

Coakley Landfill Community Update

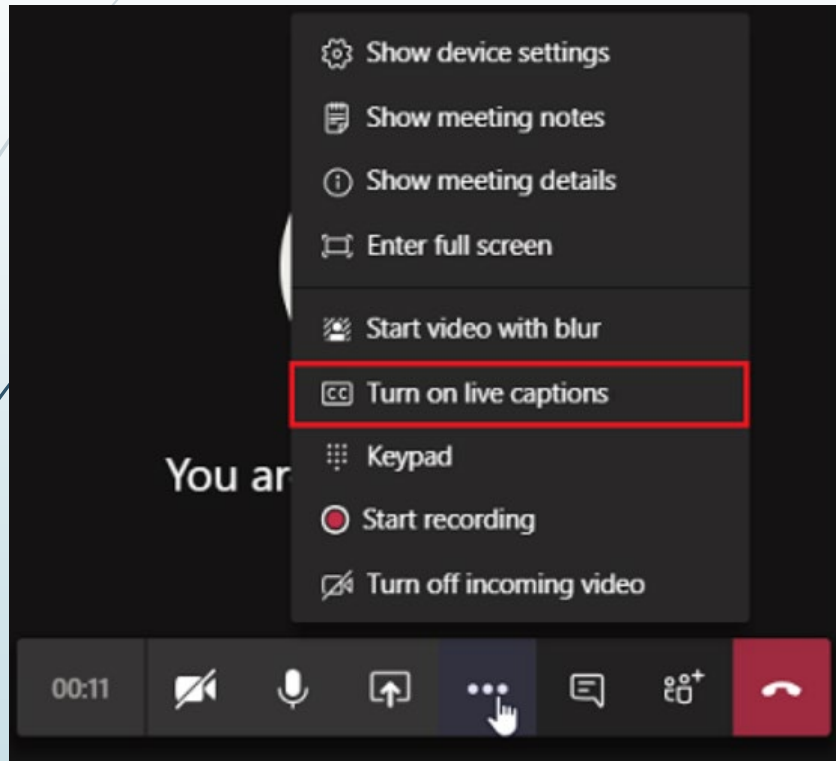
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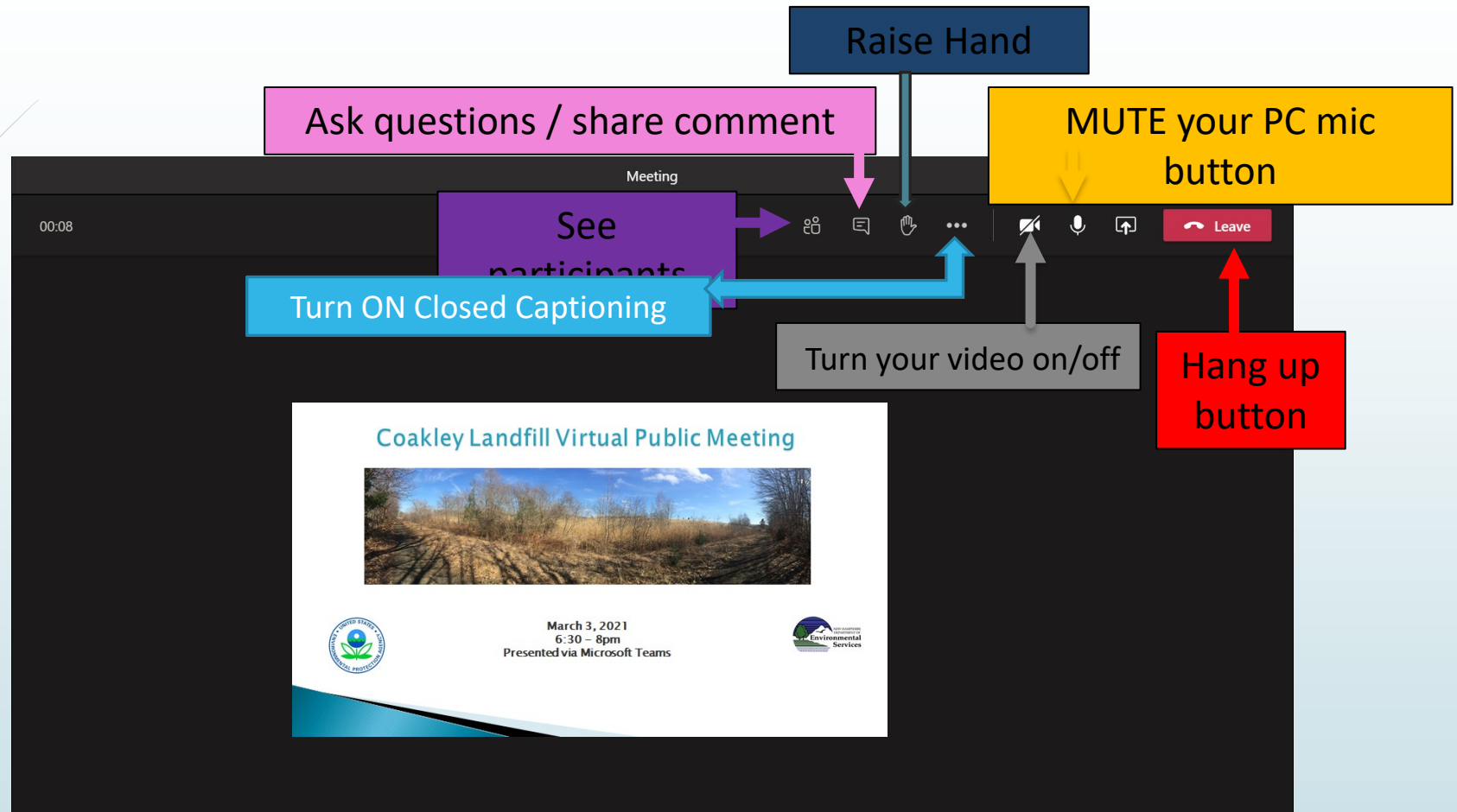
March 3, 2021



Closed Captioning



1. Once joined or in the group call, click on the 3 ellipses (More actions)
2. Click on *Turn on live captions (preview)*
3. The closed captions will appear on the bottom left-hand side of the screen



MS Teams Meeting Controls for Participant

Agenda

- 6:30** Introductions and Agenda Review, *Kelsey Dumville, EPA*
- 6:40** EPA Update and Current Status, *Skip Hull, EPA*
- Site History and Background
 - Ongoing Investigations
 - Five Year Review
- 6:55** NHDES Update and Current Status of Private Well Sampling, *Drew Hoffman, NHDES*
- 7:10** Project Updates, *Peter Britz, CLG, and Chris Buckman / Haley Ward, Consultant to CLG*
- 7:30** Question and Answer, via online chat and phoneline
- 8:00** Adjourn

*Each agenda item will involve a short presentation and will leave time for clarifying questions and answers. Presenters will attempt to answer questions right away, however certain questions require additional follow-up and we will work to do so following the presentation-portion of the meeting.

Introductions

- USEPA
 - Skip Hull, Project Manager (Presenter)
 - Kelsey Dumville, Community Involvement Coordinator
 - Melissa Taylor, NH/RI Superfund Section Chief

