LEGGETTE, BRASHEARS & GRAHAM, INC.

PROFESSIONAL GROUNDWATER AND ENVIRONMENTAL ENGINEERING SERVICES

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March 14, 2013

Ms. Ioana Munteanu-Ramnic
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 2
Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101

Dear Ms. Munteanu-Ramnic:

Attached is one (1) bound and one (1) electronic copy of the Leggette, Brashears & Graham, Inc. (LBG) report titled: "Fyn Paint & Lacquer Co., Inc., 230 Kent Avenue, Brooklyn, Kings County, New York, Operable Unit-2, Supplemental Remedial Investigation Work Plan, NYSDEC VCP Site ID #V00380-2" for your file.

If you have any questions please do not hesitate to contact me at (914) 694-5711.

Very truly yours,

LEGGETTE, BRASHEARS & GRAHAM, INC.

Dan C. Buzea, CPG

Senior Vice President

DCB:dmd Attachment

cc: Jane O'Connell (NYSDEC) (electronic copy)

Dawn Hettrick (NYSDOH) (electronic copy)

David Rubin (Con Edison) (electronic copy)

Barry Cohen (Con Edison) (electronic copy)

Ed Schwetz (electronic copy)

Dave Yudelson (electronic copy)

Gerald Litwin, Litwin & Tierman P.A. (electronic copy)

Joy Feinstein (electronic copy)

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FYN PAINT & LACQUER CO., INC. 230 KENT AVENUE BROOKLYN, KINGS COUNTY, NEW YORK

OPERABLE UNIT-2 SUPPLEMENTAL REMEDIAL INVESTIGATION WORK PLAN NYSDEC VCP SITE ID #V00380-2

Prepared For

Fyn Paint & Lacquer Co., Inc.

March 2013

Prepared By:

LBG ENGINEERING SERVICES, P.C.
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ACRONYMS AND ABBREVIATIONS

AST — Above-ground storage tank

Con Edison — Consolidated Edison, Inc. (a Subsidiary of Consolidated Edison

Company of New York)

ft bg — Feet below grade

ft² — Square foot

Fyn — Fyn Paint & Lacquer Co., Inc.

LBGES — LBG Engineering Services, P.C.

MOSF — Major Oil Storage Facility
NAPL — Non-Aqueous Phase Liquid
NFST — North First Street Terminal

NYS — New York State

NYSDEC - New York State Department of Environmental Conservation

OUs — Operable Units

PCBs - Polychlorinated biphenyls

RCRA — Resource Conservation and Recovery Act

PID — Photoionization detector

RIWP — Remedial Investigation Work Plan
SSDS — Sub-Slab Depressurization System

SVE — Soil Vapor Extraction

SVOCs — Semivolatile Organic Compounds

TAL — Target Analyte List

TPH — Total Petroleum Hydrocarbons

ug/kg — Micrograms per kilogram

ug/l — Micrograms per liter

VCA — Voluntary Cleanup Agreement
VCP — Voluntary Cleanup Program
VOCs — Volatile Organic Compounds

FYN PAINT & LACQUER CO., INC. 230 KENT AVENUE BROOKLYN, KINGS COUNTY, NEW YORK

OPERABLE UNIT-2 SUPPLEMENTAL REMEDIAL INVESTIGATION WORK PLAN NYSDEC VCP SITE ID #V00380-2

1.0 INTRODUCTION

Fyn Paint & Lacquer Co., Inc. (Fyn) entered into a Voluntary Cleanup Agreement (VCA) with the New York State Department of Environmental Conservation (NYSDEC) on April 1, 2001, to investigate and remediate a 5,862 ft² (square foot) (0.135-acre) property located at 230 Kent Avenue in Williamsburg, Brooklyn, Kings County, New York (the "Site"). A map of the Site is presented as figure 1. The Site consists of a partial one-story industrial/warehouse building situated on the south third of the block which is bounded by Kent Avenue to the east, Metropolitan Avenue to the north, North First Street to the south and River Street to the west.

The Site is currently an inactive paint and lacquer manufacturing facility which was historically utilized as a paint and lacquer factory from at least 1951. The investigation conducted at the site indicated the presence of volatile organic compounds (VOCs) in soil and dissolved phase in groundwater beneath the Fyn Paint facility. Subsurface contamination has also been identified beneath the Consolidated Edison, Inc. (Con Edison) property located at 214 Kent Avenue (adjacent to the north). Additional offsite contamination (Non-Aqueous Phase Liquid [NAPL] and dissolved phase) has been detected beneath the sidewalk adjacent to the east and south of the Site (along Kent Avenue and on the south side of North First Street). Dissolved phase VOC contamination (originating from the Site) has also been detected downgradient on River Street and within the Con Edison Major Oil Storage Facility (MOSF) property located to the west of the Site.

