
PHASE II SUBSURFACE INVESTIGATION REPORT/ REMEDIAL ACTION WORKPLAN

for

**5 West 125th Street
New York, New York**

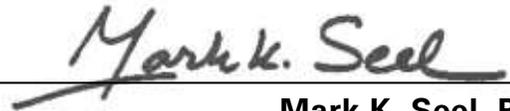
**E-Designation: E-201
Tax Map Block 1723, Lots 31, 45 and 144
NYCOER Project Number: 11EHAN269M
NYCDOB BIN# 1081454**

Prepared For:

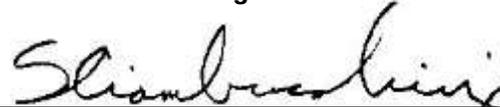
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New York, New York 10001**

For Submittal To:

**New York City Office of Environmental Remediation
E-Designation Program
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1.0 INTRODUCTION

On behalf of RCGL 125th Street, LLC, Langan Engineering & Environmental Services, Inc. (Langan), has prepared this Phase II Subsurface Investigation Report (SIR) and Remedial Action Workplan (RAWP) regarding the property located at 5 West 125th Street, Manhattan, New York. This SIR is submitted as part of the requirements regarding the New York City Office of Environmental Remediation (NYCOER) (E)-designation of the site in accordance with the revised Workplan submitted to NYCOER dated 18 May 2011 and approved by NYCOER in an email dated 20 May 2011. Appendix D of the Final Environmental Impact Statement (FEIS) for the 125th Street Corridor Rezoning proposed that the (E)-designation be assigned to the subject property due to its location being within 400-feet of an electrical substation. Additionally, according to the FEIS the site has also been (E)-designated for noise and air quality. Protocols and procedures for the proposed investigation were developed in accordance with NYCOER Guidance and NYSDEC Technical Guidance for Site Investigation and Remediation (Program Policy DER-10) dated May 2010. Based on the results of this investigation the RAWP was developed to address historic fill that will be disturbed as part of the redevelopment of the property. The findings of the subsurface investigation are summarized below.

2.0 SITE DESCRIPTION

2.1 Physical Setting

The subject property is located on 125th Street between 5th Avenue and Lenox Avenue. The site is bounded to the north and south by 126th Street and 125th Street respectively and by abutting buildings to the east and west in the Harlem neighborhood of Manhattan, New York (Figure 1). The site has an area of approximately ±0.59-acre and is currently a vacant inactive construction site that had been excavated to approximately eleven-feet below sidewalk grade in 2008. This site is currently owned by the RCGL 125th Street, LLC. Historically, the site was operated as a YMCA and associated dormitories, a commercial parking lot and residential dwellings. According to the New York City Department of City Planning, the subject property is designated as E-201, Block 1723, Lots 31, 45 and 144.

The properties adjoining the site consist of residential to the north and northwest and commercial development to the east, south and southwest. A site plan of the property is provided as Figure 2.

The proposed site use consists of a 4-story commercial building with one cellar level. Based on preliminary architectural schematics prepared by Rosenbaum Design Group (See Appendix A), the proposed cellar slab will be at el 3.5 (approximately 16.5-feet below sidewalk grade) and the usable cellar area is required to be at least 19,000 ft² excluding any mechanical rooms.

2.2 Site Stratigraphy and Hydrogeology

Based on geotechnical Investigations conducted at the site by Langan in July and August 2007, site subsurface conditions generally consist of fill overlying successive strata of sand, silt and clay, glacial till, and rock. The fill layer, consisting of sand and gravel with brick, concrete, wood, and miscellaneous debris, was observed throughout the site to depths of approximately 4 to 21-feet below sidewalk grade. The fill material is underlain by a 6 to 18-foot thick layer of loose to medium dense fine to coarse sands, followed by silt and clay and an approximately 6-foot thick layer of glacial till. Bedrock, consisting of a gneiss and marble, was encountered at depths ranging from approximately 48 to 63-feet below sidewalk grade.

The entire site has been excavated to a depth of approximately 11-feet below sidewalk grade as part of the previous site development. Based on the borings completed during the Phase II EI, the subsurface conditions currently consist of a 3 to 4-foot layer of fill material which was observed to be underlain by the above described sand and silt.

Groundwater was observed to be approximately 3.5 to 4-feet below the current site grade. Based on the proximity of the site to the Harlem River, groundwater flow is expected to be towards the east.

3.0 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

The following previous environmental reports were completed for the subject property:

- Phase I Environmental Site Assessment (ESA) Report dated 11 August 2008 prepared for RCG Longview Debt Fund IV, L.P. and Capital One Bank c/o RCG Longview, prepared by EBI Consulting of Burlington Massachusetts and submitted to NYCOER on 15 April 2011;
- Phase II Subsurface Investigation Workplan (SIW) dated 15 April 2011 prepared by Langan, revised 18 May 2011 based on NYCOER comments made on 16 May 2011; and,
- 125th Street Acoustical Measurement Protocol dated 15 June 2011 prepared by Cerami Associates, Inc.

A copy of the ESA report and SIW were provided previously under separate cover.

Phase I ESA (2008)

The August 2008 ESA was completed for Block 1723 Lots 31, 45, 140 and 144. The property that is the subject of this Workplan is limited to Lots 31, 45 and 144, Lot 140 is not part of the proposed redevelopment. Historic use of the site was identified as a YMCA and associated dormitories and residential and commercial buildings. Following the demolition of the YMCA and associated buildings, the site was redeveloped as a parking lot and residential dwellings, as shown on the 1951 Sanborn Fire Insurance map. The use of these properties was consistent through the 1992 Sanborn map. No Recognized Environmental Conditions (RECs) were identified in the Phase I ESA report.

The Phase I ESA documents that groundwater samples were collected to obtain a NYCDEP Bureau of Wastewater Treatment permit for the discharge of groundwater from the dewatering system that was installed to be operated during the excavation of foundations for the building previously proposed at the site. Groundwater samples were reportedly collected and tested for polychlorinated biphenyls via United States Environmental Protection Agency (EPA) Method 608, semivolatile organic compounds by EPA Method 625 and volatile organic compounds by EPA Method 624. None of these compounds were reported above the laboratory method detection limits.

Phase II SIW (2011)

Based on the findings of the Phase I ESA a Phase II SIW was developed to assess subsurface conditions at the site via the collection of soil and groundwater samples. Based on the 16 May 2011 NYCOER comments, the soil vapor sampling that was proposed in the Phase II Scope of Work, was deleted from the 18 May 2011 WorkPlan Addendum. The findings of this investigation are detailed in Section 4.0 below.

125th Street Acoustical Measurement Protocol

In a letter dated 15 June 2011, Cerami and Associates of New York, New York submitted an Acoustical Measurement Protocol to the NYCOER to allow for a site specific noise survey to be conducted at the site. The purpose of the survey was to assess the noise levels along the southern façade of the building to determine if the default requirement for 40 dBA attenuation is required. As per NYCOER requirements, the testing was to be conducted over a 24-hour period of time, while school was still in session.

4.0 PHASE II ENVIRONMENTAL INVESTIGATION

In order to address NYCOER requirements pertaining to the (E)-designation of the site, soil, and groundwater sampling as part of a Phase II Environmental Investigation was completed. The scope of work for the Phase II Environmental Investigation was designed to assess the following RECs:

- Onsite Historic Fill; and,
- Surrounding Sites – Potential onsite migration of offsite contaminants.

The scope of work was designed to:

- Identify the potential presence and extent of impacted soil, and/or groundwater at the site;
- Determine contaminant(s) of concerns that may be encountered during site redevelopment activities for incorporation into a construction Health and Safety Plan, if necessary; and,
- Evaluate remediation options for any impacted soil vapor, soil, and/or groundwater in accordance with NYSDEC and NYCOER regulations, if required.

The scope of work for the investigation consisted of:

- Completion of eight soil borings and collection of two soil samples per boring to assess soil conditions and potential health and safety issues regarding soil disturbance during the proposed site renovation;
- Installation and sampling of three monitoring wells in order to assess site groundwater conditions; and,
- Completion of a Phase II Subsurface Investigation Report.

Soil and groundwater sampling procedures are discussed in Sections 4.1, and 4.2, respectively. Quality assurance procedures that were implemented during this investigation are discussed in Section 4.3. The locations of all soil and groundwater samples are shown on Figure 3. A summary of the environmental samples laboratory analytical data is provided in Tables 1 and 2, soil analytical results are shown on Figure 4 and groundwater analytical results are shown on Figure 5. All samples were analyzed by a NYSDOH Environmental Laboratory Approval Program (ELAP)-certified laboratory.

4.1 Soil Sampling Procedures

On 26 and 27 May 2011, eight soil borings (ELB-1 through ELB-8) were completed onsite by American Environmental Assessment Corporation of Wyandanch, New York, (AEA) using a track-mounted Geoprobe® 7822DT Direct Push Drilling Rig to 15-feet below the current grade. Groundwater was generally observed to be 4-feet below the existing grade.

Continuous macrocore samples were collected to the bottom of each boring and soil was classified and visually screened for evidence of contamination. Soil boring logs are provided in Appendix B.

Field screening of soil during sample collection for volatile organic compounds (VOCs) using a photo-ionization detector (PID) was completed during the installation of all eight test borings. Elevated PID readings were not observed in any of the borings.

Two discrete soil samples (6-inch interval) were collected from each boring for laboratory analysis from directly above the groundwater table and from

the base of the borings at a depth that corresponds with the proposed depth of excavation as part of the redevelopment activities. Soil samples were submitted to Accutest Laboratories of Dayton, New Jersey, a New York State Department of Health certified laboratory, for analysis for volatile organic compound (VOC), semi-volatile organic compound (SVOC), pesticides, polychlorinated biphenyls (PCB), and metal analysis.

All sampling devices (macrocores) were properly decontaminated according to NYSDEC and ASTM (ASTM D-5088-90) guidelines prior to each sampling location. This included a thorough soap/water wash to remove solid residues, followed by successive rinses of tap water and distilled/deionized water. Each macrocore was lined with a dedicated acetate liner prior to the collection of each 5-foot long soil sample. Soil samples were then placed in glass jars supplied by the laboratory. Each soil sample was numbered and recorded in a field log book. Samples were transferred to the laboratory immediately after field sampling was completed, and were stored at a maximum of 4° Celsius. Chain-of-custody forms were utilized to document custody for the acquisition, possession and analysis. A summary of the soil laboratory analytical results are provided in Table 2.

4.2 Ground Water Sampling Procedures

In order to assess groundwater conditions on the subject property, three groundwater monitoring wells (MW-1 through MW-3) were installed in soil borings ELB-1 (MW-1), ELB-5 (MW-2) and ELB-6 (MW-3).

On 26 May 2011, groundwater monitoring wells were installed by a licensed well driller, AEA, using a Geoprobe® 7822DT Direct Push Drilling Rig and 4-1/4-inch hollow stem augers. Each of the wells were installed to the completion depth of the boring (15-feet b.g.s.) and screened from 5 to 15-feet b.g.s. Due to the lack of petroleum impacts and the shallow groundwater table at the site, the wells were not screened across the groundwater table. This change in the proposed workplan was approved by the NYCOER representative who was present at the site during well installation. Each well was constructed with 10-feet of 2-inch diameter 0.010-inch slot PVC well screen, the remainder of the well was constructed of 2-inch diameter PVC Riser. The monitoring wells were finished with stick-

up steel protective casings. On 27 May 2011, each well was developed by removing a total of five to ten well volumes using a decontaminated submersible pump and surging techniques, or until the groundwater was relatively free of silt. The wells were allowed to equalize for a period of greater than 48-hours prior to sampling. On 1 June 2011, the wells were sampled via USEPA low-flow sampling methods. Groundwater field parameters, including pH, specific conductivity, dissolved oxygen, oxidation-reduction potential, temperature, and turbidity were measured during low-flow purging activities. Groundwater Field Sampling Logs are provided in Appendix B. Visual observations were made of groundwater samples that were collected using a peristaltic pump and dedicated bailers. No evidence of sheen or free product was observed in any of the monitoring wells.

Groundwater grab samples were collected for analysis for VOCs, SVOCs, pesticide, and PCBs. VOCs samples were collected using dedicated bailer and the remaining samples were collected using dedicated tubing and a peristaltic pump. In addition, unfiltered groundwater samples were collected for analysis for total metals. Based on the low turbidity that was measured in each of the wells (less than 8.7 nephelometric turbidity units) at the time of sampling a second filtered sample was not collected for total metals analysis.

Collected groundwater samples were placed in containers supplied by the laboratory with the appropriate preservatives. Each groundwater sample was numbered and recorded in a field log book. Samples were transferred to the laboratory immediately after field sampling was completed, and stored at a maximum of 4° Celsius. Chain-of-custody forms were utilized to document custody for the acquisition, possession and analysis. A summary of the groundwater laboratory analytical results are provided in Table 3.

4.3 Quality Assurance Samples

Quality assurance (trip blanks) and quality control (field blanks and duplicate) samples were incorporated into the sampling events as required by NYCOER and consisted of two field blanks (one for soil and one for groundwater) two duplicate (one for soil and one for groundwater) and one trip blank (for

groundwater). The soil and groundwater field blanks and duplicate samples were analyzed for VOCs, SVOCs, PCBs, Pesticides and metals.

4.4 Laboratory Analytical Results

Summaries of the laboratory analytical results are provided in Tables 1 and 2, and are discussed in detail below. Complete laboratory analytical packages are provided in Appendix C.

Soil Sample Results

Soil sample laboratory analytical results are summarized in Table 1. All soil analytical results were compared to the NYSDEC 6 NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives. There were no exceedances to the Unrestricted Use Objectives for VOCs or PCBs in any of the soil samples collected. There were no exceedances to the Unrestricted Use Objectives for SVOCs in any of the samples collected with the following exception. Polycyclic aromatic hydrocarbons (PAHs) were detected in soil samples collected from the shallow interval of ELB-2 (3.5-4) and ELB-5 (3-3.5) in exceedance of Unrestricted Use Objectives, as well as the Protection of Public Health Restricted-Residential and Restricted-Commercial objectives. Additionally, benzo(a)pyrene was detected in both borings above the Protection of Public Health Restricted-Industrial criteria.

Pesticides (4,4-DDE, 4,4-DDT, dieldrin and heptachlor) were detected marginally above the Unrestricted Use Objectives in the samples collected from the shallow sample interval in ELB-2 (3.5-4 feet b.g.s.), ELB-3 (3.5-4 feet b.g.s.), ELB-5 (3-3.5 feet b.g.s.) and ELB-8 (3.5-4 feet b.g.s.). No other exceedances of the Unrestricted Use Objectives were detected in any of the remaining samples collected.

Several metals (barium, hexavalent chromium, lead, mercury and zinc) were detected above Unrestricted Use Objectives in the samples collected from the shallow interval of ELB-1 (2.5-3 feet b.g.s.), ELB-2 (3.5-4 feet b.g.s.), ELB-3 (3.5-4 feet b.g.s.), ELB-5 (3-3.5 feet b.g.s.) and ELB-8 (3.5-4 feet b.g.s.). Mercury was detected above the Protection of Public Health Residential Criteria in the soil sample collected from the shallow interval of ELB-2 and lead was detected in the soil sample collected from the shallow interval of ELB-3,

ELB-5 and ELB-8 in exceedance of the Restricted-Residential Criteria. No other exceedances of the Unrestricted Use Objectives were detected in any of the remaining soil samples collected.

Groundwater Sample Results

Groundwater sample laboratory analytical results are summarized in Table 2. With the exception of metals aluminum, iron, manganese and sodium, no exceedances of the NYSDEC Part 703 Groundwater Quality Standards were detected in the groundwater samples collected from MW-1, MW-2 and MW-3. Tetrachloroethene was detected in both MW-2 (0.67 µg/l) and MW-3 (1 µg/l) below the Groundwater Quality Standard of 5 µg/l. With exception of the previously mentioned detections, VOCs, SVOCs and PCBs were not detected. The pesticide 4,4-DDD was detected in the groundwater sample collected from MW-2 below the Groundwater Quality Standard of 0.3 µg/l, no other detections of pesticides were reported. Elevated concentrations of calcium, sodium, and magnesium were also reported. Given the site's proximity to the Harlem River, these elevated dissolved metal concentrations are indicative of brackish nature of groundwater onsite.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The soil analytical results of this Phase II Subsurface Investigation documented limited exceedances of Subpart 375-6 soil cleanup objectives for PAHs, Pesticides and Metals in the shallow historic urban fill material. This approximately 4-foot thick layer of fill material was observed to contain varying quantities of sand, brick, concrete, gravel and silt, and was underlain by a native sand layer. With exception of a minor detection of carbozole (0.337 mg/kg) in ELB-1 and tetrachloroethene (0.0023 mg/kg) there were no detections of VOCs, SVOCs, PCBs or Pesticides in the soil samples collected from this native sand material. Additionally, there were no exceedances of the Unrestricted Use Objectives for metals in any of the samples collected from the native sand material.

Metals were detected in all three groundwater samples collected during the Phase II investigation. Based on the laboratory analytical results for soil, none of the groundwater exceedances correlate to any of the soil exceedances. Based on this information, the presence of elevated aluminum and iron are attributable to

background conditions, and the presence of elevated manganese, sodium, calcium, magnesium and potassium are likely the result of brackish groundwater conditions at the site.

Based on completion of the Phase II Investigation, which identified only the presence of historic fill on the site, no further soil investigation is recommended on the subject property. As the proposed site development basement, pile caps, and utility pits will require excavation of the majority of the soil located on the subject property to an approximate depth of 25-feet below sidewalk grade, all impacted historic fill within the excavation area will be excavated for off-site disposal. Handling and management of the soil will be conducted in accordance with the Remedial Action Workplan provided in Section 6.0 and the CHASP included as Appendix D.

As the presence of marginally impacted groundwater has been attributed to site background conditions (including the likely brackishness of the groundwater) and off-site sources (low levels of VOCs below Groundwater Quality Standards), no further investigation of the site groundwater is proposed.

Although the low concentrations of VOCs detected in groundwater are not a concern with regard to potential volatilization into the proposed building, the foundation waterproofing installation will also act a vapor barrier between onsite soils and groundwater and the proposed building.

It should be noted that the site will be dewatered during foundation construction activities. Laboratory analytical results of groundwater samples collected by the site dewatering contractor have been compared to NYCDEP Sewer Discharge Criteria and no exceedances were identified. As requested by the NYCOER the former dewatering system will be decommissioned and a new system will be installed as per the required Dewatering Permit Application. The completed NYCDEP dewatering permit will be submitted to the NYCOER as soon as it has been provided.

Section 6.0 documents the proposed Remedial Action to address historic fill that will be encountered during site redevelopment activities.

6.0 REMEDIAL ACTION WORKPLAN

This RAWP is designed to address the proposed disturbance of historic fill that will be disturbed during the proposed site redevelopment. The proposed activities include excavation and off-site disposal of this material. In addition, provisions for reuse of soil within the subject property are provided. In order to assure the health and safety of construction personnel, a site specific Construction Health and Safety Plan (CHASP) has been provided and will be implemented during the removal of impacted fill as the site. A copy of the CHASP is provided in Appendix D.

6.1 Remedial Action Scope of Work

The following scope of work is proposed as part of the Remedial Action:

- Excavation and off-site disposal of soil generated during construction as part of the proposed building foundation;
- Completion of Waste Characterization Sampling;
- Sampling and Completion of Foundation Construction Dewatering;
- Installation of a vapor barrier;
- Completion of Noise Attenuation Remedial Action Plan;
- Completion of a Air Quality Remedial Action Plan;
- Completion of a UST Contingency Plan; and,
- Submittal of Relevant Permits.

6.2 Soil Excavation

Off-site disposal of soil generated as part of the proposed subgrade excavation will be conducted. The excavation will extend vertically from the current ground surface to the proposed building subgrade in order to complete the required basement and elevator pit areas and other improvements. The vertical extent of the excavation will extend from street level (el 22-ft) to a depth of up to 25-ft b.g.s. (el -3-ft). Current foundation plans will allow for continuous sheeting to be driven (off-set by 10-feet from neighboring buildings and sidewalks) beyond the depth of the proposed excavation. This sheeting will provide the necessary supportive excavation for the neighboring buildings and will also reduce the volume of groundwater that will need to be removed during construction activities.

As the impacted fill layer is only 3 to 4-feet in thickness, this excavation will completely remove the impacted fill material currently on-site with exception of the material that will be outside of the continuous sheeting material. The excavated soil will be temporarily stockpiled on-site or will be directly loaded onto trucks for off-site disposal at an approved facility.

Reuse of excavated native soil generated from over-excavated areas may be conducted; however, based on proposed site grades, it is not anticipated that any significant quantity of excavated soil will be reused on the subject property. Any reused soil will be placed below the building slab or other impermeable areas of the site. No material from the impacted shallow historical urban fill layer will be reused onsite.

6.2.1 Post-Excavation Soil Samples

Based on the results of the Phase II investigation, no soil impacts were identified in the native soils at the proposed depth of excavation; therefore no further soil sampling is recommended.

6.2.2 Post-Excavation Monitoring Wells

Though marginally impacted groundwater was detected in on-site wells, these impacts have been attributed to background conditions. Therefore the installation and completion of groundwater sampling is not recommended.

6.3 Waste Characterization

Due to limited space availability during site preparation and construction activities, excavated soil has been pre-classified prior to initiation of the large-scale site excavation activities. Samples were collected from test borings at a frequency and for parameters dictated by the selected disposal facilities. At a minimum, the waste classification samples were analyzed for RCRA Characteristics (ignitability, corrosivity, explosivity and toxicity) and TCLP analysis.

6.4 Foundation Construction Dewatering

Based on the proposed depth of the cellar slab and the associated foundation elements, dewatering of the foundation excavation will be required during construction. An inactive dewatering system that was installed during previous site development activities is currently present on-site. This system will be decommissioned to accommodate the installation of a new dewatering system. As of the date of this report the dewatering permit application has been filed with the NYC Department of Environmental Protection (DEP) Bureau of Wastewater Treatment for the site, by Moretrench American Corporation. Langan will submit this permit to the NYCOER once it has been issued, which will outline the details of the new dewatering system.

6.5 Vapor Barrier

Although the low concentrations of semi-volatile organic compounds in soil and low concentrations of tetrachloroethene in groundwater do not dictate the need for installation of a vapor barrier below the proposed building, a vapor barrier in the form of a waterproofing layer will be installed below the building floor slab and along the foundation walls.

The vapor barrier will consist of Grace Preprufe 300R, Preprufe 160R, and Bituthene 4000 below grade system foundation damp-proofing material in conjunction with sealing of joints with Preprufe LT tape and Bituthene EdgeGuard tape. The vapor barrier layer will provide a barrier to water, moisture, and gas, and is chemically resistant. The proposed vapor barrier is anticipated to be protective of the building occupants, as the marginally impacted VOC groundwater (tetrachloroethene at 0.67 µg/l in MW-2) is well below the NYSDEC Groundwater Quality Standard of 5 µg/l.

6.6 Noise Attenuation

A continuous 24-hour ambient noise study was conducted on the subject property by Cerami and Associates, Inc (Cerami) and documented in a letter report dated 7 July 2011. This documentation is provided as Appendix E. The letter identifies that the 125th Street Corridor Rezoning Environmental

Impact Statement (EIS) assigned a Noise (E)-designation, that requires 40 dBA window/wall attenuation on the south façade and 30 dBA on the north façade in order to maintain an interior noise level of 45 dBA. In an email dated 30 June 2011, Mr. William Wong approved an interior noise level increase of 5 dBA based on the use of the property for commercial retail space, resulting in a 50 dBA interior noise level requirement.

Based on these revised interior noise requirements, the facade of the proposed building must achieve a minimum composite attenuation between window and wall materials to reduce the impacts of exterior noise upon interior spaces a minimum of 35 dBA to 50 dBA or less. However, based on the results of the continuous 24-hour ambient noise study, it is stated that a window-wall attenuation requirement of 33 dBA will be adequate to achieve the required maximum interior noise levels.

Cerami have provided recommendations regarding the window construction design elements for meeting these (E)-designation Noise Requirements including the use of glazed glass such as ¼"-1/2A.S.-5/16" by Viracon. This documentation is provided as Appendix E, and the Air/Noise Remedial Action Plan has also being submitted in concurrently with this Phase II EI Report and Remedial Action Plan.

6.7 Air Quality

As identified in the 125th Street Corridor Rezoning EIS to maintain the air quality at the site "Any new residential and/or commercial development on the site must ensure that heating, ventilating and air conditioning stacks are located at least 88 and 71 feet for Oil No. 4 and Oil No. 2 from the lot lines or use natural gas as the type of fuel for space heating and hot water (HVAC) systems, to avoid any potential significant adverse air quality impacts."

Based on the current site plans as provided the building will be cooled using electrically powered HVAC units. These units will be placed on each floor to allow for the air conditioning of each tenant space. Additionally, heat and hot water will be provided by five natural gas fired boilers which will be installed in the basement of the building, and will be ventilated to the roof of the

second story. Detailed plans are provided in the Air/Noise Remedial Action Plan has been provided under separate cover.

6.8 Underground Storage Tank Closure Contingency Plan

Based on review of New York City and State records and environmental databases pertaining to the site, no records of USTs on the subject property have been documented. However, due to the presence of former buildings on the subject site that may have been heated by fuel oil, a UST contingency plan will be implemented during completion of excavation activities for site redevelopment.

Proper removal of any encountered USTs will be completed with oversight by a Langan representative in accordance with NYSDEC and New York City Fire Department regulations and guidelines for UST Removals. All remaining petroleum product, impacted water and associated sludge from within the UST and associated piping will be removed prior to removal of the UST system. The removed waste will be containerized for off-site disposal. Subsequent to removal of the UST, the exterior of the UST will be inspected for integrity and any suspect locations will be noted. Excavation and off-site disposal of all soil exhibiting evidence of contamination (stained soil or elevated PID readings) will be conducted.

6.8.1 Post-Excavation Soil Samples – UST Closure

If USTs and associated impacted soil are encountered/excavated, post-excavation soil samples will be collected at the prescribed rate (Draft DER-10 Technical Guidance for Site Investigation and Remediation dated December 2002) of one centerline sample per five foot length of UST and one piping sample for every 20 feet of pipe for analysis for the applicable TAGM gasoline or fuel oil list depending on the type of encountered UST. Additional base post-excavation samples will be collected if evidence of contamination is observed at the rate of one sample per 1,800 SF of excavation base.

6.9 Clean Fill Cap

The subject site will be completely covered by buildings and parking area; therefore a clean fill cap will not be required for the proposed development.

6.10 Permits

All applicable State and Local permits required for completion of the Remedial Action (including the NYCDEP Bureau of Wastewater Treatment Dewatering Permit) will be obtained prior to site redevelopment.