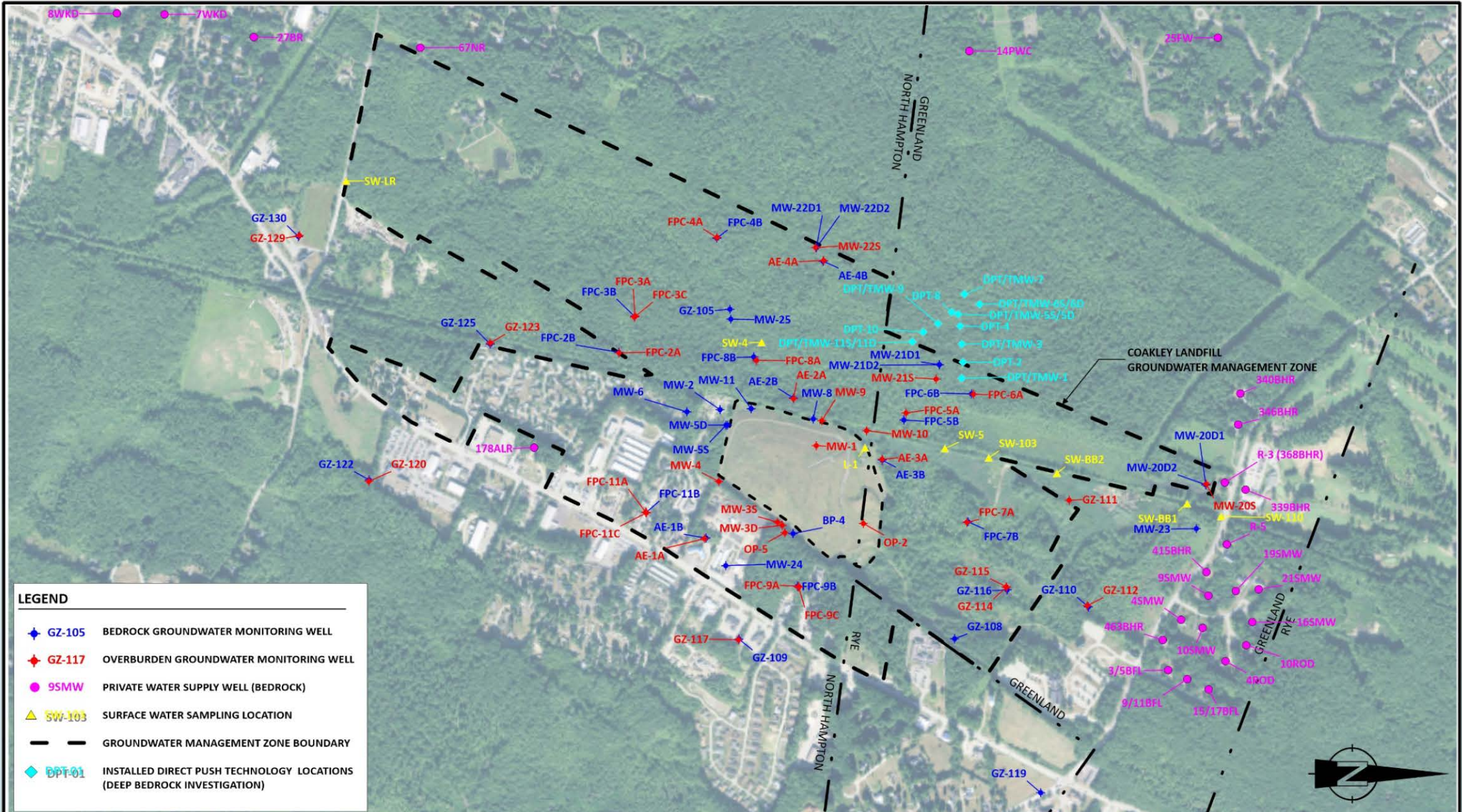
- NHDES
 - Drew Hoffman, Project Manager (Presenter)
 - Dr. Jonathan Ali, Toxicologist
 - Kate Emma Schlosser, Emerging Contaminants Program
 - Michael Wimsatt, Director Waste Management Division
 - Robin Mongeon, Supervisor Federal Sites Section
 - Jim Soukup, Weston Solutions

- CLG
 - Peter Britz, Project Manager
 - Chris Buckman, Haley Ward (Presenter)

Site History

6

- 2016: PFAS compounds discovered in groundwater at Coakley Landfill
- 2016: Extensive private well sampling initiated based on emerging contaminants PFAS and 1,4-dioxane
- 2016: Federal Health Advisory and State AGQS for PFOA and PFOS = 70 parts per trillion (ppt) or nanograms per liter (ng/L)
- 2018: NHDES lowers AGQS for 1,4-dioxane to 0.32 mg/L
- 2018: Investigation of extent of contamination in bedrock groundwater
- 2019-2020: NHDES adoption of AGQS for 4 PFAS compounds
- 2020: Berrys Brook contaminant reduction pilot study (House Bill 494)



LEGEND

GZ-105

BEDROCK GROUNDWATER MONITORING WELL

GZ-117

OVERBURDEN GROUNDWATER MONITORING WELL

95MW

PRIVATE WATER SUPPLY WELL (BEDROCK)

SW-103

SURFACE WATER SAMPLING LOCATION

GROUNDWATER MANAGEMENT ZONE BOUNDARY

DPT-01

INSTALLED DIRECT PUSH TECHNOLOGY LOCATIONS
(DEEP BEDROCK INVESTIGATION)

PROJECT TITLE:	COAKLEY LANDFILL SUPERFUND SITE NORTH HAMPTON & GREENLAND, NEW HAMPSHIRE		DWG:		BY: CFB	REV:	NOTE:	APPROXIMATE SCALE 1:9,000 	
SHEET TITLE:	SAMPLING AND INVESTIGATION LOCATIONS		JN:	10424.002	APPROVED BY: CFB	ISSUE:	ISSUE DATE:		
			SCALE:	AS SHOWN	CHECKED BY:				

Ongoing Investigations

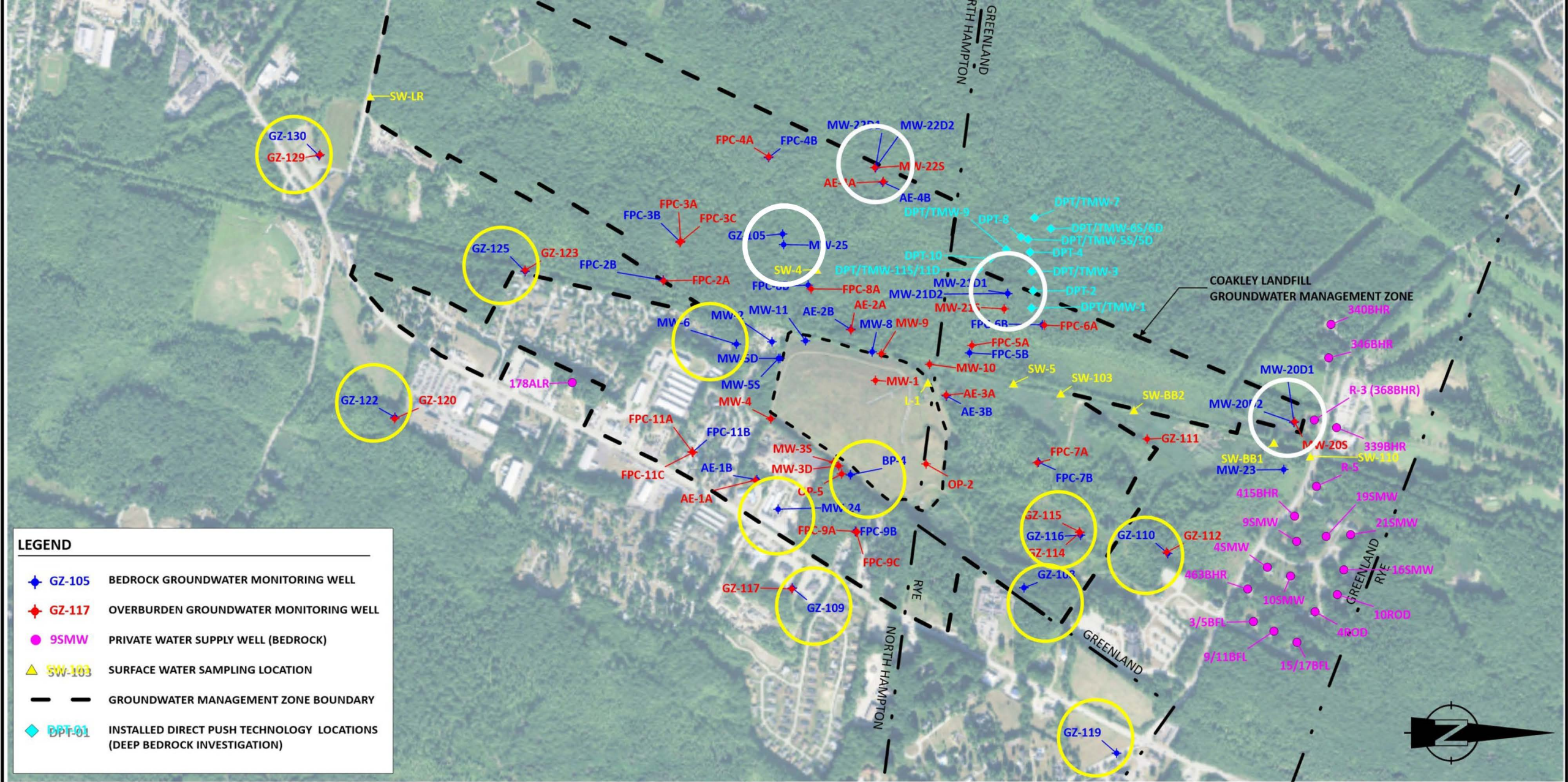
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➤ Deep Bedrock

