FEBRUARY 2020 LETTER WORK PLAN
ON-PROPERTY MONITORING WELL INSTALLATION
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK

INTRODUCTION

The Department of Navy (Navy) is conducting Preliminary Assessment/Site Investigations (PA/SI) for the presence of three potential site-related chemicals at the former Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage (Figure 1). These chemicals include per- and polyfluoroalkyl substances (PFAS), 1,4-dioxane, and radium. In addition to records searches, the PA/SI activities have included the sampling of groundwater from monitoring wells located on-property. The presence of PFAS, 1,4-dioxane, and radium have been detected in the PA/SI groundwater samples collected to date however the source of these chemicals is in question. A review of the data indicates a gap exists in the monitoring well network that requires the installation of two additional wells. Water level measurements and analysis of groundwater samples from the new wells will help refine groundwater flow direction on the western portion of former NWIRP property and determine whether groundwater is being impacted from a source upgradient of the facility.

This work plan addresses the installation of two new on-property wells designated as MW-204S (shallow) and MW-204I (intermediate). The two wells will be installed at NWIRP Bethpage at a location hydraulically upgradient of monitoring wells HN-24S and HN-24IR. Figure 2 presents the locations of the proposed and existing monitoring wells. Figures 3 and 4 present the shallow and intermediate potentiometric surface contour maps and groundwater flow directions, respectively from March 2019.

This work is being conducted for the Navy under the Naval Facilities Engineering Command Mid-Atlantic Comprehensive Long-Term Environmental Action Navy Contract (Number N6247016D9008; Task Order WE13).

MONITORING WELL INSTALLATION

Monitoring wells, MW-204S and MW-204I, will be installed using hollow stem auger (HSA) drilling techniques.

The procedure for installing these wells is as follows:

- At MW-204I a borehole will be drilled to approximately 150 feet below ground surface (bgs). Limited volumes of water may be used to help control running sand.
- The borehole will be geophysical logged using a natural gamma downhole probe. The screened interval will be selected based on the geophysical readings and the lithology and screen intervals of nearby wells (e.g., MW-202I and HN-24IR). Based on the nearby wells, MW-204I will be screened from approximately 120 to 150 feet bgs.
- The borehole will be abandoned with sand and/or bentonite-cement grout to approximately five feet below the bottom of the targeted screen interval using a tremie pipe. The use of sand and/or grout will be based on formation material. The remainder of the borehole will be backfilled with sand to the bottom of the screen.

- MW-204S will be installed in a separate borehole with the screen extending 2 feet above the water table and 8 feet below the water table. The water table at this location is approximately at 54 feet bgs.

The construction details for MW204S and MW204I are as follows:

- The wells will be constructed with 2-inch inner diameter, schedule 40 National Sanitation Foundation (NSF)-grade polyvinyl chloride (PVC) well casing and screen.
- Screens will be 10 feet in length and 10-slot (0.010 inches).
- After setting the well screen and casing, a gravel pack (#1 quartz sand) will be installed within the boring annulus to a minimum of 10 feet above top of screen.
- A 5-foot thick fine sand layer (#0 quartz sand) will be emplaced in the annulus on top of the gravel pack.
- A 4-foot thick minimum bentonite seal will be installed above the fine sand layer.
- A bentonite-cement grout will be installed within the annular space above the bentonite seal.
- The wells will be completed at grade using a 12-inch diameter, locking curb box to protect them from vehicular traffic. A fine sand will be installed above the top of the box to allow for drainage.
- A 0.5-foot thick concrete apron measuring 2 feet by 2 feet square will be installed around each well.
- The wells will include a clean compression well cap. Well locks will be used to secure the wells. Final well construction details will be documented on well construction log sheets.

WELL DEVELOPMENT

Wells will be developed no sooner than 24 hours after installation. Wells will be developed using a combination of pumping and mechanical surging. Field parameters (pH, temperature, specific conductivity, oxidation-reduction potential, dissolved oxygen, and turbidity) will be monitored and recorded throughout well development. Development will continue until the well produces clear, sediment-free water, to the extent practicable. In compliance with New York State Department of Environmental Conservation (NYSDEC) policy, wells will be developed until turbidity is less than 50 nephelometric turbidity units (NTUs).

