ExxonMobil
Environmental Services Company
38 Varick Street
Brooklyn, New York 11222

June 16, 2016

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau D
625 Broadway 12th Floor
Albany, New York 12233-7013

Attn: Mr. Brian Davidson

Re: Barrier Wall Phase II Construction Completion Report
Former Pratt Oil Works
Long Island City, New York
Consent Order Case No. D2-1002-12-07AM-2
NYSDEC Site No. S241115

Dear Mr. Davidson:

Enclosed is the Barrier Wall Phase II Construction Completion Report (CCR) for the Former Pratt Oil Works site located in Long Island City, New York. This report summarizes the installation of Phase II of the barrier wall interim remedial measure (IRM). This report has been prepared in accordance with the Consent Order between the State of New York and ExxonMobil, filed on April 12, 2016 (D2-1002-12-07AM-2). This report has been prepared by Roux Associates, Inc. on behalf of ExxonMobil.

Should there be any questions or comments on this submission, please do not hesitate to contact me at (718) 404-0652.

Sincerely,

Steve P. Trifiletti
Project Manager

Attachment

cc: Jay Kaplan, Waste Management of New York, LLC (Electronic File)
Kevin Lumpe, Steel Equities
Sharon Morgan, Fox Rothschild, LLP (Electronic File Only)
Dana Hignell, Roux Associates, Inc.

June 16, 2016

BARRIER WALL PHASE II CONSTRUCTION COMPLETION REPORT

ExxonMobil Former Pratt Oil Works (FPOW) Long Island City, Queens, New York

Consent Order Case No. D2-1002-12-07AM-2

NYSDEC Site No. S241115

Prepared for:

EXXONMOBIL OIL CORPORATION
38 VARICK STREET
BROOKLYN, NEW YORK

Remedial Engineering, P.C.
Environmental Engineers

and ROUX ASSOCIATES, INC.

209 Shafter Street, Islandia, New York 11749 ♦ 631-232-2600

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FIGURES

APPENDICES *(Provided on CD in Bound Report)*

PLATES

1. Site Plan
2. Groundwater Elevations and Apparent LNAPL Thickness November 9 Through 10, 2015

DISCLAIMER

All professional engineering services rendered in preparation of this document have been performed for Roux Associates, Inc. by Remedial Engineering, P.C., a professional corporation qualified to perform such services in the state of New York.

CERTIFICATION

I, Brian P. Morrissey, certify that I am currently a NYS-registered professional engineer and that this Barrier Wall Phase II Construction Completion Report was prepared in accordance with all applicable statutes and regulations, in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and the Investigation and Remedial Consent Orders between the State of New York and ExxonMobil Oil Corporation, filed on July 15, 2008 and April 12, 2016, respectively.

Brian P. Morrissey, P.E.	June 16, 2016	Signature
NYS Professional Engineer #062617	Date	

LIST OF ACRONYMS AND UNITS

CCR	Barrier Wall Phase II Construction Completion Report
FBG	Feet Below Grade
FPOW	Former Pratt Oil Works
FT/D	Feet Per Day
GWE	Groundwater Elevation
IPS	Inches Per Second
IRM	Interim Remedial Measure
LNAPL	Light Non-Aqueous Phase Liquid
NYCDOB	New York City Department of Buildings
NYSDEC	New York State Department of Environmental Conservation
PPE	Personal Protective Equipment
PSI	Pounds Per Square Inch
PVC	Polyvinyl Chloride
SSUR	Site Status Update Report
TAM	Tube A Manchette
VMS	Vibration Monitoring System
VMP	Vibration Monitoring Plan

1.0 INTRODUCTION

On behalf of ExxonMobil Oil Corporation (ExxonMobil), Remedial Engineering, P.C and Roux Associates, Inc. (referred to collectively as "Roux Associates"), have prepared this Barrier Wall Phase II Construction Completion Report (CCR) to summarize the Barrier Wall Interim Remedial Measure (IRM) Phase II installation (hereby referred to as "Phase II") at a portion of the Former Pratt Oil Works (FPOW) Project located in Queens, New York. The FPOW Project, as defined in the Remedial Consent Order (Case No. D2-1002-12-07AM-2) between the State of New York and ExxonMobil filed on April 12, 2016 (Remedial Consent Order), is shown on Figure 1 (Site).

Previously, ExxonMobil voluntarily entered into an Investigation Consent Order with the State of New York on July 15, 2008 (Case No. D2-1002-12-07AM) to complete investigation activities within the Upland and Waterfront project areas, known as Tracts I and II, respectively, (hereby referred to in this CCR as the "Former Site boundary"), and to perform IRMs, as necessary, based on the results of the Site investigations. This CCR was prepared in accordance with the requirements of the Remedial Consent Order and the Investigation Consent Order.

The remainder of this CCR is organized as follows:

- Section 2.0 provides a description of the Site including, but not limited to, background, current property uses and geology;
- Section 3.0 provides a summary of the Phase II installation;
- Section 4.0 provides a summary of waste management; and
- Section 5.0 provides conclusions and recommendations.

2.0 SITE DESCRIPTIONS

This section provides a general Site description and history of operations conducted within the Site. The Site location and boundaries are depicted in Figure 1.

2.1 Background

The Site is a former wax refinery that was operated by a predecessor of ExxonMobil from approximately 1892 to 1949, in the Long Island City section of Queens, New York. The Site covers an area of approximately 18.2 acres and is located within a major industrial area. The Site currently consists of 13 lots along Review Avenue and Railroad Avenue, and is divided into 10 parcels (designated "A" through "K") based on property owner (Plate 1). Although Parcel J, as identified in Plate 1, was included in the Former Site boundary, it is not included in the Site boundary as defined by the Remedial Consent Order. ExxonMobil has not owned any of the properties within the Site for approximately 65 years. The Site is bordered by Review Avenue and First Calvary Cemetery (north), Newtown Creek (south), Quanta Resources State Superfund Site and Phoenix Beverages, Inc. (northwest), an asphalt recycling and manufacturing facility (southwest), and a former concrete facility (east).

2.2 Current Property Use

Current uses of the properties within the Site include, but are not limited to, the following: The City of New York Department of Sanitation waste transfer station, warehouse and/or office space, vehicle storage, cesspool services, valve manufacturing, lumber and building materials distributer, commercial refrigeration supply distributer, and cleaning products manufacturing. The current parcel addresses and Block/Lot numbers are as follows:

Parcel	Address	Block/Lot
Parcel A	38-34 Review Avenue 38-40 Railroad Avenue	312 / 300 312 / 1367
Parcel B	38-42 Review Avenue 39-14 Review Avenue	312 / 309 312 / 315
Parcel C	38-70 Review Avenue	312 / 348
Parcel D	38-84 Railroad Avenue	312 / 1362
Parcel E	38-50 Review Avenue 38-54 Railroad Avenue	312 / 362 312 / 500

Parcel	Address	Block/Lot
Parcel F	38-98 Review Avenue	312 / 343
Parcel G	38-78 Review Avenue	312 / 349
Parcel H	39-30 Review Avenue	312 / 330
Parcel I	38-20 Review Avenue	312 / 89
Parcel K	38-60 Review Avenue	312 / 350

2.3 Site Stratigraphy

The stratigraphic units underlying the Site consist primarily, from land surface down, of: artificial fill, glacially-deposited sediments (i.e., glacial drift), and, in proximity to the shore, there are fluvial sediments and marsh deposits (i.e., historical creek and marsh sediments). The glacial drift beneath the Site includes both glacial till and glacial outwash.

2.4 Groundwater Flow and LNAPL Distribution

Fluid levels are collected from monitoring wells as part of the quarterly Site-wide gauging events. Each quarter, measurements are taken in an effort to assess any potential changes in average groundwater elevations (GWEs) and apparent light non-aqueous phase liquid (LNAPL) thickness, if LNAPL is present. GWEs are calculated using the monitoring well top of casing elevation and depth to water detected in the monitoring well. For monitoring wells with LNAPL, the GWEs are corrected using the apparent LNAPL thickness and specific gravity.

On-Site, there are 67 monitoring wells and 12 bulkhead wells. The bulkhead wells were installed adjacent to the steel sheeting bulkhead within Parcel B and are not indicative of the Site formation, but rather, water levels within Newtown Creek. During the Site-wide gauging event conducted prior to installation of Phase II of the barrier wall, November 9-10, 2015, a total of 58 of the 67 on-Site monitoring wells, and all 12 bulkhead wells were gauged for GWE and apparent LNAPL thickness, where present. Groundwater elevations obtained from monitoring wells that are not screened in the regional aquifer were not considered for purposes of illustrating the regional groundwater flow field presented on Plate 2. The general groundwater flow direction within the regional aquifer is towards the south.

Of the 58 monitoring wells that were gauged in November 2015, 31 had detections of LNAPL, with the apparent LNAPL thicknesses ranging from approximately 0.01 feet (MW-5S) to approximately 12.45 feet (MW-42). Within the immediate barrier wall construction area, the monitoring wells that had a measurable amount of LNAPL were MW-27 and MW-33.

3.0 BARRIER WALL INSTALLATION

The voluntary installation of a subsurface barrier wall was proposed in an effort to incrementally reduce the hydraulic conductivity and mitigate potential LNAPL transport. The scope of work was previously described in the Barrier Wall IRM Work Plan (Work Plan) and Barrier Wall IRM Work Plan Addendum (Addendum) prepared by Kleinfelder East, Inc., (Kleinfelder) submitted to the New York State Department of Environmental Conservation (NYSDEC) on October 15, 2012 and September 12, 2014, respectively. The NYSDEC approved the Work Plan on November 26, 2012. NYSDEC approval of the Addendum, which proposed the inclusion of the barrier wall into ExxonMobil's Consent Order Case No. D2-1002-12-07AM as a permit equivalence of a NYSDEC Tidal Wetlands Permit to implement the IRM, was provided on September 15, 2014.

The three potential phases of the barrier wall were proposed as follows:

- Phase I ----- High slump mortar;
- Phase II ---- Bentonite-cement grout; and
- Phase III --- Microfine cement grout.

Phase I of the barrier wall installation was completed between September 22 and October 10, 2014 by Moretrench American Corporation of Rockaway, New Jersey (Moretrench), with Kleinfelder providing oversight. Details of the Phase I installation were provided in the Barrier Wall Construction Completion Report, prepared by Kleinfelder, submitted to the NYSDEC on February 4, 2015, and approved on March 16, 2015.

Following completion of Phase I, in an effort to further reduce the potential, local hydraulic effects of tidal influence and to eliminate potential preferential pathways, ExxonMobil voluntarily proposed the Phase II installation. The Phase II Scope of Work (Scope of Work) was prepared by Roux Associates, submitted to the NYSDEC on November 30, 2015, and approved on December 1, 2015. The Phase II work was completed in accordance with the approved Scope of Work.

Completion of Phase II included the following tasks:

- Permitting and approvals;

- Site preparations;
- Drilling and “tube a manchette” (TAM) pipe installation;
- Cement-bentonite grouting;
- Well abandonment;
- Quality assurance;
- Vibration and air monitoring;
- Construction monitoring;
- Performance testing; and
- Site restoration.

A description of each task, along with any deviations from the approved Scope of Work, is provided in the subsections below. Photographic documentation of the work is provided in Appendix A.

3.1 Permitting and Approvals

Permits and approvals procured for the Phase II installation included:

- New York City Department of Buildings (NYCDOB) permit number 420802046-01-EW-OT (Appendix B); and
- NYSDEC approval of the Scope of Work on December 1, 2015.

In addition, the property owners of Parcel A and Parcel B were notified of the expected construction dates prior to the start of work, in accordance with the property-specific access agreements.

3.2 Site Preparations

Site preparations included utility mark-outs, completion of a pre-construction survey and contractor mobilization.

On February 26, 2016, Roux supervised Aquifer Drilling & Testing, Inc. of Mineola, New York (formally Diversified Geophysics, Inc.) in identifying subsurface utilities within the Phase II work

area, up to 10 feet below grade (fbg), and establishing mark-outs prior to the start of work. The utilities were detected using a Ridgid Seektech SR-60 receiver and Noggin 250 MHz Smartcart.

On February 29, 2016, Roux supervised Control Point Associates, Inc. of Warren, New Jersey (Control Point), a New York State licensed surveyor, in the performance of a pre-construction, three-dimensional survey of the buildings and bulkhead in the Phase II vicinity. The survey was conducted using a high definition scanner (Leica C10 Scanstation) with a minimum of three reference points along the bulkhead. Referencing the Scope of Work, the surveyor marked out the 17 proposed TAM pipe locations, in preparation for installation by Moretrench. Further details regarding the pre-construction survey are provided in Section 3.8.

Moretrench was contracted to complete the drilling and grout injection work. The following equipment was mobilized to the Site by Moretrench on March 1, 2016:

- Commachio 602 Drill Rig;
- Takeuchi Skid Steer;
- High shear colloidal mixer;
- Two Job Boxes for storage;
- Grout and water hoses with whip guards;
- 5.5-inch Drill Casing;
- 2 3/8-inch Inner Flush Rods;
- 88.9 millimeter Casing;
- Miscellaneous grouting equipment;
- 30 Jersey barriers; and
- Temporary facilities.

3.3 Drilling and TAM Pipe Installation

From March 2 through March 4, 2016, Roux Associates supervised Moretrench in the drilling and installation of 17 TAM pipes. The proposed Phase II design included the installation of 17 TAM pipes, approximately five feet apart, parallel with the Newtown Creek shoreline and the Phase I

barrier wall. The points spanned east and downgradient of MW-31, and west of MW-25. The TAM pipes were numbered from 1 to 17 going west to east, with TAM-1 designated as the westernmost pipe and TAM-17 the easternmost. TAM-1 to TAM-12 were installed within Parcel A, and TAM-13 to TAM-17 were installed within Parcel B.

The boreholes were drilled using water flush rotary drilling methods. The primary drilling method was a positive flush technique, which involved advancing a small diameter drill casing while flushing out the spoils with drilling liquid. Moretrench used potable water supplied from a nearby fire hydrant as the drilling liquid. Measures to control run-off included utilizing a plastic berm around the drilling locations, lining the safety barriers with plastic tarp, and securing the tarp with sandbags on grade.

All boreholes were designed to be drilled approximately 15 fbg. If refusal was reached before reaching 15 fbg, duplex drilling methods were performed, which involved advancing an outer casing and an inner rod with a tri-cone roller bit on the end. The TAM pipes were then installed from grade to the bottom of the borehole, and the casing was filled with cement-bentonite annulus grout (28 day strength, approximately 100 pounds per square inch [psi]). Once the annulus grout was in place, the TAM pipes were left as stickups above grade, secured in a grout-filled borehole. Adjustments had to be made for the installation of TAM-8, TAM-16, and TAM-17, due to obstructions during drilling. TAM-8 was drilled one foot east and one foot north from the proposed locations, TAM-16 was drilled two feet west of the proposed location, and TAM-17 was drilled one foot shallower than proposed, at 14 fbg.

3.4 Cement-Bentonite Grouting

From March 7 to March 10, 2016, Roux Associates supervised Moretrench in completing the grout injections via the newly installed TAM pipes. The cement-bentonite grout was comprised of Type I/II Portland cement, Halliburton sodium bentonite, and Quik-Gel®. The grouting was completed on a volumetric basis. Each TAM pipe received two rounds of injections. Each round involved injecting the grout mixture at varying depths by advancing the injection rod by approximately one to two foot long segments. The injection rod was advanced to the next injection segment when the refusal pressure was met (approximately 1.5 psi) or approximately

20 gallons were injected. Grout was injected at every other port until all ports were completed. Once grouting began at a port, it was continued until one of the following occurred:

- Grout returned to the surface; or
- Structural movement occurred.

Grouting times, pressures, volume, and comments were noted in the Moretrench grouting logs, provided in Appendix C. Based on the logs, grouting pressures peaked at 200 psi and typically stayed in the range of 20 to 40 psi. Up to 200 psi was used for short periods of less than a minute to "crack" the existing grout and allow the injected grout to flow through. Between 47 and 186 gallons of grout were injected at a TAM pipe during one round. The total volume of grout injected was estimated at 3,715 gallons.

During grouting, the cement-bentonite grout was batched on-site using a high shear colloidal grout mixer. Water was added to the mixing tank in proper proportions, along with the bentonite and cement. The grout was mixed in the mixer until homogeneous and transferred to a holding tank until pumped. The grout was pumped to the manifold, which distributed and isolated the grout from the main supply to each injection location. A sampling port was also reserved for the grout to be sampled. Any grout that was not directed to a TAM pipe was recirculated back to the mixer to maintain its liquefied state. Each individual grout line on the manifold was equipped with a magnetic flowmeter that provided instantaneous flow rates and totalizer readings. A grouting technician from Moretrench oversaw all grouting work and monitored the flow rate, volume, and pressure during injections.

3.5 Well Abandonment

Three monitoring wells within the work area, MW-25, MW-26, and MW-32, were observed to be filled with grout after injections were complete. On March 11, 2016, Moretrench abandoned these monitoring wells, along with the Phase I piezometer wells PZ-1, PZ-2, and PZ-3. Moretrench filled the monitoring wells with excess cement-bentonite grout from the injections and removed the casings and concrete pads. Photographs of the abandoned piezometers and monitoring wells are provided in Appendix A.

3.6 Quality Assurance

During the grout injections, Moretrench monitored and recorded injection depth, injection time, grout volume, and average flow rate and pressure. The grout flow and pressure were monitored for observations of impacts such as grout escapes and ground heave in an effort to prevent/monitor adverse effects to the bulkhead, buildings, and Newtown Creek. Daily field reports (Appendix D) were prepared with the critical information to document conformance to the design parameters established.

Quality controls for the grout included checking the grout consistency and strength. Viscosity was measured and recorded twice per day using a marsh funnel with a target time between 35 and 55 seconds for approximately one quart of grout to flow out of the marsh funnel. All target times fell within this range. Strength of the grout was determined by collecting at least four 2 by 2-inch grout cubes daily and submitting them to Jersey Essay Labs, Inc. of Fairfield, New Jersey for strength testing. The average 28-day compressive strength ranged from 20 to 30 psi. The strength test results are provided in Appendix E.

3.7 Vibration and Air Monitoring

In an effort to prevent potential impact to the adjacent buildings, Roux Associates personnel conducted full-time vibration monitoring. The vibration monitoring system (VMS) equipment used was the same manufacturer and model of equipment used during Phase I, including two sets of an Instantel 4 Channel Minimate Plus, Instantel Triaxial Geophone, and remote server rented from Eco-Rental Solutions of Elmsford, New York. All vibration monitoring was conducted in accordance with the Vibration Monitoring Plan (VMP) prepared by Roux Associates on January 21, 2016. The VMP established a maximum allowable vibration limit of 0.20 inches per second (ips) and 0.16 ips (80 percent of the maximum level) as the threshold vibration limit. The allowable limit was based on the conditions of the buildings and maximum vibration levels for similar structures in New York City, and is a conservative estimate when considering that the maximum allowable vibration limit for historic buildings is 0.5 ips, as per the NYCDOB's Technical Policy and Procedure Notice 10/88. Data was distributed via the remote servers, which sent daily monitoring reports and immediately notified Roux Associates personnel via email if an exceedance of the threshold vibration limit was observed.

The VMSs were installed in two warehouse buildings, one at Parcel A and another at Parcel B. The equipment was stationed along the southern wall of each building, opposite the work area, in a location that was most practical. Photographs of the VMS equipment set-up can be found in Appendix A. The VMSs were labeled LI CITY #1 (Parcel A) and LI CITY #2 (Parcel B). The VMSs recorded at five-minute intervals on its internal memory and the data was uploaded to the remote server at the end of each day. There were exceedances detected on the systems, however, all were due to troubleshooting or accidental shifting of the equipment. The data, including the days the exceedances were detected, along with an explanation for each, are provided in Appendix F, with the exclusion of data collected on March 2, 2015. The vibration monitoring data collected on March 2, 2016 was not reported as tabulated data, and instead was summarized graphically. As seen in Appendix F, there were three vibration exceedances observed at LI CITY#2. The approximate maximum exceedance value, time, and reasoning for each exceedance observed at LI CITY#2 on March 2, 2016 are as follows:

- 1.2 ips at 9:00 a.m. due to shifting equipment to establish a stronger server connection;
- 0.7 ips at 12:30 p.m. due to shifting equipment to establish a stronger server connection; and
- 1.2 ips at 2:40 p.m. due to demobilizing equipment prior to shutting off the unit.

Roux Associates field personnel continuously monitored ambient air quality using a MultiRAE Plus meter that monitors the air for oxygen, hydrogen sulfide, combustible gas (as measured by methane), volatile organic compounds, and carbon monoxide. The air quality results were recorded at two-hour intervals from March 2, 2016 (prior to the start of drilling) to March 11, 2016 (drilling completion). No exceedances were detected.

3.8 Construction Monitoring

On February 29, 2016, Roux supervised Control Point in the performance of a pre-construction, three-dimensional survey of the buildings and bulkhead within the vicinity of Phase II. The survey was conducted using a high definition scanner (Leica C10 Scanstation), with a minimum of three reference points along the bulkhead. Following installation of Phase II, Control Point completed a post-construction re-survey of the area on March 18, 2016. The surveys produced point data with approximately 100 common points throughout the survey area with reference to the North American Datum 1983 horizontally, and the North American Vertical

Datum 1988 by GPS observation provided by the Keystone Keynet VRS Network vertically. The integrated data were used to generate horizontal and vertical locations of visible reference points that were correlated to one another using Cyclone 9.1 software. The results were analyzed by Control Point, and no variations or movement due to the Phase II installation was detected. The post-construction survey and letter certification from Control Point are provided in Appendix G.

For the duration of the Phase II work, Roux Associates contracted Atlantic Response, Inc. of East Brunswick, New Jersey (Atlantic Response) to provide emergency spill standby and monitor worker safety along the bulkhead. As a precautionary measure, Atlantic Response installed absorbent pads ("sweeps") alongside the existing 5-inch absorbent boom in Newtown Creek to control any potential sheen to the extent observed during the course of the work. Neither grout nor sheen were observed penetrating the bulkhead during grout operations.

Per requirements of the NYCDOB, Roux Associates contracted Skyline Engineering, LLC of New York, New York (Skyline) to conduct construction inspections of the barrier wall installation and structural safety/stability inspections of the adjacent buildings. Skyline did not observe new structural defects to the adjacent buildings during or following Phase II installation. A copy of Skyline's final inspection report and other related documents are included in Appendix H.

3.9 Performance Testing

After completion of the cement-bentonite grouting, Moretrench drilled piezometer wells PZ-4, PZ-5, and PZ-6 on March 11, 2016, within the projected northern limits of the barrier wall, as illustrated in Figure 2. The piezometers were drilled to approximately 15 fbg using a Commacchio 602 drill rig. They were constructed of 1.5-inch diameter polyvinyl chloride (PVC) casing with five feet of screen. The annular space around the screen was backfilled with sand up to four fbg followed by #0 well sand to cover the screen above the water table. On March 14, 2016, Moretrench conducted hydraulic conductivity testing by falling head test methods to measure the in-situ permeability of the barrier wall. Using this method, a known volume of water was added to each piezometer, causing a rise in the potentiometric surface. The change in water level was then recorded over time as the water level fell. The test results were analyzed using the Hvorslev Slug Test Method for Piezometers not fully penetrating an aquifer. The hydraulic

conductivity of PZ-4, PZ-5, and PZ-6 were 0.035 feet per day (ft/d), 0.031 ft/d, and 0.022 ft/d respectively, which is below the target hydraulic conductivity/permeability of less than or equal to 1ft/d. Site-wide hydraulic conductivity testing conducted previously by Kleinfelder in September 2010 (prior to completion of Phase I of the barrier wall) indicated that the hydraulic conductivity within the Site varied due to the stratigraphic units underlying the Site (i.e. artificial fill consisting of sand and gravel, and a low permeability hydrogeologic layer). However, the hydraulic conductivity results calculated prior to completion of Phase I were, on average, greater than 1 ft/day (*Tidal Study and Hydraulic Conditions Evaluation Report*, January 11, 2011, Kleinfelder). Photographs of the piezometer locations are provided in Appendix A. Copies of the falling head test results are provided in Appendix I.

3.10 Site Restoration

From March 14 to 16, 2016, Moretrench conducted site restoration activities including, but not limited to: demobilization of equipment, temporary facilities and unused materials; and placement of new stone across the work area. The surface was regraded until uniform. Photographs of the work area, following site restoration, are provided in Appendix A.

4.0 WASTE MANAGEMENT

All waste generated during the construction activities was containerized in labeled, 55-gallon, United States Department of Transportation-approved open top drums pending off-Site disposal. Soil cuttings produced during drilling on Parcel A were stored separately, in a designated drum storage area located within Parcel A. LNAPL-impacted absorbent boom, personal protective equipment (PPE), and a plastic berm were among the other waste containerized, pending off-Site disposal.

The following drums are pending transport to CWM Chemical Services LLC, located at 1550 Balmer Road in Model City, New York for disposal:

- Four drums of non-hazardous soil cuttings generated from drilling within Parcel A.

The following drums are pending transport to Veolia Environmental Services, located at 125 Factory Lane in Middlesex, New Jersey for disposal:

- Two drums of non-hazardous soil cuttings generated from drilling within Parcel B; and
- One drum of LNAPL-impacted PPE and plastics including, but not limited to, nitrile gloves, plastic sheeting, sorbent material, and plastic berm.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The voluntary installation of a subsurface barrier wall was proposed in an effort to incrementally reduce the hydraulic conductivity and mitigate potential LNAPL transport. Phase II was completed on March 16, 2016 and included the drilling of 17 TAM pipes and subsequent grouting with a cement-bentonite mixture.

The injection points were oriented parallel to the Phase I barrier wall, between the buildings and the bulkhead. The TAM pipes were installed approximately 15 fbg and spaced five feet on center. Up to 186 gallons of grout were injected in a TAM pipe during one round and the injection pressures ranged from 0.7 to 200 psi. The total volume of grout injected during Phase II was approximately 3,715 gallons. The barrier wall extends east, downgradient of MW-31 and west of MW-25.

Phase III of the barrier wall proposed in the Work Plan is not planned at this time, based on performance testing of Phases I and II. The sheen area will be monitored on a weekly basis and an update will be provided in the next Site Status Update Report (SSUR). The absorbent boom within the PVC hard boom will continue to be replaced, as necessary.

Respectfully submitted,

ROUX ASSOCIATES, INC.

Dana Hignell
Senior Engineer/
Project Manager

Christopher Proce
Principal Hydrogeologist

REMEDIAL ENGINEERING, P.C.