➤ Initiated in 2018:

- Understand flow pathways in bedrock
- Determine level of contamination in bedrock
- Assess the potential for migration of contaminants in bedrock groundwater to potential receptors

- ☐ 4 new deep bedrock boreholes installed
- ☐ 11 historic bedrock boreholes redeveloped
- ☐ Borehole geophysics and sampling
- ☐ Surface geophysics and bedrock outcrop mapping
- ☐ 96-hour pumping test
- ☐ Investigation schedule for completion 2021



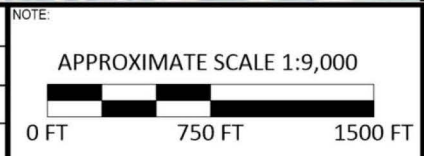
LEGEND

- ◆ GZ-105 BEDROCK GROUNDWATER MONITORING WELL
- ◆ GZ-117 OVERBURDEN GROUNDWATER MONITORING WELL
- 9SMW PRIVATE WATER SUPPLY WELL (BEDROCK)
- ▲ SW-103 SURFACE WATER SAMPLING LOCATION
- GROUNDWATER MANAGEMENT ZONE BOUNDARY
- ◆ DPT-01 INSTALLED DIRECT PUSH TECHNOLOGY LOCATIONS (DEEP BEDROCK INVESTIGATION)

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DWG:	BY: CFB
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ISSUE:	
ISSUE DATE:	



Ongoing Investigations

10

- Stormwater Runoff
 - Stormwater runoff from landfill cap sampled during storm events
 - Landfill liner and cover material sampled
 - PFAS detected in runoff, though runoff events are very infrequent
 - Landfill cap liner and cover material contain PFAS compounds
- Berrys Brook Contaminant Reduction (HB 494)

Next Steps

11

- Continued Private Well Sampling
- Fifth 5-Year Review
- Bedrock Investigation Completion
- Updated Conceptual Site Model and Long-Term Recommendations
- USEPA PFAS Action Plan Update
 - Unregulated Contaminant Monitoring Rule 5
 - PFOA and PFOS Regulatory Determination

Coakley Landfill Contact Information

12

www.epa.gov/superfund/coakley

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Private Well Sampling

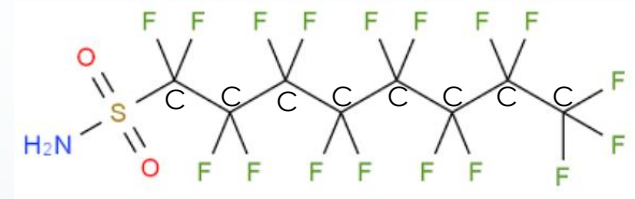
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- Private well sampling has occurred since site discovery (1980s)
- Private well sampling expanded in 2016
 - ✓ Over 100 wells initially sampled by NHDES
 - ✓ Ongoing biannual sampling of 24 private wells by CLG
 - ✓ 9 sampling rounds collected to date
- Data Summary
 - ✓ Three private wells considered “impacted” by the site
 - ✓ Two wells exceed NH standards for 1,4-dioxane & PFOA
 - Both private wells have been equipped with treatment systems
 - ✓ All 24 wells have had detections of PFAS – below NH standards
 - ✓ Data trends suggest steady state
- PFOSA first detected in spring 2020 at all private wells sampled, including wells that have never had PFAS compounds detected

Private Well Sampling

2

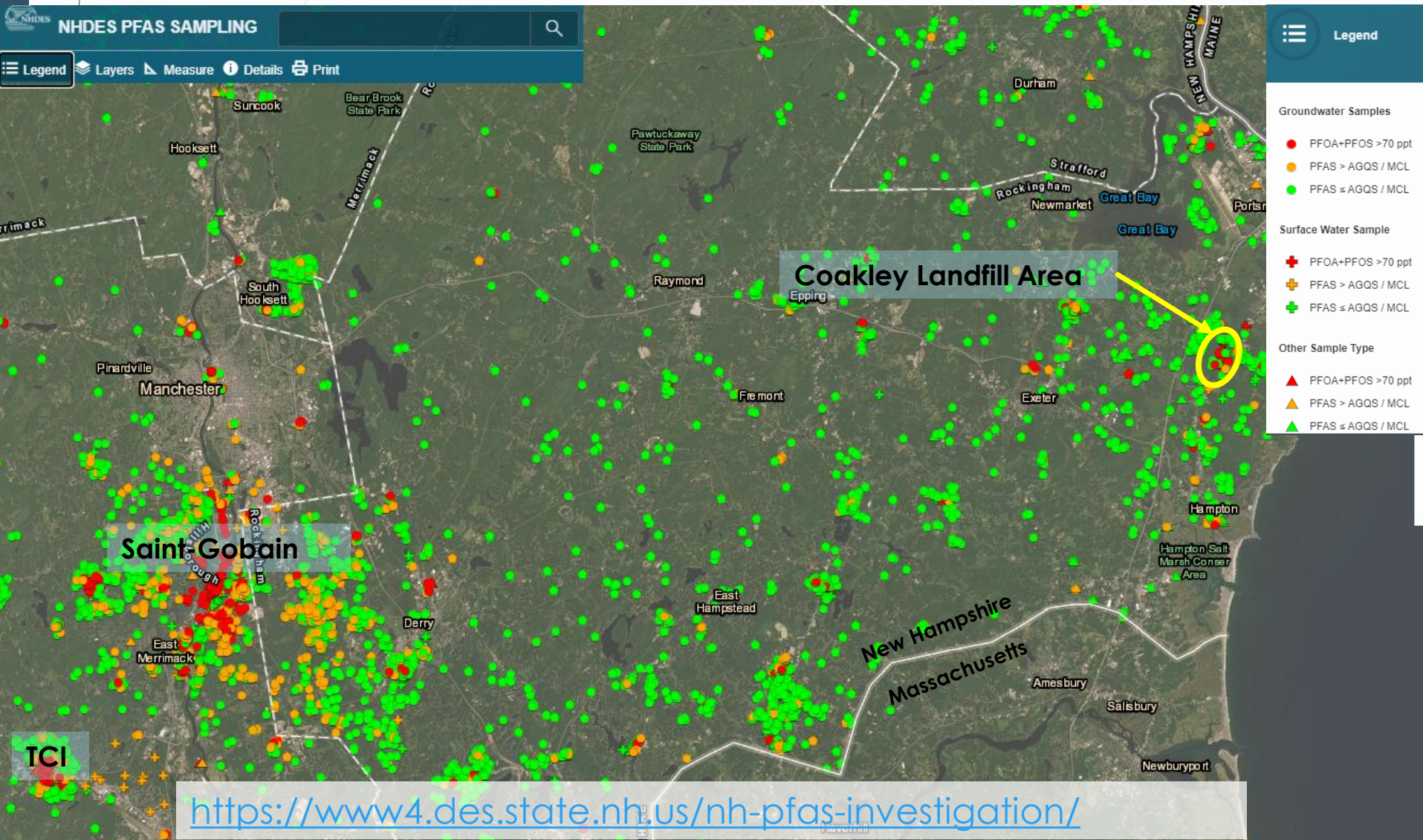
- PFOSA = perflourooctanesulfonamide
- No NH or EPA standards for PFOSA
- Very limited toxicity data available on PFOSA
- PFOSA occurrence and concerns
 - Very low levels detected in Fall 2020 before CLG changed laboratories
 - First detected in Spring 2020 upon CLG lab change
- Agencies working with the CLG to evaluate potential lab discrepancies
- Does not impact confidence in other PFAS data



