REMEDIAL WORK PLAN FOR CONTAMINATION IN SOIL AND GROUNDWATER

TO BE CONDUCTED AT
THE KENSINGTON
5 - 27 Kensington Road
Bronxville, New York 10708
Section 11, Block 5, Lots 1, 6 and 16

Brownfield Cleanup Program
Site Number C3-60-081

PREPARED FOR:

SPECTRUM KENSINGTON LLC
115 Stevens Avenue
Valhalla, NY 10595

PREPARED BY:

Galli Engineering, P.C.
734 Walt Whitman Road, Suite 402A
Melville, NY 11747

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Richard D. Galli, P.E.

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EXECUTIVE SUMMARY

Statement of Purpose and Basis

This Draft Brownfield Cleanup Program (BCP) Remedial Action Plan presents the remedy proposed by the Applicant to the Department of Environmental Conservation (Department) for the Kensington site. The proposed remedial program was chosen in accordance with Article 27 Title 14 of the New York State Environmental Conservation Law and the 6 NYCRR375 regulations relative to the BCP.

Description of the Site

The Kensington site is located at 5-27 Kensington Road in the Village of Bronxville, Westchester County. The site is approximately 1.1 acre in size and is located in a predominantly urban area of mixed commercial and residential use. It is bordered to the west by the Metro North Railroad line. The site is currently being used for municipal parking and is comprised of two separate parking lots. A third parcel to the north of the BCP site is also being used as a parking lot and is part of the proposed redevelopment of the site, which includes residential condos and a two-story subsurface parking garage.

Assessment of the Site

Contamination was identified by the Remedial Investigation of this site, which does not represent a significant threat to public health and the environment, however, a remedial program is required for the site to address the contamination identified below:

Nature of contamination: Contaminants at the site that have been detected above standards, criteria and guidance values (SCGs) include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals associated with petroleum and coal storage and usage at the site. Areas of the site contain grossly contaminated soils. Polychlorinated biphenyls (PCBs) were also detected at the site, but below guidance values. The southern portion of the site was formerly used as a gas station and service garage. The northern portion of the site was formerly the site of a power plant, which was powered by coal for a time and later switched to fuel oil.

Extent of contamination: Subsurface soils at the site are contaminated with VOCs and SVOCs as a result of historic site usage. Contamination extends to bedrock in portions of the site. Bedrock slopes steeply downhill from east to west beneath the site and ranges from 1 foot below the surface to approximately 27 feet below the surface. Contamination was not found in subsurface soils downgradient (west) of the site. Contamination was not found in groundwater downgradient of the site. Low-levels of SVOCs, slightly above guidance values, were detected in a well up/crossgradient of the site.

Description of Selected Remedy

Based on the results of the Alternatives Analysis and the criteria identified for evaluation of alternatives, the NYSDEC has selected a Track 4 cleanup for this BCP site. The components of the remedy set forth in the Remedial Work Plan, are as follows:

1. Excavate all areas of grossly contaminated soils. Excavation across areas of the site that do not contain grossly contaminated soils will proceed to an elevation of approximately 97 feet above sea level to allow for redevelopment of the site, which will further remove contamination from the site. Subject to practical limitations, excavation in areas where grossly contaminated soils are encountered will continue until those soils are removed (i.e., excavation in these areas will be deeper than that required for redevelopment). All excavated soils will be properly disposed of off-site. Documentation endpoint sampling will be performed across the site at the bottom of the excavation.

2. Construct a soil vapor intrusion mitigation system to contain and prevent exposure to site related contaminants. The mitigation system will prevent exposure by preventing contaminated soil vapor from entering the on-site buildings. It will consist of a series of pipes laid under the building foundation to collect subsurface vapors, which will then be positively vented to the outside air above the building's roofline. An evaluation will be performed to determine if there is a potential for exposure to contaminated vapors at off-site properties.