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TABLES

Table 1

Soil Samples Analytical Results
West 125th Street, New York, New York

| Sample ID: Laboratory Sample Number: Sampling Date: Sampling Depth (ft): Units: | CAS No. | SUBPART 375-6 (Revised Brownfields) # | | | | | | ELB-1 | ELB-1 | ELB-2 | ELB-2 | DUP-1 | ELB-3 | ELB-3 | ELB-4 | ELB-4 | ELB-5 | ELB-5 | ELB-6 | ELB-6 | ELB-7 | ELB-7 | ELB-8 | ELB-8 | FB-1 |
|---|------------|---|------------------------|--|---------------------------------------|---------------------------------------|---|-------------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|--------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|
| | | UNRESTRICTED USE OBJECTIVES (mg/kg) | Residential (mg/kg) | Protection of Public Health | | | Protection of Groundwater (mg/kg) | JA77048-1/R | JA77048-2/R | JA77048-9/R | JA77048-11/R | JA77048-10/R | JA77048-7/R | JA77048-8/R | JA77048-12/R | JA77048-13/R | JA77048-3/R | JA77048-4/R | JA77048-5/R | JA77048-6/R | JA77048-16/R | JA77048-17/R | JA77048-14/R | JA77048-15/R | JA77048-18/R |
| | | | | Restricted - Residential (mg/kg) | Restricted - Commercial (mg/kg) | Restricted - Industrial (mg/kg) | | 5/26/2011 | 5/26/2011 | 5/26/2011 | 5/26/2011 | 5/26/2011 | 5/26/2011 | 5/26/2011 | 5/26/2011 | 5/26/2011 | 5/26/2011 | 5/26/2011 | 5/26/2011 | 5/26/2011 | 5/26/2011 | 5/26/2011 | 5/26/2011 | 5/26/2011 | 5/26/2011 |
| VOCs | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tetrachloroethene | 127-18-4 | 1.3 | 5.5 | 19 | 150 | 300 | 1.3 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| Total VOC | | | | | | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| SVOCs | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | — | — | — | — | — | — | ND | ND | 0.446 | ND | ND | 0.0477 J | ND | ND | ND | 0.0679 | ND | ND | ND | ND | 0.0227 J | ND | ND | |
| Acenaphthene | 83-32-9 | 20 | 100 | 100 | 500 | 1,000 | 98 | ND | ND | 0.755 | ND | ND | 0.143 | ND | ND | ND | 0.675 | ND | ND | ND | ND | 0.0566 | ND | ND | |
| Acenaphthylene | 208-96-8 | 100 | 100 | 100 | 500 | 1,000 | 107 | ND | ND | 0.452 | ND | ND | 0.101 | ND | ND | ND | 0.527 | ND | ND | ND | ND | 0.106 | ND | ND | |
| Anthracene | 120-12-7 | 100 | 100 | 100 | 500 | 1,000 | 1,000 | ND | ND | 2.13 | ND | ND | 0.348 | ND | ND | ND | 1.89 | ND | ND | ND | ND | 0.177 | ND | ND | |
| Benzo (a) anthracene | 56-55-3 | 1 | 1 | 1 | 5.6 | 11 | 1 | 0.0198 J | ND | 3.04* | ND | ND | 0.844 | ND | ND | ND | 4.37*** | ND | ND | ND | ND | 0.675 | ND | ND | |
| Benzo (a) pyrene | 50-32-8 | 1 | 1 | 1 | 1 | 1.1 | 22 | 0.0198 J | ND | 2.71 | ND | ND | 0.762 | ND | ND | ND | 3.99 | ND | ND | ND | ND | 0.686 | ND | ND | |
| Benzo (b) fluoranthene | 205-99-2 | 1 | 1 | 1 | 5.60 | 11 | 1.7 | 0.0223 J | ND | 2.42* | ND | ND | 0.881 | ND | ND | ND | 3.06*** | ND | ND | ND | ND | 0.603 | ND | ND | |
| Benzo (g,h,i) perylene | 191-24-2 | 100 | 100 | 100 | 500 | 1,000 | 1,000 | 0.0182 J | ND | 1.84 | ND | ND | 0.422 | ND | ND | ND | 2.52 | ND | ND | ND | ND | 0.538 | ND | ND | |
| Benzo (k) fluoranthene | 207-08-9 | 0.8 | 1 | 3.9 | 56 | 110 | 1.7 | 0.0185 J | ND | 1.77** | ND | ND | 0.434 | ND | ND | ND | 2.1** | ND | ND | ND | ND | 0.41 | ND | ND | |
| bis(2-ethylhexyl)phthalate | 117-81-7 | — | — | — | — | — | — | 0.0342 J | ND | 0.032 J | ND | ND | ND | ND | ND | ND | 0.0884 | ND | 0.0387 J | ND | ND | 0.3 | ND | ND | |
| 1,1'-Biphenyl | 92-52-4 | — | — | — | — | — | — | ND | ND | 0.14 | ND | ND | 0.0147 J | ND | ND | ND | 0.0432 J | ND | ND | ND | ND | 0.0140 J | ND | ND | |
| Butylbenzylphthalate | 85-68-7 | — | — | — | — | — | — | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 77.6 | ND | ND | |
| Carbazole | 86-74-8 | — | — | — | — | — | — | ND | 0.337 | 0.727 | ND | ND | 0.176 | ND | ND | ND | 0.337 | ND | ND | ND | ND | 0.0587 J | ND | ND | |
| Chrysene | 218-01-9 | 1 | 1 | 3.9 | 56 | 110 | 1 | 0.0277 J | ND | 2.95*** | ND | ND | 0.924 | ND | ND | ND | 4.22** | ND | ND | ND | ND | 0.828 | ND | ND | |
| Dibenzo (a,h) anthracene | 53-70-3 | 0.33 | 0.33 | 0.33 | 0.56 | 1.1 | 1,000 | ND | ND | 0.687 | ND | ND | 0.146 | ND | ND | ND | 0.91* | ND | ND | ND | ND | 0.197 | ND | ND | |
| Dibenzofuran | 132-64-9 | — | — | — | — | — | — | ND | ND | 0.89 | ND | ND | 0.094 | ND | ND | ND | 0.354 | ND | ND | ND | ND | 0.0266 J | ND | ND | |
| Diethylphthalate | 84-66-2 | — | — | — | — | — | — | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| Dimethylphthalate | 131-11-3 | — | — | — | — | — | — | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| Di-n-butyl phthalate | 84-74-2 | — | — | — | — | — | — | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.484 | ND | ND | |
| Di-n-octyl phthalate | 117-84-0 | — | — | — | — | — | — | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.296 | ND | ND | |
| Fluoranthene | 206-44-0 | 100 | 100 | 100 | 500 | 1,000 | 1,000 | 0.0365 | ND | 7.98 | ND | ND | 2.07 | ND | ND | ND | 9.11 | 0.0137 J | ND | ND | ND | 1.04 | ND | ND | |
| Fluorene | 86-73-7 | 30 | 100 | 100 | 500 | 1,000 | 386 | ND | ND | 1.41 | ND | ND | 0.16 | ND | ND | ND | 0.622 | ND | ND | ND | ND | 0.0635 | ND | ND | |
| Indeno (1,2,3-cd) pyrene | 193-39-5 | 0.5 | 0.5 | 0.5 | 5.6 | 11 | 8.2 | 0.0171 J | ND | 1.64* | ND | ND | 0.374 | ND | ND | ND | 2.17* | ND | ND | ND | ND | 0.405 | ND | ND | |
| Naphthalene | 91-20-3 | 12 | 100 | 100 | 500 | 1,000 | 12 | ND | ND | 1.03 | ND | ND | 0.0728 | ND | ND | ND | 0.115 | ND | ND | ND | ND | 0.0405 | ND | ND | |
| Phenanthrene | 85-01-8 | 100 | 100 | 100 | 500 | 1,000 | 1,000 | 0.0154 J | ND | 9.43 | ND | ND | 1.64 | ND | ND | ND | 6.79 | ND | ND | ND | ND | 0.77 | ND | ND | |
| Pyrene | 129-00-0 | 100 | 100 | 100 | 500 | 1,000 | 1,000 | 0.0389 | ND | 7.02 | ND | ND | 1.86 | ND | ND | ND | 9.45 | 0.0192 J | ND | ND | ND | 1.49 | ND | ND | |
| Total SVOCs | | | | | | | | 0.2684 | 0.337 | | ND | ND | | ND | ND | ND | | | | | | | | | |
| PCBs/Pesticides | | | | | | | | | | | | | | | | | | | | | | | | | |
| Polychlorinated biphenols (PCBS) | | 0.1 | 1 | 1 | 1 | 25 | 3.2 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| 4,4'-DDE | 72-55-9 | 0.0033 | 1.8 | 8.9 | 62 | 120 | 17 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.0214 | ND | ND | |
| 4,4'-DDT | 50-29-3 | 0.0033 | 1.7 | 7.9 | 47 | 94 | 136 | ND | ND | 0.0043 | ND | ND | 0.0145 | ND | ND | ND | 0.0223 | 0.0015 | ND | ND | ND | 0.0814 | ND | ND | |
| 4,4'-DDD | 72-54-8 | 0.0033 | 2.6 | 13 | 92 | 180 | 14 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.0022 | ND | ND | |
| Chlordane (alpha) | 5103-71-9 | 0.094 | 0.91 | 4.2 | 24 | 47 | 2.9 | 0.0013 | ND | ND | ND | ND | 0.0037 | ND | ND | ND | 0.0552 | ND | ND | ND | ND | 0.0182 | ND | ND | |
| Chlordane (gamma) | 5103-74-2 | — | — | — | — | — | — | 0.0013 | ND | 0.0034 | ND | ND | 0.0054 | ND | ND | ND | 0.0759 | ND | ND | ND | ND | 0.0142 | ND | ND | |
| Dieldrin | 60-57-1 | 0.005 | 0.039 | 0.2 | 1.4 | 2.8 | 0.1 | ND | ND | ND | ND | ND | 0.0029 | ND | ND | ND | ND | ND | ND | ND | ND | 0.0064 | ND | ND | |
| Endosulfan II | 33213-65-9 | 2.4 | 4.8 | 24 | 200 | 920 | 102 | ND | ND | ND | ND | ND | 0.0081 | ND | ND | ND | 0.0044 | ND | ND | ND | ND | 0.0032 | ND | ND | |
| Endosulfan Sulfate | 1031-07-8 | 2.4 | 4.8 | 24 | 200 | 920 | 1,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.0047 | ND | ND | ND | ND | ND | ND | ND | |
| Endrin | 72-20-8 | 0.014 | 2.20 | 11 | 89 | 410 | 0.06 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.0019 | ND | ND | |
| Endrin ketone | 53494-70-5 | — | — | — | — | — | — | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| Heptachlor | 76-44-8 | 0.042 | 0.42 | 2.1 | 15 | 29 | 0.38 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.0913 | ND | ND | ND | ND | 0.002 | ND | ND | |
| Heptachlor epoxide | 1024-57-3 | — | — | — | — | — | — | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.0017 | ND | ND | |
| Total Pesticides | | | | | | | | | | | | | | | | | | | | | | | | | |
| Metals | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | — | — | — | — | — | — | 4,140 | 6,640 | 7,680 | 7,380 | 4,320 | 7,040 | 3,200 | 3,860 | 8,130 | 6,290 | 2,400 | 5,560 | 4,140 | 4,370 | 7,480 | 9,560 | 6,320 | |
| Antimony | 7440-36-0 | — | — | — | — | — | — | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| Arsenic | 7440-38-2 | 13 | 16 | 16 | 16 | 16 | 16 | ND | ND | ND | ND | ND | 4.3 | ND | 2.2 | ND | 2.4 | ND | ND | ND | ND | 6.7 | ND | ND | |
| Barium | 7440-39-3 | 350 | 350 | 400 | 400 | 10,000 | 820 | 49 | 54.8 | 116 | 76.3 | 31.4 | 350* | 52.3 | 48.5 | 83 | 257 | ND | 44.5 | 39 | 42.8 | 71.6 | 282 | 67.9 | |
| Beryllium | 7440-41-7 | 7.2 | 14 | 72 | 590 | 2,700 | 47 | 0.24 | 0.4 | 0.32 | 0.49 | 0.31 | 0.35 | ND | 0.34 | 0.5 | 0.31 | ND | 0.38 | 0.23 | 0.32 | 0.52 | 0.35 | 0.44 | |
| Cadmium | 7440-43-9 | 2.5 | 2.5 | 4.3 | 9.3 | 60 | 7.5 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| Calcium | 7440-70-2 | — | — | — | — | — | — | 12,200 | 1,750 | 10,600 | 1,920 | 1,980 | 22,400 | 1,040 | 1,330 | 2,250 | 35,000 | ND | 2,510 | 1,470 | ND | 1,930 | 14,700 | 1,590 | |
| Chromium, Hexavalent | 18540-29-9 | 1 | 22</ | | | | | | | | | | | | | | | | | | | | | | |

Table 2
Groundwater Analytical Results
 West 125th Street, New York, New York

| Sample ID: Langan Sample Number: Laboratory Sample Number: Sampling Date: Sampling Depth (ft): Units: | CAS No. | Ground Water Quality Standards Part 703*** (ug/L) | MW-1 JA77326-1 6/1/2011 ug/l | MW-2 JA77326-2 6/1/2011 ug/l | DUP-1 (MW-2) JA77326-3 6/1/2011 ug/l | MW-3 JA77326-4 6/1/2011 ug/l | FB-1 JA77326-5 6/1/2011 ug/l | TB-1 JA77326-6 6/1/2011 ug/l |
|--|-----------|--|---|---|---|---|---|---|
| VOCs Tetrachloroethene | 127-18-4 | 5* | ND | 0.67 J | 0.62 J | 1 | ND | ND |
| SVOCs | | | ND | ND | ND | ND | ND | ND |
| PCBs/Pesticides 4,4'-DDD | 72-54-8 | 0.3 | ND | 0.023 | 0.031 | ND | ND | NA |
| Metals | | | | | | | | |
| Aluminum | 7429-90-5 | — | ND | ND | 210 | ND | ND | NA |
| Calcium | 7440-70-2 | — | 132,000 | 146,000 | 151,000 | 69,500 | ND | NA |
| Iron | 7439-89-6 | 300 | ND | 274 | 338 | 288 | ND | NA |
| Lead | 7439-92-1 | 25 | 4.4 | 3.2 | 3.9 | ND | ND | NA |
| Magnesium | 7439-95-4 | — | 26,300 | 28,400 | 29,300 | 13,800 | ND | NA |
| Manganese | 7439-96-5 | 300 | 17,300 | 6,040 | 6,360 | 2,390 | ND | NA |
| Nickel | 7440-02-0 | 100 | 31.3 | 19.8 | 21.2 | 13.1 | ND | NA |
| Potassium | 7440-09-7 | — | 16,300 | 10,800 | 11,100 | ND | ND | NA |
| Sodium | 7440-23-5 | 20,000 | 349,000 | 211,000 | 216,000 | 48,200 | ND | NA |

NOTES:

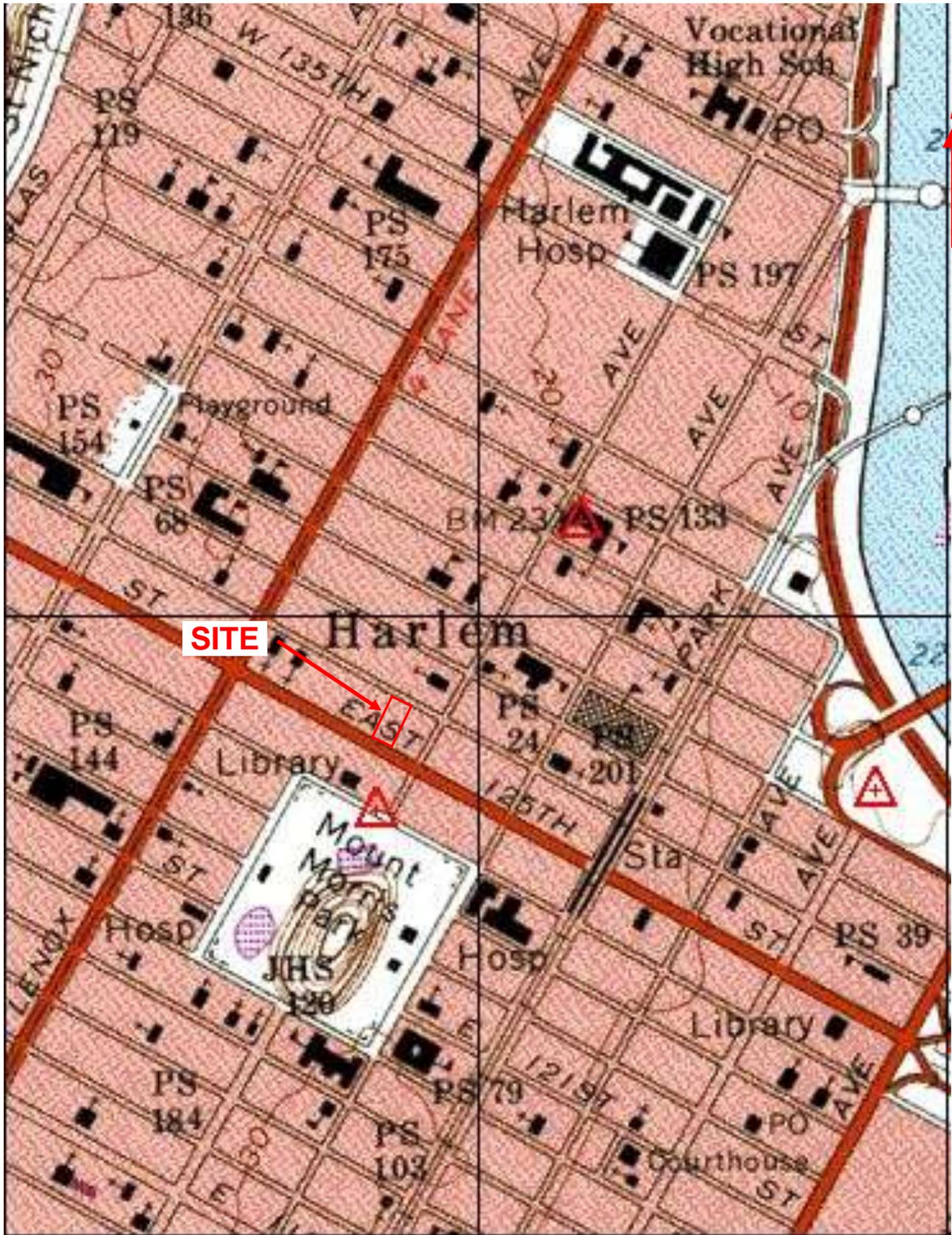
* : No criteria established, value is generic criteria

***Standards exist for additional criteria not listed in this table

See table below for Generic Cap Approach Values from the New York State Brownfield Cleanup Program Development of Soil Cleanup Objectives Technical Support Document Section 9.3, Cap Approach and Values, dated September 2006.

NYSDEC Groundwater Criteria are a combination of values from Part 703 if the NYS Code and TAGM 4046. Most values are generic screening values, however where contaminant specific criteria have been established they are used in this table.

FIGURES



MAP REFERENCE: USGS Central Park, New York Quadrangle Maps Revised July 1984 (7.5 Minute Series)



Project

**5 WEST 125TH STREET
SITE LOCATION MAP**

NEW YORK

NEW YORK

ELMWOOD Pk, NJ (201) 794-6900 NEW YORK, NY (212) 964-7888 PHILADELPHIA, PA (215) 864-0640 DOYLESTOWN, PA (215) 348-7101 NEW HAVEN, CT (203) 562-5771 MIAMI, FL (305) 362-1166

JOB NO.

DATE

SCALE

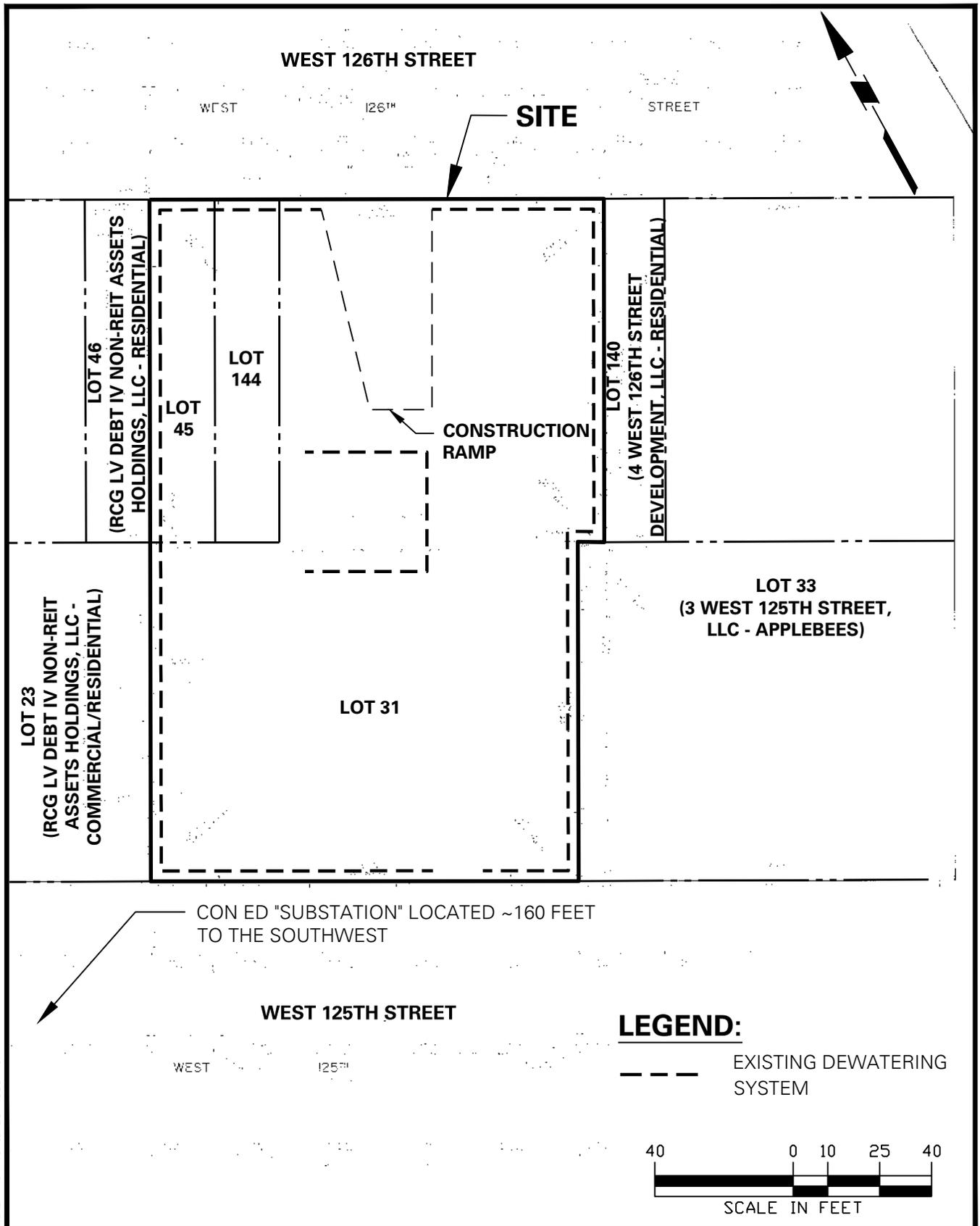
FIGURE NO.

9200803

4/6/2011

NTS

1



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NEW JERSEY PENNSYLVANIA NEW YORK CONNECTICUT FLORIDA NEVADA

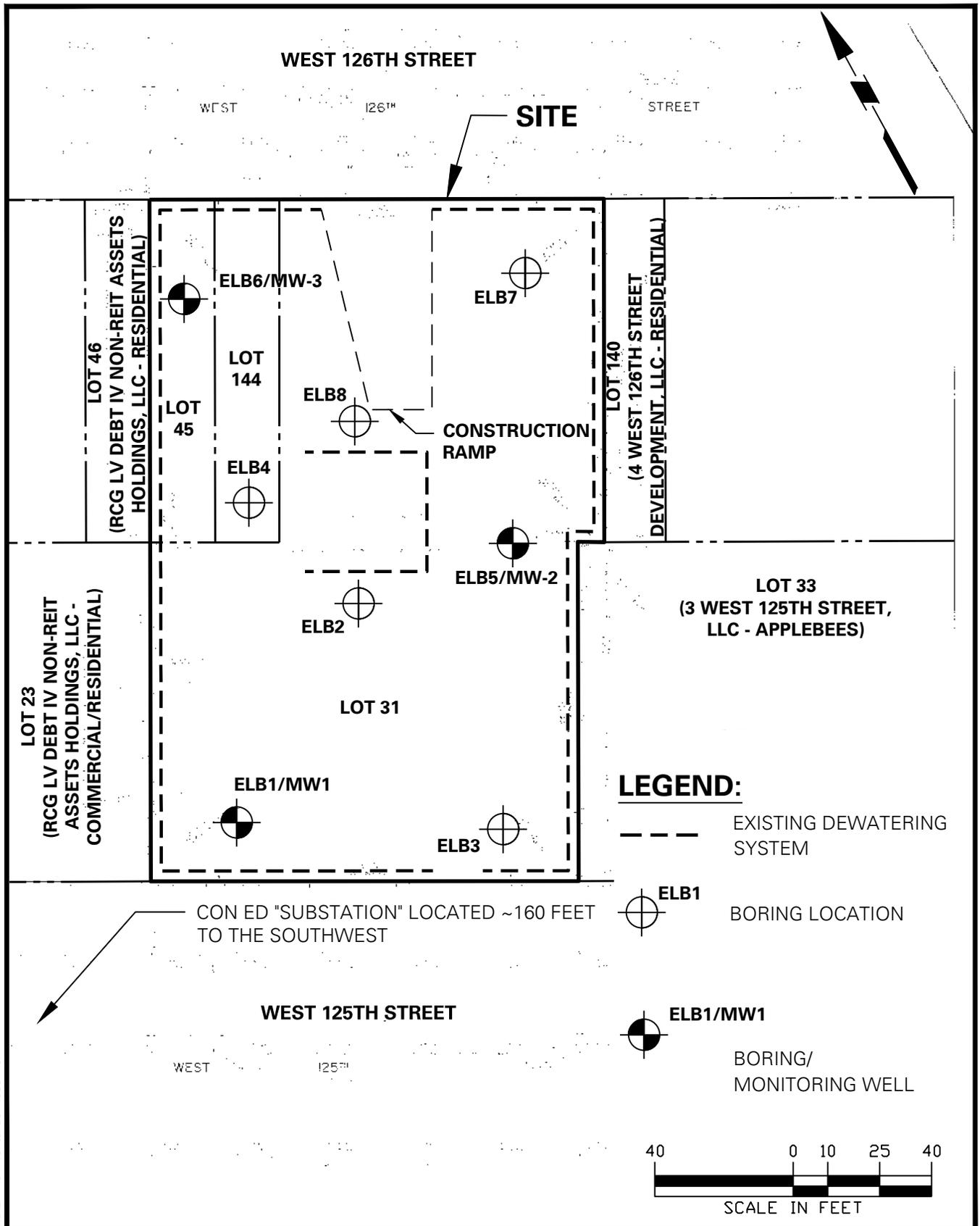
NJ Certificate of Authorization No: 24GA27996400

PROPOSED W. 125TH STREET DEVELOPMENT
SITE PLAN

MANHATTAN

NEW YORK

| | | | |
|------------------------|-----------------|-----------------|---------------|
| Project No. 9200803 | Date 7/14/11 | Scale 1"=40' | Dwg. No. 2 |
|------------------------|-----------------|-----------------|---------------|



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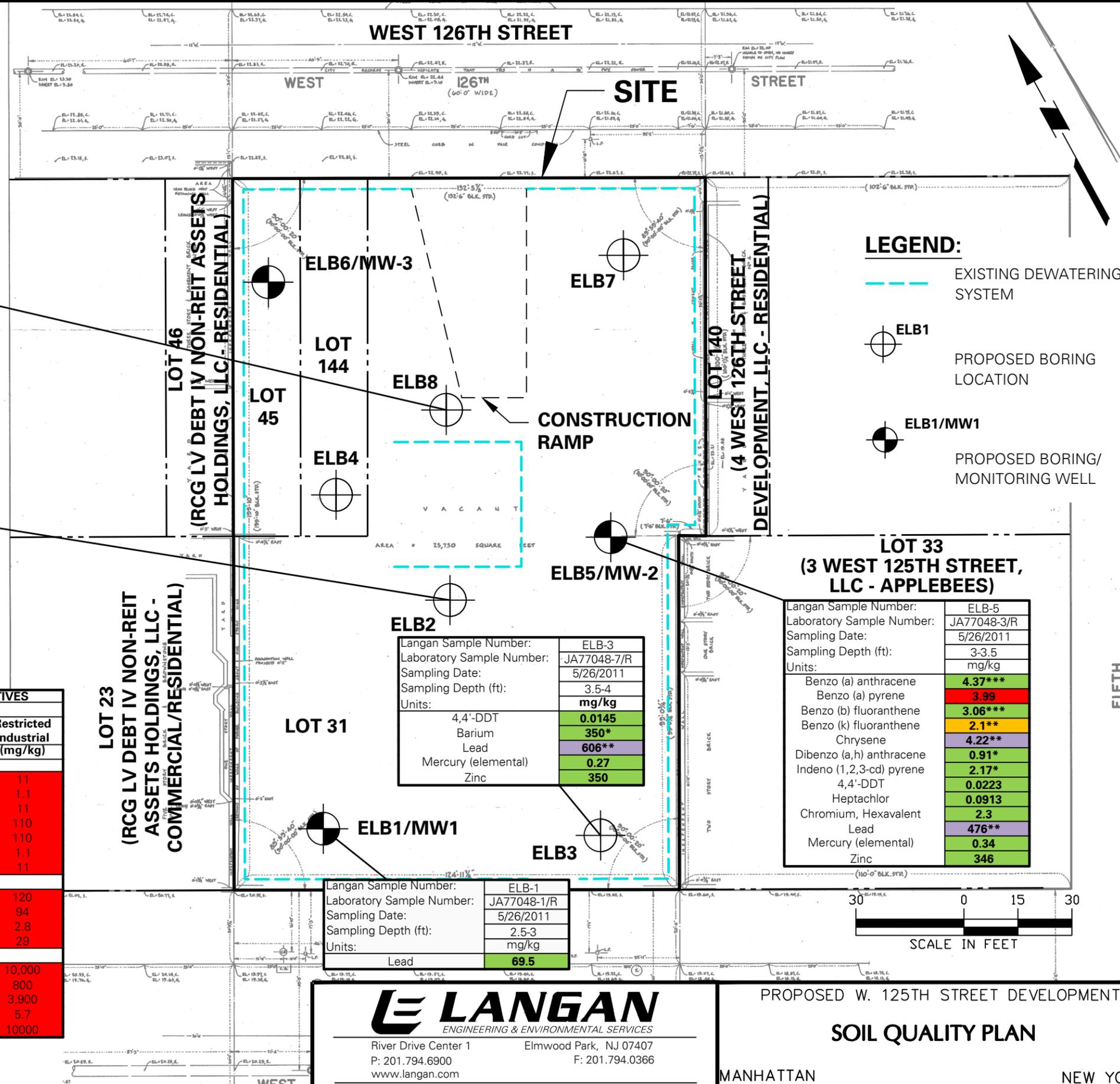
PROPOSED W. 125TH STREET DEVELOPMENT
SAMPLE LOCATION PLAN

MANHATTAN

NEW YORK

| | | | |
|------------------------|-----------------|-----------------|---------------|
| Project No. 9200803 | Date 7/14/11 | Scale 1"=40' | Dwg. No. 3 |
|------------------------|-----------------|-----------------|---------------|

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| | |
|---------------------------|--------------|
| Langan Sample Number: | ELB-8 |
| Laboratory Sample Number: | JA77048-14/R |
| Sampling Date: | 5/26/2011 |
| Sampling Depth (ft): | 3.5-4 |
| Units: | mg/kg |
| 4,4'-DDE | 0.0214 |
| 4,4'-DDT | 0.0814 |
| Dieldrin | 0.0064 |
| Lead | 526** |
| Mercury (elemental) | 0.26 |
| Zinc | 284 |

| | |
|---------------------------|-------------|
| Langan Sample Number: | ELB-2 |
| Laboratory Sample Number: | JA77048-9/R |
| Sampling Date: | 5/26/2011 |
| Sampling Depth (ft): | 3.5-4 |
| Units: | mg/kg |
| Benzo (a) anthracene | 3.04* |
| Benzo (a) pyrene | 2.71 |
| Benzo (b) fluoranthene | 2.42* |
| Benzo (k) fluoranthene | 1.77** |
| Chrysene | 2.95*** |
| Dibenzo (a,h) anthracene | 0.687 |
| Indeno (1,2,3-cd) pyrene | 1.64* |
| 4,4'-DDT | 0.0043 |
| Lead | 153 |
| Mercury (elemental) | 0.84** |

| | |
|---------------------------|-------------|
| Langan Sample Number: | ELB-3 |
| Laboratory Sample Number: | JA77048-7/R |
| Sampling Date: | 5/26/2011 |
| Sampling Depth (ft): | 3.5-4 |
| Units: | mg/kg |
| 4,4'-DDT | 0.0145 |
| Barium | 350* |
| Lead | 606** |
| Mercury (elemental) | 0.27 |
| Zinc | 350 |

| | |
|---------------------------|-------------|
| Langan Sample Number: | ELB-5 |
| Laboratory Sample Number: | JA77048-3/R |
| Sampling Date: | 5/26/2011 |
| Sampling Depth (ft): | 3-3.5 |
| Units: | mg/kg |
| Benzo (a) anthracene | 4.37*** |
| Benzo (a) pyrene | 3.99 |
| Benzo (b) fluoranthene | 3.06*** |
| Benzo (k) fluoranthene | 2.1** |
| Chrysene | 4.22** |
| Dibenzo (a,h) anthracene | 0.91* |
| Indeno (1,2,3-cd) pyrene | 2.17* |
| 4,4'-DDT | 0.0223 |
| Heptachlor | 0.0913 |
| Chromium, Hexavalent | 2.3 |
| Lead | 476** |
| Mercury (elemental) | 0.34 |
| Zinc | 346 |

| | |
|---------------------------|-------------|
| Langan Sample Number: | ELB-1 |
| Laboratory Sample Number: | JA77048-1/R |
| Sampling Date: | 5/26/2011 |
| Sampling Depth (ft): | 2.5-3 |
| Units: | mg/kg |
| Lead | 69.5 |

| SUBPART 375-6 (Revised Brownfields) | UNRESTRICTED USE OBJECTIVES (mg/kg) | RESTRICTED USE SOIL CLEANUP OBJECTIVES | | | |
|--|-------------------------------------|--|--------------------------------|-------------------------------|-------------------------------|
| | | Protection of Public Health | | | |
| | | Residential (mg/kg) | Restricted Residential (mg/kg) | Restricted Commercial (mg/kg) | Restricted Industrial (mg/kg) |
| Semi-Volatile Organic Compounds | | | | | |
| Benzo (a) anthracene | 1 | 1 | 1 | 5.6 | 11 |
| Benzo (a) pyrene | 1 | 1 | 1 | 1 | 1.1 |
| Benzo (b) fluoranthene | 1 | 1 | 1 | 5.60 | 11 |
| Benzo (k) fluoranthene | 0.8 | 1 | 3.9 | 56 | 110 |
| Chrysene | 1 | 1 | 3.9 | 56 | 110 |
| Dibenzo (a,h) anthracene | 0.33 | 0.33 | 0.33 | 0.56 | 1.1 |
| Indeno (1,2,3-cd) pyrene | 0.5 | 0.5 | 0.5 | 5.6 | 11 |
| PCBs/Pesticides | | | | | |
| 4,4'-DDE | 0.0033 | 1.8 | 8.9 | 62 | 120 |
| 4,4'-DDT | 0.0033 | 1.7 | 7.9 | 47 | 94 |
| Dieldrin | 0.005 | 0.039 | 0.2 | 1.4 | 2.8 |
| Heptachlor | 0.042 | 0.42 | 2.1 | 15 | 29 |
| Metals | | | | | |
| Barium | 350 | 350 | 400 | 400 | 10,000 |
| Chromium, Hexavalent | 1 | 22 | 110 | 400 | 800 |
| Lead | 63 | 400 | 400 | 1,000 | 3,900 |
| Mercury (elemental) | 0.18 | 0.81 | 0.81 | 2.8 | 5.7 |
| Zinc | 109 | 2200 | 10000 | 10000 | 10000 |

* : RESULT ALSO EXCEEDS SOME PROTECTION OF PUBLIC HEALTH CRITERIA.
 ** : RESULT ALSO EXCEEDS PROTECTION OF GROUNDWATER CRITERIA.
 *** : RESULT ALSO EXCEEDS SOME PROTECTION OF PUBLIC HEALTH CRITERIA AND PROTECTION OF GROUNDWATER CRITERIA.
 NYSDEC SOIL CLEANUP OBJECTIVE TABLES CAN BE FOUND IN TABLES 375-6.8(A) AND 375-6.8(B) DATED 14 DECEMBER 2006.