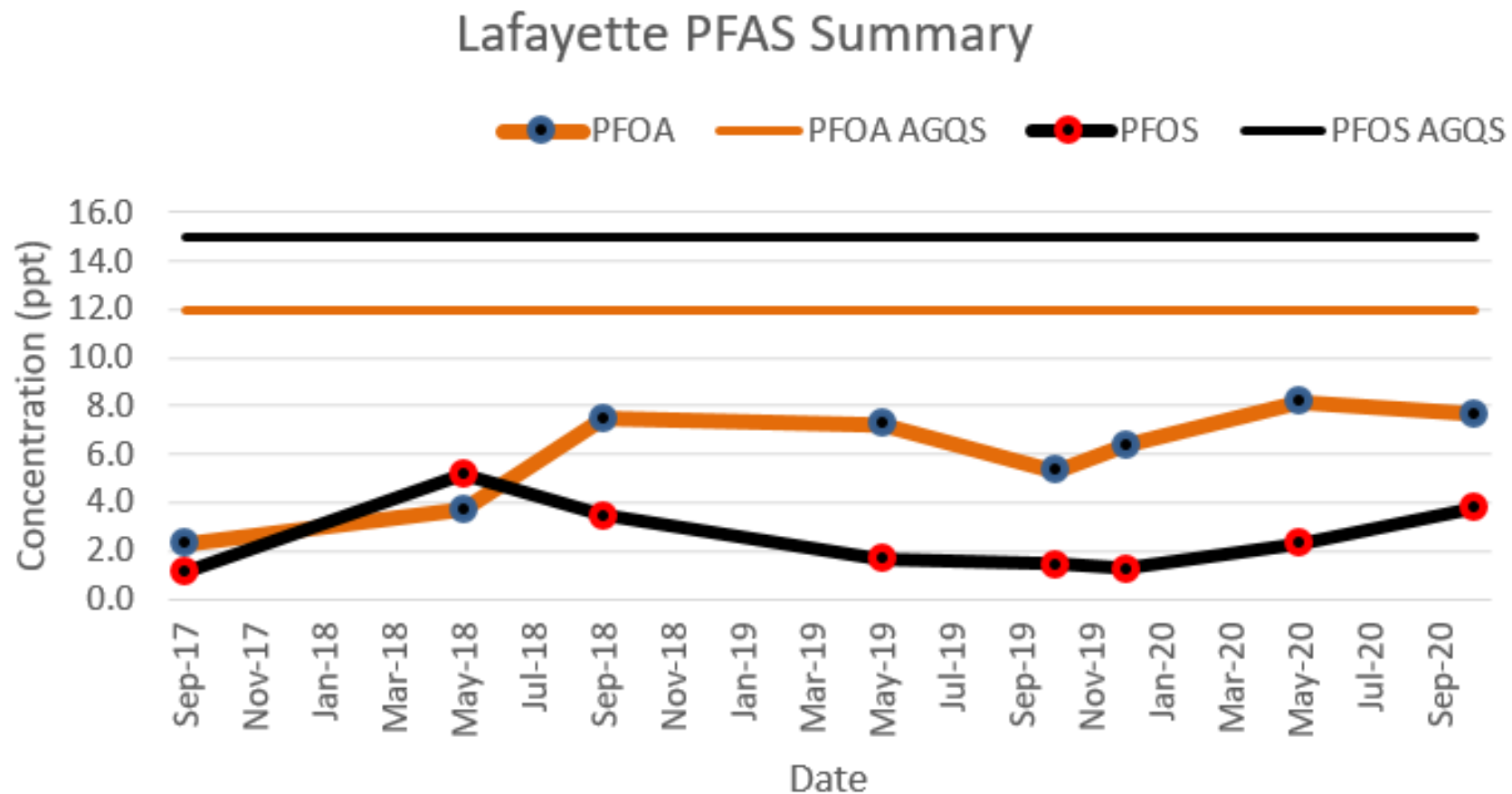
PFAS Sampling Snapshot

3

southeast NH



Data Plot Example



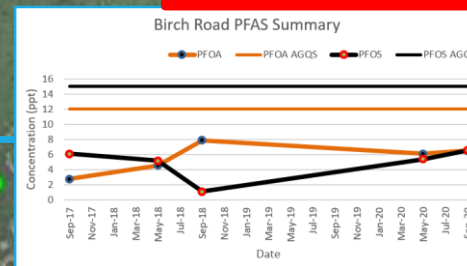
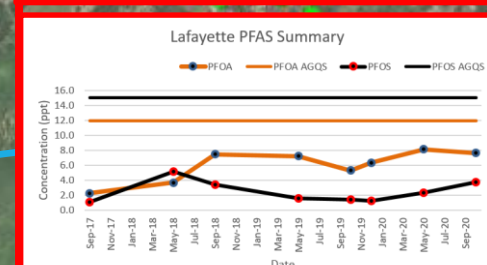
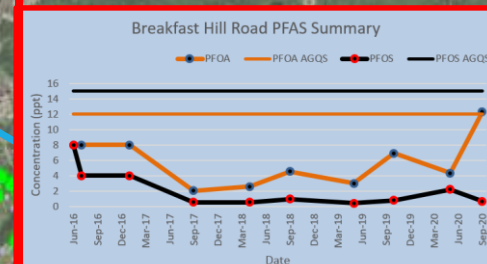
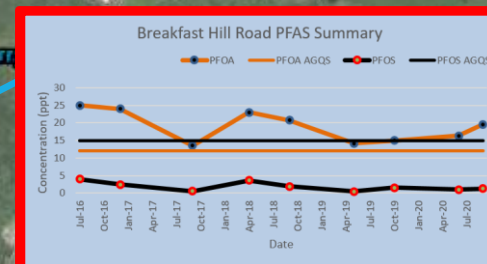
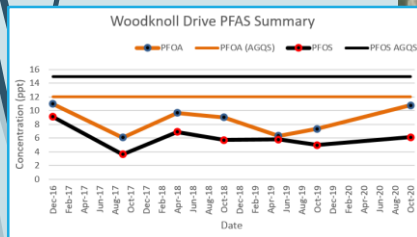
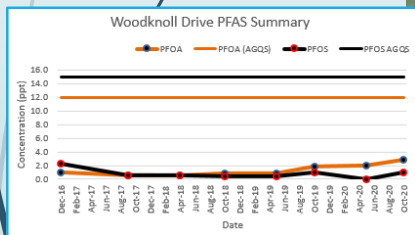
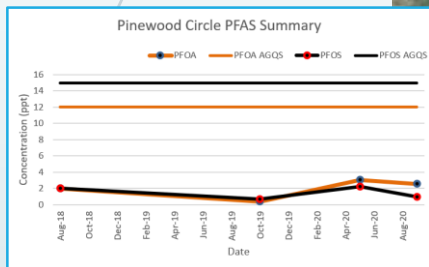
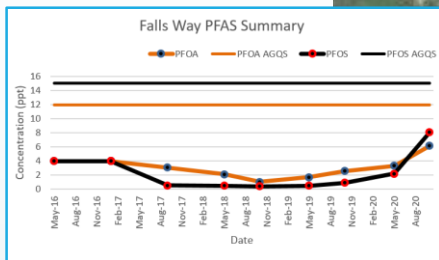
PFAS Summary Private Wells

5

Private wells
sampled biannually

Groundwater Samples

- PFOA+PFOS >70 ppt
- PFAS > AGQS / MCL
- PFAS ≤ AGQS / MCL



Legend for all figures

● PFOA
 — PFOA AGQS
 ● PFOS
 — PFOS AGQS

PFAS Summary Private Wells (cont)

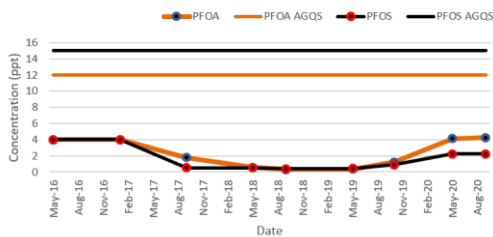
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Groundwater Samples

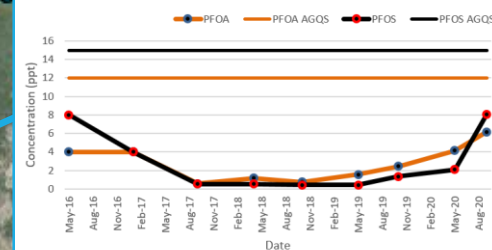
- PFOA+PFOS >70 ppt
- PFAS > AGQS / MCL
- PFAS ≤ AGQS / MCL

