Revised – Underlined text is revised / added

34-11 BEACH CHANNEL DRIVE SITE

34-11 BEACH CHANNEL DRIVE, FAR ROCKAWAY, NEW YORK 11691

CORRECTIVE MEASURES WORK PLAN

NYSDEC BCP Number: C-241141

Prepared For:
Rockaway Seagirt Limited Partnership
15 Verbena Avenue, Suite 100
Floral Park, NY 11001

Prepared by:

AMC Engineering PLLC
18-36 42nd Street
Astoria, NY 11105

APRIL 2024

April 17, 2024

Mr. Christopher H. Allan
New York State Department of Environmental Conservation (NYSDEC)
Division of Environmental Remediation
47-40 21st Street
Long Island City, NY 11101

Ref.: NYSDEC BCP# C241141
34-11 Beach Channel Drive
Queens, NY 11418
Staten Island, NY 10305
Corrective Measures Work Plan & Response to PRR Comments

Dear Mr. Allan:

This Corrective Measures Work Plan (CMWP) has been prepared in response to your Site Management (SM) Periodic Review Report (PRR) Response Letter (dated January 17, 2024), and the rejection of our PRR. This rejection has been issued after our request to terminate the sub-slab depressurization system (SSDS) and terminate groundwater sampling was denied.

Background Information and Summary

The Site underwent remedial activities under NYSDEC BCP Project# C241141. A Final Engineering Report (FER) and Site Management Plan were issued at the end of 2016, which describes the scope of the remedy, which included groundwater dewatering, in-situ chemical injections, excavation activities, and the implementation of Institutional and Engineering Controls (ICs/ECs) at the site.

The concerns stem from the possibility that the existing groundwater monitoring wells (15MW1, 15MW2, and 15MW3) may not be properly depicting the groundwater conditions. The groundwater table starts 4-5 feet below grade, and soil CVOCs contamination were found in “RIB-2 soil boring” at 13-15’, 20-22’, and 37-39’ below grade. The existing monitoring wells are installed to a termination depth of 30’ below grade and consist of a 15’ screen and 15’ riser.

The main concerns with the existing monitoring wells are: a) the wells do not extend down to determine whether the 37-39’ contamination has been addressed, and b) the wells penetrate the clay layer (20-25’ below grade) and they are screened within the two aquifers, which may have different groundwater flow directions (as per Remedial

Investigation Report by FPM Group, dated February 2015, and Remedial Investigation Report by TRC, dated August 2015 for the adjacent site).

Proposed Corrective Measures

The following corrective measures are proposed:

1. Install three (3) new cluster wells on the job site, as shown in Figure 2. Each cluster consists of three wells (one screened for the 11-16' interval, the second screened for the 19-24' interval, and the last for the 35-40' interval), for a total of nine (9) wells.
2. Install data loggers in all nine newly proposed wells, to determine the effect of tidal influence and other factors that may influence the groundwater flow direction.
3. Survey top of casing of all new monitoring wells at the site, relative to NAVD88 datum.
4. Collect groundwater samples from 24MW-1S, 24MW-1I, and 24MW-1D, the cluster well closest to "RIB-2", to establish groundwater quality in the 13-15', 20-22', and 37-39' intervals.
5. Decommission (abandon) existing monitoring wells: 15MW1, 15MW2, and 15MW3.

These correctives measures will be implemented to:

- Determine the groundwater flow direction in the shallow aquifer;
- Determine the groundwater flow direction in the deep aquifer;
- Establish groundwater quality in the 13-15', 20-22', and 37-39' intervals; and
- Eliminate 15MW1, 15MW2, and 15MW3, which no longer serve any practical purpose onsite.

Based on the results of the groundwater sampling event and direction of groundwater flow, additional direction and guidance may be required from the Department.

Installation of New Monitoring/Cluster Wells

The installation of new cluster wells is necessary to determine the groundwater flow direction within the upper and lower aquifers, and to evaluate whether the on-site groundwater contamination has migrated off-site.

