

Dover, New Hampshire, City Council

Pudding Hill Aquifer

Status and Next Steps

July 25, 2018



City of Dover Water System Overview

- 9 wells (including Pudding Hill)
- 3 water treatment facilities
- 2 artificial recharge facilities
- 2 water storage tanks
- 1 booster pumping station

City of Dover Water System Capacity and Production

- Capacity (all 9 wells)
 - 4.1 million gallons per day – Average Day
 - 5.1 million gallons per day – Maximum Day
- Production (last 3-years)
 - 2.4 million gallons produced on average day
 - 3.8 million gallons produced on maximum day

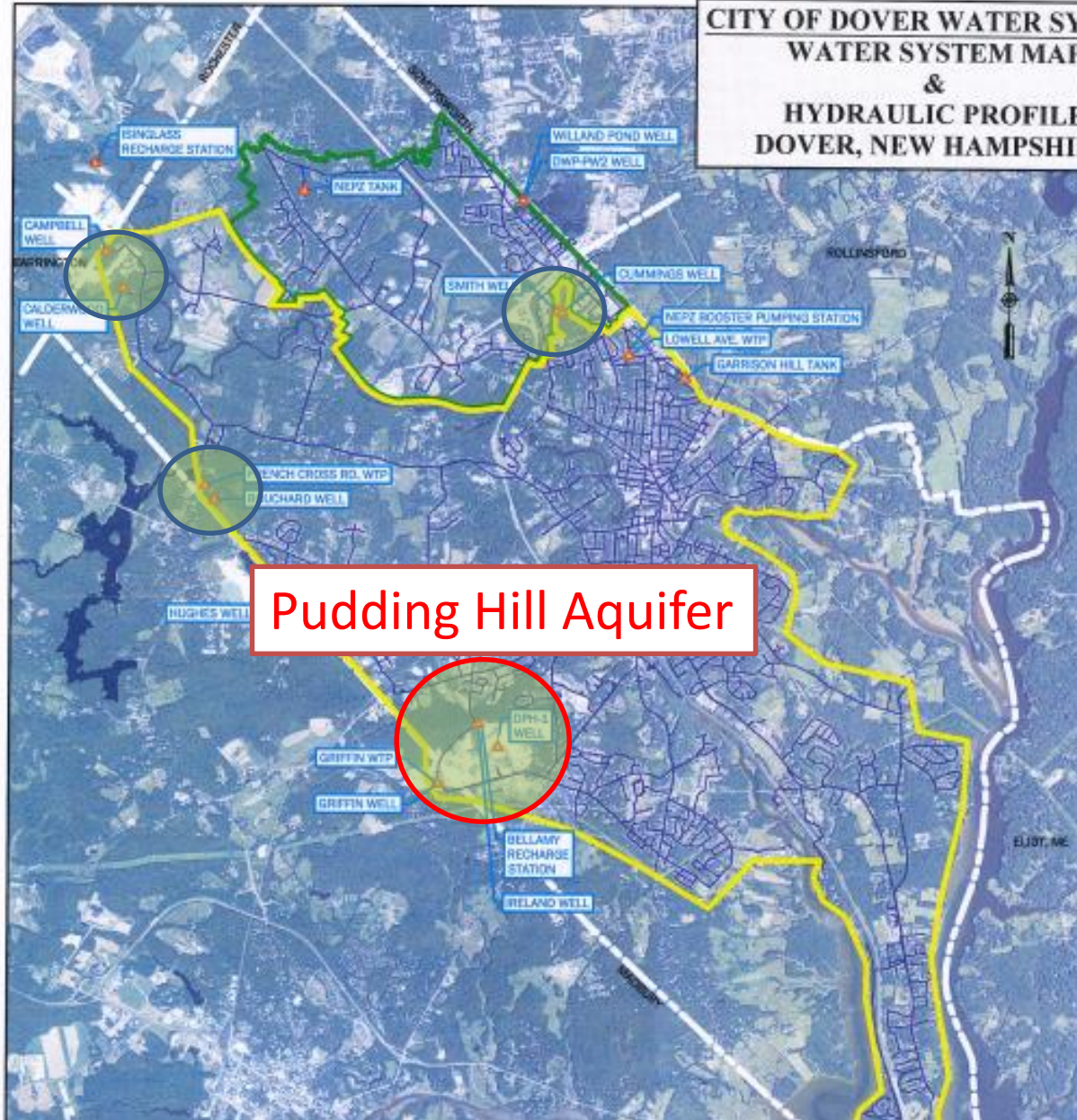
Pudding Hill Aquifer

- Aquifer Yield = 780 gpm (1.1 MGD)
- 21.5% of Supply Capacity*
- Three Wells – Currently Offline
 - Griffin Well and WTP
 - Ireland Well
 - DPH-1 Well

*Based on Permitted Capacity of available wells.
Sustainable pumping rates may be lower.