Fyn is a Volunteer in the Voluntary Cleanup Program (VCP) and the Site is listed as Site ID #V00380-2, Index No. W2-0873-00-10. The Site is still a listed Resource Conservation and Recovery Act (RCRA) facility as a large quantity generator of hazardous waste

(EPA ID NYD001270867), however, the Volunteer is currently in the process of performing the required RCRA closure activities.

The Site and adjacent Con Edison parking lot as well as the Con Edison MOSF property were divided into two separate operable units (OUs) as per the NYSDEC approval letter dated March 1, 2013 which is attached in Appendix I.

OU-1 consists of the NAPL, soil, groundwater and soil vapor contamination in the subsurface beneath the Site, Con Edison parking lot and the adjacent Kent Avenue, North First Street and River Street.

OU-2 consists of the dissolved phase contaminant plume migrating to the west onto the Con Edison MOSF property. LBG Engineering Services, P.C. (LBGES) on behalf of Fyn, has prepared the following OU-2 Supplemental Remedial Investigation Work Plan (RIWP).

2.0 BACKGROUND

2.1 HDR, Inc. Site Investigation Reports for MOSF License Termination

In 2011 and 2012, HDR conducted subsurface investigation activities related to the MOSF License Termination at the Con Edison property located west of the Fyn Paint site, known as the North First Street Terminal (NFST). The NFST Site is zoned manufacturing and it was used for the storage of No. 6 fuel oil. The NFST Site consists of three parcels. The main portion of the Site is located on Tax Block 2355, Lot 1 and Tax Block 2361, Lot 1. These parcels contained two complexes of above-ground storage tanks (ASTs). A third parcel, Block 2362, Lot 3, contains a building which housed the office, control room, and boiler house, and adjoining parking lot. The third parcel has been referred to as the Con Edison parking lot property and it is a part of OU-1.

The Con Edison properties located to the west of the Fyn Paint site are designated as Complex A and Complex B. The two MOSF complexes historically consisted of three tanks, each with the following capacities:

Complex A (southern tanks)

- T-100 6,000,000 gallons
- T-200 2,325,000 gallons
- T-300 6,000,000 gallons

Complex B (northern tanks)

- T-400 6,000,000 gallons
- T-500 6,000,000 gallons
- T-600 4,880,000 gallons

The location of these former tanks as well as the current network of onsite and offsite monitoring wells are illustrated on figure 2.

The subsurface investigation activities conducted at Complex A and B of the MOSF site included drilling of soil borings, the collection of soil and groundwater samples, laboratory analysis, data review and comparison of analytical results to applicable state guidelines and standards. Additionally, results of the investigation were compared to the historical monitoring results compiled for the adjacent Fyn Paint site. This work was conducted over a period of two years and the following sections of this report summarize the activities onsite and the conclusions by HDR. Copies of the HDR site investigation reports (2011 and 2012) are included in Appendix II.

2.1.1 Site Investigation Report – July 2011

HDR performed a subsurface investigation to assess subsurface conditions at the former NFST Site. During this 2011 investigation, a total of 9 soil borings (B-10 to B-18) were drilled on the Con Edison MOSF facility property along the perimeter of Complex A, located to the west of Fyn Paint. Soil samples were collected from the vertical horizon immediately above the groundwater table.

No physical evidence (i.e., staining or odors) of contamination was observed during this investigation. Depths to groundwater ranged from 6.5 to 12 ft bg (feet below grade).

The analytical results of HDR's subsurface soil samples indicated that contaminants of concern from the upgradient Fyn Paint property are evident in subsurface soil samples collected from the perimeter of Complex A. Contaminants of concern from the upgradient Fyn Paint property (acetone, benzene, toluene, ethylbenzene and total xylenes) were detected in subsurface soil samples collected at the perimeter of the southeastern portion of the MOSF

Complex A, located to the west of Fyn Paint property. The presence of these contaminants in the soil (reported as collected from the groundwater interface) may indicate that VOC impacted groundwater is migrating onto the Con Edison site (Complex A) from the upgradient source at the Fyn Paint property. Migration of impacted groundwater is further supported by the historical groundwater sample results of monitoring wells installed along the east and south sides of Complex A, where toluene, ethylbenzene, xylenes and other paint manufacturing related chemicals have been detected. The predominant migration pathway of these contaminants through the soils is via groundwater transport of dissolved-phase contamination.

The Complex B area has not been affected by the upgradient OU-1 area.