3. Construct and maintain a cover system over the site. The cover system will consist of an impermeable surface (such as a concrete slab, asphalt paving, etc.) or at least two-feet of clean soil underlain by a demarcation layer, such as a geotextile.

4. Since the remedy results in residual contamination above unrestricted levels remaining at the site, a Site Management Plan (SMP) will be developed and implemented. The SMP will include the institutional controls and engineering controls to: (a) address residual contaminated soils that may be excavated from the site during future redevelopment. The plan would require soil characterization and, where applicable, disposal/reuse in accordance with NYSDEC regulations; (b) evaluate the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; (c) provide for the operation and maintenance of the components of the remedy; (d) monitor the groundwater and (e) identify any use restrictions on site development or groundwater use.

5. The SMP will require the property owner to provide a periodic Institutional Control/ Engineering Control (IC/EC) certification, prepared and submitted by a professional engineer or environmental professional acceptable to the Department. This periodic certification would verify that the institutional controls and engineering controls put in place, are unchanged from the previous certification and that nothing has occurred that would impair the ability of the control to protect public health or the environment or constitute a violation or failure to comply with any operation of maintenance or soil management plan.

6. Imposition of an institutional control in form of an environmental easement that would: (a) require compliance with the approved site management plan, (b) limit the use and development of the property to restricted residential use; (c) restrict use of groundwater as a source of potable or process water without necessary water quality treatment as determined by the Westchester County Department of Health; and, (d) require the property owner to complete and submit to the NYSDEC an IC/EC certification.

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1.0 BACKGROUND AND PURPOSE

This Remedial Work Plan ("RWP") is intended to provide an operational framework for the planned remediation of the soil contamination at "The Kensington" (the Subject Property), located in Bronxville, New York, tax identification number: Section 11, Block 5, Lots 1, 6 and 16. This work plan has been prepared on behalf of Spectrum Kensington LLC ("Spectrum"), 115 Stevens Avenue, Valhalla, NY 10595, the prospective buyer and developer of the three contiguous parking lot parcels. It is proposed to construct residential condominiums on the site, with a subsurface parking garage.

The Brownfield Cleanup Program Site (BCP Site) consists of the parcels of land on lots 6 and 16. Lot 1 is not part of the Brownfield site, but it is part of the overall project. Thus, the BCP site and Lot 1 together comprise the "subject property". The procedures described herein will be applied to the subject property. The BCP site measures approximately 1.1 acres. The site is currently being used for municipal parking and is comprised of two separate parking lots. A third parcel to the north of the BCP site is also being used as a parking lot and is part of the proposed redevelopment of the site.

Spectrum Kensington, LLC proposes to redevelop this land in the heart of Bronxville. "The Kensington", as the development will be known, will comprise 54 residential condominiums with a 300 space subsurface parking garage. The condominiums by design and pricing will be marketed to empty nesters from Bronxville and other surrounding Westchester towns. The condominium residences will average approximately 1,700 square feet and will feature large master suites and small second bedrooms. The design of the Kensington in the Tudor and Spanish Mission style architectures will complement the unique architectural style found throughout Bronxville. The pedestrian courtyard will provide residents with a gathering place and the motor courts will pull traffic off Kensington Road to within the project site thereby reducing traffic congestion and providing an easily accessible service area for dropping off and picking up passengers. Some of the homes will have direct entry from the street, resulting in increased pedestrian activity along Kensington Road. In addition to the residential component and provision of approximately 100 parking spaces required for the project and its residents, the proposal includes plans to construct a parking garage containing approximately 200 parking

spaces for use by the Village of Bronxville. The 200 spaces will serve the Village's pressing need for parking in this area without the need for funding the acquisition of additional land and the cost of constructing a parking garage.

The project site is located immediately adjacent to the central business district and within walking distance to the Metro-North Railroad Bronxville station. As such, it is eminently appealing to empty nesters seeking a lively neighborhood with all the conveniences offered by the Village of Bronxville including the downtown restaurants and shops.