Brian P. Morrissey, P. E.
Principal Engineer/
Office Manager

FIGURES

1. Site Location Map
2. Barrier Wall Phase II As-Built

LEGEND

Site Boundary

N

0 500 Feet

Title:

SITE LOCATION MAP

BARRIER WALL PHASE II CONSTRUCTION COMPLETION REPORT

FORMER PRATT OIL WORKS
LONG ISLAND CITY, QUEENS, NEW YORK

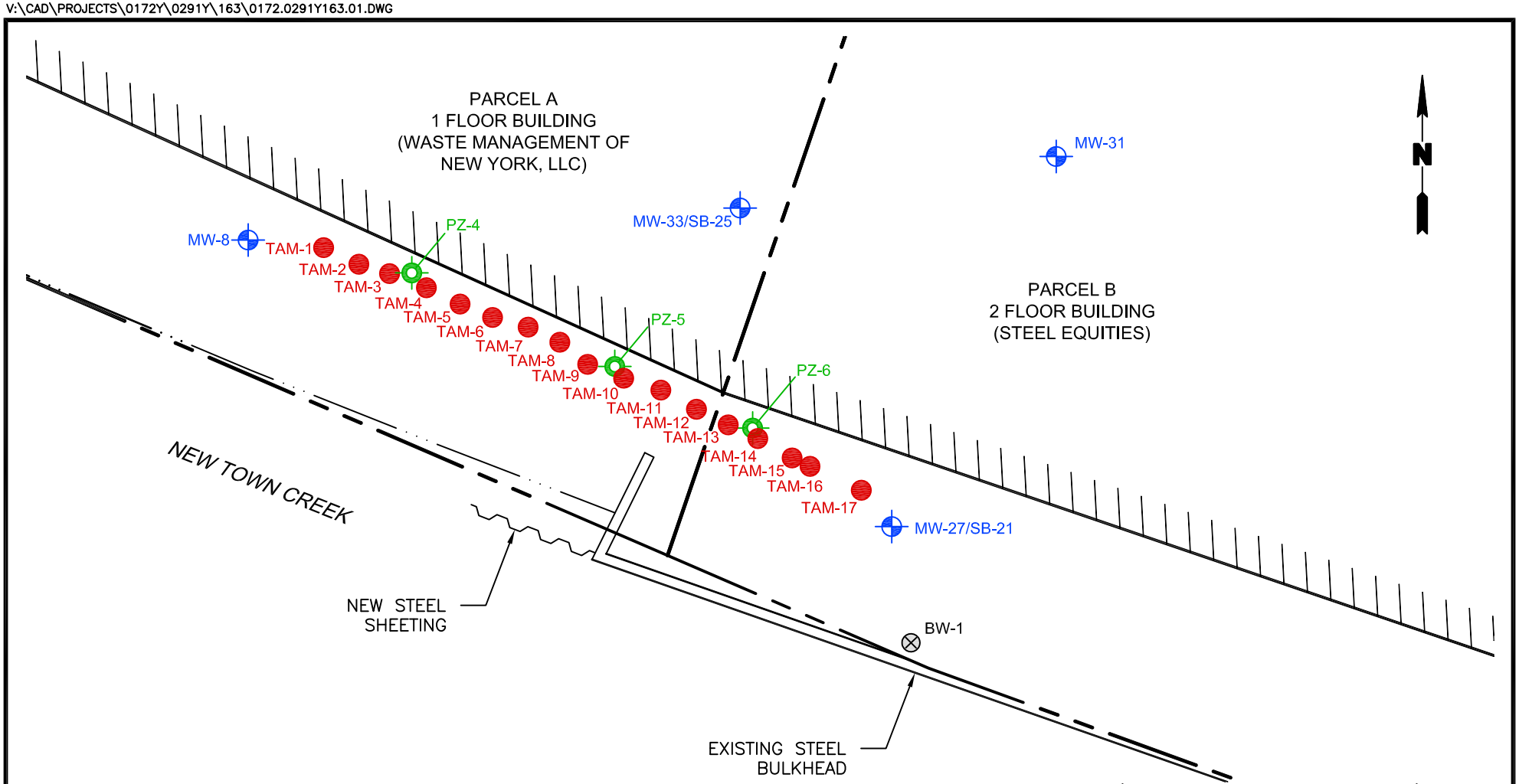
Prepared For: EXXONMOBIL OIL CORPORATION
BROOKLYN, NEW YORK

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: T.S.	Date: 14JUN2016	FIGURE 1
Prepared by: M.R.	Scale: 1 "=500 '	
Project Mgr: D.H.	Project: 0172.0291Y002	
File No: 0172.0291Y163.101.mxd		

V:\GIS\Projects\0172\0291Y\163\10.40\172.0291Y163.101.mxd

V:\CAD\PROJECTS\0172Y\0291Y\163\0172.0291Y163.01.DWG



LEGEND

- PROPERTY LINE
- SHORELINE
- MW-8 — MONITORING WELL LOCATION
- PZ-4 — PIEZOMETER WELL LOCATION
- BW-3 — SYSTEM BULKHEAD WELL LOCATION
- TAM-9 — PHASE II BENTONITE–CEMENT GROUTING WITH TUBE A MANCHETTE (TAM) PIPE LOCATION

SOURCE

CONTROL POINT ASSOCIATES, INC. TAM PIPE AND PZ WELL LOCATIONS, MARCH 18, 2016, DRAWING 1 OF 1.

NOTE

1. HORIZONTAL DATUM IS BASED UPON NAD83.

Title:

BARRIER WALL PHASE II AS-BUILT

BARRIER WALL PHASE II CONSTRUCTION COMPLETION REPORT
FORMER PRATT OIL WORKS
LONG ISLAND CITY, QUEENS, NEW YORK

Prepared For:
EXXONMOBIL OIL CORPORATION
BROOKLYN, NEW YORK

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: T.S.	Date: 16MAY16	FIGURE
Prepared by: G.M.	Scale: AS SHOWN	2
Project Mgr: D.H.	Project: 0172.291Y002	
File: 0172.0291Y163.01.DWG		

APPENDICES

(Provided on CD in Bound Report)

A. Barrier Wall Construction Photograph Documentation
B. Permits and Approvals
C. Moretrench Grout Logs
D. Moretrench Daily Field Reports
E. Grout Compression Strength Test Results
F. Vibration Monitoring Results
G. Post-Construction Survey
H. Special Inspections Report
I. Hydraulic Conductivity Testing Results

APPENDIX A

Barrier Wall Construction Photograph Documentation

(Provided on CD in Bound Report)

Former Pratt Oil Works
Long Island City, New York
BARRIER WALL PHASE II CONSTRUCTION PHOTOGRAPH LOG

Photo 1: Mobilization of Comacchio drill rig, March 1, 2016

Photo 2: Looking southwest, drill casings for TAM pipe installation, March 1, 2016

Photo 3: High shear grout mixer onsite, March 1, 2016

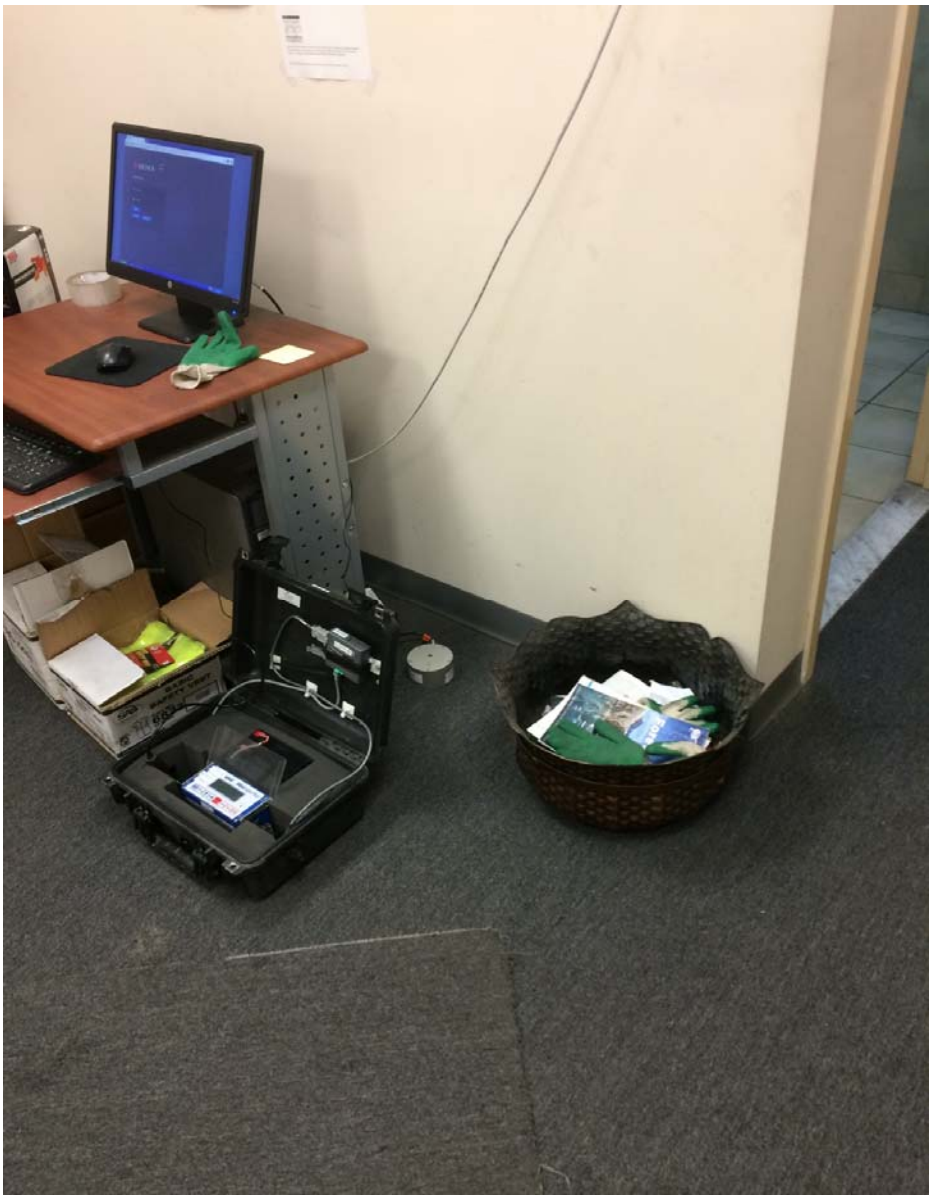


Photo 4: Vibration Monitor LI CITY#2 inside Parcel B office space, March 2, 2016

Photo 5: Vibration Monitor LI CITY #1 inside Parcel A warehouse, March 1, 2016

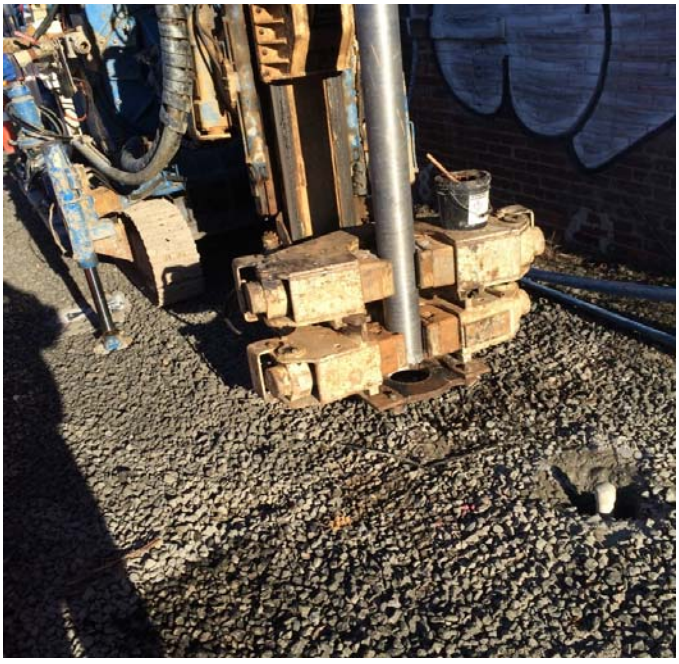


Photo 6: Drilling for TAM pipe installation, March 3, 2016

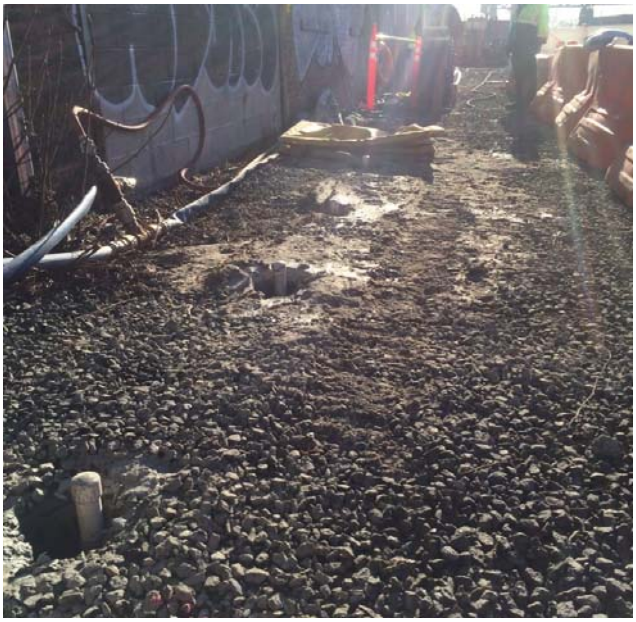


Photo 7: Looking east, view of installed TAM pipes TAM-1, TAM-2, and TAM-3; March 3, 2016

Photo 8: Drill rig with 5.5 inch drill casing, March 3, 2016

Photo 9: Looking south, view of Newtown Creek with absorbent boom, absorbent pads and PVC hard boom around work area, March 4, 2016

Photo 10: Looking west, hoses injecting grout in TAM-12, March 8, 2016

Photo 11: Grout manifold and monitoring set up, March 9, 2016

Photo 12: Hoses injecting grout in TAM-13 and TAM-15, March 9, 2016

Photo 13: Looking southwest, condition of Newtown Creek during grouting, March 10, 2016

Former Pratt Oil Works
Long Island City, New York
BARRIER WALL PHASE II CONSTRUCTION PHOTOGRAPH LOG

Photo 14: Looking west, abandonment of MW-25, PZ-2, and MW-32; March 11, 2016

Photo 15: Abandonment of PZ-1, March 11, 2016

Former Pratt Oil Works
Long Island City, New York
BARRIER WALL PHASE II CONSTRUCTION PHOTOGRAPH LOG

Photo 16: Looking east, image of abandoned wells and newly installed piezometers, March 14, 2016

Photo 17: Slug Test being performed at PZ-4, March 14, 2016

Photo 18: Looking west, site restored and regraded, March 15, 2016

APPENDIX B

Permits and Approvals

(Provided on CD in Bound Report)

NYC™ Buildings

Work Permit Department of Buildings

Permit Number: *420802046-01-EW-OT*

Issued: *02/24/2016* Expires: *05/23/2016*

Issued to: JAMES MYER

Address: *QUEENS* *38-36 REVIEW AVENUE*

Business: MORETRENCH AMERICAN CORP

Contractor No: GC-605273

Description of Work:

ALTERATION TYPE 2 - GROUT WALL INSTALLATION OF A VERTICAL SUBSURFACE HYDRAULIC BARRIER WALL APPROXIMATELY 80 FEET LONG, 15 FEET DEEP, AND 2 FEET THICK. CONSTRUCTION WILL USE HIGH SLUMP MORTAR INJECTION, BENTONITE-CEMENT GROUTING WITH TAM PIPES, AND MICROFINE CEMENT GROUT. THE SUBSURFACE WALL IS TO BE INSTALLED OUTSIDE, 6 FEET AWAY FROM THE SOUTH SIDE OF THE BUILDING.

Review is requested under Building Code: 2008

SITE FILL: USE UNDER 300 C

To see a Zoning Diagram (ZD1) or to challenge a zoning approval filed as part of a New Building application or Alteration application filed after 7/13/2009, please use "My Community" on the Buildings Department web site at www.nyc.gov/buildings.

Emergency Telephone Day or Night: 311

Borough Commissioner:

Commissioner of Buildings:

Tampering with or knowingly making a false entry in or falsely altering this permit is a crime that is punishable by a fine, imprisonment or both.

02 02/24/2016

OP-35A (5/10)

APPENDIX C

Moretrench Grout Logs

(Provided on CD in Bound Report)

Blue

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Grout Pipe Number: #1 Date: 3-7-16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	9:42 / 9:59	30 / 20	2.5 / 2.3	005	~~028~~	23	
		20	10:00 / 10:10	30 / 20	2.9 / 2.4	028	048	20	
		20	10:11 / 10:20	30 / 20	2.6 / 2.4	048	068	20	
		20	10:21 / 10:31	20 / 30	2.1 / 2.2	068	088	20	
		20	10:32 / 10:42	20 / 20	2.2 / 2.7	088	108	20	
		20	10:42 / 10:55	30 / 30	2.7 / 2.8	108	128	20	
		20	10:56 / 11:06	20 / 20	2.8 / 2.6	128	148	20	
		20	11:07 / 11:17	10 / 20	2.0 / 2.4	148	168	20	
		20	11:18 / 11:22	30 / 20	3.0 / 3.3	168	177	9	RETURN to surface around pipe
							TOTAL	172 GAL	

MORETRENCH AMERICAN CORPORATION
Summary Grouting Report

BLUE

Grout Pipe Number: 1 SECOND PASS Date: 3/8/16

Installation Details									
ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	10:17 / 10:26	25 / 25	2.6 / 2.5	5436	5456	20	
		20	10:27 / 10:36	25 / 30	2.0 / 2.1	5456	5476	20	
		20	10:38 / 10:47	30 / 25	2.2 / 2.1	5476	5496	20	
		20	10:48 / 11:02	25 / 25	2.3 / 2.3	5496	5516	20	
		20	11:02 / 11:10	25 / 25	2.5 / 2.1	5516	5536	20	
		20	11:11 / 11:22	25 / 20	2.1 / 1.4	5536	5556	20	
		20	11:23 / 11:42	20 / 15	1.4 / 1.0	5556	5576	20	
		20	11:43 / 12:03	20 / 20	1.4 / 1.1	5576	5598	22	
		20	12:04 / 12:05	30 /	2.5 /	5598	5598 599	1	RETURN TO SURFACE

TOTAL 163 GAL

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Grout Pipe Number: #2 Date: 3-7-16

Installation Details									Notes
ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	
		20	11:25 / 11:37	40 / 40	2.4 / 1.5	177	197	20	
		20	11:37 / 11:49	30 / 30	2.1 / 1.8	197	217	20	
		20	11:49 / 11:51	150 / 150	0 / 0	217	217	0	pressure
		20	11:52 / 11:59	40 / 180	2.5 / 0	217	232	15	pressure
		20	12:00 / 12:12	30 / 30	1.4 / 2.6	232	257	25	
		20	12:12 / 12:20	30 / 30	2.8 / 3.1	257	277	20	
		20	12:22 / 12:35	30 / 20	2.2 / 1.5	277	297	20	
		20	12:35 / 12:35	20 / 20	1.6 / 1.6	297	297	0	Surface Return

TOTAL 120 GAL

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Blue

Grout Pipe Number: 2 Second Pass Date: 3/8/16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	12:07 / 12:29	30 / 35	1.2 / 1.0	5600	5623	23	
		20	12:30 / 12:50	40 / 40	1.2 / 0.9	5623	5644	21	
		20	12:50 / 1:12	40 / 45	1.6 / 0.9	5644	5664	20	
		20	1:14 / 1:19	30 / 30	1.8 / 1.6	5664	5675 / 84	11	RETURN TO SURFACE @ 1
		9	9:07 / 9:14	30 / 20	1.1 / 1.1	2949	2958	9	3-9-16
		20	9:15 / 9:25	30 / 30	2.0 / 2.0	2958	2977	19	communicated with #1 Surface Return
		20	/	/	/				
		20	/	/	/				
		20	/	/	/				

TOTAL 103 GAL.

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Grout Pipe Number: #3 Date: 3-7-16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	9:44 / 10:04	0 / 30	1.4 / 1.3	~~300~~ 306	327	21	
		20	10:05 / 10:24	30 / 30	1.8 / 1.0	327	347	20	
		20	10:25 / 10:43	30 / 30	.77 / 1.4	347	367	20	
		20	10:43 / 11:04	30 / 100	.80 / .00	367	383	16	pressure
		20	11:05 / 11:30	~~40~~ 40 / 40	1.4 / 1.7	383	403	20	
		20	11:30 / 11:45	40 / 40	1.6 / 1.8	403	428	25	
		20	11:46 / 11:57	40 / 20	2.2 / 1.9	428	448	20	
		20	11:57 / 12:10	30 / 20	1.8 / 2.2	448	468	20	
		20	12:11 / 12:24	30 / 30	2.2 / 2.3	468	488	20	
		20	12:25 / 12:26	20 / 20	2.0 / 1.4	488	494	4	Return
							TOTAL	186	GAL

Blue

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Second pass

Installation Details		Grout Pipe Number: #3				Date: 3-9-16			
ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	10:33 / 10:50	30 / 30	1.4 / 1.1	3053	3073	20	
		20	10:50 / 11:08	30 / 30	1.4 / 0.7	3073	3093	20	
		20	11:08 / 11:29	30 / 50	0.7 / 1.2	3093	3117	20	
		20	11:29 / 11:42	30 / 30	1.8 / 1.5	3117	3137	20	
		20	11:43 / 11:55	40 / 30	1.6 / 1.3	3137	3157	20	
		20	11:55 / 11:58	30 / 30	1.3 / 1.4	3157	3160	3	Return to surface
		20	/	/	/				
		20	/	/	/				

TOTAL 103 GAL

Blue

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Grout Pipe Number: #4 Date: 3-7-16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
	↓↑	20	12:49 / 12:50	~~50~~ 20 / 20	1.0 / 1.0	297	307	10	Surface Return
	↓↑	10	8:26 / 8:35	30 / 35	1.0 / 1.0	5291	5301	10	3-8-16
		20	8:36 / 8:54	~~30~~ 30 / 40	1.5 / 1.1	5301	5321	20	
		20	8:55 / 9:12	30 / 30	1.3 / 1.2	5321	5346	25	
		20	9:13 / 9:25	25 / 30	1.5 / 1.6	5346	5366	20	
		20	9:25 / 9:41	30 /	1.8 /	5366	5395	29	
		20	9:41 / 9:48	30 / 20	1.4 / 1.4	5395	5405	10	Surface Return
	↓	10							
		20	7:59 / 8:04	~~170~~ 40 / 40	4.7 /	850	858	8	3-9-16 Surface Return
		20	/	/	/				

TOTAL 132 GAL

Blue

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Grout Pipe Number: #4 Second PASS Date: 3-9-16

Installation Details									
ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	8:07 / 8:19	40 / 40	1.0 / 1.8	2858	2878	20	
		20	8:19 / 8:30	30 / 30	1.6 / 1.8	2878	2898	20	
		20	8:30 / 8:41	40 / 40	2.2 / 1.6	2898	2918	20	
		20	8:41 / 8:57	50 / 40	0.8 / 1.3	2918	2938	20	
		20	8:57 / 9:04	30 / 30	1.3 / 1.6	2938	2949	11	RETURN TO SURFACE
		20	/	/	/				
		20	/	/	/				
			/	/	/				

TOTAL 91 GAL.

~~Grout~~ Bill

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Grout Pipe Number: #5 Date: 3-7-16 3/8/16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	9:44 / 10:03	10 / 40	.82 / .75	~~37~~ 17	37	20	
		20	10:04 / 10:14	40 / 40	.56 / 1.3	37	46	9	Grout Return around location
			1:04 / 1:17	30 / 40	1.8 / 0.9	12827	12835	8	Return to surface
		20	9:28 / 9:41	30 / 20	1.7 / 1.6	2977	2997	20	3-9-16
		20	9:41 / 9:54	30 / 20	1.8 / 1.3	2997	3017	20	
		20	9:54 / 10:14	20 / 20	1.0 / 1.0	3017	3037	20	
		20	10:15 / 10:30	20 / 20	1.5 / 1.0	3037	3053	16	Return surface
		20	7:58 / 8:13	20 / 30	1.6 / 1.9	3294	3314	20	3-10-16
		20	8:13 / 8:16	30 / 30	1.8 / 1.3	3314	3318	4	Return By Building wall

TOTAL 137 GAL

Blue

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Second PASS

Grout Pipe Number: #5 Date: 3-10-16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	8:18 / 8:31	20 / 30	1.4 / 1.2	3318	3338	20	
		20	8:32 / 8:48	30 / 30	1.3 / 1.3	3338	3358	20	
		20	8:49 / 8:51	30 / 50	1.3 / 0.4	3358	3360	2	pressure
		20	8:51 / 8:59	20 / 20	1.7 / 1.4	3360	3370	10	communicating Top of well
		20							
	**	26							
		20							

TOTAL 52 GAL

Green Blue

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Grout Pipe Number: #6 Date: 3-7-16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	10:18 / 10:36	40 / 50	1.50 / 1.3	046	066	20	
		20	10:37 / 10:46	40 / 40	1.4 / 1.3	066	078	12	Grout Return around location
			9:10 / 9:18	25 / 25	1.0 / 0.8	12547	12555	8	3/8 RETURN TO SURFACE
		20	12:00 / 12:13	20 / 20	1.6 / 1.6	3160	3180	20	3-9-16
		20	12:13 / 12:25	20 / 20	1.8 / 1.8	3180	3200	20	
		20	12:26 / 12:35	20 / 20	1.8 / 1.4	3200	3214	14	RETURN at wall
		20	9:31 / 9:45	30 / 30	1.3 / 1.0	3391	3407	15	3-10-16 RETURN By wall
		20	/	/	/				
		20	/	/	/				

TOTAL 109 GAL.

BKW

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Second PASS

Grout Pipe Number: #6 Date: 3-10-16

Installation Details									
ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	9:49 / 10:12	20 / 20	1.3 / 0.7	3407	3427	20	
		20	10:12 / 10:31	30 / 20	1.2 / 1.2	3427	3447	20	
		20	10:31 / 10:46	20 / 20	1.0 / 1.0	3447	3461	14	RETURN SURFACE COMMUNICATING #17

TOTAL 54 GAL

GROUT [redacted]

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Grout Pipe Number: #7 Date: 3-7-16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	12:54 / 1:03	20 / 80	1.7 / 0.0	~~3~~307	315	8	PRESSURE
		20	1:04 / 1:17	30 / 20	2.0 / 1.2	315	335	20	
		20	1:18 / 1:35	20 / 20	1.5 / 1.0	335	355	20	
		20	1:35 / 1:49	30 / 30	2.1 / 1.6	355	375	20	
		20	1:49 / 2:03	30 / 40	1.3 / 1.9	375	395	20	
		20	827 / 8:46	30 / 35	1.2 / 2.0	12499	12519	20	3-8-16
		20	8:47 / 9:01	30 / 30	1.6 / 1.4	12519	12539	20	
		20	9:02 / 9:07	25 / 25	1.5 / 1.5	12539	125~~59~~ 97	8	RETURN TO SURFACE

TOTAL 136 GAL

Blue

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Second pass

Grout Pipe Number: #7 Date: 3-9-16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	12:39 / 1:00	20 / 20	1.5 / 1.0	3214	3234	20	
		20	1:00 / ~~1:23~~ 1:26	20 / 20	1.0 / 1.0	3234	3254	20	
		20	1:23 / 1:43	20 / 20	1.0 / 1.0	3254	3274	20	
		20	1:43 / 2:01	30 / 30	1.0 / 1.5	3274	3294	20	
		20	9:01 / 9:11	20 / 20	1.5 / 1.4	3370	3383	13	3-10-16 communicating #8 RETURN surface
		20	/	/	/				
		20	/	/	/				
		20	/	/	/				

TOTAL 93 GAL.