2.1.2 Site Investigation Report – July 2012

In 2012, HDR performed a Site Investigation, Second Phase, to assess subsurface conditions of the former MOSF at the NFST Site.

To supplement the June 2011 Perimeter Subsurface Investigation, this additional investigation was performed to assess the soils directly under the concrete footprint of the MOSF Complex A and Complex B. As part of this investigation, following the demolition of the tank complexes, both surface soils (22 samples) and deeper groundwater interface subsurface soils (22 samples) were sampled from within Complex A and characterized. Soils above the water table, as classified during limited excavation activities typically consisted of silty sands with varying amounts of brick, asphalt, concrete, gravel and cobbles. Soil samples collected were submitted for laboratory analysis of VOCs and semivolatile organic compounds (SVOCs). Additionally, select samples were submitted for analysis of Target Analyte List (TAL) Metals, polychlorinated biphenyls (PCBs), pesticides and Total Petroleum Hydrocarbons (TPH).

During intrusive activities, HDR screened the headspace above the excavation with a MultiRae 4-gas monitor and photoionization detector (PID). Elevated PID readings were detected at three boring locations in Complex A.

In addition to the soil sampling, temporary piezometers were installed in a total of nine locations for groundwater sample collection. Five (5) of the piezometers were installed within Complex A. The location of HDR temporary piezometers are shown on figure 3. Along with groundwater sampling for VOCs, SVOCs, PCBs and TPH, relative depth to water was gauged

within the temporary piezometers. The depth at which groundwater was encountered within Complex A temporary piezometers ranged from 2.25 ft bg to 5.85 ft bg. It should be noted that these depths to groundwater were measured relative to the lowered site grade (following the AST demolition/removal/excavation activities). Additionally, top of casing elevations were not surveyed, therefore no groundwater elevations were able to be extrapolated from the field measurement data. NAPL was not detected in any of the piezometer locations.

The results of the 2012 subsurface investigation activities indicated the highest VOC concentrations at Complex A in the southeastern corner of the Site closest to the property perimeter.

2.1.3 Complex A Characterization and Conclusions (HDR Reports 2011 and 2012)

The soil encountered during this investigation largely consists of urban fill. The HDR assessment of the subsurface characterization activities and analytical results concluded that there is no apparent indication of any potential release from the MOSF.

At Complex A, the southeast corner of the Site is impacted by VOCs (dissolved-phase) migrating from the Fyn Paint facility. Based on the historical Fyn Paint VCP Groundwater Monitoring Program, toluene, ethylbenzene, acetone, and total xylenes are the primary contaminants of concern associated with the Fyn Paint subsurface contamination. These contaminants, detected as dissolved-phase in groundwater, indicate that the Fyn Paint contaminant plume constitutes a continuing source migrating onto the property. In addition, soil contamination by VOCs was observed in samples collected from this area at the groundwater interface.

3.0 OU-2 SUPPLEMENTAL RIWP

3.1 Background

The historical groundwater monitoring data and HDR subsurface investigation activities show that the dissolved phase VOC contamination is migrating offsite from the Fyn Paint site onto the Con Edison property located downgradient to the west.

As part of the MOSF license termination, Con Edison has removed the ASTs from the property. In association with the AST closure activities, the tanks and supporting concrete pads were removed. As a result of these activities, the grade elevation on the property has

been lowered to approximately 4 feet above the groundwater elevation. As per a property survey conducted on August 28, 2012, the elevation on the property is now approximately 8-9 feet above mean sea level. This is approximately 9-10 feet lower than the grade elevation beyond the eastern property boundary (the sidewalk/roadway along River Street). A copy of the topographic survey map is included in Appendix III.

3.2 Proposed RI Work

The proposed RI work consists of the following:

- installation of temporary monitoring wells;
- slug testing for determining hydraulic parameters;
- conceptual design of the proposed interceptor trench; and,
- installation of permanent monitoring wells.

3.3 <u>Temporary Monitor Well Installation</u>

In order to characterize the subsurface stratigraphic profile and to evaluate hydraulic properties as well as to develop a conceptual model of groundwater flow and determine the contaminant migration fate and transport, up to eight (8) wells will be installed in a grid pattern in the area determined (defined) to be contaminated by the HDR investigation. In addition, the laboratory analysis of groundwater samples collected from the temporary wells will be used to delineate the extent of groundwater contamination. The proposed locations of these wells are presented on figure 3. These wells will be constructed of 5 feet of 4-inch diameter PVC, 20-slot well screen and 5 feet of riser pipe. The annular space around the screen will be filled with #2 filter sand. The remaining space will be backfilled with a bentonite seal from immediately above the well screen continuing to grade. During installation, soil samples will be collected continuously from grade to boring termination. Each sample will be described on a geologic log and screened for the presence of VOCs using a PID. Following the installation of each well, all associated drilling equipment will be decontaminated with Alconox and water and all rinse water will be drummed onsite pending treatment utilizing the onsite IRM groundwater treatment system. All soil cuttings generated during the well installation will be

