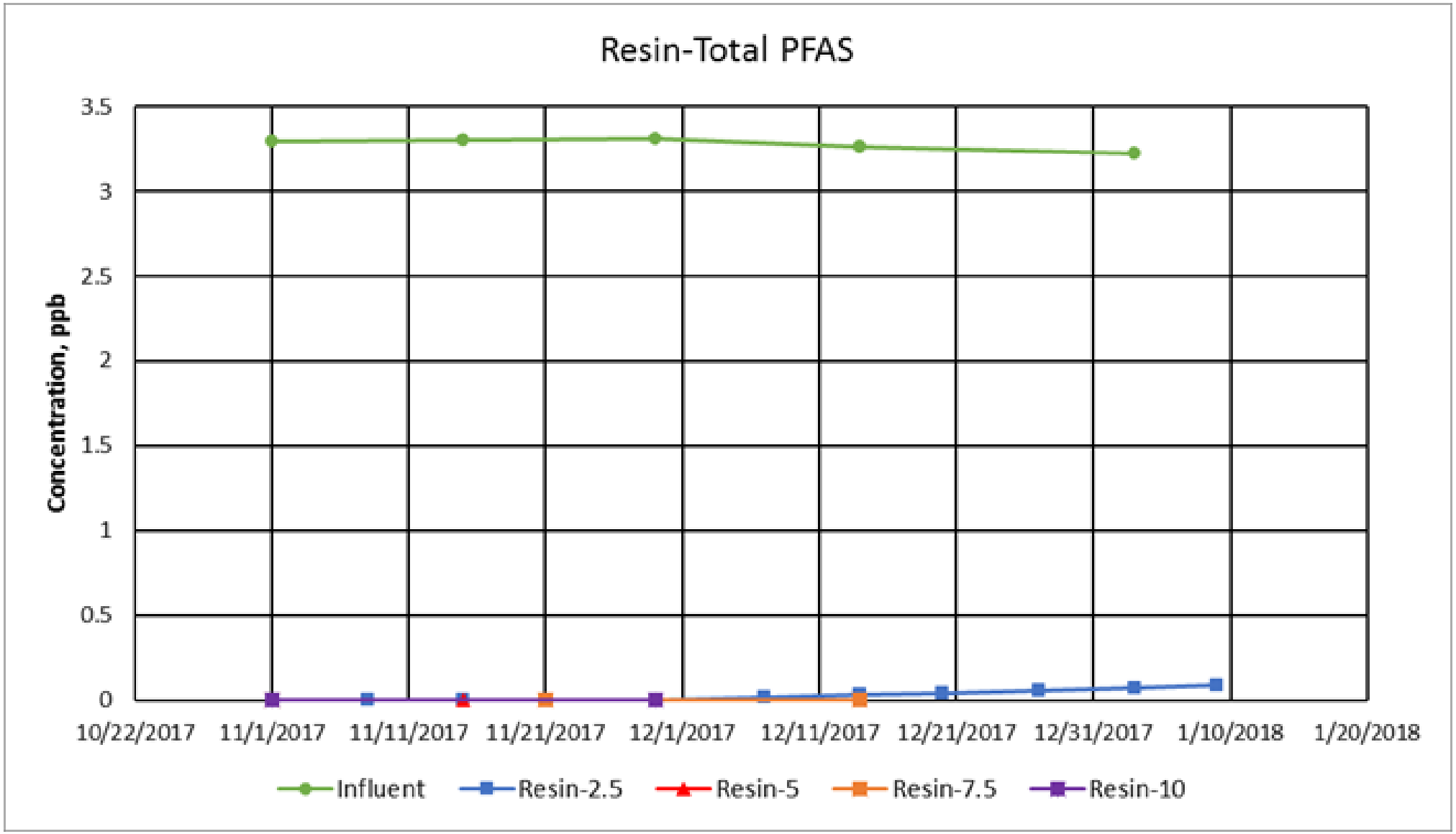
Pilot Testing Resin and GAC at Haven Well
Current Haven Well PFAS Concentrations

PFAS	Concentration in Haven Well µg/L (ppb)
6:2 FTS	0.150
8:2 FTS	0.028
PFBS	0.041
PFBA	0.064
PFPeA	0.228
PFHxS	0.718
PFHxA	0.272
PFHpS	0.038
PFHpA	0.084
PFOS	**1.360**
PFOA	**0.242**
PFNA	0.017