Blue

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

~~Grout~~

Installation Details — ID — DEPTH

Grout Pipe Number: 8 — Date: 3/8

Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
20	9:19 / 9:38	30 / 40	1.2 / 1.0	12555	12575	20	
20	9:38 / 9:54	40 / 30	1.7 / 1.0	12575	12600	25	
20	9:55 / 10:10	20 / 30	0.62 / 1.5	12600	12620	20	
20	10:11 / 10:22	25 /	1.7 /	12620	12642	22	RETURN @ 11
↑20 ↓15	12:45 / 12:51	20 / 20	0.8 / 1.0	3215	3220	5	3-9-16 ~~A~~ SURFACE RETURN
	9:12 / 9:27	20 / 20	1.5 / 1.0	3383	3391	9	3-10-16 ~~SURFACE RETURN~~ SURFACE RETURN
20	10:08 / 10:15	30 / 30	0.8 / 1.0	198	203	5	3-10-16 SURFACE RETURN
20	/	/	/				
20	/	/	/				

TOTAL 106 GAL.

Clean

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Second PASS

Grout Pipe Number: # 8 Date: 3-10-16

Installation Details									
ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	10:16 / 10:30	30 / 30	0.8 / 1.0	203	216	13	SURFACE RETURN
		20	11:40 / 12:07	20 / 30	0.6 / 0.9	274	294	20	
		20	12:08 / 12:22	20 / 20	0.9 / 1.2	294	306	12	SURFACE RETURN

TOTAL 45 GAL.

Grout

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Grout Pipe Number: #9 Date: 3-7-16 3/8/16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	10:52 / 11:13	20 / 20	1.7 / 1.8	078	098	20	
		20	11:14 / 11:26	40 / 150	1.3 / 0	098	106	8	
		20	11:27 / 11:43	30 / 40	0.71 / 1.9	106	126	20	
		20	11:44 / 12:01	30 / 30	1.8 / 1.6	126	146	20	
		20	12:02 / 12:09	30 / 20	1.9 / 2.3	146	166	20	
		20	12:10 / 12:19	30 / 30	1.1 / 2.6	166	186	20	
		20	12:19 / 12:23	30 / 20	1.5 / 1.6	186	194	8	Surface Return
			12:28 / 12:36	30 / 30	1.3 / 1.8	12788	12800	12	
		20	12:38 / 12:46	25 / 25	1.5 / 1.4	12800	12811	11	SURFACE RETURN @ PZ

TOTAL 139 GAL.

Green

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Second PASS

Grout Pipe Number: #9 Date: 3-9-16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	9:10 / 9:25	1.4 / 1.0	30 / 30 max	2970	2990	20	
		20	9:25 / 9:41	1.2 / 1.5	40 / 40	2990	3010	20	
		20	9:42 / 9:56	1.2 / 1.2	30 / 30	3010	3026	16	RETURN #8 & #7
		20	9:37 / 9:54	1.70 / 1.2	30 / 30	169	189	20	3-10-16
		20	9:54 / 10:05	1.0 / 1.0	20 / 20	189	197	8	SURFACE RETURN Have grout location
		20							
		20							
		20							

TOTAL 84 GAL

Jason Crew

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Grout Pipe Number: #10 Date: 3-8-16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	9:52 / 10:09	~~30~~ / 30	1.2 / 1.4	5405	5426	21	
		20	10:10 / 10:14	25 / 30	2.0 / 2.0	5426	5435	9	RETURN TO SURFACE AROUND 11
		11	12:16 / 12:25	30 / 30	1.1 / 1.3	3187	3198	11	3-9-16
		20	12:25 / 12:31	30 / 50	1.0 / 0.5	3198	3201	3	PRESSURE
		20	12:31 / 12:41	30 / 20	1.6 / 1.3	3201	3215	14	SURFACE RETURN PE LOCATION
		20	7:58 / 8:13	20 / 20	1.0 / 1.3	066	086	20	3-10-16
		20	8:13 / 8:27	30 / 30	1.6 / 1.7	086	106	20	
		20	8:27 / 8:32	40 / 40	1.7 / 1.5	106	113	7	RETURN SURFACE
		20	/	/	/				

TOTAL 105 GAL

Crew

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

~~Second PASS~~

Installation Details | **Grout Pipe Number:** #10 | **Date:** 3-10-16

ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	8:34 / 8:54	39 / 40	1.2 / 1.2	113	133	20	
		20	8:55 / 9:09	30 / 30	1.5 / 1.5	133	153	20	
		20	9:09 / 9:16	30 / 30	1.3 / 1.3	153	160	7	Communicating #8 surface RISER
		20							

TOTAL 47 GAL

Grew

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Grout Pipe Number: #11 Date: 3-9-16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	8:00 / 8:16	30 / 30	1.0 / 1.8	2889	2909	20	
		20	8:16 / 8:28	40 / 30	1.7 / 1.5	2909	2929	20	
		20	8:28 / 8:43	40 / 30	1.9 / 1.56	2929	2949	20	
		20	8:43 / 8:58	30 / 30	1.0 / 1.4	2949	2969	20	Return on pz location
		20	9:00 / 9:01	30 / 30	1.1 / 1.1	2969	2970	1	Return on pz location
		19	9:17 / 9:34	20 / 20	1.0 / 1.0	160	169	9	3-10-16 coming out ~~#~~ to water
		20	10:34 / 10:38	30 / 30	1.0 / 1.0	216	221	5	3-10-16 Return Doorway of Building
		20	/	/	/				
		20	/	/	/				

TOTAL 95 GAL.

Green

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Second PASS

Grout Pipe Number: #11 Date: 3-10-16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	10:40 / 10:59	30 / 20	0.8 / 1.0	221	241	20	
		20	11:00 / 11:22	30 / 40	1.0 / 1.0	241	261	20	
		20	11:22 / 11:37	40 / 40	0.8 / 1.0	261	274	13	SURFACE RETURN
		20							

TOTAL 53 GAL

G-Crew / RLRD 3/8

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Grout Pipe Number: #12 Date: 3-7-16 / 3/8/16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	12:33 / 12:48	40 / 40	1.2 / 1.2	194	214	20	
		20	12:49 / 1:00	30 / 20	1.2 / 1.0	214	227	11	Surface Return
			11:40 /	200 /	0.4 /	2661		0	3/8 Pressure
		20	11:41 / 11:54	15 / 15	1.0 / 1.3	2661	2681	20	
		20	11:54 / 12:10	20 / 15	1.5 / 1.2	2681	2701	20	
		20	12:11 / 12:27	25 / 25	1.6 / 1.3	2701	2721	20	
		20	12:28 / 12:38	25 / 20	1.8 / 1.5	2721	2741	20	
		20	12:39 / 12:53	25 / 25	1.7 / 1.6	2741	2764	23	
		20	12:54 / 1:10	25 / 25	1.5 / 1.4	2764	2787	23	
			1:11 / 1:27	25 / 25	1.8 / 1.5	2787	2808	21	

TOTAL 178 GAL

Green

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Second pass

Installation Details		Grout Pipe Number: #12				Date: 3-9-16			
ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	9:56 / 10:17	30 / 30	1.0 / 1.0	3026	3046	20	
		20	10:17 / 10:33	30 / 30	1.0 / 1.2	3046	3066	20	
		20	10:34 / 10:50	40 / 30	1.0 / 1.3	3066	3086	20	
		20	10:51 / 11:07	20 / 20	1.0 / 1.0	3086	3104	20	
		20	11:08 / 11:25	30 / 30	0.8 / 1.1	3104	3124	20	
		20	11:25 / 11:41	30 / 30	1.2 / 1.2	3124	3144	20	
		20	11:41 / 11:56	20 / 30	1.1 / 1.3	3144	3164	20	
		20	11:56 / 12:11	30 / 30	1.2 / 1.3	3164	3184	20	
		20	12:11 / 12:13	20 / 20	1.3 / 1.3	3184	3187	3	Return surface
							TOTAL	163	GAL.

Red

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Red [redacted]

Grout Pipe Number: 13 Date: 3/9/16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	1:25 / 1:39	35 / 30	1.5 / 2.2	12834	12854	20	
		20	1:40 / 1:52	30 / 30	2.0 / 1.9	12854	12878	24	E.O.S.
		20	12:53 / 1:06	20 / 20	1.0 / 1.0	3220	3233	13	3-9-16 Surface Return
		20	7:58 / 8:06	20 / 50	1.2 / 1.7	3233	3239	6	3-10-16 Pressure
		20	8:06 / 8:24	20 / 30	1.3 / 1.1	3239	3259	20	
		20	8:24 / 8:38	30 / 20	1.1 / 1.5	3259	3279	20	
		20	8:38 / 8:38	20 / 20	1.0 / 1.0	3279	3279	0	Return to Surface
		20	/	/	/				

TOTAL 103 GAL.

RD

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Second PASS

Grout Pipe Number: #13 Date: 3-10-16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	8:38 / 8:53	30 / 30	1.4 / 1.5	3279	3299	20	
		20	8:53 / 9:07	30 / 30	1.6 / 1.4	3299	3319	20	
		20	9:08 / 9:29	30 / 30	1.4 / 1.0	3319	3339	20	
		20	9:29 / 9:47	30 / 30	1.0 / 1.3	3339	3359	20	
		20	9:47 / 10:02	40 / 40	1.2 / 1.8	3359	3379	20	
		20	10:02 / 10:19	30 / 20	1.5 / 1.0	3379	3399	20	
		20	10:19 / 10:22	30 / 30	1.0 / 1.2	3399	3401	2	Surface Return
			/	/	/				

TOTAL 122 GAL.

Rev

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Grout Pipe Number: #14 Date: 3-7-16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	1:08 / 1:09	200 / 200	0 / 0	228	228	0	
		20	1:10 / 1:29	40 / 30	0.8 / 1.0	228	248	20	
		20	1:30 / 1:43	30 / 30	1.3 / 1.6	248	268	20	
		20	1:43 / 2:05	30 / 50	1.1 / 1.5	268	288	20	
		20	827 / 8:37	20 / 35	1.2 / 2.1	2398	2418	20	3-8-16 SHOWED RETURN TO SURFAC
		20	1:11 / 1:35	20 / 20	0.76 / 1.0	6033	6053	20	3-9-16
		20	1:35 / 1:51	20 / 20	0.77 / 1.0	6053	6066	13	SURFACE RETURN
		20	/	/	/				

TOTAL 113 GAL.

Red

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

TOTAL 165 GAL

Second Pass

Installation Details — ID / DEPTH

Grout Pipe Number: #14

Date: 3-10-16

Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
20	10:24 / 10:25	40 / 50	0.7 / 0.4	3401	3402	1	pressure
20	10:25 / 10:43	30 / 30	1.1 / 1.0	3402	3422	20	
20	10:43 / 11:00	20 / 20	1.1 / 1.2	3422	3442	20	Communicated with MW-26
20	11:01 / 11:20	20 / 20	1.0 / 1.1	3442	3462	20	
20	11:21 / 11:40	30 / 30	1.0 / 1.3	3462	3486	20	
20	11:42 / 11:57	20 / 20	1.0 / 1.6	3486	3506	20	
20	11:57 / 12:08	20 / 20	1.0 / 1.4	3506	3526	20	
40 ~~20~~	12:08 / 12:30	20 / 20	1.5 / 2.5	3526	3566	40	
~~20~~ 40	12:30 / 12:31	40 / 60	1.1 / 0.4	3566	3567	1	pressure
40	12:32 / 12:34	40 / 60	1.2 / 0.3	3567	3570	3	pressure
40	12:35 / 12:35	20 / 20	1.0 / 1.0	3570	3570	0	Return to surface

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

RED

Grout Pipe Number: 15 Date: 3/8/16

Installation Details									
ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	8:40 / 8:51	25 / 25	1.7 / 2.5	2419	2439	20	
		20	8:51 / 8:59	25 / 25	2.4 / 2.3	2439	2459	20	
		20	9:00 / 9:13	25 / 20	1.3 / 1.7	2459	2480	21	
		20	9:14 / 9:27	20 / 20	1.4 / 1.8	2480	2500	20	
		20	9:27 / 9:40	20 / 20	1.5 / 1.8	2500	2520	20	
		20	9:40 / 9:47	30 / 20	1.7 / 1.7	2520	2533	13	Surface Return
		7	11:15 / 11:20	20 / 30	1.1 / 1.4	5901	5908	7	3-9-16
		20	10:16 / 10:39	30 / 30	1.4 / 1.3	5855	5875	20	3-9-16
		20	10:40 / 11:04	30 / 40	0.7 / 0.7	5875	5895	20	
		20	11:04 / 11:12	30 / 30	0.9 / 1.0	5895	5901	6	Return surface #16

TOTAL 167 GAL.

RED

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Second pass

Grout Pipe Number: #15 Date: 3-9-16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	11:21 / 11:37	20 / 30	1.3 / 1.2	5908	5928	20	
		20	11:37 / 11:53	30 / 30	1.3 / 1.3	5928	5948	20	
		20	11:54 / 12:08	40 / 30	1.1 / 1.4	5948	5968	20	
		20	12:08 / 12:24	30 / 20	1.2 / 1.0	5968	5988	20	
		20	12:25 / 12:41	20 / 20	1.0 / 0.8	5988	6008	20	
		20	12:41 / 1:03	20 / 20	1.0 / 1.0	6008	6028	20	
		20	1:03 / 1:04	30 / 20	0.7 / 1.0	6028	6033	5	Surface Return
		20	/	/	/				

TOTAL 125 GAL.

MORETRENCH AMERICAN CORPORATION
Summary Grouting Report

GREEN

Grout Pipe Number: 16 Date: 3/8/16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	10:31 / 10:43	25 / 25	1.4 / 2.1	12643	12665	22	
		20	10:44 / 10:57	25 / 25	1.8 / 2.0	12665	12688	23	
		20	10:59 / 11:18	25 / 25	1.4 / 2.3	12688	12718	20	
		20	11:19 / 11:43	15 / 15	0.9 / 0.8	12718	12738	20	
		20	11:45 / 11:58	30 / 25	1.0 / 1.0	12738	12758	20	
		20	12:00 / 12:18	25 / 30	1.0 / 1.2	12758	12781	23	
			12:20 / 12:23	30 /	1.4 /	12781	12785	4	RETURN TO SURFACE @ 15
			/	/	/				

TOTAL 132 GAL.

Rod

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Second pass

Grout Pipe Number: #16 Date: 3-9-16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	8:35 / 8:48	30 / 20	1.7 / 1.6	738	758	20	
		20	8:48 / 9:01	20 / 20	1.8 / 1.6	758	778	20	
		20	9:04 / 9:18	20 / 50	0.8 / 0	778	790	12	Pressure
		20	9:19 / 9:36	40 / 40	1.0 / 1.1	790	810	20	
		20	9:36 / 9:53	30 / 30	1.1 / 1.1	810	830	20	
		20	9:53 / 10:07	40 / 40	1.0 / 1.4	830	850	20	
		20	10:07 / 10:13	40 / 30	0.8 / 1.3	850	855	5	Grout return surface
			/	/	/				

TOTAL. 117 GAL

Red

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

Grout Pipe Number: #17 Date: 3-8-16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	9:53 / 10:07	20 / 20	0.8 / 1.6	2533	2553	20	
		20	10:08 / 10:18	25 / 25	1.4 / 1.9	2553	2573	20	
		20	10:19 / 10:32	25 / 25	2.0 / 1.7	2573	2593	20	
		20	10:33 / 10:49	25 / 25	1.7 / 1.5	2593	2613	20	
		20	10:50 / 11:08	30 / 40	1.3 / 1.1	2613	2633	20	
		20	11:09 / 11:26	30 / 30	1.7 / 0.9	2633	2653	20	
		20	11:28 / 11:33	25 / 30	1.3 / 1.0	2653	2660 ~~73~~	7	RETURN TO SURFACE
		20	/	/	/				

TOTAL 127 GAL

RED

MORETRENCH AMERICAN CORPORATION

Summary Grouting Report

~~BLANK~~

Grout Pipe Number: 17 SECOND PASS Date: 3/8/16

Installation Details ID	DEPTH	Target Volume	Time (Start/Fin)	Pressure (Start/Fin)	Flow (Start/Fin)	Totalier Start	Totalizer Finish	Actual Volume	Notes
		20	1:31 / 1:52	25 / 25	1.3 / 1.3	2808	2839	21	
		20	8:00 / 8:05	50 / 60	0.4 / 0.4	~~2808~~ 718	720	2	3-9-16 pressure
		20	8:07 / 8:11	40 / 50	.82 / 0	720	721	1	pressure
		20	8:11 / 8:15	40 / 50	1.0 / 0	721	723	2	pressure
		20	8:15 / 8:32	50 / 50	1.5 / 0	723	737	14	pressure
		20	8:32 / 8:33	40 / 30	1.4 / 1.4	735	738	3	surface Return packer 3' From Top
		20	/	/	/				
		20	/	/	/				

TOTAL 43 GAL

APPENDIX D

Moretrench Daily Field Reports

(Provided on CD in Bound Report)

MORETRENCH
No one has seen more.™

MORETRENCH WELL REPORTS

DATE: 3/22/2016

CONTRACTOR: Roux Associates
SITE: Former Pratt Oil Works
WELL ID NO.: PZ-4
WELL PERMIT NO.: N/A

PAGE NO.: 1
JOB NO.: 83-4263
RIG NO.: Commachio 602
TYPE OF WELL: Piezometer

WELL CONSTRUCTION

Total Depth Drilled : 15 Ft.
Well finished to : 13.1 Ft.

Bags Revert: 0
Bags Bentonite: 0

Borehole Diameter:
Top: 5.5 in.
Bottom: 5.5 in.

	Depth from Land Surface to Top (ft)	Depth from Land Surface to Bottom (ft)	Diameter (in)	Type and Material
Inner Casing:				
Outer Casing:				
Screen and Slot Size:	8.1	13.1	1.5	0.010" Slot Screen
Tail Piece:	0	8.1	1.5	PVC
Gravel Pack:	6	13		#0 Well Sand
Annular Seal/Grout:	4	6		Hole Plug Pellets
Method of Grouting:	n/a	n/a		

Well was finished:
_____ Above Grade
X Flush Mounted

If finished above grade, casing height (stick up) above land surface _____ Ft.

Was steel protective casing installed: ___ Yes X No

Static water level after drilling:
4.1 Ft.

Well Development:
Duration: n/a hours
Flow: n/a gpm
Method:
Travel Hours:
Standby Hours:
Manhours Regular: Manhours OT:
Drill Rig Hrs Regular: Drill Rig Hrs OT:

NOTES, DELAYS:

Installed from 8:05a to 8:50a
2.5 bags of well sand
1/4 Bucket of hole plug bentonite pellets

WELL LOG

DEPTH TOP OF STRATA	DEPTH BTM OF STRATA	SOILS FORMATION

Vincent A. Mitchell
DRILLER/HELPER

Moretrench
VERIFIED CONTRACTOR

MORETRENCH
No one has seen more.™

MORETRENCH WELL REPORTS

DATE: 3/22/2016

CONTRACTOR: Roux Associates
SITE: Former Pratt Oil Works
WELL ID NO.: PZ-5
WELL PERMIT NO.: N/A

PAGE NO.: 1
JOB NO.: 83-4263
RIG NO.: Commachio 602
TYPE OF WELL: Piezometer

WELL CONSTRUCTION

Total Depth Drilled : 15 Ft.
Well finished to : 14 Ft.

Bags Revert: 0
Bags Bentonite: 0

Borehole Diameter:
Top: 5.5 in.
Bottom: 5.5 in.

	Depth from Land Surface to Top (ft)	Depth from Land Surface to Bottom (ft)	Diameter (in)	Type and Material
Inner Casing:				
Outer Casing:				
Screen and Slot Size:	9	14	1.5	0.010" Slot Screen
Tail Piece:	0	9	1.5	PVC
Gravel Pack:	6.5	14		#0 Well Sand
Annular Seal/Grout:	4	6.5		Hole Plug Pellets
Method of Grouting:	n/a	n/a		

Well was finished:
_____ Above Grade
X Flush Mounted

If finished above grade, casing height (stick up) above land surface _____ Ft.

Was steel protective casing installed: ___ Yes X No

Static water level after drilling:
4.6 Ft.

Well Development:
Duration: n/a hours
Flow: n/a gpm
Method:
Travel Hours:
Standby Hours:
Manhours Regular: Manhours OT:
Drill Rig Hrs Regular: Drill Rig Hrs OT:

NOTES, DELAYS:

Installed from 9am to 9:30am
3.5 bags of well sand
1/4 Bucket of hole plug bentonite pellets

WELL LOG

DEPTH TOP OF STRATA	DEPTH BTM OF STRATA	SOILS FORMATION

Vincent A. Mitchell
DRILLER/HELPER

Moretrench
VERIFIED CONTRACTOR

MORETRENCH
No one has seen more.™

MORETRENCH WELL REPORTS

DATE: 3/22/2016

CONTRACTOR: Roux Associates
SITE: Former Pratt Oil Works
WELL ID NO.: PZ-6
WELL PERMIT NO.: N/A

PAGE NO.: 1
JOB NO.: 83-4263
RIG NO.: Commachio 602
TYPE OF WELL: Piezometer

WELL CONSTRUCTION

Total Depth Drilled : 15 Ft.
Well finished to : 13.1 Ft.

Bags Revert: 0
Bags Bentonite: 0

Borehole Diameter:
Top: 5.5 in.
Bottom: 5.5 in.

	Depth from Land Surface to Top (ft)	Depth from Land Surface to Bottom (ft)	Diameter (in)	Type and Material
Inner Casing:				
Outer Casing:				
Screen and Slot Size:	8.1	13.1	1.5	0.010" Slot Screen
Tail Piece:	0	8.1	1.5	PVC
Gravel Pack:	6	13.1		#0 Well Sand
Annular Seal/Grout:	4	6.5		Hole Plug Pellets
Method of Grouting:	n/a	n/a		

Well was finished:
_____ Above Grade
X Flush Mounted

If finished above grade, casing height (stick up) above land surface _____ Ft.

Was steel protective casing installed: ___ Yes X No

Static water level after drilling:
3.8 Ft.

Well Development:
Duration: n/a hours
Flow: n/a gpm
Method:
Travel Hours:
Standby Hours:
Manhours Regular: Manhours OT:
Drill Rig Hrs Regular: Drill Rig Hrs OT:

NOTES, DELAYS:

Installed from 10:15am to 10:53am
3.5 bags of well sand
1/4 Bucket of hole plug bentonite pellets

WELL LOG

DEPTH TOP OF STRATA	DEPTH BTM OF STRATA	SOILS FORMATION

Vincent A. Mitchell
DRILLER/HELPER

Moretrench
VERIFIED CONTRACTOR

APPENDIX E

Grout Compression Strength Test Results

(Provided on CD in Bound Report)

JERSEY ESSAY LABS, INC.
36 PIER LANE WEST
FAIRFIELD, NJ 07004
T (973) 287-6857 F (973) 521-7981
jerseyessaylabs@gmail.com

AASHTO ACCREDITED
ACI CERTIFIED

Report Date: 4/8/2016
Report ID: 16M-216

JEL Project # 16-023

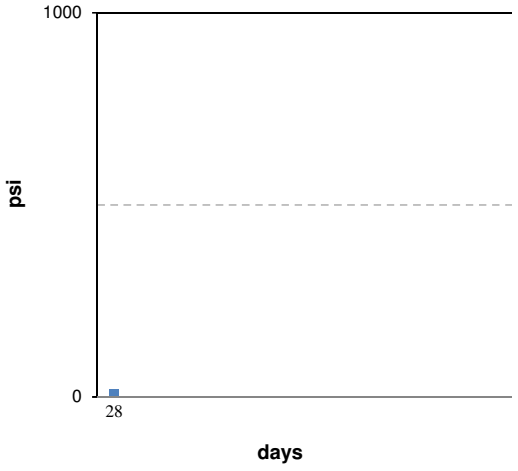
REPORT OF COMPRESSION TEST, CUBE SPECIMENS [ASTM C109]

CLIENT:	**Moretrench Corporation** 100 Stickle Avenue Rockaway, NJ 07866-3146	**LAB #:**	**16M- 216**
		Date Cast:	3/7/2016
PROJECT:	**Former Pratt Oil Works** **# 83-4263**	**Technician:**	
		Company:	Moretrench
ATTN: Dave Guy	**Phone:** 973-387-5534 cell		
Company: Moretrench	**Email:** dguy@moretrench.com	**Contractor:** **Supplier:**	

SUMMARY OF TEST RESULTS

Avg highest Strength: 20 psi

Deviation from required strength: + 20 psi



Field Data

Total CY:
No. of Sets: 1
Weather:
Inspection Duration (Hr):

Inspector's Remarks:

SET # 1

Time:
No. of Cubes: 5
Mix Design(psi):

Source:

Mix Components:
60 gal Water
94 lbs Cement
50 lbs Bentonite

Air Temp. (°F):
Cement Temp. (°F):
water/cement ratio:
Flow (%):

Location of Placement:

COMPRESSION TEST DETAILS

Compression Machine: Tinius Olsen 400000 lbf Super L S/N: 178182

LAB ID	Tag /Client ID	Date Received	Date Tested	Age (days)	Height (in.)	Width (in.)	Length (in.)	Area (in^2)	Received Unit Weight (pcf)	Dry Unit Weight (pcf)	Max Load (lbs)	Compressive Strength (psi)	Cap or Specimen Defects:	Technician	Curing		Capping	
															Field (days)	Lab (days)	None	Sulfur
A	visc. 40.8s	3/16/16	4/4/16	28	2.00	2.00	1.95	3.90			80	**20**		AD	9	19	x	
B	visc. 40.8s	3/16/16	4/4/16	28	2.00	2.00	1.91	3.82			70	**20**		AD	9	19	x	
C	visc. 40.8s	3/16/16																
D	visc. 40.8s	3/16/16																
E	visc. 40.8s	3/16/16																

Andrew Dziobon-JEL Lab Supervisor

x	Specimens and information provided by client/others. JEL provides compression test results only.
	Specimens cast by JEL.