Well development will also include purging stagnant water within the riser pipe above the screen interval and rinsing the interior well casing above the water table using only water from the well.

All development water will be managed as investigation-derived waste (IDW).

INVESTIGATION DERIVED WASTE

IDW generated during this program will include soil cuttings, groundwater, and decontamination fluids. All IDW will be containerized, characterized, and temporarily stored at a central staging area. IDW will be disposed of properly based on waste characterization results. It is anticipated all IDW will be non-hazardous. IDW generated during this investigation will follow procedures outlined in Tetra Tech Standard Operating Procedure (SOP) SA-7.1 Decontamination of Field

Equipment and Management of Investigation Derived Waste (Tetra Tech, 2016) and United States Environmental Protection Agency (EPA) Guide to Management of Investigation-Derived Wastes (OSWER, 1992).

DECONTAMINATION

A centrally-located decontamination pad at NWIRP Bethpage will be used to decontaminate drilling equipment and tooling. All decontamination fluids will be collected from the pad and managed as IDW.

AIR MONITORING

The existing NWIRP Bethpage drilling program Community Air Monitoring Program (CAMP) will be adhered to during this drilling program. Details of the CAMP are outlined in the Final *December 2018 On-Property Letter Work Plan, Vertical Profile Boring and Monitoring Well Installation Program, NWIRP Bethpage, New York* and project Health and Safety Plan (Tetra Tech, 2018a).

SITE SURVEY

The location of each newly installed monitoring wells will be surveyed by a New York State licensed surveyor.

MONITORING WELL SAMPLING

After well development, each well will be allowed to stabilize for a minimum of 14-days before being sampled. Wells will be sampled in accordance with the procedures outlined in the Final *Letter Work Plan, 2018 On-Property VOC and 1,4-Dioxane Groundwater Investigation, NWIRP Bethpage, New York* (Tetra Tech, 2018b) and Final *Letter Work Plan, 2018 Poly- and Perfluoroalkyl Substances Groundwater Investigation, Facility Wide, NWIRP Bethpage, New York* (Tetra Tech, 2018c).

FIELD DOCUMENTATION

Field documentation required to support this project will consist of the following items:

- Field notebook.
- Boring logs
- Well construction sheets
- Well development records
- Groundwater sample log sheets
- Chain-of-custody forms

DATA VALIDATION

Groundwater analytical data collected from the monitoring wells will undergo full data validation in accordance with U.S. EPA data validation guidelines. Validated analytical data will be provided as it becomes available.

REPORTING

A data summary report will be developed summarizing field activities and validated analytical results. Figures and tables will be used to present the analytical data. The report will include log sheets documenting monitoring well drilling, well construction and development, and groundwater sampling. The data validation reports will also be included in the report.

REFERENCES

Office of Solid Waste and Emergency Response (OSWER), 1992. Guide to Management of Investigation-Derived Wastes, April.

Tetra Tech, 2016. Standard Operating Procedure SA-7.1 Decontamination of Field Equipment and Management of Investigation Derived Waste, July.

Tetra Tech, 2018a. December 2018 On-Property Letter Work Plan, Vertical Profile Boring and Monitoring Well Installation Program, NWIRP Bethpage*, New York*, December.

Tetra Tech, 2018b. Final Letter Work Plan, 2018 On-Property VOC and 1,4-Dioxane Groundwater Investigation, Facility Wide, NWIRP Bethpage, NY, April.

Tetra Tech, 2018c. Final Letter Work Plan, 2018 Poly- and Perfluoroalkyl Substances (PFAS) Groundwater Investigation, Facility Wide, NWIRP Bethpage, NY, April.