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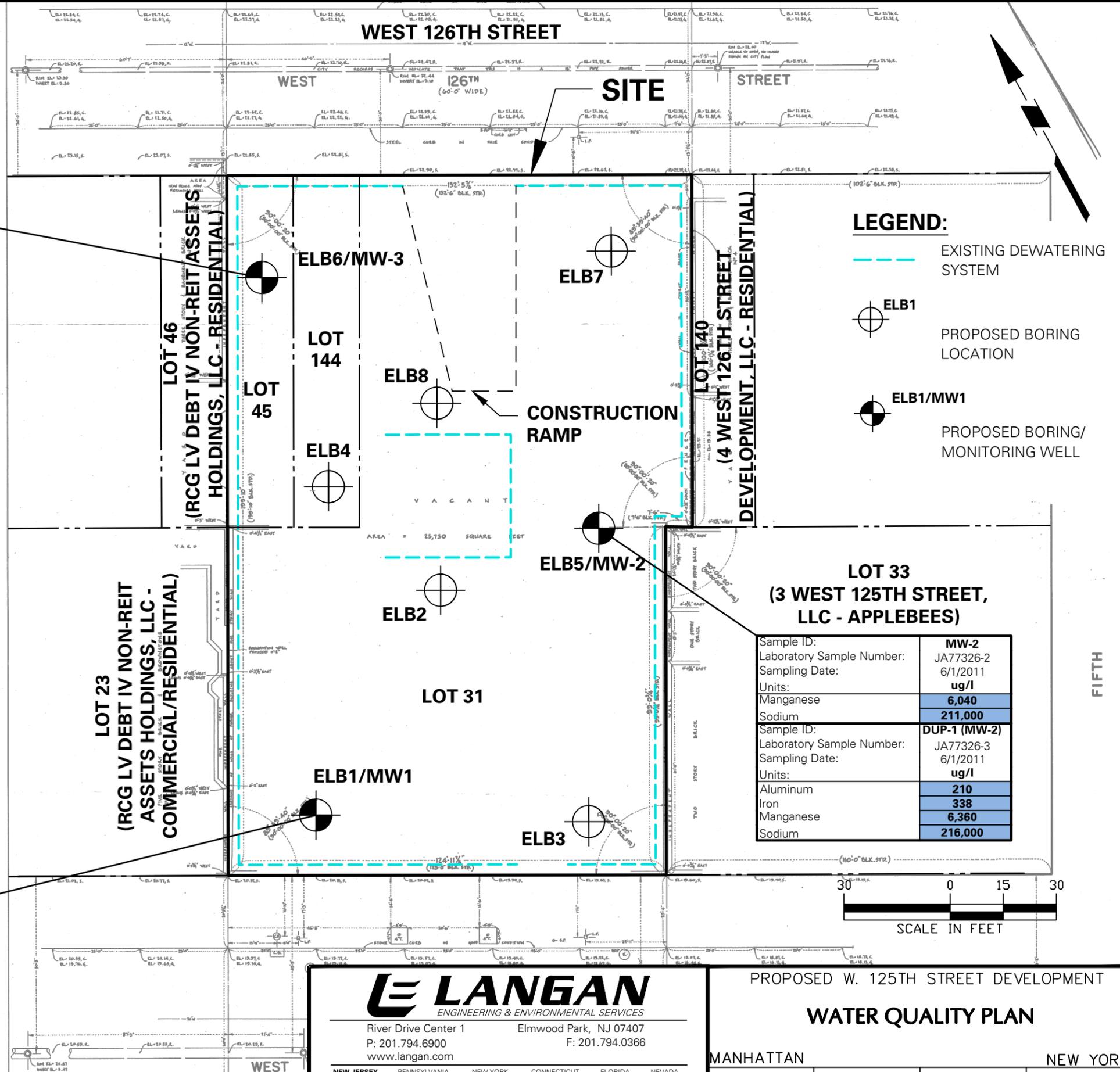
PROPOSED W. 125TH STREET DEVELOPMENT
SOIL QUALITY PLAN
 MANHATTAN NEW YORK
 Project No. 9200803 Date 7/8/11 Scale 1"=30' Dwg. No. 4

| | |
|---------------------------|---------------|
| Sample ID: | MW-3 |
| Laboratory Sample Number: | JA77326-4 |
| Sampling Date: | 6/1/2011 |
| Units: | ug/l |
| Manganese | 2,390 |
| Sodium | 48,200 |

| | |
|---------------------------|----------------|
| Sample ID: | MW-1 |
| Laboratory Sample Number: | JA77326-1 |
| Sampling Date: | 6/1/2011 |
| Units: | ug/l |
| Manganese | 17,300 |
| Sodium | 349,000 |

| | Ground Water Quality Standards Part 703*** (ug/l) |
|-----------|---|
| Aluminum | — |
| Iron | 300 |
| Manganese | 300 |
| Sodium | 20,000 |

***STANDARDS EXIST FOR ADDITIONAL CRITERIA NOT LISTED IN THIS TABLE



LEGEND:

- EXISTING DEWATERING SYSTEM
- PROPOSED BORING LOCATION
- PROPOSED BORING/MONITORING WELL

| | |
|---------------------------|---------------------|
| Sample ID: | MW-2 |
| Laboratory Sample Number: | JA77326-2 |
| Sampling Date: | 6/1/2011 |
| Units: | ug/l |
| Manganese | 6,040 |
| Sodium | 211,000 |
| Sample ID: | DUP-1 (MW-2) |
| Laboratory Sample Number: | JA77326-3 |
| Sampling Date: | 6/1/2011 |
| Units: | ug/l |
| Aluminum | 210 |
| Iron | 338 |
| Manganese | 6,360 |
| Sodium | 216,000 |

LANGAN
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NJ Certificate of Authorization No: 24GA27996400

PROPOSED W. 125TH STREET DEVELOPMENT

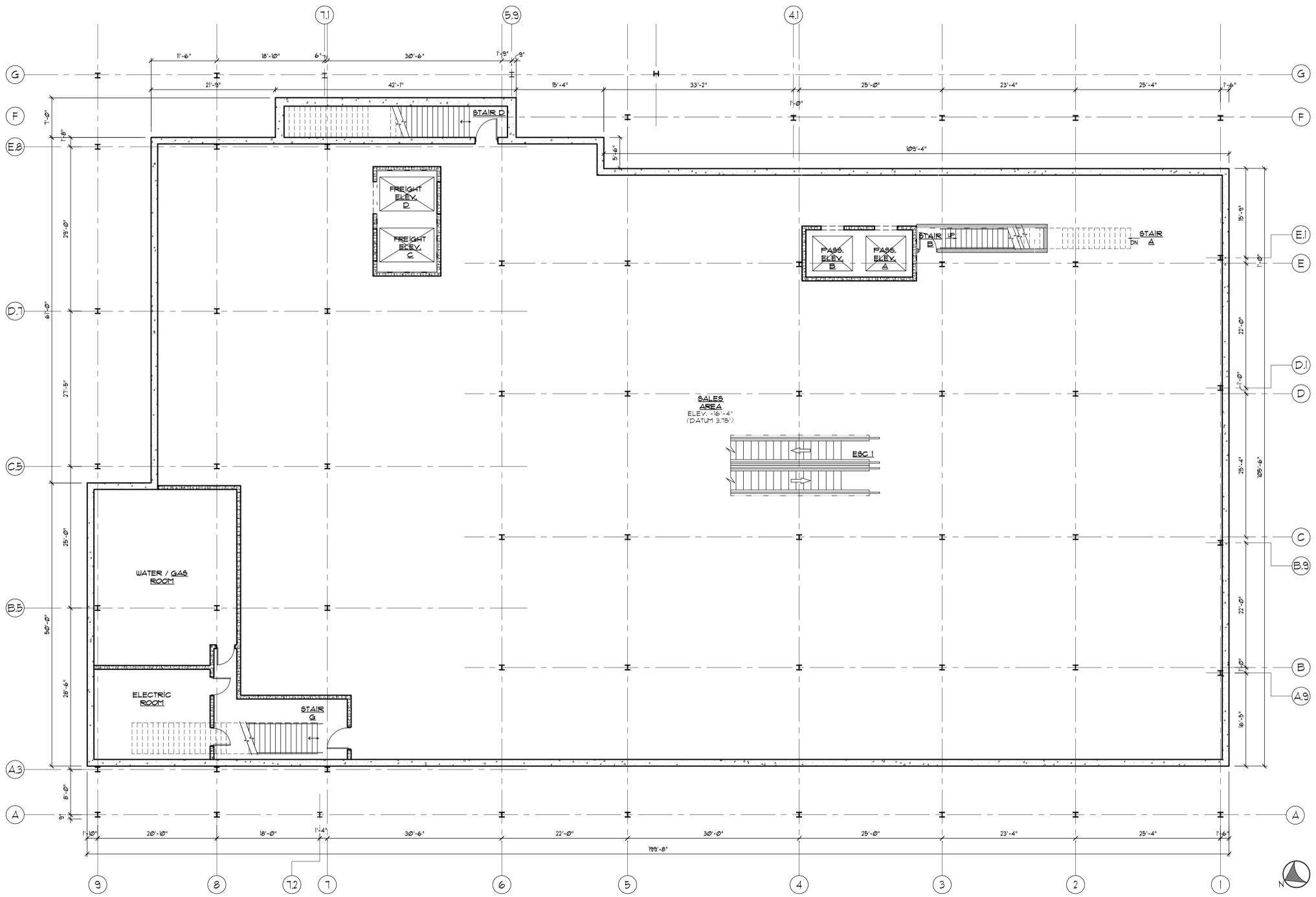
WATER QUALITY PLAN

MANHATTAN NEW YORK

Project No. 9200803 Date 7/7/11 Scale 1"=30' Dwg. No. 5

APPENDIX A

ARCHITECTURAL DRAWINGS



CELLAR FLOOR PLAN

CELLAR FLOOR PLAN
SCALE: 1/8" = 1'-0"

| NO. | DATE | COMMENT |
|----------|------------------|---------|
| 03.14.11 | ISSUED TO CLIENT | |

OWNER/CLIENT

 THE FEIL ORGANIZATION
 Seven Penn Plaza / New York, N.Y. 10001
 212-563-6557 / www.feil.org.com

DESIGNER/ARCHITECT

 ROSENBAUM DESIGN GROUP
 ARCHITECTURE ENGINEERING
 Roy I. Rosenbaum ARCHITECT
 2001 MARCUS AVENUE
 LORETTI EAST WING
 LAKE SUCCESS, NEW YORK 11042-1011
 Tel: 516.616.6111
 Fax: 516.616.6222
 mri@rd-g.com

DOB SCAN

STRUCTURAL ENGINEER

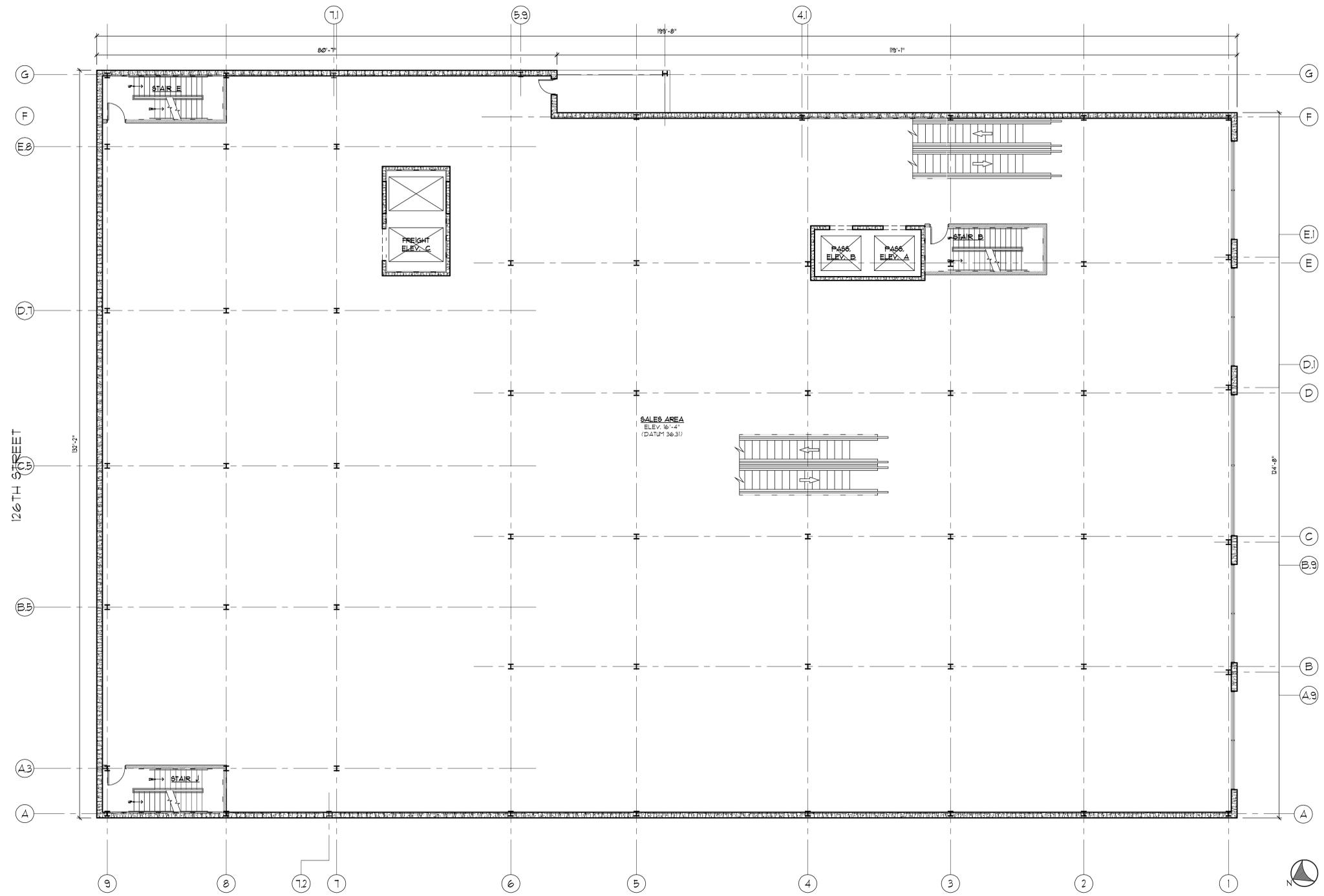
MEP ENGINEER

PROJECT
FEIL - RETAIL BUILDING
 5 WEST 125TH STREET
 NEW YORK, NEW YORK

SHEET TITLE
CELLAR FLOOR PLAN

DRAWN BY: CJU
 CHECKED BY: NAME
 DATE: 03.08.2011
 EWC NUMBER: A-103.00
 11008

OF



SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"

| NO. | DATE | COMMENT |
|-----|----------|------------|
| X | XX.XX.XX | XXXXXXXXXX |

OWNER/CLIENT

 THE FEIL ORGANIZATION
 Seven Penn Plaza / New York, N.Y. 10001
 212-563-6557 / www.feilorg.com

DESIGNER/ARCHITECT
 [Signature Area]
 ARCHITECT

DOB SCAN

STRUCTURAL ENGINEER

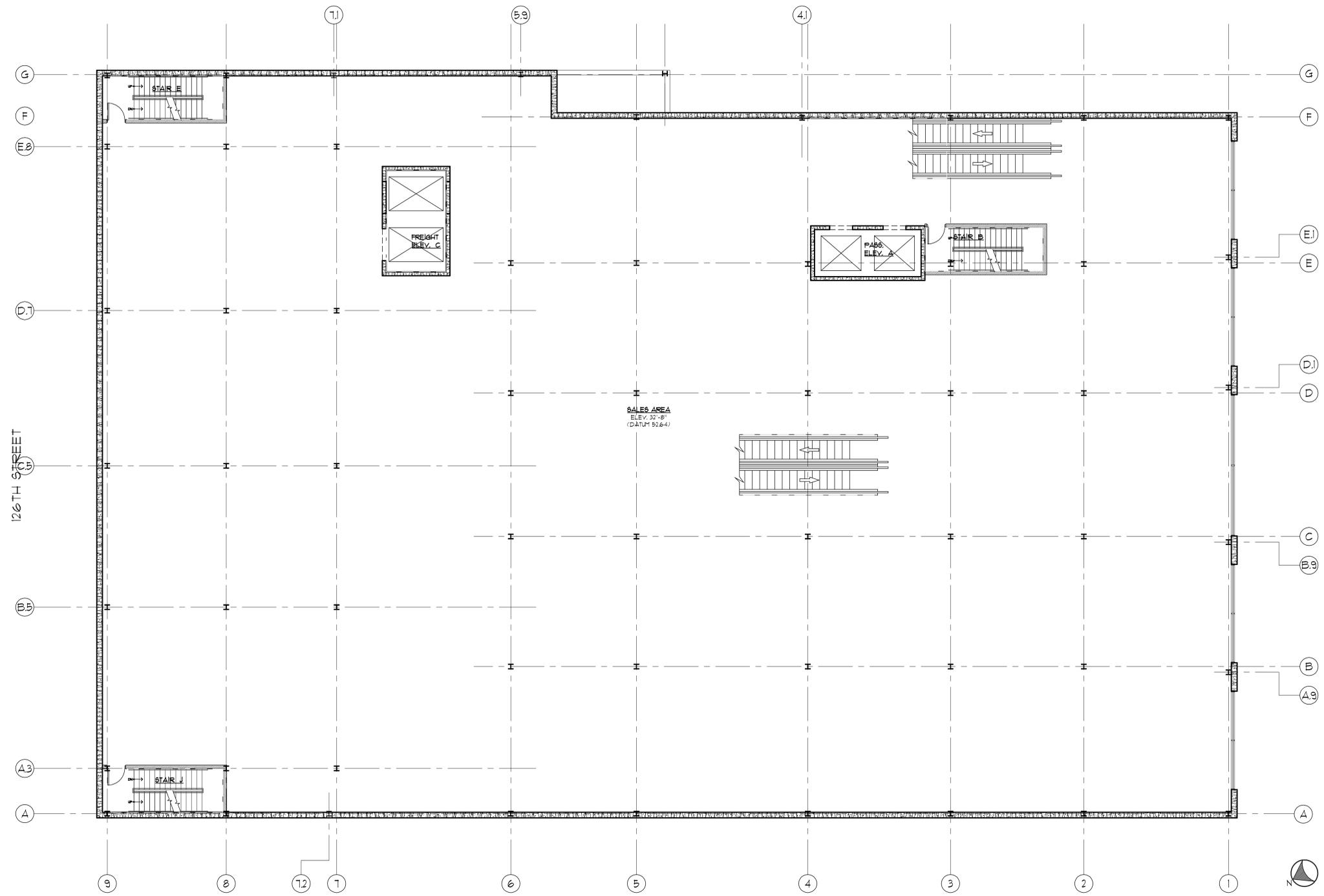
MEP ENGINEER

rosenbaumdesigngroup
 ARCHITECTURE ENGINEERING
 Roy I. Rosenbaum ARCHITECT
 2001 MARCUS AVENUE TEL: 516.616.6111
 LORETT F. EAST, INC. FAX: 516.616.6222
 LAKE SUCCESS, NEW YORK 11042-1011 mrd@r-d-g.com

PROJECT
FEIL - RETAIL BUILDING
 5 WEST 125TH STREET
 NEW YORK, NEW YORK

SHEET TITLE
SECOND FLOOR PLAN

DESIGNED BY: CJU
 CHECKED BY: NAME
 DATE: 03.08.2011
 DWG NUMBER: **A-105.00**
 11008



1 THIRD FLOOR PLAN
 SCALE: 1/8" = 1'-0"

| NO. | DATE | COMMENT |
|-----|----------|------------|
| X | XX.XX.XX | XXXXXXXXXX |

OWNER/CLIENT



THE FEIL ORGANIZATION
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DOB STAMP & SIGNATURES

DOB SCAN

STRUCTURAL ENGINEER

MEP ENGINEER



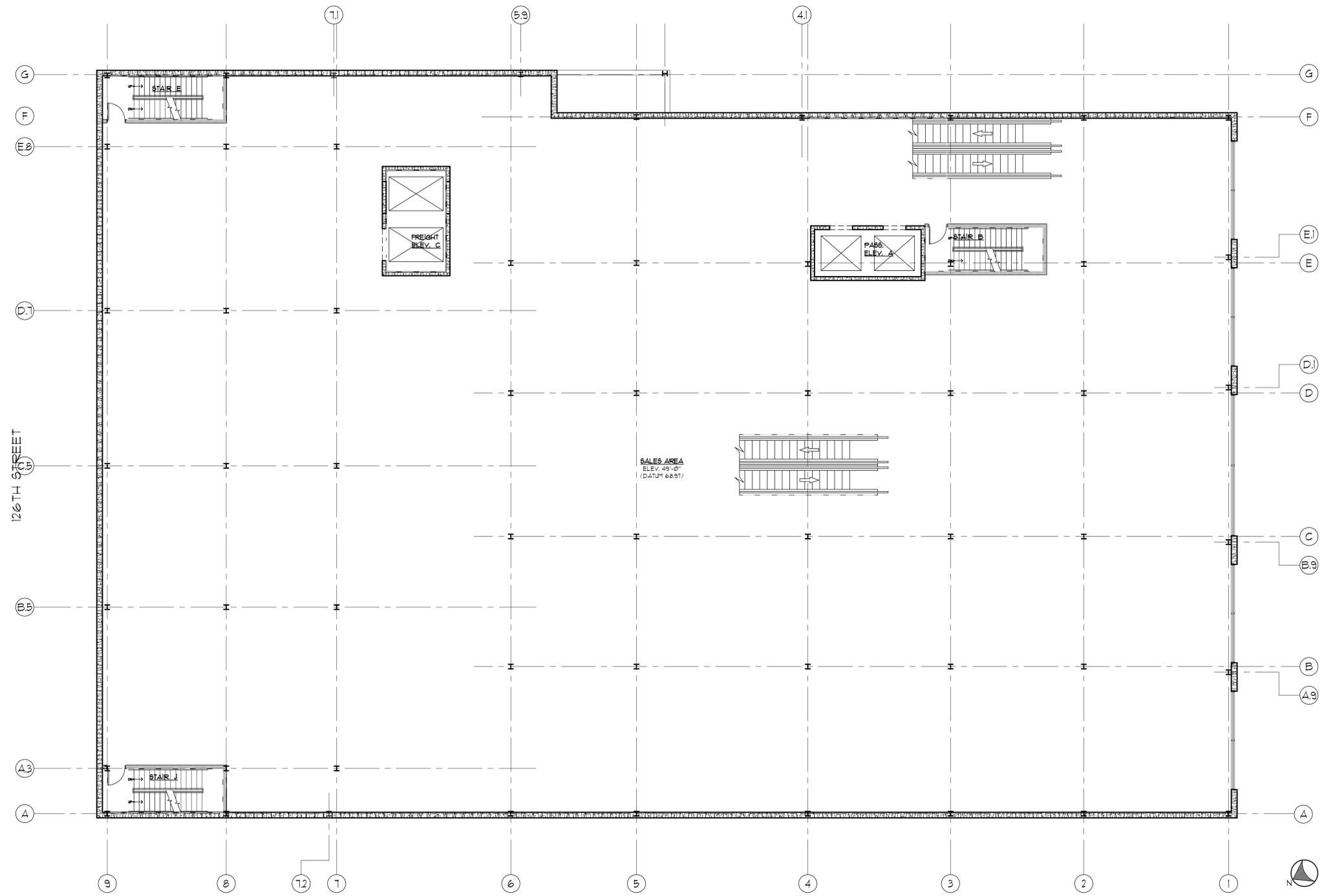
roy i. rosenbaum ARCHITECT

2001 MARCUS AVENUE TEL: 516.616.6111
 LORETT F. EAST, INC. FAX: 516.616.6222
 LAKE SUCCESS, NEW YORK 11042-1011 mri@r-i-g.com

PROJECT
FEIL - RETAIL BUILDING
 5 WEST 125TH STREET
 NEW YORK, NEW YORK

SHEET TITLE
THIRD FLOOR PLAN

| | |
|--------------------|--------------------------------|
| DRAWN BY CJU | FIG. NUMBER A-106.00 |
| CHECKED BY NAME | |
| DATE 03.08.2011 | |
| 11008 | ### OF ### |



FOURTH FLOOR PLAN
SCALE: 1/8" = 1'-0"

| NO. | DATE | COMMENT |
|-----|----------|------------|
| X | XX.XX.XX | XXXXXXXXXX |

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DESIGNER/ARCHITECT



ROSENBAUM DESIGN GROUP
ARCHITECTURE ENGINEERING

DOB SCAN

STRUCTURAL ENGINEER

MEP ENGINEER

PROJECT

FEIL - RETAIL BUILDING
5 WEST 125TH STREET
NEW YORK, NEW YORK

SHEET TITLE

FOURTH FLOOR PLAN

| | | |
|-------------------------------|--------------------|------------|
| DRAWN BY CJU | DATE 03.08.2011 | 11008 |
| CHECKED BY NAME | DATE 03.08.2011 | 11008 |
| EWC NUMBER A-107.00 | | ### OF ### |

APPENDIX B

BORING LOGS AND GROUNDWATER SAMPLING FIELD SHEETS

| | | | |
|--|------------------------------------|-------------------------------|--|
| PROJECT <u>5 W 125th St</u> | | PROJECT NO. <u>9200803</u> | |
| LOCATION <u>NY, NY</u> | | ELEVATION AND DATUM <u>NA</u> | |
| DRILLING AGENCY <u>American Environmental</u> | | DATE STARTED <u>5/20/11</u> | DATE FINISHED <u>5/20/11</u> |
| DRILLING EQUIPMENT <u>Track Mounted GEORPBF-1822DT</u> | | COMPLETION DEPTH <u>15'</u> | ROCK DEPTH <u>NR</u> |
| SIZE AND TYPE OF BIT <u>5 x 8" Macrocore</u> | | NO. SAMPLES | DIST. <u>-</u> UNDIST. <u>5</u> CORE <u>-</u> |
| CASING <u>NA</u> | | WATER LEVEL | FIRST <u>4</u> COMPL. <u>-</u> 24 HR. <u>-</u> |
| CASING HAMMER | WEIGHT <u>NA</u> | DROP <u>NA</u> | FOREMAN <u>Floyd Cross</u> |
| SAMPLER <u>5 x 8" Macrocore</u> | INSPECTOR <u>Charles M. Martin</u> | | |
| SAMPLER HAMMER | WEIGHT <u>NA</u> | DROP <u>NA</u> | |

| DEPTH SCALE | SAMPLE DESCRIPTION | SAMPLES | | | | | REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.) |
|-------------|--|----------|------|----------|--------------------------|--|--|
| | | NO. LOC. | TYPE | REC. FT. | PENETR. RESIST. BL/6 IN. | | |
| 1 | 0-21" MED BROWN C-F SAND, SOME BRCK, CONCRETE & C-F SK-SR GRAVEL. [MORST TO WH @ 3'] | | | | 0 | | SAMPLE COLLECTED FROM 25-3 @ 0845 |
| 2 | | | | | 0 | | |
| 3 | | | | | 0 | | |
| 4 | | | | | 0 | | |
| 5 | 0-45" MED BROWN C-F SAND, SOME M-F SR-R GRAVEL, TRACE SILT. [WRT] | | | | 0 | | SAMPLE COLLECTED FROM 14.5-15' @ 0900 |
| 6 | | | | | 0 | | |
| 7 | | | | | 0 | | |
| 8 | 0-60" MED BROWN C-F SAND, SOME SILT, TRACE M-F SR-R GRAVEL. [WRT] | | | | 0 | | |
| 9 | | | | | 0 | | |
| 10 | | | | | 0 | | |
| 11 | | | | | 0 | | |
| 12 | | | | | 0 | | |
| 13 | | | | | 0 | | |
| 14 | | | | | 0 | | |