JERSEY ESSAY LABS, INC.
36 PIER LANE WEST
FAIRFIELD, NJ 07004
T (973) 287-6857 F (973) 521-7981
jerseyessaylabs@gmail.com

AASHTO ACCREDITED
ACI CERTIFIED

Report Date: 4/8/2016
Report ID: 16M-217

JEL Project # 16-023

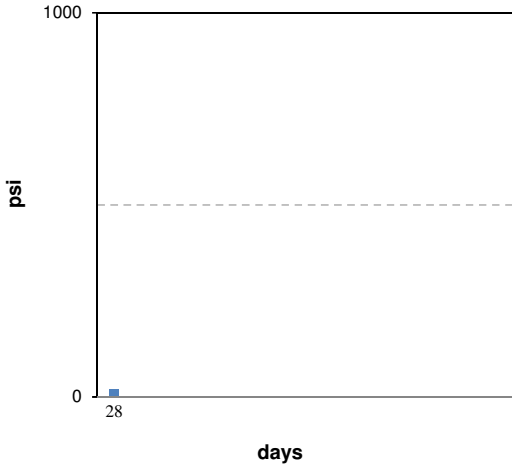
REPORT OF COMPRESSION TEST, CUBE SPECIMENS [ASTM C109]

CLIENT:	**Moretrench Corporation** 100 Stickle Avenue Rockaway, NJ 07866-3146	**LAB #:**	**16M- 217**
		Date Cast:	3/8/2016
PROJECT:	**Former Pratt Oil Works** **# 83-4263**	**Technician:**	
		Company:	Moretrench
ATTN: Dave Guy	**Phone:** 973-387-5534 cell		
Company: Moretrench	**Email:** dguy@moretrench.com	**Contractor:** **Supplier:**	

SUMMARY OF TEST RESULTS

Avg highest Strength: 20 psi

Deviation from required strength: + 20 psi



Field Data

Total CY:
No. of Sets: 1
Weather:
Inspection Duration (Hr):

Inspector's Remarks:

SET # 1

Time:
No. of Cubes: 5
Mix Design(psi):

Source:

Mix Components:
60 gal Water
94 lbs Cement
50 lbs Bentonite

Air Temp. (°F):
Cement Temp. (°F):
water/cement ratio:
Flow (%):

Location of Placement:

COMPRESSION TEST DETAILS

Compression Machine: Tinius Olsen 400000 lbf Super L S/N: 178182

LAB ID	Tag /Client ID	Date Received	Date Tested	Age (days)	Height (in.)	Width (in.)	Length (in.)	Area (in^2)	Received Unit Weight (pcf)	Dry Unit Weight (pcf)	Max Load (lbs)	Compressive Strength (psi)	Cap or Specimen Defects:	Technician	Curing		Capping	
															Field (days)	Lab (days)	None	Sulfur
A		3/16/16	4/5/16	28	2.00	2.00	1.82	3.64			60	**20**		AD	8	20	x	
B		3/16/16	4/5/16	28	2.00	2.00	1.96	3.92			60	**20**		AD	8	20	x	
C		3/16/16																
D		3/16/16																
E		3/16/16																

Andrew Dziobon-JEL Lab Supervisor

x	Specimens and information provided by client/others. JEL provides compression test results only.
	Specimens cast by JEL.

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AASHTO ACCREDITED
ACI CERTIFIED

Report Date: 4/8/2016
Report ID: 16M-218

JEL Project # 16-023

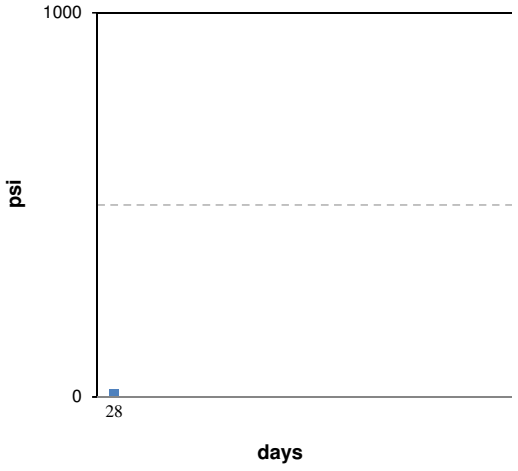
REPORT OF COMPRESSION TEST, CUBE SPECIMENS [ASTM C109]

CLIENT:	**Moretrench Corporation** 100 Stickle Avenue Rockaway, NJ 07866-3146	**LAB #:**	**16M- 218**
		Date Cast:	3/9/2016
PROJECT:	**Former Pratt Oil Works** **# 83-4263**	**Technician:**	
		Company:	Moretrench
ATTN: Dave Guy	**Phone:** 973-387-5534 cell		
Company: Moretrench	**Email:** dguy@moretrench.com	**Contractor:** **Supplier:**	

SUMMARY OF TEST RESULTS

Avg highest Strength: 20 psi

Deviation from required strength: + 20 psi



Field Data

Total CY:
No. of Sets: 1
Weather:
Inspection Duration (Hr):

Inspector's Remarks:

SET # 1

Time:
No. of Cubes: 4
Mix Design(psi):

Source:

Mix Components:
60 gal Water
94 lbs Cement
50 lbs Bentonite

Air Temp. (°F):
Cement Temp. (°F):
water/cement ratio:
Flow (%):

Location of Placement:

COMPRESSION TEST DETAILS

Compression Machine: Tinius Olsen 400000 lbf Super L S/N: 178182

LAB ID	Tag /Client ID	Date Received	Date Tested	Age (days)	Height (in.)	Width (in.)	Length (in.)	Area (in^2)	Received Unit Weight (pcf)	Dry Unit Weight (pcf)	Max Load (lbs)	Compressive Strength (psi)	Cap or Specimen Defects:	Technician	Curing		Capping	
															Field (days)	Lab (days)	None	Sulfur
A	visc. 42s	3/16/16	4/6/16	28	2.00	2.00	1.96	3.92			90	**20**		AD	7	21	x	
B	visc. 42s	3/16/16	4/6/16	28	2.00	2.00	1.97	3.94			80	**20**		AD	7	21	x	
C	visc. 42s	3/16/16																
D	visc. 42s	3/16/16																

Andrew Dziobon-JEL Lab Supervisor

x	Specimens and information provided by client/others. JEL provides compression test results only.
	Specimens cast by JEL.

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Report Date: 4/8/2016
Report ID: 16M-219

JEL Project # 16-023

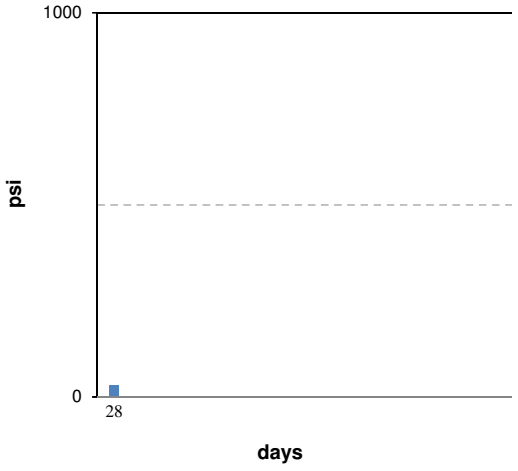
REPORT OF COMPRESSION TEST, CUBE SPECIMENS [ASTM C109]

CLIENT:	**Moretrench Corporation** 100 Stickle Avenue Rockaway, NJ 07866-3146	**LAB #:**	**16M- 219**
		Date Cast:	3/10/2016
PROJECT:	**Former Pratt Oil Works** **# 83-4263**	**Technician:**	
		Company:	Moretrench
ATTN: Dave Guy	**Phone:** 973-387-5534 cell		
Company: Moretrench	**Email:** dguy@moretrench.com	**Contractor:** **Supplier:**	

SUMMARY OF TEST RESULTS

Avg highest Strength: 30 psi

Deviation from required strength: + 30 psi



Field Data

Total CY:
No. of Sets: 1
Weather:
Inspection Duration (Hr):

Inspector's Remarks:

SET # 1

Time:
No. of Cubes: 4
Mix Design(psi):

Source:

Mix Components:
60 gal Water
94 lbs Cement
50 lbs Bentonite

Air Temp. (°F):
Cement Temp. (°F):
water/cement ratio:
Flow (%):

Location of Placement:

COMPRESSION TEST DETAILS

Compression Machine: Tinius Olsen 400000 lbf Super L S/N: 178182

LAB ID	Tag /Client ID	Date Received	Date Tested	Age (days)	Height (in.)	Width (in.)	Length (in.)	Area (in^2)	Received Unit Weight (pcf)	Dry Unit Weight (pcf)	Max Load (lbs)	Compressive Strength (psi)	Cap or Specimen Defects:	Technician	Curing		Capping	
															Field (days)	Lab (days)	None	Sulfur
A	visc. 39s	3/16/16	4/7/16	28	2.00	2.00	1.88	3.76			100	**30**		AD	6	22	x	
B	visc. 39s	3/16/16	4/7/16	28	2.00	2.00	1.96	3.92			100	**30**		AD	6	22	x	
C	visc. 39s	3/16/16																
D	visc. 39s	3/16/16																

Andrew Dziobon-JEL Lab Supervisor

x	Specimens and information provided by client/others. JEL provides compression test results only.
	Specimens cast by JEL.

APPENDIX F

Vibration Monitoring Results

(Provided on CD in Bound Report)

SN#BE20348 FA00973

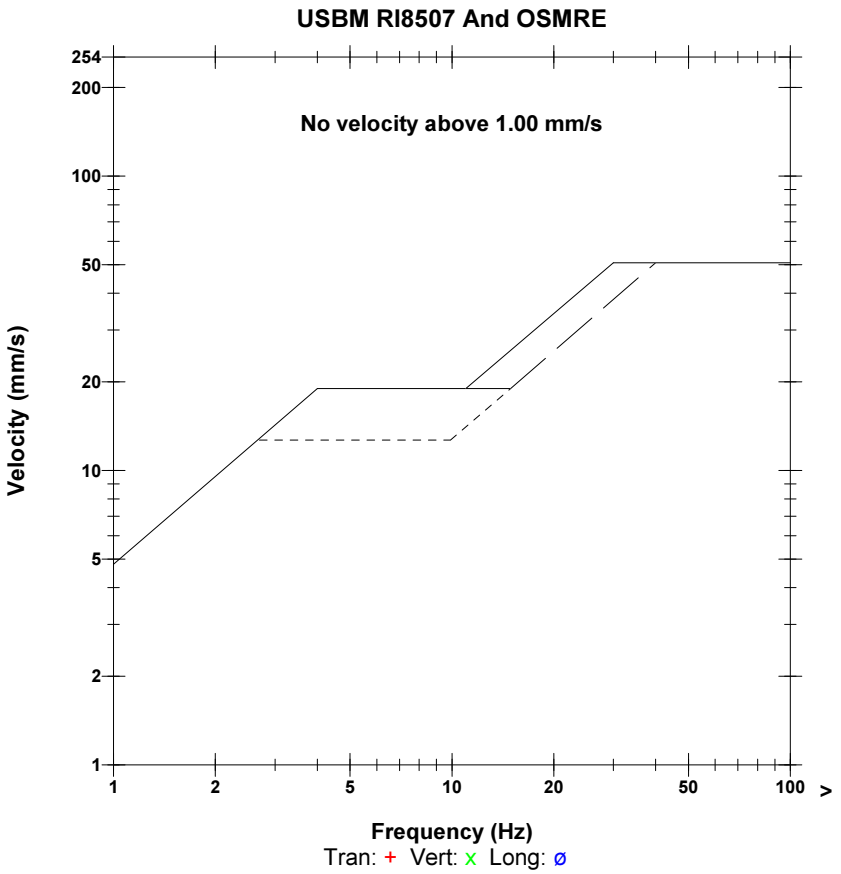
Histogram Start Time	08:26:38 March 2, 2016
Histogram Finish Time	14:58:50 March 2, 2016
Number of Intervals	78.00 at 5 minutes
Range	Geo:31.75 mm/s
Sample Rate	1024sps
Job Number:	2

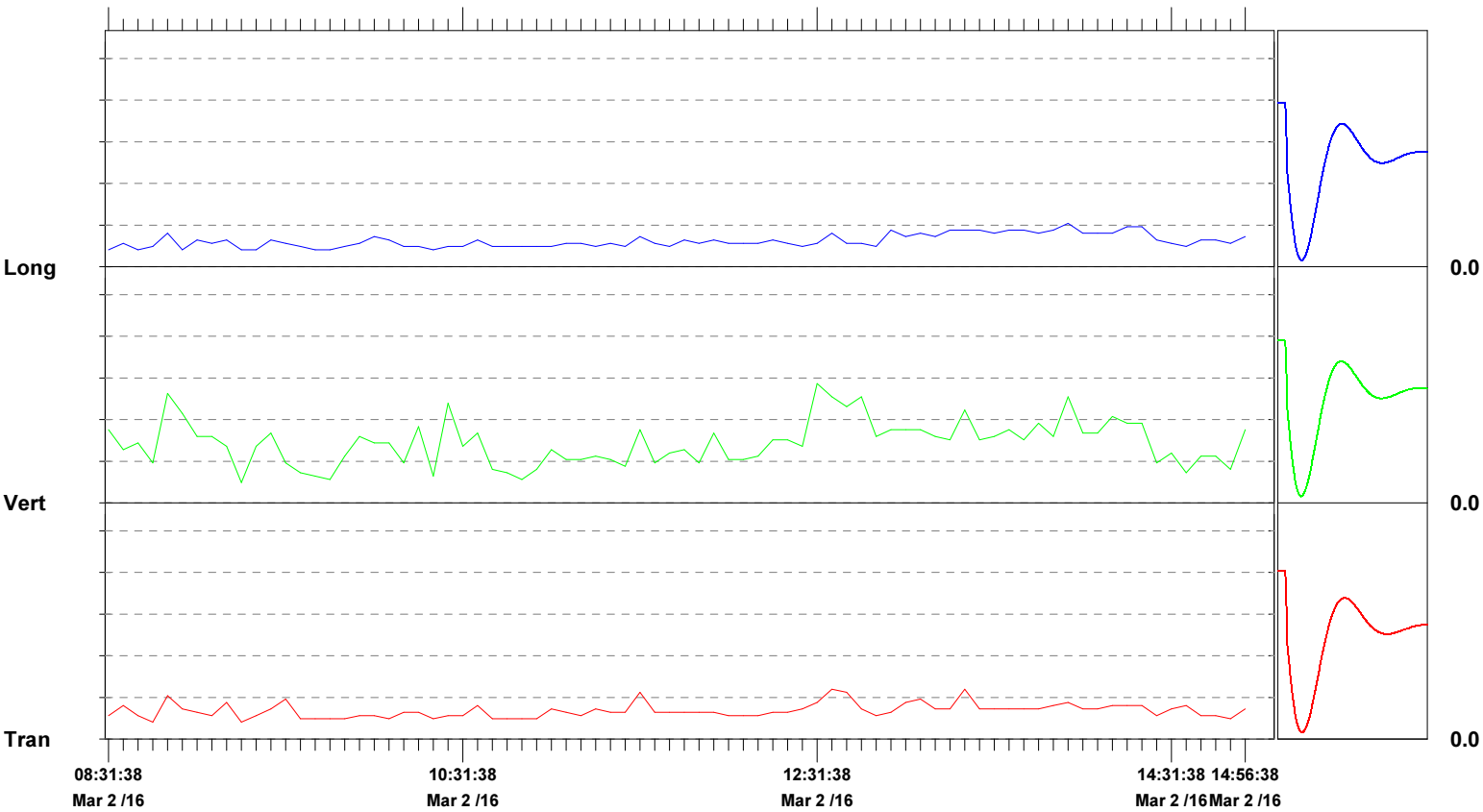
Serial Number	BE20351 V 10.72-8.17 MiniMate Plus
Battery Level	6.8 Volts
Unit Calibration	October 14, 2015 by Instantel
File Name	__TEMP.EVT

Notes
Location: Long Island City #2
Client: Roux
User Name: Tally Sodre
General: Former Pratt Oil Works

	Tran	Vert	Long	
PPV	0.238	0.571	0.206	mm/s
ZC Freq	11	9.1	9.7	Hz
Date	Mar 2 /16	Mar 2 /16	Mar 2 /16	
Time	12:36:38	12:31:38	13:56:38	
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.6	7.5	Hz
Overswing Ratio	3.7	3.7	3.5	

Peak Vector Sum 0.575 mm/s on March 2, 2016 at 12:31:38





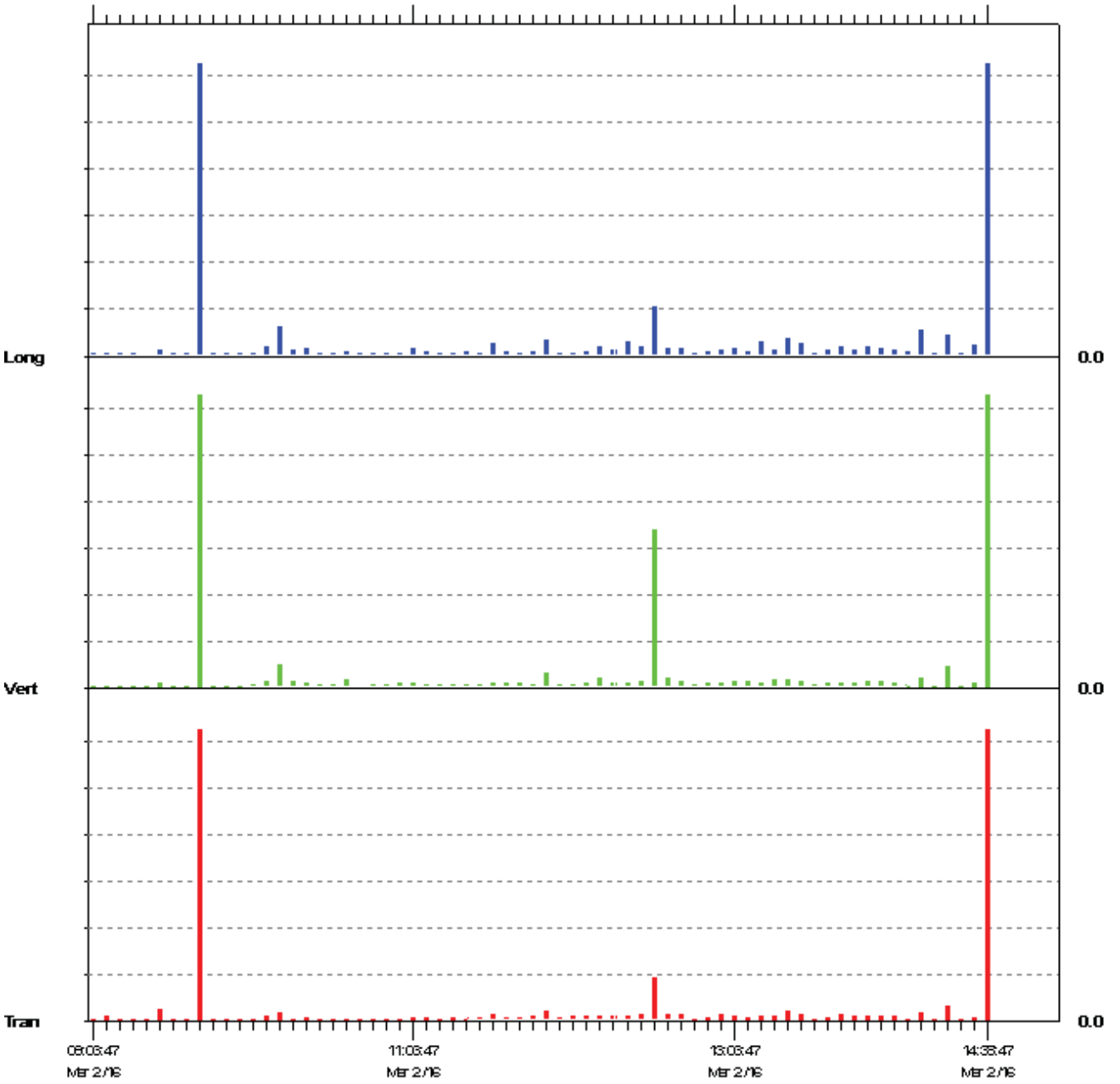
Time Scale: 5 minutes /div **Amplitude Scale:** Geo: 0.200 mm/s/div

Sensor Check

Start	08:58:47 March 2, 2016	**Serial Number**	BE20346 V 10.72-8.17 MiniMate Plus
Finish	14:41:48 March 2, 2016	**Battery Level**	6.9 Volts
Intervals	68.00 At 5 minutes	**Unit Calibration**	October 14, 2015 by Instantel
Range	Geo 1.250 in/s	**File Name**	V346G9KB.LZ0H
Sample Rate	1024 Sps		
Job Number	1		
Notes		**Post Event Notes**	
Location:	Long Island City #1		
Client:	Roux		
User Name:	Tally Sodre		
General:	Former Pratt Oil Works		

	Tran	Vert	Long	
PPV	OORANGE	OORANGE	OORANGE	in/s
ZC Freq	2.4	2.0	2.3	Hz
Date	Mar 2 /16	Mar 2 /16	Mar 2 /16	
Time	09:43:47	09:43:47	09:43:47	
Sensor Check	Passed	Passed	Passed	

Peak Vector Sum OORANGE in/s on March 2, 2016 At 09:43:47
OORANGE : Out of Range



Time(Seconds) 5 minutes/div **Amplitude** Geo: 0.200 in/s/div

Unit BE20346 Monitoring Data in Sequence 3/3/2016					
Time	Tran Peak in/s	Vert Peak in/s	Long Peak in/s	Geo PVS in/s	Field Note Comments
7:37:48	0.007	0.006	0.008	0.01	
7:42:48	0.004	0.004	0.008	0.009	
7:47:48	0.004	0.004	0.004	0.005	
7:52:48	0.004	0.004	0.004	0.005	
7:57:48	0.009	0.007	0.009	0.012	
8:02:48	0.009	0.011	0.012	0.015	
8:07:48	0.005	0.007	0.008	0.009	
8:12:48	OORANGE	OORANGE	OORANGE	OORANGE	Moved equipment
8:17:48	0.022	0.044	0.027	0.044	
8:22:48	0.006	0.006	0.006	0.008	
8:27:48	0.005	0.004	0.004	0.005	
8:32:48	0.006	0.004	0.007	0.009	
8:37:48	0.009	0.007	0.006	0.011	
8:42:48	0.035	0.029	0.034	0.051	
8:47:48	0.046	0.021	0.04	0.057	
8:52:48	0.031	0.019	0.023	0.038	
8:57:48	0.04	0.019	0.026	0.049	
9:02:48	0.03	0.017	0.026	0.039	
9:07:48	0.013	0.016	0.026	0.028	
9:12:48	0.005	0.004	0.004	0.005	
9:17:48	0.014	0.023	0.014	0.029	
9:22:48	0.007	0.004	0.006	0.009	
9:27:48	0.038	0.019	0.028	0.048	
9:32:48	0.036	0.024	0.039	0.045	
9:37:48	0.029	0.022	0.024	0.041	
9:42:48	0.023	0.019	0.019	0.028	
9:47:48	0.045	0.051	0.039	0.075	
9:52:48	0.041	0.031	0.024	0.053	
9:57:48	0.029	0.028	0.018	0.039	
10:02:48	0.006	0.004	0.006	0.006	
10:07:48	0.024	0.023	0.022	0.034	
10:12:48	0.043	0.044	0.034	0.062	
10:17:48	0.027	0.029	0.022	0.04	
10:22:48	0.024	0.026	0.021	0.036	
10:27:48	0.016	0.022	0.012	0.026	
10:32:48	0.018	0.021	0.017	0.031	
10:37:48	0.007	0.006	0.006	0.008	
10:42:48	0.02	0.009	0.026	0.029	
10:47:48	0.079	0.034	0.108	0.122	
10:52:48	0.057	0.052	0.046	0.086	
10:57:48	0.064	0.053	0.048	0.088	
11:02:48	0.05	0.045	0.041	0.076	
11:07:48	0.027	0.037	0.024	0.05	
11:12:48	0.026	0.032	0.022	0.045	
11:17:48	0.029	0.022	0.022	0.03	
11:22:48	0.02	0.026	0.02	0.026	
11:27:48	0.011	0.022	0.012	0.022	
11:32:48	0.01	0.014	0.009	0.015	
11:37:48	0.009	0.013	0.008	0.013	
11:42:48	0.009	0.024	0.011	0.026	
11:47:48	0.01	0.014	0.01	0.015	
11:52:48	0.014	0.025	0.013	0.029	
11:57:48	0.009	0.024	0.011	0.027	
12:02:48	0.012	0.026	0.018	0.03	
12:07:48	0.021	0.026	0.017	0.032	
12:12:48	0.009	0.014	0.011	0.014	
12:17:48	0.009	0.017	0.009	0.018	
12:22:48	0.009	0.008	0.007	0.01	
12:27:48	0.009	0.021	0.011	0.021	
12:32:48	0.011	0.019	0.012	0.02	
12:37:48	0.021	0.028	0.021	0.03	
12:42:48	0.014	0.017	0.011	0.02	
12:47:48	0.011	0.016	0.009	0.018	
12:52:48	0.019	0.021	0.014	0.023	
12:57:48	0.009	0.014	0.012	0.014	
13:02:48	0.016	0.021	0.011	0.022	
13:07:48	0.011	0.025	0.011	0.025	
13:12:48	0.01	0.019	0.01	0.021	
13:17:48	0.016	0.032	0.024	0.034	
13:22:48	0.008	0.009	0.01	0.012	
13:27:48	0.007	0.011	0.006	0.011	
13:32:48	0.014	0.021	0.016	0.026	
13:37:48	0.008	0.014	0.009	0.015	
13:42:48	0.008	0.014	0.01	0.015	
13:47:48	0.029	0.02	0.026	0.038	
13:52:48	0.036	0.026	0.036	0.047	
13:57:48	0.036	0.024	0.034	0.042	
14:02:48	0.019	0.037	0.019	0.037	
14:07:48	0.009	0.015	0.008	0.015	
14:12:48	0.017	0.029	0.017	0.029	
14:17:48	0.011	0.019	0.011	0.022	
14:22:48	0.015	0.02	0.013	0.026	
14:27:48	0.017	0.021	0.016	0.023	
14:32:48	0.017	0.016	0.024	0.027	
14:37:48	0.011	0.005	0.012	0.013	

Unit BE20351 Monitoring Data in Sequence 3/3/2016					
Time	Tran Peak in/s	Vert Peak in/s	Long Peak in/s	Geo PVS in/s	Field Note Comments
15:56:25	0.068	0.028	0.242	0.243	Exceedance values caused by troubleshooting with Ecorental Solutions
16:04:17	0.041	0.021	0.064	0.067	
16:09:17	0.157	0.094	0.147	0.163	
16:14:17	0.036	0.027	0.049	0.049	
16:19:17	0.028	0.017	0.036	0.04	
16:24:17	0.039	0.015	0.056	0.064	
16:29:17	0.034	0.021	0.041	0.046	
16:34:17	0.028	0.012	0.044	0.051	
16:36:18	0.139	0.122	1.056	1.06	
16:40:33	1.136	0.715	0.464	1.331	
16:45:15	0.124	0.083	0.657	0.663	
16:46:21	0.176	0.093	0.134	0.181	

Unit BE20346 Monitoring Data in Sequence 3/4/2016					
Time	Tran Peak in/s	Vert Peak in/s	Long Peak in/s	Geo PVS in/s	Comments
7:46:11	0.008	0.013	0.011	0.017	
7:51:11	0.017	0.014	0.014	0.019	
7:56:11	0.005	0.003	0.004	0.005	
8:00:00	0.011	0.012	0.006	0.012	
8:08:29	0.007	0.008	0.006	0.009	
8:13:29	0.012	0.011	0.007	0.013	
8:18:29	0.004	0.006	0.004	0.007	
8:23:29	0.006	0.009	0.006	0.009	
8:28:29	0.008	0.012	0.017	0.018	
8:33:29	0.009	0.005	0.005	0.01	
8:38:29	0.004	0.005	0.004	0.006	
8:43:29	0.005	0.008	0.006	0.008	
8:48:29	0.007	0.008	0.007	0.01	
8:53:29	0.004	0.004	0.004	0.006	
8:58:29	0.004	0.004	0.004	0.005	
9:03:29	0.005	0.007	0.004	0.008	
9:08:29	0.004	0.005	0.004	0.007	
9:13:29	0.005	0.007	0.004	0.008	
9:18:29	0.012	0.011	0.016	0.019	
9:23:29	0.006	0.009	0.007	0.01	
9:28:29	0.009	0.012	0.012	0.015	
9:33:29	0.011	0.011	0.009	0.015	
9:38:29	0.009	0.01	0.007	0.012	
9:43:29	0.007	0.007	0.006	0.009	
9:48:29	0.004	0.005	0.005	0.006	
9:53:29	0.004	0.007	0.006	0.008	
9:58:29	0.005	0.006	0.006	0.008	
10:03:29	0.006	0.004	0.004	0.007	
10:08:29	0.092	0.125	0.167	**0.214**	Geophone adjusted
10:13:29	0.008	0.007	0.008	0.009	
10:18:29	0.005	0.004	0.004	0.005	
10:23:29	0.004	0.004	0.004	0.005	
10:28:29	0.004	0.004	0.004	0.005	
10:33:29	0.006	0.006	0.005	0.007	
10:38:29	0.006	0.006	0.006	0.007	
10:43:29	0.015	0.008	0.014	0.021	
10:48:29	0.006	0.006	0.005	0.007	
10:53:29	0.006	0.005	0.005	0.007	
10:58:29	0.005	0.007	0.006	0.008	
11:03:29	0.006	0.004	0.004	0.006	
11:08:29	0.005	0.004	0.004	0.005	
11:13:29	0.005	0.004	0.004	0.005	