**CITY OF DOVER WATER SYSTEM
WATER SYSTEM MAP
&
HYDRAULIC PROFILE
DOVER, NEW HAMPSHIRE**

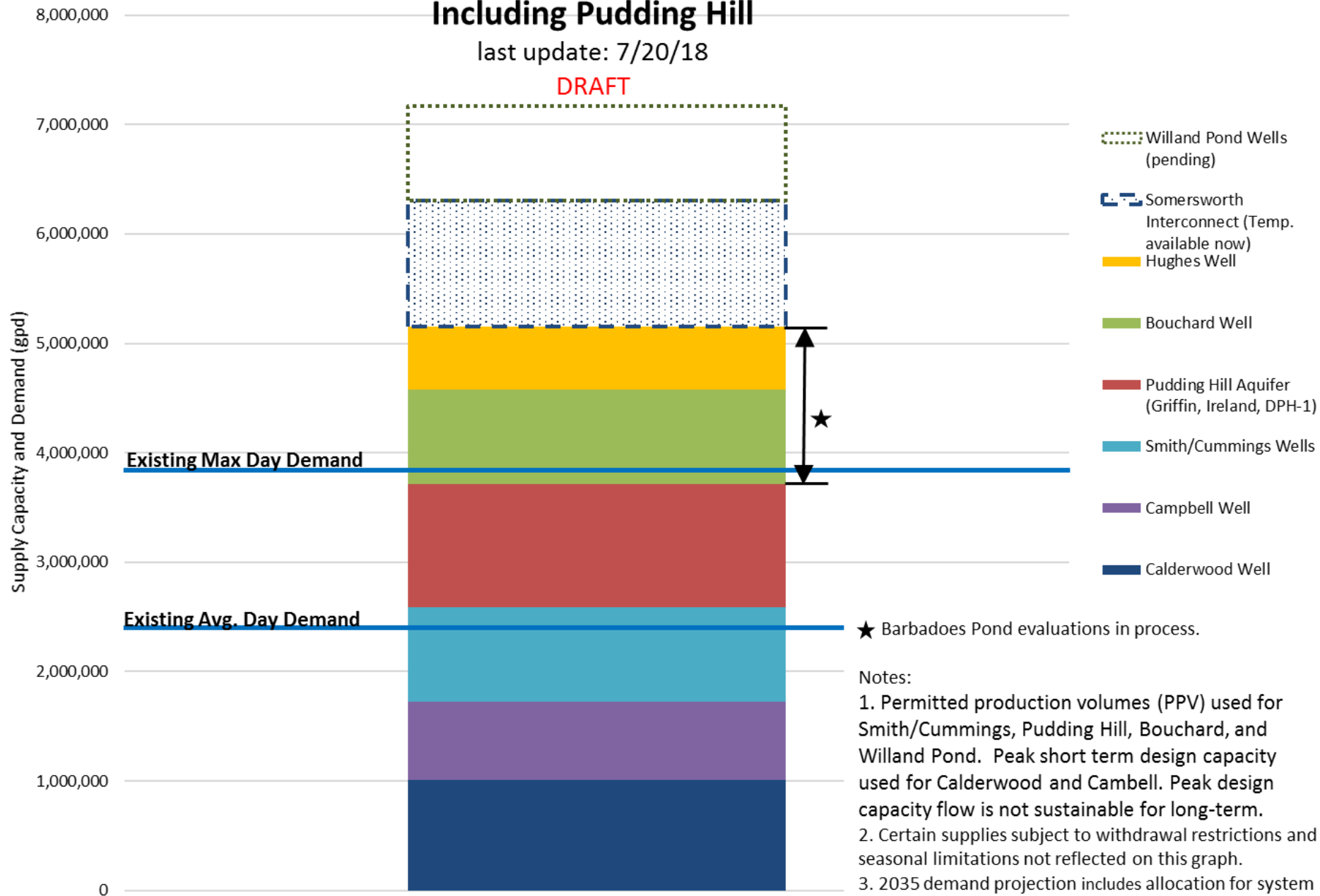


Pudding Hill Aquifer

City of Dover Demand and Supply Capacity Including Pudding Hill

last update: 7/20/18

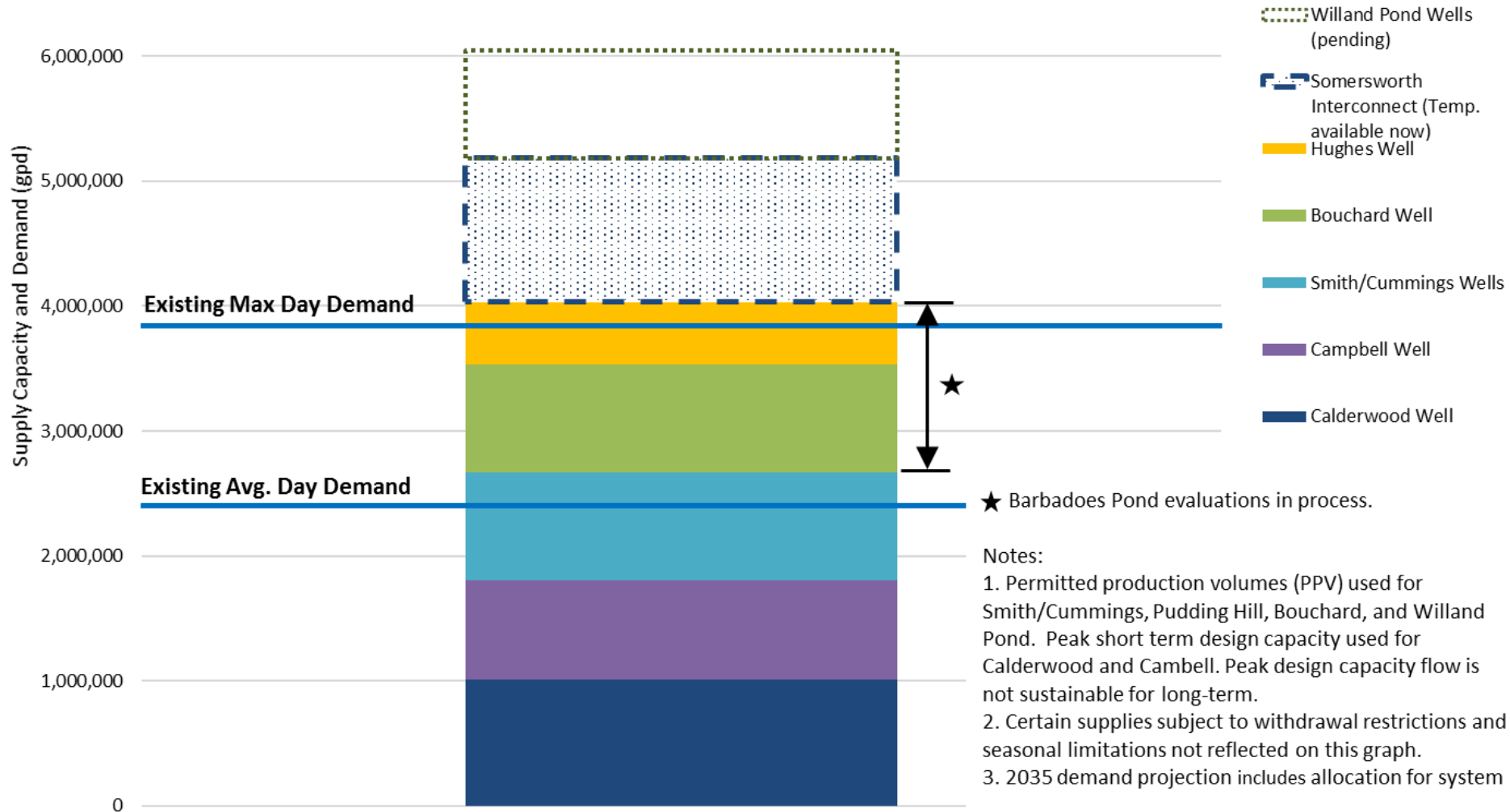
DRAFT



City of Dover Demand and Supply Capacity without Pudding Hill