FILL

SAND

| | | | |
|---|------------------|----------------------------------|--|
| PROJECT <u>5 W 125TH ST</u> | | PROJECT NO. <u>9200803</u> | |
| LOCATION <u>NY, NY</u> | | ELEVATION AND DATUM <u>NA</u> | |
| DRILLING AGENCY <u>AMERICAN ENVIRONMENTAL</u> | | DATE STARTED <u>5/20/11</u> | DATE FINISHED <u>5/20/11</u> |
| DRILLING EQUIPMENT <u>TRACK MOUNTED GEOPROBE 7822DT</u> | | COMPLETION DEPTH <u>15'</u> | ROCK DEPTH <u>NE</u> |
| SIZE AND TYPE OF BIT <u>5 x 2" Macrocone</u> | | NO. SAMPLES | DIST. <u>—</u> UNDIST. <u>3</u> CORE <u>—</u> |
| CASING <u>NA</u> | | WATER LEVEL | FIRST <u>4</u> COMPL. <u>—</u> 24 HR. <u>—</u> |
| CASING HAMMER | WEIGHT <u>NA</u> | DROP <u>NA</u> | FOREMAN <u>Floyd Cross</u> |
| SAMPLER <u>5 x 2" Macrocone</u> | | INSPECTOR <u>Citrus M. Mason</u> | |
| SAMPLER HAMMER | WEIGHT <u>NA</u> | DROP <u>NA</u> | |

| DEPTH SCALE | SAMPLE DESCRIPTION | SAMPLES | | | | REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.) |
|-------------|---|----------|------|------------|--------------------------|--|
| | | NO. LOC. | TYPE | RECOV. FT. | PENETR. RESIST. BLK. IN. | |
| 0-13" | <u>0-13" DARK BROWN CF SAND, some black + concrete + silt. [MOIST]</u> | | | | 0 | <u>Fill</u> <u>SAMPLE COLLECTED FROM 3.5-4 @ 1445 (DUP-1)</u> |
| 1 | | | | | 0 | |
| 2 | | | | | 0 | |
| 3 | | | | | 0 | |
| 4 | <u>73-77" MED BROWN CF SAND, some M-F SK-R GRAVEL, trace silt [WET]</u> | | | | 0 | <u>SAND</u> |
| 5 | <u>0-5" SAA. [WET]</u> | | | | 0 | |
| 6 | | | | | 0 | |
| 7 | | | | | 0 | |
| 8 | | | | | 0 | |
| 9 | | | | | 0 | |
| 10 | <u>0-50" MED BROWN MED. STIFF SILT, some F-SAND. [WET]</u> | | | | 0 | |
| 11 | | | | | 0 | <u>SILT</u> |
| 12 | | | | | 0 | |
| 13 | | | | | 0 | |
| 14 | | | | | 0 | |

| | | | |
|--|------------------|----------------------------------|--|
| PROJECT <u>5 W 125TH St</u> | | PROJECT NO. <u>9201983</u> | |
| LOCATION <u>NY, NY</u> | | ELEVATION AND DATUM <u>NA</u> | |
| DRILLING AGENCY <u>American Environmental</u> | | DATE STARTED <u>5/26/11</u> | DATE FINISHED <u>7/26/11</u> |
| DRILLING EQUIPMENT <u>Track Mounted Geoprobe 7822 BT</u> | | COMPLETION DEPTH <u>15'</u> | ROCK DEPTH <u>N/E</u> |
| SIZE AND TYPE OF BIT <u>5' x 2" Macro core</u> | | NO. SAMPLES | DIST. <u>7</u> UNDIST. <u>3</u> CORE <u>—</u> |
| CASING <u>NA</u> | | WATER LEVEL | FIRST <u>7</u> COMPL. <u>—</u> 24 HR. <u>—</u> |
| CASING HAMMER | WEIGHT <u>NA</u> | DROP <u>NA</u> | FOREMAN <u>Floyd Cross</u> |
| SAMPLER <u>5' x 2" Macro core</u> | | INSPECTOR <u>Chris M. Matten</u> | |
| SAMPLER HAMMER | WEIGHT <u>NA</u> | DROP <u>NA</u> | |

| DEPTH SCALE | SAMPLE DESCRIPTION | SAMPLES | | | | REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.) |
|-------------|--|----------|------|----------|-------------------------|--|
| | | NO. LOC. | TYPE | REC. FT. | PENETR. RESIST. / BLIND | |
| 0-1 | 0-30" MED BROWN C-F SAND, some GRAVEL & CONCRETE, TRACE SAND. [WET] | | | | 0 | <p>PD</p> <p>SAMPLE COLLECTED FROM 3.5-4' @ 1345</p> |
| 1-2 | | | | | 0 | |
| 2-3 | | 1 MC 30 | | | 0 | |
| 3-4 | | | | | 0 | |
| 4-5 | 0-40" MED BROWN C-F SAND, some C-F, SR-A GRAVEL, TRACE SILT. [WET] | | | | 0 | <p>SAMPLE COLLECTED FROM 11.5-15' @ 1330</p> |
| 5-6 | | | | | 0 | |
| 6-7 | | 2 MC 40 | | | 0 | |
| 7-8 | 0-60" SAND [WET] | | | | 0 | |
| 8-9 | | | | | 0 | |
| 9-10 | | | | | 0 | |
| 10-11 | | | | | 0 | |
| 11-12 | | | | | 0 | |
| 12-13 | | 3 MC 60 | | | 0 | |
| 13-14 | | | | | 0 | |

| | | | |
|---|------------------|--------------------------------|--|
| PROJECT <u>5 W 125TH ST</u> | | PROJECT NO. <u>200803</u> | |
| LOCATION <u>NY, NY</u> | | ELEVATION AND DATUM <u>NA</u> | |
| DRILLING AGENCY <u>American Environmental</u> | | DATE STARTED <u>5/26/11</u> | DATE FINISHED <u>5/26/11</u> |
| DRILLING EQUIPMENT <u>Track Mounted Geopress TB22DT</u> | | COMPLETION DEPTH <u>15'</u> | ROCK DEPTH <u>NA</u> |
| SIZE AND TYPE OF BIT <u>5' x 2" Macamaker</u> | | NO. SAMPLES | DIST. <u>—</u> UNDIST. <u>3</u> CORE <u>—</u> |
| CASING <u>NA</u> | | WATER LEVEL | FIRST <u>4</u> COMPL. <u>—</u> 24 HR. <u>—</u> |
| CASING HAMMER | WEIGHT <u>NA</u> | DROP <u>NA</u> | FOREMAN <u>Floyd Cross</u> |
| SAMPLER <u>5' x 2" Macamaker</u> | | INSPECTOR <u>Chris McManus</u> | |
| SAMPLER HAMMER | WEIGHT <u>NA</u> | DROP <u>NA</u> | |

| DEPTH SCALE | SAMPLE DESCRIPTION | SAMPLES | | | | REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.) |
|-------------|---|----------|------|------------|--------------------------|--|
| | | NO. LOC. | TYPE | RECOV. FT. | PERCENT. RESIST BL/6 IN. | |
| 1 | FILL 0-16" DARK BROWN C-F SAND, some BLK & CONCR. FRG., TANK SILT. [MOIST] | | | | 0 | |
| 2 | | | | | 0 | |
| 3 | | | | | 0 | |
| 4 | SAND 1/4" - 3/8" DK BROWN C-F SAND, some SPR. GRAN. FRG., TANK SILT. [WET] 0-44" SAA. [WET] | | | | 0 | SAMPLE COLLECTED FROM 3.5-4 @ 1445 |
| 5 | | | | | 0 | |
| 6 | | | | | 0 | |
| 7 | SILT 44" - 54" MED BROWN MED STIFF SILT, some F-SAND. [WET] 6-56" SAA. [WET] | | | | 0 | SAMPLE COLLECTED FROM 14.5-15 @ 1500 |
| 8 | | | | | 0 | |
| 9 | | | | | 0 | |
| 10 | | | | | 0 | |
| 11 | | | | | 0 | |
| 12 | | | | | 0 | |
| 13 | | | | | 0 | |
| 14 | | | | | 0 | |

15 0

| | | | | | |
|---|------------------|----------------|--------------------------------|----------------|------------------------------|
| PROJECT <u>5 W 125TH ST</u> | | | PROJECT NO. <u>9200803</u> | | |
| LOCATION <u>NY, NY</u> | | | ELEVATION AND DATUM <u>NA</u> | | |
| DRILLING AGENCY <u>American Environmental</u> | | | DATE STARTED <u>5/26/11</u> | | DATE FINISHED <u>5/26/11</u> |
| DRILLING EQUIPMENT <u>TRUCK MOUNTED CASE PROBE (TMCPDT)</u> | | | COMPLETION DEPTH <u>15'</u> | | ROCK DEPTH <u>NE</u> |
| SIZE AND TYPE OF BIT <u>5 1/2" MACROCORE</u> | | | NO. SAMPLES | DIST. <u>—</u> | UNDIST. <u>3</u> |
| CASING <u>NA</u> | | | WATER LEVEL | FIRST <u>4</u> | COMPL. <u>—</u> |
| CASING HAMMER | WEIGHT <u>NA</u> | DROP <u>NA</u> | FOREMAN <u>FLOYD CROSS</u> | | |
| SAMPLER <u>5' x 2" MACROCORE</u> | | | INSPECTOR <u>CRAIG MCMAHON</u> | | |
| SAMPLER HAMMER | WEIGHT <u>NA</u> | DROP <u>NA</u> | | | |

| DEPTH SCALE | SAMPLE DESCRIPTION | SAMPLES | | | | REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.) |
|-------------|---|----------|---------|----------|------------------------|--|
| | | NO. LOC. | TYPE | REC. FT. | REMETR. RESIST. BL/IN. | |
| 1 | 0-31" MED BROWN C-F SAND, SOME BLACK CONCRETE, TRASH W-F SR-R GRAVEL. [ADIST] | | | | 0 | [ADIST] |
| 2 | | | | | 0 | |
| 3 | | | 1 MC 37 | | 0 | |
| 4 | 31"-37" MED BROWN C-F SAND, SOME M-P, SR-R GRAVEL, TRASH SILT. [WGT] | | | | 0 | SAMPLER COLLECTED FROM 3-3.5" @ 1030 |
| 5 | | | | | 0 | |
| 6 | 0-60" S.A.A. [WGT] | | | | 0 | |
| 7 | | | | | 0 | |
| 8 | | | 2 MC 60 | | 0 | |
| 9 | 0-55" MED BROWN C-F SAND, SOME SILT, TRASH M-F GRAVEL. [WGT] | | | | 0 | |
| 10 | | | | | 0 | |
| 11 | | | | | 0 | |
| 12 | | | | | 0 | |
| 13 | | | 3 MC 55 | | 0 | |
| 14 | | | | | 0 | |
| 15 | | | | | 0 | SAMPLER COLLECTED FROM 14.5-15" @ 1045 |

FILL

SAND

| | | | |
|--|------------------|----------------------------------|--|
| PROJECT <u>5 W 125TH ST</u> | | PROJECT NO. <u>9200803</u> | |
| LOCATION <u>NY, NY</u> | | ELEVATION AND DATUM <u>NA</u> | |
| DRILLING AGENCY <u>AMERICAN ENVIRONMENTAL</u> | | DATE STARTED <u>5/20/11</u> | DATE FINISHED <u>5/20/11</u> |
| DRILLING EQUIPMENT <u>TRAC MOUNTED GEORPDR 17822DT</u> | | COMPLETION DEPTH <u>15'</u> | ROCK DEPTH <u>NR</u> |
| SIZE AND TYPE OF BIT <u>5' x 2" MACROCORE</u> | | NO. SAMPLES | DIST. <u>7</u> UNDIST. <u>3</u> CORE <u>—</u> |
| CASING <u>NA</u> | | WATER LEVEL | FIRST <u>7</u> COMPL. <u>—</u> 24 HR. <u>—</u> |
| CASING HAMMER | WEIGHT <u>NA</u> | DROP <u>NA</u> | FOREMAN <u>FRED CROSS</u> |
| SAMPLER <u>5' x 2" MACROCORE</u> | | INSPECTOR <u>CITRUS M. MASON</u> | |
| SAMPLER HAMMER | WEIGHT <u>NA</u> | DROP <u>NA</u> | |

| DEPTH SCALE | SAMPLE DESCRIPTION | SAMPLES | | | | REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.) |
|-------------|--|-----------------|------|------------|--------------------------|--|
| | | NO. LOC. | TYPE | RECOV. FT. | PENETR. RESIST. BLOW/IN. | |
| 1 | <p>FILL</p> <p>0-8" MED BROWN C-F SAND, some BRCK & CONCRETE, TRACE SILT. [MOIST TO WET @ 4']</p> | | | | 0 | <p>SAMPLE COLLECTED @ 1200 FROM 3.5-4'</p> |
| 2 | | | | | 0 | |
| 3 | | 1 MC 2B | | | 0 | |
| 4 | | | | | 0 | |
| 5 | | 0-4" SGA. [WET] | | | | |
| 6 | <p>SAND</p> <p>4"-13" DK. BROWN C-F SAND, some C-F SR-R GRAVEL, TRACE SILT. [WET]</p> | | | | 0 | <p>SAMPLE COLLECTED FROM 17.5-15 @ 1215</p> |
| 7 | | | | | 0 | |
| 8 | | 2 MC 2B | | | 0 | |
| 9 | | | | 0 | | |
| 10 | 0-21" MED BROWN F-SAND, some SXT TRACE M-C SAND. [WET] | | | | 0 | |
| 11 | | | | 0 | | |
| 12 | <p>21"-20" DK BROWN C-F SAND, some C-F SR-R GRAVEL, TRACE SILT. [WET]</p> | | | | 0 | |
| 13 | | 3 MC 60 | | | 0 | |
| 14 | | | | | 0 | |

| | | | | | |
|---|---------------------------|--|--------------------------------|-----------------------------|---------------------------------|
| PROJECT <u>5 W 125th St.</u> | | | PROJECT NO. <u>9200823</u> | | |
| LOCATION <u>NY, NY</u> | | | ELEVATION AND DATUM <u>NA</u> | | |
| DRILLING AGENCY <u>American Environmental</u> | | | DATE STARTED <u>5/27/4</u> | DATE FINISHED <u>5/29/4</u> | |
| DRILLING EQUIPMENT <u>Truck Mounted Geoprobe 7972DX</u> | | | COMPLETION DEPTH <u>15'</u> | ROCK DEPTH <u>NF</u> | |
| SIZE AND TYPE OF BIT <u>5' x 2" Macro core</u> | | | NO. SAMPLES | DIST. <u>7</u> | UNDIST. <u>3</u> CORE <u>-</u> |
| CASING | WEIGHT <u>NA</u> | | WATER LEVEL | | COMPL. <u>-</u> 24 HR. <u>-</u> |
| CASING HAMMER | DROP <u>NA</u> | | FOREMAN <u>Floyd Cross</u> | | |
| SAMPLER | <u>5' x 2" Macro core</u> | | INSPECTOR <u>Chris McManon</u> | | |
| SAMPLER HAMMER | DROP <u>NA</u> | | | | |

| DEPTH SCALE | SAMPLE DESCRIPTION | SAMPLES | | | | REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.) |
|-------------|--|----------|------|------------|-----------------------|--|
| | | NO. LOC. | TYPE | RECOV. FT. | REMETR. RESIST. BLOWN | |
| 1 | 0-28" MED BROWN CF SAND, THIN SILT, BLACK & CONCRETE. [MOIST] | | | 0 | | FILL |
| 2 | | | | 0 | | |
| 3 | | 1 MC31 | | 0 | | |
| 4 | 28"-31" MED BROWN CF SAND, some med blk R GRAVEL, THIN SILT. [WET] | | | 0 | | SAND |
| 5 | | | | 0 | | |
| 6 | 0-38" SAA. [WET] | | | 0 | | SAND |
| 7 | | | 0 | | | |
| 8 | | 2 MC38 | | 0 | | |
| 9 | | | | 0 | | |
| 10 | 0-21" SAA. [WET] | | | 0 | | SILT |
| 11 | | | | 0 | | |
| 12 | | 3 MC41 | | 0 | | |
| 13 | 2'-4" MED BROWN W/TA THIN SILT, (WET SOME P. SAND). | | | 0 | | |
| 14 | | | | 0 | | SAMPLE COLLECTED FROM 14.5-15" @ 0530 |

| | | | | | |
|---|------------------|----------------|--------------------------------|----------------|--|
| PROJECT <u>5 W 125TH ST.</u> | | | PROJECT NO. <u>9200823</u> | | |
| LOCATION <u>NY, NY</u> | | | ELEVATION AND DATUM <u>NA</u> | | |
| DRILLING AGENCY <u>AMERICAN ENVIRONMENTAL</u> | | | DATE STARTED <u>5/26/11</u> | | DATE FINISHED <u>5/26/11</u> |
| DRILLING EQUIPMENT <u>TRACK MOUNTED GEOMORPH 7822DT</u> | | | COMPLETION DEPTH <u>15'</u> | | ROCK DEPTH <u>NE</u> |
| SIZE AND TYPE OF BIT <u>5' x 2" Macro core</u> | | | NO. SAMPLES | DIST. <u>7</u> | UNDIST. <u>3</u> CORE <u>-</u> |
| CASING <u>NA</u> | | | WATER LEVEL | | FIRST <u>7</u> COMPL. <u>-</u> 24 HR. <u>-</u> |
| CASING HAMMER | WEIGHT <u>NA</u> | DROP <u>NA</u> | FOREMAN <u>Fred Cross</u> | | |
| SAMPLER <u>5' x 2" Macro core</u> | | | INSPECTOR <u>Citus McManon</u> | | |
| SAMPLER HAMMER | WEIGHT <u>NA</u> | DROP <u>NA</u> | | | |

| DEPTH SCALE | SAMPLE DESCRIPTION | SAMPLES | | | | REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.) |
|-------------|--|----------|------|------------|--------------------------|---|
| | | NO. LOC. | TYPE | RECOV. FT. | PENETR. RESIST. BLOW/FT. | |
| 1 | 0-38" MED BROWN C-F SAND, SOME GRACK + CONCRETE, TRACE SILT. [Moist] | | | 0 | 0 | <p><i>FILL</i></p> <p><i>SAND</i></p> <p><i>SILT</i></p> <p>SAMPLE COLLECTED FROM 3.5 ft @ 745</p> <p>SAMPLE COLLECTED FROM 14.5-15" @ 0800</p> |
| 2 | | | | 0 | 0 | |
| 3 | | 1 MC 32 | | 0 | 0 | |
| 4 | 0.38" - 3/32" MED BROWN C-F SAND, SOME M-F GRAVEL, TRACE SILT. [WET] | | | 0 | 0 | |
| 5 | 0-38" SAA [WET] | | | 0 | 0 | |
| 6 | | | | 0 | 0 | |
| 7 | | | | 0 | 0 | |
| 8 | | 2 MC 34 | | 0 | 0 | |
| 9 | 0.38-3/4" MED BROWN MED. FINE SILT, SOME F-SAND. [WET] | | | 0 | 0 | |
| 10 | 0-40" SAA [WET] | | | 0 | 0 | |
| 11 | | | | 0 | 0 | |
| 12 | | | | 0 | 0 | |
| 13 | | 3 MC 40 | | 0 | 0 | |
| 14 | | | | 0 | 0 | |

LOW FLOW SAMPLING FIELD PARAMETER MEASUREMENTS

| | | | |
|-----------------------------------|---------------------------------|-------------------------------|---------------|
| Project: 54135-8 | Site Location: NJ, NY | Well No: MA-3 | Date: 5/29/11 |
| Job Number: 920005 | Weather: mostly sunny w/ breeze | Sampling Crew: (initials) | |
| Initial Depth to Water (ft): 6.63 | Well Depth (ft): 16.83 | Pump Intake Depth (ft): 11.85 | |

| TIME | pH* (std. Units) | COND.* (uS) | DO* (mg/l - %) | ORP* (mV) | TEMP. °C | DTW (ft) | NOTES |
|-------------------------|------------------|-------------|----------------|-----------|----------|-----------------|--------------------|
| 1246 | 6.93 | 1.345 | 0.38 | 256.1 | 21.25 | 6.65 | Start Pumping 1242 |
| 1249 | 6.93 | 0.703 | 0.59 | 358.8 | 18.45 | 6.65 | |
| 1250 | 6.96 | 0.686 | 0.71 | 383.9 | 18.48 | 6.65 | |
| 1301 | 6.92 | 0.682 | 0.43 | 311.9 | 18.36 | 6.65 | |
| 1306 | 6.88 | 0.685 | 0.41 | 389.9 | 18.46 | 6.65 | |
| 1311 | 6.84 | 0.675 | 0.41 | 400.8 | 18.46 | 6.65 | |
| 1316 | 6.74 | 0.673 | 0.41 | 391.7 | 18.50 | 6.65 | |
| 1321 | 6.66 | 0.674 | 0.44 | 401.2 | 18.40 | 6.65 | |
| 1324 | 6.63 | 0.670 | 0.43 | 407.8 | 18.31 | 6.65 | |
| 1327 | 6.57 | 0.676 | 0.42 | 411.1 | 18.40 | 6.65 | |
| SAMPLE COLLECTED @ 1330 | | | | | | | |
| | +/- 0.1 pH | +/- 3% | +/- 10% | +/- 10 mV | | <0.3' draw down | |

*=Stabilization is achieved after all parameters have stabilized for three successive readings.

| Analytical Program | | Notes: |
|--------------------|---------------|-----------|
| TCL-VO+10 | PP-VO+15 | Phenols |
| TCL-BN+15 | PP-BN+15 | Others |
| TCL-AE+5 | PP-AE+10 | PCE |
| TCL-BNA+20 | PP-BNA+25 | TCE |
| TCL-Pesticides | PP-Pesticides | cis-DCE |
| TCL+30 | PP-Metals | trans-DCE |
| TAL | PP+40 | VC |
| TAL-Metals | PCB | Pb |



Langan Engineering and Environmental Services, Inc.
River Drive Center One Elmwood Park, NJ 07407

LOW FLOW SAMPLING FIELD PARAMETER MEASUREMENTS

Project: 5 W 125th St. Site Location: ML NU Well No: MW-2 Date: 5/11/00
 Job Number: 9200803 Weather: Partly Sunny Water SDs Sampling Crew: [Signature] 6/11/00
 Initial Depth to Water (ft): 5.90 Well Depth (ft): 17.70 Pump Intake Depth (ft): 12.90

| TIME | pH* (std. Units) | COND.* (uS) | DO* (mg/l - %) | ORP* (mV) | TEMP. °C | DTW (ft) | TOURBIDITY (mtfm)(NTU) | NOTES | | | |
|--|------------------|-------------|----------------|-----------|----------|----------|------------------------|---------------------|-----------------|--|--|
| 11:22 | 6.74 | 2.675 | 0.95 | 271.1 | 15.30 | 5.91 | 103.7 | Start Pumping 11:10 | | | |
| 11:27 | 6.74 | 2.305 | 0.66 | 308.6 | 15.11 | 5.91 | 52.1 | | | | |
| 11:32 | 6.76 | 2.065 | 0.61 | 328.1 | 15.33 | 5.91 | 27.1 | | | | |
| 11:37 | 6.74 | 1.829 | 0.60 | 320.4 | 15.06 | 5.91 | 14.3 | | | | |
| 11:42 | 6.71 | 1.791 | 0.62 | 344.7 | 15.08 | 5.91 | 9.8 | | | | |
| 11:47 | 6.72 | 1.760 | 0.64 | 347.6 | 14.93 | 5.91 | 8.7 | | | | |
| SAMPLE COLLECTED @ 11:50 (DUP-1) | | | | | | | | | | | |
| *Stabilization is achieved after all parameters have stabilized for three successive readings. | | | | | | | | | | | |
| +/- 0.1 pH | | | +/- 3% | | | +/- 10% | | | <0.3' draw down | | |

Analytical Program

| Parameter | MBTE | Phenols | Notes: |
|----------------|---------------|-----------|--------|
| TCL-VO+10 | PP-VO+15 | | |
| TCL-BN+15 | PP-BN+15 | | |
| TCL-AE+5 | TBA | Phenols | |
| TCL-BNA+20 | PP-AE+10 | Others | |
| TCL-Pesticides | Cyanide | PCE | |
| | TPH | TCE | |
| | PP-BNA+25 | dis-DCE | |
| | PP-Pesticides | trans-DCE | |
| TCL+30 | TDS | VC | |
| TAL | TSS | | |
| TAL-Metals | TOX | | |
| | TOC | Pb | |



Langan Engineering and Environmental Services, Inc.
 River Drive Center One Elmwood Park, NJ 07407

LOW FLOW SAMPLING FIELD PARAMETER MEASUREMENTS

Project: 5 W 105th St. Job Number: 4200803 Initial Depth to Water (ft): 6.37

Site Location: 14, 214 W 105th St. Weather: Partly Sunny Well No: 10-10 Well Depth (ft): 16.10 Pump Intake Depth (ft): 11.10

Date: 11-10-08 Sampling Crew: [Signature]

| TIME | pH* (std. Units) | COND.* (uS) | DO* (mg/l - %) | ORP* (mV) | TEMP. °C | DTW (ft) | NOTES |
|------|------------------|-------------|----------------|-----------|----------|----------|---------------------|
| 1017 | 7.59 | 2.560 | 2.91 | 185.3 | 16.85 | 0.37 | Start Pumping 10:08 |
| 1019 | 8.02 | 2.391 | 0.87 | 204.7 | 14.78 | 0.34 | 0.20 m/min |
| 1020 | 7.56 | 2.299 | 0.84 | 214.4 | 17.24 | 0.34 | |
| 1024 | 7.16 | 2.210 | 0.88 | 246.1 | 17.34 | 0.37 | |
| 1030 | 7.05 | 2.267 | 0.88 | 253.0 | 17.16 | 0.37 | |
| 1037 | 6.92 | 2.258 | 0.89 | 269.4 | 17.88 | 0.37 | |
| 1042 | 6.87 | 2.250 | 0.90 | 279.2 | 17.16 | 0.37 | |
| 1047 | 6.80 | 2.206 | 0.91 | 285.9 | 17.87 | 0.37 | |
| 1050 | 6.77 | 2.256 | 0.91 | 292.0 | 17.82 | 0.37 | |
| 1053 | 6.75 | 2.258 | 0.92 | 294.6 | 17.88 | 0.37 | |

SAMPLED CONTINUED @ 1055

+/- 0.1 pH +/- 3% +/- 10% +/- 10 mV <0.3' draw down

*=Stabilization is achieved after all parameters have stabilized for three successive readings.

Analytical Program

| Parameter | MBTE | Phenols | Notes |
|----------------|------|---------|-------|
| TCL-VO+10 | X | | |
| TCL-BN+15 | X | | |
| TCL-AE+5 | | | |
| TCL-BNA+20 | | | |
| TCL-Pesticides | X | | |
| TCL+30 | | | |
| TAL-Metals | | | |
| PP+VO+15 | | | |
| PP-BN+15 | | | |
| PP-AE+10 | | | |
| PP-BNA+25 | | | |
| PP-Pesticides | | | |
| PP+Metals | | | |
| PP+40 | | | |
| PCB | | | |
| TOC | | | |
| TOX | | | |
| trans-DCE | | | |
| cis-DCE | | | |
| TCE | | | |
| PCE | | | |
| Others | | | |
| VC | | | |
| Pb | | | |



Langan Engineering and Environmental Services, Inc.
River Drive Center One Elmwood Park, NJ 07407

APPENDIX C

LABORATORY DATA REPORTS

APPENDIX D

CONSTRUCTION HEALTH & SAFETY PLAN (CHASP)

CONSTRUCTION HEALTH AND SAFETY PLAN

for

**5 West 125th Street
New York, New York**

**E-Designation: E-201
Tax Map Block 1723, Lot 31
NYCOER Project Number: 11EHAN269M
NYCDOB BIN# 1081454**

Prepared For:

**RCGL 125th Street, LLC
7 Penn Plaza
New York, New York 10001**

For Submittal To:

**New York City Office of Environmental Remediation
E-Designation Program
100 Gold Street, 2nd Floor
New York, New York 10038**

Mark K. Seel, P.E.
New York Professional Engineer License No. 74241

Steven A. Ciambuschini, PG, LEP
Senior Associate/Vice President



**21 July 2011
9200803**

ENVIRONMENTAL HEALTH AND SAFETY PLAN

Client: **RCGL 125th Street, LLC**

Project: **Excavation Activities During Site Work**

Location: **5 West 125th Street**

Chemical Hazards: **Polycyclic aromatic hydrocarbons, Metals, Pesticides**

Prepared By: **LANGAN ENGINEERING & ENVIRONMENTAL SERVICES, INC.**

Version: **1**

Date : **19 July 2011**

Client Contact: **Hesh Mermelstein**
Langan Project Manager (PM): **Chris McMahon**
Langan Health & Safety Coordinator (HSC): **Tony Moffa, CHMM**
Langan Site Supervisor **Field Personnel**
Langan Site Safety Officer (SSO): **Field Personnel**

LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, PC) LANGAN), AND LANGAN SUBCONTRACTORS, DO NOT GUARANTEE THE HEALTH OR SAFETY OF ANY PERSON ENTERING THIS SITE. DUE TO THE NATURE OF THIS SITE AND THE ACTIVITY OCCURRING THEREON, IT IS NOT POSSIBLE TO DISCOVER, EVALUATE, AND PROVIDE PROTECTION FOR ALL POSSIBLE HAZARDS WHICH MAY BE ENCOUNTERED. STRICT ADHERENCE TO THE HEALTH AND SAFETY GUIDELINES SET FORTH HEREIN WILL REDUCE, BUT NOT ELIMINATE, THE POTENTIAL FOR INJURY AT THIS SITE. THE HEALTH AND SAFETY GUIDELINES IN THIS PLAN WERE PREPARED SPECIFICALLY FOR THIS SITE AND SHOULD NOT BE USED ON ANY OTHER SITE WITHOUT PRIOR RESEARCH AND EVALUATION BY A TRAINED HEALTH AND SAFETY SPECIALIST.

APPROVALS

By signature, the personnel identified below hereby acknowledge that they have reviewed this Construction Health and Safety Plan (CHASP) and agree to comply with the requirements contained therein as well as the applicable provisions of 29 CFR Parts 1910 and 1926. The undersigned also acknowledge and accept that this CHASP is the project CHASP for the site work described in the Remedial Action Workplan (RAP). Furthermore, in reviewing and accepting this CHASP, as currently written, the undersigned agree that to the best of their knowledge, this CHASP adequately identifies the activities and hazards associated with work at this site and describes the appropriate and necessary precautions and protections for site workers required by the applicable OSHA statutes and regulations.



LANGAN Project Manager - PM (Chris McMahon)

7/19/2011

Date



LANGAN Health and Safety Coordinator (Tony Moffa, CHMM)

7/19/2011

Date

LANGAN Site Safety Officer – SSO

Date

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1.0 INTRODUCTION

1.1 Purpose and Policy

This Construction Health and Safety Plan (CHASP) has been developed to comply with the regulations under Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120(b)(4), Hazardous Waste Operations and Emergency Response. It addresses foreseeable activities associated with the site work activities to be conducted at 5 West 125th Street in Harlem, New York (see Figure 1). This CHASP establishes personnel protection standards and mandatory safety practices and procedures. Additionally, it assigns responsibilities, establishes standard operating procedures, and provides for contingencies that may arise while operations are being conducted at known or suspected hazardous waste sites.

Langan personnel involved with inspection of site work activities which involve the displacement of soil and/or material or dewatering of excavations in the identified Area of Concern (AOC) during the proposed development shall comply with the requirements of this CHASP. All Langan personnel engaged in onsite activities will read this document carefully and complete the Safety Briefing Form (Attachment A), a copy of which will be provided to Langan's Project files. Contractors and subcontractors conducting construction-related activities which will disturb or displace soil in the identified AOC will provide their own HASP (equal or more stringent than the Langan CHASP) and are solely responsible for their own workers Health and Safety and providing a safe working environment in accordance with all applicable federal, state and local requirements. Each Subcontractor will have a designated Site Health and Safety Coordinator who will be responsible for ensuring that the designated procedures are implemented in the field. Personnel who have any questions or concerns regarding implementation of this plan are encouraged to request clarification from the Langan Project Manager. Field personnel must follow the designated health and safety procedures, be alert to the hazards associated with working close to vehicles and equipment, and use common sense and exercise reasonable caution at all times.

This CHASP covers construction related field activities which have the potential to disturb and/or displace contaminated soil that was identified above the water table at the site. These activities include, but are not limited to excavation, moving and grading of the historic fill that was identified to be between 3 to 4-feet in thickness from the current site grade.

This CHASP was prepared in accordance with the following documents and/or guidelines:

- Occupational Safety and Health Administration (OSHA) regulations for hazardous site workers (29 CFR 1910.120 and 29 CFR 1926); and,
- NIOSH/OSHA/USCG/USEPA *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*.