A total of three (3) cluster wells are proposed to determine the direction of the groundwater flow within the upper and lower aquifers. Each cluster well will consist of three (3) monitoring wells, denoted as "Monitoring Well Shallow (MW-S)", "Monitoring Well Intermediate (MS-I)", and "Monitoring Well Deep (MW-D)". For three clusters, this is a total of nine (9) monitoring wells.

All proposed wells will be constructed using a 2-inch diameter PVC riser/casing and 0.02-

inch machine-slotted PVC screen. Each monitoring well will be installed within a 6" borehole, to create a 2" annulus around the wells. The well annuli will be backfilled with #2 well gravel/sand pack (or equal) to cover the screened interval. The sand pack above each screen will be sealed with a two-foot bentonite seal, and the balance of each annulus will be backfilled with the sand pack to grade elevation.

Shallow Wells

The shallow wells (24MW-1S, 24MW-2S, 24MW-3S) will be installed from grade elevation to 16' below grade. Each shallow well will consist of an 11' riser and 5' screen. The shallow wells will represent groundwater conditions from 11-16' below grade, which aims to capture the 13-15' contamination zone found during the remedial investigation.

Intermediate Wells

The intermediate wells (24MW-1I, 24MW-2I, 24MW-3I) will be installed from grade elevation to 24' below grade. Each intermediate well will consist of an 19' riser and 5' screen. The intermediate wells will represent groundwater conditions from 19-24' below grade, which aims to capture the 20-22' contamination zone found during the remedial investigation. The intermediate wells also represent the groundwater quality within the injection zone.

Deep Wells

The deep wells (24MW-1D, 24MW-2D, 24MW-3D) will be installed from grade elevation to 40' below grade. Each deep well will consist of a 35' riser and 5' screen. The deep wells will represent groundwater conditions from 35-40' below grade, which aims to capture the 37-39' contamination zone found during the remedial investigation.

Well construction logs will be generated upon completion of the cluster well installation and submitted to the Department as part of the Corrective Measures Report.

The new cluster well installation will follow the sequence below:

1. Advance a soil boring to 40' below grade and characterize the subsurface materials to note the intervals of clay present in each location.
2. Install the deep well (24MW-1D, 24MW-2D, or 24MW-3D) such that the screen is not fully embedded in clay.**
3. Install the intermediate well (24MW-1I, 24MW-2I, or 24MW-3I) such that the screen is not fully embedded in clay.**
4. Install the shallow well (24MW-1S, 24MW-2S, or 24MW-3S) to 16' below grade.

**The terminal depth of the intermediate and deep well will be determined by the qualified environmental consultant overseeing the cluster well installation. The final depths of each

well may vary, but the objective is to capture the 13-15', 20-22', and 37-39' intervals for the shallow, intermediate, and deep wells, respectively.

Installation of Data Loggers

Data loggers will be installed in all nine (9) wells after well development. Data loggers (Level TROLL series by In-Situ Inc. or equal) will be installed to the bottom of the wells. Each data logger will be programmed to obtain one reading per minute for a total of seven (7) days, to determine the changes in the groundwater elevations over a week. This data will be used to determine whether tidal influence affects the respective aquifer. If the data is unclear, the data loggers may need to remain for a longer period.

On-site Survey & Groundwater Flow Direction

The surveying of the wells will be performed after all the data loggers have been removed. This is to ensure that the groundwater levels within the wells have stabilized, and all tidal influence can be accounted for, based on data obtained during the prior week. A summary of the surveying event and established groundwater flow direction will be submitted to the Department as part of the Corrective Measures Report.

Groundwater Sample Collection

Three (3) groundwater samples will be collected from 24MW-1S, 24MW-1I, and 24MW-1D, and analyzed for:

- Volatile Organic Compounds (VOCs) via EPA Method 8260

A summary of the groundwater sampling event will be submitted to the Department as part of the Corrective Measures Report.

