# Newtown Creek OU1 Lateral Groundwater Investigation – Progress Update

## Newtown Creek Superfund Site

## Queens and Brooklyn, New York City

## March 15, 2023

# Objective/Purpose

Improve the understanding and better quantify the shallow lateral groundwater discharge to the study area. The data will be used to:

- Improve characterization of shallow lateral groundwater contaminant loading to the study area.
- Improve the conceptual site model for shallow lateral groundwater flow and contaminant discharge to the study area.
- Provide critical shallow lateral groundwater flow characterization information to support decisions for the feasibility study.

# Investigation Status – Progress To Date

**Determination of Study Locations**

- Select Unbiased Locations
- Review Existing Property Information
- Reconnaissance and Inspection of Existing Well Infrastructure
- Finalize Monitoring Well Network
- Obtain Access from property owners

**Installation of Monitoring Well Network**

- New Well Installation
- New and Existing Well Development
- Installation of Tide Gauges
- Survey
- IDW Management

**Water Quality Characterization**

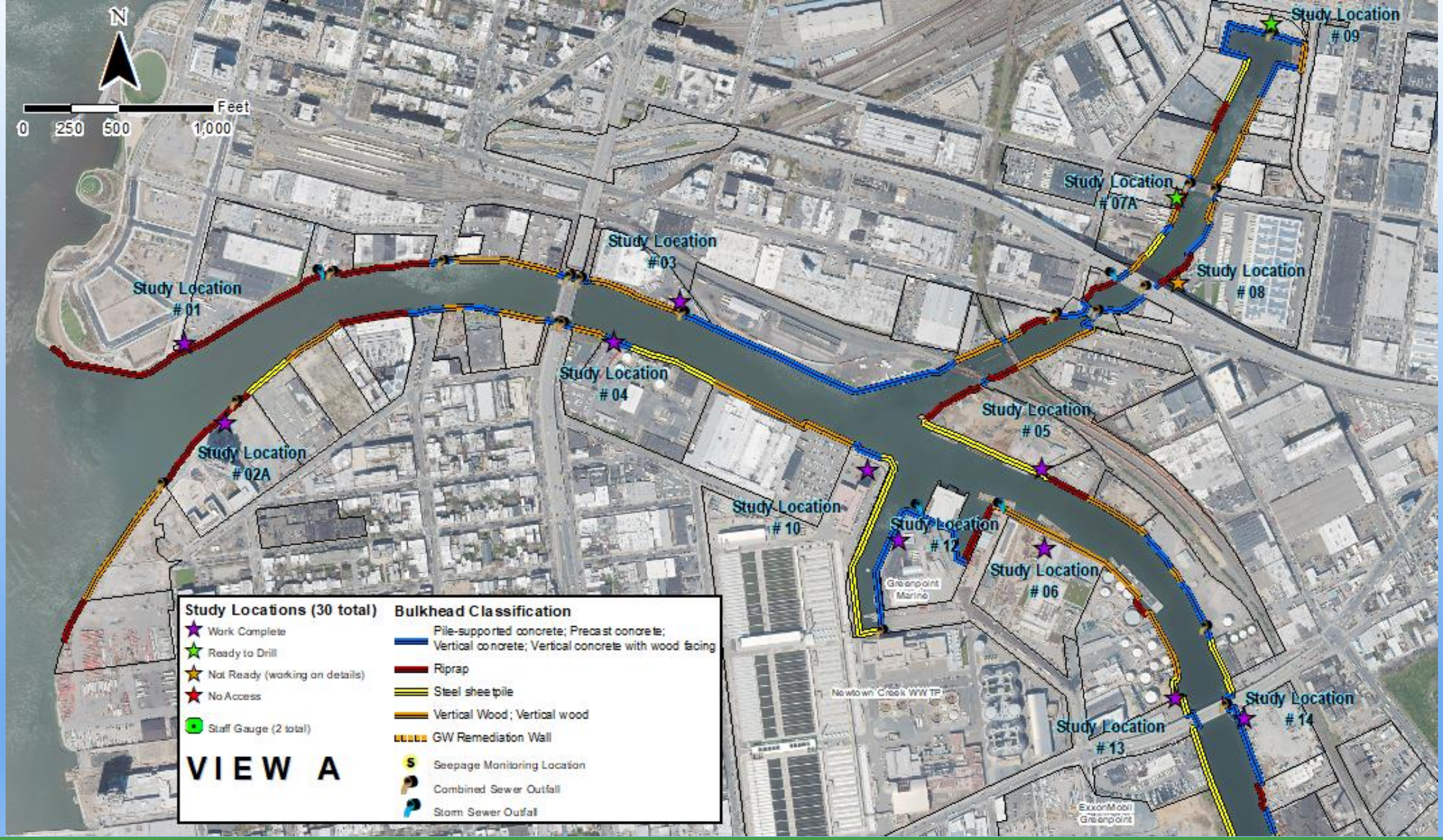
- Shoreline Monitoring Well Sampling (Two Rounds)
- Shoreline Assessment and Opportunistic Seep Sampling
- Opportunistic NAPL Sampling