The land is situated in a general north-south direction. The topographic gradient of the land is to the west-southwest. The bedrock is composed of folded and faulted metamorphic rock from the Precambrian to Triassic age. Gneiss and schist are the dominant rock types. The bedrock is overlain by unconsolidated glacial deposits of Pleistocene age. These glacial deposits are a mixture of clays, silts, sands and boulders. Depth to bedrock ranges from ½ foot below land surface to 24 feet below land surface. The bedrock trend slopes down from east to west. No surface water features are in close proximity to the subject site. The Bronx River is 2,400 feet to the northwest.

Past uses of this site have been documented since the turn of the 20th century. The subject property has been previously utilized for housing, a power plant, a gasoline station and an automobile repair facility. It is currently a municipal parking lot. Around 1905, the "Hotel Gramatan Power and Light Plant" was built on the area that is now the middle lot. Coal was used to fuel the power plant until 1961, when the plant switched over to fuel oil. Coal piles were identified on the Sanborn maps from the years 1918, 1932 and 1950. The "Gramatan Garage" (Texaco gas station) was operated on site from circa 1958-1994. It was closed by the Village of Bronxville in March, 1994. Since the early 1990s, the land has operated as a municipal parking lot, owned by the Village of Bronxville.

In preparation for development, extensive environmental investigations have been conducted on the subject property; including soil borings, ground penetrating radar, soil sample collection and analysis, monitoring well installation and groundwater sample collection and analysis.

Some contamination was identified during the Remedial Investigation of the site, consistent with the past uses of the subject lots. A former gasoline station, an automotive repair shop and a parking facility have operated on the southern lot; and a coal burning power plant formerly existed on the middle lot. The power plant and other building structures have been demolished, and the debris has been graded and paved over to provide the land for the current parking lots.

Spectrum will begin the planned remediation by demolishing the current structures on site, excavating most of the contaminated soil to make room for the sub-grade parking garage and remove grossly contaminated soils; and leaving the rest of the contaminated soil in place to be capped with a geomembrane. Before capping, an active gas venting system will be installed to prevent exposure to contaminated subsurface vapors. Two feet of clean fill material will be brought onto the property to serve as final cover in areas that will be landscaped in the final developed parcel.

The purpose of this investigation is to describe and document the technical approach, scope of work and remedial methodology to either eliminate the detected contamination or reduce it to an acceptable level deemed protective of public health and the environment, both on- and off-site.

Collection and analysis of data will be done to facilitate selection and design of remedial actions.

1.1 Remedial Action Objectives

Remedial Action Objectives (RAO's) for this site include remediation of source areas of contamination and prevention of exposure to site related contamination.

1.2 Environmental Conditions and Existing Remedial Measures

The contamination consists of elevated levels of petroleum constituents in the soil on the south lot where underground storage tanks (USTs) were located. In the central lot, (the area of the former power plant) there are elevated concentrations of total petroleum hydrocarbons (TPH) in the soil. PCB contaminants were also detected in this area, from soil samples taken at a depth

of 4-8 feet, but the contamination was below the Recommended Soil Cleanup Objectives (RSCO) expressed in the New York State Department of Environmental Conservation Technical and Administrative Guidance Memorandum #4046, "Determination of Soil Cleanup Objectives and Cleanup Levels" (TAGM 4046). The contaminated soils are present on the surface, just below the parking lot pavement, as well as the subsurface. Based on soil samples collected as part of the Remedial Investigation performed in December, 2006, the VOC and SVOC soil contamination is limited to the middle and southern lots. No petroleum constituents were detected above TAGM in any of the samples collected from the northern lot.