Monitoring Well Abandonment

The existing monitoring wells, 15MW1, 15MW2, and 15MW3 will no longer serve any purpose at the site and will be abandoned as part of this CMWP. The monitoring wells will be decommissioned as per NYSDEC CP-43: Groundwater Monitoring Well Decommissioning Policy, and tremie-fed with a mixture of grout/bentonite, Portland Cement, and sand.

Well decommissioning records will be submitted to the Department as part of the Corrective Measures Report.

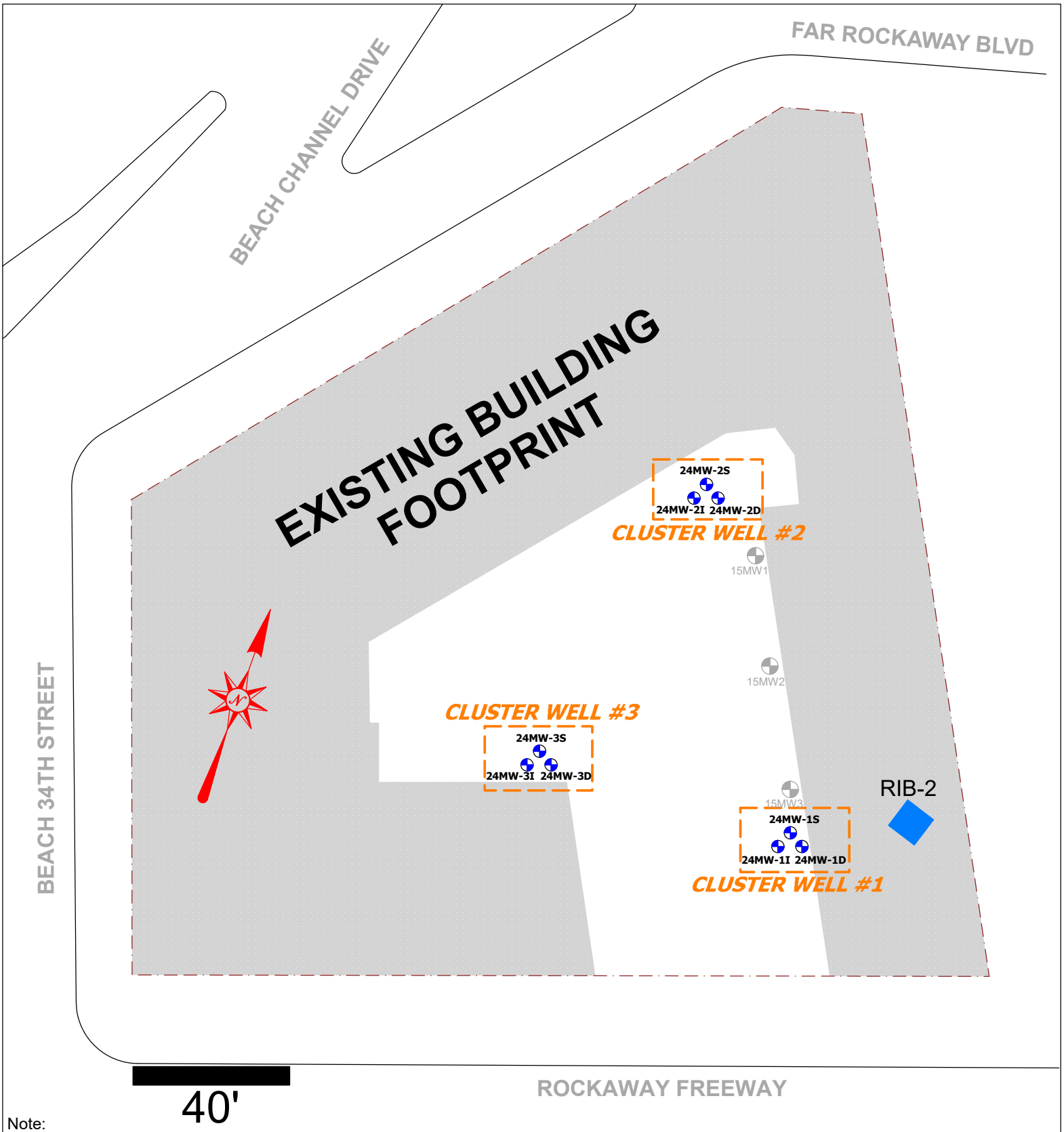
Please feel free to contact me with any questions or concerns.

