Mr. Jason Pelton
Division of Environmental Remediation
Remedial Bureau D, Section B
New York State Department of Environmental Conservation
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Albany, New York 12233

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Subject:
Work Plan for Pre-Design Soil Sampling,
RW-21 Project Area Groundwater Remedy,
Operable Unit 3, Bethpage, New York.

Date:
June 4, 2019

Contact:
David Stern

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631-391-5284

Email:
David.stern@arcadis.com

Our ref:
NYNG2019.TS14

Dear Mr. Pelton:

Arcadis of New York Inc. (Arcadis) prepared this Pre-Design Work Plan on behalf of Northrop Grumman Systems Corporation (Northrop Grumman) to pre-characterize soil along Grumman Road and Hickey Boulevard, which is a portion of the proposed RW-21 Project Area Groundwater Remedy (RW-21 System) pipeline. The data produced from this effort will be evaluated to determine pre-construction soil quality conditions, for protection of construction worker health and safety, and for management of soils during construction. **Figure 1** provides an overview of the proposed RW-21 System.

SUMMARY OF RW-21 SYSTEM

In accordance with the Record of Decision (ROD) for Operable Unit 3 (OU3), Arcadis is designing a groundwater remedial system on behalf of Northrop Grumman to capture and treat volatile organic compounds (VOCs) from groundwater in a portion of the OU3 off-site plume referred to as the RW-21 Project Area. The RW-21 system remedial design includes three remedial wells, designated as RW-20, RW-21 and RW-22. Water pumped from these wells will be transmitted via underground pipes to a new RW-21 System treatment plant, which will be constructed on Northrop Grumman property. Existing on-site recharge basins will be used for the recharge of treated water.

SCOPE OF WORK

Soil sampling will be performed along the proposed pipeline route on the portion of Grumman Road/Hickey Boulevard between the new treatment plant and the

intersection with Central Avenue to the south, representing a distance of approximately 4,400 linear feet (**Figure 2**). Grumman Road is an active roadway that is owned and maintained by the Town of Oyster Bay (Town) with multiple commercial/industrial business abutting the work area.

A total of 44 soil borings are proposed to be drilled along the roadway on 100-ft centers, utilizing direct push drilling techniques (Geoprobe® rig). Continuous soil cores will be collected from grade to a maximum depth of 10 feet below land surface (ft bls), and screened using a photoionization detector (PID) for VOCs. The soil cores will also be geologically logged and visually examined for staining. Soil samples will be collected at the top, middle, and bottom of the borehole, corresponding to 0-2 ft bls; 4-6 ft bls; and 8-10 ft bls depth intervals. To acquire sufficient volume of soil with proposed analysis, more than one boring at each location may be needed. The maximum depth of 10 feet corresponds to the maximum anticipated depth of trench excavation for pipe installation. In addition to the planned sampling intervals, samples may also be collected to address elevated PID readings, staining, or odors encountered during drilling.

Soil samples will be submitted to a New York State Department of Health (NYSDOH) accredited laboratory for the analysis of Target Compound List (TCL) VOCs using United States Environmental Protection Agency (USEPA) Method 8260, SVOCs using USEPA Method 8270, TAL Metals using USEPA Method 6010C and PCBs using USEPA Method 8081. Sample analyses will follow the NYSDEC Analytical Services Protocol (ASP) and will be performed under standard laboratory turnaround time. Quality assurance/quality control (QA/QC) samples consisting of trip blanks, equipment blanks, and field duplicates will also be collected and analyzed in accordance with the NYSDEC-approved Quality Assurance Project Plan (QAPP). Analytical results will be reported using NYSDEC ASP Category B data deliverables. Data obtained from the analytical laboratory will be validated in accordance with the QAPP.

FIELD PROGRAM LOGISTICS

Sampling locations will be marked or staked in the field prior to commencing intrusive activities. Subsurface utilities will be cleared prior to drilling using a minimum of three lines of evidence (e.g., One Call, soft dig, review of utility maps and previous geophysical survey data, site inspection) in accordance with the existing site-specific health and safety plan (HASP). The boring locations will also be cleared of utilities to a depth of 5 ft bls using a hand auger or other soft dig technique. The locations of borings may be adjusted based on the presence of underground and overhead utilities. A site-specific traffic safety plan will be developed and implemented.