11:18:29	0.008	0.006	0.009	0.009	
11:23:29	0.005	0.007	0.005	0.007	
11:28:29	0.007	0.012	0.011	0.013	
11:33:29	0.007	0.006	0.006	0.007	
11:38:29	0.02	0.007	0.016	0.02	
11:43:29	0.004	0.005	0.006	0.006	
11:48:29	0.004	0.004	0.004	0.005	
11:53:29	0.057	0.057	0.069	0.069	
11:58:29	0.005	0.006	0.004	0.008	
12:03:29	0.006	0.004	0.006	0.006	
12:08:29	0.006	0.009	0.006	0.009	
12:13:29	0.006	0.009	0.006	0.009	
12:18:29	0.006	0.005	0.004	0.006	
12:23:29	0.006	0.005	0.005	0.006	
12:28:29	0.004	0.004	0.004	0.005	
12:33:29	0.004	0.005	0.004	0.005	
12:38:29	0.005	0.005	0.004	0.006	
12:43:29	0.005	0.004	0.004	0.005	
12:48:29	0.006	0.007	0.006	0.009	
12:53:29	0.046	0.019	0.026	0.047	
12:58:29	0.006	0.007	0.007	0.01	
13:03:29	0.007	0.007	0.006	0.008	
13:08:29	0.005	0.006	0.005	0.007	
13:13:29	0.007	0.007	0.007	0.009	
13:18:29	0.005	0.007	0.006	0.008	
13:23:29	0.055	0.043	0.067	0.077	
13:28:29	0.006	0.007	0.006	0.008	
13:33:29	0.007	0.007	0.007	0.008	
13:38:29	0.004	0.006	0.006	0.007	
13:43:29	0.004	0.004	0.004	0.005	

Unit BE20351 Monitoring Data in Sequence 3/4/2016					
Time	Tran Peak in/s	Vert Peak in/s	Long Peak in/s	Geo PVS in/s	Comments
8:00:00	0.008	0.032	0.006	0.034	
8:09:48	0.007	0.027	0.007	0.028	
8:14:48	0.006	0.027	0.007	0.027	
8:19:48	0.006	0.022	0.006	0.023	
8:24:48	0.006	0.034	0.008	0.034	
8:29:48	0.01	0.028	0.007	0.029	
8:34:48	0.009	0.021	0.008	0.022	
8:39:48	0.005	0.017	0.005	0.017	
8:44:48	0.005	0.015	0.004	0.016	
8:49:48	0.006	0.027	0.009	0.028	
8:54:48	0.006	0.011	0.005	0.011	
8:59:48	0.019	0.044	0.013	0.047	
9:04:48	0.006	0.019	0.007	0.019	
9:09:48	0.006	0.027	0.006	0.027	
9:14:48	0.006	0.025	0.009	0.026	
9:19:48	0.007	0.018	0.006	0.019	
9:24:48	0.007	0.024	0.006	0.024	
9:29:48	0.008	0.016	0.007	0.016	
9:34:48	0.006	0.011	0.006	0.012	
9:39:48	0.007	0.015	0.004	0.015	
9:44:48	0.005	0.011	0.004	0.011	
9:49:48	0.005	0.012	0.004	0.013	
9:54:48	0.006	0.014	0.005	0.014	
9:59:48	0.012	0.039	0.009	0.041	
10:04:48	0.006	0.017	0.006	0.018	
10:09:48	0.006	0.021	0.007	0.022	
10:14:48	0.009	0.048	0.012	0.05	
10:19:48	0.005	0.012	0.004	0.012	
10:24:48	0.005	0.013	0.004	0.014	
10:29:48	0.004	0.01	0.004	0.011	
10:34:48	0.007	0.011	0.005	0.012	
10:39:48	0.006	0.024	0.007	0.025	
10:44:48	0.007	0.023	0.007	0.024	
10:49:48	0.006	0.018	0.006	0.019	
10:54:48	0.005	0.024	0.008	0.025	
10:59:48	0.006	0.034	0.006	0.035	
11:04:48	0.006	0.019	0.005	0.02	
11:09:48	0.005	0.017	0.005	0.018	
11:14:48	0.005	0.016	0.004	0.017	
11:19:48	0.008	0.039	0.011	0.039	
11:24:48	0.006	0.021	0.005	0.022	
11:29:48	0.007	0.064	0.016	0.066	

11:34:48	0.007	0.019	0.01	0.021	
11:39:48	0.006	0.017	0.006	0.018	
11:44:48	0.006	0.019	0.008	0.021	
11:49:48	0.006	0.015	0.006	0.016	
11:54:48	0.006	0.016	0.006	0.017	
11:59:48	0.005	0.011	0.004	0.011	
12:04:48	0.009	0.035	0.008	0.036	
12:09:48	0.007	0.029	0.009	0.031	
12:14:48	0.006	0.024	0.009	0.026	
12:19:48	0.006	0.018	0.006	0.018	
12:24:48	0.005	0.022	0.008	0.023	
12:29:48	0.005	0.011	0.004	0.011	
12:34:48	0.006	0.022	0.01	0.022	
12:39:48	0.005	0.015	0.005	0.016	
12:44:48	0.006	0.022	0.007	0.024	
12:49:48	0.006	0.026	0.009	0.027	
12:54:48	0.009	0.037	0.009	0.038	
12:59:48	0.007	0.05	0.013	0.051	
13:04:48	0.006	0.035	0.012	0.036	
13:09:48	0.006	0.045	0.012	0.046	
13:14:48	0.006	0.032	0.011	0.034	
13:19:48	0.007	0.029	0.009	0.03	
13:24:48	0.007	0.024	0.009	0.026	
13:29:48	0.006	0.029	0.01	0.03	
13:34:48	0.008	0.042	0.009	0.043	
13:39:48	0.006	0.023	0.009	0.023	
13:44:48	0.005	0.016	0.006	0.016	
13:49:48	0.006	0.017	0.005	0.018	
13:54:48	0.006	0.015	0.006	0.015	
13:59:48	0.004	0.009	0.005	0.009	
14:04:48	0.004	0.013	0.005	0.013	
14:09:48	0.007	0.018	0.005	0.018	
14:14:48	0.003	0.009	0.005	0.009	

Unit BE20346 Monitoring Data in Sequence 3/7/2016					
Time	Tran Peak in/s	Vert Peak in/s	Long Peak in/s	Geo PVS in/s	Comments
7:30:56	0.008	0.008	0.008	0.011	
7:35:56	0.005	0.009	0.005	0.01	
7:40:56	0.011	0.015	0.007	0.017	
7:45:56	0.004	0.006	0.005	0.007	
7:50:56	0.007	0.007	0.006	0.009	
7:55:56	0.005	0.007	0.004	0.009	
8:00:00	0.006	0.011	0.007	0.011	
8:08:23	0.004	0.008	0.007	0.009	
8:13:23	0.004	0.003	0.004	0.004	
8:18:23	0.004	0.004	0.005	0.006	
8:23:23	0.005	0.006	0.007	0.008	
8:28:23	0.004	0.007	0.006	0.009	
8:33:23	0.005	0.006	0.005	0.007	
8:38:23	0.004	0.003	0.004	0.004	
8:43:23	0.005	0.006	0.006	0.008	
8:48:23	0.004	0.004	0.004	0.005	
8:53:23	0.005	0.007	0.006	0.007	
8:58:23	0.004	0.006	0.01	0.011	
9:03:23	0.004	0.005	0.007	0.008	
9:08:23	0.004	0.006	0.004	0.008	
9:13:23	0.005	0.007	0.009	0.01	
9:18:23	0.019	0.042	0.035	0.044	
9:23:23	0.004	0.008	0.01	0.011	
9:28:23	0.004	0.006	0.004	0.006	
9:33:23	0.006	0.005	0.005	0.007	
9:38:23	0.007	0.006	0.01	0.01	
9:43:23	0.004	0.005	0.005	0.006	
9:48:23	0.004	0.005	0.005	0.006	
9:53:23	0.005	0.004	0.008	0.01	
9:58:23	0.009	0.015	0.022	0.026	
10:03:23	0.006	0.009	0.004	0.01	
10:08:23	0.004	0.003	0.004	0.005	
10:13:23	0.006	0.009	0.005	0.011	
10:18:23	0.02	0.034	0.042	0.055	
10:23:23	0.006	0.007	0.008	0.009	
10:28:23	0.005	0.006	0.006	0.007	
10:33:23	0.004	0.005	0.004	0.005	
10:38:23	0.005	0.005	0.007	0.009	
10:43:23	0.004	0.006	0.004	0.006	
10:48:23	0.005	0.005	0.004	0.007	
10:53:23	0.006	0.007	0.012	0.013	
10:58:23	0.004	0.005	0.004	0.005	

11:03:23	0.005	0.008	0.006	0.009	
11:08:23	0.005	0.008	0.005	0.009	
11:13:23	0.005	0.006	0.009	0.009	
11:18:23	0.005	0.009	0.006	0.009	
11:23:23	0.005	0.008	0.005	0.009	
11:28:23	0.004	0.006	0.006	0.007	
11:33:23	0.004	0.005	0.007	0.009	
11:38:23	0.004	0.006	0.004	0.006	
11:43:23	0.004	0.007	0.005	0.008	
11:48:23	0.006	0.01	0.006	0.011	
11:53:23	0.004	0.004	0.004	0.005	
11:58:23	0.004	0.008	0.004	0.009	
12:03:23	0.004	0.005	0.004	0.005	
12:08:23	0.004	0.006	0.004	0.006	
12:13:23	0.01	0.017	0.021	0.023	
12:18:23	0.004	0.003	0.004	0.004	
12:23:23	0.004	0.004	0.004	0.006	
12:28:23	0.006	0.011	0.007	0.012	
12:33:23	0.006	0.007	0.005	0.008	
12:38:23	0.006	0.008	0.004	0.009	
12:43:23	0.012	0.009	0.007	0.012	
12:48:23	0.014	0.011	0.013	0.016	
12:53:23	0.007	0.013	0.008	0.013	
12:58:23	0.006	0.009	0.006	0.011	
13:03:23	0.006	0.006	0.006	0.008	
13:08:23	0.004	0.004	0.004	0.005	
13:13:23	0.007	0.005	0.006	0.008	
13:18:23	0.004	0.003	0.004	0.005	
13:23:23	0.004	0.003	0.004	0.005	
13:28:23	0.004	0.003	0.004	0.005	
13:33:23	0.004	0.004	0.004	0.005	
13:38:23	0.004	0.003	0.004	0.005	
13:43:23	0.004	0.003	0.004	0.005	
13:48:23	0.005	0.004	0.007	0.008	
13:53:23	0.007	0.006	0.004	0.007	
13:58:23	0.005	0.006	0.004	0.006	
14:03:23	0.006	0.007	0.007	0.009	
14:08:23	0.007	0.011	0.009	0.012	
14:13:23	0.006	0.007	0.007	0.008	
14:18:23	0.006	0.006	0.005	0.007	
14:23:23	0.006	0.008	0.006	0.009	
14:28:23	0.006	0.007	0.006	0.01	
14:33:23	0.006	0.006	0.011	0.012	

Unit BE20351 Monitoring Data in Sequence 3/7/2016					
Time	Tran Peak in/s	Vert Peak in/s	Long Peak in/s	Geo PVS in/s	Comments
7:03:02	0.006	0.012	0.004	0.012	
7:08:02	0.004	0.003	0.003	0.004	
7:13:02	0.003	0.006	0.003	0.006	
7:18:02	0.004	0.003	0.002	0.004	
7:23:02	0.003	0.003	0.004	0.004	
7:28:02	0.004	0.007	0.004	0.008	
7:33:02	0.003	0.004	0.003	0.004	
7:38:02	0.006	0.012	0.004	0.013	
7:43:02	0.004	0.011	0.004	0.011	
7:48:02	0.004	0.009	0.004	0.01	
7:53:02	0.004	0.01	0.004	0.01	
7:58:02	0.004	0.004	0.004	0.005	
8:00:00	0.004	0.006	0.003	0.007	
8:08:22	0.004	0.009	0.004	0.01	
8:13:22	0.003	0.002	0.004	0.004	
8:18:22	0.004	0.007	0.003	0.007	
8:23:22	0.005	0.007	0.005	0.008	
8:28:22	0.004	0.011	0.004	0.011	
8:33:22	0.004	0.009	0.003	0.009	
8:38:22	0.004	0.004	0.003	0.004	
8:43:22	0.004	0.011	0.004	0.011	
8:48:22	0.004	0.008	0.003	0.008	
8:53:22	0.006	0.017	0.007	0.018	
8:58:22	0.004	0.007	0.003	0.007	
9:03:22	0.004	0.008	0.004	0.008	
9:08:22	0.004	0.007	0.003	0.008	
9:13:22	0.006	0.022	0.006	0.023	
9:18:22	0.006	0.017	0.007	0.017	
9:23:22	0.006	0.017	0.007	0.017	
9:28:22	0.008	0.017	0.007	0.018	
9:33:22	0.006	0.016	0.007	0.016	
9:38:22	0.006	0.016	0.006	0.017	
9:43:22	0.004	0.015	0.006	0.015	
9:48:22	0.004	0.006	0.005	0.007	
9:53:22	0.004	0.01	0.006	0.011	
9:58:22	0.004	0.012	0.006	0.012	
10:03:22	0.004	0.015	0.006	0.015	
10:08:22	0.006	0.014	0.006	0.015	
10:13:22	0.005	0.014	0.006	0.015	
10:18:22	0.005	0.008	0.007	0.009	
10:23:22	0.004	0.01	0.006	0.01	
10:28:22	0.004	0.009	0.006	0.009	

10:33:22	0.007	0.022	0.007	0.024	
10:38:22	0.005	0.009	0.006	0.01	
10:43:22	0.009	0.021	0.01	0.021	
10:48:22	0.004	0.012	0.005	0.012	
10:53:22	0.005	0.011	0.007	0.011	
10:58:22	0.004	0.007	0.006	0.008	
11:03:22	0.004	0.012	0.006	0.013	
11:08:22	0.004	0.012	0.006	0.013	
11:13:22	0.004	0.011	0.006	0.011	
11:18:22	0.005	0.015	0.006	0.016	
11:23:22	0.004	0.013	0.006	0.013	
11:28:22	0.004	0.014	0.006	0.014	
11:33:22	0.004	0.011	0.006	0.011	
11:38:22	0.004	0.011	0.006	0.011	
11:43:22	0.005	0.012	0.006	0.013	
11:48:22	0.006	0.017	0.006	0.017	
11:53:22	0.004	0.012	0.006	0.013	
11:58:22	0.004	0.011	0.006	0.011	
12:03:22	0.004	0.009	0.005	0.01	
12:08:22	0.007	0.024	0.006	0.024	
12:13:22	0.006	0.012	0.005	0.013	
12:18:22	0.004	0.009	0.006	0.009	
12:23:22	0.004	0.011	0.006	0.011	
12:28:22	0.005	0.016	0.006	0.017	
12:33:22	0.007	0.021	0.007	0.021	
12:38:22	0.008	0.021	0.006	0.023	
12:43:22	0.008	0.016	0.008	0.017	
12:48:22	0.012	0.018	0.009	0.019	
12:53:22	0.006	0.017	0.006	0.018	
12:58:22	0.005	0.014	0.006	0.014	
13:03:22	0.004	0.012	0.006	0.012	
13:08:22	0.004	0.008	0.006	0.008	
13:13:22	0.005	0.011	0.006	0.011	
13:18:22	0.004	0.008	0.005	0.008	
13:23:22	0.005	0.008	0.006	0.009	
13:28:22	0.004	0.008	0.006	0.008	
13:33:22	0.004	0.008	0.006	0.008	
13:38:22	0.004	0.008	0.005	0.008	
13:43:22	0.004	0.009	0.006	0.009	
13:48:22	0.004	0.01	0.006	0.01	
13:53:22	0.004	0.009	0.005	0.01	
13:58:22	0.006	0.016	0.008	0.016	
14:03:22	0.005	0.013	0.006	0.014	
14:08:22	0.006	0.017	0.006	0.018	
14:13:22	0.004	0.011	0.005	0.011	
14:18:22	0.004	0.009	0.004	0.01	
14:23:22	0.006	0.011	0.004	0.012	

14:28:22	0.006	0.009	0.004	0.01	
14:33:22	0.005	0.011	0.006	0.011	
14:38:22	0.006	0.01	0.004	0.011	
14:43:22	0.004	0.01	0.005	0.01	

Unit BE20346 Monitoring Data in Sequence 3/8/2016					
Time	Tran Peak in/s	Vert Peak in/s	Long Peak in/s	Geo PVS in/s	Comments
7:28:59	0.008	0.01	0.015	0.016	
7:33:59	0.004	0.006	0.006	0.009	
7:38:59	0.004	0.008	0.005	0.009	
7:43:59	0.004	0.003	0.003	0.004	
7:48:59	0.004	0.003	0.003	0.004	
7:53:59	0.004	0.004	0.006	0.006	
7:58:59	0.005	0.004	0.004	0.006	
8:00:00	0.004	0.002	0.003	0.004	
8:08:14	0.004	0.005	0.004	0.006	
8:13:14	0.005	0.006	0.004	0.007	
8:18:14	0.004	0.004	0.004	0.005	
8:23:14	0.004	0.006	0.005	0.006	
8:28:14	0.004	0.005	0.004	0.006	
8:33:14	0.007	0.007	0.006	0.01	
8:38:14	0.004	0.003	0.003	0.004	
8:43:14	0.005	0.005	0.004	0.006	
8:48:14	0.004	0.007	0.006	0.009	
8:53:14	0.004	0.004	0.004	0.005	
8:58:14	0.005	0.009	0.006	0.01	
9:03:14	0.007	0.012	0.008	0.013	
9:08:14	0.005	0.007	0.009	0.009	
9:13:14	0.005	0.008	0.006	0.009	
9:18:14	0.006	0.009	0.006	0.011	
9:23:14	0.008	0.009	0.006	0.011	
9:28:14	0.007	0.009	0.006	0.011	
9:33:14	0.009	0.007	0.009	0.011	
9:38:14	0.004	0.006	0.01	0.011	
9:43:14	0.004	0.003	0.004	0.005	
9:48:14	0.004	0.004	0.008	0.009	
9:53:14	0.004	0.005	0.004	0.006	
9:58:14	0.004	0.009	0.006	0.009	
10:03:14	0.006	0.01	0.006	0.011	
10:11:22	0.004	0.003	0.005	0.005	
10:16:22	0.006	0.006	0.005	0.007	
10:21:22	0.004	0.004	0.004	0.005	
10:26:22	0.004	0.003	0.004	0.004	
10:31:22	0.004	0.004	0.004	0.005	
10:36:22	0.025	0.014	0.039	0.046	
10:41:22	0.004	0.004	0.004	0.006	
10:46:22	0.004	0.003	0.004	0.005	
10:51:22	0.004	0.003	0.006	0.007	
10:56:22	0.006	0.005	0.004	0.007	

11:01:22	0.005	0.006	0.004	0.006	
11:06:22	0.004	0.005	0.004	0.006	
11:11:22	0.004	0.005	0.004	0.006	
11:16:22	0.006	0.006	0.006	0.008	
11:21:22	0.004	0.004	0.004	0.005	
11:26:22	0.004	0.004	0.004	0.005	
11:31:22	0.005	0.005	0.004	0.007	
11:36:22	0.004	0.005	0.004	0.006	
11:41:22	0.004	0.006	0.004	0.006	
11:46:22	0.005	0.007	0.006	0.008	
11:51:22	0.004	0.003	0.004	0.004	
11:56:22	0.004	0.006	0.004	0.007	
12:01:22	0.005	0.011	0.007	0.012	
12:06:22	0.004	0.006	0.004	0.006	
12:11:22	0.004	0.006	0.004	0.006	
12:16:22	0.004	0.004	0.004	0.005	
12:21:22	0.005	0.007	0.006	0.008	
12:26:22	0.004	0.003	0.004	0.005	
12:31:22	0.004	0.006	0.006	0.007	
12:36:22	0.004	0.004	0.004	0.004	
12:41:22	0.004	0.003	0.004	0.005	
12:46:22	0.004	0.003	0.004	0.004	
12:51:22	0.005	0.004	0.004	0.005	
12:56:22	0.004	0.003	0.004	0.004	
13:01:22	0.004	0.003	0.004	0.005	
13:06:22	0.004	0.003	0.004	0.005	
13:11:22	0.004	0.004	0.004	0.005	
13:16:22	0.004	0.003	0.004	0.004	
13:21:22	0.004	0.003	0.003	0.004	
13:26:22	0.004	0.003	0.004	0.005	
13:31:22	0.004	0.003	0.004	0.005	
13:36:22	0.004	0.005	0.004	0.005	
13:41:22	0.004	0.006	0.005	0.007	
13:46:22	0.004	0.003	0.004	0.005	
13:51:22	0.004	0.006	0.004	0.007	
13:56:22	0.004	0.006	0.004	0.006	
14:00:00	0.004	0.007	0.004	0.008	
14:08:10	0.006	0.006	0.005	0.007	

Unit BE20351 Monitoring Data in Sequence 3/8/2016					
Time	Tran Peak in/s	Vert Peak in/s	Long Peak in/s	Geo PVS in/s	Comments
6:55:44	0.004	0.014	0.003	0.014	
7:00:44	0.003	0.01	0.003	0.01	
7:05:44	0.004	0.012	0.004	0.012	
7:10:44	0.006	0.011	0.003	0.011	
7:15:44	0.004	0.011	0.004	0.011	
7:20:44	0.004	0.011	0.003	0.011	
7:25:44	0.005	0.011	0.003	0.011	
7:30:44	0.004	0.011	0.003	0.011	
7:35:44	0.005	0.012	0.003	0.012	
7:40:44	0.004	0.014	0.004	0.015	
7:45:44	0.003	0.003	0.003	0.004	
7:50:44	0.005	0.004	0.006	0.007	
7:55:44	0.003	0.004	0.003	0.005	
8:00:00	0.004	0.003	0.003	0.004	
8:08:14	0.005	0.007	0.006	0.008	
8:13:14	0.004	0.008	0.004	0.009	
8:18:14	0.004	0.006	0.004	0.007	
8:23:14	0.004	0.006	0.004	0.007	
8:28:14	0.003	0.006	0.004	0.007	
8:33:14	0.004	0.009	0.006	0.01	
8:38:14	0.003	0.004	0.004	0.005	
8:43:14	0.004	0.007	0.004	0.008	
8:48:14	0.004	0.012	0.004	0.013	
8:53:14	0.004	0.006	0.004	0.006	
8:58:14	0.006	0.014	0.004	0.015	
9:03:14	0.005	0.018	0.004	0.018	
9:08:14	0.004	0.011	0.004	0.011	
9:13:14	0.005	0.017	0.004	0.017	
9:18:14	0.005	0.021	0.006	0.021	
9:23:14	0.006	0.026	0.006	0.026	
9:28:14	0.005	0.021	0.006	0.021	
9:33:14	0.007	0.026	0.006	0.026	
9:38:14	0.005	0.009	0.004	0.009	
9:43:14	0.018	0.037	0.011	0.04	
9:48:14	0.004	0.006	0.004	0.006	
9:53:14	0.003	0.007	0.004	0.007	
9:58:14	0.004	0.013	0.004	0.013	
10:03:14	0.004	0.015	0.004	0.015	
10:14:19	0.004	0.007	0.005	0.008	
10:19:19	0.004	0.008	0.004	0.008	
10:24:19	0.003	0.004	0.004	0.005	
10:29:19	0.004	0.005	0.004	0.005	

10:34:19	0.004	0.006	0.004	0.006	
10:39:19	0.004	0.005	0.004	0.005	
10:44:19	0.004	0.005	0.004	0.005	
10:49:19	0.004	0.004	0.004	0.005	
10:54:19	0.004	0.007	0.004	0.007	
10:59:19	0.004	0.009	0.004	0.01	
11:04:19	0.004	0.008	0.004	0.008	
11:09:19	0.004	0.008	0.004	0.008	
11:14:19	0.004	0.009	0.004	0.009	
11:19:19	0.004	0.007	0.005	0.008	
11:24:19	0.004	0.005	0.004	0.005	
11:29:19	0.004	0.006	0.004	0.006	
11:34:19	0.004	0.011	0.004	0.011	
11:39:19	0.004	0.012	0.004	0.013	
11:44:19	0.006	0.011	0.004	0.011	
11:49:19	0.004	0.004	0.004	0.005	
11:54:19	0.004	0.012	0.004	0.012	
11:59:19	0.004	0.011	0.004	0.011	
12:04:19	0.006	0.014	0.006	0.015	
12:09:19	0.004	0.007	0.004	0.008	
12:14:19	0.004	0.005	0.004	0.005	
12:19:19	0.004	0.012	0.004	0.012	
12:24:19	0.005	0.012	0.005	0.013	
12:29:19	0.004	0.006	0.004	0.006	
12:34:19	0.004	0.015	0.004	0.015	
12:39:19	0.01	0.027	0.007	0.029	
12:44:19	0.004	0.006	0.004	0.006	
12:49:19	0.004	0.006	0.004	0.006	
12:54:19	0.004	0.004	0.004	0.005	
12:59:19	0.004	0.005	0.004	0.005	
13:04:19	0.004	0.006	0.004	0.006	
13:09:19	0.005	0.009	0.004	0.01	
13:14:19	0.004	0.007	0.004	0.007	
13:19:19	0.004	0.004	0.004	0.005	
13:24:19	0.004	0.004	0.004	0.005	
13:29:19	0.004	0.004	0.004	0.005	
13:34:19	0.008	0.017	0.005	0.018	
13:39:19	0.004	0.005	0.005	0.005	
13:44:19	0.014	0.033	0.014	0.035	
13:49:19	0.004	0.007	0.004	0.007	
13:54:19	0.004	0.008	0.004	0.008	
13:59:19	0.004	0.009	0.004	0.009	
14:00:00	0.004	0.006	0.004	0.007	
14:08:13	0.004	0.009	0.005	0.009	
14:13:13	0.006	0.014	0.005	0.015	
14:18:13	0.004	0.01	0.004	0.01	