Langan's Health and Safety Program and Safe Operating Procedures support this site-specific CHASP.

The level of protection and the procedures specified in this CHASP represent the minimum health and safety requirements to be observed by site personnel engaged in the referenced inspection of construction related activities. Unknown conditions may exist, and known conditions may change. Should an employee find himself or herself in a potentially hazardous situation, the employee will immediately discontinue the hazardous procedures(s) and either personally effect appropriate preventative or corrective measures, or immediately notify the Field Supervisor or Project Manager of the nature of the hazard. In the event of an immediately dangerous or life threatening situation, the employee always has "stop work" authority. Any necessary revision to the Health and Safety procedures will be recorded in the Field Procedure Change Authorization Form (Attachment B), and will require authorization from the Langan Health and Safety Officer and Project Manager.

THE ULTIMATE RESPONSIBILITY FOR THE HEALTH AND SAFETY OF THE INDIVIDUAL EMPLOYEE RESTS WITH THE EMPLOYEE AND HIS OR HER COLLEAGUES. Each employee is responsible for exercising the utmost care and good judgment in protecting his or her own health and safety and that of fellow employees. Should any employee observe a potentially unsafe condition or situation, it is the responsibility of that employee to immediately bring the

observed condition to the attention of the appropriate health and safety personnel as designated above and to follow-up the verbal notification by completing the Unsafe Conditions and Practices Form provided in Attachment C, a copy of which will be provided to the Langan Health and Safety Officer.

"Extenuating" circumstances such as budget or time constraints, equipment breakdown, changing or unexpected conditions, never justify unsafe work practices or procedures. In fact, the opposite is true. Under stressful circumstances all project personnel must be mindful of the potential to consciously or unconsciously compromise health and safety standards, and be especially safety conscious. **ALL SITE PERSONNEL ARE EXPECTED TO CONSIDER "SAFETY FIRST" AT ALL TIMES.**

1.2 Site Descriptions

The subject property is located on West 125th Street between Malcolm X Boulevard and 5th Avenue in the Harlem neighborhood in Manhattan, New York. Soil disturbance and groundwater dewatering activities will be completed to allow for the construction of the proposed commercial retail development. Work will be performed in accordance with the rules and regulations of the local governing bodies.

1.3 Scope of Work

The site work activities which will require the oversight by a Langan Engineer include the following scope and will include the completion of:

- Excavation and off-site disposal of soil generated during construction as part of the proposed building foundation;
- Completion of Waste Characterization Sampling;
- Sampling and Completion of Foundation Construction Dewatering;
- Installation of a vapor barrier;

Details of the scopes of work to be completed in each of the work areas for this project are provided within the July 2011 Phase II Site Investigation Report and Remedial Action Plan.

The proposed site development consists of the construction of a four-story commercial retail building over the entire site footprint. The bottom of basement-slab elevation will be at approximately 25–feet below the existing sidewalk grade; the basement will house mechanical rooms and commercial retail space. Excavation for the basement and proposed elevator pits (up to 25-foot b.g.s.) is proposed during site redevelopment.

During construction, all soils excavated or disturbed at the site will be either transported off site for disposal at an approved facility or reused on the subject property. All soil generated for the previously delineated area of impacted soil (impacted historic fill material) will be excavated and disposed off-site at an approved off-site location. Personnel conducting activities that will contact the impacted historic fill shall abide to the provisions of this CHASP.

2.0 PROJECT TEAM ORGANIZATION AND RESPONSIBILITIES

This section specifies the Langan Engineering and Environmental Services, Inc. (Langan) Project Organization.

2.1 Project Manager

Provides review of all site activities and directs site activities via the Site Safety Officer reports to Client. Has authority to direct response operations.

Responsibilities:

- Prepares and organizes the background review of site conditions, the RAP the site CHASP, and the field team.
- Obtains permission for site access and coordinates activities with appropriate officials.
- Ensures that the RAP is executed and on schedule.
- Briefs the field team on their specific assignments.
- Coordinates with the Site Safety Officer (SSO) to ensure that health and safety requirements are met.
- Prepares the final report and support files on the response activities.
- Serves as the liaison with public officials.

2.2 Health and Safety Coordinator (HSC)

Responsibilities:

- Assists SSO with development of the CHASP, updating CHASP as dictated by changing conditions, jobsite inspection results, etc.
- Assists SSO in conducting Jobsite Safety Inspections and assists with the correction of shortcomings found.
- Coordinates the activities of the Contract Medical Advisor staff in their CHASP responsibilities.
- Ensures training requirements are satisfied in a timely manner.
- Ensures medical evaluations of Langan personnel are current.
- Maintains all records on personnel (medical evaluation results, training and certifications, accident investigation results, etc.).
- Prepare any Root Cause Investigation Reports/Preventative Action Plans for any incidents and or Close Calls.

2.3 Site Safety Officer (SSO)

Advises the Project Manager and HSC on all aspects of health and safety on site. Stops work if any operation threatens worker or public health or safety.

Responsibilities:

- Manages field operations.
- Executes the RAP and schedule.
- Enforces safety procedures.
- Coordinates with the SSO in determining protection level.
- Enforces site control.
- Documents field activities and sample collection.
- Serves as a liaison with public officials.

- Ensures that all necessary Health and Safety equipment is available on site and is functional.
- Periodically inspects protective clothing and equipment.
- Conducts all on-site air monitoring activities and modifies PPE requirements based on action levels shown in Table 2.

- Ensures that protective clothing and equipment are properly stored and maintained.
- Controls entry and exit at the Access Control points.
- Coordinates health and safety program activities with the HSC.
- Confirms each team member's suitability for work based on a physician's recommendation.
- Monitors the work parties for signs of stress, such as cold exposure, heat stress, and fatigue.
- Implements all elements of this CHASP.
- Conducts periodic inspections to determine if this CHASP is being followed.
- Enforces the "buddy" system.
- Knows emergency procedures, evacuation routes, and the telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department.
- Notifies, when necessary, local public emergency officials.
- Coordinates emergency medical care.
- Sets up decontamination lines and the decontamination solutions appropriate for the type of chemical contamination on the site.
- Controls the decontamination of all equipment, personnel, and samples from the contaminated areas.
- Assures proper disposal of contaminated clothing and materials.
- Ensures that all required equipment is available.
- Advises medical personnel of potential exposures and consequences.
- Notifies emergency response personnel by telephone or radio in the event of an emergency.
- Assist in the preparation of all Root Cause Investigation Reports/ Preventative Action Plans for any incidents and or Close Calls.

3.0 HAZARDS ANALYSIS

This section presents all assessment of the general, chemical, physical and biological hazards that may be encountered during the tasks specified under this CHASP (Section 1.3). A detail on types of potential contaminants of concerns Langan anticipates to encounter at different locations during the intrusive investigation is listed in Tables 1 and 2 of this CHASP.

3.1 General Hazard Assessment

A general hazard assessment was conducted for the required field work described in Section 1.3 and the following potential hazards have been identified:

- Inhalation of volatile contaminants;
- Skin and eye contact with contaminants;
- Ingestion of contaminants;
- Inhalation of dusts;
- Physical hazards associated with the use of heavy equipment;
- Excavation hazards;
- Tripping hazards;
- Noise exposure;
- Heat stress (depending on weather conditions);
- Cold exposure (depending on weather conditions);
- Flammable hazards;
- Electrical hazards; and,
- Use of personal protective equipment.

These hazards are further described in the task-by-task hazard analysis in Table 3. Specific chemical, physical and biological hazards are discussed below.

Mitigation and controls will include as needed work procedures, work/rest regiment, dust control measures, personal protective equipment, and respiratory protection as appropriate.

3.2 Chemical Exposure Hazards

The following chemical hazard evaluation for the proposed site development activities is based on the previous environmental investigation of the site. The

evaluation has been conducted to identify chemicals/ materials that potentially may be present at the site, and to ensure that work activities, personnel protection, and emergency response are consistent with the specific contaminants that potentially could be encountered.

3.2.1 Specific Chemical Hazards Previously Detected at the Site

Historically impacted soil has been identified on the subject property. In addition, impacted groundwater has been identified on-site. The potential contaminants that might be encountered during the field activities and the exposure limits are listed in Table 2.

3.2.2 Chemical Hazard Exposure Routes

Potential hazards and their exposure routes include:

Inhalation of organic vapors due to the presence of volatile organic from diesel-powered equipment.

Inadvertent ingestion of potentially toxic substances via hand to mouth contact or deliberate ingestion of materials inadvertently contaminated with potentially toxic materials. Included in this list are polycyclic aromatic hydrocarbons (PAHs), pesticides and metals.

Dermal exposure and possible percutaneous (skin) absorption of certain lipophilic (readily absorbed through the skin) PAHs and pesticides.

Skin and eye contact with contaminants at the site and decontamination activities.

Exposure limits and health effects of selected chemicals are in Table 2. The probability of exposure for each task is outlined in Table 3.

3.2.3 Control of Exposure to Chemical Hazards

To protect potentially exposed personnel the following procedures and protocols will be adopted and used as needed: work procedures will be adhered to, work zones will be established, dust control will be utilized,

respirators (if required) and personal protective equipment will be worn, area air monitoring will be conducted during times of disturbance of the impacted fill material and strict personnel decontamination procedures will be followed. Disturbance of the native sand and silt material located beneath the impacted historic fill material will not require adherence to identified Health and Safety monitoring and procedures.

3.3 Physical Hazards

3.3.1 Temperature Extremes

Hot Temperatures

Heat stress is a significant potential hazard, which is greatly exacerbated with the use of PPE, in hot environments. The potential hazards of working in hot environments include dehydration, cramps, heat rash, heat exhaustion, and heat stroke. If onsite workers exhibit the signs of heat exhaustion or heat stroke, they should seek immediate medical attention.

Cold Temperatures

Workers may be exposed to the hazard of working in a cold environment. Potential hazards in cold environments include frostbite, trench foot or immersion foot, hypothermia, as well as slippery surfaces, brittle equipment, poor judgment, and unauthorized procedural changes. In order to prevent frostbite, hypothermia, trench foot and immersion foot, the workers are responsible for dressing warmly in layers with thick socks, gloves, and appropriate head and face gear. Upon the onset of discomfort due to the cold, onsite workers should take regular five to ten minute breaks to warm up inside nearby buildings and to drink warm fluids. Please note that the NYCDEP statute prohibits idling an engine for more than three minutes (one-minute if adjacent to a school). This statute includes the use of a vehicle for the purpose of warming up employees. As such, all contractors and employees shall identify a place to warm up in advance. If discomfort continues and the onsite workers start to exhibit the signs of frostbite, hypothermia, trench foot or immersion foot, they should seek immediate medical attention.

3.3.2 Noise and Air Resources

Noise is a potential hazard associated with the operation of heavy equipment, power tools, pumps and generators. Hearing protection is required and shall be used in designated areas of the site as indicated by the posted signs. Workers with 8-hour time weighted average (TWA) exposures exceeding 85 dBA will be included in a Hearing Conservation Program (HCP). Based on the required scope of work, a HCP is not anticipated to be required.

The New York City Department of Environmental Protection (NYCDEP) has initiated construction noise rules effective 1 July 2007. Contractors employing construction equipment such as vacuum excavators, drill rigs, and jackhammers, are required by the rules to have notarized Construction Noise Mitigation Plans. Noise mitigation measures may include mufflers, etc. Construction activities will occur during hours that minimize noise disturbance to the community. In addition, no vehicles will idle for more than three minutes (one-minute adjacent to a school) when not in use for powering a tool.

Additionally, for any work that will be performed between 6:00 PM and 7:00 AM local time from Monday through Friday, including holidays, an after-hours noise permit is required and may be included as a stipulation on any NYCDOT or NYCDOB permits associated with work on this project. If the NYCDOT/NYCDOB are not associated with this project, an Alternate Noise Mitigation Plan is to be prepared and submitted to the NYCDEP for their review/approval and returned to the Contractor for posting on the site prior to commencement of field activities.

3.3.3 Hand and Power Tools

In order to complete the various tasks for the project, personnel will utilize hand and power tools. The use of hand and power tools can present a variety of hazards, including physical harm from being struck by flying objects, being cut or struck by the tool, fire, and electrocution. Proper personal protective equipment shall be worn while utilizing hand and power tools. Ground Fault Circuit Interrupters (GFCIs) are required for all portable electric tools.

3.3.4 Slips, Trips, and Falls

Working in and around the site will pose slip, trip and fall hazards due to equipment, piping, slippery surfaces that may be oil covered, or from surfaces that are wet from rain or ice. Potential adverse health effects include falling to the ground and becoming injured or twisting an ankle. Good housekeeping at the site must be maintained at all times.

3.3.5 Fire and Explosion

Prior to starting all excavation work, a review of appropriate New York City maps will be conducted to identify potential hazards. The possibility of encountering fire and explosion hazards exists from under- ground utilities and gases. Therefore, all excavation equipment must be grounded.

3.3.6 Material Handling

Manual lifting of heavy objects may be required. Failure to follow proper lifting techniques can result in back injuries and strains. Back injuries are a serious concern as they are the most common workplace injury, often resulting in lost or restricted work time, and long treatment and recovery periods.

Whenever possible, heavy objects must be lifted and moved by mechanical devices rather than by manual effort. The mechanical devices will be appropriate for the lifting or moving task and will be operated only by trained and authorized personnel. Objects that require special handling or rigging will only be moved under the guidance of a person who has been specifically trained to move such objects, such as a Master Rigger or equivalent. Lifting devices, including equipment, slings, ropes, chains, and straps, will be inspected, certified, and labeled to confirm their weight capacities. Defective equipment will be taken out of service immediately and repaired or destroyed.

The wheels of any trucks being loaded or unloaded, and/or parked on an incline, will be chocked to prevent movement. If applicable, outriggers will be extended on a flat, firm surface during operation. The lift and

swing path of a crane/equipment will be watched and maintained clear of obstructions. Personnel will not pass under a raised load, nor will a suspended load be left unattended. Personnel will not be carried on lifting equipment, unless it is specifically designed to carry passengers.

All reciprocating, rotating, or other moving parts will be guarded at all times. Accessible fire extinguishers will be made available in all mechanical lifting devices. All material must be stored in tiers, racked, blocked, or otherwise secure to prevent sliding, falling, or collapse. All loads/material will be verified to be secure before transportation.

3.3.1 Confined Space/Excavation Hazards

Personnel entry into trenches or unshored (*e.g.*, lagging) excavations within the designated areas of concern will not be permitted. No other confined spaces are known to exist on Site. If entry into trenches or excavations is required, all work will stop until the CHASP has been revised to address the new hazards.

3.3.2 Working Near Equipment

Personnel working in the immediate vicinity of heavy equipment (*e.g.*, excavators, loaders, etc.) may encounter physical hazards resulting from contact with equipment. Field personnel should be aware of the presence of these hazards at all times and take appropriate action to avoid them. Due to the limited ability to communicate when wearing respiratory protection, the risk is increased. Workers must be careful to communicate with heavy equipment operators regarding their location, and should maintain a safe distance from operating equipment at all times. Prior to working around equipment, the site personnel will review appropriate hand signals with the operator.

Equipment will be equipped with back up alarms.

3.3.3 Electrical Safety

Although not anticipated, personnel may utilize hand and power tools. The use of hand and power tools can present a variety of hazards,

including physical harm from being struck by flying objects, being cut or struck by the tool, fire, and electrocution. Ground Fault Circuit Interrupters (GFCIs) are required for all portable electric tools. Construction vehicles and equipment will have grounds mounted to them.

3.3.4 Utilities

Prior to the start of any intrusive work, the location of above-ground and underground utilities and other structures will be completed by the contractor/subcontractor responsible for completing construction activities.

3.3.5 Vehicular Traffic

Portions of site activities (load in and load out) will be conducted in the street so vehicular and pedestrian traffic will be present. Appropriate precautions to protect to works and civilians should be used including the use of cones and traffic vests as appropriate.

3.4 Biological Hazards

During the course of the project, there is a potential for workers to come into contact with biological hazards such as animals and insects. As the potential for exposure to blood born pathogens during site investigation is anticipated to be low, a Blood Born Pathogen Exposure Plan (BBPEP) is not required. A BBPEP will be prepared if site operation requires its implementation.

3.4.1 Animals

During site operations, animals such as dogs, cats, pigeons, mice, and rats may be encountered. Workers shall use discretion and avoid all contact with animals. Bites and scratches from dogs and cats can be painful and if the animal is rabid, the potential for contracting rabies exists. Contact with rat and mice droppings may lead to contracting hantavirus. Inhalation of dried pigeon droppings may lead to psittacosis. Cryptococcosis and histoplasmosis are also diseases associated with exposure to dried bird droppings but these are less likely to occur in this occupational setting.

3.4.2 Insects

Insects, including bees, wasps, hornets, mosquitoes, spiders, and ticks may be present at the site. Some individuals may have a severe allergic reaction to an insect bite or sting that can result in a life threatening condition. In addition, mosquito bites may lead to St. Louis encephalitis or West Nile encephalitis.

3.4.3 Wound Care

A source of occupational exposure may occur when an employee gives First Aid and or CPR to an individual who had infectious blood. The occupational exposure occurs when there is the possibility for an employee's eyes, mucous membranes, non-intact skin (i.e., cut and abraded skin) to come into contact with potentially infectious materials from another employee. If an accident were to occur where First Aid would need to be administered, the person administering the First Aid will presume that any wounds and materials used are contaminated with BBP and should wear the appropriate PPE to prevent contact with these materials. Additionally, should the use of First Aid materials and or clothing that was potentially contaminated with BBP be encountered these materials should be properly containerized and transported to the nearest hospital for proper disposal.

3.5 Task Hazard Analysis

The tasks to be completed during the proposed site work activities, as summarized in Section 3.0, are listed in Table 3 with a Hazard Analysis for each task.

4.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

4.1 Levels of Protection

PPE must protect workers from the specific hazards they are likely to encounter on site. Selection of the appropriate PPE must take into consideration: (1) identification of the hazards or suspected hazards; (2) potential exposure routes; and, (3) the performance of the PPE construction (materials and seams)

in providing a barrier to these hazards. Based on anticipated site conditions and the proposed work activities to be performed at the Former Laconia Substation Site, Level D Protection will be used. The upgrading/downgrading of these levels of protection will be based on continuous air monitoring results as described in Section 5.0. The decision to modify standard PPE will be made by the SSO after conferring with the Project Manager. The levels of protection are described below.

- **Level D Protection**

- a. Safety glasses w/ sideshields or chemical splash goggles
- b. Safety boots/shoes (toe-protected)
- c. Hard hat
- d. Long sleeve work shirt and work pants
- e. Nitrile gloves
- f. Hearing protection (as needed)
- g. Reflective traffic vest

- **Level D Protection (Modified)**

- a. Safety glasses w/ sideshields or chemical splash goggles
- b. Safety boots/shoes (toe-protected)
- c. Disposable chemical-resistant boot covers
- d. Coveralls (polycoated Tyvek or equivalent to be worn when contact with wet contaminated soil, groundwater, or non-aqueous phase liquids is anticipated)
- e. Hard hat
- f. Long sleeve work shirt and work pants
- g. Nitrile gloves
- h. Hearing protection (as needed)
- i. Reflective traffic vest

- **Level C Protection**

- a. Full face-piece, air-purifying, cartridge*-equipped, NIOSH-approved respirator [*combo cartridge P100/OV/CL/HC/SD/CD/HS (escape)]
- b. Inner (latex) and outer (nitrile) chemical-resistant glove
- c. Chemical-resistant safety boots/shoes (toe-protected)
- d. Disposable chemical-resistant boot covers
- e. Hard hat
- f. Long sleeve work shirt and work pants
- g. Coveralls (Tyvek or equivalent, poly-coated Tyvek will be worn when contact, or anticipated contact with wet contaminated soils, ground water, and/or non-aqueous phase liquids (NAPL) is anticipated)
- h. Hearing protection (as needed)
- i. Reflective traffic vest

The action levels used in determining the necessary levels of respiratory protection and upgrading to Level C, Level B, or Level A are summarized in Table 2. The written Respiratory Protection Program is maintained by the HSC in Langan’s Doylestown, Pennsylvania office. The monitoring procedures and equipment are outlined in Section 5.0.

4.2 Respirator Fit-Test

All Langan employees and subcontractors performing site work who could be exposed to hazardous substances at the work site are in possession of a full face-piece, air-purifying respirator and have been successfully quantitative fit-tested within the past year. Quantitative fit-test records are maintained by the HSC.

4.3 Respirator Cartridge Change-Out Schedule

Respiratory protection is required to be worn when certain action levels (Table 2) are reached. A respirator cartridge change-out schedule has been developed in order to comply with 29 CFR 1910.134. The respirator cartridge change-out schedule for this project is as follows:

- Cartridges shall be removed and disposed of at the end of each shift, when cartridges become wet or wearer experiences breakthrough, whichever occurs first.
- If the humidity exceeds 85%, then cartridges shall be removed and disposed of after 4 hours of use.

Respirators shall not be stored at the end of the shift with contaminated cartridges left on. Cartridges shall not be worn on the second day, no matter how short the time period was the previous day they were used.

5.0 AIR QUALITY MONITORING AND ACTIONS LEVELS

5.1 Monitoring During Site Operations

Atmospheric air monitoring results are used to provide data to determine when exclusion zones need to be established and when certain levels of personal protective equipment are required. For all instruments there are Site-specific action level criteria which are used in making field health and safety determinations. Other data, such as the visible presence of contamination or the steady state nature of air contaminant concentration, are also used in making field health and safety decisions. Therefore, the Field Supervisor may establish an exclusion zone or require a person to wear a respirator even though atmospheric air contaminant concentrations are below established CHASP action levels.

During site work involving disturbance of impacted historic fill material, real time air monitoring will be conducted for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). A photoionization detector (PID) and/or flame ionization detector (FID) will be used to monitor concentrations of VOCs at personnel breathing-zone height. Dust monitoring will be accomplished with an aerosol monitor. Air monitoring will be the responsibility of the Field Supervisor or designee. Air monitoring will be conducted approximately every 30 minutes during ground intrusive activities in the AOC on the project site. All manufacturers' instructions for instrumentation and calibration will be available onsite.

Subcontractors' air monitoring plans must be equal or more stringent as the Langan plan.

An air monitoring calibration log is provided in Attachment D of this CHASP.

5.1.1 Volatile Organic Compounds

Monitoring with a PID, such as a MiniRAE 2000 (11.7v) or equivalent will occur during intrusive work in the AOCs. Colormetric Indicator Tubes for benzene may be used as backup for the PID, if measurements remain above background monitor every 2 hours. The Field Supervisor will monitor the employee breathing zone at least every 30 minutes, or whenever there is any indication that concentrations may have changed (odors, visible gases, appearance of drill cuttings, etc.) since the last measurement. Instrument action levels for monitored gases are provided in Table 4.

5.1.2 SVOCs, Pesticides, and Metals

Based upon the site historical fill, there is a potential for the soils to contain PAHs. During invasive procedures which have the potential for creating airborne dust, such as excavation of dry soils, a real time airborne dust monitor such as a Mini-Ram should be used to monitor for air particulates. The Field Supervisor will monitor the employee breathing zone at least every 30 minutes, or whenever there is any indication that concentrations may have changed (appearance of visible dust) since the last measurement. Instrument action levels for dust monitoring are provided in Table 4.

5.2 Noise Monitoring

As a standard work practice, hearing protection will be worn within the area that exceeds 85 dBA created by any loud machinery as a precaution. Hearing protection is required and should be used in designated areas of the site as indicated by the posted signs. If there is a reasonable possibility that workers may be exposed to an 8-hour time-weighted average exceeding 85 dBA specifically as a result of conducting the required tasks, noise monitoring will be conducted using a sound level meter. Work areas or tasks which pose an exposure risk greater than 85 dBA will require hearing protection.

The New York City Department of Environmental Protection (NYCDEP) has initiated construction noise rules effective 1 July 2007. Contractors employing construction equipment such as vacuum excavators, drill rigs, and jackhammers, are required by the rules to have noise mitigation plans. These plans will be available on site. Noise mitigation measures may include mufflers, etc. Boring activities will occur during daytime hours only to minimize noise disturbance to the community. In addition, no vehicles will idle for more than three minutes when not in use.

5.3 Monitoring Equipment Calibration and Maintenance

Instrument calibration shall be documented and included in a dedicated safety and health logbook or on separate calibration pages of the field book. All instruments shall be calibrated before and after each shift. Calibration checks may be used during the day to confirm instrument accuracy. Duplicate readings may be taken to confirm individual instrument response.

All instruments shall be operated in accordance with the manufacturers' specifications. Manufacturers' literature, including an operations manual for each piece of monitoring equipment will be maintained on site by the SSO/Site Supervisor for reference.

5.4 Determination of Background Levels

Background (BKD) levels for VOCs will be established prior to intrusive activities within the AOC at an upwind location. A notation of BKD levels will be referenced in the daily monitoring log. BKD levels are a function of prevailing conditions. BKD levels will be taken in an appropriate upwind location as determined by the Field Supervisor.

Table 4 lists the instrument action levels.

6.0 COMMUNITY HEALTH AND SAFETY CONSIDERATIONS

The potential impact of site work activities on the surrounding community (residential and business) is of concern. Precautions taken to reduce or prevent contamination from leaving the work areas include the following:

- All appropriate equipment will be decontaminated before leaving the Site;
- AOC zone air monitoring will be conducted by Langan;
- Dust and vapor suppression techniques will be used as necessary;
- Downwind air monitoring for volatile organic compounds will be done at the areas of concern perimeter every 30 minutes whenever site personnel are required to wear Level C respiratory protection as per this CHASP; and,
- Work will be suspended at any time that contaminants are found to be migrating off-site at a concentration that exceeds the most stringent compound-specific action level as per this CHASP.

7.0 WORK ZONES AND DECONTAMINATION

7.1 Site Control

Work zones are intended to control the potential spread of contamination throughout the site and to assure that only authorized individuals are permitted into potentially hazardous areas.

Any person working in an area where the potential for exposure to site contaminants exists will only be allowed access after providing the SSO with proper training and medical documentation.

Exclusion Zone (EZ) - All activities which may involve exposure to site contaminants, hazardous materials and/or conditions should be considered an EZ. Decontamination of field equipment will also be conducted in the Contaminant Reduction Zone (CRZ) which will be located on the perimeter of the EZ. The EZ and the CRZ will be clearly delineated by cones, tapes or other means. The SSO/Site Supervisor may establish more than one EZ where different levels of protection may be employed or different hazards exist. The size of the EZ shall be determined by the SSO/Site Supervisor allowing adequate space for the activity to be completed, field members and emergency equipment.

7.2 Contamination Control

7.2.1 Personnel Decontamination Station

Personal hygiene, coupled with diligent decontamination, will significantly reduce the potential for exposure.

7.2.2 Minimization of Contact with Contaminants

During completion of all site activities, personnel should attempt to minimize the chance of contact with contaminated materials. This involves a conscientious effort to keep "clean" during site activities. All personnel should minimize kneeling, splash generation, and other physical contact with contamination as PPE is intended to minimize accidental contact. This may ultimately minimize the degree of decontamination required and the generation of waste materials from site operations.

Field procedures will be developed to control over spray and runoff and to ensure that unprotected personnel working nearby are not affected.

7.2.3 Personnel Decontamination Sequence

Decontamination will be performed by removing all PPE used in EZ and placing it in drums/trash cans at the CRZ. Baby wipes shall be available for wiping hands and face. Drums/trash cans will be labeled by the field crews in accordance with all local, state, and federal requirements. Management plans for contaminated PPE, tools and Investigative Derived Waste (i.e., soil cutting) are provided below.

7.2.4 Emergency Decontamination

If circumstances dictate that contaminated clothing cannot be readily removed, then remove gross contamination and wrap injured personnel with clean garments/blankets to avoid contaminating other personnel or transporting equipment.

If the injured person can be moved, he/she will be decontaminated by site personnel as described above before emergency responders handle the victim. If the person cannot be moved because of the extent of the injury (a back or neck injury), provisions shall be made to ensure that emergency response personnel will be able to respond to the victim without being exposed to potentially hazardous atmospheric conditions. If the potential for inhalation hazards exist, such as with open excavation, this area will be covered with polyethylene sheeting to eliminate any potential inhalation hazards. All emergency personnel are to be immediately informed of the injured person's condition, potential contaminants, and provided with all pertinent data.

7.2.5 Hand-Held Equipment Decontamination

Hand-held equipment includes all monitoring instruments as stated earlier, samples, hand tools, and notebooks. The hand-held equipment is dropped at the first decontamination station to be decontaminated by one of the decontamination team members. These items must be decontaminated or discarded as waste prior to removal from the CRZ.

To aid in decontamination, monitoring instruments can be sealed in plastic bags or wrapped in polyethylene. This will also protect the instruments against contaminants. The instruments will be wiped clean using wipes or paper towels if contamination is visually evident. Sampling equipment, hand tools, etc. will be cleaned with non-phosphorous soap to removed any potentially contaminated soil, and rinsed with deionized water. All decontamination fluids will be containerized and stored on-site pending waste characterization sampling and appropriate off-site disposal.

7.2.6 Heavy Equipment Decontamination

All heavy equipment and vehicles arriving at the work site will be free from contamination from offsite sources. Any vehicles arriving to work that are suspected of being impacted will not be permitted on the work site. Potentially contaminated heavy equipment will not be permitted to leave the EZ unless it has been thoroughly decontaminated and visually inspected by the SSO or his designee.

7.3 Communications

The following communications equipment will be utilized as appropriate.

- Telephones - A cellular telephone will be located with the SSO for communication with the HSC and emergency support services/facilities.
- Hand Signals - Hand signals shall be used by field teams, along with the buddy system. The entire field team shall know them before operations commence and their use covered during site-specific training. Typical hand signals are the following:

| <u>Signal</u> | <u>Meaning</u> |
|---|-----------------------------------|
| Hand gripping throat | Out of air, can't breathe |
| Grip on partner's wrist or placement of both hands around partner's waist | Leave area immediately, no debate |
| Hands on top of head | Need assistance |
| Thumbs up | Okay, I'm all right, I understand |
| Thumbs down | No, negative |

8.0 MEDICAL SURVEILLANCE

All contractor and subcontractor personnel performing site field work where potential exposure to contaminants exists are required to have passed a complete medical surveillance physical examination in accordance with 29 CFR 1910.120(f).

9.0 MEDICAL SURVEILLANCE PROGRAM REQUIREMENTS

A physician's medical clearance for work will be confirmed by the SSO before an employee can work in the EZ. The examination will be completed annually at a minimum. Additional medical testing may be required by the HSC if, a.) an over-exposure or accident occurs, b.) an employee exhibits symptoms of exposure, or c.) other site conditions warrant further medical surveillance.

10.0 EMERGENCY RESPONSE PLAN

This section establishes procedures and provides information for use during a project emergency. Emergencies happen unexpectedly and quickly, and require an immediate response; therefore, contingency planning and advanced training of staff is essential. Specific elements of emergency support procedures that are addressed in the following subsections include communications, local emergency support units, preparation for medical emergencies, first aid for injuries incurred on site, record keeping, and emergency site evacuation procedures.