Private wells sampled biannually

Stone Meadow Way PFAS Summary



Red Oak Drive PFAS Summary



GMZ

Breakfast Hill Golf Club

Berry

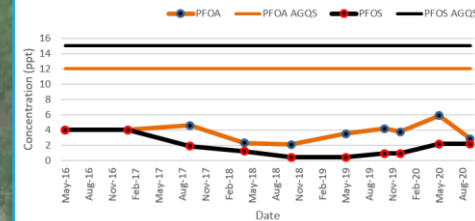
Norton Brook

Coakley Landfill

Black Rock Creek

Core-Hampton Golf Club

Stone Meadow Way PFAS Summary



Legend for all figures

● PFOA

— PFOA AGQS

● PFOS

— PFOS AGQS

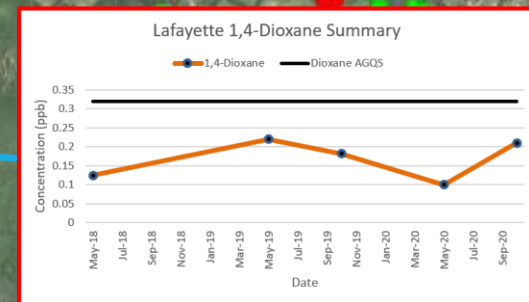
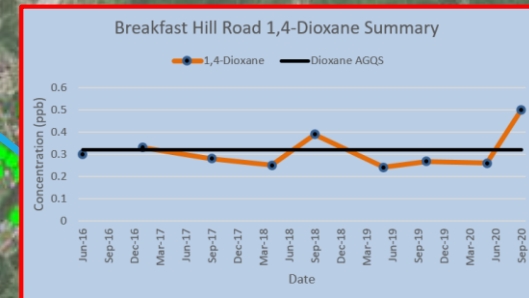
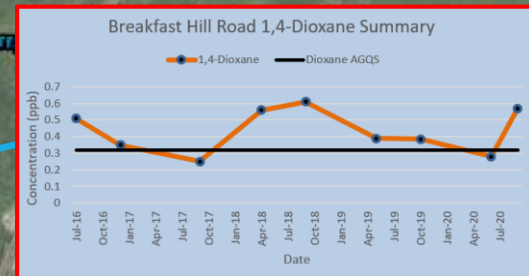
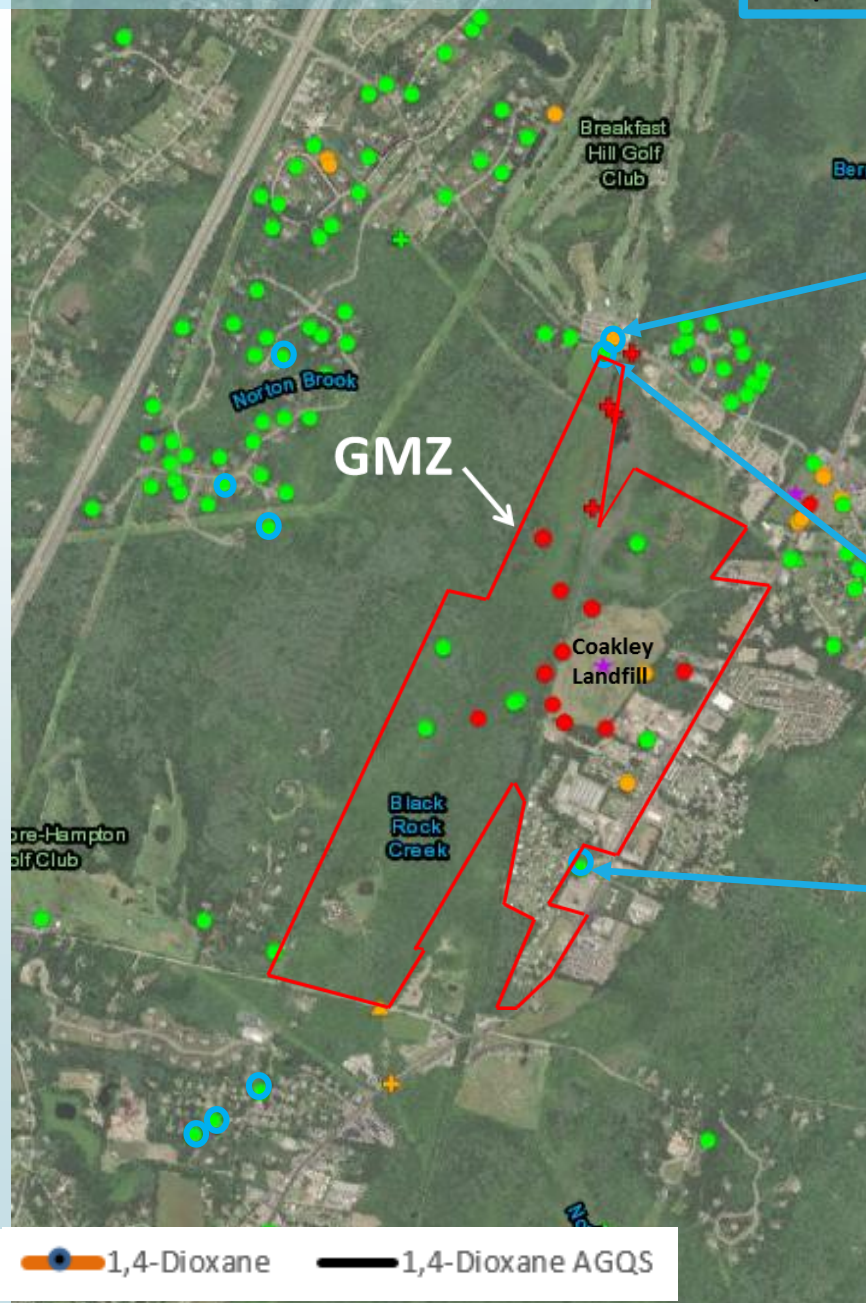
1,4-Dioxane in Private Wells

7

Private wells
sampled biannually

Groundwater Samples

- PFOA+PFOS > 70 ppt
- PFAS > AGQS / MCL
- PFAS ≤ AGQS / MCL



Legend for all figures

● 1,4-Dioxane — 1,4-Dioxane AGQS

Summary of Private Well Sampling

- Continued biannual sampling of site MWs and private wells
- Data support limited off-site impacts
- Data suggest steady state and stable conditions
- Agencies working with CLG to evaluate PFOSA detection issues
- Bedrock investigation will refine understanding of bedrock flow and existing/potential off-site impacts



HALEY WARD

ENGINEERING | ENVIRONMENTAL | SURVEYING

Coakley Landfill Group

Coakley Landfill Community Update

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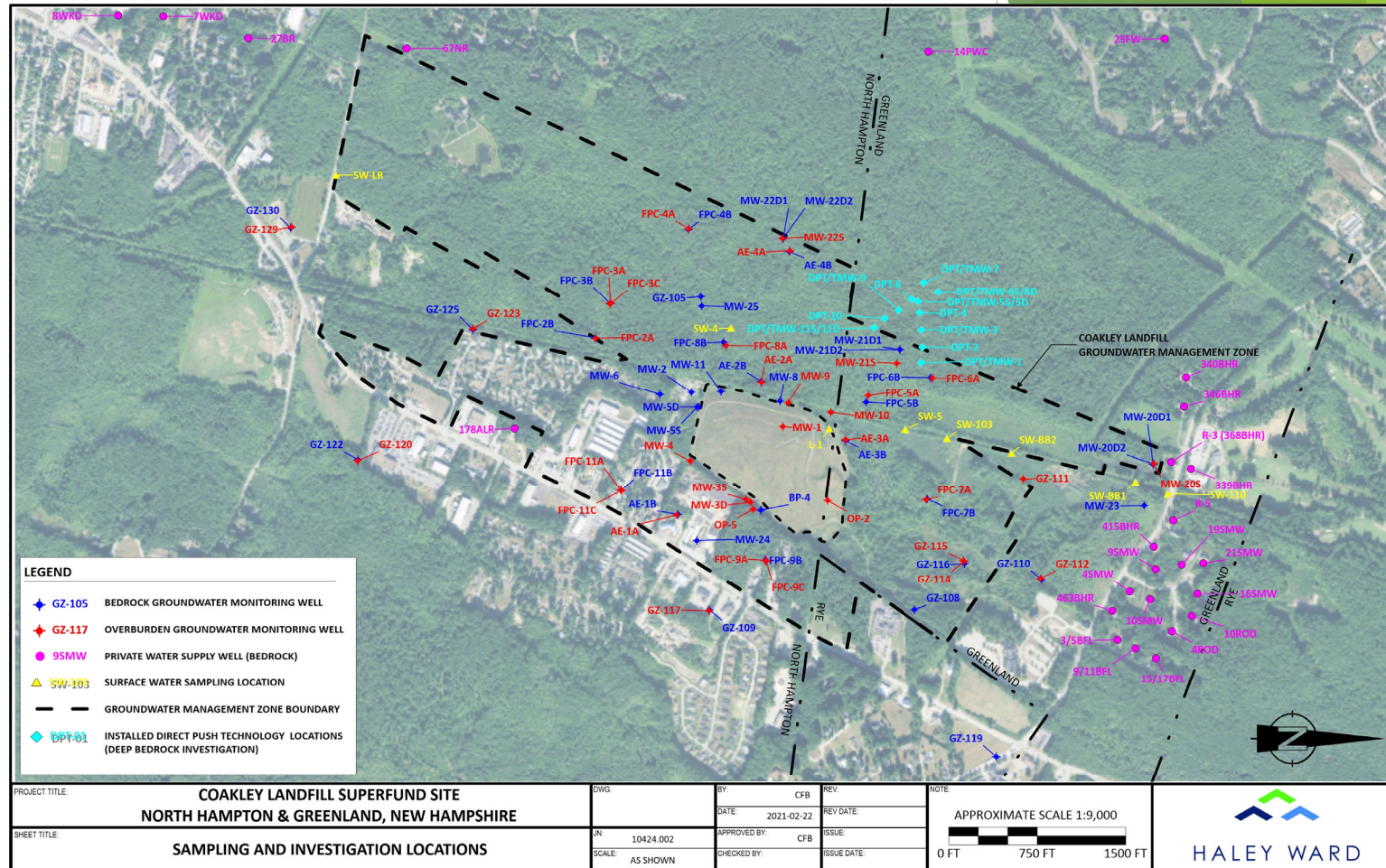
Peter Britz