Field activities will be overseen continuously by an Arcadis field geologist. Community air monitoring will be conducted in accordance with the NYSDEC-approved Community Air Monitoring Plan.

Decontamination of re-usable downhole drilling/sampling tools (e.g., cutting shoe) will be performed at the work site. Decontamination of the drilling rig will be performed on Northrop Grumman property prior to and after completion of the work. Drill cuttings and other IDW (e.g., PPE, decontamination water, disposable liners, etc.) will be segregated by media and placed in Department of Transportation (DOT)-approved 55-gallon steel drums and removed from the work site on a daily basis. The drums of wastes generated during the activities will be temporarily stored on Northrop Grumman property pending disposal. Drill cuttings will be analyzed for total and toxicity characteristic leaching procedure (TCLP) VOCs, SVOCs, RCRA metals, pesticides, and RCRA characteristics, or as required by the disposal facility. Waste characterization results will be used to develop waste profiles for management of IDW.

Following completion of each boring location, the borehole(s) will be backfilled with clean soil, the work area will be broom swept, and the surface patched with cold patch asphalt.

REPORTING

The validated soil sampling results will be tabulated and provided to NYSDEC in a letter report, followed by applicable electronic data deliverables. This information will be used to support the RW-21 System planning and design.

PROJECT SCHEDULE

Arcadis currently anticipates mobilizing within 2 weeks upon receipt of notice of proceed from the Town of Oyster Bay. Soil sampling on Grumman Road/Hickey Boulevard will take approximately 3 weeks to complete, assuming two work crews, normal work hours (i.e. 7am - 5pm Monday through Friday) and no delays outside of Northrop Grumman's control.

Please contact me if you have any questions or need additional information

Sincerely,

Arcadis of New York, Inc.

David E. Stern
Project Manager

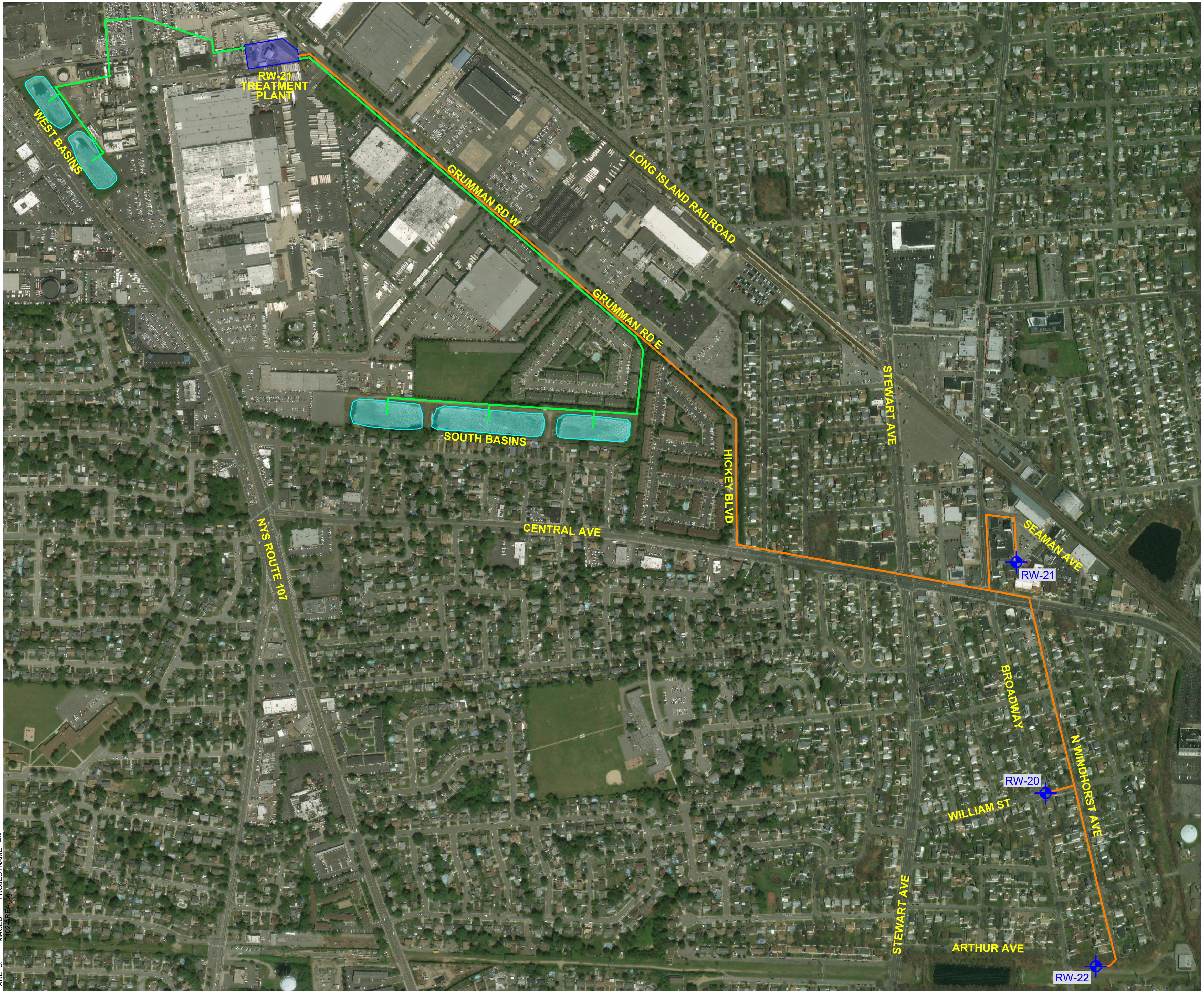
Copies:
Edward Hannon, Northrop Grumman
Don Hesler, NYSDEC
Steve Karpinski, NYSDOH