Pilot Testing Resin and GAC at Haven Well



Pilot Testing Resin and GAC at Haven Well



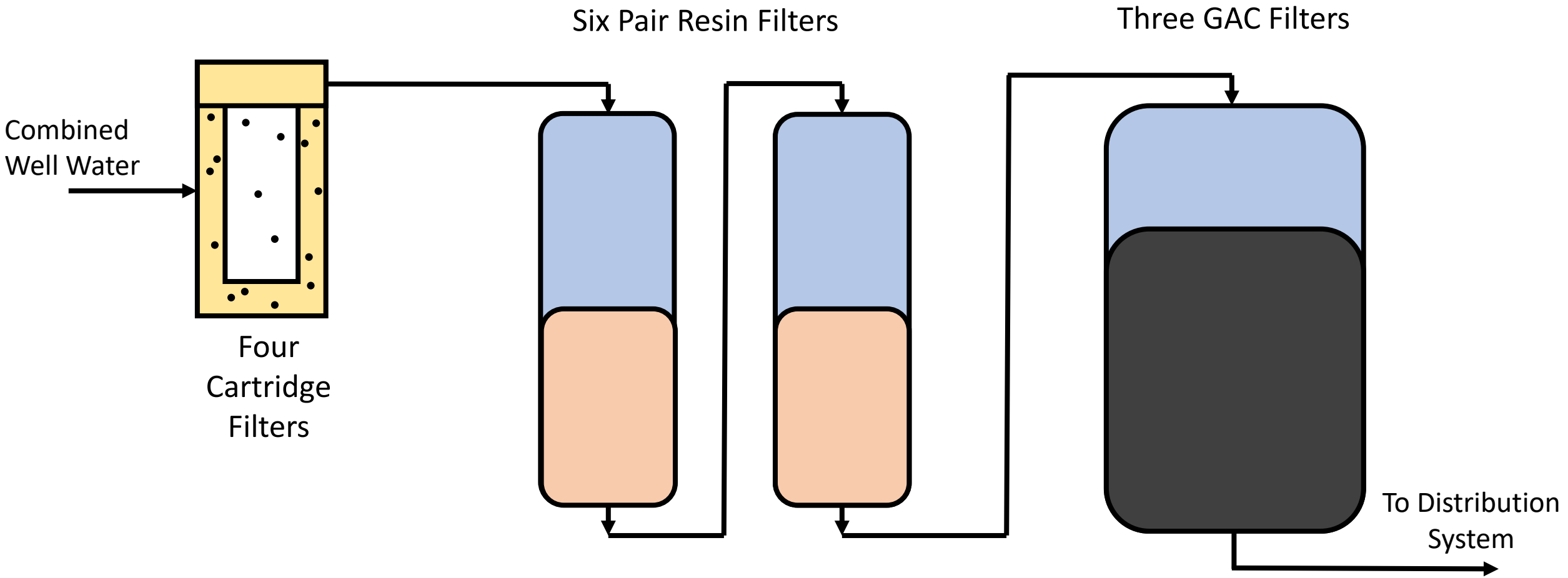
Benefits of Resin

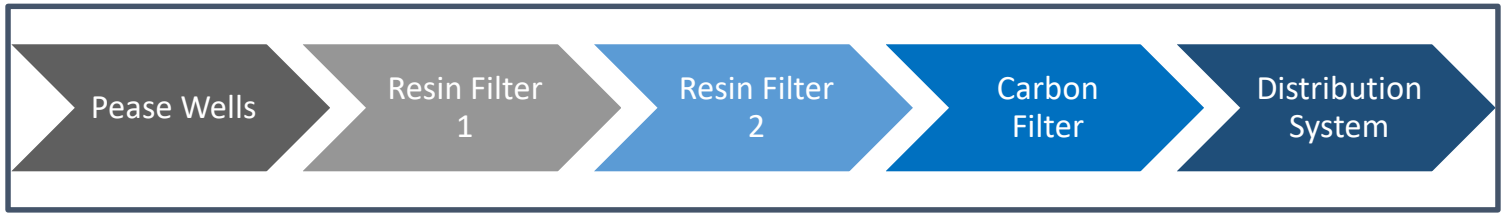
- More efficient removal of short chain compounds
- Longer filter run times
- Lower long-term operational costs
- Rapidly improving technology, ability to replace old media with improved media in the future
- Smaller building footprint