drummed and sampled for offsite disposal. The waste characterization will be determined based on the disposal facility requirements. Following the installation of the monitoring wells, a top of casing elevation survey will be performed. Considering these wells are going to be temporary, the top of casing elevation survey will be performed relative to the existing onsite groundwater monitoring wells adjacent to Complex A. The resulting top of casing elevations will be used to generate a groundwater elevation contour map in the area and to determine if an interceptor trench is feasible for groundwater migration control. In addition, the newly installed wells will be developed by a combination of surging and over-pumping until the groundwater is free of sediment. The groundwater generated from the well development activities will be drummed onsite and treated utilizing the onsite IRM groundwater treatment system.

To characterize the current groundwater quality and to determine the location of an interceptor trench, groundwater samples will be collected from the installed monitoring wells. The groundwater samples will be collected using low-flow sampling procedures approximately 3 days after the well development is completed. Groundwater parameters will be recorded on individual field sheets for each well. Following stabilization, a groundwater sample will be collected and submitted to a New York State (NYS) approved laboratory for analysis of VOCs by EPA Method 8260. Each well will be sampled using dedicated polyethylene tubing and the flow-thru cell will be decontaminated using Alconox and water after sampling of each well. All purge water generated will be added to the water generated during the well development activities.

3.4 Monitor Well Slug Testing

In order to characterize the hydraulic properties of the soil/fill beneath the eastern portion of the Con Edison MOSF Complex A property, rising-head pneumatic slug tests will be performed using the newly installed groundwater monitoring wells. Prior to beginning each slug test, an in-well electronic pressure transducer will be installed near the bottom of the well and following several minutes of groundwater equilibration, the static groundwater level within each well will be recorded. Additionally, a barologger will record the local site barometric readings to account for any significant short-term variabilities. A PVC manifold will then be

attached to the top of the monitoring well. The well will be pressurized using compressed air to increase the drawdown of the water column in the well, pushing the groundwater into the surrounding formation. Using a pressure gauge and regulator, the groundwater will be depressed until it reaches the top of the well screen. Upon reaching the top of the well screen, the pressure gauge will register a drop in pressure. At this point a pressure relief valve on the slug test manifold will be opened. This will allow the groundwater level to rebound and the hydraulic head will rise to reach equilibrium with the static groundwater table elevation. The water levels will be continuously recorded as the groundwater recharges via the pressure transducers within the well. On each monitoring well, three separate pneumatic slug tests will be conducted in order to ensure that the results can be similarly replicated. Following each individual slug test, the electronic pressure transducer will be removed from the well and the data will be transferred to a laptop computer and the results of the tests downloaded and reviewed. The barologger data will also be downloaded and used as part of the data evaluation. The slug tests will be performed to determine subsurface hydraulic parameters which will include transmissivity, hydraulic conductivity and seepage velocity, where possible. The hydraulic properties will then be used to calculate an estimated groundwater flow velocity for the Complex A property in the vicinity of the proposed interceptor trench location.

3.5 Interceptor Trench Location and Installation

As previously stated in Section 3.4, the location of the interceptor trench will be based on data from the temporary monitoring wells and subsequent slug testing. A conceptual design of the interceptor trench is presented on figure 4 and described below. The final, biddable design and construction/installation and water management details will be developed based on the findings of this supplemental investigation.

The trench dimensions would be approximately 2-2.5 feet wide (to permit installation between onsite piles) and possibly wider when not constrained by the piles. The piles installed in this area of the Site are documented as being installed in a grid-based pattern with spacing at approximately 4 feet off center. The piles are described on available drawings as being 16 inches in diameter. The trench would be advanced to a depth of approximately 8 ft bg (approximately 4 feet into the groundwater table) and would transect the property south to north

(parallel to River Street). The trench extent would be approximately 100-125 feet long. The installation of the gravel in the unsaturated zone would also permit mounding during potential remedial applications described below which would address smear zone contamination, as well as providing void space for potential soil vapor extraction (SVE)/sub-slab depressurization system (SSDS) (if desired in the future). The installation of this trench would facilitate its future use in performing remedial actions without the need to perform ground invasive activities following regrading/potential future redevelopment. The potential future applications would include (but not be limited to): Chem Ox injection; hydrogen peroxide; potassium permanganate injection; alternative in-situ injection technologies; and/or groundwater and/or soil vapor extraction activities.