last update: 7/20/18

DRAFT

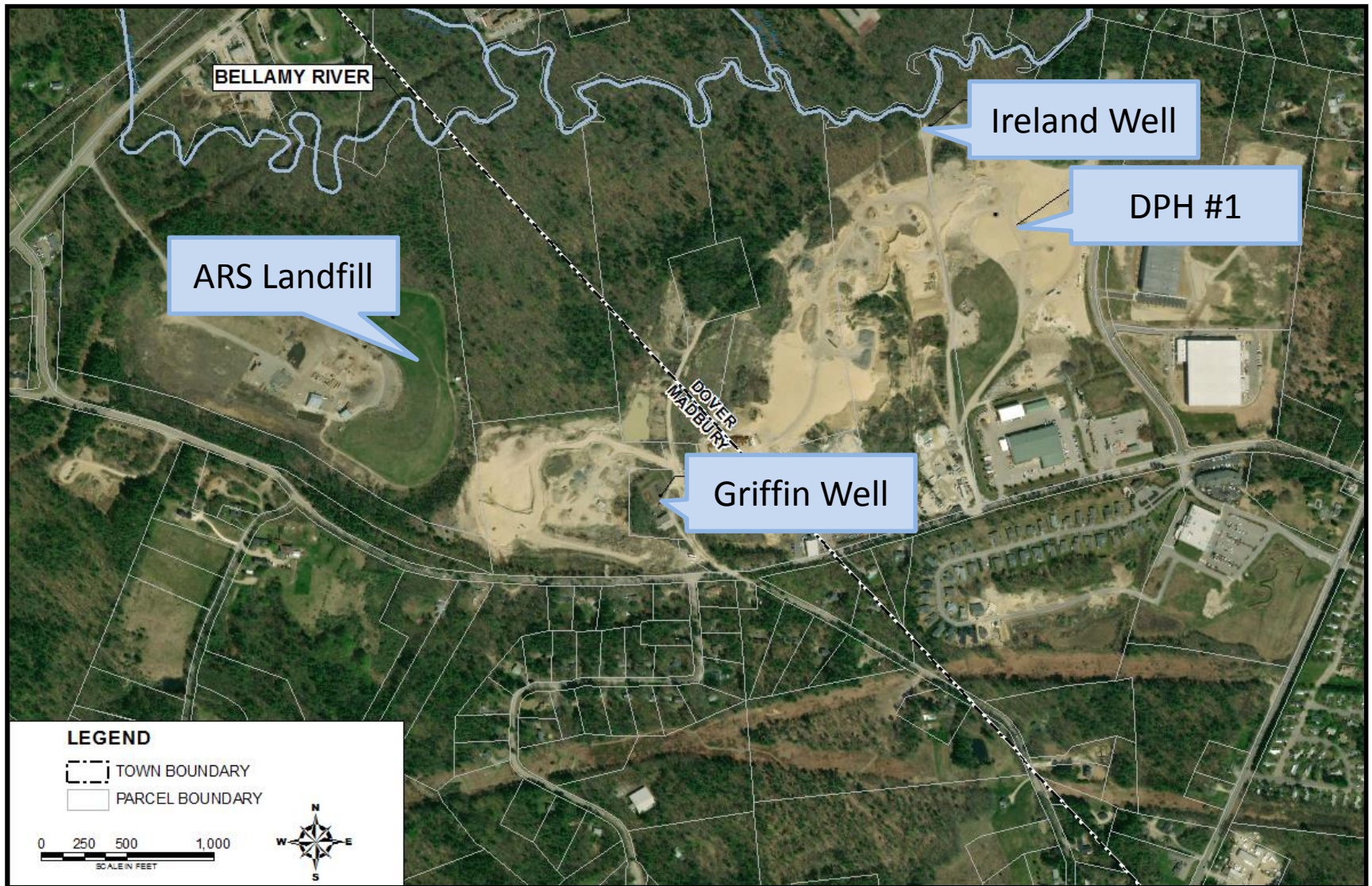


Supply Recap

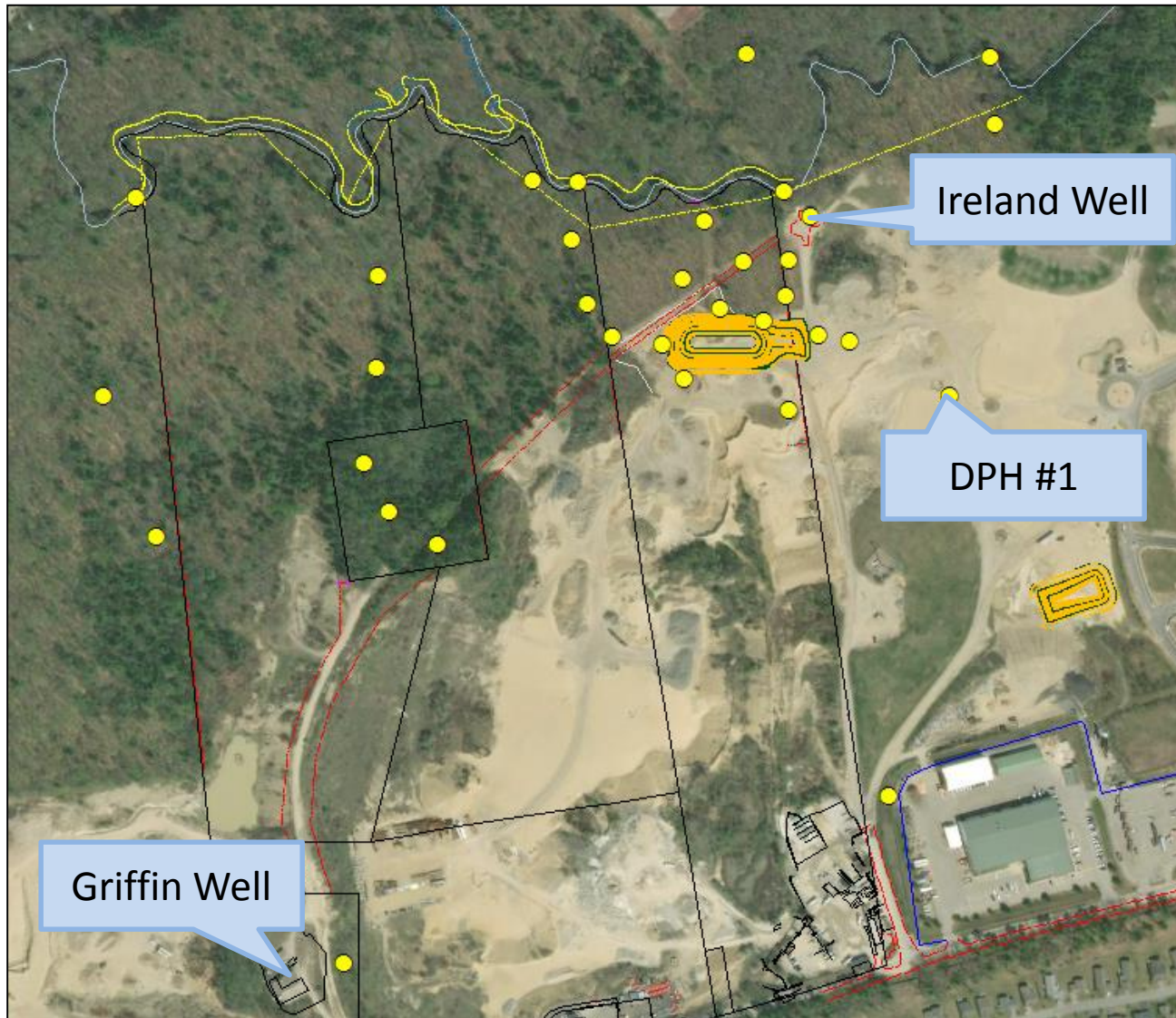
- City can currently meet demands without Pudding Hill
- Somersworth Emergency Interconnection – available now
- Willand Pond Wells – near future
- Pudding Hill needed for Long Term