Soil contaminants exceeding the New York State RSCO's on the middle and southern lots include the semi-volatile organic compounds (SVOC's): benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo-a,h-anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene and pyrene. These SVOC's are all Polycyclic Aromatic Hydrocarbons (PAHs). PAH is the general term applied to a group of compounds, comprised of several hundred organic substances with two or more aromatic rings. PAHs are major constituents of petroleum and its derivatives. Exposure to PAHs may result in a wide range of effects on biological organisms. While some PAHs are known to be carcinogenic, others display little or no carcinogenic activity. Other contaminants in the soils on site exceeding the RSCO's are the heavy metals arsenic, cadmium, chromium, lead and mercury. Exposure to elevated levels of these metals has been shown to cause detrimental health effects to biological organisms. Potential exposure pathways for these contaminants include ingestion of soil, skin contact with soil or inhalation of particulate matter, and ingestion of contaminated groundwater.

The major source areas contributing to the contamination of the site are the former Gramatan Garage, as well as the former power plant. The power plant operated on site from circa 1905 until the late 1980s. The power plant operated during the time period that coal gasification was ongoing, and there is possible evidence of coal tar in the soil samples taken from the central lot. Coal gasification contaminants include SVOC's and metals, and many of these contaminants were detected at a level above the NYSDEC RSCO's. However, based on the results of the Toxicity Characteristic Leaching Procedure (TCLP) analyses, these soils do not meet the criteria for hazardous waste.

Volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and priority pollutant metals were detected at varying concentrations in the groundwater samples collected from the monitoring wells. No VOCs were detected above the analytical method detection limit in any of the groundwater samples. MW-4 and MW-5 had some VOCs that were detected below the NYSDEC Ambient Water Quality Standards and Guidance Values (Ambient Limits).

The locations of the monitoring wells are shown on the Historical Soil Boring and Monitoring Well Location Plan in Appendix A.

There are open DEC Spill numbers associated with these parcels of land; spill #88-08146 corresponds to the former Gramatan Garage area, and spill #93-14613 corresponds to the former power plant area.

1.3 Summary of Environmental Investigations

Previous environmental investigations have been done on the property. An Environmental Site Assessment (ESA) report done in February 1989 by "Environmental Risk Limited" (ERL) identifies the Gramatan Garage as a Texaco gas station with two 2,000-gallon UST's which contained unleaded gasoline; and two 3,000-gallon UST's, one containing unleaded gasoline, and the other containing diesel fuel which were all installed around 1970. The gas station also contained a sealed floor drain, which is a cause for environmental concern as a potential pathway for contamination of the subsurface area. On October 26-28, 1989, one of the 3,000-gallon tanks was excavated and removed. A passive soil venting system was installed beneath the garage floor in January 1990. In April 1991, two other tanks were removed, and the last was abandoned in place. A tank closure report for the Gramatan Garage was prepared by Empire Soils Investigations, Inc. (ESI) in November 1989. The report states that one UST was removed from the garage in October 1989. Three groundwater monitoring wells were installed in March 1990, in the area of the former Gramatan Garage at the request of the NYSDEC. This area was assigned DEC spill number 88-08146. The area of the former power plant was assigned DEC spill number 93-14613.

Soil Mechanics Drilling Corporation (SMDC) performed a subsurface soil investigation for the entire subject property in June, 1992. Soil borings were done on the former Gramatan Garage area, the area of the former power plant and on the parking lot at the north end of the property. The findings showed elevated BTEX (benzene, toluene, ethylbenzene and xylene) contamination in the area of the former Gramatan Garage and elevated TPH concentration in the area of the former power plant. Groundwater samples were also analyzed by Soil Mechanics. BTEX contaminant concentrations above NYSDEC groundwater standards and elevated concentrations of TPH were detected in the monitoring wells.

A work plan for site remediation was prepared by Stoller Environmental Engineering, P.C./Sadat Associates, Inc. and submitted to the NYSDEC in March 1994, then amended and approved in April 1994. The work plan recommended excavation and removal of contaminated soil and installation of monitoring wells at the former power plant site. However, this work plan was never implemented.

In October 2003, Galli Engineering, along with subcontractors, collected groundwater samples from the two existing monitoring wells, advanced soil borings, collected soil samples, performed ground penetrating radar across the entire site and performed geotechnical borings on the subject property.