10.1 Responsibilities

10.1.1 Health and Safety Coordinator (HSC)

The HSC oversees and approves the Emergency Response/Contingency Plan and performs audits to determine that the plan is in effect and that all pre-emergency requirements are met. The HSC will be notified of all incidents, injuries, near misses, OSHA recordable incidents, fires, spills, releases or equipment damage. The HSC acts as a liaison to applicable regulatory agencies.

10.1.2 Site Safety Officer (SSO)

The SSO is responsible for ensuring that all personnel are evacuated safely and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation. The SSO is responsible for ensuring the HSC are notified of all incidents, all injuries, near misses, fires, spills, releases or equipment damage. The SSO is required to immediately notify the HSC of any fatalities or catastrophes (three or more workers injured and hospitalized) so that the HSC can notify OSHA within the required time frame.

10.1.3 Emergency Coordinator

The Emergency Coordinator is normally the SSO.

The Emergency Coordinator shall make contact with Local Emergency Response personnel prior to beginning work on site. In these contacts, the Emergency Coordinator will inform interested parties about the

nature and duration of work expected on the site and the type of contaminants and possible health or safety effects of emergencies involving these contaminants. The Emergency Coordinator shall locate emergency phone numbers and identify hospital routes prior *to beginning* work on the sites. The Emergency Coordinator shall make necessary arrangements to be prepared for any emergencies that could occur.

The Emergency Coordinator shall implement the Emergency Response/Contingency Plan whenever conditions resulting from the Site Investigation warrant such action.

10.1.4 Site Personnel

Project site personnel are responsible for knowing the Emergency Response/Contingency Plan and the procedures contained herein. Personnel are expected to notify the Emergency Coordinator of situations that could constitute a site emergency. Project site personnel, including all subcontractors will be trained in the Emergency Response/Contingency Plan.

10.2 Communications

Once an emergency situation has been stabilized or as soon as practically possible, the SSO will contact the Langan project manager of any emergency situation.

10.3 Local Emergency Support Units

In order to be able to deal with any emergency that might occur during investigative activities at the site, Attachment E will be available in the field vehicles and provided to all personnel conducting work within the EZ.

Figure 2 shows the hospital route map. Outside emergency number 911 and local ambulance should be relied on for response to medical emergencies and transport to emergency rooms. Due to traffic congestion that is prevalent in the New York metropolitan area, alternate hospital routes will need to be considered. The Emergency Coordinator will determine the appropriate route based on time of day and traffic patterns. Changes in the referenced primary

facilities shall be documented with the CHASP Field Change Authorization Request Form (Attachment B).

The Emergency Phone Numbers listed are preliminary. Upon mobilization, the SSO shall verify all numbers and document the changes in the Site Health and Safety Logbook. Any changes shall also be documented with the CHASP Field Change Authorization Request Form.

Hospital route maps will be provided to all field personnel.

10.4 Pre-Emergency Planning

Langan will communicate directly with administrative personnel from the emergency room at the hospital in order to determine whether the hospital has the facilities and personnel needed to treat cases of trauma resulting from any of the contaminants expected to be found on the site. Instructions for finding the hospital will be posted conspicuously in the site office and in each site vehicle.

10.5 Emergency Medical Treatment

The procedures and rules in this CHASP are designed to prevent employee injury. However, should an injury occur, no matter how slight, it will be reported to the SSO on site immediately. First-aid equipment will be available on site at the following locations:

| | |
|---------------------|----------|
| First Aid Kit: | Vehicles |
| Emergency Eye Wash: | Vehicles |

During the site safety briefing, project personnel will be informed of the location of the first aid station(s) that has been set up. Unless they are in immediate danger, severely injured persons will not be moved until paramedics can attend to them. Some injuries, such as severe cuts and lacerations or burns, may require immediate treatment. Any first aid instructions that can be obtained from doctors or paramedics, before an emergency-response squad arrives at the site or before the injured person can be transported to the hospital, will be followed closely.

Personnel with current first aid and CPR certification will be identified.

Only in non-emergency situations will an injured person be transported to the hospital by means other than an ambulance.

**Nearest hospital: North General Hospital
1735 Park Avenue #2
New York, NY 10035
(212) 348-2210**

(directions from site to hospital found on Figure 2)

10.6 Emergency Site Evacuation Routes and Procedures

All project personnel will be instructed on proper emergency response procedures and locations of emergency telephone numbers during the initial site safety meeting. If an emergency occurs as a result of the site investigation activities, including but not limited to fire, explosion or significant release of toxic gas into the atmosphere, the Langan Project Manager will be verbally notified immediately. All heavy equipment will be shut down and all personnel will evacuate the work areas and assemble at the nearest intersection to be accounted for and to receive further instructions.

10.7 Fire Prevention and Protection

In the event of a fire or explosion, procedures will include immediately evacuating the site and notification of the Langan Project Manager of the investigation activities. Portable fire extinguishers will be provided at the work zone. The extinguishers located in the various locations should also be identified prior to the start of work. No personnel will fight a fire beyond the stage where it can be put out with a portable extinguisher (incipient stage).

10.7.1 Fire Prevention

Fires will be prevented by adhering to the following precautions:

- Good housekeeping and storage of materials.
- Storage of flammable liquids and gases away from oxidizers.
- Shutting off engines to refuel.
- Grounding and bonding metal containers during transfer of flammable liquids.

- Use of UL approved flammable storage cans.
- Fire extinguishers rated at least 10 pounds ABC located on all heavy equipment, in all trailers and near all hot work activities.

The person responsible for the control of fuel source hazards and the maintenance of fire prevention and/or control equipment is the SSO.

10.8 Significant Vapor Release

Based on the proposed tasks, the potential for a significant vapor is low. However, if a release occurs, the following steps will be taken:

- Move all personnel to an upwind location. All non-essential personnel shall evacuate.
- Upgrade to Level C Respiratory Protection.
- Downwind perimeter locations shall be monitored for volatile organics..
- If the release poses a potential threat to human health or the environment in the community, the Emergency Coordinator shall notify the Langan Project Manager.
- Local emergency response coordinators will be notified.

10.9 Overt Chemical Exposure

The following are standard procedures to treat chemical exposures. Other, specific procedures detailed on the Material Safety Data Sheet (MSDS) will be followed, when necessary.

SKIN AND EYE: Use copious amounts of soap and water from eye-wash kits and portable hand wash stations.

CONTACT: Wash/rinse affected areas thoroughly, then provide appropriate medical attention. Skin shall also be rinsed for 15 minutes if contact with caustics, acids or hydrogen peroxide occurs. Affected items of clothing shall also be removed from contact with skin.

Providing wash water and soap will be the responsibility of each individual contractor or sub contractor on-site.

10.10 Decontamination During Medical Emergencies

If emergency life-saving first aid and/or medical treatment is required, normal decontamination procedures may need to be abbreviated or omitted. The SSO or designee will accompany contaminated victims to the medical facility to advise on matters involving decontamination when necessary. The outer garments can be removed if they do not cause delays, interfere with treatment or aggravate the problem. Respiratory equipment must always be removed. Protective clothing can be cut away. If the outer contaminated garments cannot be safely removed on site, a plastic barrier placed between the injured individual and clean surfaces should be used to help prevent contamination of the inside of ambulances and/or medical personnel. Outer garments may then be removed at the medical facility. No attempt will be made to wash or rinse the victim if his/her injuries are life threatening, unless it is known that the individual has been contaminated with an extremely toxic or corrosive material which could also cause severe injury or loss of life to emergency response personnel. For minor medical problems or injuries, the normal decontamination procedures will be followed.

10.11 Incident Reporting

Once first aid and/or emergency response needs have been met, the following parties are to be contacted:

- Langan Health and Safety Manager, Tony Moffa (215-491-6500)
- Langan Project Manager, Chris McMahon or Steve Ciambuschini (201-794-6900)
- The employer of any injured worker who is not a Langan employee

For emergencies involving personal injury and/or exposure including near-misses, the SSO or designee will complete and submit an Incident Report form (Attachment F) within 48 hours. If the employee involved is not a Langan employee, his employer shall receive a copy of the report.

10.12 Adverse Weather Conditions

In the event of adverse weather conditions, the SSO/ Site Supervisor will determine if work will continue without potentially risking the safety of all field workers. Some of the items to be considered prior to determining if work should continue are:

- Potential for heat stress and heat-related injuries.
- Potential for cold stress and cold-related injuries.
- Treacherous weather-related working conditions (hail, rain, snow, ice, high winds).
- Limited visibility (fog).
- Potential for electrical storms.
- Earthquakes.
- Other major incidents.

Site activities will be limited to daylight hours, or when suitable artificial light is provided, and acceptable weather conditions prevail. The SSO will determine the need to cease field operations or observe daily weather reports and evacuate, if necessary, in case of severe inclement weather conditions.

10.13 Spill Control and Response

All small spills/environmental releases shall be contained as close to the source as possible. Whenever possible, the MSDS will be consulted to assist in determining proper waste characterization and the best means of containment and cleanup. For small spills, sorbent materials such as sand, sawdust or commercial sorbents should be placed directly on the substance to contain the spill and aid recovery. Any acid spills should be diluted or neutralized carefully prior to attempting recovery. Berms of earthen or sorbent materials can be used to contain the leading edge of the spills. All spill containment materials will be properly disposed. An exclusion zone of 50 to 100 feet around the spill area should be established depending on the size of the spill.

All contractor vehicles shall have spill kits on them with enough material to contain and absorb the worst-case spill from that vehicle. All vehicles and

equipment shall be inspected prior to be admitted on site. Any vehicle or piece of equipment that develops a leak will be taken out of service and removed from the job site.

All subcontractor employees as well as Langan employees will be 40-hour HAZWOPER trained.

The following seven steps shall be taken by the Emergency Coordinator:

1. Determine the nature, identity and amounts of major spills.
2. Make sure all unnecessary persons are removed from the spill area.
3. Notify the Site Supervisor or SSO immediately.
4. Use proper PPE in consultation with the SSO/Site Supervisor.
5. If a flammable liquid, gas or vapor is involved, remove all ignition sources and use non-sparking and/or explosion-proof equipment to contain or clean up the spill (diesel-only vehicles, air-operated pumps, etc.)
6. If possible, try to stop the leak with appropriate material.
7. Remove all surrounding materials that can react or compound with the spill.

In addition to the spill control and response procedures described in this CHASP, Langan personnel will coordinate with the designated project manager relative to spill response and control actions. Notification to the Project Manager must be immediate and, to the extent possible, include the following information:

- Time and location of the spill.
- Type and nature of the material spilled.
- Amount spilled.
- Whether the spill has affected or has a potential to affect a waterway or sewer.
- A brief description of affected areas/equipment.
- Whether the spill has been contained.

- Expected time of cleanup completion. If spill cleanup cannot be handled by Langan's on-site personnel alone, such fact must be conveyed to the Project Manager immediately.

Langan shall not make any notification of spills to outside agencies. The client will notify regulatory agencies as per their reporting procedures.

10.14 Emergency Equipment

The following minimum emergency equipment shall be kept and maintained on site:

- Industrial first aid kit.
- Fire extinguishers (one per site).
- Absorbent material.

10.15 Restoration and Salvage

After an emergency, prompt restoration of utilities, fire protection equipment, medical supplies and other equipment will reduce the possibility of further losses. Some of the items that may need to be addressed are:

- Refilling fire extinguishers.
- Refilling medical supplies.
- Recharging eyewashes and/or showers.
- Replenishing spill control supplies.

11.0 TRAINING

11.1 General Health and Safety Training

With Langan corporate policy, and pursuant to 29 CFR 1910.120, hazardous waste site workers shall, at the time of job assignment, have received a minimum of 40 hours of initial health and safety training for hazardous waste site operations unless otherwise noted in the above reference. At a minimum, the training shall have consisted of instruction in the topics outlined in the standard. Personnel who have not satisfied the requirements for initial training shall not be

allowed to work in any site activities in which they may be exposed to hazards (chemical or physical).

11.2 Annual Eight-Hour Refresher Training

Annual eight-hour refresher training will be required of all hazardous waste site field personnel in order to maintain their qualifications for site work. The training will cover a review of 1910.120 requirements and related company programs and procedures. The SSO will be required to have the eight-hour HAZWOPER supervisor training.

11.3 Site-Specific Training

Prior to commencement of site activities, all field personnel assigned to the project will have completed training that will specifically address the activities, procedures, monitoring, and equipment used in the site operations. It will include a documented verbal review of the entire CHASP and all the provisions within the CHASP document. Should any new employees arrive on-site, they will also be given a documented full CHASP review – or one that address the appropriate tasks that remain at the time of the new employee’s arrival.

11.4 Onsite Safety Briefings

Project personnel and visitors will participate in documented daily on-site health and safety briefings (“Tailgate Talks”) led by the SSO/Site Supervisor to assist site personnel in safely conducting their work activities. The briefings will include information on operations to be conducted that shift, changes in work practices or changes in the site's environmental conditions, as well as periodic reinforcement of previously discussed topics. The briefings will also provide a forum to facilitate conformance with safety requirements and to identify performance deficiencies related to safety during daily activities or as a result of safety inspections. The meetings will also be an opportunity for the work crews to be updated on monitoring results. Prior to starting any new activity, a training session will be held for crew members involved in the activity. The Safety Briefing form (Attachment A) can be used to facilitate this effort.

11.5 First Aid and CPR

The SSO will identify those individuals with first aid and CPR training in order to ensure that emergency medical treatment is available during field activities. The training will be consistent with the requirements of the American Red Cross or the National Safety Council.

11.6 Hazard Communication

All material brought on-site will be in the appropriate containers and will be properly labeled. The MSDS for unleaded gasoline, diesel fuel, and hydraulic fluid are attached. Langan's written Hazard Communication program, in compliance with 29 CFR 1910.1200, is maintained in Langan's office in Elmwood Park, New Jersey.

12.0 RECORDKEEPING

The following is a summary of required health and safety logs, reports and recordkeeping.

12.1 Field Change Authorization Request

A field change authorization request is to be completed for requesting a change to this CHASP (Attachment B). Any changes to the work to be performed that is not included in the CHASP will require an Addendum that is approved by the Langan Project Manager and Langan HSC to be prepared. Approved changes will be reviewed with all field personnel at a safety briefing.

12.2 Medical and Training Records

Copies or verification of training (40-hour, 8-hour, supervisor, site-specific training, documentation of three-day OJT, and respirator fit-test records) and medical clearance for Site work and respirator use will be maintained in the office and available upon request. Records for all subcontractor employees must also be available upon request. All employee medical records will be maintained by the HSC.

12.3 Onsite Log

A log of personnel on site each day will be kept by the Site Supervisor or designee.

12.4 Daily Safety Meetings (“Tailgate Talks”)

Completed Safety Briefing forms will be maintained by the SSO.

12.5 Exposure Records

All personal monitoring results, laboratory reports, calculations and air sampling data sheets are part of an employee exposure record. These records will be maintained by the SSO/Site Supervisor during site work. At the end of the project they will be maintained according to 29 CFR 1910.1020.

12.6 Incident Reports

The incident reporting and investigation during site work will follow the procedures specified here in.

12.7 OSHA Form 300

An OSHA Form 300 will be kept at the Langan Office in Doylestown, Pennsylvania. All recordable injuries or illnesses will be recorded on this form. Subcontractor employers must also meet the requirements of maintaining an OSHA 300 form. The Incident Report form used to capture the details of work-related injuries/illnesses meets the requirements of the OSHA Form 301 (supplemental record) and must be maintained with the OSHA Form 300 for all recordable injuries or illnesses.

12.8 Hazard Communication Program/MSDS

Material Safety Data Sheets (MSDS) have been obtained for applicable substances and are included in this EHS Plan (Attachment G). Langan’s written Hazard Communication program, in compliance with 29 CFR 1910.1200, is maintained by the HSC in Elmwood Park, New Jersey.

13.0 FIELD PERSONNEL REVIEW

This form serves as documentation that field personnel have been verbally given a full CHASP review by Langan personnel, and understand the provisions of this EHS Plan. It is maintained on site by the SSO as a project record.

Each field team member shall sign this section after Site-specific training is completed and before being permitted to work onsite.

| <i>Name (Print and Sign)</i> | <i>Company</i> | <i>Date</i> |
|-------------------------------------|-----------------------|--------------------|
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TABLES

**TABLE 1
CONTAMINANTS OF CONCERN
5 WEST 125TH STREET
NEW YORK, NEW YORK**

| Contaminant Of Concern | Affected Media |
|------------------------------|----------------|
| VOLATILES | |
| Total Volatiles ¹ | Soil |
| Tetrachloroethene | Groundwater |
| SEMI-VOLATILES | |
| Benzo(a)anthracene | Soil |
| Benzo(b)flouranthene | Soil |
| Benzo(k)flouranthene | Soil |
| Benzo(a)pyrene | Soil |
| Chrysene | Soil |
| Dibenzo(a,h)anthracene | Soil |
| Indeno (1,2,3-cd) pyrene | Soil |
| Flouranthene | Soil |
| Pyrene | Soil |
| PESTICIDES | |
| 4,4'-DDD (p,p') | Soil |
| 4,4'-DDE (p,p') | Soil |
| 4,4'-DDT (p,p') | Soil |
| Dieldrin | Soil |
| METALS | |
| Arsenic | Soil |
| Copper | Soil |
| Lead | Soil |
| Mercury | Soil |
| Nickel | Soil |
| Zinc | Soil |

1: No volatile organic compounds (VOCs) were found onsite in concentrations above applicable health-based soil remediation criteria and therefore pose a minimum risk individually. These contaminants are mentioned here however as they collectively may be responsible for objectionable odors during excavation. These VOCs include: n-Butylbenzene, sec-Butylbenzene, Ethylbenzene, Isopropylbenzene, 4-Isopropyltoluene, Naphthalene, n-Propylbenzene, Tetrachloroethene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, m,p-Xylene, and o-Xylene.

TABLE 2
SELECTED CHEMICAL EXPOSURE LIMITS AND HEALTH EFFECTS
5 WEST 125TH STREET
NEW YORK, NEW YORK

| Chemical | Permissible Exposure Limit | IDLH Limit | Exposure Routes | Exposure Symptoms |
|--------------------------|-----------------------------------|----------------------|---|---|
| Total Volatile Organics | 15 ppm | 150 ppm | Inhalation, Skin Absorption, Ingestion | Irritation eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen] |
| Tetrachloroethene | 15 ppm | 150 ppm | Inhalation, Skin Absorption, Ingestion, skin and/or eye contact | Nausea, vomiting, abdominal pain, tremor fingers, jaundice, hepatitis, liver tenderness, dermatitis, monocytosis, kidney damage [potential occupational carcinogen] |
| Benzo(a)anthracene | 0.2 mg/m ³ | 80 mg/m ³ | Inhalation, Skin Absorption, Ingestion | Irritate eyes, skin, upper respiratory system, cough |
| Benzo(b)fluoranthene | 0.2 mg/m ³ | 80 mg/m ³ | Inhalation, Skin Absorption, Ingestion | Irritate eyes, skin, upper respiratory system, cough |
| Benzo(k)fluoranthene | 0.2 mg/m ³ | 80 mg/m ³ | Inhalation, Skin Absorption, Ingestion | Irritate eyes, skin, upper respiratory system, cough |
| Benzo(a)pyrene | 0.2 mg/m ³ | 80 mg/m ³ | Inhalation, Skin Absorption, Ingestion | Irritate eyes, skin, upper respiratory system, cough |
| Chrysene | 0.2 mg/m ³ | 80 mg/m ³ | Inhalation, Skin Absorption, Ingestion | Irritate eyes, skin, upper respiratory system, cough |
| Dibenzo(a,h)anthracene | 0.2 mg/m ³ | 80 mg/m ³ | Inhalation, Skin Absorption, Ingestion | Irritate eyes, skin, upper respiratory system, cough |
| Flouranthene | 0.2 mg/m ³ | 80 mg/m ³ | Inhalation, Skin Absorption, Ingestion | Irritate eyes, skin, upper respiratory system, cough |
| Indeno (1,2,3-cd) pyrene | 0.2 mg/m ³ | 80 mg/m ³ | Inhalation, Skin Absorption, Ingestion | Irritate eyes, skin, upper respiratory system, cough |
| Pyrene | 0.2 mg/m ³ | 80 mg/m ³ | Inhalation, Skin Absorption, Ingestion | Irritate eyes, skin, upper respiratory system, cough |
| Benzene | 1 ppm | 50 ppm | Inhalation, Skin | Irritate eyes, skin, nose; respiratory |

TABLE 2
SELECTED CHEMICAL EXPOSURE LIMITS AND HEALTH EFFECTS
5 WEST 125TH STREET
NEW YORK, NEW YORK

| Chemical | Permissible Exposure Limit | IDLH Limit | Exposure Routes | Exposure Symptoms |
|----------------------|----------------------------|-------------------|--|---|
| | | | Absorption, Ingestion, skin and/or eye contact | system; giddiness; head, nausea, staggered gait; fatigue, anorexia, lassitude; dermatitis; bone marrow depression; [carcinogenic] |
| Toluene | 200 ppm | 500 ppm | Inhalation, Skin Absorption, Ingestion, skin and/or eye contact | Irritate eyes, nose; fatigue, weakness, confusion, euphoria, dizziness, headache; dilated pupils, lacrimation; nervousness, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage; mucous membrane; narcosis, coma |
| Ethylbenzene | 100 ppm | 800 ppm (10% LEL) | Inhalation, Ingestion, skin and/or eye contact | Irritate eyes, skin, mucous membrane ;headache, dermatitis; narcosis, coma |
| Xylenes | 100 ppm | 900 ppm | Inhalation, Skin Absorption, Ingestion, skin and/or eye contact | Irritate eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corn vacuolization; anorexia, nausea, vomit, abdominal pain; dermatitis |
| 1,2-Dichloroethylene | 200 ppm | 1,000 ppm | Inhalation, Ingestion, skin and/or eye contact | Irritation eyes, respiratory system; central nervous system depression |
| Trichloroethylene | 100 ppm | 1,000 ppm | Inhalation, Skin Absorption, Ingestion, skin and/or eye contact | Irritation eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen] |
| Vinyl chloride | 1 ppm | N.D. | Inhalation, skin and/or | Lassitude (weakness, exhaustion); |

TABLE 2
SELECTED CHEMICAL EXPOSURE LIMITS AND HEALTH EFFECTS
5 WEST 125TH STREET
NEW YORK, NEW YORK

| Chemical | Permissible Exposure Limit | IDLH Limit | Exposure Routes | Exposure Symptoms |
|-----------------|----------------------------|-----------------------|---|--|
| | | | eye contact | abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite; [potential occupational carcinogen] |
| 4,4'-DDD (p,p') | 1 mg/m ³ | 500 mg/m ³ | Inhalation, Skin Absorption, Ingestion, skin and/or eye contact | Irritation eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen] |
| 4,4'-DDE (p,p') | 1 mg/m ³ | 500 mg/m ³ | Inhalation, Skin Absorption, Ingestion, skin and/or eye contact | Irritation eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen] |
| 4,4'-DDT (p,p') | 1 mg/m ³ | 500 mg/m ³ | Inhalation, Skin Absorption, Ingestion, skin and/or eye contact | Irritation eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen] |

TABLE 2
SELECTED CHEMICAL EXPOSURE LIMITS AND HEALTH EFFECTS
5 WEST 125TH STREET
NEW YORK, NEW YORK

| Chemical | Permissible Exposure Limit | IDLH Limit | Exposure Routes | Exposure Symptoms |
|-----------------|-----------------------------------|-----------------------|---|---|
| Dieldrin | 0.25 mg/m ³ | 50 mg/m ³ | Inhalation, Skin Absorption, Ingestion, skin and/or eye contact | Headache, dizziness; nausea, vomiting, malaise (vague feeling of discomfort), sweating; myoclonic limb jerks; clonic, tonic convulsions; coma; [potential occupational carcinogen]; in animals: liver, kidney damage |
| Arsenic | 0.010 mg/m ³ | 5 mg/m ³ | Inhalation, Ingestion, skin and/or eye contact, skin absorption | Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, respiratory irritation, hyperpigmentation of skin, [potential occupational carcinogen] |
| Copper | 1 mg/m ³ | 100 mg/m ³ | Inhalation, Ingestion, skin and/or eye contact | Irritation eyes, respiratory system; cough, dyspnea (breathing difficulty), wheezing; [potential occupational carcinogen] |
| Lead | 1 mg/m ³ | 100 mg/m ³ | Inhalation, Ingestion, skin and/or eye contact | Irritation eyes, respiratory system; cough, dyspnea (breathing difficulty), wheezing; [potential occupational carcinogen] |
| Mercury | 0.1 mg/m ³ | 10 mg/m ³ | Inhalation, Ingestion, skin and/or eye contact, skin absorption | Irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria |

TABLE 2
SELECTED CHEMICAL EXPOSURE LIMITS AND HEALTH EFFECTS
5 WEST 125TH STREET
NEW YORK, NEW YORK

| Chemical | Permissible Exposure Limit | IDLH Limit | Exposure Routes | Exposure Symptoms |
|-----------------|-----------------------------------|-----------------------|---|---|
| Nickel | 10 mg/m ³ | 0.1 mg/m ³ | Inhalation, Skin Absorption, Ingestion, skin and/or eye contact | Irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria |
| Zinc | 1 mg/m ³ | 10 mg/m ³ | Inhalation, Ingestion | Sensitization dermatitis, allergic asthma, pneumonitis; (potential occupational carcinogen) |

--- No exposure limits listed in the NIOSH Pocket Guide to Chemical Hazards dated September 2005.

**TABLE 3
HAZARD ANALYSIS
5 WEST 125TH STREET
NEW YORK, NEW YORK**

| Potential Hazard | Earthwork | Dewatering Excavations | Equipment Decontamination |
|-------------------------|------------------------|-------------------------------|----------------------------------|
| Inhalation of volatiles | moderate to high | low | low to moderate |
| Skin and eye contact | moderate to high | low to moderate | moderate to high |
| Ingestion | moderate | low | low |
| Inhalation of dust | moderate to high | low | low to moderate |
| Heat stress | depends on temperature | depends on temperature | depends on temperature |
| Cold stress | depends on temperature | depends on temperature | depends on temperature |
| Confined Space Entry | moderate to high | low to moderate | not applicable |
| Heavy equipment | moderate to high | low | low to moderate |
| Noise | moderate | moderate | moderate |
| Tripping | moderate | moderate | moderate |
| PPE | moderate to high | low | moderate |
| Utilities | moderate | low | low |
| Other Physical hazards | moderate to high | low | moderate |
| Biological hazards | low | low | low |
| Flammable hazards | low | low | low |

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TABLE 4
INSTRUMENTATION ACTION LEVELS
5 West 125th Street
New York, New York

| Instrument | Action Level | Level of Protection / Action Required |
|------------|---|--|
| PID*/FID* | < 15 ppm within AOC zone | Level D |
| | > 15 ppm (initial) | Stop work. Resume work once readings are below 15 ppm. |
| | > 15 ppm and \leq 30 ppm (steady state condition) within breathing zone | Level C/Initiate Perimeter Monitoring |
| | > 30 ppm (steady state condition) within AOC zone | Stop Work / Suppress Emissions / Evacuate and re-evaluate. |
| | \geq 15 ppm sustained for 1 minute at AOC site boundary. | Stop Work / Backfill source of emissions and re-evaluate. |

| | | |
|----------------------------|--|---|
| Total Dust Aerosol Monitor | > 0.150 mg/m ³ above BKD (steady state condition) at perimeter of AOC zone or visible dust. | Stop Work / Implement dust control / Continue dust monitoring |
|----------------------------|--|---|

BKD = Background concentration

*PID/FID readings are taken at personnel breathing zone height using a 10.2V lamp PID or equivalent.

**TABLE 5
PERSONAL PROTECTIVE EQUIPMENT
5 West 125th Street
New York, New York**

Respiratory Protection:

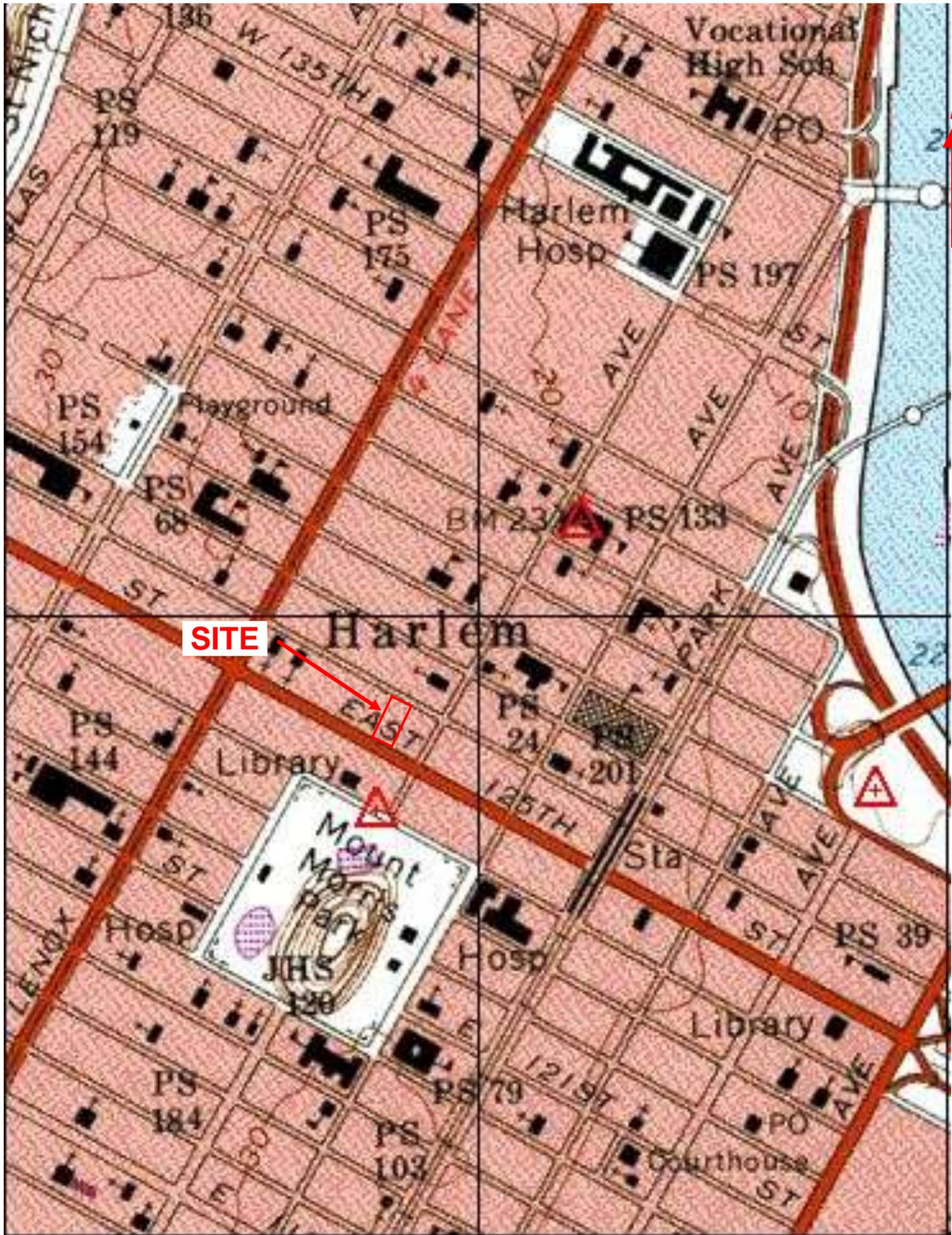
| | |
|--------------------------------|---|
| Level D: | No respirator required. |
| Level C: | Half-face, Air Purifying Respirator (APR) with combination HEPA (dusts, fumes, aerosols) and organic vapor cartridges. The respirator will be NIOSH-approved. |
| Level C - supplemental by task | Fullface, Air Purifying Respirator (APR) with combination HEPA (dusts, fumes, aerosols), acid gas, organic vapor cartridges. The respirator will be NIOSH-approved. |

Personal Protective Clothing:

| | |
|------------------------------------|--|
| Level D: | Hard-hat, traffic vest (if working on or adjacent to the roadway), long sleeve work shirt & work pants of natural fibers, safety glasses or goggles, steel-toed boots, hearing protection (if needed), nitril inner gloves and leather outer gloves. |
| Level D - supplemental PPE by task | Tyvek disposal suit |
| Level C: | Chemically resistant outer boots and Chemical resistant Tyvek disposal suite. |

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FIGURES



MAP REFERENCE: USGS Central Park, New York Quadrangle Maps Revised July 1984 (7.5 Minute Series)



Project

**5 WEST 125TH STREET
SITE LOCATION MAP**

NEW YORK

NEW YORK

ELMWOOD Pk, NJ (201) 794-6900 NEW YORK, NY (212) 964-7888 PHILADELPHIA, PA (215) 864-0640 DOYLESTOWN, PA (215) 348-7101 NEW HAVEN, CT (203) 562-5771 MIAMI, FL (305) 362-1166

JOB NO.