FIGURES

NAVFAC Naval Facilities Engineering Command

GENERAL LOCATION MAP
NWIRP BETHPAGE, NEW YORK

FILE	SCALE AS NOTED
FIGURE NO. 1	REV DATE

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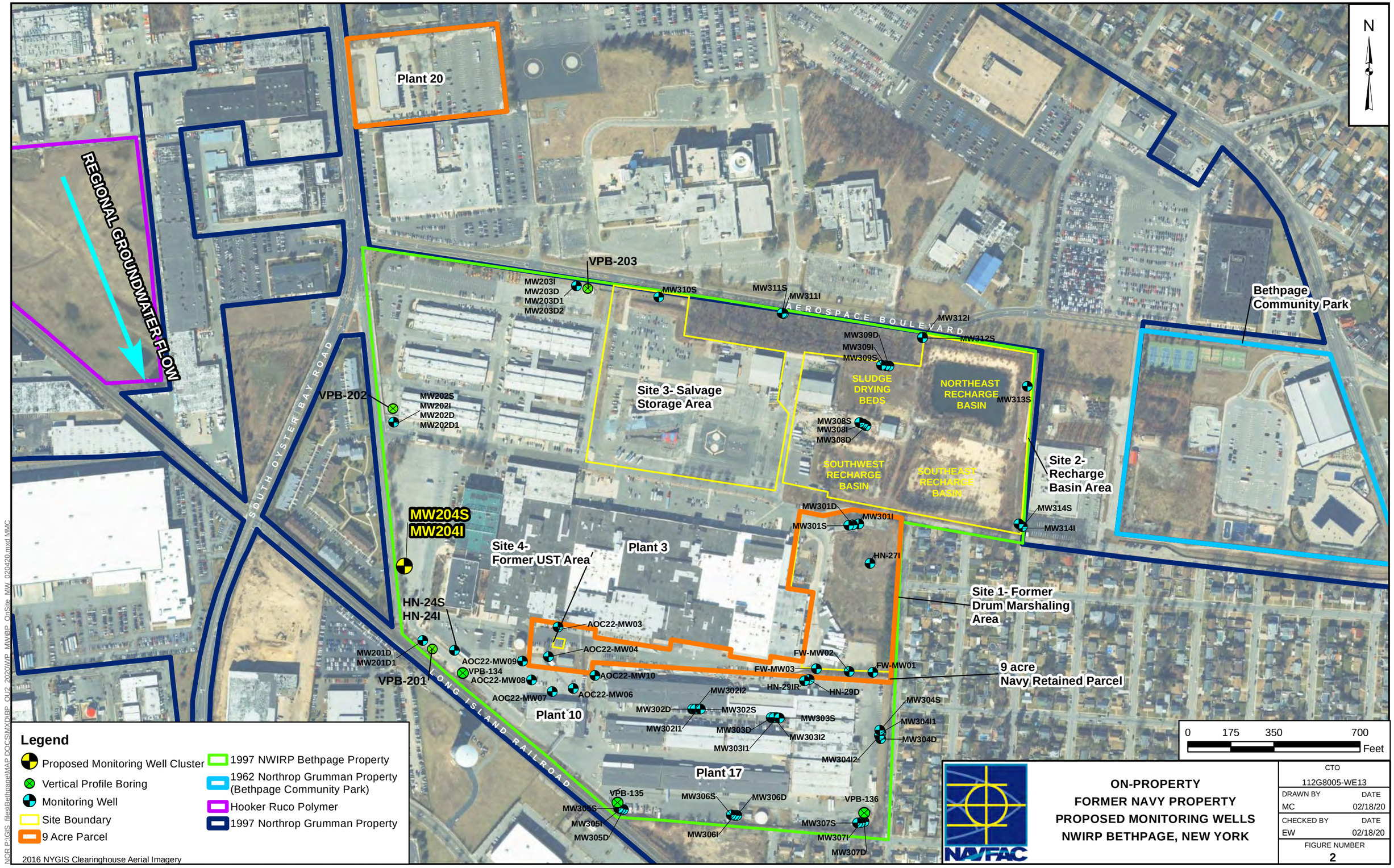
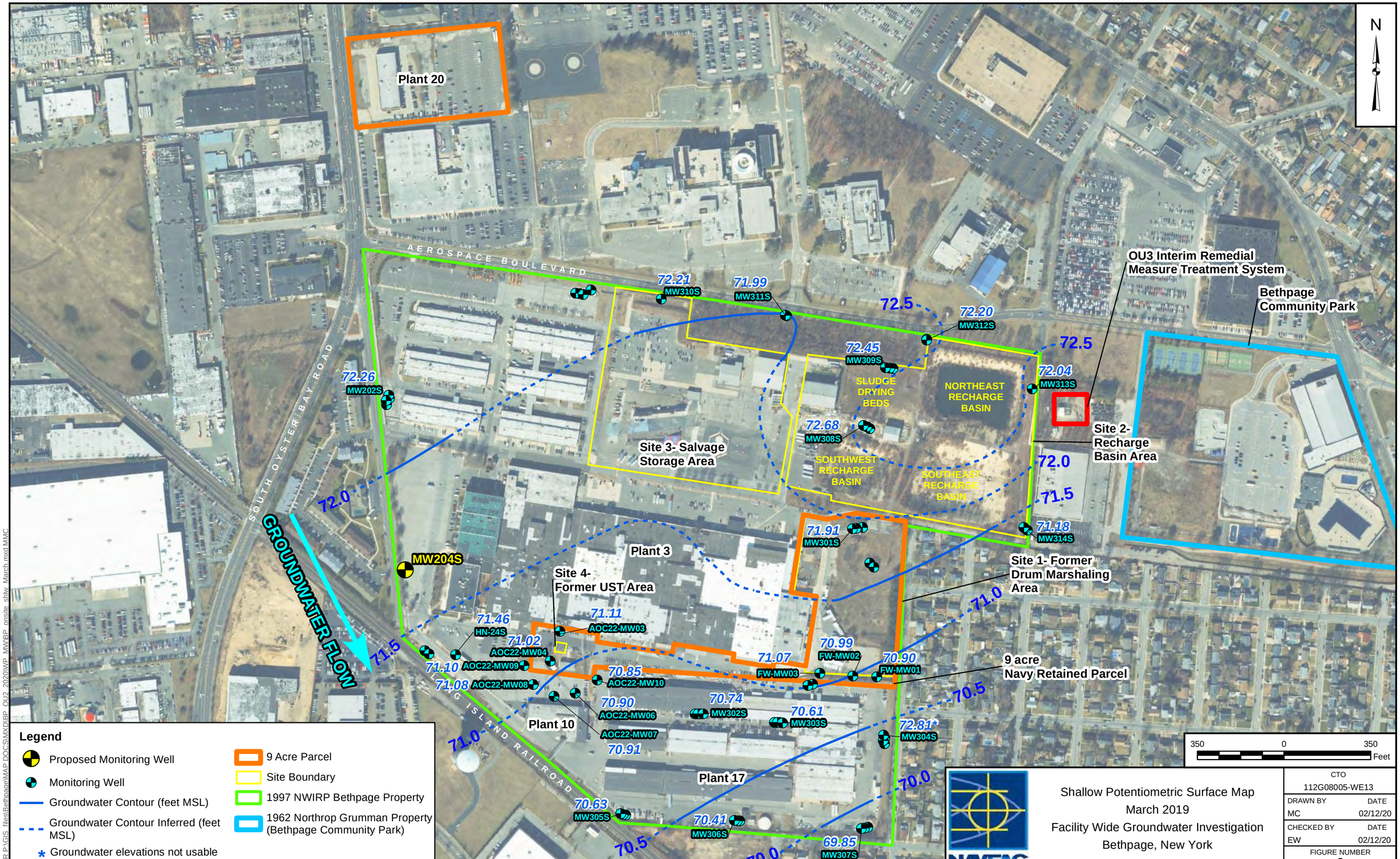