A total of two groundwater samples were taken from the existing monitoring wells. The groundwater analytical results revealed the presence of VOC's, SVOC's and Priority Pollutant (PP) Metals in varying concentrations. Arsenic, barium, cadmium, chromium, lead, mercury, silver and m,p-Xylene were detected above the NYSDEC Ambient Water Quality Standards and Guidance Values.

Seventy soil samples were collected for field screening with a PID, and twenty-two of those samples were selected for laboratory analysis. The soil sample analytical results revealed the presence of VOC's, SVOC's, PP Metals and PCB's in varying concentrations. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo-a,h-anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene, arsenic, cadmium, chromium, lead and mercury were detected above the NYSDEC RSCO's. Based on

the TCLP results, none of the soil samples met the criteria for characterization as hazardous waste.

The bedrock profile indicated a general downward gradient from east to west, with higher elevations along Kensington Road, and lower elevations near the rail road tracks. A depression in the bedrock is located in the northern part of the middle lot, possibly relating to the former power plant in that area.

Depth to bedrock on the southern lot ranged from 6-22 feet below land surface. The profile of the southern lot revealed greater depths to bedrock on the northwest side and lower depths on the southeast side. Depth to bedrock on the middle lot ranged from 1-29 feet below land surface. The bedrock profile is highest along the west, and lowest along the east side. On the northern lot, the depth ranged from 4-19 feet, with the greater depths to bedrock along the northwest side and lower depths along the southeast side.

A Remedial Investigation, including installation of three more monitoring wells, was completed by Galli Engineering in December, 2006. The findings of this investigation were presented in a Remedial Investigation Report dated February, 2007. The results are summarized as follows:

- No VOCs above their respective NYSDEC Ambient Water Quality Standards and Guidance Values were detected in the groundwater samples collected from the five monitoring wells.
- Groundwater from the three new wells installed off-site to the west and southwest did not reveal any VOC or SVOC contamination. Some PP Metals contamination was present in the samples, most likely due to the high turbidity of some groundwater samples, which was a result of insufficient development.
- Based on water elevations measured on November 17, 2006, groundwater flow is to the west-southwest and it appears that the groundwater impact from previous uses of the site is minimal and restricted to the area of MW-4 and MW-5.
- SVOCs and some metals were detected at concentrations above the NYSDEC TAGM #4046 Recommended Soil Cleanup Objectives in the soil samples collected from the south parking lot property (former gas station, garage and automotive repair facility).
- VOCs, SVOCs and metals were detected at concentrations above the NYSDEC TAGM #4046 Recommended Soil Cleanup Objectives in the soil samples collected from the central parking lot (former power plant parcel).
- No VOC's or SVOC's were detected above their respective RSCOs in any of the soil samples on the northernmost lot.
- It appears that the soil contamination is limited to the southern and middle parking lots.

- Soil in which contaminants appear lies in a layer on top of bedrock ranging from ½ to 24 feet thick. The soil layer is up to 24 feet thick in the vicinity of the middle lot and up to 21 feet thick in the southern lot.

2.0 ALTERNATIVES ANALYSIS

In accordance with the Draft Brownfield Cleanup Program Guide, "The goal of the remedy selection process in the BCP is to select a remedy for a site that is fully protective of public health and the environment, taking into account the current intended and reasonably anticipated future land use of the site."

2.1 Available Alternatives

The Alternatives Analysis identifies and compares potential site remedies. In accordance with the Draft Brownfield Cleanup Program Guide, three alternatives need to be reviewed.

Alternatives considered for remediation of this property are as follows:

1- No Action
2- Unrestricted Reuse (Track 1) scenario
3- Restricted Reuse (Track 4) scenario

2.1.1 No Action

The No Action alternative requires that no remedial action be completed at the site. The No Action alternative is the easiest and least costly course of action. This alternative would provide no additional control over potential exposure to contaminants identified at the site, so the risk of exposure to site contaminants would remain similar to current conditions.