Sincerely,

Ariel Czemerinski, PE
AMC Engineering, PLLC

Attachments

1. Figures
    a. Cluster Well Installation Plan
    b. Monitoring Well Abandonment Plan
    c. Geologic Cross Sections: West to East
    d. Geologic Cross Sections: South-West to North-East
    e. Geologic Cross Sections: North-West to South-East
2. Copy of PRR Rejection Letter



Note:
1. Shallow wells will be installed to a depth of 16' below grade.
2. Intermediate wells will be installed to a depth of 24' below grade.
3. Deep wells will be installed to a depth of 40' below grade.
4. Each well is made up of 5' screen, and the rest as riser pipe.

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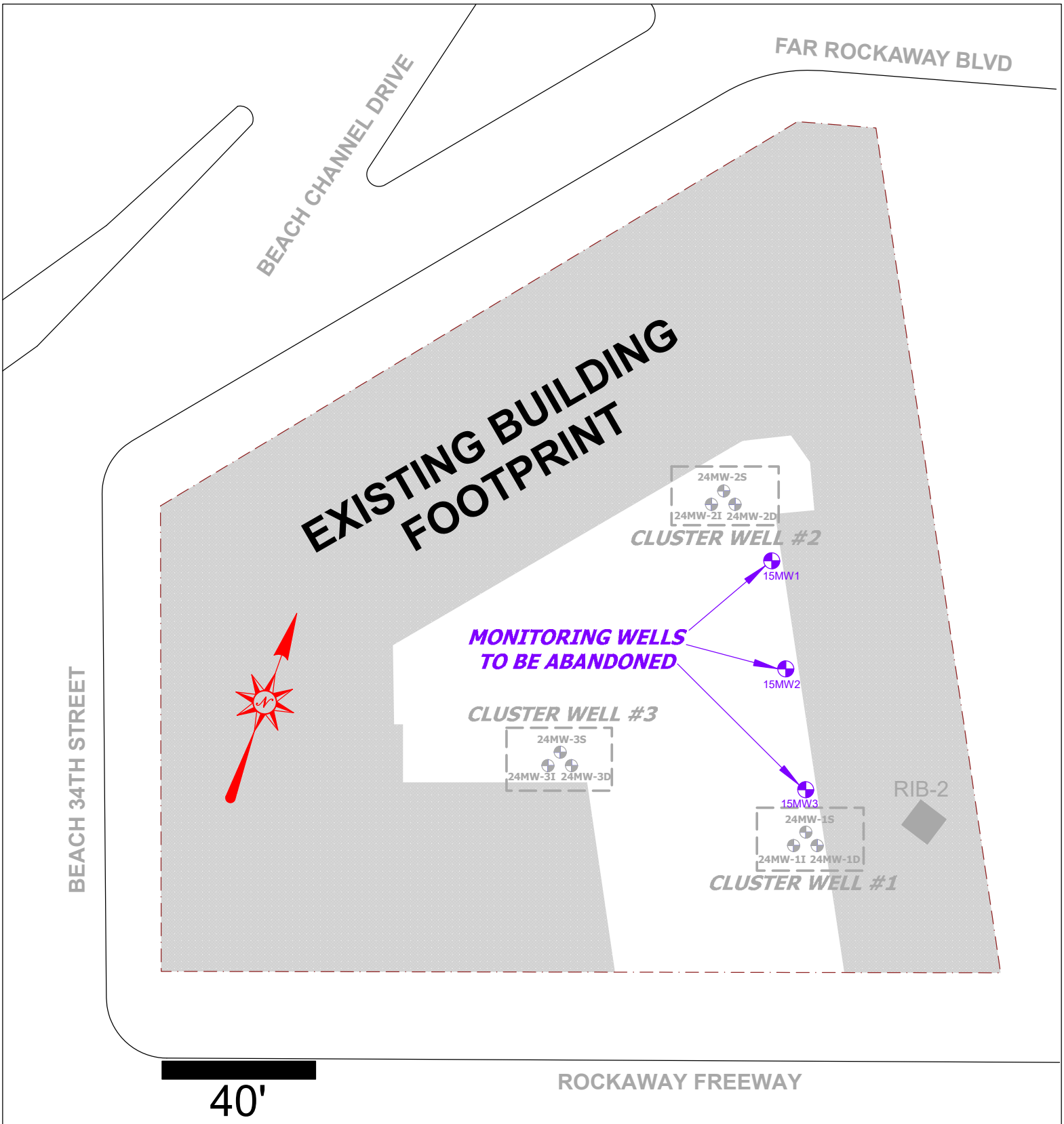
PROJECT
NYSDEC BCP #C-241141
34-11 Beach Channel Drive
Far Rockaway, NY