Pudding Hill Evaluations Aquifer

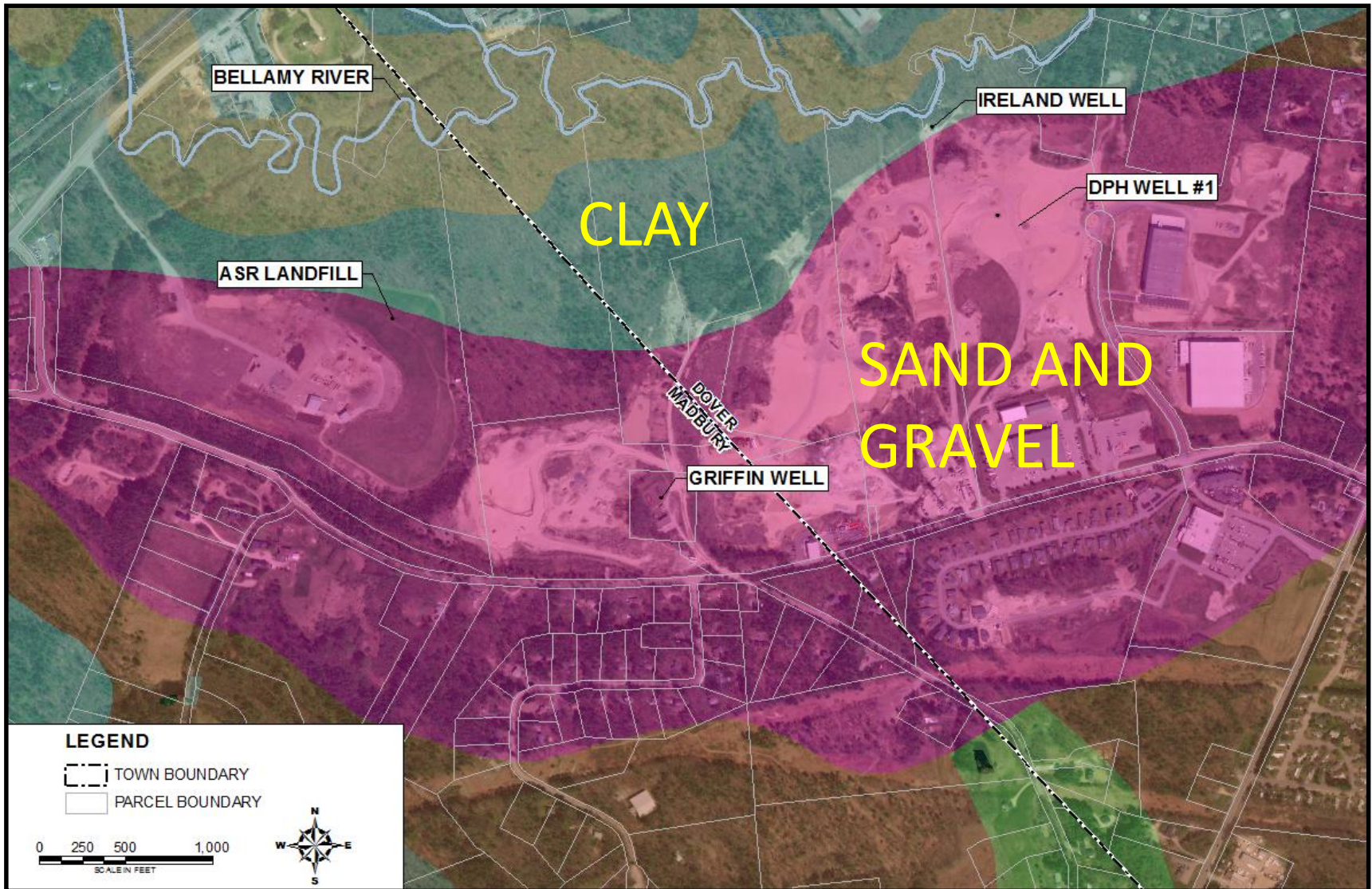
Well Locations



Sampling Locations



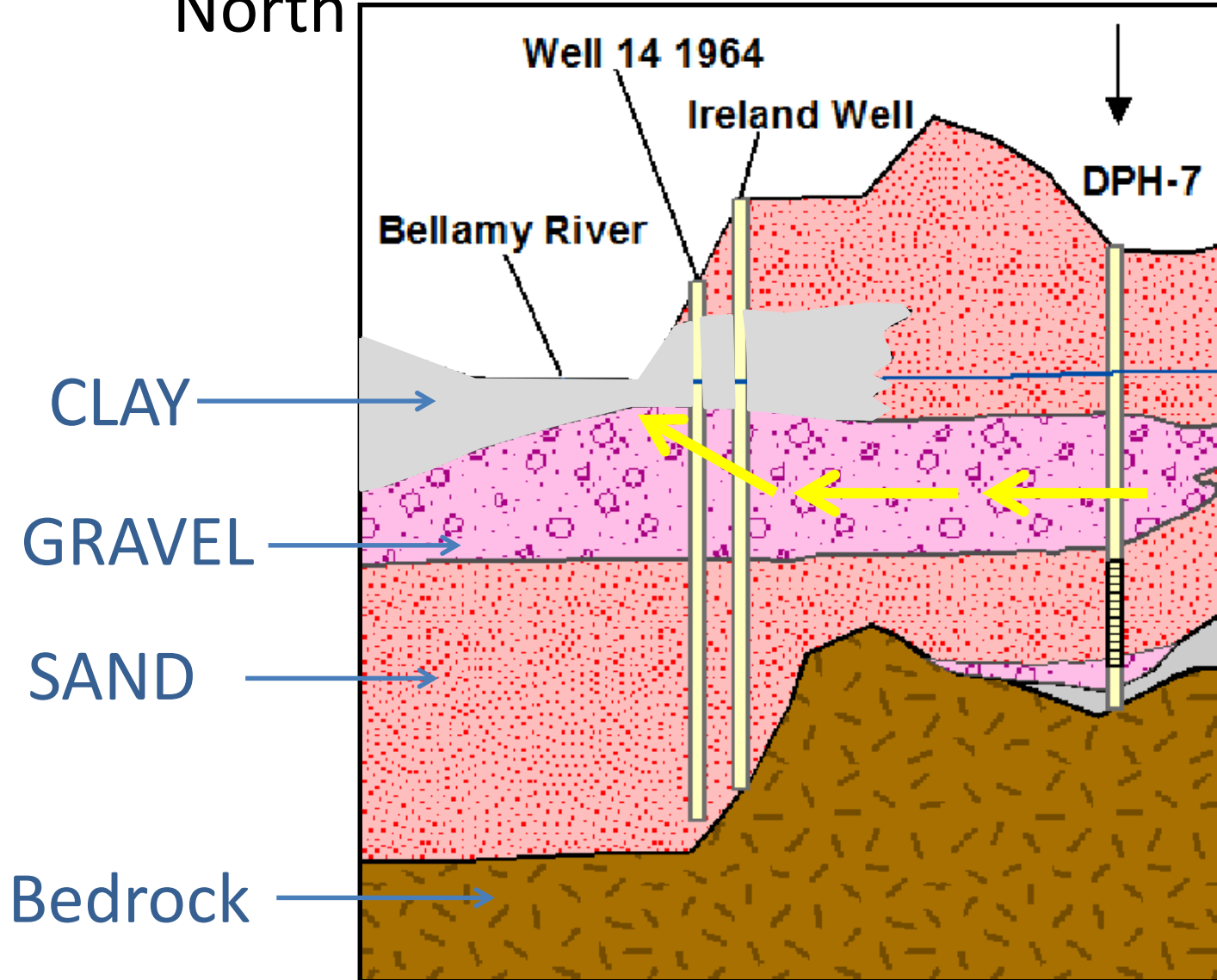
Hydrogeologic Setting