Under the No Action alternative, contaminants detected during the Remedial Investigation in soil and groundwater would be left in place. This alternative would not include any active measures to meet chemical specific SCGs, or actively reduce the toxicity, mobility, or volume of contamination. However, some degree of natural degradation and attenuation of the VOCs detected in soil and groundwater would be expected to occur over time, thereby naturally reducing toxicity, mobility, and volume of contamination.

The degree to which natural attenuation may decrease the risk of exposure to contaminants over time is not certain, but some degradation would be expected to occur over the long term. In the interim short term, adverse effects are unlikely because the risk of human exposure is considered minor under current conditions and there is minimal wildlife contact with the site. Since the ground surface at the site is currently covered with asphalt or building slabs, and will also be covered under the planned future development, this alternative does not pose an elevated risk of direct contact exposure to site soils.

Under the No Action alternative, no development would occur at the site and the contamination would remain at the site and continue to pose a potential threat to human health and the environment.

2.1.2 Unrestricted Use: Generic Soil Cleanup Table (Track 1)

Track 1 requires the most rigorous cleanup and provides for unrestricted use which allows the property to be developed for any use. Restrictions on the use of the site are not permitted. Track 1 utilizes a generic table to identify soil cleanup objectives for unrestricted use remedies.

The Track 1 alternative is the most restrictive and costly to implement. This alternative does not permit any future restrictions to site use, or the use of institutional/engineering controls to address exposure and achieve the RAOs. However, it does allow groundwater use restrictions to be placed on the site.

Track 1 cleanup requires that site remediation be completed to meet generic soil cleanup objectives developed for unrestricted use remedies. At this time, the generic soil cleanup objectives refer to those listed in NYSDEC NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives. Thus, unlike the No Action alternative, the Track 1 alternative would meet SCGs for soils.

Unlike the No Action alternative, the Track 1 alternative would substantially reduce the mass and mobility of contamination, and would meet chemical specific SCGs for soil and groundwater much more rapidly than the No Action alternative, which would rely on natural attenuation over the long term.

To achieve a Track 1 remedy, contaminated soil that exceeds the limits in the table must be removed. A Track 1 remedy would eliminate the potential on-site risk associated with direct human contact with soil contamination, by source removal, which would allow for unrestricted use of the site. In addition, a Track 1 remedy would not provide a measurable increased benefit in relation to fish and wildlife exposure risk, since there are currently no significant exposure risks associated with fish and wildlife and because of the site's setting, there are unlikely to be any in the future.

A Track 1 remedy would include removal of all contaminated soils to bedrock, to ensure that SCGs are met, without leaving residual contamination in place.

2.1.3 Restricted Use: Site Specific Evaluation (Track 4)

The Track 4 alternative is more costly and more difficult to implement than the No Action alternative, but it can be less costly to implement than the Track 1 alternative. The Track 4 alternative uses site-specific information and guidance to identify soil cleanup objectives to achieve a restricted use remedy, and may incorporate the use of institutional/engineering controls.

The planned remediation for this site includes removing most of the contaminated soil, and treating the remaining soil by means of a sub-slab venting system. Under a Track 4 scenario, some contaminated soil would be left in place (in areas where construction will not take place and in close proximity to the Metro-North tracks. See Appendix E - Areas of Excavation Plan).

Engineering controls would integrate features to mitigate site contamination and exposure risk. For example, all future site buildings in affected areas will have a sub slab vapor barrier and/or

sub-slab ventilation system to abate potential exposure to organic vapors in indoor air. Ground cover, such as pavement and building slabs, would reduce the risk of contact with contaminated soils. Institutional controls will be implemented that will limit the future use of site and prohibit the use of site groundwater without proper treatment, thereby mitigating the risk of human exposure to groundwater. Compared to No Action, the benefit of Track 4 in relation to fish and wildlife exposure risk is minimal, since there are currently no significant exposure risks associated with fish and wildlife and because of the site's setting, there is unlikely to be any in the future.