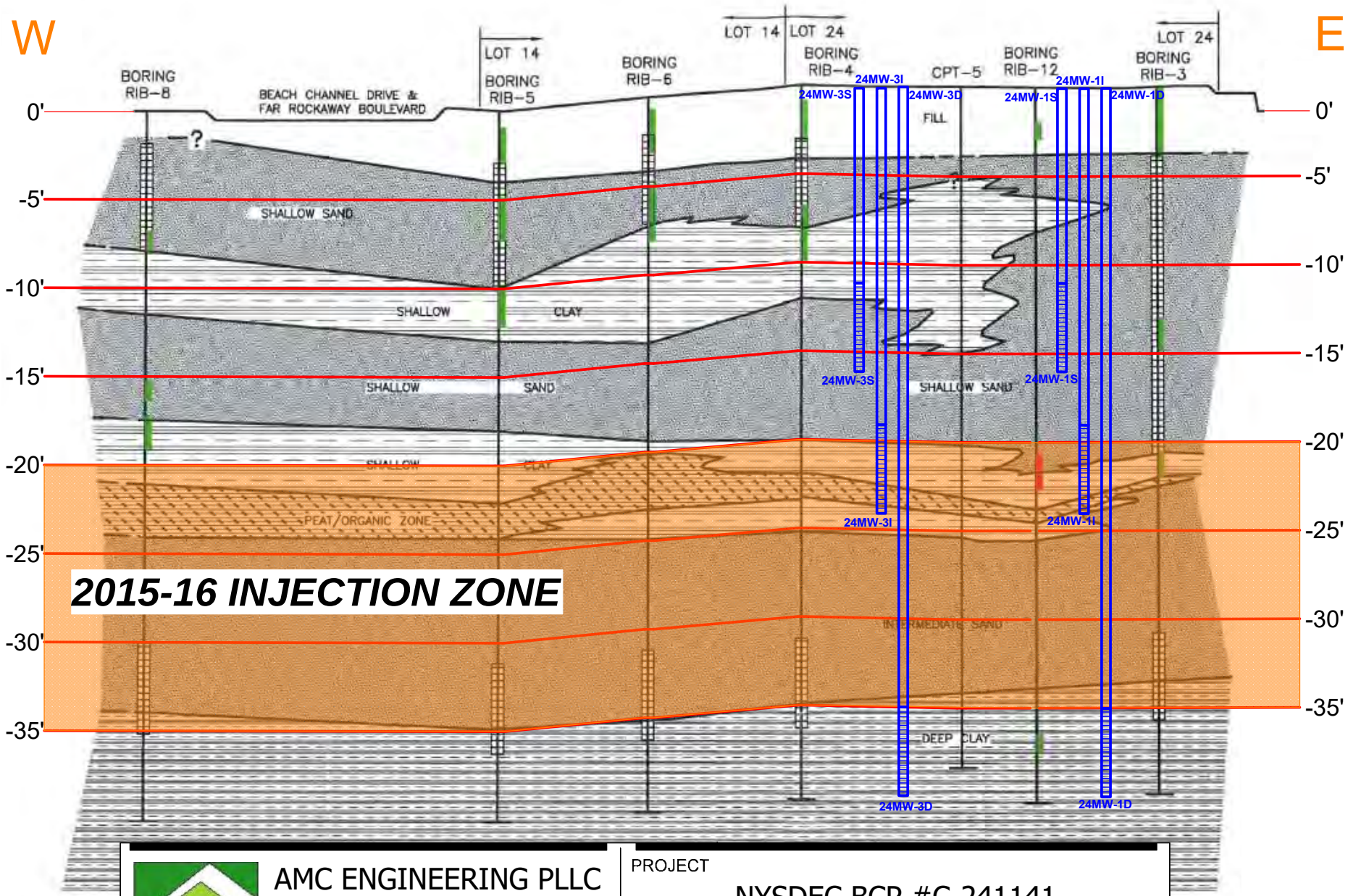
DATE: APR 17, 2024 | DRAWING BY: AS

TITLE:
Cluster Well Installation Plan



Note:
1. Three (3) existing monitoring wells (15MW1, 15MW2, 15MW3) will be abandoned as part of this CMWP.

AMC ENGINEERING PLLC 18-36 42nd Street Astoria, NY 11105 718-545-0474	PROJECT NYSDEC BCP #C-241141 34-11 Beach Channel Drive Far Rockaway, NY