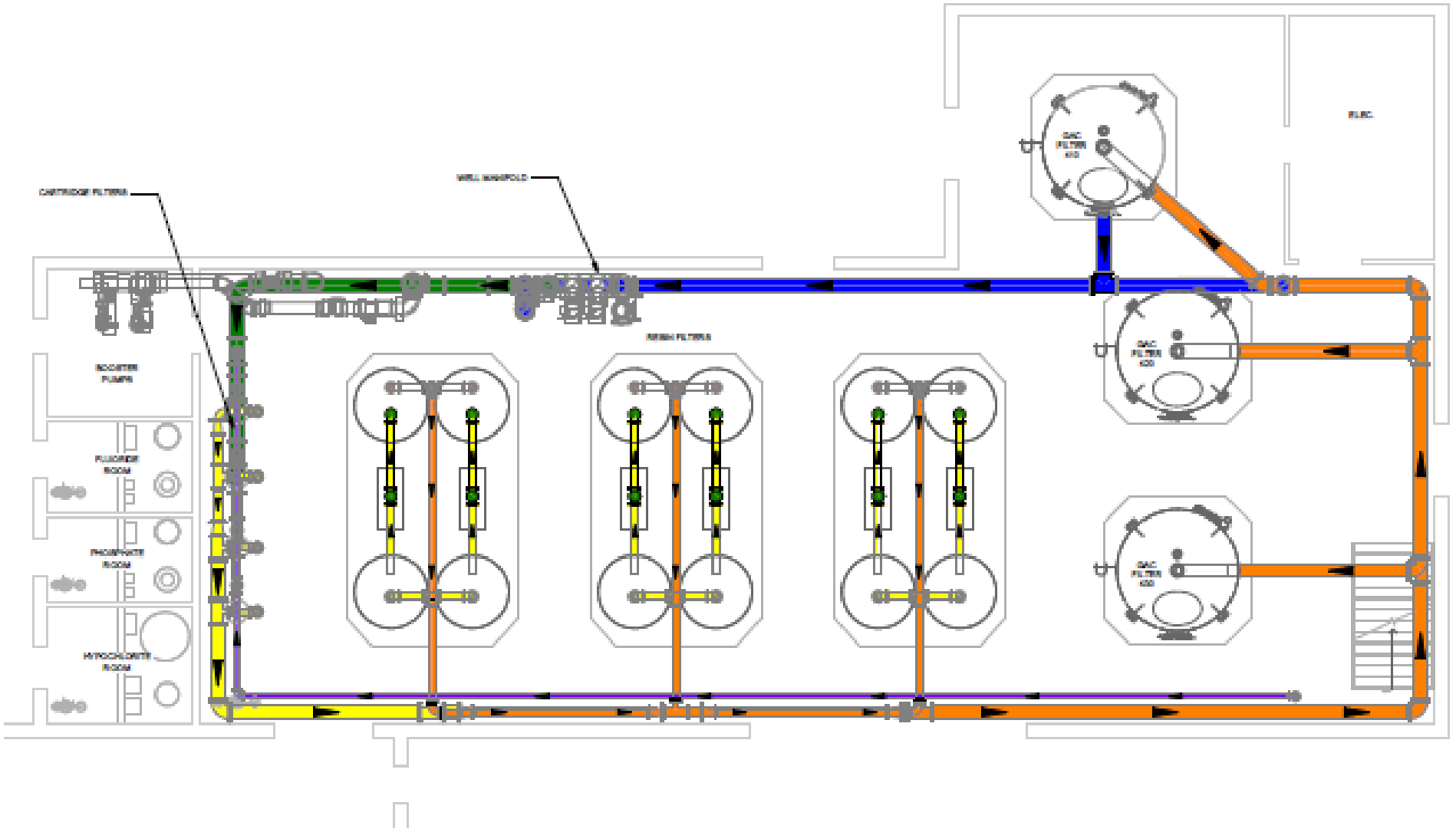
Grafton Road Drinking Water Treatment Plant

- Treatment System Configuration
  - Original Design
    - Four pairs of 10 foot diameter GAC filters
    - 4,680 sq.ft. addition for filters & recycle/backwash tanks
  - Revised Design
    - Six Pairs of 6 foot diameter resin filters +
    - Three 10 foot diameter GAC filters
    - 2,540 sq.ft addition for filters & recycle/backwash tanks