14:23:13	0.004	0.012	0.004	0.012	

Unit BE20346 Monitoring Data in Sequence 3/9/2016					
Time	Tran Peak in/s	Vert Peak in/s	Long Peak in/s	Geo PVS in/s	Comments
7:29:15	0.058	0.04	0.022	0.073	
7:34:15	0.005	0.005	0.006	0.008	
7:39:15	0.004	0.003	0.003	0.005	
7:44:15	0.004	0.003	0.003	0.004	
7:49:15	0.018	0.052	0.021	0.058	
7:54:15	0.009	0.006	0.012	0.013	
7:59:15	0.004	0.003	0.004	0.004	
8:00:00	0.004	0.003	0.003	0.004	
8:08:07	0.004	0.004	0.004	0.004	
8:13:07	0.004	0.007	0.004	0.008	
8:18:07	0.004	0.006	0.004	0.007	
8:23:07	0.016	0.041	0.019	0.044	
8:28:07	0.005	0.007	0.004	0.008	
8:33:07	0.006	0.006	0.004	0.007	
8:38:07	0.006	0.008	0.004	0.009	
8:43:07	0.004	0.006	0.004	0.007	
8:48:07	0.007	0.01	0.005	0.01	
8:53:07	0.008	0.008	0.006	0.01	
8:58:07	0.005	0.005	0.004	0.006	
9:03:07	0.004	0.003	0.004	0.005	
9:08:07	0.004	0.004	0.004	0.005	
9:13:07	0.005	0.008	0.005	0.009	
9:18:07	0.006	0.011	0.006	0.011	
9:23:07	0.006	0.008	0.005	0.009	
9:28:07	0.007	0.006	0.007	0.009	
9:33:07	0.005	0.008	0.004	0.009	
9:38:07	0.006	0.008	0.005	0.009	
9:43:07	0.007	0.01	0.005	0.011	
9:48:07	0.005	0.007	0.004	0.008	
9:53:07	0.004	0.004	0.006	0.007	
9:58:07	0.004	0.005	0.004	0.006	
10:03:07	0.004	0.005	0.004	0.006	
10:08:07	0.004	0.004	0.004	0.005	
10:13:07	0.004	0.004	0.005	0.006	
10:18:07	0.011	0.007	0.015	0.018	
10:23:07	0.011	0.009	0.02	0.021	
10:28:07	0.007	0.006	0.009	0.011	
10:33:07	0.004	0.004	0.004	0.005	
10:38:07	0.004	0.003	0.004	0.004	
10:43:07	0.004	0.003	0.004	0.005	
10:48:07	0.006	0.007	0.005	0.009	
10:53:07	0.004	0.005	0.004	0.005	

10:58:07	0.004	0.005	0.004	0.006	
11:03:07	0.009	0.006	0.006	0.01	
11:08:07	0.006	0.007	0.005	0.008	
11:13:07	0.006	0.004	0.004	0.006	
11:18:07	0.004	0.006	0.004	0.006	
11:23:07	0.009	0.007	0.006	0.009	
11:28:07	0.004	0.005	0.004	0.006	
11:33:07	0.006	0.011	0.006	0.011	
11:38:07	0.004	0.006	0.004	0.006	
11:43:07	0.004	0.006	0.004	0.007	
11:48:07	0.004	0.005	0.004	0.005	
11:53:07	0.006	0.01	0.005	0.01	
11:58:07	0.004	0.006	0.004	0.006	
12:03:07	0.006	0.009	0.005	0.009	
12:08:07	0.004	0.005	0.004	0.005	
12:13:07	0.006	0.006	0.004	0.007	
12:18:07	0.006	0.009	0.006	0.009	
12:23:07	0.005	0.011	0.004	0.011	
12:28:07	0.005	0.006	0.004	0.007	
12:33:07	0.006	0.009	0.009	0.01	
12:38:07	0.004	0.006	0.004	0.006	
12:43:07	0.006	0.007	0.006	0.008	
12:48:07	0.006	0.006	0.005	0.006	
12:53:07	0.007	0.009	0.006	0.011	
12:58:07	0.006	0.006	0.006	0.007	
13:03:07	0.006	0.009	0.006	0.009	
13:08:07	0.005	0.006	0.005	0.007	
13:13:07	0.006	0.007	0.007	0.008	
13:18:07	0.006	0.007	0.005	0.007	
13:23:07	0.009	0.009	0.007	0.012	
13:28:07	0.006	0.01	0.005	0.01	
13:33:07	0.006	0.007	0.006	0.008	
13:38:07	0.006	0.007	0.005	0.008	
13:43:07	0.006	0.009	0.006	0.01	
13:48:07	0.006	0.009	0.006	0.009	
13:53:07	0.006	0.011	0.006	0.011	
13:58:07	0.032	0.022	0.011	0.04	
14:00:00	0.004	0.004	0.004	0.005	

Unit BE20351 Monitoring Data in Sequence 3/9/2016					
Time	Tran Peak in/s	Vert Peak in/s	Long Peak in/s	Geo PVS in/s	Comments
7:41:50	0.004	0.002	0.006	0.007	
7:46:50	0.005	0.011	0.004	0.011	
7:51:50	0.004	0.009	0.004	0.009	
7:56:50	0.004	0.011	0.004	0.011	
8:00:00	0.003	0.004	0.004	0.005	
8:08:08	0.004	0.006	0.004	0.007	
8:13:08	0.004	0.011	0.004	0.011	
8:18:08	0.004	0.012	0.005	0.012	
8:23:08	0.004	0.014	0.005	0.014	
8:28:08	0.005	0.021	0.01	0.023	
8:33:08	0.004	0.017	0.005	0.017	
8:38:08	0.005	0.024	0.006	0.025	
8:43:08	0.004	0.012	0.005	0.012	
8:48:08	0.006	0.026	0.006	0.026	
8:53:08	0.006	0.034	0.006	0.034	
8:58:08	0.004	0.011	0.004	0.011	
9:03:08	0.004	0.006	0.004	0.007	
9:08:08	0.004	0.007	0.004	0.008	
9:13:08	0.005	0.012	0.005	0.013	
9:18:08	0.005	0.023	0.006	0.023	
9:23:08	0.004	0.012	0.005	0.013	
9:28:08	0.004	0.012	0.004	0.012	
9:33:08	0.004	0.012	0.005	0.013	
9:38:08	0.005	0.021	0.005	0.021	
9:43:08	0.007	0.016	0.004	0.016	
9:48:08	0.005	0.018	0.005	0.018	
9:53:08	0.005	0.009	0.004	0.01	
9:58:08	0.004	0.009	0.004	0.009	
10:03:08	0.006	0.02	0.009	0.022	
10:08:08	0.004	0.01	0.004	0.01	
10:13:08	0.004	0.007	0.005	0.008	
10:18:08	0.004	0.008	0.005	0.009	
10:23:08	0.004	0.007	0.005	0.008	
10:28:08	0.004	0.009	0.005	0.009	
10:33:08	0.004	0.007	0.004	0.007	
10:38:08	0.004	0.007	0.005	0.007	
10:43:08	0.004	0.007	0.005	0.008	
10:48:08	0.004	0.011	0.005	0.011	
10:53:08	0.004	0.007	0.005	0.008	
10:58:08	0.004	0.01	0.005	0.01	
11:03:08	0.004	0.014	0.006	0.014	
11:08:08	0.004	0.009	0.005	0.009	

11:13:08	0.004	0.008	0.004	0.008	
11:18:08	0.004	0.017	0.007	0.018	
11:23:08	0.005	0.012	0.007	0.012	
11:28:08	0.006	0.01	0.005	0.01	
11:33:08	0.004	0.014	0.005	0.014	
11:38:08	0.004	0.01	0.005	0.01	
11:43:08	0.004	0.01	0.006	0.01	
11:48:08	0.004	0.011	0.005	0.011	
11:53:08	0.004	0.012	0.005	0.013	
11:58:08	0.004	0.008	0.006	0.008	
12:03:08	0.004	0.014	0.006	0.014	
12:08:08	0.004	0.011	0.005	0.011	
12:13:08	0.004	0.011	0.006	0.012	
12:18:08	0.006	0.015	0.007	0.015	
12:23:08	0.006	0.012	0.005	0.013	
12:28:08	0.007	0.026	0.01	0.027	
12:33:08	0.006	0.018	0.01	0.019	
12:38:08	0.005	0.011	0.006	0.012	
12:43:08	0.006	0.013	0.005	0.013	
12:48:08	0.005	0.011	0.005	0.011	
12:53:08	0.006	0.014	0.007	0.014	
12:58:08	0.005	0.011	0.006	0.011	
13:03:08	0.006	0.013	0.006	0.013	
13:08:08	0.005	0.009	0.005	0.01	
13:13:08	0.006	0.012	0.006	0.013	
13:18:08	0.005	0.011	0.006	0.011	
13:23:08	0.007	0.016	0.006	0.016	
13:28:08	0.006	0.017	0.005	0.018	
13:33:08	0.006	0.013	0.006	0.013	
13:38:08	0.006	0.012	0.006	0.013	
13:43:08	0.006	0.014	0.006	0.014	
13:48:08	0.005	0.016	0.006	0.016	
13:53:08	0.007	0.013	0.005	0.013	
13:58:08	0.005	0.009	0.005	0.01	
14:00:00	0.004	0.007	0.004	0.008	

Unit BE20346 Monitoring Data in Sequence 3/10/2016					
Time	Tran Peak in/s	Vert Peak in/s	Long Peak in/s	Geo PVS in/s	Comments
7:28:22	0.004	0.006	0.014	0.015	
7:33:22	0.004	0.003	0.003	0.004	
7:38:22	0.004	0.004	0.006	0.006	
7:43:22	0.004	0.003	0.004	0.004	
7:48:22	0.004	0.003	0.003	0.004	
7:53:22	0.004	0.003	0.003	0.004	
7:58:22	0.004	0.004	0.003	0.005	
8:00:00	0.004	0.003	0.003	0.004	
8:07:56	0.004	0.004	0.004	0.005	
8:12:56	0.004	0.005	0.003	0.005	
8:17:56	0.004	0.005	0.003	0.006	
8:22:56	0.005	0.006	0.007	0.007	
8:27:56	0.004	0.006	0.004	0.006	
8:32:56	0.004	0.004	0.003	0.005	
8:37:56	0.005	0.007	0.006	0.009	
8:42:56	0.005	0.006	0.009	0.009	
8:47:56	0.006	0.011	0.005	0.011	
8:52:56	0.005	0.011	0.005	0.011	
8:57:56	0.006	0.012	0.006	0.013	
9:02:56	0.006	0.005	0.004	0.007	
9:07:56	0.004	0.008	0.007	0.008	
9:12:56	0.005	0.005	0.004	0.006	
9:17:56	0.004	0.006	0.004	0.007	
9:22:56	0.004	0.006	0.004	0.007	
9:27:56	0.004	0.006	0.004	0.006	
9:32:56	0.005	0.007	0.004	0.008	
9:37:56	0.004	0.005	0.003	0.005	
9:42:56	0.004	0.006	0.003	0.006	
9:47:56	0.004	0.005	0.006	0.006	
9:52:56	0.004	0.007	0.006	0.008	
9:57:56	0.005	0.004	0.004	0.005	
10:02:56	0.004	0.004	0.004	0.005	
10:07:56	0.005	0.005	0.004	0.005	
10:12:56	0.004	0.004	0.003	0.004	
10:17:56	0.004	0.004	0.004	0.005	
10:22:56	0.004	0.004	0.004	0.004	
10:27:56	0.004	0.006	0.004	0.006	
10:32:56	0.004	0.006	0.004	0.007	
10:37:56	0.004	0.004	0.004	0.005	
10:42:56	0.004	0.006	0.005	0.006	
10:47:56	0.004	0.006	0.007	0.007	
10:52:56	0.004	0.006	0.004	0.007	

10:57:56	0.004	0.006	0.004	0.007	
11:02:56	0.004	0.004	0.004	0.005	
11:07:56	0.004	0.005	0.004	0.006	
11:12:56	0.004	0.006	0.016	0.016	
11:17:56	0.004	0.005	0.004	0.006	
11:22:56	0.004	0.004	0.006	0.006	
11:27:56	0.004	0.005	0.004	0.005	
11:32:56	0.004	0.007	0.006	0.008	
11:37:56	0.006	0.009	0.005	0.01	
11:42:56	0.004	0.005	0.003	0.006	
11:47:56	0.004	0.005	0.004	0.006	
11:52:56	0.004	0.004	0.004	0.005	
11:57:56	0.004	0.004	0.004	0.005	
12:02:56	0.004	0.006	0.006	0.006	
12:07:56	0.004	0.004	0.005	0.006	
12:12:56	0.004	0.004	0.004	0.005	
12:17:56	0.004	0.006	0.007	0.008	
12:22:56	0.004	0.004	0.004	0.005	
12:27:56	0.004	0.004	0.004	0.005	
12:32:56	0.004	0.004	0.004	0.005	
12:37:56	0.004	0.004	0.006	0.006	
12:42:56	0.004	0.004	0.004	0.005	
12:47:56	0.004	0.014	0.022	0.023	
12:52:56	0.004	0.007	0.006	0.008	

Unit BE20351 Monitoring Data in Sequence 3/10/2016					
Time	Tran Peak in/s	Vert Peak in/s	Long Peak in/s	Geo PVS in/s	Comments
7:07:17	0.003	0.007	0.004	0.007	
7:12:17	0.004	0.004	0.004	0.005	
7:17:17	0.004	0.003	0.003	0.004	
7:22:17	0.003	0.004	0.003	0.005	
7:27:17	0.003	0.003	0.003	0.004	
7:32:17	0.003	0.002	0.003	0.004	
7:37:17	0.004	0.003	0.003	0.004	
7:42:17	0.003	0.002	0.003	0.004	
7:47:17	0.004	0.006	0.004	0.006	
7:52:17	0.004	0.007	0.004	0.008	
7:57:17	0.004	0.007	0.005	0.008	
8:00:00	0.004	0.007	0.004	0.007	
8:08:11	0.006	0.013	0.006	0.013	
8:13:11	0.008	0.022	0.009	0.023	
8:18:11	0.006	0.014	0.006	0.015	
8:23:11	0.006	0.016	0.008	0.016	
8:28:11	0.006	0.016	0.006	0.016	
8:33:11	0.006	0.014	0.006	0.015	
8:38:11	0.007	0.019	0.006	0.02	
8:43:11	0.007	0.017	0.006	0.018	
8:48:11	0.007	0.024	0.007	0.024	
8:53:11	0.007	0.017	0.007	0.018	
8:58:11	0.007	0.021	0.006	0.021	
9:03:11	0.007	0.017	0.007	0.017	
9:08:11	0.007	0.014	0.006	0.014	
9:13:11	0.007	0.016	0.007	0.016	
9:18:11	0.007	0.017	0.007	0.017	
9:23:11	0.007	0.017	0.007	0.018	
9:28:11	0.006	0.016	0.006	0.016	
9:33:11	0.007	0.02	0.006	0.02	
9:38:11	0.006	0.014	0.006	0.014	
9:43:11	0.006	0.014	0.006	0.014	
9:48:11	0.006	0.015	0.006	0.015	
9:53:11	0.007	0.016	0.006	0.016	
9:58:11	0.006	0.013	0.006	0.014	
10:03:11	0.006	0.014	0.006	0.014	
10:08:11	0.009	0.031	0.009	0.032	
10:13:11	0.007	0.013	0.006	0.014	
10:18:11	0.006	0.013	0.007	0.013	
10:23:11	0.006	0.014	0.006	0.014	
10:28:11	0.006	0.016	0.006	0.016	
10:33:11	0.006	0.016	0.007	0.016	

10:38:11	0.006	0.013	0.007	0.014	
10:43:11	0.006	0.011	0.007	0.012	
10:48:11	0.006	0.014	0.006	0.014	
10:53:11	0.006	0.013	0.007	0.013	
10:58:11	0.006	0.013	0.006	0.014	
11:03:11	0.006	0.012	0.006	0.012	
11:08:11	0.011	0.031	0.01	0.032	
11:13:11	0.006	0.016	0.008	0.016	
11:18:11	0.006	0.014	0.007	0.014	
11:23:11	0.006	0.012	0.007	0.013	
11:28:11	0.006	0.017	0.006	0.018	
11:33:11	0.006	0.016	0.006	0.016	
11:38:11	0.007	0.019	0.007	0.02	
11:43:11	0.006	0.016	0.007	0.016	
11:48:11	0.006	0.017	0.006	0.017	
11:53:11	0.005	0.012	0.006	0.013	
11:58:11	0.005	0.011	0.006	0.012	
12:03:11	0.005	0.013	0.006	0.014	
12:05:11	0.693	0.273	1.179	1.188	Third party disturbance
12:13:31	0.005	0.011	0.006	0.012	
12:18:31	0.005	0.014	0.006	0.014	
12:23:31	0.006	0.014	0.006	0.014	
12:28:31	0.005	0.012	0.006	0.012	
12:33:31	0.005	0.012	0.006	0.013	
12:38:31	0.005	0.012	0.006	0.012	
12:43:31	0.005	0.012	0.006	0.012	
12:48:31	0.005	0.018	0.007	0.018	
12:53:31	0.005	0.02	0.006	0.02	
12:58:31	0.004	0.006	0.004	0.007	
13:03:31	0.004	0.005	0.003	0.005	
13:08:31	0.003	0.007	0.004	0.008	
13:13:31	0.008	0.023	0.007	0.025	
13:18:31	0.003	0.004	0.003	0.005	
14:07:53	0.005	0.012	0.005	0.012	
14:12:53	0.006	0.014	0.006	0.014	
14:17:53	0.005	0.012	0.006	0.013	

Unit BE20346 Monitoring Data in Sequence 3/11/2016					
Time	Tran Peak in/s	Vert Peak in/s	Long Peak in/s	Geo PVS in/s	Comments
7:34:03	0.006	0.011	0.01	0.012	
7:39:03	0.019	0.021	0.025	0.026	
7:44:03	0.006	0.007	0.01	0.011	
7:49:03	0.004	0.006	0.003	0.007	
7:54:03	0.006	0.009	0.004	0.01	
7:59:03	0.004	0.006	0.004	0.006	
8:00:00	0.004	0.003	0.003	0.004	
8:08:14	0.009	0.017	0.014	0.018	
8:13:14	0.011	0.012	0.013	0.018	
8:18:14	0.007	0.011	0.009	0.012	
8:23:14	0.009	0.021	0.009	0.022	
8:28:14	0.009	0.011	0.009	0.012	
8:33:14	0.005	0.009	0.004	0.009	
8:38:14	0.006	0.009	0.006	0.01	
8:43:14	0.009	0.012	0.009	0.013	
8:48:14	0.011	0.016	0.01	0.018	
8:53:14	0.008	0.011	0.008	0.012	
8:58:14	0.006	0.011	0.007	0.012	
9:03:14	0.011	0.021	0.021	0.026	
9:08:14	0.009	0.013	0.012	0.014	
9:13:14	0.027	0.032	0.021	0.041	
9:18:14	0.007	0.024	0.014	0.024	
9:23:14	0.011	0.042	0.009	0.042	
9:28:14	0.011	0.032	0.011	0.032	
9:33:14	0.01	0.024	0.007	0.024	
9:38:14	0.012	0.052	0.014	0.052	
9:43:14	0.009	0.012	0.011	0.013	
9:48:14	0.004	0.004	0.006	0.007	
9:53:14	0.004	0.006	0.006	0.007	
9:58:14	0.005	0.005	0.007	0.008	
10:03:14	0.004	0.004	0.003	0.005	
10:08:14	0.004	0.009	0.004	0.01	
10:13:14	0.008	0.012	0.007	0.013	
10:18:14	0.006	0.009	0.007	0.011	
10:23:14	0.004	0.01	0.005	0.01	
10:28:14	0.009	0.021	0.008	0.021	
10:33:14	0.005	0.007	0.004	0.007	
10:38:14	0.006	0.007	0.004	0.008	
10:43:14	0.007	0.011	0.006	0.012	
10:48:14	0.006	0.007	0.004	0.008	
10:53:14	0.006	0.008	0.005	0.009	
10:58:14	0.007	0.009	0.011	0.013	

11:03:14	0.009	0.014	0.017	0.02	
11:08:14	0.02	0.026	0.021	0.028	
11:13:14	0.011	0.017	0.017	0.019	
11:18:14	0.021	0.018	0.029	0.032	
11:23:14	0.014	0.025	0.019	0.026	
11:28:14	0.004	0.004	0.004	0.005	
11:33:14	0.004	0.004	0.004	0.004	
11:38:14	0.005	0.005	0.004	0.006	
11:43:14	0.007	0.008	0.009	0.011	
11:48:14	0.006	0.006	0.004	0.007	
11:53:14	0.004	0.006	0.004	0.006	
11:58:14	0.004	0.008	0.009	0.009	
12:03:14	0.004	0.004	0.004	0.005	
12:08:14	0.007	0.006	0.004	0.008	
12:13:14	0.004	0.004	0.004	0.005	
12:18:14	0.004	0.003	0.004	0.004	
12:23:14	0.004	0.003	0.004	0.005	
12:28:14	0.004	0.004	0.004	0.004	
12:33:14	0.004	0.004	0.004	0.005	
12:38:14	0.004	0.003	0.004	0.004	
12:43:14	0.004	0.003	0.003	0.004	
14:00:00	0.076	0.054	0.04	0.08	

Unit BE20351 Monitoring Data in Sequence 3/11/2016					
Time	Tran Peak in/s	Vert Peak in/s	Long Peak in/s	Geo PVS in/s	Comments
7:02:43	0.003	0.003	0.003	0.004	
7:07:43	0.004	0.003	0.004	0.005	
7:12:43	0.003	0.003	0.004	0.004	
7:17:43	0.006	0.022	0.009	0.023	
7:22:43	0.003	0.003	0.003	0.004	
7:27:43	0.003	0.002	0.003	0.004	
7:32:43	0.003	0.003	0.004	0.005	
7:37:43	0.004	0.006	0.004	0.006	
7:42:43	0.003	0.002	0.003	0.004	
7:47:43	0.003	0.004	0.004	0.005	
7:52:43	0.005	0.007	0.004	0.007	
7:57:43	0.003	0.011	0.004	0.012	
8:00:00	0.003	0.004	0.003	0.005	
8:08:08	0.004	0.006	0.004	0.006	
8:13:08	0.004	0.012	0.004	0.013	
8:18:08	0.004	0.006	0.003	0.006	
8:23:08	0.005	0.007	0.005	0.008	
8:28:08	0.003	0.006	0.004	0.006	
8:33:08	0.003	0.004	0.003	0.004	
8:38:08	0.003	0.008	0.004	0.009	
8:43:08	0.004	0.006	0.004	0.007	
8:48:08	0.004	0.005	0.004	0.005	
8:53:08	0.004	0.006	0.003	0.006	
8:58:08	0.004	0.007	0.004	0.008	
9:03:08	0.006	0.012	0.004	0.012	
9:08:08	0.004	0.007	0.006	0.008	
9:13:08	0.009	0.011	0.01	0.011	
9:18:08	0.009	0.012	0.014	0.015	
9:23:08	0.004	0.011	0.004	0.011	
9:28:08	0.007	0.036	0.013	0.038	
9:33:08	0.004	0.006	0.004	0.007	
9:38:08	0.006	0.017	0.006	0.018	
9:43:08	0.004	0.007	0.004	0.007	
9:48:08	0.003	0.006	0.003	0.006	
9:53:08	0.003	0.003	0.004	0.004	
9:58:08	0.004	0.016	0.007	0.017	
10:03:08	0.004	0.007	0.004	0.007	
10:08:08	0.004	0.013	0.003	0.013	
10:13:08	0.004	0.017	0.004	0.018	
10:18:08	0.004	0.017	0.006	0.017	
10:23:08	0.005	0.026	0.007	0.026	
10:28:08	0.008	0.072	0.012	0.073	

10:33:08	0.006	0.036	0.009	0.037	
10:38:08	0.007	0.035	0.011	0.036	
10:43:08	0.005	0.035	0.008	0.036	
10:48:08	0.004	0.028	0.008	0.029	
10:53:08	0.006	0.039	0.01	0.04	
10:58:08	0.004	0.01	0.004	0.011	
11:03:08	0.004	0.016	0.004	0.016	
11:08:08	0.004	0.009	0.004	0.01	
11:13:08	0.005	0.026	0.009	0.027	
11:18:08	0.006	0.011	0.006	0.011	
11:23:08	0.005	0.019	0.007	0.02	
11:28:08	0.005	0.011	0.005	0.011	
11:33:08	0.009	0.036	0.014	0.037	
11:38:08	0.004	0.008	0.006	0.01	
11:43:08	0.003	0.01	0.006	0.012	
11:48:08	0.004	0.008	0.004	0.008	
11:53:08	0.004	0.011	0.005	0.011	
11:58:08	0.004	0.014	0.004	0.014	
12:03:08	0.004	0.009	0.004	0.009	
12:08:08	0.003	0.007	0.003	0.007	
12:13:08	0.004	0.007	0.004	0.008	
12:18:08	0.003	0.002	0.003	0.004	
12:23:08	0.004	0.007	0.004	0.008	
12:28:08	0.004	0.007	0.004	0.008	
12:33:08	0.004	0.017	0.006	0.018	
12:38:08	0.004	0.003	0.003	0.004	
12:43:08	0.003	0.004	0.003	0.004	
12:48:08	0.003	0.01	0.003	0.01	
12:53:08	0.005	0.017	0.006	0.019	
12:58:08	0.003	0.006	0.003	0.006	
13:03:08	0.003	0.006	0.003	0.006	
13:08:08	0.003	0.007	0.004	0.007	
13:13:08	0.004	0.007	0.004	0.008	
13:18:08	0.004	0.004	0.003	0.004	
14:00:00	0.062	0.04	0.066	0.076	
14:04:49	0.192	0.058	0.201	0.228	Equipment moved during mobilization offsite

APPENDIX G

Post-Construction Survey

(Provided on CD in Bound Report)

CONTROL POINT ASSOCIATES, INC.
traditional methods | modern approaches

35 Technology Drive
Warren, NJ 07059
Tel: 908.668.0099
www.cpasurvey.com

May 3, 2016

United Industries & Construction Corp.
2 Rector Street
New York, New York 10006

ATTENTION: Peter Mcbride

RE: **Lots 300 & 309, Block 312**
Newtown Creek, Review Avenue
& Railroad Avenue
Long Island City
Queens County, City & State of New York
CPA Project #01-080362-01

Dear Todd:

Our initial baseline (pre-construction) observations were performed on February 29, 2016. The observations and resulting point cloud were referenced to the North American Datum 1983 horizontally, and the North American Vertical Datum 1988 by GPS observation utilizing the Keystone Keynet VRS Network. Post-construction observations were performed on March 18, 2016. The point clouds were registered and correlated to one another using Cyclone 9.1 software. Approximately 100 common points were chosen from the pre and post construction point clouds. Our analysis of these common points did not reveal any significant change in horizontal or vertical position of the building, bulkhead, or the ground surface that lies beneath.

Should you have any questions or comments pertaining to this matter or if I can provide any further assistance, kindly contact me at your convenience.

Very truly yours,

CONTROL POINT ASSOCIATES, INC.