DATE: APR 17, 2024 | DRAWING BY: AS	TITLE: Monitoring Well Abandonment Plan



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PROJECT

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DATE: APR 17, 2024

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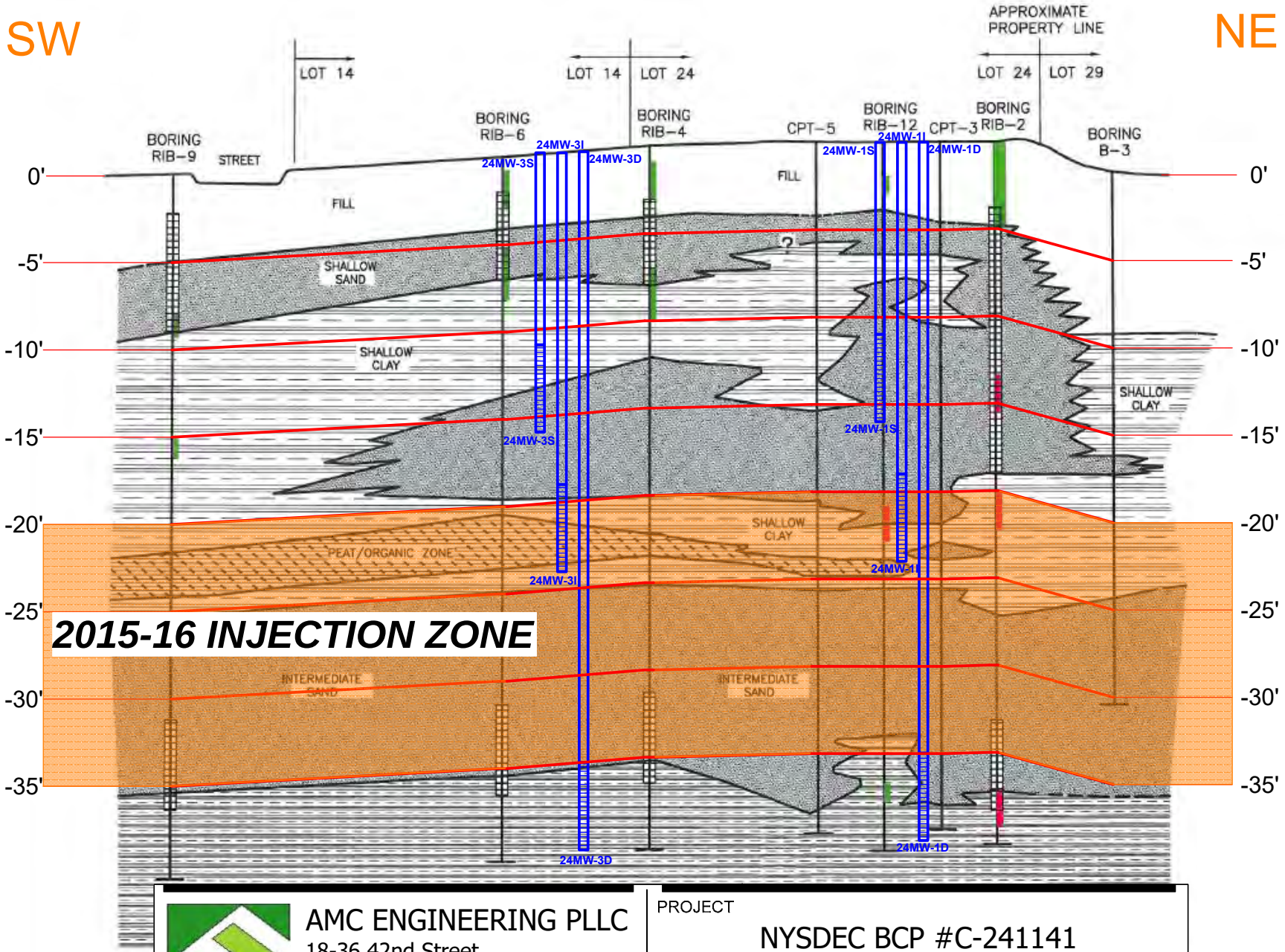
TITLE: GEOLOGIC CROSS SECTIONS WEST TO EAST