Enclosures:

Figures

1 Proposed RW-21 Project Area Groundwater Remedy

2 Proposed Area of Soil Sampling



LEGEND:

- COMPLETED REMEDIAL WELL
- TREATMENT PLANT ON NORTHROP GRUMMAN PROPERTY
- INFLUENT WATER
- EFFLUENT WATER
- BASIN

NOTE:

1. PIPELINE ROUTES AND TREATMENT BUILDING LOCATION ARE HIGHLY CONCEPTUAL, SUBJECT TO CHANGE DUE TO ACCESS, UTILITY LOCATIONS AND SITE CONDITIONS.

0 600' 1200'

APPROXIMATE SCALE IN FEET

NORTHROP GRUMMAN SYSTEMS CORPORATION
BETHPAGE, NEW YORK

PROPOSED RW-21 PROJECT AREA GROUNDWATER REMEDY

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

CITY:SYRACUSE-NY DIV/GROUP:ENV DB:A.SANCHEZ LD:ALS PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
LAYOUT: 1 SAVED: 5/15/2019 3:28 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 6/4/2019 9:00 AM BY: SANCHEZ, ADRIAN
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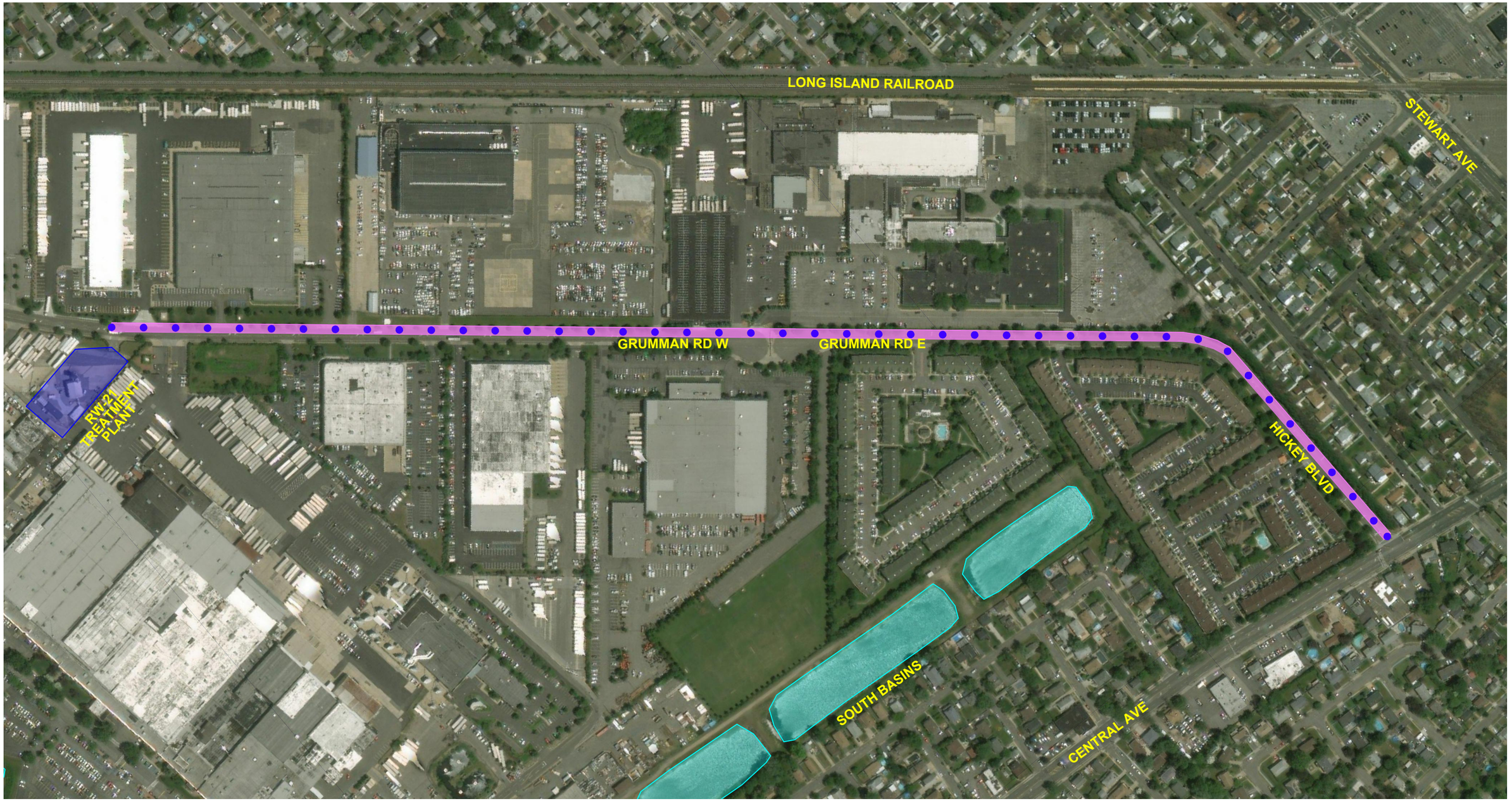