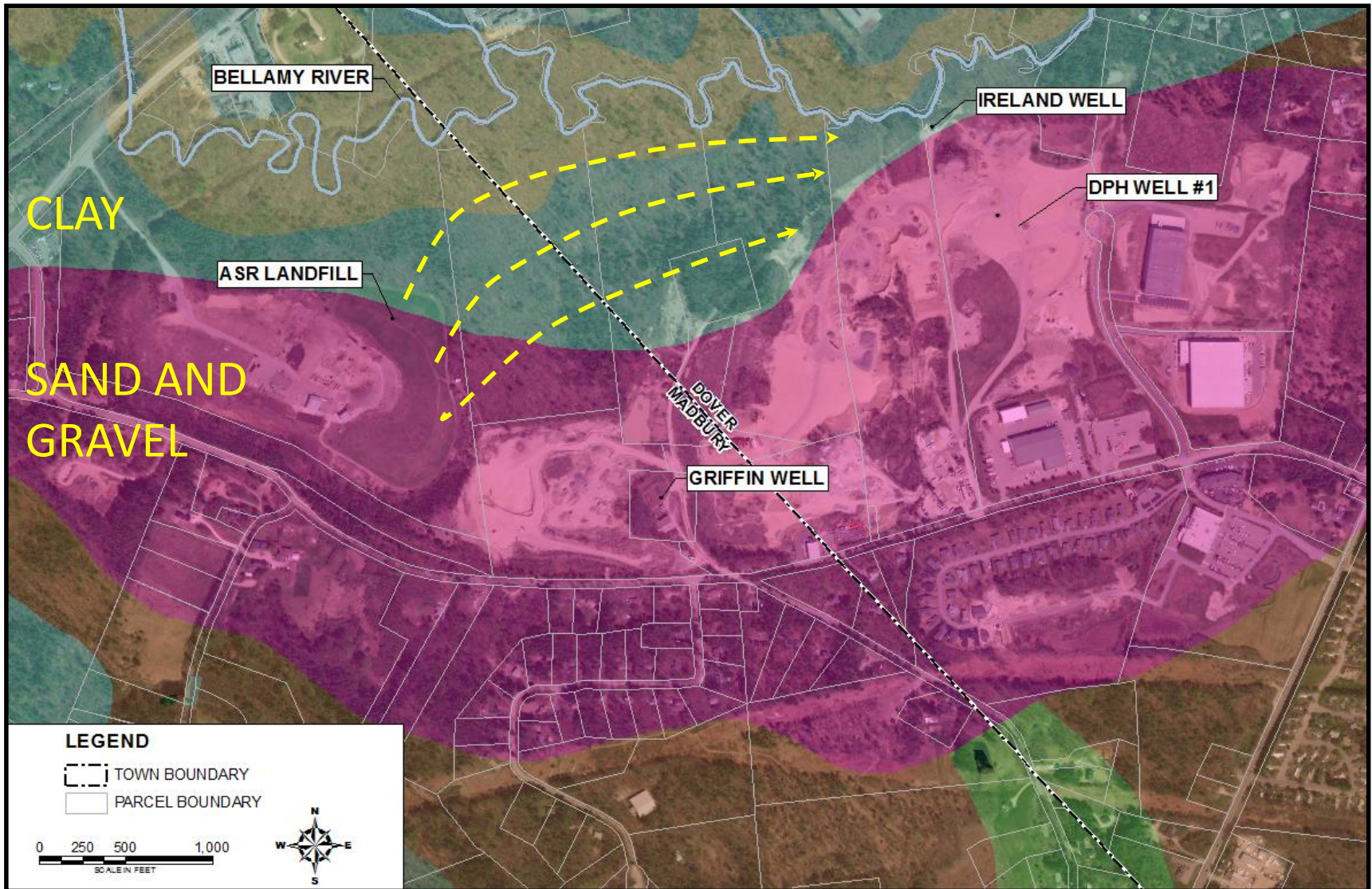
Geologic Cross Section

North

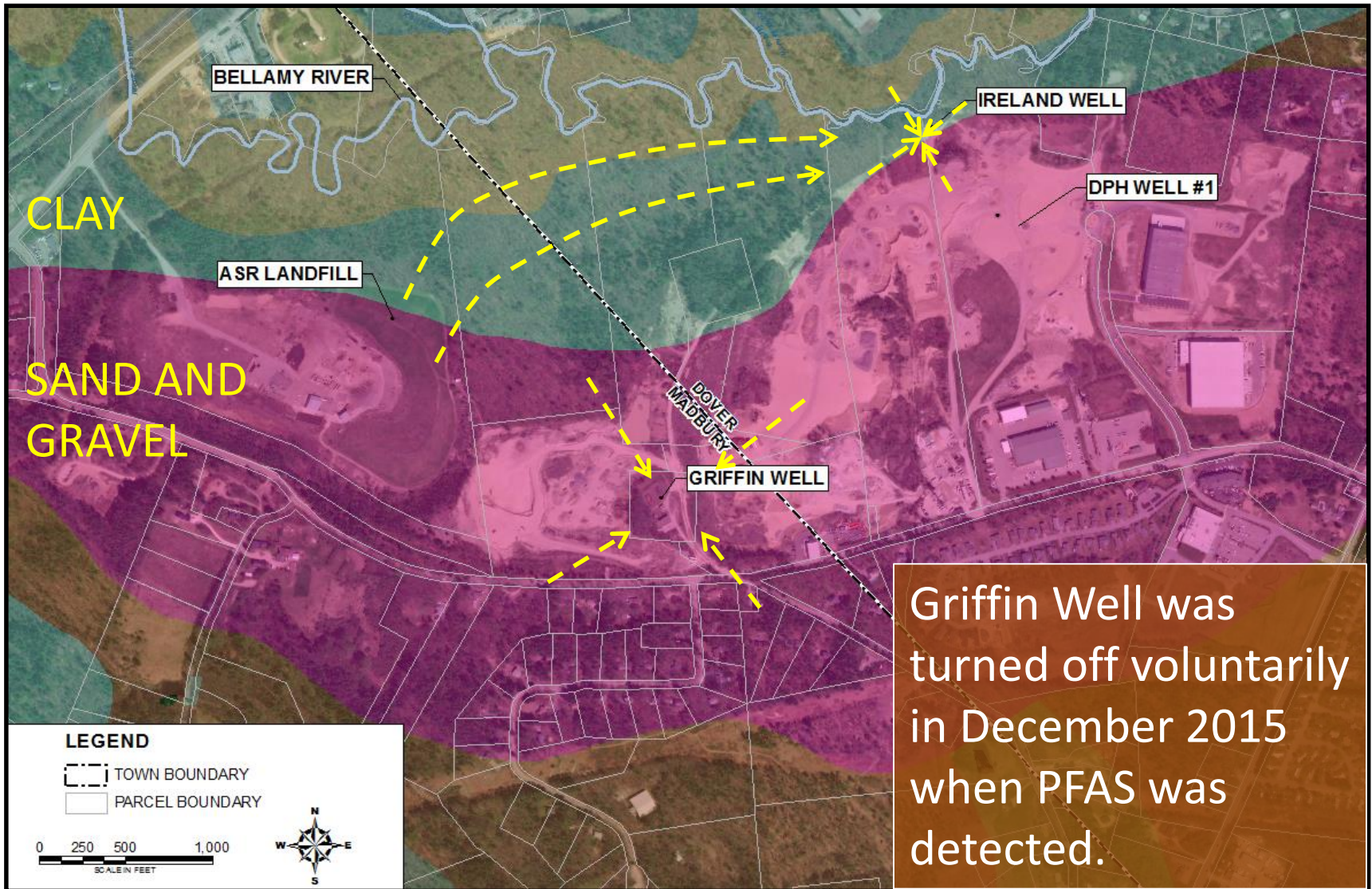
South



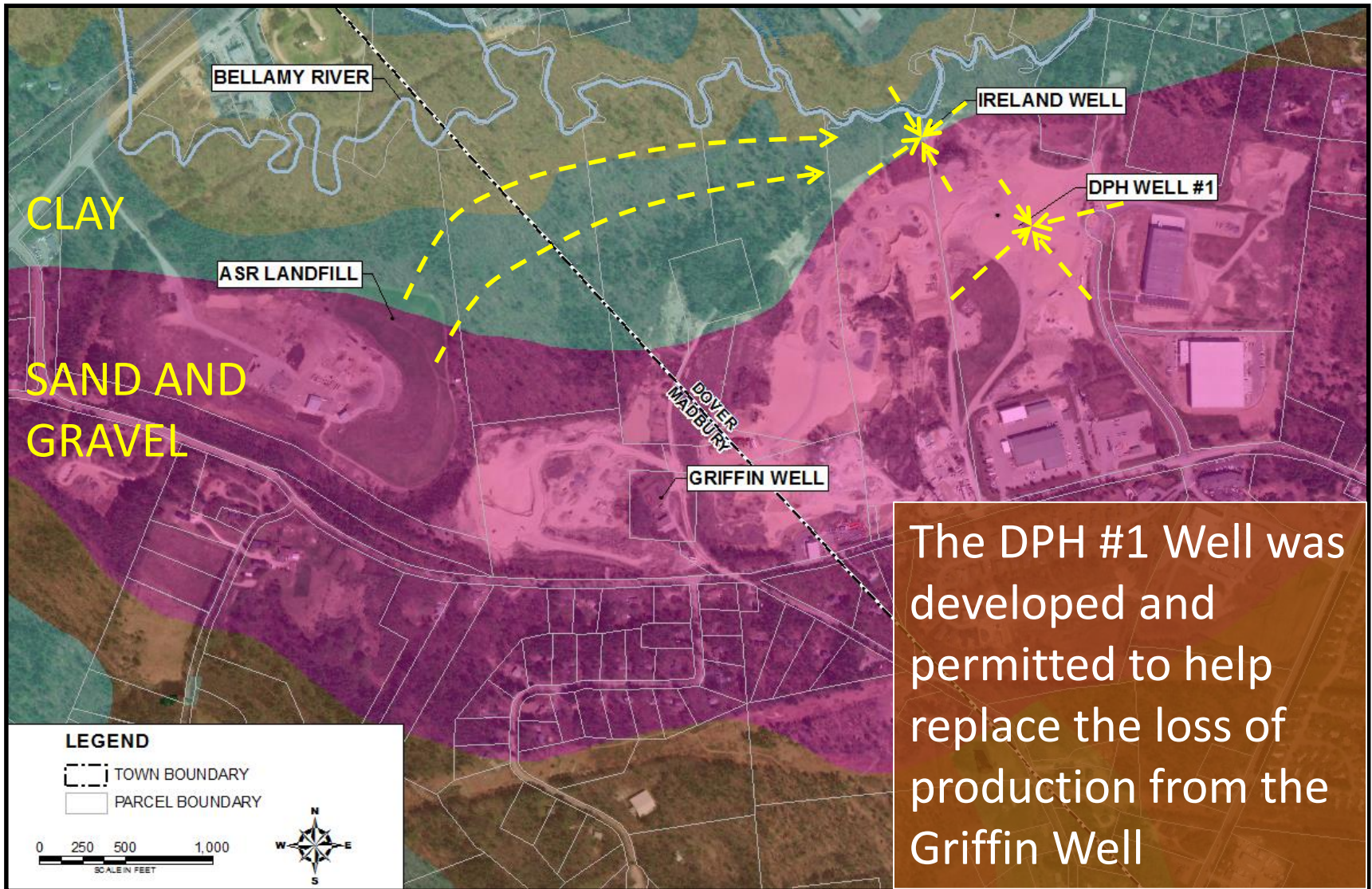