ON-PROPERTY
FORMER NAVY PROPERTY
PROPOSED MONITORING WELLS
NWIRP BETHPAGE, NEW YORK

CTO	112G8005-WE13
DRAWN BY	MC
DATE	02/18/20
CHECKED BY	EW
DATE	02/18/20
FIGURE NUMBER	2

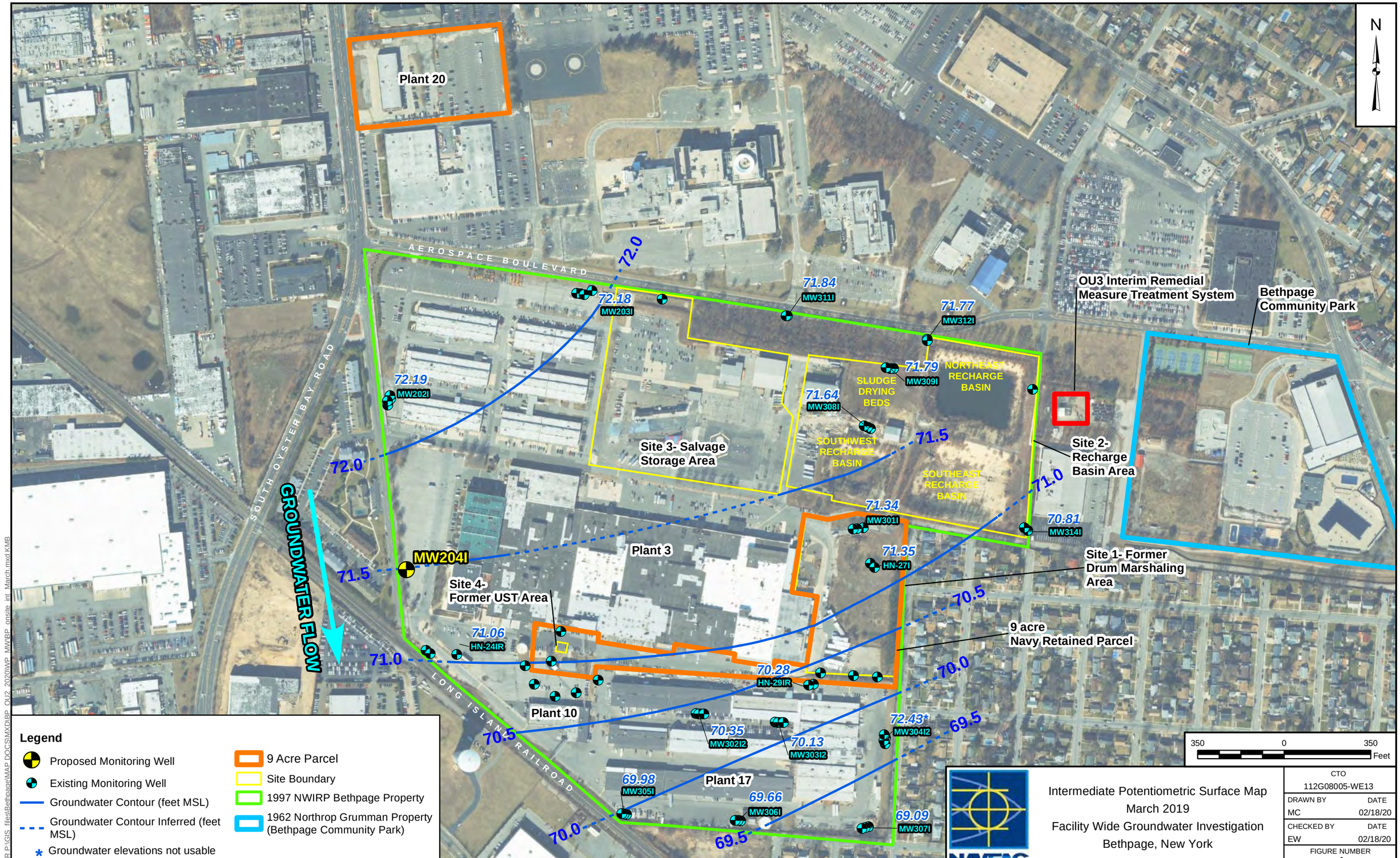
NOR P:\GIS_files\Bethpage\MAP DOCS\MXD\BP_OU2_2020\WP_MWBP_OnSite_MW_020420.mxd MMC