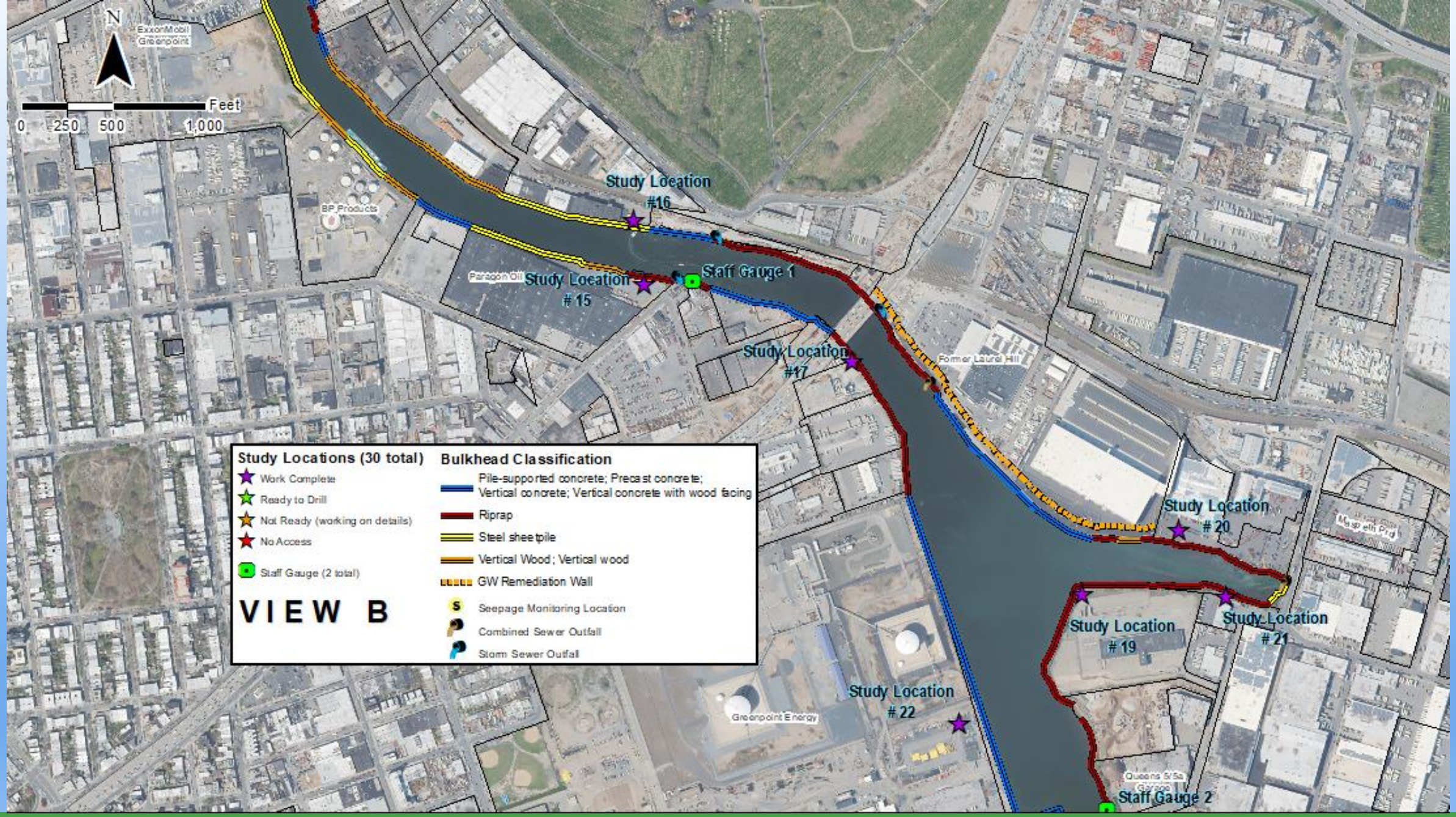
**Hydraulic Characterization**

- Long-Term Water Level Monitoring
- Slug and Specific Capacity Tests
- Groundwater Velocity Measurements