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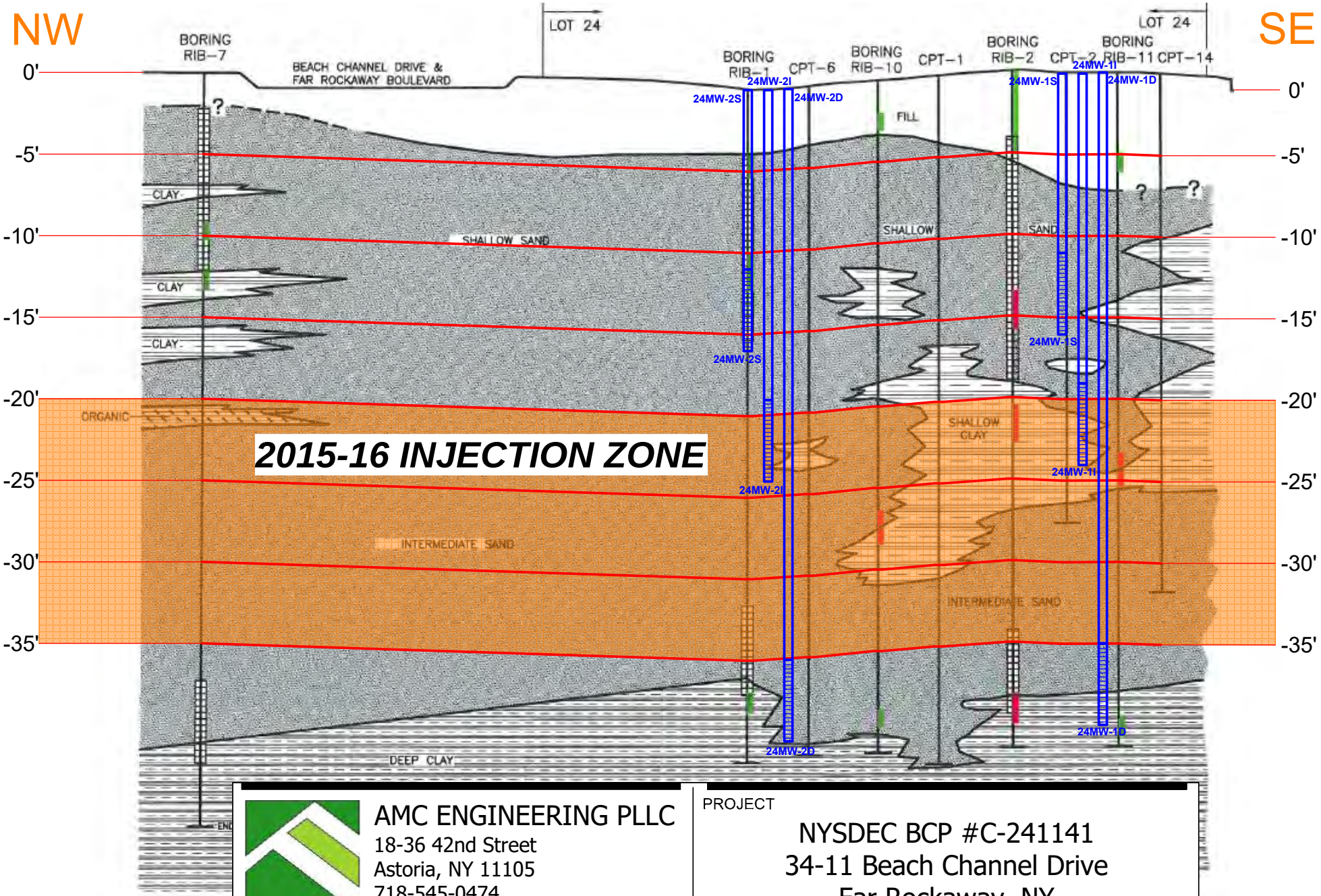
PROJECT