Coordinator
Coakley Landfill Group
plbrtz@cityofportsmouth.com
603.610.7215

March 3, 2021

Completed and Ongoing Activities

- Reconnaissance Wells
 - 2019-2021
- Interim Report
 - Fall 2019
- Work Plan Addendum
 - Spring 2020
- Aquifer Pumping Test
 - 2021
- New Well Installation
 - 2019-2021
- Groundwater Sampling
 - Spring/Fall
- Surface Water Treatment
 - 2020-Present

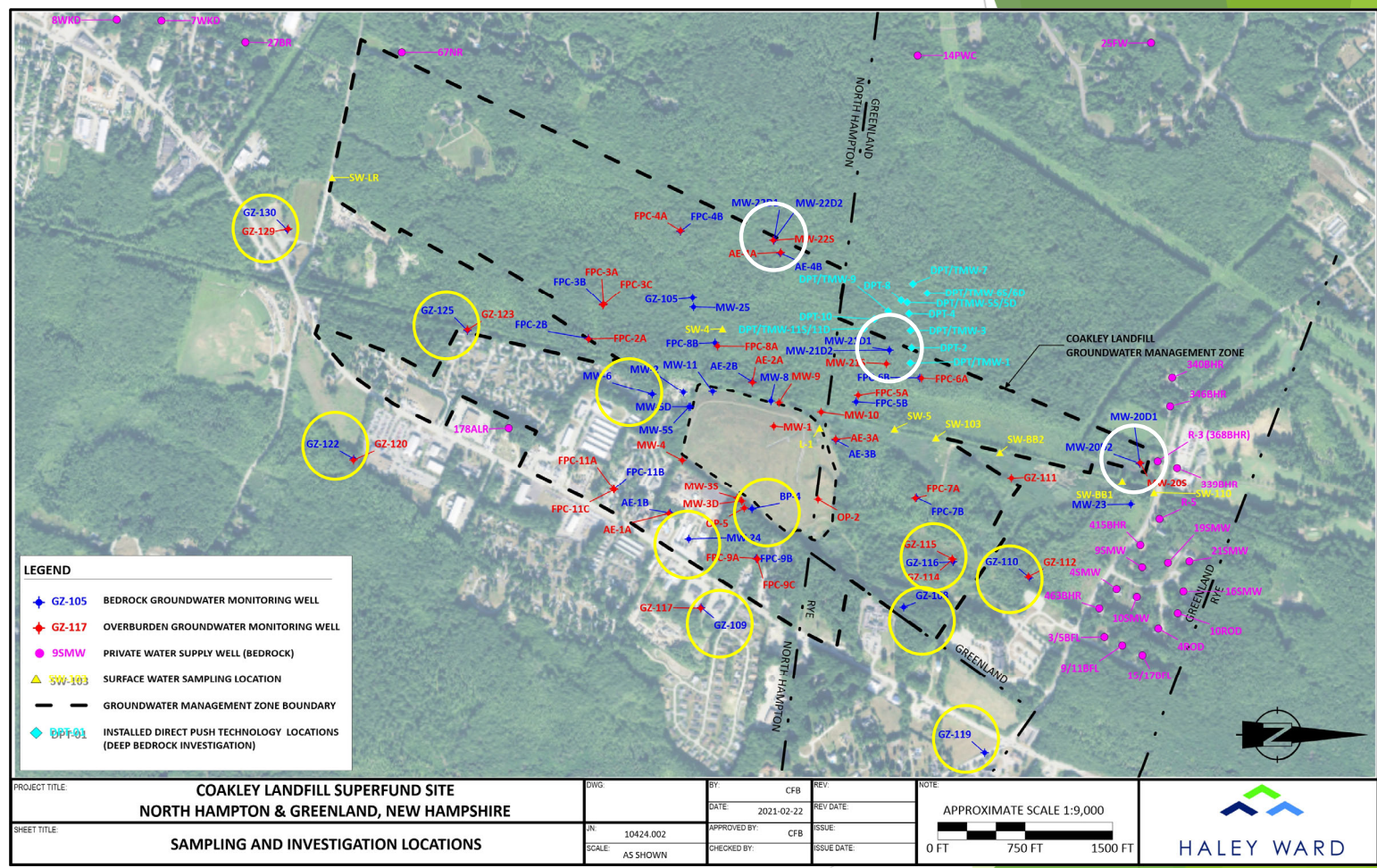
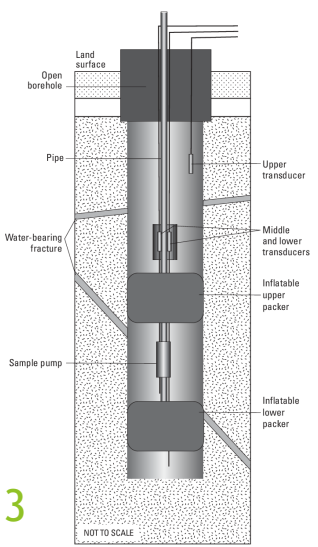