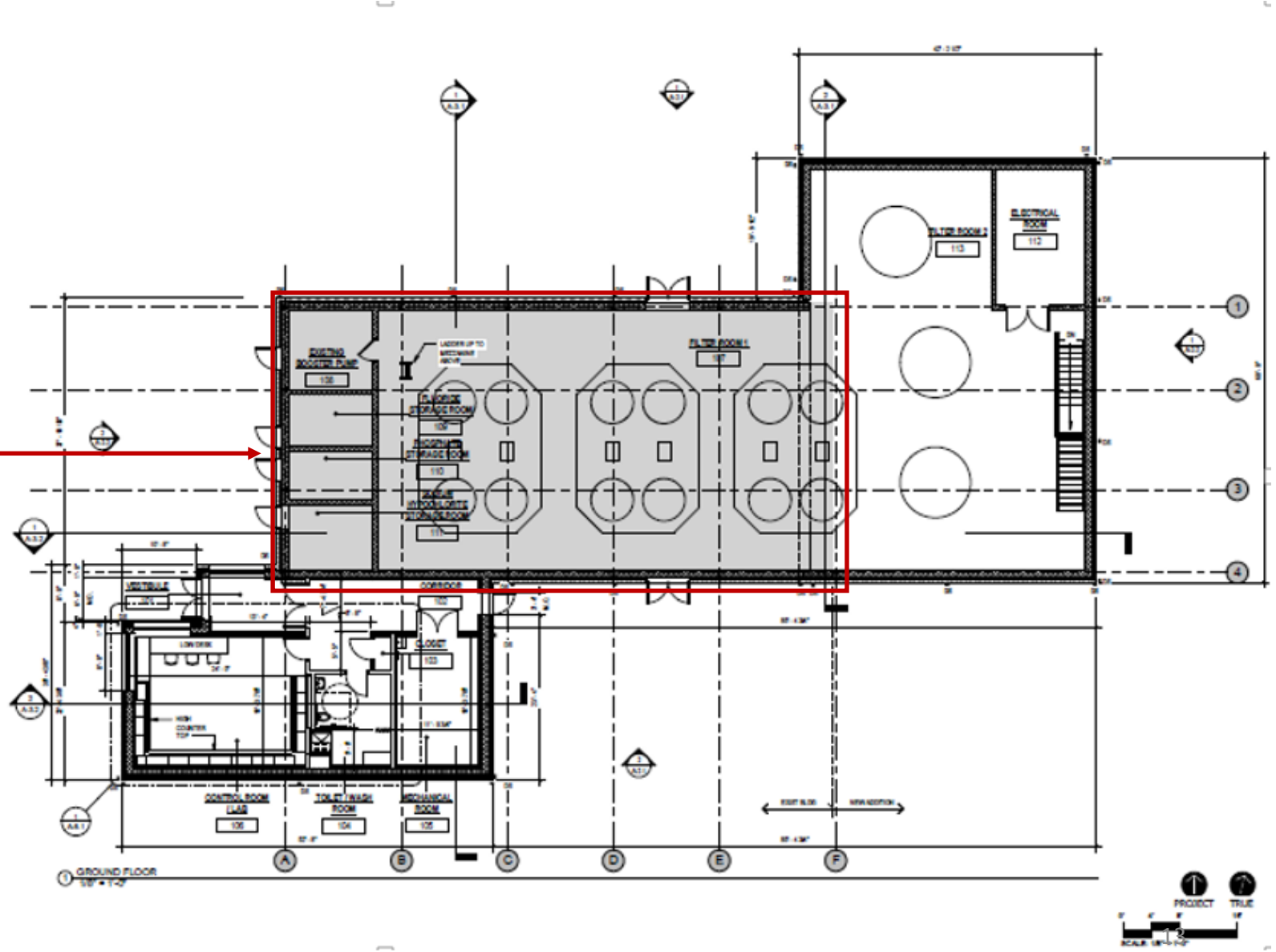
Proposed Treatment Process



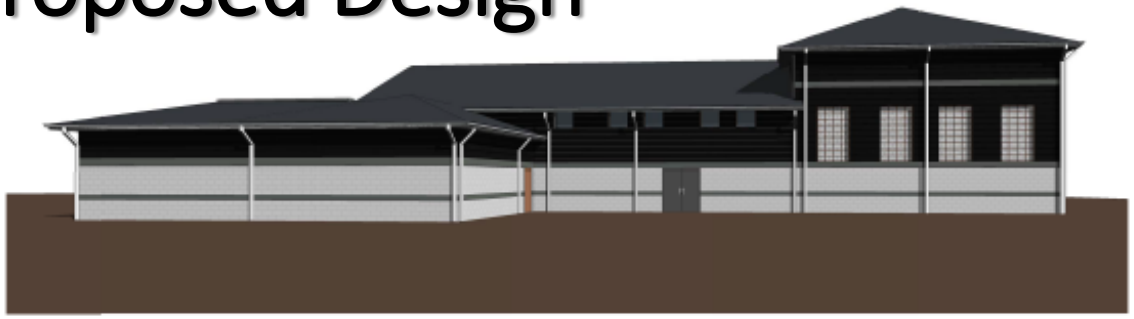

Pease Wells
Resin Filter 1
Resin Filter 2
Carbon Filter
Distribution System



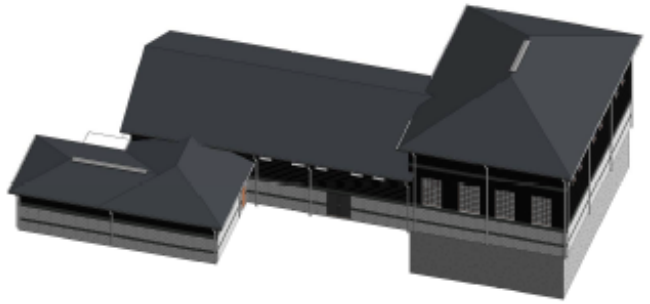
Grafton Road Drinking Water Treatment Plant
Proposed Layout



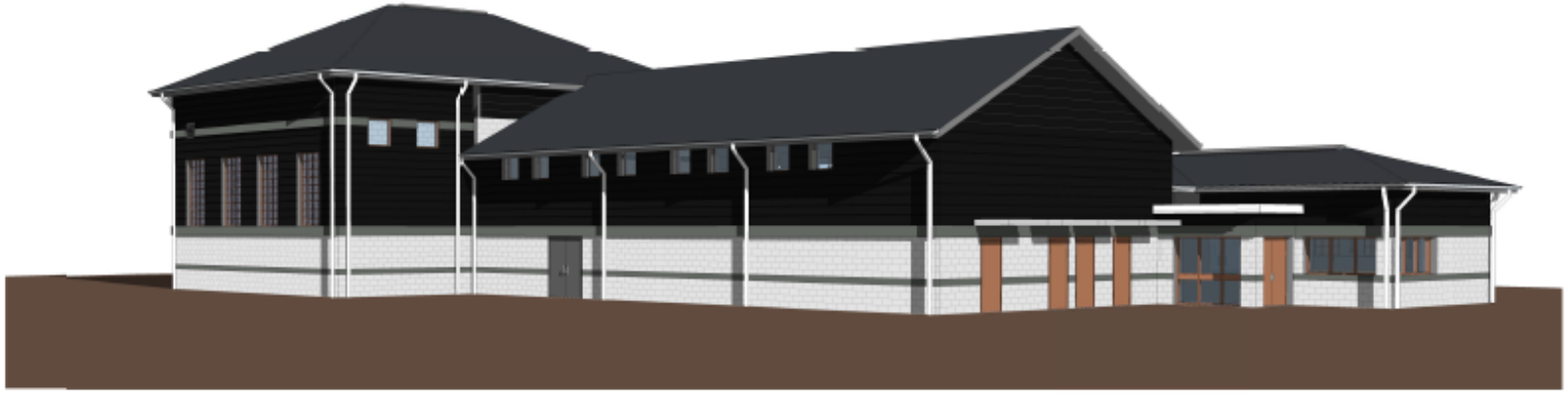
Grafton Road Drinking Water Treatment Plant
Proposed Design



3 3D VIEW - GROUND LEVEL



1 3D - COMPLETE / FINISHED



2 OVERALL BLDG RENDERING

Coordination with Restoration Activities

- February 7th – Meeting with Air Force, EPA, DES & Wood Group
  - Groundwater Model and AIMS
- Comprehensive Monitoring Plan
  - Monitoring Well Network
  - Sampling Plan – PFAS and other key water quality parameters
  - Sampling to commence prior to reactivation of Haven Well
- Operation and monitoring of Grafton Road Plant
  - Treatment testing
  - Harrison Well & Smith Well
  - Incremental incorporation of Haven Well water

Public Involvement

- Website Updates and Reports
- Pease RAB meetings (Pease site restoration)
- Pease CAP meetings

- Portsmouth City Council Involvement
  - Report back to City Council on PFAS – Presented on March 5, 2018
  - March 19, 2018 - Scheduled Round Table Discussion

www.cityofportsmouth.com/publicworks/water/pease-tradeport-water-system