Groundwater Flow - Ambient



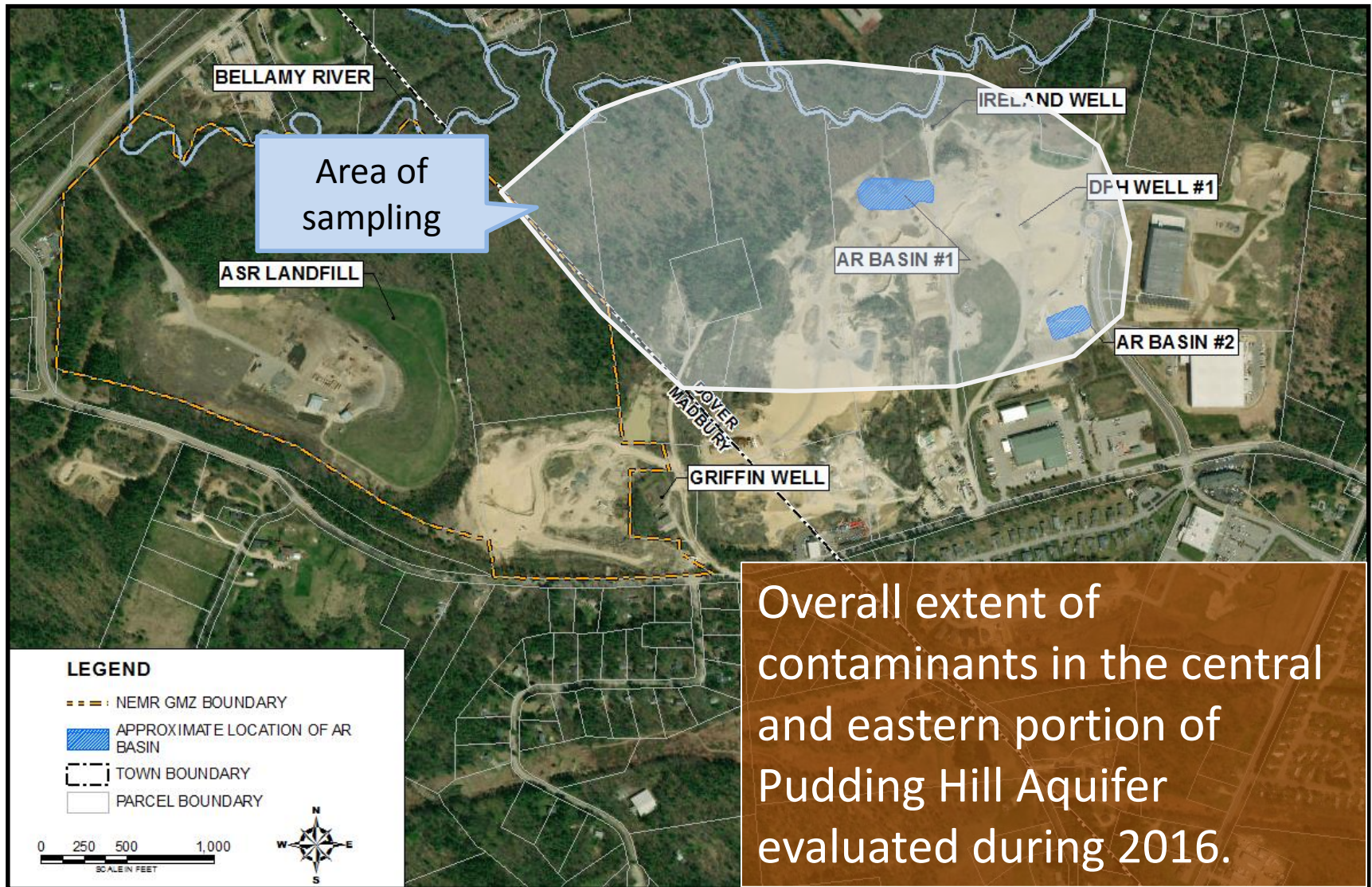
Groundwater Flow – Pumping



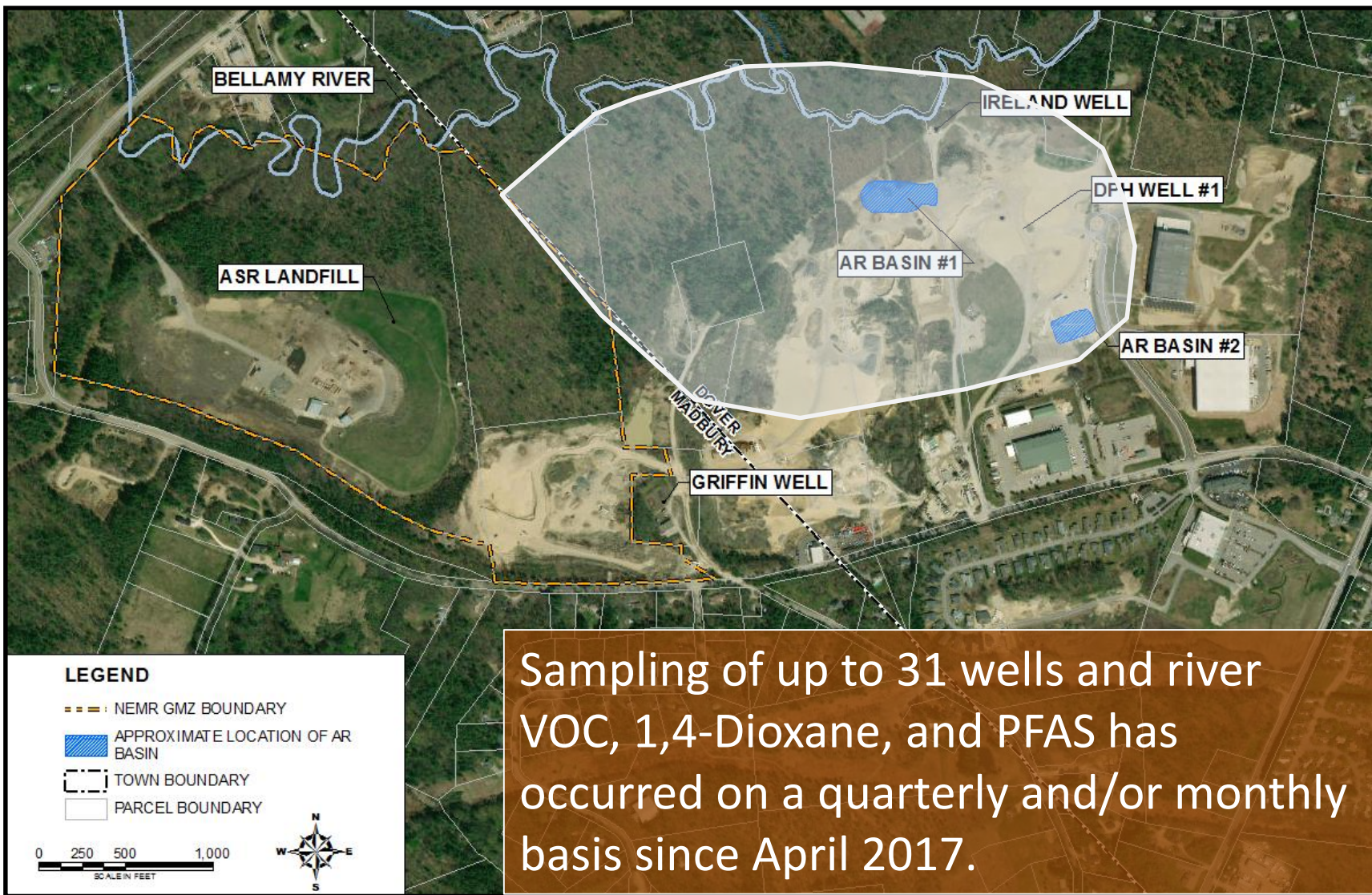
Groundwater Flow – Ireland - DPH #1 Pumping