Reconnaissance Wells

- 11 Wells Redeveloped
- 11 Wells Surveyed
- 10 Wells Sampled
 - 54 GW Samples

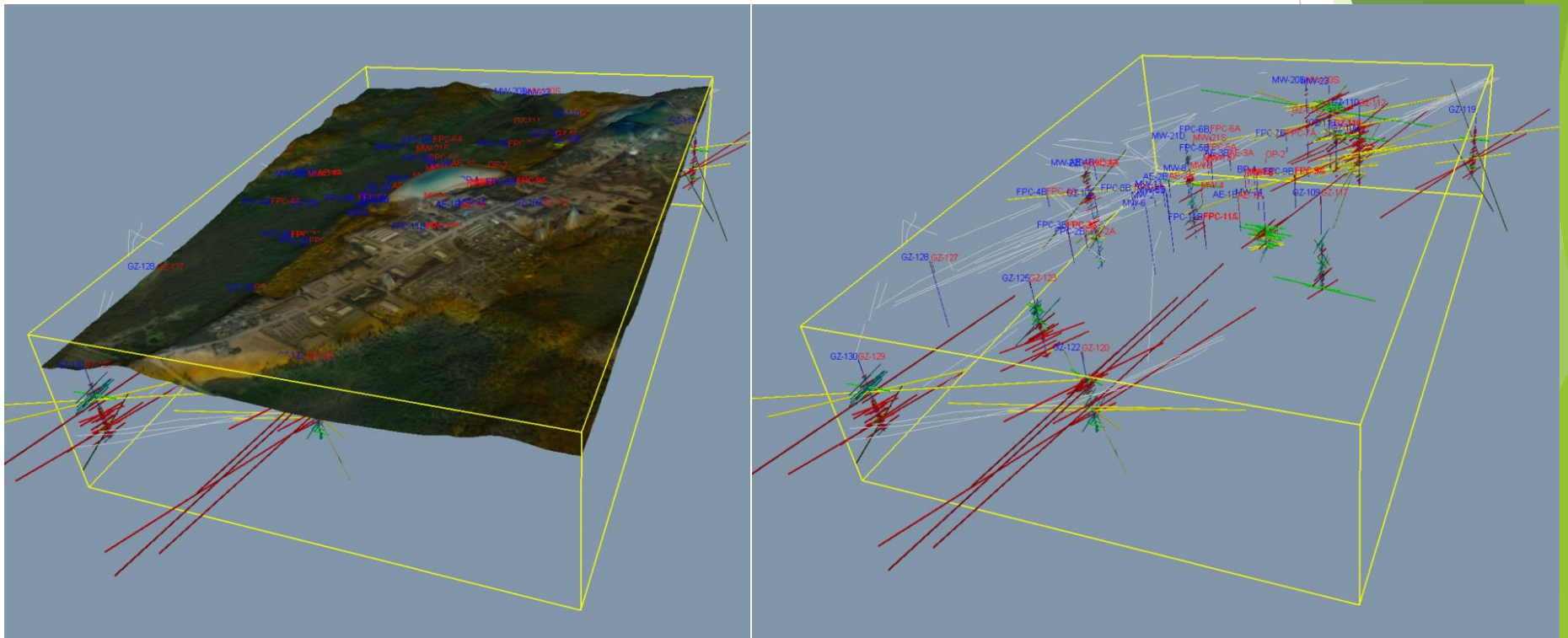
New Well Construction

- MW-20/MW-21/MW-22
- 6 New Nested Bedrock Wells Constructed - 2019



Straddle Packer Diagram taken from Design and Operation of a Borehole Straddle Packer for Ground-Water Sampling and Hydraulic Testing of Discrete Intervals at U.S. Air Force Plant 6, Marietta, Georgia, (Halloway and Wadell, 2008)

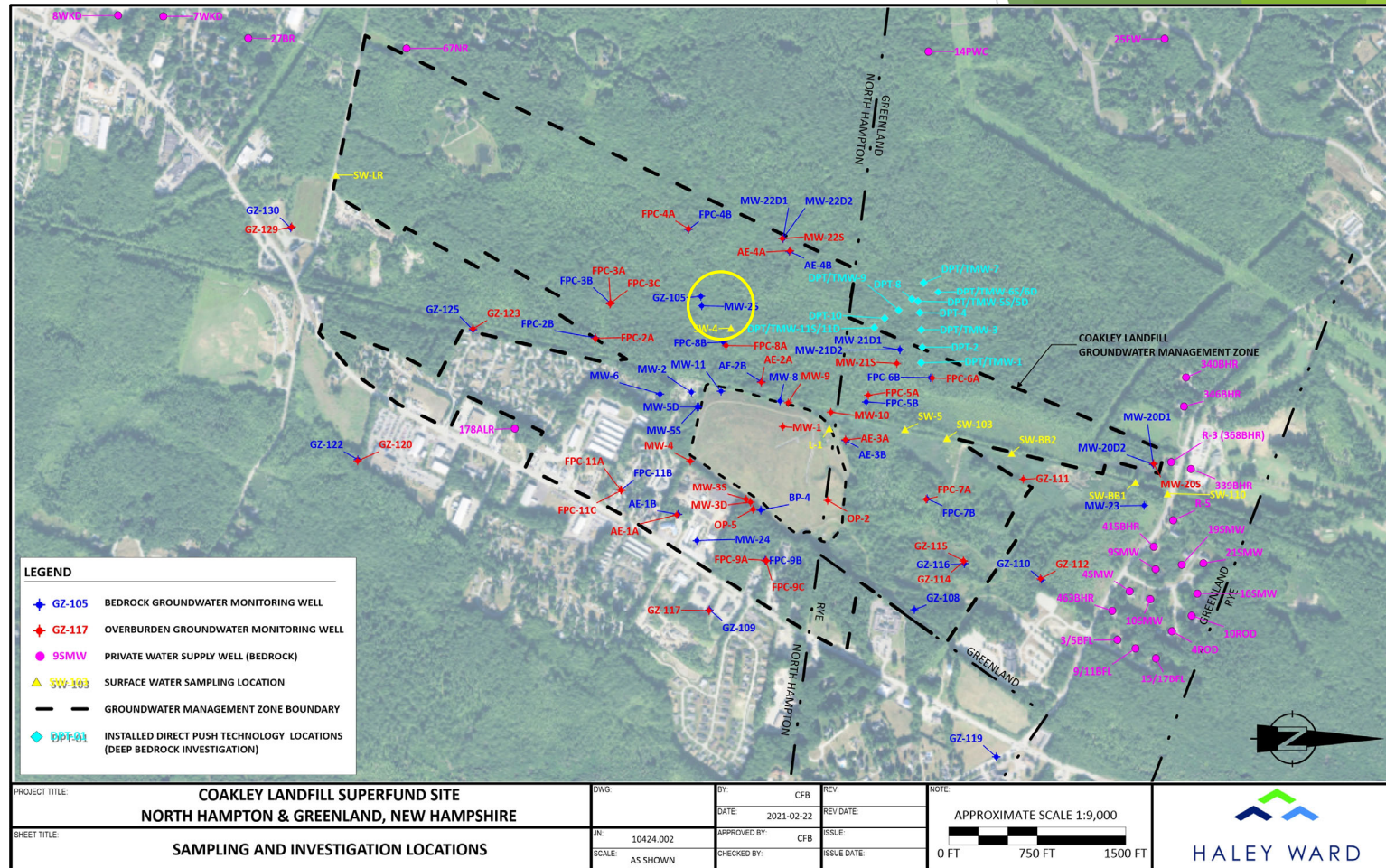
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New Boring Completion (MW-25)

- Data Gap
 - Southern Migration
- Surface Geophysics
- Access Agreements
 - NHDOT
- BMPs
- Drilling
- Borehole Geophysics
- Interval Packer Sampling*
- Well Construction*