NYSDEC BCP #C-241141
34-11 Beach Channel Drive
Far Rockaway, NY

DATE: APR 17, 2024

DRAWING BY: AS

TITLE: GEOLOGIC CROSS SECTIONS SOUTH-WEST TO NORTH-EAST



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PROJECT

NYSDEC BCP #C-241141
34-11 Beach Channel Drive
Far Rockaway, NY

TITLE: GEOLOGIC CROSS SECTIONS NORH-WEST TO SOUTH-EAST

DATE: APR 17, 2024

DRAWING BY: AS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 2
47-40 21st Street, Long Island City, NY 11101
P: (718) 482-4995
www.dec.ny.gov

January 17, 2024

Daniel Moritz
Rockaway Seagirt Commercial LLC
1044 Northern Blvd, 2nd Floor
Roslyn, NY 11576-1588

Re: Site Management (SM) Periodic Review Report (PRR) Response Letter
34-11 Beach Channel Drive, Far Rockaway
Queens County, Site No.: C241141

Dear Daniel Moritz (as the Certifying Party):

The New York State Department of Environmental Conservation (NYSDEC) has reviewed your Periodic Review Report (PRR) and IC/EC Certification for following period: May 25, 2022 to May 25, 2023.

NYSDEC hereby rejects the PRR and associated Certification for the following reason:

- The request to end ground water monitoring and shut off the sub-slab depressurization system cannot be accepted as NYSDEC has determined the monitoring wells are not installed properly, and are not providing an accurate depiction of the groundwater conditions. NYSDEC requires that additional monitoring well clusters be installed to confirm the groundwater flow direction and provide adequate groundwater quality monitoring above, within, and below the treatment area. This request has been relayed by NYSDEC in several emails and phone calls with your consultant since September 2021, with the latest request in November 2023.

You are required to submit a Corrective Measures Work Plan, including a schedule for completion of the work planned, within 30 days of receipt of this letter.

If you have any questions, or need additional forms, please contact me at 718-482-4065 or christopher.allan@dec.ny.gov.

Sincerely,

Christopher Allan

Christopher Allan
Project Manager

NEW YORK STATE | Department of Environmental Conservation

ec: J. O'Connell, C. Maycock – NYSDEC
S. McLaughlin, S. Wagh – NYSDOH
A. Czemerinski, A. Sung – AMC Engineering