# Status of Monitoring Well Network Installation

- Final Monitoring Well Network consists of 30 shoreline study locations
- Monitoring well network selected to provide a representative set of the various shoreline types/structures
- Study Location – area where monitoring well pairs or well clusters will be installed (or existing wells utilized)
- Access has been obtained at 29 of 30 study locations
- Access to last study location in process


N
0 250 500 1,000 Feet
Study Location # 01
Study Location # 02A
Study Location # 03
Study Location # 04
Study Location # 05
Study Location # 06
Study Location # 07A
Study Location # 08
Study Location # 09
Study Location # 10
Study Location # 12
Study Location # 13
Study Location # 14
Greenpoint Marine
Newtown Creek WWTP
ExxonMobil Greenpoint
Study Locations (30 total)
Work Complete
Ready to Drill
Not Ready (working on details)
No Access
Staff Gauge (2 total)
VIEW A
Bulkhead Classification
Pile-supported concrete; Precast concrete; Vertical concrete; Vertical concrete with wood facing
Riprap
Steel sheetpile
Vertical Wood; Vertical wood
GW Remediation Wall
Seepage Monitoring Location
Combined Sewer Outfall
Storm Sewer Outfall


N
ExxonMobil Greenpoint
0 250 500 1,000 Feet
BP Products
Paragon Oil
Study Location #16
Study Location # 15
Staff Gauge 1
Study Location #17
Former Laurel Hill
Study Location # 20
Study Location # 19
Study Location # 21
Study Location # 22
Greenpoint Energy
Staff Gauge 2
Study Locations (30 total)
Work Complete
Ready to Drill
Not Ready (working on details)
No Access
Staff Gauge (2 total)
VIEW B
Bulkhead Classification
Pile-supported concrete; Precast concrete; Vertical concrete; Vertical concrete with wood facing
Riprap
Steel sheetpile
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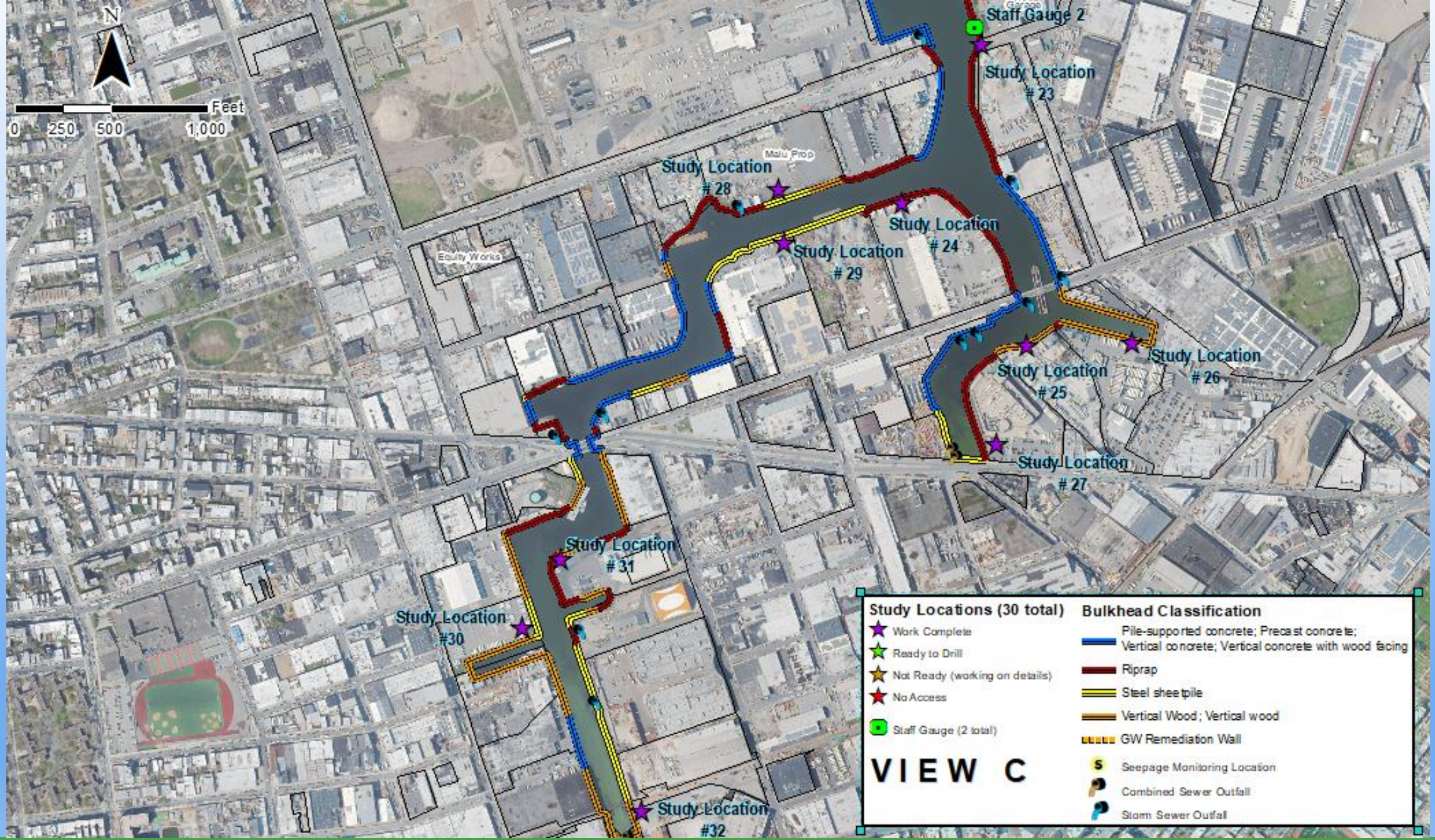
N
0 250 500 1,000 Feet
Staff Gauge 2
Study Location # 23
Study Location # 28
Study Location # 24
Study Location # 29
Study Location # 26
Study Location # 25
Study Location # 27
Study Location #31
Study Location #30
Study Location #32
Study Locations (30 total)
Work Complete
Ready to Drill
Not Ready (working on details)
No Access
Staff Gauge (2 total)
VIEW C
Bulkhead Classification
Pile-supported concrete; Precast concrete; Vertical concrete; Vertical concrete with wood facing
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# Well Installation
## Progression of Work at a Study Location