Prior to backfilling to grade, a perforated lateral injection pipe would be installed within the trench to facilitate the future injection activities. The permeable nature of the gravel would allow higher volumes of material to be applied per injection activity. Also, the advancement of the trench approximately 4 feet into the groundwater table would increase the vertical profile surface area for the injection solutions to contact with the dissolved-phase plume. Additionally, a length of 4-inch well screen would be installed (likely in the southern extent of the trench) for potential future use as an extraction point.

3.6 Permanent Monitor Well Installation

Based on the findings of the supplemental investigation, permanent groundwater monitoring wells would be installed in Complex A. The number of permanent monitoring wells will be determined based on the laboratory analysis of the groundwater samples collected from the previously installed temporary monitoring wells. If feasible, two of these temporary monitoring wells will remain in place and will be used as permanent monitoring wells. However, should the installation of new permanent wells be deemed necessary, these wells would consist of 2-inch diameter stainless steel. The wells would be constructed of 10 feet of 20-slot well screen and 5 feet of riser pipe. The riser would be threaded to facilitate extension following determination of backfilling activities. The wells would be installed with #2 filter sand from the boring terminus to 2 feet above the well screen. The remaining void space would be backfilled with a bentonite seal to grade. Following the installation of each well, all associated

drilling equipment will be decontaminated with Alconox and water and all rinse water will be drummed onsite pending treatment utilizing the onsite IRM groundwater treatment system. These monitoring wells would be installed to monitor the future groundwater quality downgradient of the interceptor trench. Groundwater quality derived from these wells will be used to assess the effectiveness of the implemented remedial measures.

4.0 SCHEDULE

Table 1 presents the proposed schedule for implementing and completing the proposed activities associated with the OU-2 RIWP following approval by the NYSDEC.

LBG ENGINEERING SERVICES, P.C.

Brian Hawe

Senior Hydrogeologist

Sean Groszkowski

Senior Associate

Reviewed By:

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Senior Vice President

dmd

March 14, 2013

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TABLE

TABLE 1

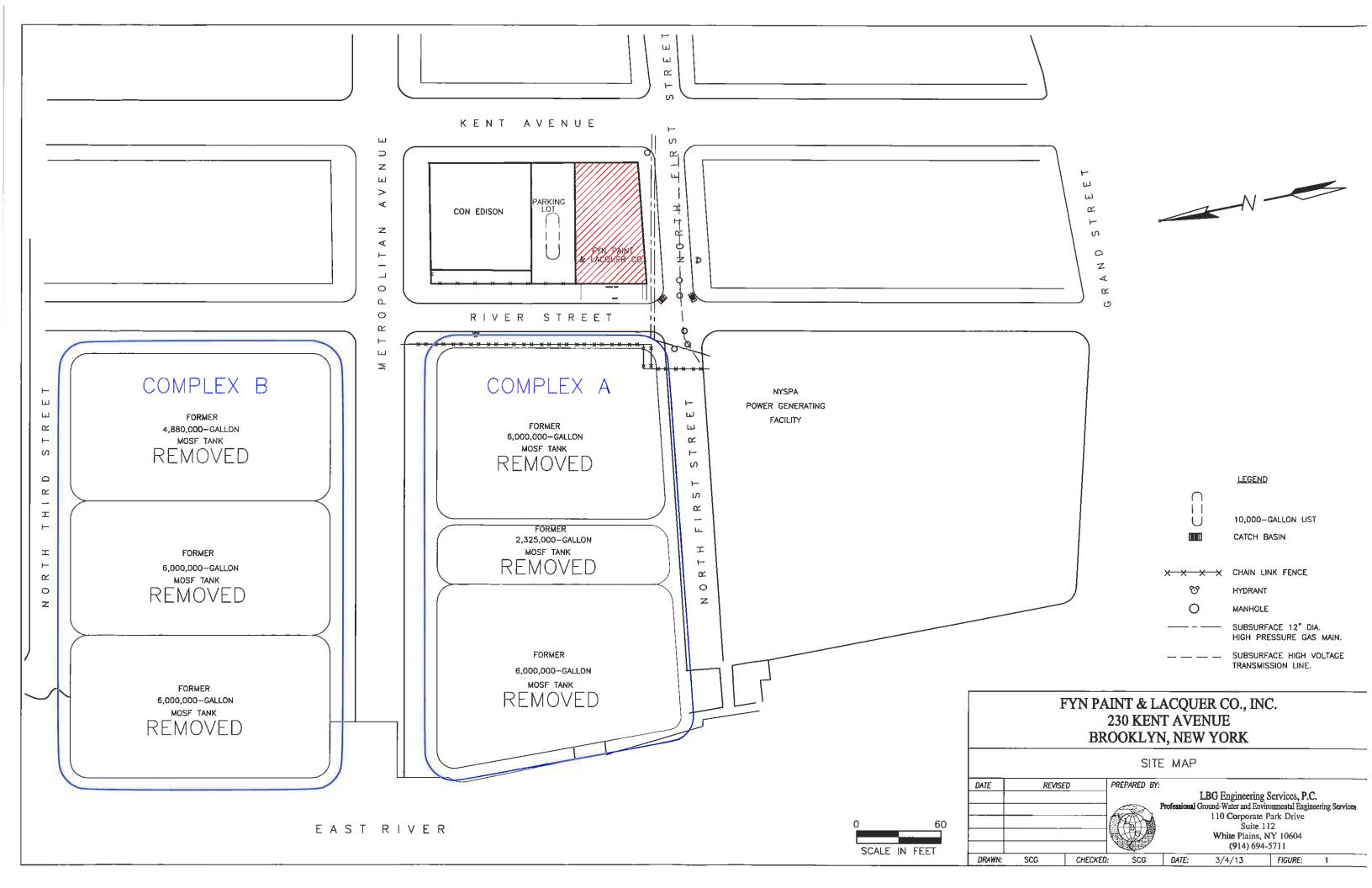
FYN PAINT & LACQUER COMPANY, INC. 230 KENT AVENUE WILLIAMSBURG, BROOKLYN, NEW YORK