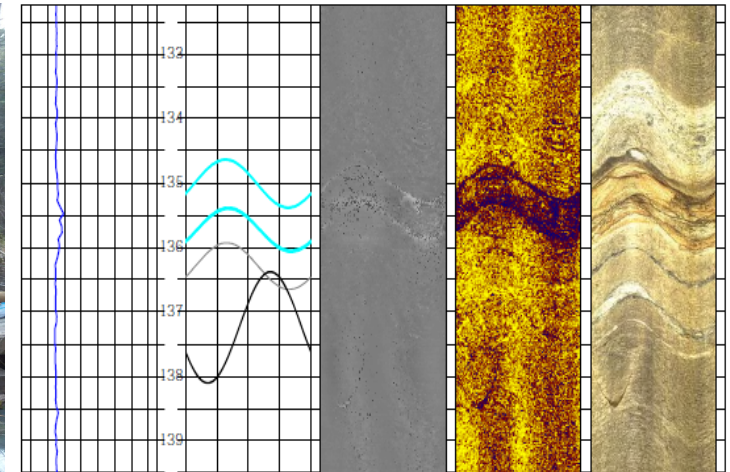
*To Be Completed



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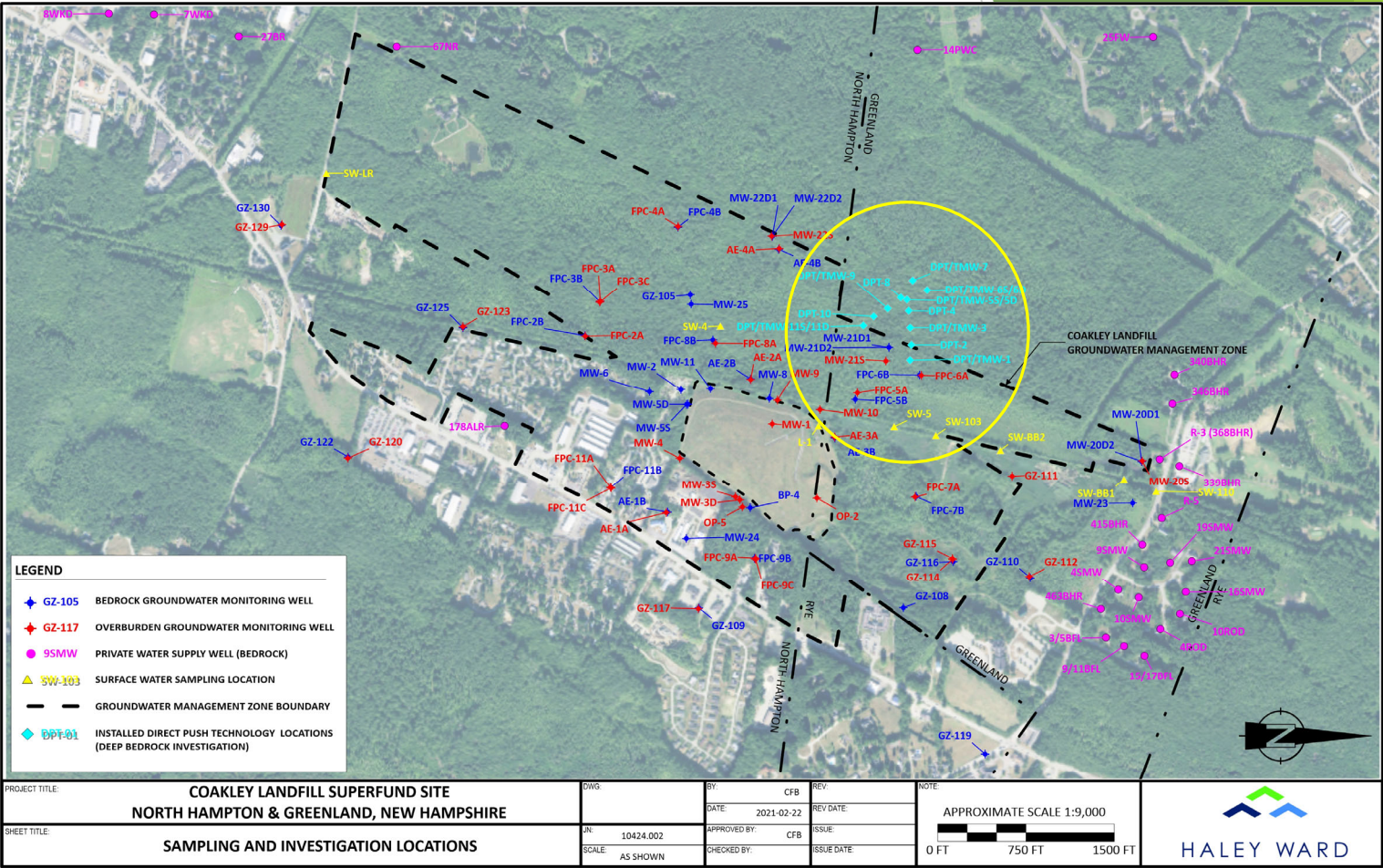


Direct Push Investigation

- Data Gap
 - Overburden Groundwater
- 11 Locations Completed
- 10 Total GW Samples
- Definition of GMZ Western Boundary



Photo courtesy of Geoprobe Systems, Inc.



PFOSA (Perfluorooctanesulfonamide)

- PFOSA often present in paper, cardboard packaging, textiles, carpet, leather, etc. (e.g., 3M Scotchgard)
- Phased out in the US in early 2000's, still produced overseas and imported to US in consumer products.
- Difficult compound to analyze for in collected groundwater and drinking water samples.

EtFOSE--->EtFOSAA--->PFOSA--->PFOS

- Continue to monitor a list of 26 PFAS compounds in samples collected in support of investigation activities.

PFPeA
PFBS
PFBA
PFUnA
PFTrDA
PFTeDA

PFOSA
PFOS*
PFOA*
PFNA*
PFHxS*
PFHxDA

PFHxA
PFHpS
PFHpA
PFDS
PFDaA
PFDA

MeFOSE
MeFOSAA
MeFOSA
EtFOSE
EtFOSAA
EtFOSA

8:2 FTS
6:2 FTS

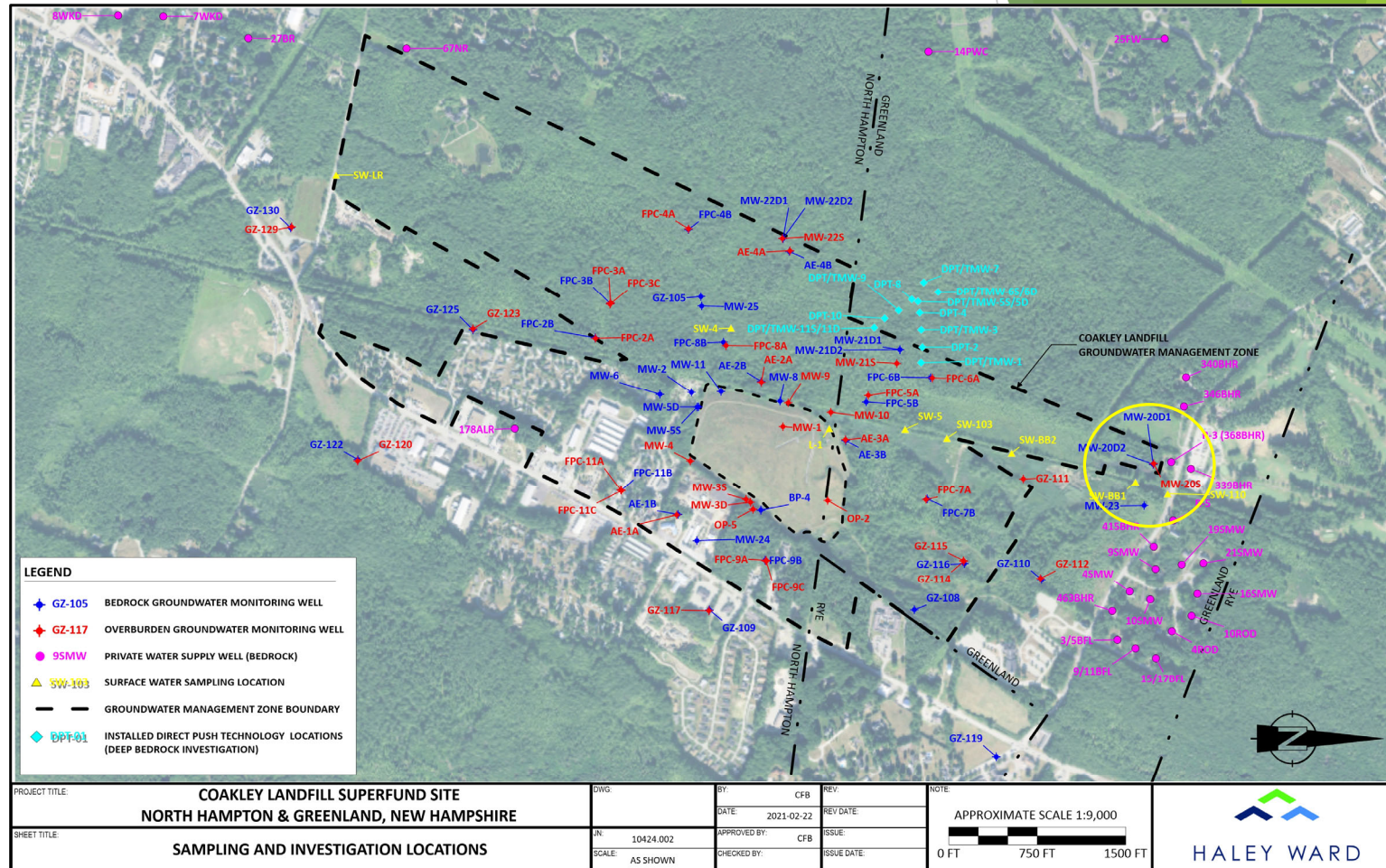
* Denotes PFAS compound with NHDES MCL.
Bold denotes compound associated with PFOSA

Surface Water Treatment

- House Bill 494
- Remedy Evaluation
- Learning Process
- Ongoing Pilot Studies

Individual Steps

- Remedy Options
 - Modifications
- Site Preparation
 - Flow Restoration
 - Channel
- Inter-agency Effort
 - USEPA
 - NHDES
 - NHDOT
 - USDA
- Deployment/Sampling
- Evaluation



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