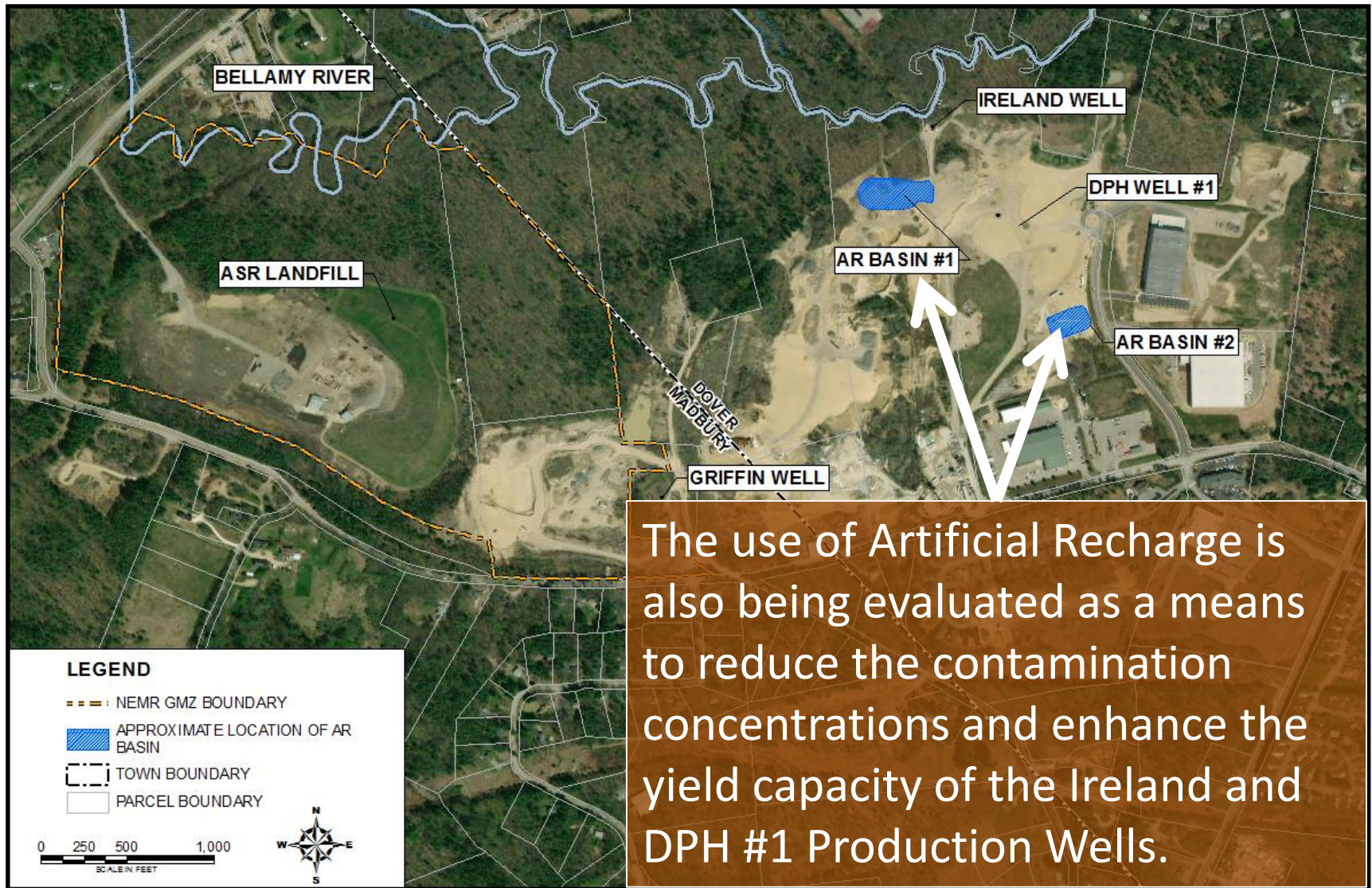
Delineation of Contaminants



Monitoring Programs



Pilot Test for Artificial Recharge



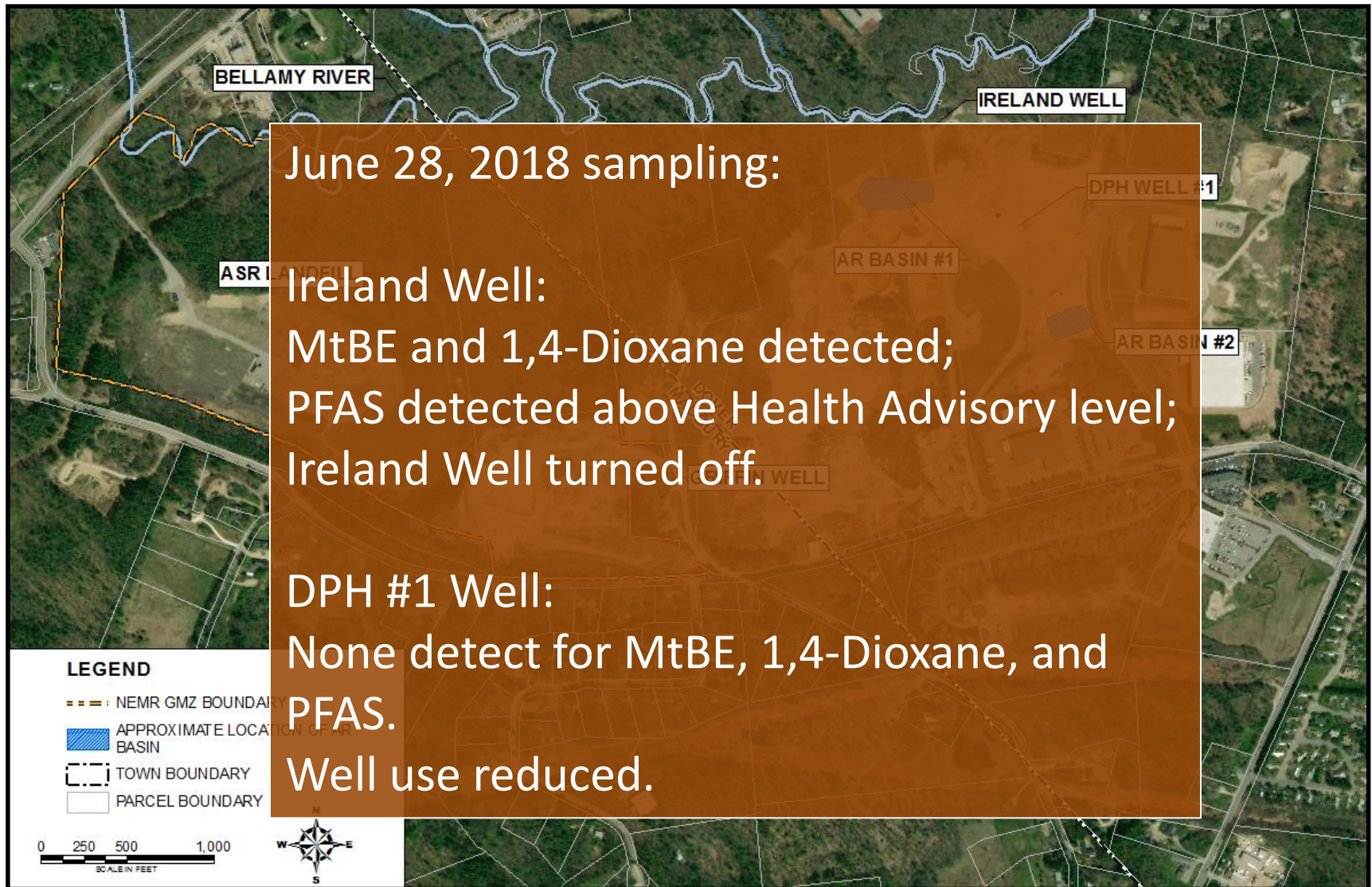
AR Basin 1



AR Basin 2

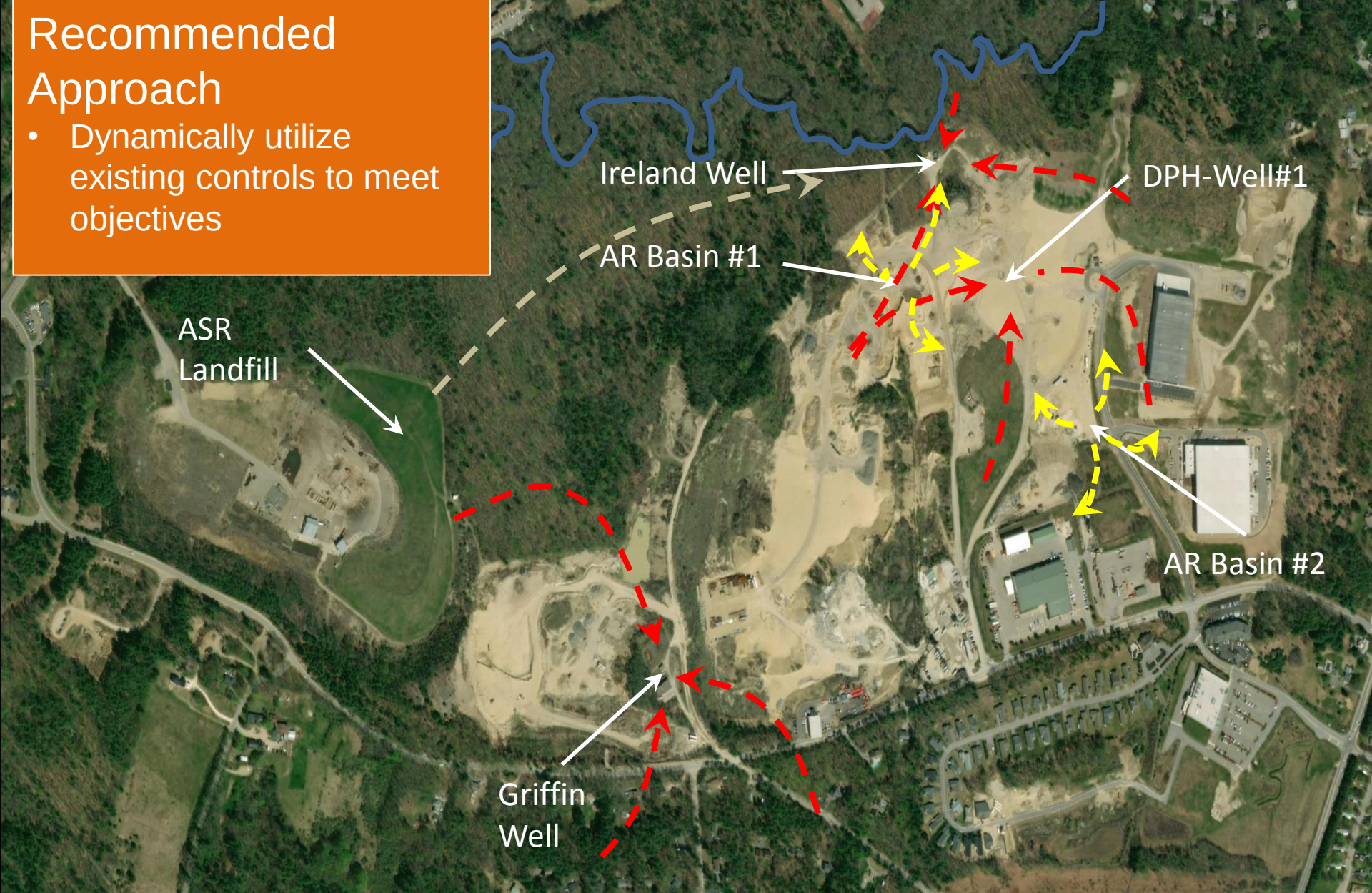


Water Quality Results



Recommended Approach

- Dynamically utilize existing controls to meet objectives



Aquifer Management Design

Pudding Hill Evaluations Treatment

- Short-term emergency GAC for PFOA/PFOS
- Long-term treatment for:
 - PFAS (PFOA + PFOS + other compounds)
 - MtBE
 - 1,4 – Dioxane
 - Iron
 - Manganese

Treatment Infrastructure

Long-Term

- Greensand Plus (Iron & Manganese)
- Ion Exchange Resin (PFAS)
- Advanced Oxidation (MtBE & 1,4-Dioxane)
- Approximately 10,000 SF facility
- 1,000 gpm (1.4 MGD)
- \$15-\$20 Million

Next Steps

- Pilot Study – Pudding Hill Treatment
- Process evaluations (UNH Peer Review)
- Supply Options
- Funding

Questions and Answers