- Reconnaissance and Utility Clearance
- Lithologic boring is advanced to the upper portion of the upper glacial aquifer
  - Continuous split-spoon samples collected
  - Grain size sample collected from each unit encountered (Fill, wetland deposits, upper glacial aquifer)
  - Shelby tube advanced into wetland deposits if fine-grained materials encountered
- Well Installation
  - 2 shallow water table wells (typically 15 to 20 feet deep) installed in a transect perpendicular to the shoreline at each study location (1 shoreline well and 1 inland well)
  - 1 deeper well (typically 20-30 feet deep) installed at 20-30% study locations

# Lithologic Borings

- Lithologic borings allowed for:
  - Logging observed soil types from the surface to the top of the upper glacial aquifer
  - Collection of geotechnical properties of the soils
  - Environmental observations

# Well and Tidal Gauge Installations


Staff gauge #1 installed at end of 58th Street by SL #23. Facing West.

- 2 shallow wells installed at each study location with 5 or 10-ft screens to monitor the upper portion of the shallow aquifer (56 of 60 installed to date)
- 1 deeper well installed ~30% study locations for hydraulic control (8 of 8 installed)
- Tidal Gauges Installed for monitoring creek levels (2 of 2 installed)

# Post Well Installation Tasks



- Well Development – ensures well is connected to aquifer (62/68 complete)
- Specific Capacity Testing – provides an estimate of the well yield (35/38 complete)
- Monitoring Well Survey – provides elevation and location of wells (Starting)
- Long Term Water Level Monitoring - install pressure transducers into each monitoring well

# Investigation Status – Upcoming Work

**Determination of Study Locations**

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# Next Step - Water Quality Characterization

- April/May 2023:
  - Round 1 groundwater sampling – sample 30 shallow shoreline and 8 deep monitoring wells
  - Shoreline assessment and opportunistic seep sampling
  - Opportunistic NAPL Sampling
- August/September 2023:
  - Round 2 groundwater sampling – sample 38 shallow shoreline and deep monitoring wells
  - Opportunistic NAPL Sampling

# Investigation Status – Upcoming Work

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# Status of Hydraulic Characterization

- Hydraulic testing - May – July 2023
  - Slug Tests – measure the hydraulic conductivity of an aquifer
  - Groundwater Velocity Measurements – discrete measurements of groundwater movement (speed and direction) as it passes through a well
- Long term water level monitoring -March 2023 – February 2024
  - Continuous water level, salinity and temperature monitoring at 68 monitoring wells and 2 staff gauges