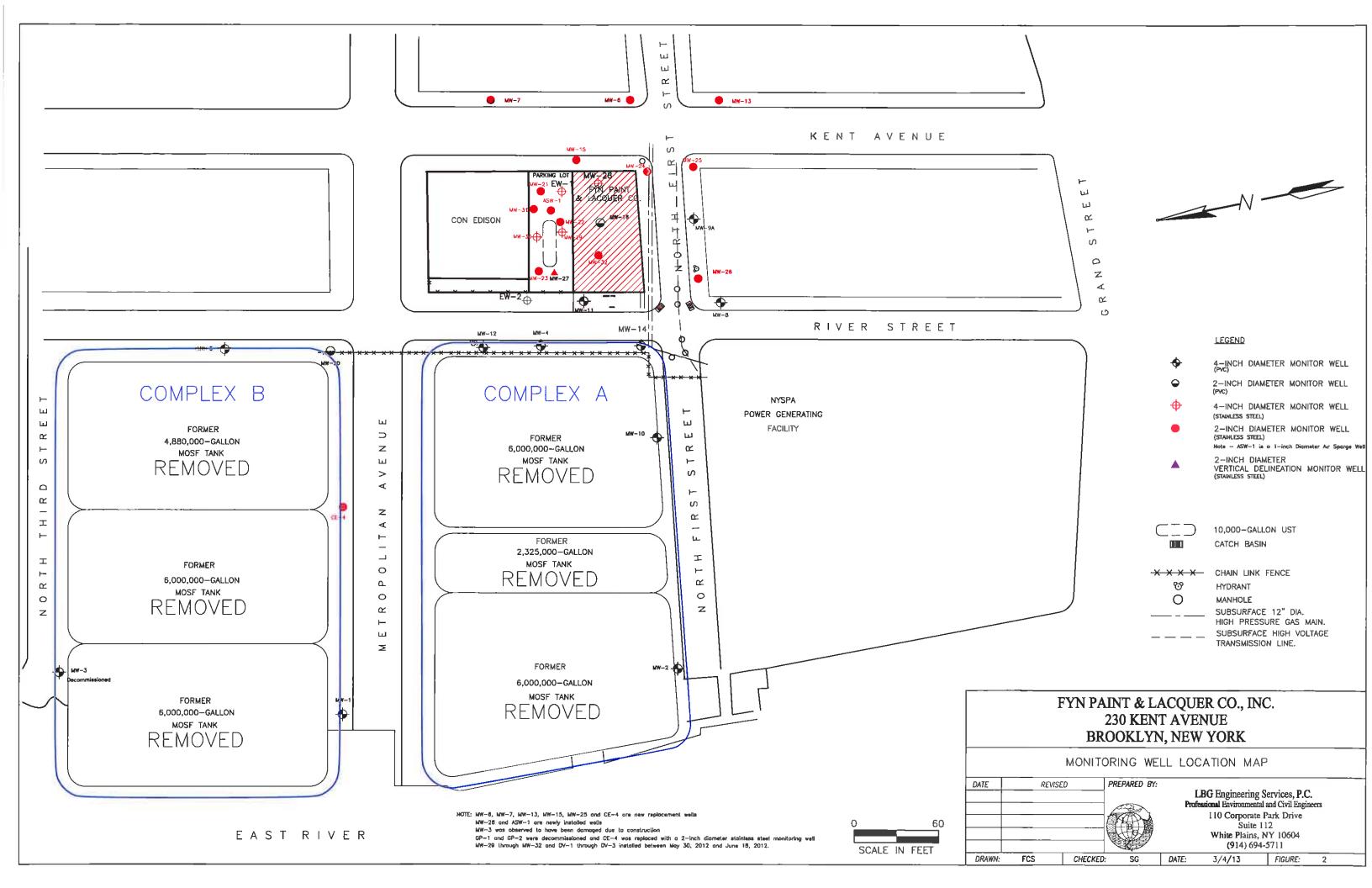
OU-2 Work Plan Milestone Schedule

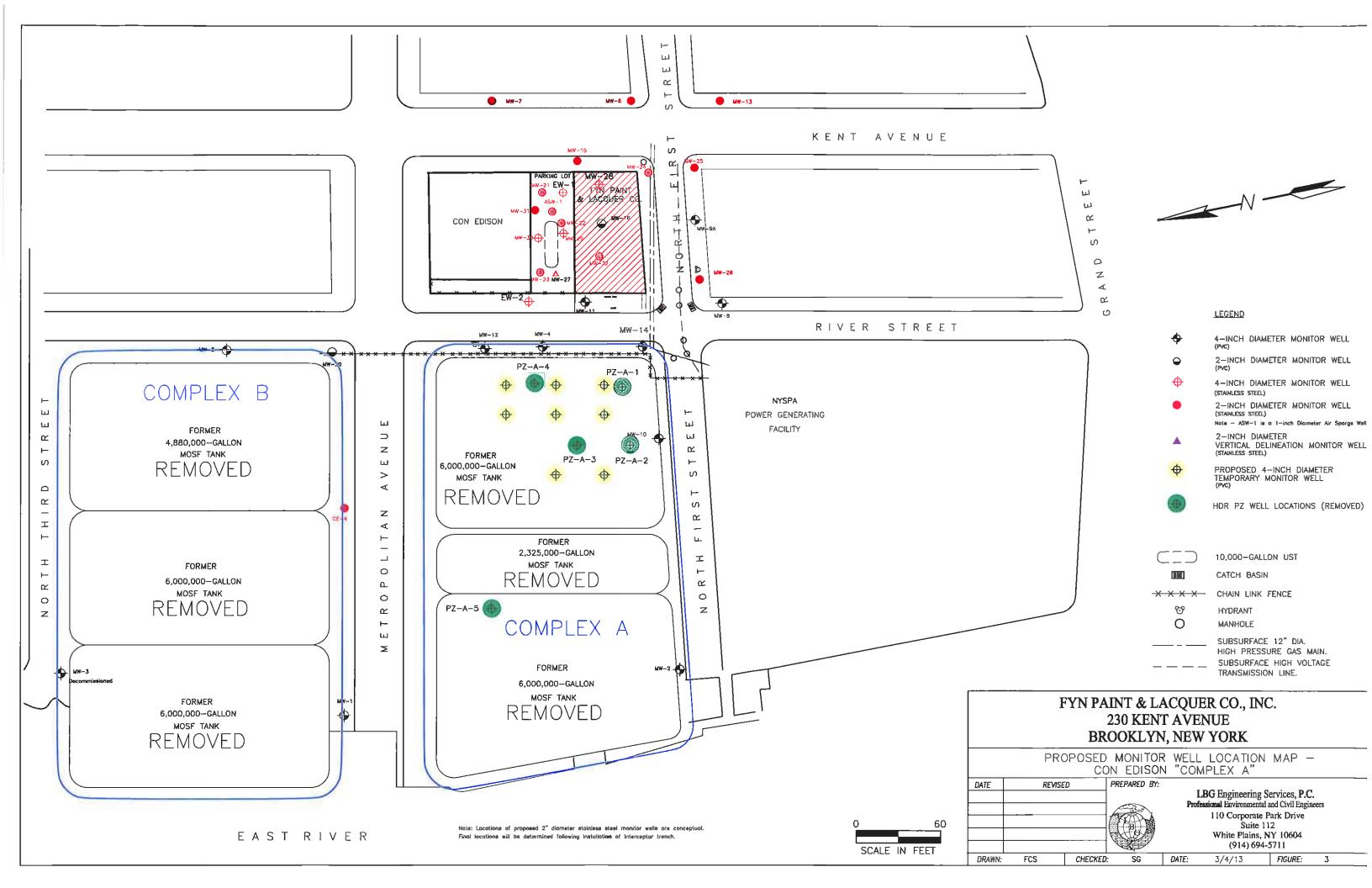
Activity		Months After NYSDEC Approval of OU-2 Workplan															
		Month 1			Month 2			Month 3				Month 4					
NYSDEC Approval of OU-2 Work Plan	X																
Contractor Bidding																	
Temporary Monitoring Well Install and Sample																	
Temporary Monitoring Well Slug Test																	
Interceptor Trench Excavation																	
Permanent Monitoring Well Install																	