James C. Weed, P.L.S.
Senior Vice President, Principal

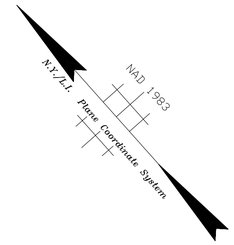
CCB:kc\P:\surveys\2016\01-160013-GlenwoodVillage-Bloomfield-NJ-PJ\CORRESPONDENCE\Schively-Letter 4-28-16.doc
Enclosure

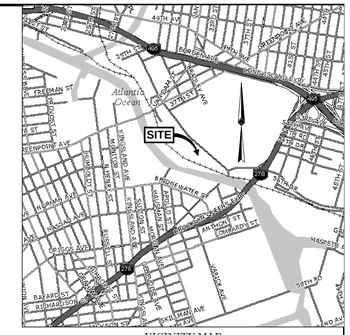
REFERENCES:

1. THE OFFICIAL TAX ASSESSOR'S MAP OF LONG ISLAND CITY, QUEENS COUNTY, NEW YORK, SHEETS 30 & 31.
2. MAP ENTITLED "BOUNDARY, LOCATION & UTILITY SURVEY, NEWTOWN CREEK & REVIEW AVENUE, LOTS 309 & 315, BLOCK 312, LONG ISLAND CITY, QUEENS COUNTY, STATE OF NEW YORK", PREPARED BY CONTROL POINT ASSOCIATES, INC., DATED 03-06-09, LAST REVISED 07-10-12 AS REVISION NO. 6.

NOTES:

1. PROPERTY KNOWN AS LOTS 308 & 309, BLOCK 312, SECTION 2 AS SHOWN ON THE TAX MAP OF LONG ISLAND CITY, QUEENS COUNTY, NEW YORK, SHEETS 30 & 31.
3. **UNDERGROUND UTILITIES HAVE NOT BEEN SHOWN. BEFORE ANY SITE EVALUATION, PREPARATION OF DESIGN DOCUMENTS OR EXCAVATION IS TO BEGIN, THE LOCATION OF UNDERGROUND UTILITIES SHOULD BE VERIFIED BY THE PROPER UTILITY COMPANIES.**
4. **THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO THE RESTRICTIONS, COVENANTS AND/OR EASEMENTS THAT MAY BE CONTAINED THEREIN.**
6. THE OFFSETS SHOWN ARE NOT TO BE USED FOR THE CONSTRUCTION OF ANY STRUCTURE, FENCE, PERMANENT ADDITION, ETC.
7. THE EXISTENCE AND EXTENT OF BASEMENT AREAS, IF ANY, WERE UNKNOWN AT THE TIME OF THE FIELD SURVEY.
8. ENCROACHMENTS AND VAULTS, IF ANY, BELOW SURFACE NOT SHOWN HEREON.
9. ELEVATIONS ARE BASED UPON NAVD88 PER GPS OBSERVATION UTILIZING THE KEYSTONE KEYNET VRS NETWORK, AND REFERENCED TO N.G.S. MONUMENT KU3596 REPUTED TO BE NAVD 1988.
10. HORIZONTAL DATUM IS BASED UPON NAD83 PER GPS OBSERVATION UTILIZING THE KEYSTONE KEYNET VRS NETWORK.
11. THE PURPOSE OF THIS SKETCH IS TO PROVIDE THE LOCATION OF NEWLY INSTALLED MONITORING WELLS AND APPROXIMATE LOCATIONS OF NEWLY CONSTRUCTED STAND PIPES.
12. THIS PLAN IS BASED UPON INFORMATION PROVIDED BY A SURVEY PREPARED IN THE FIELD BY CONTROL POINT ASSOCIATES, INC. UTILIZING A LEICA C10/P20 SCANNER. NO SIGNIFICANT BUILDING/BULKHEAD MOVEMENT WAS FOUND FROM OUR INITIAL OBSERVATION ON 02-29-2016 TO THE RETURN VISIT ON 03-18-2016.
13. HORIZONTAL "TAM" LOCATIONS ARE APPROXIMATE AND ELEVATIONS WERE TAKEN AT GRADE. PIPES WERE NOT EXPOSED AT THE TIME OF THE FIELD SURVEY.



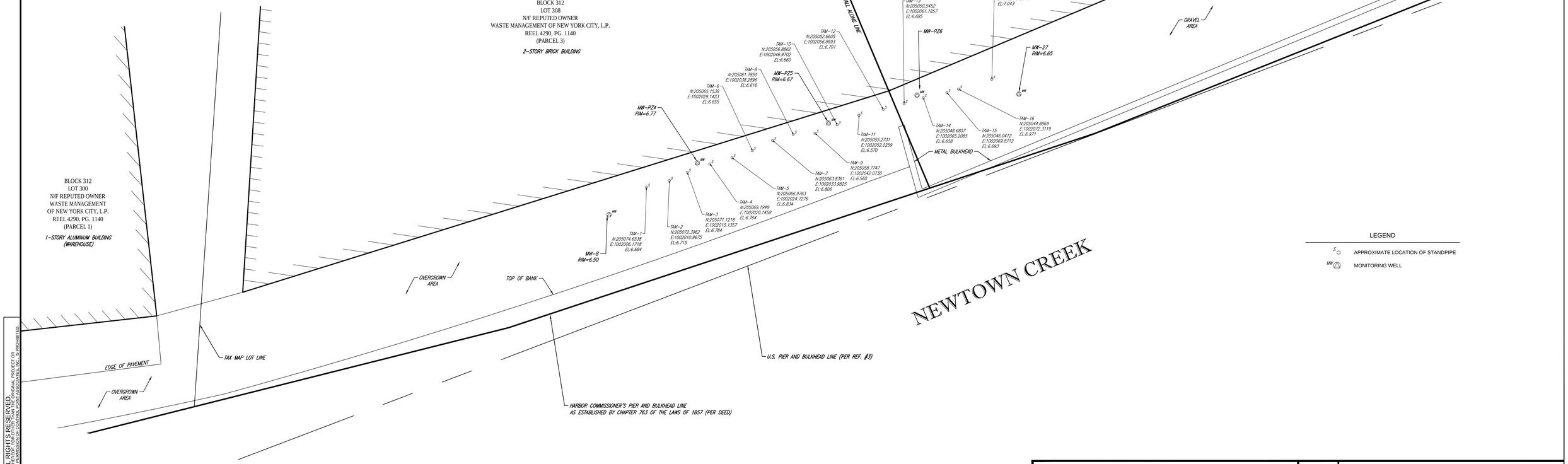


VICINITY MAP

BLOCK 312
LOT 309
N/F REPUTED OWNER
MAR-LOS II LIMITED PARTNERSHIP
REEL 3067, PG. 310
1-STORY MASONRY BUILDING

BLOCK 312
LOT 308
N/F REPUTED OWNER
WASTE MANAGEMENT OF NEW YORK CITY, L.P.
REEL 4290, PG. 1140
(PARCEL 3)
2-STORY BRICK BUILDING

BLOCK 312
LOT 300
N/F REPUTED OWNER
WASTE MANAGEMENT
OF NEW YORK CITY, L.P.
REEL 4290, PG. 1140
(PARCEL 1)
1-STORY ALUMINUM BUILDING (WAREHOUSE)



LEGEND

- APPROXIMATE LOCATION OF STANDPIPE
- MONITORING WELL

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

THIS SURVEY HAS BEEN PERFORMED IN THE FIELD UNDER MY SUPERVISION, AND TO THE BEST OF MY KNOWLEDGE, BELIEF, AND INFORMATION, THIS SURVEY HAS BEEN PERFORMED IN ACCORDANCE WITH CURRENTLY ACCEPTED ACCURACY STANDARDS.

NOT A VALID ORIGINAL DOCUMENT UNLESS EMBOSSED WITH RAISED IMPRESSION OR BLUE INK SEAL

05-03-2016
DATE

JAMES C. WEED
NEW YORK PROFESSIONAL LAND SURVEYOR #50765

FIELD DATE	02-29-2016 03-18-2016
FIELD BOOK NO.	16-15
FIELD BOOK PG.	8
FIELD CREW	J.C.
DRAWN:	J.P.J.
REVIEWED:	M.J.B.

EXHIBIT SKETCH

NEWTOWN CREEK & REVIEW AVENUE

PARTIALLY IN LOTS 308 & 309, BLOCK 312
LONG ISLAND CITY
QUEENS COUNTY
STATE OF NEW YORK

CONTROL POINT ASSOCIATES INC. PC
14 PENN PLAZA, 225 WEST 34TH STREET
NEW YORK, NY 10122
646.780.0411 - 908.668.9595 FAX
WWW.CPASURVEY.COM
WARREN, NJ 908.668.0099
CHALFONT, PA 215.712.9800
MT. LAUREL, NJ 609.857.2099
SOUTHBOROUGH, MA 508.948.3000

APPROVED:	DATE:	SCALE	FILE NO.	DWG. NO.
C.C.B.	05-03-2016	1"=10'	C08362.01	1 OF 1

APPENDIX H

Special Inspections Report

(Provided on CD in Bound Report)

SKYLINE ENGINEERING, LLC

SPECIAL INSPECTION AGENCY
39 West 29th Street - Suite 12B, New York, NY 10001
Phone: 212-213-0662, Email: matt@skylinenyc.net

PROJECT WORK COMPLETED

SPECIAL INSPECTION REPORT

Concrete – Cast-In-Place (BC #1704.4)

PROJECT	**DISTRIBUTION LIST**		
16-056 Former Pratt Oil Works Phase 2 38-36 & 38-42 Review Avenue Long Island City, NY Grout Barrier wall TAM pipe drilling & grouting	Contractor – Moretrench Project Manager: James Myers, P.E. Engineer – Roux Associates Inc. Edward Lacina- Senior Construction Manager Thalassa Sodre - Project Engineer tsodre@rouxinc.com Architect – Filing Representative – Inspector – Skyline Engineering LLC Murat Simsek: murat@skylinenyc.net		
OWNER	**INSPECTION DATE**	**TIME IN**	**TIME OUT**
Thalassa (Tally) Sodre Project Engineer tsodre@rouxinc.com Roux Associates, Inc. 209 Shafter Street Islandia, NY 11749 Office (631) 232-2600 Direct (631) 630-2409 Mobile (516) 509-9332 http://www.rouxinc.com	3/02/16 3/03/16 3/04/16 3/07/16 3/08/16 3/09/16 3/10/16	7:00 am 7:00 am 7:00 am 7:00 am 7:00 am 7:00 am 7:00 AM	3:00 pm 3:00 pm 3:00 pm 3:00 pm 3:00 pm 3:00 pm 1:00 PM

SKYLINE ENGINEERING, LLC

DRAWING	DRAWING TITLE	REVISION	DATE
G-001.01	Site plan drawing	1	17 Dec.15
DWG 1	Grout barrier layout plan		

SCOPE OF WORK

Description of work: Installation and grouting 17 Tube –A- Manchette (TAM) just north of Phase 1 high slump grouting elements

Project Work-In-Progress: ☐ Project Work Completed: ☒

NCR – NON CONFORMANCE REPORT

Construction discrepancies shall be brought to the immediate attention of the contractor for correction. If the discrepancies are not corrected, the discrepancies will be brought to the attention of the Owner, and the registered design professional of record prior to the completion of that phase of the work.

The systems inspected are in conformance with the approved construction documents with the exception of the following items to be addressed and corrected by the installing contractor.

DATE OBSERVED	NON-CONFORMANCE ITEMS REQUIRING CORRECTION	SIGN OFF DATE
3/04/16	~~TAM pipe #16 depth below ground surface 14' 10''~~ ~~TAM pipe# 17 depth below ground surface 14' 0''~~ ~~(Required depth below ground surface +15 ft.)~~ ~~EOR to review and approve.~~ Reviewed and found acceptable by; Dana M. Hignell, Senior Engineer Roux Associates, Inc. Brian P. Morrissey, PE Remedial Engineering PC Reference- letter dated June 1, 2016	6/03/16
3/10/16	~~Actual grout volume injected is less than target volume at numerous TAM piped due to grout surface return or high grout pressure. EOR to review Moretrench's detailed grouting reports and advise.~~ Reviewed and found acceptable by; Dana M. Hignell, Senior Engineer Roux Associates, Inc. Brian P. Morrissey, PE Remedial Engineering PC Reference- letter dated June 1, 2016	6/03/16
3/10/16	~~Moretrench to submit 2 inch x 2inch grout cubes test results for review and record.~~ Reviewed and found acceptable by; Dana M. Hignell, Senior Engineer Roux Associates, Inc. Brian P. Morrissey, PE Remedial Engineering PC Reference- letter dated June 1, 2016	6/03/16

SKYLINE ENGINEERING, LLC

EQUIPMENT USED	INTERNAL ID No.
Calibrated Tape Measure	0210

SKYLINE ENGINEERING, LLC

Concrete – Cast-In-Place (BC #1704.4)
Special Inspections
2014 New York City Building Code

INSPECTION OBSERVATIONS	Complies			COMMENTS
	Y	N	N/A	
1. Material Verification 1.1 Cementitious materials are in accordance with the items specified in the approved contract documents and the relevant **ASTM standards**.	☐	☐	☐	Lafarge Portland type I/II cement & 1/4 bag (50 lb.) quik-gel bentonite
1.2 Materials and aggregates have been properly stored to prevent deterioration or contamination.	☒	☐	☐	
2. Inspection of reinforcing steel 2.1 Verification of type, grade and size of steel as specified in the approved contract documents	☐	☐	☐	N/A
2.2 Steel is free of oil, dirt, and rust. Steel is properly coated and/or sheathed as specified.	☐	☐	☐	
2.3 Steel is located within acceptable tolerances and is properly secured to prevent displacement during concrete displacement	☐	☐	☐	
2.4 Minimum concrete cover has been provided	☐	☐	☐	
2.5 Steel complies with minimum spacing, profile, and quantity requirements as specified in the approved contract documents	☐	☐	☐	
2.6 Hooks, bends, ties, stirrups, and supplemental reinforcement are fabricated and placed as specified	☐	☐	☐	
2.7 Approved mechanical connections have been properly installed	☐	☐	☐	
2.8 All welds of reinforcing steel and other weldments as are as specified and have been approved by an approved welding inspector	☐	☐	☐	
2.9 Inspection of bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased or where strength design is used.	☐	☐	☐	
2.10 Inspection of anchors installed in hardened concrete	☐	☐	☐	

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INSPECTION OBSERVATIONS	Complies			COMMENTS
	Y	N	N/A	
3. Inspection of concrete quality 3.1 Individual batch tickets indicate delivery of the approved design mix as specified	☐	☐	☐	Weak cement bentonite annulus grout mix: 25 gallons water +1 bag (94 lb.) Lafarge Portland type I/II cement + 1/4 bag (50 lb.) quik-gel bentonite Cement bentonite grout mix: 60 gallons of water+1 bag (94 lb.) Lafarge Portland type I/II cement + 1 bag (50 lb.) quik-gel bentonite
3.2 Time limits of mixing, total water added, proper consistency, and workability for placement have been achieved	☐	☐	☐	Grout sampled by Moretrench
3.3 Field testing of fresh concrete, applicable tests, and preparation of test specimens has been performed	☐	☐	☐	
3.4 Proper storage (curing box), protection, and transportation of test specimens has been provided for specimens	☐	☐	☐	
4. Inspection of formwork 4.1 Formwork conforms to the specified size and shape of the concrete elements	☐	☐	☐	N/A
4.2 Location and preparation of the construction joints are in accordance with the approved contract documents	☐	☐	☐	
4.3 Type, quantity, size, spacing, and location of embedded items have been placed as specified	☐	☐	☐	
5. Inspection of concrete placement 5.1 Condition of place of deposit before concrete has been placed is acceptable	☐	☐	☐	N/A TAM pipe grouting
5.2 Means and methods of transporting and depositing the concrete has not been contaminated and shall not segregate the mix	☐	☐	☐	
5.3 Proper consolidation of concrete during placement	☐	☐	☐	
5.4 Mechanical means and methods (vibrator, etc.) are present on site to achieve proper consolidation of concrete (as required by code)	☐	☐	☐	
5.5 Concrete is protected from extreme weather conditions and proper curing procedures have been employed	☐	☐	☐	

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Item inspected / Location / Reference detail	Note	Accepted (**A**) or Rejected (**R**)
	3/02/16	
Grout Barrier wall TAM pipe drilling: TAM pipe# 1,2,3,4&5	1. Drilled 15 ft. below ground surface. 2. 1 ½ dia. PVC pipe installed. 3. Borehole filled with grout.	**Drilling is in progress**
	3/03/16	
Grout Barrier wall TAM pipe drilling: TAM pipe# 6,7,8,9,10,11 & 12	1. Drilled 15 ft. below ground surface. 2. 1 ½ dia. PVC pipe installed. 3. Borehole filled with grout. 4. TAM pipe #8 & 9 were close to the existing observation well, pipe installed 6'' +/- off from the proposed location 5. Drilling was done without water in order avoid seepage into Newtown Creek. Inside of casing was cleaned with inner rod.	**Drilling is in progress**
	3/04/16	
Grout Barrier wall TAM pipe drilling: TAM pipe# 13,14,15,16 & 17	1. Drilled 15 ft. below ground surface. 2. 1 ½ dia. PVC pipe installed. 3. Borehole filled with grout. 4. TAM pipe#16 installed 24'' off from the proposed location because of refusal at proposed location. Drilled 14'-10'' from ground surface. 5. TAM pipe#17 installed 14'-0'' deep from ground surface because of refusal.	**Drilling is complete**
	3/07/16	
Grout Barrier wall cement Bentonite Grouting TAM pipe# 1, 2,3 4,5,6,7,8,9,10,11,12,13,14,15,16&17	1. Malfunctioning pressure gauge was replaced. 2. Flowmeter calibration was checked by passing volume of water through the flowmeters. 3. Grout consistency checked with marsh funnel. 4. 2 inchx2inch grout cubes were sampled by contractor. 5. Grout flow rate grout injection pressure were controlled by Moretrench field technician. 6. Grouting process witnessed and contractor logs were reviewed. 7. Grout return to surface was observed.	**1st pass – is in progress** **(20 gallons each port)**

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	3/08/16	
Grout Barrier wall cement Bentonite Grouting TAM pipe#1, 2,3 4,5,6,7,8,9,10,11,12,13,14,15,16&17	1. Grout consistency checked with marsh funnel- 41 second. 2. Grout sampled by contractor- 2 inchx2inch grout cubes. 3. Grout flow rate and grout injection pressure were controlled by Moretrench field technician. 4. Grouting process witnessed and contractor logs were reviewed. 5. Grout return to surface and existing observation well was observed.	**1st and 2nd pass is in progress** **(20 gallons each port)**
	3/09/16	
Grout Barrier wall cement Bentonite Grouting TAM pipe# 1, 2,3 4,5,6,7,8,9,10,11,12,13,14,15,16&17	1. Grout consistency checked with marsh funnel- 42 second. 2. Grout sampled by contractor- 2 inchx2inch grout cubes. 3. Grout flow rate and grout injection pressure were controlled by Moretrench field technician. 4. Grouting process witnessed and contractor logs were reviewed. 5. Grout return to surface and existing observation well was observed.	**1st and 2nd pass is in progress** **(20 gallons each port) s**
	3/10/16	
Grout Barrier wall cement Bentonite Grouting: TAM pipe# 1, 2,3 4,5,6,7,8,9,10,11,12,13,14,15,16&17	1. Grout consistency checked with marsh funnel- 41 second. 2. Grout sampled by contractor- 2 inchx2inch grout cubes. 3. Grout flow rate and grout injection pressure were controlled by Moretrench field technician. 4. Grouting process witnessed and contractor logs were reviewed. 5. Grout return to surface and existing observation well was observed.	~~**Accepted, Except as noted NCR on page 2.**~~ **6/3/16 Accepted**

Key Plan Attached? Yes ☒ No ☐

Murat Simsek		3/10/16
INSPECTOR	**SIGNATURE**	**DATE**

APPENDIX A
PROGRESS PHOTOGRAPHS

3/2/16- Type l /ll Portland cement used

3/02/16- Bentonite used

3/02/16- 1 ½'' dia PVC pipe with ¼'' dia. Drilled hole.

3/02/16-sleeve port located 15'' apart.

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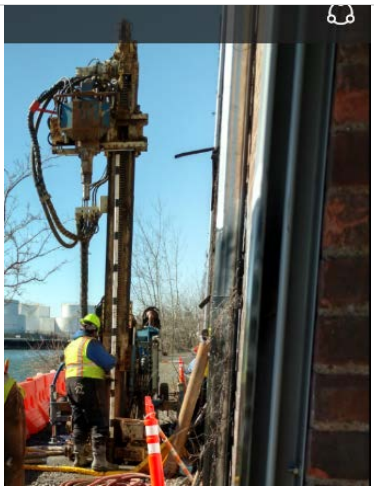


3/2/16- PVC pipe installation into borehole

3/2/16- Grouting borehole.

3/2/16- Mixer and pump.

3/3/16- TAM pipe# 6,7,8,9,10,11 & 12 installed.

3/4/16- TAM pipe# 13,14,15,16 & 17 installed.

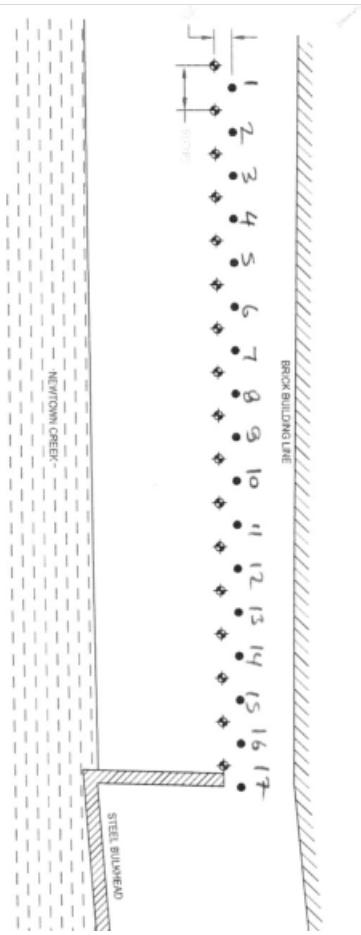
3/07/16- grout injection is in progress.

3/07/16 - Flowmeter calibration was checked by passing volume of water through the flowmeters.

3/08/16 - Grout consistency checked with marsh funnel.

3/09/16 - Grout return to surface during injection.

3/10/16- Grout sampled by contractor- 2 inchx2inch grout cubes.



TAM pipe location sketch

SKYLINE ENGINEERING, LLC

SPECIAL INSPECTION AGENCY
39 West 29th Street - Suite 12B, New York, NY 10001
Phone: 212-213-0662, Email: matt@skylinenyc.net

PROJECT WORK COMPLETED

FINAL INSPECTION REPORT

PROJECT	**DISTRIBUTION LIST**		
16-056 Former Pratt Oil Works Phase 2 38-36 & 38-42 Review Avenue Long Island City, NY Grout Barrier wall TAM pipe drilling & grouting	Contractor – Moretrench James Myers PE project Manager Engineer – Roux Associates Inc. Edward Lacina- Senior Construction Manager Thalassa Sodre - Project Engineer tsodre@rouxinc.com Inspector – Skyline Engineering LLC Murat Simsek: murat@skylinenyc.net		
OWNER	**INSPECTION DATE**	**TIME IN**	**TIME OUT**
Thalassa (Tally) Sodre Project Engineer tsodre@rouxinc.com Roux Associates, Inc. 209 Shafter Street Islandia, NY 11749 Office (631) 232-2600 Direct (631) 630-2409 Mobile (516) 509-9332 http://www.rouxinc.com	3/18/16	11:00 am	1:00 pm

DRAWING	**DRAWING TITLE**	**REVISION**	**DATE**
G-001.01	Site plan drawing	1	17 Dec.15
DWG 1	Grout barrier layout plan		

SKYLINE ENGINEERING, LLC

SCOPE OF WORK

Description of work: Installation and grouting 17 Tube –a- Manchette (TAM) just north of Phase 1 high slump grouting elements

Project Work-In-Progress: ☐ Project Work Completed: ☒

NCR – NON CONFORMANCE REPORT

Construction discrepancies shall be brought to the immediate attention of the contractor for correction. If the discrepancies are not corrected, the discrepancies will be brought to the attention of the Owner, and the registered design professional of record prior to the completion of that phase of the work.

The systems inspected are in conformance with the approved construction documents with the exception of the following items to be addressed and corrected by the installing contractor.

CONCRETE – CAST-IN-PLACE (BC #1704.4)

DATE OBSERVED	NON-CONFORMANCE ITEMS REQUIRING CORRECTION	SIGN OFF DATE
3/04/16	~~TAM pipe #16 depth below ground surface 14'-10''~~ ~~TAM pipe# 17 depth below ground surface 14'-0''~~ ~~(Required depth below ground surface +15 ft.)~~ ~~EOR to review and approve.~~ Reviewed and found acceptable by; Dana M. Hignell, Senior Engineer Roux Associates, Inc. Brian P. Morrissey, PE Remedial Engineering PC Reference- letter dated June 1, 2016	6/3/16
3/10/16	~~Actual grout volume injected is less than target volume at numerous TAM piped due to grout surface return or high grout pressure. EOR to review Moretrench's detailed grouting reports and advise.~~ Reviewed and found acceptable by; Dana M. Hignell, Senior Engineer Roux Associates, Inc. Brian P. Morrissey, PE Remedial Engineering PC Reference- letter dated June 1, 2016	6/3/16
3/10/16	~~Moretrench to submit 2 inch x 2inch grout cubes test result for review and record.~~ Reviewed and found acceptable by; Dana M. Hignell, Senior Engineer Roux Associates, Inc. Brian P. Morrissey, PE Remedial Engineering PC Reference- letter dated June 1, 2016	6/3/16

SKYLINE ENGINEERING, LLC

STRUCTURAL STABILITY (BC #1704.20.1)

DATE OBSERVED	NON-CONFORMANCE ITEMS REQUIRING CORRECTION	SIGN OFF DATE
3/10/16	~~GC to submit vibration monitoring and pre construction and after construction survey report for review and record.~~ Submitted	6/3/16

Key Plan Attached? Yes ☐ No ☒

Murat Simsek		3/18/16
INSPECTOR	**SIGNATURE**	**DATE**

PROGRESS PHOTOGRAPHS

3/18/16 - (17) Tube –A - Manchette (TAM) were installed just north of Phase 1 high slump grouting elements

3/18/16 - Inside of the existing building.

SKYLINE ENGINEERING, LLC

SPECIAL INSPECTION AGENCY
39 West 29th Street - Suite 12B, New York, NY 10001
Phone: 212-213-0662, Email: matt@skylinenyc.net

SPECIAL INSPECTION REPORT

Structural Stability (BC #1704.20.1)

PROJECT	**DISTRIBUTION LIST**		
16-056 Former Pratt Oil Works Phase 2 38-36 & 38-42 Review Avenue Long Island City, NY Grout Barrier wall TAM pipe drilling & grouting	Contractor – Moretrench Project Manager: James Myers PE Engineer – Roux Associates inc. Edward Lacina- Senior Construction Manager Thalassa Sodre - Project Engineer tsodre@rouxinc.com Architect – Filing Representative – Inspector – Skyline Engineering LLC Murat Simsek: murat@skylinenyc.net		
OWNER	**INSPECTION DATE**	**TIME IN**	**TIME OUT**
Thalassa (Tally) Sodre Project Engineer tsodre@rouxinc.com Roux Associates, Inc. 209 Shafter Street Islandia, NY 11749 Office (631) 232-2600 Direct (631) 630-2409 Mobile (516) 509-9332 http://www.rouxinc.com	3/02/16 3/10/16	7:00 am 7:00 AM	3:00 pm 1:00 PM

DRAWING	**DRAWING TITLE**	**REVISION**	**DATE**
G-001.01	Site plan drawing	1	17 Dec.15

SKYLINE ENGINEERING, LLC

DWG 1	Grout barrier layout plan		

SCOPE OF WORK

Description of work: Installation and grouting 17 Tube –a- Manchette (TAM) just north of Phase 1 high slump grouting elements

Project Work-In-Progress: ☐ Project Work Completed: ☒

NCR – NON CONFORMANCE REPORT

Construction discrepancies shall be brought to the immediate attention of the contractor for correction. If the discrepancies are not corrected, the discrepancies will be brought to the attention of the Owner, and the registered design professional of record prior to the completion of that phase of the work.