LEGEND:

- TREATMENT PLANT ON NORTHROP GRUMMAN PROPERTY
- BASIN
- SOIL BORING LOCATION
- SOIL BORING AREA
  NORTH PORTION OF GRUMMAN ROAD
  AND EASTERN PORTION OF HICKEY BLVD

NOTE:

1. FIGURE SHOWS CONCEPTUAL PLAN. ACTUAL SOIL BORING AREAS AND SOIL BORING LOCATIONS MAY CHANGE DUE TO ACCESS, UTILITY LOCATIONS AND SITE CONDITIONS.
2. SOIL BORINGS WILL BE DRILLED EVERY 100FT IN THE SOIL BORING AREAS.
3. ADDITIONAL SOIL SAMPLES WILL BE COLLECTED ALONG THE PROPOSED EFFLUENT PIPE CONNECTING THE PROPOSED PLANT TO THE WEST BASINS. SAMPLE LOCATIONS ARE CONTINGENT ON PIPE LOCATION, ACCESS, AND FIELD CONDITIONS.
4. ACTUAL PIPE LOCATION IS CONTINGENT ON UTILITIES, ACCESS AND SITE CONDITIONS.

0 300' 600'

APPROXIMATE SCALE IN FEET

NORTHROP GRUMMAN SYSTEMS CORPORATION
BETHPAGE, NEW YORK

PROPOSED AREA OF SOIL SAMPLING

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FIGURE 2