DATE

SCALE

FIGURE NO.

9200803

4/6/2011

NTS

1



Emergency Route to North General Hospital (Phone # (212) 348-2210) :

- 1 Start traveling southeast on W 125th St/Dr. Martin Luther King Jr. Blvd towards 5th Avenue
- 2 Turn Right on the 3rd Cross Street onto Park Avenue.
- 3 Arrive at North General Hospital at 1735 Park Avenue #2, New York, New York 10035-3532.

MAP REFERENCE: Google Maps

| | | | | | | |
|---|--------------------------------|---|----------------------------------|---------------------------------|-----------------------------|---------------------|
|  Langan Engineering and Environmental Services | | Project 5 WEST 125TH STREET EMERGENCY HOSPITAL ROUTE MAP | | New York | | |
| | | Manhattan | | 1710701 9200803 | DATE 4/1/2011 | SCALE NTS |
| ELMWOOD PK, NJ (201) 794-6900 | NEW YORK, NY (212) 964-7888 | PHILADELPHIA, PA (215) 864-0640 | DOYLESTOWN, PA (215) 348-7101 | NEW HAVEN, CT (203) 562-5771 | MIAMI, FL (305) 362-1166 | |

ATTACHMENT A

Health and Safety Briefing Statement

ATTACHMENT A

HEALTH AND SAFETY BRIEFING STATEMENT

The following personnel were present at a pre-job safety briefing conducted at _____(time) on _____ (date) at _____(location), and have read this Health and Safety Plan for the above Site and are familiar with its provisions:

| Name | Signature |
|-------|-----------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

- Fully charged ABC class fire extinguisher available on Site? _____
- Fully stocked First Aid Kit available on Site? _____
- All project personnel advised of location of nearest phone? _____
- All project personnel advised of location of designated medical facility? _____

Name of Field Team Leader or Site Safety Officer

Signature

Date

ATTACHMENT B

Field Procedures Change Authorization Form

ATTACHMENT C

Unsafe Conditions and Practices Form

ATTACHMENT C
UNSAFE CONDITIONS AND PRACTICES FORM

DESCRIPTION OF CIRCUMSTANCES REGARDING UNSAFE CONDITION OR PRACTICE:

IS THIS CONDITION EXISTING OR POTENTIAL? _____

REPORTED TO: _____

REPORTED BY: _____

DATE REPORTED: _____

COMMENTS: _____

ATTACHMENT D

Calibration Log

ATTACHMENT E

Emergency Notification Numbers

ATTACHMENT E

EMERGENCY NOTIFICATION NUMBERS

The following list provides names and telephone numbers for emergency contact personnel.

| ORGANIZATION | CONTACT | TELEPHONE |
|---|------------------|------------------------------|
| New York City Police | | 911 |
| New York City Fire | | 911 |
| Jewish Home & Hospital | | 212-695-7830 |
| Langan Project Manager | Chris McMahon | 201-398-4899 ext 4434 |
| National Response Center | | 800-424-8802 |
| Center for Disease Control | | 404-488-4100 |
| CHEMTREC | | 800-424-9300 |
| TSCA HOTLINE | | 202-554-1404 |
| RCRA HOTLINE | | 800-424-9346 |
| CDC | (DAY) (NIGHT) | 404-452-4100 404-329-2888 |
| BUREAU OF ALCOHOL, TOBACCO & FIREARMS | | 800-424-9555 202-566-7777 |
| NATIONAL RESPONSE CENTER | | 800-424-8802 |
| PESTICIDE INFORMATION SERVICE | | 800-424-9346 |
| BUREAU OF EXPLOSIVES, A.A. RAILWAYS | | 202-835-9500 |
| FEDERAL EXPRESS - HAZARDOUS MATERIAL INFO | | 901-922-1666 |

ATTACHMENT F

Accident / Incident Report Form

ATTACHMENT F

INCIDENT REPORT

**LANGAN EMPLOYEE EXPOSURE/INJURY INCIDENT REPORT
(Submit a Separate Report for Each Employee and/or Incident)**

Date: _____

Employee's Name: _____ Employee No: _____

Sex: M _____ F _____ Age: _____

Region: _____ Location: _____

Project: _____ Project No: _____

Incident: _____

Type: Possible Exposure _____ Exposure _____ Physical Injury _____

Location: _____

Date of Incident: _____ Time of Incident: _____

Date of Report Incident: _____

Person(s) to Whom Incident was Reported: _____

Weather Conditions During Incident: Temperature _____ Humidity _____

Wind Speed and Direction: _____ Cloud Cover: _____

Clear: _____ Precipitation: _____

Materials Potentially Encountered: _____

Chemical (give name of description - liquid, solid, gas, vapor, fume, mist):

Radiological: _____

Other: _____

Nature of the Exposure/Injury: (State the nature of the exposure/injury in detail and list the parts of the body affected. Attach extra sheets if necessary).

Did you receive medical care? Yes _____ No _____ If so, when _____

Where? On-Site _____ Off-Site _____

By Whom: Name of Paramedic: _____

Name of Physician: _____

Other: _____

If Off-Site, name facility (hospital, clinic, etc): _____

Length of stay at the facility? _____

Was the Site Safety Officer contacted? Yes _____ No _____ When? _____

Was the Corporate Health and Safety Officer contacted? Yes _____ No _____

If so, who was the contact? _____

Did the exposure/injury result in permanent disability? Yes _____ No _____

If so, explain: _____

Has the employee returned to work? Yes _____ No _____

List the names of other persons affected during this incident:

List the names of persons who witnessed the exposure/injury incident:

Possible cause of the exposure/injury incident: _____

What was the name and title of the field team leader or immediate supervisor at the site of the incident?

Was the operation being conducted under an established Health and Safety Plan?

Yes _____ No _____ If yes, attach a copy. If no, explain

Describe protective equipment and clothing used by the employee:

Did any limitations in safety equipment or protective clothing contribute to or affect exposure? If so, explain:

What was the employee doing when the exposure/injury occurred? (Describe briefly as Site Reconnaissance, Site Characterization, or Sampling, etc.):

Where exactly on site or off site did the exposure/injury occur?

How did the exposure/injury occur? (Describe fully what factors led up to and/or contributed to the incident):

Name of person(s) initiating report, job title, phone number:

Employee Signature

Date

Site Safety Officer Signature or Field Team Leader Signature

Date

ATTACHMENT G

Material Safety Data Sheets (MSDS)



MATERIAL SAFETY DATA SHEET

Diesel Fuel (All Types)

MSDS No. 9909

EMERGENCY OVERVIEW

CAUTION!

**OSHA/NFPA COMBUSTIBLE LIQUID - SLIGHT TO MODERATE IRRITANT
EFFECTS CENTRAL NERVOUS SYSTEM
HARMFUL OR FATAL IF SWALLOWED**

Moderate fire hazard. Avoid breathing vapors or mists. May cause dizziness and drowsiness. May cause moderate eye irritation and skin irritation (rash).

Long-term, repeated exposure may cause skin cancer.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs).



NFPA 704 (Section 16)

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

**Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961**

EMERGENCY TELEPHONE NUMBER (24 hrs): CHEMTREC (800) 424-9300

COMPANY CONTACT (business hours): Corporate Safety (732) 750-6000

MSDS INTERNET WEBSITE: www.hess.com (See Environment, Health, Safety & Social Responsibility)

SYNONYMS: Ultra Low Sulfur Diesel (ULSD); Low Sulfur Diesel; Motor Vehicle Diesel Fuel; Diesel Fuel #2; Dyed Diesel Fuel; Non-Road, Locomotive and Marine Diesel Fuel; Tax-exempt Diesel Fuel

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and CHEMICAL INFORMATION ON INGREDIENTS

| INGREDIENT NAME (CAS No.) | CONCENTRATION PERCENT BY WEIGHT |
|---------------------------|---------------------------------|
| Diesel Fuel (68476-34-6) | 100 |
| Naphthalene (91-20-3) | Typically < 0.01 |

A complex mixture of hydrocarbons with carbon numbers in the range C9 and higher. Diesel fuel may be dyed (red) for tax purposes. May contain a multifunctional additive.

3. HAZARDS IDENTIFICATION

EYES

Contact with liquid or vapor may cause mild irritation.

SKIN

May cause skin irritation with prolonged or repeated contact. Practically non-toxic if absorbed following acute (single) exposure. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

INGESTION

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.



MATERIAL SAFETY DATA SHEET

Diesel Fuel (All Types)

MSDS No. 9909

INHALATION

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY

Similar products produced skin cancer and systemic toxicity in laboratory animals following repeated applications. The significance of these results to human exposures has not been determined - see Section 11 Toxicological Information.

IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A). NIOSH regards whole diesel fuel exhaust particulates as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash).

4. FIRST AID MEASURES

EYES

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION

Remove person to fresh air. If person is not breathing provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

| | |
|-------------------------------|---------------------------------|
| FLASH POINT: | > 125 °F (> 52 °C) minimum PMCC |
| AUTOIGNITION POINT: | 494 °F (257 °C) |
| OSHA/NFPA FLAMMABILITY CLASS: | 2 (COMBUSTIBLE) |
| LOWER EXPLOSIVE LIMIT (%): | 0.6 |
| UPPER EXPLOSIVE LIMIT (%): | 7.5 |

FIRE AND EXPLOSION HAZARDS

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO₂, water spray, fire fighting foam, or Halon.



MATERIAL SAFETY DATA SHEET

Diesel Fuel (All Types)

MSDS No. 9909

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY'S SPILL CONTINGENCY OR EMERGENCY RESPONSE PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE

HANDLING PRECAUTIONS

Handle as a combustible liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Diesel fuel, and in particular low and ultra low sulfur diesel fuel, has the capability of accumulating a static electrical charge of sufficient energy to cause a fire/explosion in the presence of lower flashpoint products such as gasoline. The accumulation of such a static charge occurs as the diesel flows through pipelines, filters, nozzles and various work tasks such as tank/container filling, splash loading, tank cleaning; product sampling; tank gauging; cleaning, mixing, vacuum truck operations, switch loading, and product agitation. There is a greater potential for static charge accumulation in cold temperature, low humidity conditions.

Documents such as 29 CFR OSHA 1910.106 "Flammable and Combustible Liquids, NFPA 77 Recommended Practice on Static Electricity, API 2003 "Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents and ASTM D4865 "Standard Guide for Generation and Dissipation of Static



MATERIAL SAFETY DATA SHEET

Diesel Fuel (All Types)

MSDS No. 9909

Electricity in Petroleum Fuel Systems" address special precautions and design requirements involving loading rates, grounding, bonding, filter installation, conductivity additives and especially the hazards associated with "switch loading." ["Switch Loading" is when a higher flash point product (such as diesel) is loaded into tanks previously containing a low flash point product (such as gasoline) and the electrical charge generated during loading of the diesel results in a static ignition of the vapor from the previous cargo (gasoline).]

Note: When conductivity additives are used or are necessary the product should achieve 25 picosiemens/meter or greater at the handling temperature.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION

EXPOSURE LIMITS

| Components (CAS No.) | Source | Exposure Limits | | Note |
|---------------------------|--------|--|--|----------|
| | | TWA/STEL | | |
| Diesel Fuel: (68476-34-6) | OSHA | 5 mg/m, as mineral oil mist | | |
| | ACGIH | 100 mg/m ³ (as totally hydrocarbon vapor) TWA | | A3, skin |
| Naphthalene (91-20-3) | OSHA | 10 ppm TWA | | |
| | ACGIH | 10 ppm TWA / 15 ppm STEL | | A4, Skin |

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile, neoprene, or PVC are recommended. Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.



MATERIAL SAFETY DATA SHEET

Diesel Fuel (All Types)

MSDS No. 9909

RESPIRATORY PROTECTION

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE

Clear, straw-yellow liquid. Dyed fuel oil will be red or reddish-colored.

ODOR

Mild, petroleum distillate odor

BASIC PHYSICAL PROPERTIES

BOILING RANGE: 320 to 690 oF (160 to 366 °C)
VAPOR PRESSURE: 0.009 psia @ 70 °F (21 °C)
VAPOR DENSITY (air = 1): > 1.0
SPECIFIC GRAVITY (H₂O = 1): 0.83 to 0.88 @ 60 °F (16 °C)
PERCENT VOLATILES: 100 %
EVAPORATION RATE: Slow; varies with conditions
SOLUBILITY (H₂O): Negligible

10. STABILITY and REACTIVITY

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Keep away from strong oxidizers; Viton ®; Fluorel ®

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

11. TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY

Acute dermal LD50 (rabbits): > 5 ml/kg Acute oral LD50 (rats): 9 ml/kg
Primary dermal irritation: extremely irritating (rabbits) Draize eye irritation: non-irritating (rabbits)
Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenic: OSHA: NO IARC: NO NTP: NO ACGIH: A3

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

MUTAGENICITY (genetic effects)

This material has been positive in a mutagenicity study.



MATERIAL SAFETY DATA SHEET

Diesel Fuel (All Types) **MSDS No. 9909**

12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable, under Federal and State regulations.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

| | | |
|---------------------------------|---|---|
| PROPER SHIPPING NAME: | Diesel Fuel | Placard (International Only): |
| HAZARD CLASS and PACKING GROUP: | 3, PG III | |
| DOT IDENTIFICATION NUMBER: | NA 1993 (Domestic) UN 1202 (International) |  |
| DOT SHIPPING LABEL: | None | |

Use Combustible Placard if shipping in bulk domestically

15. REGULATORY INFORMATION

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other regulations at the state and/or local level. Consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

| | | | | |
|---------------------|-----------------------|-------------|-----------------------------------|-----------------|
| <u>ACUTE HEALTH</u> | <u>CHRONIC HEALTH</u> | <u>FIRE</u> | <u>SUDDEN RELEASE OF PRESSURE</u> | <u>REACTIVE</u> |
| X | X | X | -- | -- |

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product may contain listed chemicals below the *de minimis* levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372. If you may be required to report releases of chemicals listed in 40 CFR 372.28, you may contact Hess Corporate Safety if you require additional information regarding this product.

CALIFORNIA PROPOSITON 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

| | |
|--|--------------------|
| <u>INGREDIENT NAME (CAS NUMBER)</u> | <u>Date Listed</u> |
| Diesel Engine Exhaust (no CAS Number listed) | 10/01/1990 |

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 3 (Combustible Liquid) and Class D, Division 2, Subdivision B (Toxic by other means)



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

EMERGENCY OVERVIEW

DANGER!

EXTREMELY FLAMMABLE - EYE AND MUCOUS MEMBRANE IRRITANT
- EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF
SWALLOWED - ASPIRATION HAZARD



NFPA 704 (Section 16)

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause effects to specific organs, such as to the liver, kidneys, blood, nervous system, and skin. Contains benzene, which can cause blood disease, including anemia and leukemia.

1. CHEMICAL PRODUCT and COMPANY INFORMATION

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs):
COMPANY CONTACT (business hours):
MSDS (Environment, Health, Safety) Internet Website

CHEMTREC (800)424-9300
Corporate Safety (732)750-6000
www.hess.com

SYNONYMS: Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS *

Table with 2 columns: INGREDIENT NAME (CAS No.) and CONCENTRATION PERCENT BY WEIGHT. Lists ingredients like Gasoline, Benzene, n-Butane, Ethyl Alcohol, Ethyl benzene, n-Hexane, MTBE, TAME, Toluene, 1,2,4-Trimethylbenzene, and Xylene with their respective concentrations.

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol or MTBE and/or TAME).



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

3. HAZARDS IDENTIFICATION

EYES

Moderate irritant. Contact with liquid or vapor may cause irritation.

SKIN

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

INGESTION

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY

Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity. See also Section 11 - Toxicological Information.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

4. FIRST AID MEASURES

EYES

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION

Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

| | |
|-------------------------------|-------------------------------------|
| FLASH POINT: | -45 °F (-43°C) |
| AUTOIGNITION TEMPERATURE: | highly variable; > 530 °F (>280 °C) |
| OSHA/NFPA FLAMMABILITY CLASS: | 1A (flammable liquid) |
| LOWER EXPLOSIVE LIMIT (%): | 1.4% |
| UPPER EXPLOSIVE LIMIT (%): | 7.6% |

FIRE AND EXPLOSION HAZARDS

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO₂, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

During certain times of the year and/or in certain geographical locations, gasoline may contain MTBE and/or TAME. Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration - refer to NFPA 11 "Low Expansion Foam - 1994 Edition."

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE

HANDLING PRECAUTIONS

*****USE ONLY AS A MOTOR FUEL*****

*****DO NOT SIPHON BY MOUTH*****

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

8. EXPOSURE CONTROLS and PERSONAL PROTECTION

EXPOSURE LIMITS

| Component (CAS No.) | Source | TWA (ppm) | STEL (ppm) | Exposure Limits | Note |
|--|--------|-----------|------------|--|------|
| Gasoline (86290-81-5) | ACGIH | 300 | 500 | A3 | |
| Benzene (71-43-2) | OSHA | 1 | 5 | Carcinogen | |
| | ACGIH | 0.5 | 2.5 | A1, skin | |
| | USCG | 1 | 5 | | |
| n-Butane (106-97-8) | ACGIH | 1000 | -- | Aliphatic Hydrocarbon Gases Alkane (C1-C4) | |
| Ethyl Alcohol (ethanol) (64-17-5) | OSHA | 1000 | -- | | |
| | ACGIH | 1000 | -- | A4 | |
| Ethyl benzene (100-41-4) | OSHA | 100 | -- | | |
| | ACGIH | 100 | 125 | A3 | |
| n-Hexane (110-54-3) | OSHA | 500 | -- | | |
| | ACGIH | 50 | -- | Skin | |
| Methyl-tertiary butyl ether [MTBE] (1634-04-4) | ACGIH | 50 | -- | A3 | |
| Tertiary-amyl methyl ether [TAME] (994-05-8) | | | | None established | |
| Toluene (108-88-3) | OSHA | 200 | -- | Ceiling: 300 ppm; Peak: 500 ppm (10 min.) | |
| | ACGIH | 20 | -- | A4 | |
| 1,2,4-Trimethylbenzene (95-63-6) | ACGIH | 25 | -- | | |
| Xylene, mixed isomers (1330-20-7) | OSHA | 100 | -- | | |
| | ACGIH | 100 | 150 | A4 | |

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile or neoprene are recommended. Chemical protective clothing such as that made of of E.I. DuPont Tychem®, products or equivalent is recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION

A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE

A translucent, straw-colored or light yellow liquid



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

ODOR

A strong, characteristic aromatic hydrocarbon odor. Oxygenated gasoline with MTBE and/or TAME may have a sweet, ether-like odor and is detectable at a lower concentration than non-oxygenated gasoline.

ODOR THRESHOLD

| | <u>Odor Detection</u> | <u>Odor Recognition</u> |
|--------------------------|-----------------------|-------------------------|
| Non-oxygenated gasoline: | 0.5 - 0.6 ppm | 0.8 - 1.1 ppm |
| Gasoline with 15% MTBE: | 0.2 - 0.3 ppm | 0.4 - 0.7 ppm |
| Gasoline with 15% TAME: | 0.1 ppm | 0.2 ppm |

BASIC PHYSICAL PROPERTIES

| | |
|--|--|
| BOILING RANGE: | 85 to 437 °F (39 to 200 °C) |
| VAPOR PRESSURE: | 6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C) |
| VAPOR DENSITY (air = 1): | AP 3 to 4 |
| SPECIFIC GRAVITY (H ₂ O = 1): | 0.70 - 0.78 |
| EVAPORATION RATE: | 10-11 (n-butyl acetate = 1) |
| PERCENT VOLATILES: | 100 % |
| SOLUBILITY (H ₂ O): | Non-oxygenated gasoline - negligible (< 0.1% @ 77 °F). Gasoline with 15% MTBE - slight (0.1 - 3% @ 77 °F); ethanol is readily soluble in water |

10. STABILITY and REACTIVITY)

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

INCOMPATIBLE MATERIALS

Keep away from strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitroresols that can decompose violently.

11. TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY

| | |
|--|---|
| Acute Dermal LD50 (rabbits): > 5 ml/kg | Acute Oral LD50 (rat): 18.75 ml/kg |
| Primary dermal irritation (rabbits): slightly irritating | Draize eye irritation (rabbits): non-irritating |
| Guinea pig sensitization: negative | |

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenicity: OSHA: NO IARC: YES - 2B NTP: NO ACGIH: YES (A3)

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

This product may contain methyl tertiary butyl ether (MTBE): animal and human health effects studies indicate that MTBE may cause eye, skin, and respiratory tract irritation, central nervous system depression and neurotoxicity. MTBE is classified as an animal carcinogen (A3) by the ACGIH.

12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations. If released, oxygenates such as ethers and alcohols will be expected to exhibit fairly high mobility in soil, and therefore may leach into groundwater. The API (www.api.org) provides a number of useful references addressing petroleum and oxygenate contamination of groundwater.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME: Gasoline
DOT HAZARD CLASS and PACKING GROUP: 3, PG II
DOT IDENTIFICATION NUMBER: UN 1203
DOT SHIPPING LABEL: FLAMMABLE LIQUID

PLACARD:



15. REGULATORY INFORMATION

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

Table with 5 columns: ACUTE HEALTH, CHRONIC HEALTH, FIRE, SUDDEN RELEASE OF PRESSURE, REACTIVE. Values: X, X, X, --, --

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

Table with 2 columns: INGREDIENT NAME (CAS NUMBER), CONCENTRATION WT. PERCENT. Rows: Benzene (71-43-2) 0.1 to 4.9 (0.1 to 1.3 for reformulated gasoline), Ethyl benzene (100-41-4) < 3



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

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| | |
|--|-----------|
| n-Hexane (110-54-3) | 0.5 to 4 |
| Methyl-tertiary butyl ether (MTBE) (1634-04-4) | 0 to 15.0 |
| Toluene (108-88-3) | 1 to 15 |
| 1,2,4- Trimethylbenzene (95-63-6) | < 6 |
| Xylene, mixed isomers (1330-20-7) | 1 to 15 |

US EPA guidance documents (www.epa.gov/tri) for reporting Persistent Bioaccumulating Toxics (PBTs) indicate this product may contain the following deminimis levels of toxic chemicals subject to Section 313 reporting:

| <u>INGREDIENT NAME (CAS NUMBER)</u> | <u>CONCENTRATION - Parts per million (ppm) by weight</u> |
|--------------------------------------|--|
| Polycyclic aromatic compounds (PACs) | 17 |
| Benzo (g,h,i) perylene (191-24-2) | 2.55 |
| Lead (7439-92-1) | 0.079 |

CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

| <u>INGREDIENT NAME (CAS NUMBER)</u> | <u>Date Listed</u> |
|-------------------------------------|--------------------|
| Benzene | 2/27/1987 |
| Ethyl benzene | 6/11/2004 |
| Toluene | 1/1/1991 |

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)
Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

16. OTHER INFORMATION

| | | | |
|-----------------------------------|-------------|-----|---------|
| <u>NFPA® HAZARD RATING</u> | HEALTH: | 1 | Slight |
| | FIRE: | 3 | Serious |
| | REACTIVITY: | 0 | Minimal |
| <u>HMIS® HAZARD RATING</u> | HEALTH: | 1 * | Slight |
| | FIRE: | 3 | Serious |
| | PHYSICAL: | 0 | Minimal |

* CHRONIC

SUPERSEDES MSDS DATED: 07/01/06

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

| | | | |
|-------|---|--------|---|
| ACGIH | American Conference of Governmental Industrial Hygienists | CERCLA | Comprehensive Emergency Response, Compensation, and Liability Act |
| AIHA | American Industrial Hygiene Association | DOT | U.S. Department of Transportation |
| ANSI | American National Standards Institute (212)642-4900 | | [General Info: (800)467-4922] |
| API | American Petroleum Institute (202)682-8000 | EPA | U.S. Environmental Protection Agency |
| | | HMIS | Hazardous Materials Information System |



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

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| | | | |
|-------|--|-------|--|
| IARC | International Agency For Research On Cancer | REL | Recommended Exposure Limit (NIOSH) |
| MSHA | Mine Safety and Health Administration | SARA | Superfund Amendments and Reauthorization Act of 1986 Title III |
| NFPA | National Fire Protection Association (617)770-3000 | SCBA | Self-Contained Breathing Apparatus |
| NIOSH | National Institute of Occupational Safety and Health | SPCC | Spill Prevention, Control, and Countermeasures |
| NOIC | Notice of Intended Change (proposed change to ACGIH TLV) | STEL | Short-Term Exposure Limit (generally 15 minutes) |
| NTP | National Toxicology Program | TLV | Threshold Limit Value (ACGIH) |
| OPA | Oil Pollution Act of 1990 | TSCA | Toxic Substances Control Act |
| OSHA | U.S. Occupational Safety & Health Administration | TWA | Time Weighted Average (8 hr.) |
| PEL | Permissible Exposure Limit (OSHA) | WEEL | Workplace Environmental Exposure Level (AIHA) |
| RCRA | Resource Conservation and Recovery Act | WHMIS | Workplace Hazardous Materials Information System (Canada) |

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.