The systems inspected are in conformance with the approved construction documents with the exception of the following items to be addressed and corrected by the installing contractor.

DATE OBSERVED	NON-CONFORMANCE ITEMS REQUIRING CORRECTION	SIGN OFF DATE
3/10/16	~~GC to submit vibration monitoring and pre-construction and after construction survey report for review and record.~~ Submitted and reviewed	6/3/16

EQUIPMENT USED	INTERNAL ID No.
Calibrated Tape Measure	0210

Notes:

1. Inspector shall create and maintain an inspection log book which will be kept on site. Copies of the issued inspection reports shall also be kept on site.
2. When alteration or construction operations are performed at occupied multiple dwellings, the special inspector shall periodically verify compliance with a tenant protection plan. (BC 1704.19.5)
3. Inspector has visited the site a minimum of three times: before, during and after the demolition operations

SKYLINE ENGINEERING, LLC

Structural Stability (BC #1704.20)
Special Inspections
2014 New York City Building Code

INSPECTION OBSERVATIONS	Complies			COMMENTS
	Y	N	N/A	
Prior to commencement of work, proposed sequence of operations were reviewed for work area require design?	☒	☐	☐	
Schedule of periodic special inspection and adequate frequency discussed with contractor? (At minimum, the site must be inspected twice, once at pre construction meeting with the contractor and one during construction operations)	☒	☐	☐	
Design documents were reviewed for existing building and any adjacent structures have the potential influence? (Shop drawings, sketched, written description of proposed work by design professional)	☒	☐	☐	
Does design document require monitoring subjected structure and/or adjacent structures? If required monitoring scope, monitoring plans, frequency, acceptable tolerances and reporting criteria's specified for movement, settlement, cracks and deflection?	☒	☐	☐	Existing building is monitored for vibration by GC. Pre-construction survey was done by GC.
Alteration or construction operation performed at occupied multi dwelling is in compliance with tenant protection plan?	☐	☐	☒	
Deviation from the design document?	☒	☐	☐	
Anticipated field condition?	☒	☐	☐	
Proper execution of the work?	☒	☐	☐	
Safe jobsite condition?	☒	☐	☐	
Precautions taken to maintained safe condition, if work is stopped for any reason?	☐	☐	☒	
Construction operation confirm with the deign documents? If unsafe conditions discovered, the commissioner and the design professional and contractor notified immediately?	☒	☐	☐	

SKYLINE ENGINEERING, LLC

ITEM INSPECTED / LOCATION / REFERENCE DETAIL (Shoring of existing building ,Excavation & earth shoring, Underpinning & shoring of adjacent structures, Demolition, Raising and moving of a building)	**OBSERVATIONS**
3/02/16	
Installation and grouting 17 Tube –a- Manchette (TAM) just north of Phase 1 high slump grouting elements	Drilling for PCV TAM pile is in progress. Work area protested by barrier. No any unsafe condition was observed.
3/10/16	
Installation and grouting 17 Tube –a- Manchette (TAM) just north of Phase 1 high slump grouting elements	Grouting TAM pipe complete. No any unsafe condition was observed.

DATE OF OFF_SITE MEETINGS	**NAME OF PARTICIPANTS AND SUMMARY OF THE CONVERSATIONS**
3/03/16	Edward Lacina- Senior Construction Manager Prior to starting work safety meeting was held. Site preparation, rig operation and other safety rules were reviewed.
3/03/16	Edward Lacina- Senior Construction Manager Vibration monitoring and pre construction and after construction survey were discussed.

Key Plan Attached? Yes ☐ No ☐

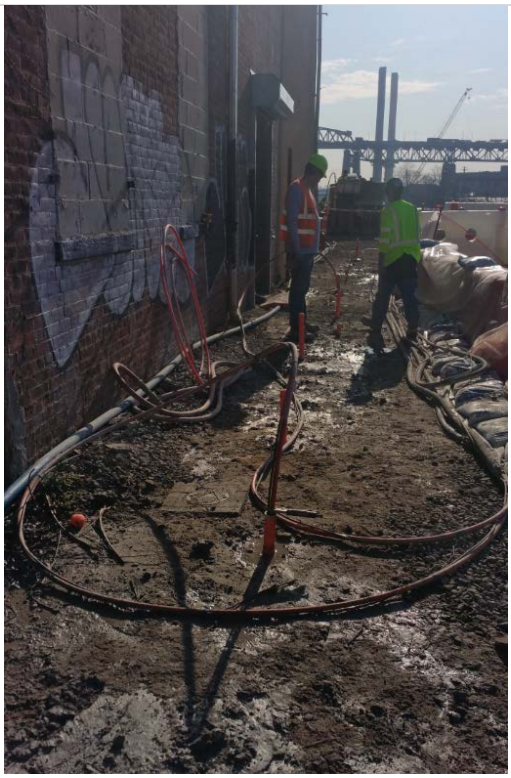
Project Work-In-Progress: ☐ Project Work Completed: ☒

Murat Simsek		3/10/16
INSPECTOR	**SIGNATURE**	**DATE**

APPENDIX A
PROGRESS PHOTOGRAPHS

3/02/16- Construction site

3/02/16- Site monitored for vibration.



3/10/16- TAM pipe grout injection next the existing building.

APPENDIX I

Hydraulic Conductivity Testing Results

(Provided on CD in Bound Report)

MORETRENCH

Falling Head Test

Job No.: 83-4263
Location: Queens, NY
Client: Roux Associates

Project Name: FPOW Newtown Creek
Weather:
Technician: Joel Holden

Piezometer: PZ4
Date: March 14, 2016
Test #:
Driller: V. Mitchell

Borehole Radius, R (ft): 0.23
Well Casing Radius, r (ft): 0.0313
Length of Filter Pack, L_e (ft): 5.00
Initial Height Above Static Water Level, H_o (ft): 5.02

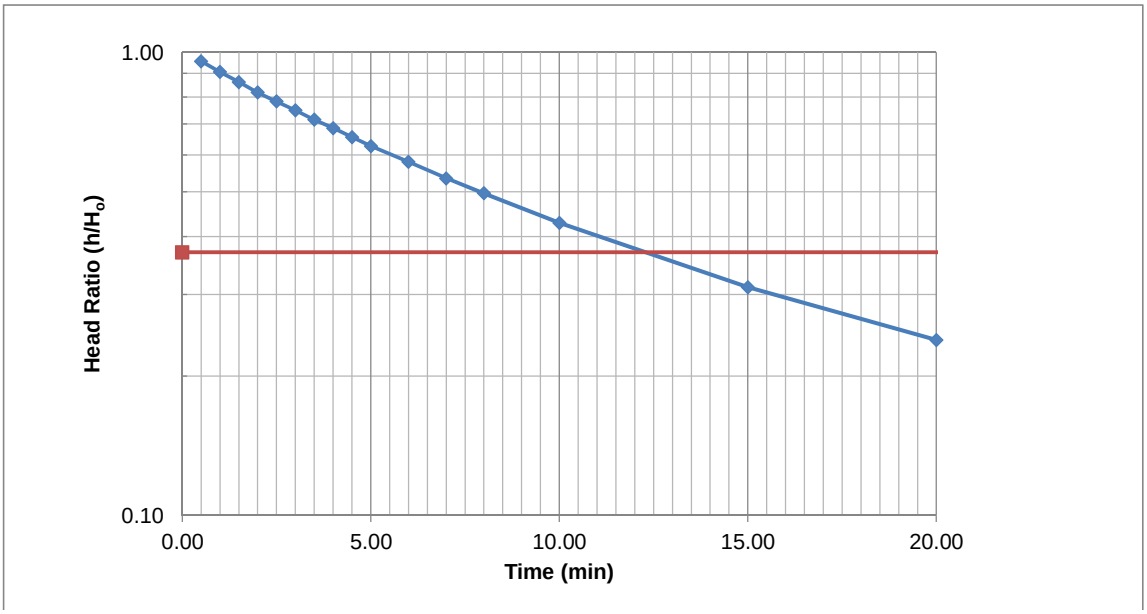
The analysis method utilized below is the Hvorslev Slug Test Method for piezometers not fully penetrating an aquifer.

Time (min)	Depth (ft)	h (ft)	h/Ho
Static	5.02		
0.50	0.22	4.80	0.96
1	0.47	4.55	0.91
1.5	0.69	4.33	0.86
2.00	0.91	4.11	0.82
2.5	1.09	3.93	0.78
3	1.26	3.76	0.75
3.5	1.43	3.59	0.72
4	1.58	3.44	0.69
4.5	1.73	3.29	0.66
5	1.87	3.15	0.63
6	2.11	2.91	0.58
7	2.34	2.68	0.53
8	2.53	2.49	0.50
10	2.87	2.15	0.43
15	3.46	1.56	0.31
20	3.82	1.20	0.24
30	4.22	0.80	0.16

Time for water to fall 37% of change, T_o (min): 12.4

$$K = \frac{r^2 ln\left(\frac{L_e}{R}\right)}{2L_e T_o}$$

K = 2.43E-05 ft/min
K = 2.62E-01 gpd/ft^2
K = 1.23E-05 cm/sec



MORETRENCH

Falling Head Test

Job No.: 83-4263
Location: Queens, NY
Client: Roux Associates

Project Name: FPOW Newtown Creek
Weather:
Technician: Joel Holden

Piezometer: PZ5
Date: March 14, 2016
Test #:
Driller: V. Mitchell

Borehole Radius, R (ft): 0.23
Well Casing Radius, r (ft): 0.0313
Length of Filter Pack, L_e (ft): 5.00
Initial Height Above Static Water Level, H_o (ft): 5.95

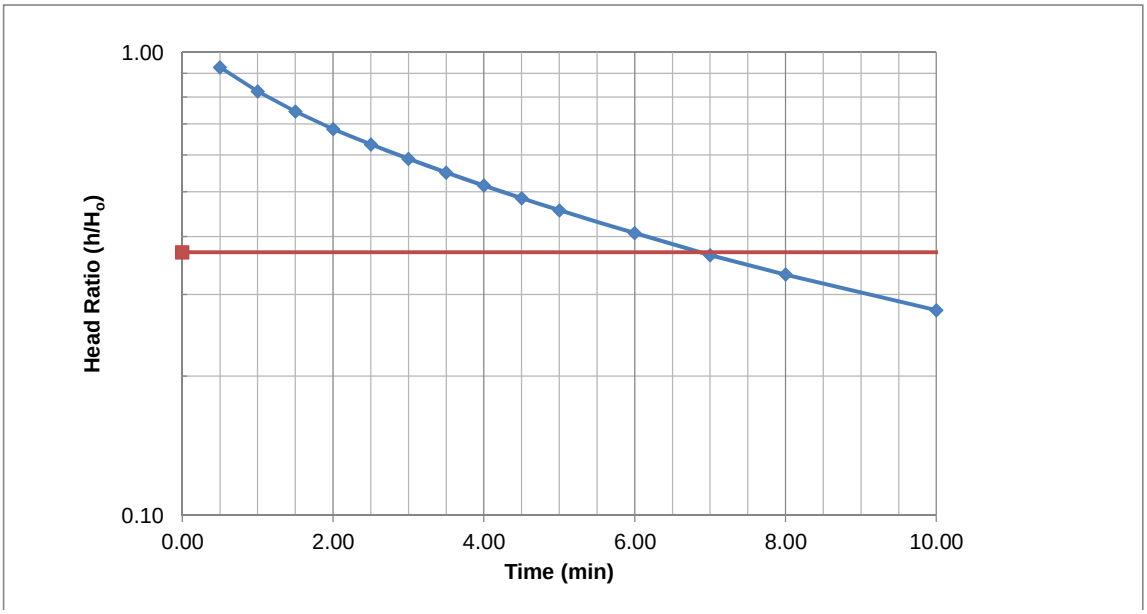
The analysis method utilized below is the Hvorslev Slug Test Method for piezometers not fully penetrating an aquifer.

Time (min)	Depth (ft)	h (ft)	h/Ho
Static	5.95		
0.50	0.43	5.52	0.93
1	1.05	4.90	0.82
1.5	1.52	4.43	0.74
2.00	1.89	4.06	0.68
2.5	2.19	3.76	0.63
3	2.45	3.50	0.59
3.5	2.68	3.27	0.55
4	2.88	3.07	0.52
4.5	3.07	2.88	0.48
5	3.24	2.71	0.46
6	3.53	2.42	0.41
7	3.78	2.17	0.36
8	3.98	1.97	0.33
10	4.3	1.65	0.28
15	4.74	1.21	0.20
20	4.93	1.02	0.17
30	5.06	0.89	0.15

Time for water to fall 37% of change, T_o (min): 7

$$K = \frac{r^2 ln\left(\frac{L_e}{R}\right)}{2L_e T_o}$$

K = 4.30E-05 ft/min
K = 4.63E-01 gpd/ft^2
K = 2.18E-05 cm/sec



MORETRENCH

Falling Head Test

Job No.: 83-4263
Location: Queens, NY
Client: Roux Associates

Project Name: FPOW Newtown Creek
Weather:
Technician: Joel Holden

Piezometer: PZ6
Date: March 14, 2016
Test #:
Driller: V. Mitchell

Borehole Radius, R (ft): 0.23
Well Casing Radius, r (ft): 0.0313
Length of Filter Pack, L_e (ft): 5.00
Initial Height Above Static Water Level, H_o (ft): 6.23

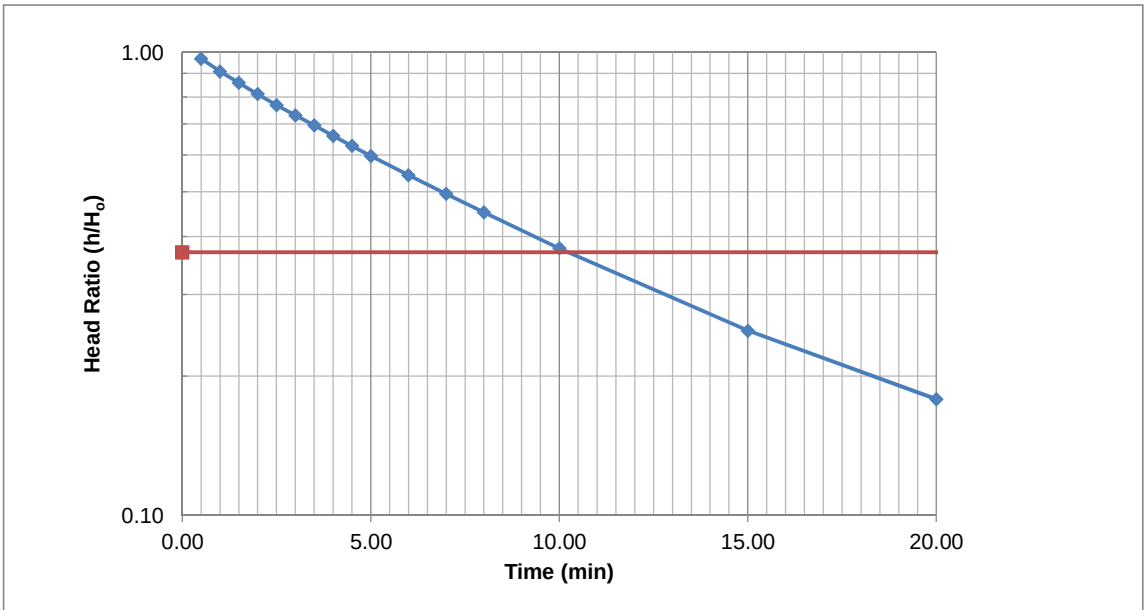
The analysis method utilized below is the Hvorslev Slug Test Method for piezometers not fully penetrating an aquifer.

Time (min)	Depth (ft)	h (ft)	h/Ho
Static	6.23		
0.50	0.2	6.03	0.97
1	0.57	5.66	0.91
1.5	0.88	5.35	0.86
2.00	1.17	5.06	0.81
2.5	1.44	4.79	0.77
3	1.68	4.55	0.73
3.5	1.9	4.33	0.70
4	2.12	4.11	0.66
4.5	2.32	3.91	0.63
5	2.51	3.72	0.60
6	2.85	3.38	0.54
7	3.15	3.08	0.49
8	3.42	2.81	0.45
10	3.88	2.35	0.38
15	4.67	1.56	0.25
20	5.12	1.11	0.18
30	5.49	0.74	0.12

Time for water to fall 37% of change, T_o (min): 10.2

$$K = \frac{r^2 ln\left(\frac{L_e}{R}\right)}{2L_e T_o}$$

K = 2.95E-05 ft/min
K = 3.18E-01 gpd/ft^2
K = 1.50E-05 cm/sec



PLATES

1. Site Plan
2. Groundwater Elevations and Apparent LNAPL Thickness November 9 Through 10, 2015

LEGEND

- SITE BOUNDARY
- APPROXIMATE PARCEL BOUNDARY
- APPROXIMATE BARRIER WALL PHASE I LOCATION
- APPROXIMATE PVC BOOM AND ABSORBENT BOOM LOCATION
- MW-63 — MONITORING WELL LOCATION
- MW-14 — MONITORING WELL LOCATION WITH SPILL BUSTER LNAPL RECOVERY
- BW-3 — SYSTEM BULKHEAD WELL LOCATION
- PZ-3 — PIEZOMETER WELL LOCATION
- LNAPL — LIGHT NON-AQUEOUS PHASE LIQUID
- PVC — POLYVINYL CHLORIDE

SOURCE

CONTROL POINT ASSOCIATES, INC. BOUNDARY, LOCATION & UTILITY SURVEY MARCH 6, 2009, DRAWING 1 OF 1 AND BOUNDARY, LOCATION AND UTILITY SURVEY NEWTOWN CREEK AND REVIEW AVENUE LOTS 349, 362, 500, 1362, AND 1367 BLOCK 312 SECTION 2. JULY 6, 2009 AND REVIEW AVENUE LOT 89, BLOCK 312, SECTION 2 FEBRUARY 18, 2011.

FEHRINGER SURVEYING MONITORING WELL LOCATIONS AND ELEVATIONS FOR BLOCK 312 LOT 300, OCTOBER 30, 2015.

BUILDINGS IN PARCEL C, PARCEL F, PARCEL H AND PARCEL J ARE BASED ON 2014 SATELLITE IMAGE.

Parcel	Block/Lot
Parcel A	312 / 300 312 / 1367
Parcel B	312 / 309 312 / 315
Parcel C	312 / 348
Parcel D	312 / 1362
Parcel E	312 / 362 312 / 500
Parcel F	312 / 343
Parcel G	312 / 349
Parcel H	312 / 330
Parcel I	312 / 89
Parcel J	312 / 79
Parcel K	312 / 350

60' 0 60'

Title:

SITE PLAN

BARRIER WALL PHASE II CONSTRUCTION COMPLETION REPORT
FORMER PRATT OIL WORKS
LONG ISLAND CITY, QUEENS, NEW YORK

Prepared For:
EXXONMOBIL OIL CORPORATION
BROOKLYN, NEW YORK

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: T.S.	Date: 16MAY16	PLATE
Prepared by: G.M.	Scale: AS SHOWN	1
Project Mgr: D.H.	Project: 0172.0291Y002	
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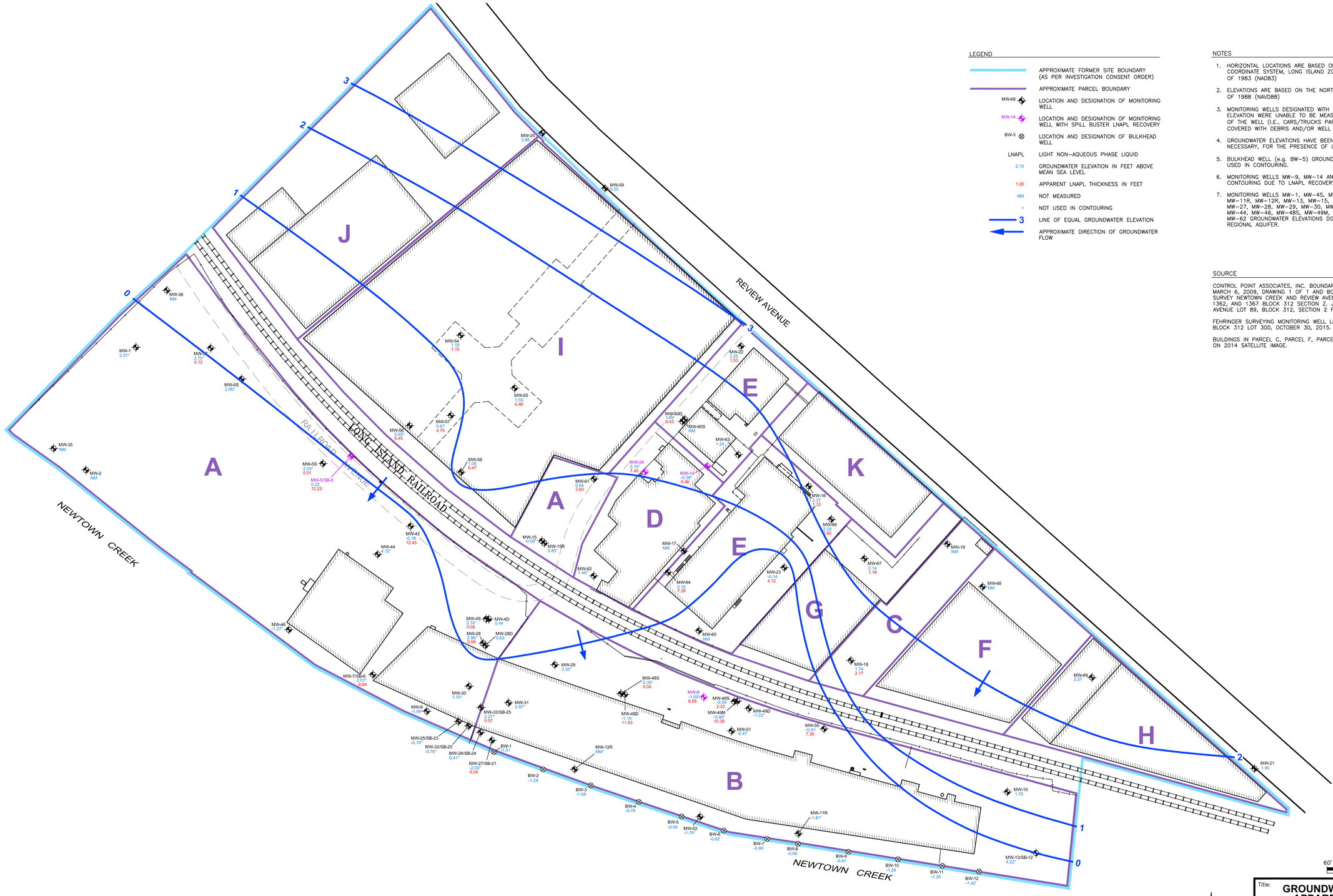

LEGEND

- APPROXIMATE FORMER SITE BOUNDARY (AS PER INVESTIGATION CONSENT ORDER)
- APPROXIMATE PARCEL BOUNDARY
- MW-68 — LOCATION AND DESIGNATION OF MONITORING WELL
- MW-14 — LOCATION AND DESIGNATION OF MONITORING WELL WITH SPILL BUSTER LNAPL RECOVERY
- BW-3 — LOCATION AND DESIGNATION OF BULKHEAD WELL
- LNAPL — LIGHT NON-AQUEOUS PHASE LIQUID
- 2.10 — GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 1.26 — APPARENT LNAPL THICKNESS IN FEET
- NM — NOT MEASURED
- * — NOT USED IN CONTOURING
- 3 — LINE OF EQUAL GROUNDWATER ELEVATION
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

NOTES

1. HORIZONTAL LOCATIONS ARE BASED ON THE NEW YORK STATE PLAN COORDINATE SYSTEM, LONG ISLAND ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83)
2. ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
3. MONITORING WELLS DESIGNATED WITH "NM" FOR GROUNDWATER ELEVATION WERE UNABLE TO BE MEASURED DUE TO INACCESSIBILITY OF THE WELL (I.E., CARS/TRUCKS PARKED ON TOP OF WELL, WELL COVERED WITH DEBRIS AND/OR WELL COULD NOT BE LOCATED).
4. GROUNDWATER ELEVATIONS HAVE BEEN CORRECTED, WHERE NECESSARY, FOR THE PRESENCE OF LNAPL.
5. BULKHEAD WELL (e.g. BW-5) GROUNDWATER ELEVATIONS WERE NOT USED IN CONTOURING.
6. MONITORING WELLS MW-9, MW-14 AND MW-24 NOT USED IN CONTOURING DUE TO LNAPL RECOVERY SYSTEM OPERATING.
7. MONITORING WELLS MW-1, MW-4S, MW-5S, MW-6S, MW-7, MW-8, MW-11R, MW-12R, MW-13, MW-15, MW-15R, MW-25, MW-26, MW-27, MW-28, MW-29, MW-30, MW-31, MW-32, MW-33, MW-37, MW-44, MW-46, MW-48S, MW-49M, MW-49D, MW-52, MW-56 AND MW-62 GROUNDWATER ELEVATIONS DO NOT CORRESPOND TO REGIONAL AQUIFER.

SOURCE

CONTROL POINT ASSOCIATES, INC. BOUNDARY, LOCATION & UTILITY SURVEY MARCH 6, 2009, DRAWING 1 OF 1 AND BOUNDARY, LOCATION AND UTILITY SURVEY NEWTOWN CREEK AND REVIEW AVENUE LOTS 349, 362, 500, 1362, AND 1367 BLOCK 312 SECTION 2. JULY 6, 2009 AND REVIEW AVENUE LOT 89, BLOCK 312, SECTION 2 FEBRUARY 18, 2011.

FEHRINGER SURVEYING MONITORING WELL LOCATIONS AND ELEVATIONS FOR BLOCK 312 LOT 300, OCTOBER 30, 2015.

BUILDINGS IN PARCEL C, PARCEL F, PARCEL H AND PARCEL J ARE BASED ON 2014 SATELLITE IMAGE.

Title:

GROUNDWATER ELEVATIONS AND APPARENT LNAPL THICKNESS NOVEMBER 9 THROUGH 10, 2015

BARRIER WALL PHASE II CONSTRUCTION COMPLETION REPORT
FORMER PRATT OIL WORKS
LONG ISLAND CITY, QUEENS, NEW YORK

Prepared For:
EXXONMOBIL OIL CORPORATION
BROOKLYN, NEW YORK

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: T.S.	Date: 16MAY16	PLATE
Prepared by: G.M.	Scale: AS SHOWN	2
Project Mgr: D.H.	Project: 0172.0291Y002	
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