Task Scheduled Time Frame and Approximate Duration

FIGURES

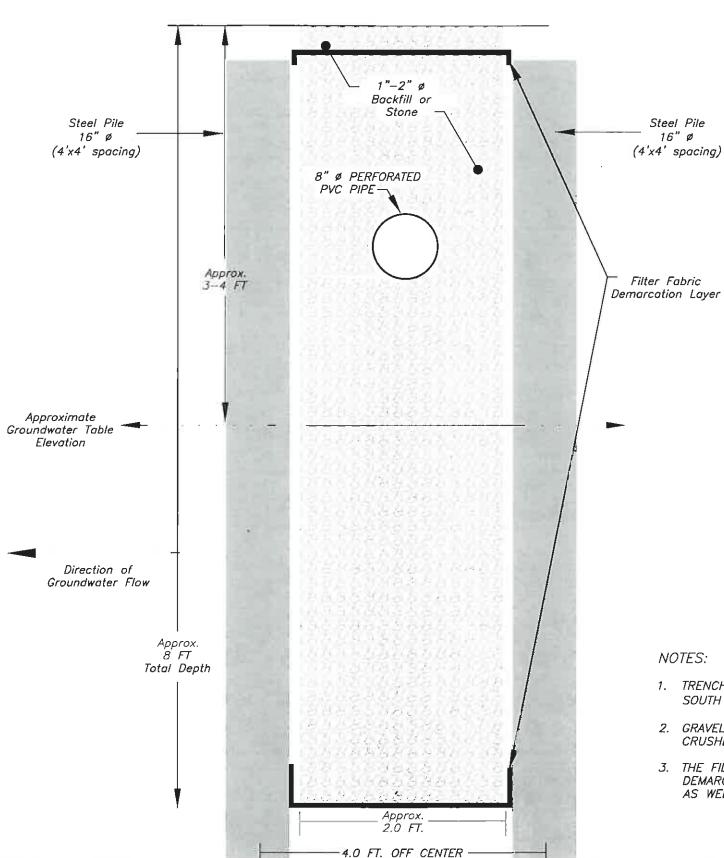


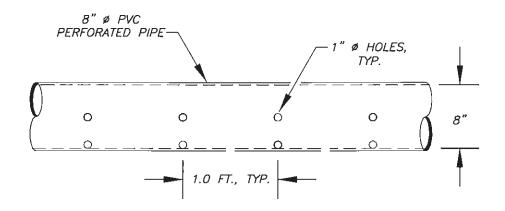




INTERCEPTOR TRENCH CROSS-SECTION

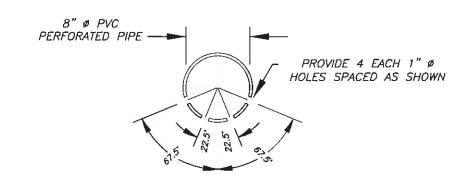
Not To Scale





Application Pipe Longitudinal View

Not To Scale



Application Pipe Cross Section

Not To Scale

- 1. TRENCH CROSS SECTION IS VIEWED FROM THE SOUTH (SOUTH TO NORTH)
- 2. GRAVEL IS PROPOSED TO BE 1"-2" DIAMETER CRUSHED BLUESTONE OR SIMILAR.
- 3. THE FILTER FABRIC SHALL BE USED AS A DEMARCATION LAYER OF THE EXCAVATION EXTENT AS WELL AL AN OVERLYING COVER ON TRENCH.

FYN PAINT & LACQUER CO., INC. 230 KENT AVENUE BROOKLYN, NEW YORK

PROPOSED INTERCEPTOR TRENCH CROSS-SECTION & DETAIL

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CHECKED:

BH

DRAWN:

LEGGETTE, BRASHEARS & GRAHAM, INC. Professional Ground-Water and Environmental Engineering Services

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(914) 694-5711 3/4/13 FIGU

FIGURE:

APPENDICES (on CD)