Shallow Potentiometric Surface Map
March 2019
Facility Wide Groundwater Investigation
Bethpage, New York

CTO 112G08005-WE13	
DRAWN BY MC	DATE 02/12/20
CHECKED BY EW	DATE 02/12/20
FIGURE NUMBER 3	

NOR P:\GIS_files\Bethpage\MAP DOCS\MXD\BP_OU2_2020\WP_MW\BP_onsite_shlw_March.mxd MMC


N
Plant 20
AEROSPACE BOULEVARD
SOUTH OYSTER BAY ROAD
LONG ISLAND RAILROAD
GROUNDWATER FLOW
72.0
72.18
MW203I
71.84
MW311I
71.77
MW312I
71.79
MW309I
72.19
MW202I
71.64
MW308I
71.5
71.0
71.34
MW301I
70.81
MW314I
71.35
HN-27I
MW204I
71.5
71.06
HN-24IR
71.0
70.5
70.28
HN-29IR
70.0
72.43*
MW304I2
69.5
70.35
MW302I2
70.13
MW303I2
69.98
MW305I
69.66
MW306I
69.09
MW307I
70.5
70.0
69.5
OU3 Interim Remedial Measure Treatment System
Bethpage Community Park
NORTHEAST RECHARGE BASIN
SLUDGE DRYING BEDS
SOUTHWEST RECHARGE BASIN
SOUTHEAST RECHARGE BASIN
Site 3- Salvage Storage Area
Site 2- Recharge Basin Area
Site 1- Former Drum Marshaling Area
Plant 3
Site 4- Former UST Area
9 acre Navy Retained Parcel
Plant 10
Plant 17
350 0 350 Feet
Legend
Proposed Monitoring Well
Existing Monitoring Well
Groundwater Contour (feet MSL)
Groundwater Contour Inferred (feet MSL)
* Groundwater elevations not usable for contours due to survey differences
9 Acre Parcel
Site Boundary
1997 NWIRP Bethpage Property
1962 Northrop Grumman Property (Bethpage Community Park)
NYGIS March 2016 Aerial Photo
NAVFAC
Intermediate Potentiometric Surface Map
March 2019
Facility Wide Groundwater Investigation
Bethpage, New York
CTO 112G08005-WE13
DRAWN BY MC DATE 02/18/20
CHECKED BY EW DATE 02/18/20
FIGURE NUMBER 4
NOR P:\GIS_files\Bethpage\MAP DOCS\MXD\BP_OU2_2020\WP_MW\BP_onsite_int_March.mxd KMB

NOR-02567

March 2, 2020

Mr. Jason Pelton
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau A, 12th Floor
625 Broadway
Albany, New York 12233-7015

Reference: CLEAN Contract No. N6247016D9008
Contract Task Order WE13

Subject: February 2020 Letter Work Plan, On-Property Monitoring Well Installation
Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage, New York

Dear Mr. Pelton:

On behalf of the Department of the Navy, Tetra Tech is submitting the subject document to the New York State Department of Environmental Conservation (NYSDEC) for review and concurrence. This work plan provides the rational and procedures for installation of two groundwater monitoring wells on the former NWIRP Bethpage property.

If you have any questions please contact Mr. Brian Murray, NAVFAC MIDLANT, at brian.s.murray@navy.mil or (757) 341-0491.

Sincerely,

Ernie Wu for

David D. Brayack, P.E.
Project Manager

Enclosures: February 2020 Letter Work Plan,
On-Property Monitoring Well Installation
NWIRP Bethpage, New York

Distribution:
NYSDEC, Don Hesler
NAVFAC MIDLANT, Brian Murray
Project File

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