Material Safety Data Sheet

- SECTION I - Material Identity
 - SECTION II - Manufacturer's Information
 - SECTION III - Physical/Chemical Characteristics
 - SECTION IV - Fire and Explosion Hazard Data
 - SECTION V - Reactivity Data
 - SECTION VI - Health Hazard Data
 - SECTION VII - Precautions for Safe Handling and Use
 - SECTION VIII - Control Measures
 - SECTION IX - Label Data
 - SECTION X - Transportation Data
 - SECTION XI - Site Specific/Reporting Information
 - SECTION XII - Ingredients/Identity Information
-

SECTION I - Material Identity

| | |
|------------------------|---|
| Item Name | |
| Part Number/Trade Name | LUBRIPLATE HYDRAULIC OIL, SPECIAL LOW (SUPP |
| National Stock Number | 9150L400652F |
| CAGE Code | <u>73219</u> |
| Part Number Indicator | A |
| MSDS Number | 184027 |
| HAZ Code | B |

SECTION II - Manufacturer's Information

| | |
|-------------------|----------------------------|
| Manufacturer Name | FISKE BROTHERS REFINING CO |
| Street | 129 LOCKWOOD ST |
| City | NEWARK |
| State | NJ |
| Country | US |
| Zip Code | 07105 |

| | |
|-------------------|--------------|
| Emergency Phone | 201-589-9150 |
| Information Phone | 201-589-9150 |

MSDS Preparer's Information

| | |
|----------------------------|-------------------|
| MSDS Preparer Name | ROBERT J. SIBILIA |
| Date MSDS Prepared/Revised | 01JUL90 |
| Date of Technical Review | 10SEP92 |
| Active Indicator | N |

Alternate Vendors

| | |
|----------------|-------|
| Vendor #5 CAGE | BPXSL |
|----------------|-------|

SECTION III - Physical/Chemical Characteristics

| | |
|-----------------------------------|---|
| Hazard Storage Compatibility Code | N1 |
| Appearance/Odor | TRANSPARENT AMBER OIL WITH MINERAL OIL ODOR |
| Boiling Point | >550F, >288C |
| Melting Point | LIQUID |
| Vapor Pressure | <0.01 |
| Vapor Density | >5 |
| Specific Gravity | 0.87 |
| Decomposition Temperature | N/K |
| Evaporation Rate | <0.01 (BUTYL ACETATE=1) |
| Solubility in Water | NEGLIGIBLE |
| Percent Volatiles by Volume | N/K |
| Chemical pH | N/K |
| Corrosion Rate | N/K |
| Container Pressure Code | 4 |
| Temperature Code | 8 |
| Product State Code | U |

SECTION IV - Fire and Explosion Hazard Data

| | |
|----------------------------------|---|
| Flash Point | 315 |
| Flash Point Method | COC |
| Lower Explosion Limit | 0.9% |
| Upper Explosion Limit | 7% |
| Extinguishing Media | FOAM, DRY CHEMICAL, CARBON DIOXIDE OR WATER SPRAY (FOG) |
| Special Fire Fighting Procedures | WEAR NIOSH/MSHA APPROVED SCBA AND |

Unusual Fire/Explosion Hazards

FULL PROTECTIVEEQUIPMENT (FP N). COOL EXPOSED CONTAINERS WITH WATER
DO NOT STORE OR MIX WITH STRONG OXIDANTS. EMPTY CONTAINERS RETAIN RESIDUE. DO NOT CUT, DRILL, GRIND OR WELD AS THEY MAYEXPLODE

SECTION V - Reactivity Data

| | |
|------------------------------------|--|
| Stability | YES |
| Stability Conditions to Avoid | NOT APPLICABLE |
| Materials to Avoid | AVOID CONTACT WITH STRONG OXIDANTS LIKE LIQUID CHLORINE, CONCENTRATED OXYGEN |
| Hazardous Decomposition Products | MAY FORM SO*2. IF INCOMPLETE COMBUSTION, CARBON MONOXIDE |
| Hazardous Polymerization | NO |
| Polymerization Conditions to Avoid | NOT RELEVANT |
| LD50 - LD50 Mixture | NONE SPECIFIED BY MANUFACTURER |

SECTION VI - Health Hazard Data

| | |
|--------------------------------------|---|
| Route of Entry: Skin | NO |
| Route of Entry: Ingestion | YES |
| Route of Entry: Inhalation | YES |
| Health Hazards - Acute and Chronic | PRLNKD/RPTD SKIN CONT MAY CAUSE IRRIT.PRDCT CONTACTING EYES MAY CAUSE IRRIT. HUMAN HLTH RISKS VARY FROM PERS TO PERS. AS A PREC, EXPOS TO LIQS, VAPS, MISTS & FUMES SHLD BE MINIMIZED. PROD HAS LOW ORDER OF ACUTE ORAL TOX, BUT MINUTE AMTS ASPIRATED INTO LUNGS DURING INGEST MAY CAUSE MILD TO SEVERE PULMONARY INJURY |
| Carcinogenity: NTP | NO |
| Carcinogenity: IARC | NO |
| Carcinogenity: OSHA | NO |
| Explanation of Carcinogenity | NOT RELEVANT |
| Symptoms of Overexposure | SEE HEALTH HAZARDS |
| Medical Cond. Aggrevated by Exposure | NONE SPECIFIED BY MANUFACTURER |
| Emergency/First Aid Procedures | EYE:FLUSH W/CLEAR WATER FOR @ LST 15 MIN/UNTIL IRRIT SUBSIDES.IF IRRIT PERSISTS, CONSULT MD. SKIN:REMOVE ANY CONTAMD CLTHG &WASH THORO W/SOAP & WARM WATER. INHAL:VAP PRESS IS VERY LOW & INHAL @ ROOMTEMP IS NOT A |

PROBLEM. IF OVERCOME BY VAP FROM HOT PROD, IMMEDIATELY MOVE FROM EXPOS & CALL MD. IF OVEREXPOSED TO OIL MIST, REMOVE FROM FURTHER EXPOS UNTIL EXCESSIVE OIL MIST CONDITION SUBSIDES. (SUPP DATA)

SECTION VII - Precautions for Safe Handling and Use

| | |
|------------------------------------|--|
| Steps if Material Released/Spilled | RECOVER LIQUID, WASH REMAINDER WITH SUITABLE PETROLEUM SOLVENT OR ADD ABSORBENT. KEEP PETROLEUM PRODUCTS OUT OF SEWERS AND WATER COURSES. ADVISE AUTHORITIES IF PRODUCT HAS ENTERED OR MAY ENTER SEWERS AND WATERCOURSES |
| Neutralizing Agent | NONE SPECIFIED BY MANUFACTURER |
| Waste Disposal Method | ASSURE CONFORMITY WITH APPLICABLE DISPOSAL REGULATIONS. DISPOSE OF ABSORBED MATERIAL AT AN APPROVED WASTE DISPOSAL FACILITY OR SITE. DISPOSE I/A/W FEDERAL, STATE AND LOCAL REGULATIONS (FP N) |
| Handling and Storage Precautions | KEEP CONTAINERS CLOSED WHEN NOT IN USE. DO NOT HANDLE OR STORE NEAR HEAT, SPARKS, FLAME OR STRONG OXIDANTS |
| Other Precautions | AVOID BREATHING OIL MIST. REMOVE OIL-SOAKED CLOTHING AND LAUNDRER BEFORE RESUE |

SECTION VIII - Control Measures

| | |
|---------------------------------|---|
| Respiratory Protection | NORMALLY NOT NEEDED. NIOSH/MSHA APPROVED RESPIRATOR APPROPRIATE FOR EXPOSURE OF CONCERN (FP N) |
| Ventilation | LOCAL EXHAUST: USED TO CAPTURE FUMES AND VAPORS |
| Protective Gloves | USE OIL-RESISTANT GLOVES, IF NEEDED |
| Eye Protection | CHEMICAL WORKERS GOGGLES (FP N) |
| Other Protective Equipment | USE OIL-RESISTANT APRON, IF NEEDED |
| Work Hygienic Practices | CLEANSE SKIN THOROUGHLY AFTER CONTACT |
| Supplemental Health/Safety Data | MFR'S TRADE NAME/PART NO: POUR, MINUS 70, MV-HO. FIRST AID PROC: INGEST: IF INGESTED, CALL MD IMMEDIATELY. DO NOT INDUCE VOMITING |

SECTION IX - Label Data

| | |
|---------------------|---------|
| Protect Eye | NO |
| Protect Skin | NO |
| Protect Respiratory | NO |
| Chronic Indicator | UNKNOWN |
| Contact Code | UNKNOWN |
| Fire Code | UNKNOWN |
| Health Code | UNKNOWN |
| React Code | UNKNOWN |

SECTION X - Transportation Data

| | |
|--------------------|----|
| Container Quantity | 1 |
| Unit of Measure | GL |

SECTION XI - Site Specific/Reporting Information

| | |
|----------------------------------|---|
| Volatile Organic Compounds (P/G) | 0 |
| Volatile Organic Compounds (G/L) | 0 |

SECTION XII - Ingredients/Identity Information

| | |
|-------------------|-----------------------------------|
| Ingredient # | 01 |
| Ingredient Name | OIL, HYDRAULIC (MIST); (OIL MIST) |
| CAS Number | 1003 |
| NIOSH Number | 10050340H |
| Proprietary | NO |
| Percent | 0 |
| OSHA PEL | 5 MG/M3 |
| ACGIH TLV | 5 MG/M3;10 STEL |
| Recommended Limit | N/K |

APPENDIX E

NOISE ATTENUATION LETTER REPORT



Founder

Vito V. Cerami
(1923-1987)

Executive Board

Victoria J. Cerami
John D. Longman
Stephen G. Lindsey

Partners

Alan M. Bjornsen
Patricia M. Scanlon

July 7, 2011

Ms. Rachel Suna
The Feil Organization
Broadwall Consulting Services
7 Penn Plaza, Suite 512
New York, NY 10001

**Ref: 5 West 125th Street
Block #1723, Lot#31
C&A Project #19792**

Dear Rachel,

We have recently completed our testing and analysis of environmental noise levels at the above referenced site. The purpose of our survey was to determine what glazing is necessary to satisfy the e-designation requirement subject to this site.

1.0 E-Designation Criteria

The e-designation requires the future building to provide a minimum of 40 dBA window/wall attenuation on the south façade and 30 dB(A) on the north façade in order to maintain an interior noise level of 45 dBA.

The proposed project will be commercial usage, no residences will exist. The 45 dBA interior noise level required by the e-designation is a criteria typically used for residential usage. For commercial spaces a less stringent criteria of 50 dBA is typically used; we have discussed this with OER and they have agreed that achieving an interior sound level of 50 dBA will meet the intention of the e-designation.

The purpose of our survey was to assess noise levels along the south façade of the building (facing West 125th Street), and based on this data determine what glazing is needed to achieve the required interior noise level of 50 dBA.

2.0 Survey Findings and Recommended Glazing

We conducted noise monitoring along the construction fence which locates at the southern side of the lot. Measurements were conducted in accordance with our protocol which was submitted and approved by the Office of Environmental Remediation (OER). For reference our protocol is attached as appendix A.

Our worst case hourly L10 measurement was 78 dBA, between 9:00-10:00PM, Per the 125th Street Rezoning EIS we have added 0.4 dB to this worst case measurement to account for noise level change due to Traffic PCE's with the proposed action. See appendix B for a 24-hour summary our hourly measurement; our measurements are presented in terms of L₁₀, L_{max}, L_{min}, L₁, L₅₀, L₉₀ and L_{eq}. Based on our worst case measurement we have conducted a transmission loss calculation to determine what glazing will be required to satisfy the e-designation. For our calculation we used 52% vision glass, with the remaining portion of the façade consisting of spandrel paneling, which will be backed with drywall and



insulation. Laboratory test data is not available for this exact spandrel panel construction, therefore for our analysis we used data for a drywall construction consisting of one layer drywall on each side of metal studs with batt insulation within the wall cavity. This is a conservative approach, as we expect the actual panel construction will perform better than this. Our calculation also includes a -5dB 'framing correction' to account for loss of performance associated with framing, etc. Our calculation shows that the e-designation requirements can be satisfied using a glazing which achieves an OITC-33 rating. One such glazing configuration capable of achieving this performance is 1/4"-1/2A.S.-5/16" by Viracon. See attached appendix C for our glazing calculations and acoustical data from Viracon.

To ensure that the selected glazing manufacturer meets the recommended OITC level we have attached an acoustical glazing specification (appendix D) which we recommend is included into the contract documents.

Northern Façade:

The future building will not have any glazing on it's north, rear, façade. The rear wall will be constructed of 12 inch concrete block with the cells filled solid. This block wall construction will easily achieve a rating of OITC-44+ which will comply with the e-designation requirements. For reference we have attached a laboratory test report (appendix E) for 8 inch concrete block with the cells filled solid, we have also attached an OITC calculation (appendix F) which calculations the laboratory tested STC-55 to an OITC-44. The 12 inch block used for this project should perform better than this.

There is a loading dock on the lowest level with two 20 foot wide overhead doors. There are several exit doors. All of the doors including the overhead doors will be insulated. There will all be mechanical equipment louvers on all floors. Noise transmission through any these façade elements should not be considered because the interior spaces are not regularly occupied areas.

This completes our comments at this time. Should you have any questions please do not hesitate to ask.

Very truly yours,

A handwritten signature in black ink that reads "Ken Shook". The signature is written in a cursive, slightly slanted style.

Ken Shook
Senior Associate

\\Nas\Vol\19500-19999\19792\correspondence\002 Proposed Glazing krs.rev.doc



Founder

Vito V. Cerami
(1923-1987)

Executive Board

Victoria J. Cerami
John D. Longman
Stephen G. Lindsey

Partners

Alan M. Bjornsen
Patricia M. Scanlon

June 15, 2011

Mr. Maurizio Bertini
Office of the Mayor
Office of Environmental Remediation
E-Designation Program
100 Gold Street, 2nd Floor
New York, NY 10038

**Ref: 5 West 125th Street
Block #1723, Lot#31
C&A Project #19792**

Dear Maurizio,

We have prepared a summary of our measurement protocol for noise testing to be conducted at the proposed development at 5 West 125th Street.

The project site is currently a vacant lot, which has been excavated to a depth of approximately 10' below West 125th Street. The new building will be subject to an e-designation which requires the future building to provide a minimum of 40 dB(A) window/wall attenuation on the south façade and 30 dB(A) on the north façade in order to maintain an interior noise level of 45 dB(A). The future building will not have any glazing on its north façade (see attached north and southern elevations for reference). The purpose of our survey is to assess noise levels along the south façade of the building (facing West 125th Street), as we feel that the 40 dB(A) reduction assigned may not be needed to achieve the required interior noise level.

To assess the noise exposure to the south façade of the building, we will set up a noise monitor along the construction fence which locates at the southern side of the lot. See the attached photo for proposed measurement location. Our survey work will be conducted over a period of 24 hours. Noise levels will be projected to a build year 2017 per the 125th Street Corridor Rezoning EIS document.

The microphone will be mounted atop a microphone extension pole such that it is located no less than 4 feet above the top of the construction fence and 4 feet from any reflective surface. Our measurements will run continuously for a period of 24 hours and will be logged once on the hour, every hour. To conduct our analysis, we will record the L₁₀ noise level as well as the L_{eq} noise level. Statistics will be recorded in 1/3 octave bands from 6.3 Hz – 20k Hz.

The equipment used to conduct our measurements will be either a Bruel & Kjaer type 2250 or type 2260 sound level meter, which are both Modular Precision Sound Analyzers conforming to ANSI S1.4 Type 1. The microphone used will be either a Bruel & Kjaer 4189 or G.R.A.S. 40AE polarized free field ½" microphone. The meter will be calibrated prior to beginning our measurements using a Bruel and Kjaer 4231 sound calibrator conforming to ANSI S1.4.



Please review this protocol and comment, so that we can complete our survey prior to schools closing for summer vacation. If you have any questions or require additional information, please do not hesitate to call.

Very truly yours,

A handwritten signature in black ink that reads "Ken Shook". The signature is written in a cursive style with a large, prominent "K" and "S".

Ken Shook
Senior Associate

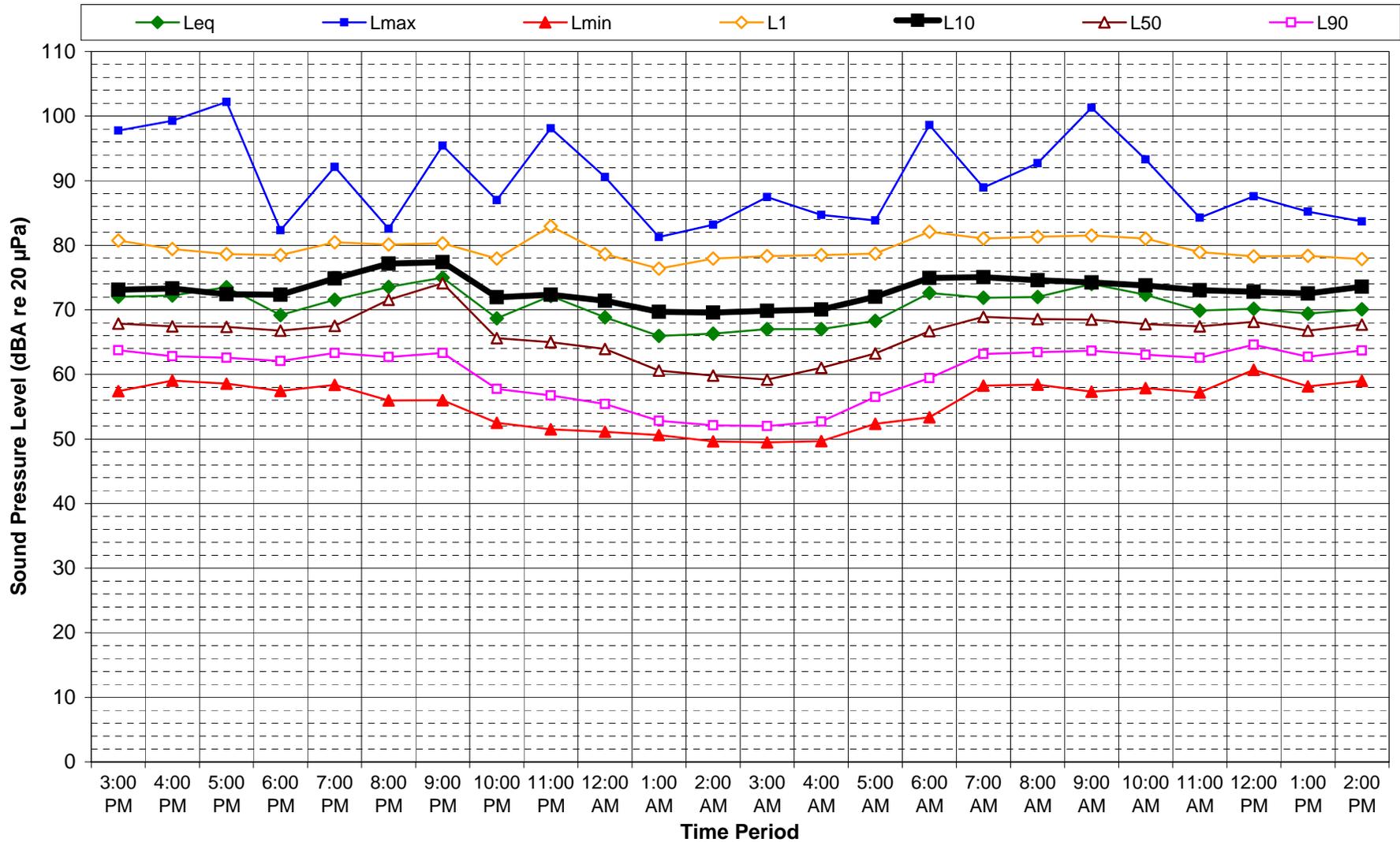
Enclosure: Site photo showing measurement location.

J:\19500-19999\19792\correspondence\001 Measurement Protocol krs.doc



Microphone to locate at
at least 4 feet above
construction fence
along West 125th Street

**Appendix B:
 Measured Noise Levels
 24 Hour Data, Leq, Lmax, Lmin, L1, L10, L50, and L90**



Appendix C

Composite Transmission Loss Calculation

| % Façade | | | 52% | 48% | 0.4 | | | | | | | |
|-----------|--|-----------------------|-----------------------------|---|---------------------------|--|-------------|---|---------------------------|----------------------------|----------------|---------------------------------------|
| Frequency | Viracon: 1/4-1/2AS- 5/16 *OITC-33 test | Framing Correction | Corrected Window Data | 1+1 USG (5/8" gyp 3-5/8stud 3" batt) | Outside Noise Level | Outside Noise Level w/ Correction | A Weighting | A- Weighted Outside Noise Level | Composite TL of Façade | Interior Noise Level | A Weighting | A-Weighted Interior Noise Level |
| 100 | 30 | -5 | 25 | 23 | 82.0 | 82.4 | -19.1 | 63 | 24 | 58 | -19.1 | 39 |
| 125 | 24 | -5 | 19 | 33 | 80.7 | 81.1 | -16.1 | 65 | 22 | 59 | -16.1 | 43 |
| 160 | 29 | -5 | 24 | 32 | 76.7 | 77.1 | -13.4 | 64 | 26 | 51 | -13.4 | 37 |
| 200 | 26 | -5 | 21 | 37 | 74.5 | 74.9 | -10.9 | 64 | 24 | 51 | -10.9 | 40 |
| 250 | 29 | -5 | 24 | 44 | 73.4 | 73.8 | -8.6 | 65 | 27 | 47 | -8.6 | 38 |
| 315 | 33 | -5 | 28 | 47 | 76.4 | 76.8 | -6.6 | 70 | 31 | 46 | -6.6 | 39 |
| 400 | 34 | -5 | 29 | 50 | 73.1 | 73.5 | -4.8 | 69 | 32 | 42 | -4.8 | 37 |
| 500 | 36 | -5 | 31 | 53 | 70.5 | 70.9 | -3.2 | 68 | 34 | 37 | -3.2 | 34 |
| 630 | 39 | -5 | 34 | 54 | 68.0 | 68.4 | -1.9 | 67 | 37 | 32 | -1.9 | 30 |
| 800 | 41 | -5 | 36 | 54 | 68.2 | 68.6 | -0.8 | 68 | 39 | 30 | -0.8 | 29 |
| 1000 | 41 | -5 | 36 | 55 | 67.1 | 67.5 | 0 | 67 | 39 | 29 | 0 | 29 |
| 1250 | 40 | -5 | 35 | 55 | 65.6 | 66.0 | 0.6 | 67 | 38 | 28 | 0.6 | 29 |
| 1600 | 38 | -5 | 33 | 55 | 62.8 | 63.2 | 1 | 64 | 36 | 27 | 1 | 28 |
| 2000 | 37 | -5 | 32 | 47 | 60.8 | 61.2 | 1.2 | 62 | 35 | 26 | 1.2 | 28 |
| 2500 | 39 | -5 | 34 | 44 | 60.7 | 61.1 | 1.3 | 62 | 36 | 25 | 1.3 | 26 |
| 3150 | 43 | -5 | 38 | 48 | 61.8 | 62.2 | 1.2 | 63 | 40 | 22 | 1.2 | 23 |
| 4000 | 46 | -5 | 41 | 49 | 60.1 | 60.5 | 1 | 62 | 43 | 17 | 1 | 18 |
| dBA | | | | | | | | 78 | 49 | | | |

****Note** This calc only works if areas are input in D2, E2, F2 in % areas. Do not put the actual sq. ft.

WINDOW GLAZING

PART 1 — GENERAL

1.01 ACOUSTICAL OBJECTIVES

It is the objective of this specification that suitable and qualified manufacturers supply and install glazing systems specified within this document and elsewhere, to achieve the strict requirements of maximum allowable noise transmission.

1.02 QUALITY ASSURANCE

A. System Acoustic Performance Requirements

Glazing configurations for the project shall meet or exceed the transmission loss values in each third octave band as stated in the table below when tested in a laboratory condition:

| Frequency, Hz | Minimum Sound Transmission Loss Performance |
|---------------|---|
| 100 | 30 |
| 125 | 24 |
| 160 | 29 |
| 200 | 26 |
| 250 | 29 |
| 315 | 33 |
| 400 | 34 |
| 500 | 36 |
| 630 | 39 |
| 800 | 41 |
| 1000 | 41 |
| 1250 | 40 |
| 1600 | 38 |
| 2000 | 37 |
| 2500 | 39 |
| 3150 | 43 |
| 4000 | 46 |
| OITC | 33 |
| STC | 38 |

1.03 SUBMITTALS

- A. The manufacturer of window and glazing systems shall submit independent laboratory test data substantiating that all configurations of glazing to be supplied to the subject project satisfy the Sound Transmission Loss Performance requirements stated in the preceding section when tested in accordance with ASTM E 90-85.
- B. Should such independent test data not be available, or if it is not available for exact window configurations to be utilized on the subject project in terms of size, materials and construction,

then a series of witnessed acoustical laboratory tests shall be conducted at the window manufacturer's expense to satisfy the acoustical performance requirements detailed in this specification. Such tests shall be conducted upon all configurations of glazing assemblies to be supplied to the project. Such tests shall be conducted in accordance with ASTM E 90-85 and in the presence of the project architect and acoustical consultant.

- C. All costs associated with this testing and including those associated with relevant consultant's time and expenses shall be borne by the window manufacturer/supplier. Should the tests not show compliance with the acoustical performance requirements, then all additional necessary measurements and retesting shall be undertaken by the manufacturer/supplier until such requirements are achieved.

* * * * * END OF SECTION * * * * *

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Insulating Glass

English (inches) | [Metric \(mm\)](#)

| GLASS MAKEUP | | | FREQUENCY (Hz) | | | | | | | | | | | | | | | | | | STC | OITC |
|------------------------------|-----------|-----------|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|-----|------|
| Glass Ply | Air-space | Glass Ply | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3150 | 4000 | 5000 | STC | OITC |
| Sound Transmission Loss (dB) | | | | | | | | | | | | | | | | | | | | | | |
| 1/8" | 1/4" | 1/8" | 26 | 21 | 23 | 23 | 26 | 21 | 19 | 24 | | 30 | 33 | 36 | 40 | 44 | 46 | 39 | 34 | 45 | 28 | 26 |
| 1/8" | 3/8" | 1/8" | 26 | 23 | 23 | 20 | 23 | 19 | 23 | 27 | | 32 | 35 | 39 | 44 | 47 | 48 | 41 | 36 | 43 | 31 | 26 |
| 1/4" | 1/2" | 1/4" | 27 | 24 | 29 | 22 | 22 | 25 | 30 | 33 | | 38 | 40 | 42 | 42 | 37 | 37 | 43 | 46 | 49 | 35 | 30 |
| 1/4" | 9/16" | 3/16" | 32 | 26 | 25 | 20 | 24 | 29 | 33 | 34 | | 41 | 43 | 46 | 46 | 42 | 36 | 43 | 48 | 53 | 37 | 30 |
| 1/4" | 1/2" | 5/16" | 30 | 24 | 29 | 26 | 29 | 33 | 34 | 36 | | 41 | 41 | 40 | 38 | 37 | 39 | 43 | 46 | 48 | 38 | 33 |
| 1/4" | 1/2" | 3/8" | 28 | 26 | 32 | 29 | 29 | 31 | 35 | 37 | | 39 | 41 | 43 | 41 | 40 | 41 | 44 | 47 | 49 | 39 | 34 |
| 5/16" | 1/2" | 5/16" | 26 | 24 | 25 | 31 | 24 | 32 | 32 | 35 | | 39 | 39 | 38 | 36 | 38 | 42 | 44 | 46 | 49 | 37 | 32 |
| 1/4" | 3/4" | 1/4" | 27 | 23 | 28 | 21 | 27 | 29 | 34 | 35 | | 41 | 43 | 45 | 44 | 39 | 39 | 46 | 49 | 52 | 38 | 31 |
| 1/4" | 1" | 1/4" | 22 | 19 | 27 | 23 | 31 | 30 | 35 | 35 | | 39 | 41 | 42 | 41 | 36 | 37 | 46 | 51 | 56 | 37 | 30 |
| 5/16" | 1/2" | 3/8" | 31 | 28 | 28 | 33 | 32 | 39 | 38 | 38 | | 41 | 42 | 39 | 37 | 41 | 45 | 48 | 51 | 51 | 41 | 35 |
| 3/8" | 1/2" | 3/8" | 31 | 25 | 25 | 31 | 33 | 36 | 36 | 37 | | 38 | 37 | 37 | 38 | 42 | 46 | 49 | 51 | 50 | 39 | 33 |

FOOTNOTES:

1. In an acoustical application, the glass represents only one component of the entire wall system. The overall envelope is required to demonstrate acoustic performance. Viracon has acoustical test data for a number of glass configurations. This data is based on testing ~36" x 84" glass to ASTM #413-87 in an acoustical wall. The testing is for the glass only and provided as such. The glass size will have an affect on the actual test results. When testing a particular type of glass in a framing system, the result will be a lower tested STC rating for the entire system as compared to the glass only. Since both the glass and the framing system affect acoustical performance, Viracon cannot accept responsibility for the entire system performance.

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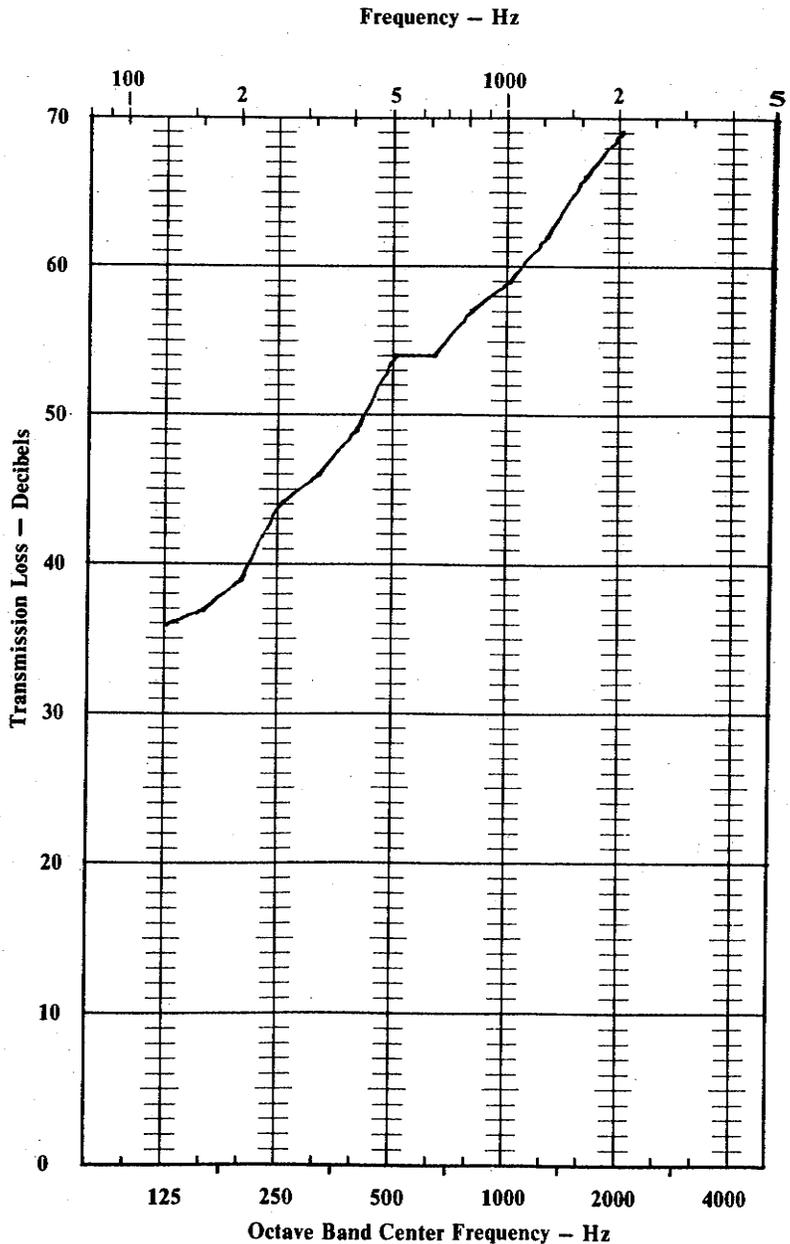
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Appendix E

California Office of Noise Control

| Sketch | Brief Description | D_n | Laboratory Test Number Year Frequencies Tested Source of Data | STC | Section Number |
|--------|--|-------|---|-----|----------------|
| | <ol style="list-style-type: none"> 1. 8x8x18" 3-cell lightweight concrete masonry units (33 lbs./block). 2. grout in cells. 3. #5 bar each cell. 4. paint, two coats flat latex each side. | 52 | Kodaras Acoustical Labs. 1023-2-71 1971 16f National Concrete Masonry Assn. | 55 | 1.4.2.3.2.2 |

| | |
|---------|----|
| 125 HZ | 36 |
| 160 HZ | 37 |
| 200 HZ | 39 |
| 250 HZ | 44 |
| 315 HZ | 46 |
| 400 HZ | 49 |
| 500 HZ | 54 |
| 630 HZ | 54 |
| 800 HZ | 57 |
| 1000 HZ | 59 |
| 1250 HZ | 62 |
| 1600 HZ | 66 |
| 2000 HZ | 69 |
| 2500 HZ | 71 |
| 3150 HZ | 75 |
| 4000 HZ | 75 |



| Appendix F | | | | | | | |
|-------------------|----------------------|--------------------|---------------------------------|--|--------------------------------|--------------------|--|
| Frequency | OITC Spectrum | A Weighting | A-Weighted OITC Spectrum | 8x8x18" 3-cell lightweight CMU blocks | Proejected Indoor Level | A Weighting | A-Weighted Interior Noise Level |
| 100 | 102 | -19 | 82.9 | 30 | 72 | -19 | 52.9 |
| 125 | 101 | -16 | 84.9 | 36 | 65 | -16 | 48.9 |
| 160 | 98 | -13 | 84.6 | 37 | 61 | -13 | 47.6 |
| 200 | 97 | -11 | 86.1 | 39 | 58 | -11 | 47.1 |
| 250 | 95 | -9 | 86.4 | 44 | 51 | -9 | 42.4 |
| 315 | 94 | -7 | 87.4 | 46 | 48 | -7 | 41.4 |
| 400 | 93 | -5 | 88.2 | 49 | 44 | -5 | 39.2 |
| 500 | 93 | -3 | 89.8 | 54 | 39 | -3 | 35.8 |
| 630 | 91 | -2 | 89.1 | 54 | 37 | -2 | 35.1 |
| 800 | 90 | -1 | 89.2 | 57 | 33 | -1 | 32.2 |
| 1000 | 89 | 0 | 89.0 | 59 | 30 | 0 | 30.0 |
| 1250 | 89 | 1 | 89.6 | 62 | 27 | 1 | 27.6 |
| 1600 | 88 | 1 | 89.0 | 66 | 22 | 1 | 23.0 |
| 2000 | 88 | 1 | 89.2 | 69 | 19 | 1 | 20.2 |
| 2500 | 87 | 1 | 88.3 | 71 | 16 | 1 | 17.3 |
| 3150 | 85 | 1 | 86.2 | 75 | 10 | 1 | 11.2 |
| 4000 | 84 | 1 | 85.0 | 75 | 9 | 1 | 10.0 |
| A | | | 100 | | | | 56 |
| | | | | | | | 100 - 56 = 44 OITC |