2.2 Remedy Evaluation

2.2.1 No Action

A. Protection of Human Health and the Environment

Potential exposure pathways for the contaminants include ingestion of soil, skin contact with soil or inhalation of particulate matter, and ingestion of contaminated groundwater. Under the No Action remedy, the contamination on site will remain and will not be remediated. This alternative would provide no additional control over potential exposure to contaminants identified at the site, so the risk of exposure to site contaminants would remain similar to current conditions.

B. Standards, Criteria, & Guidance (SCG)

Under the No Action remedy, no cleanup will occur; therefore this remedy will not meet the SCGs.

C. Short-term Effectiveness & Impacts

Short-term impacts at the site will remain the same. If the site is not remediated, it will still be utilized as three contiguous parking lots.

D. Long-term Effectiveness & Permanence

In the foreseeable long term, if the site is not remediated, the current use will be the same. Natural attenuation is expected to occur very slowly for VOCs and even more so for SVOCs and little if any for metals over the long term. Since the ground surface at the site is currently covered with asphalt or building slabs, this alternative does not pose an elevated risk of direct contact exposure to site soils.

E. Reduction of Toxicity, Mobility, or Volume

No reduction of toxicity, mobility or volume will occur under the No Action track.

F. Implementability

No remedial actions will be implemented at the site, under the No Action remedy.

G. Cost Effectiveness

The No Action remedy will incur no additional costs beyond upkeep of the parking lot.

H. Community Acceptance

The No Action remedy for this project would have to be approved by the community.

I. Land Use

The land use for this site under the No Action remedy will remain the same, three contiguous parking lots utilized by the Village of Bronxville.

2.2.2 Track 1

A. Protection of Human Health and the Environment

Potential exposure pathways for the contaminants include ingestion of soil, skin contact with soil or inhalation of particulate matter, and ingestion of contaminated groundwater. The remedy for Track 1 would eliminate the potential exposure to contaminated soil by removing all contaminants from the site, leaving the site available for any use.

B. Standards, Criteria, and Guidance (SCG)

SCG's for the Track 1 Remedy shall include a cleanup level that will allow the site to be used for any purpose without restrictions. Soil that remains after excavation will be cleaned up to the standard listed in "6 NYCRR Part 375-6" Table 375-6.8(a): Unrestricted Use Soil Cleanup Objectives.

C. Short-term Effectiveness and Impacts

Short-term impacts to the site and surrounding areas during excavation and construction would include truck traffic and associated noise, odors and dust.

Increased truck traffic would occur along nearby roads, as trucks would need to be available to haul material off the site. During construction of the project, the existing 179 municipal parking spaces will be relocated until construction of the below grade parking structure is complete.

Special parking rules and exceptions will be implemented to accommodate displaced parking. Parking regulation exceptions may include temporary permitting of on-street parking for commuters and merchants Village-wide.

To control dust during excavation activities, personnel will liberally spray water on all stockpiles, open surfaces, truck paths and during any truck loading and unloading operations, as necessary. Air monitoring will be periodically performed to protect field personnel and the public

against exposure to airborne hazardous substances and to determine appropriate levels of PPE for work tasks. Initial monitoring of the work area will be performed prior to site work. This testing will determine background levels, and determine if any immediate hazards exist. Dust monitoring will be performed using a MIE Dust Monitor for PM-10.

D. Long-term Effectiveness and Permanence

Under the Track 1 remedy, all contaminated soils will be excavated and removed from the site. This will permanently reduce the mass and mobility of contamination, and would meet appropriate SCGs for the site.

E. Reduction of Toxicity, Mobility, or Volume

By removing all of the source material, this will permanently reduce the toxicity, mobility and volume of the contamination located at the site.

F. Implementability

The removal of all contaminated soils from the site would not be feasible, as a portion of the site borders the Metro-North railroad platform, and any excavation in that area would undermine the platform, causing it to fail. Since meeting the Track 1 SCGs requires removal of all contaminated soil, this would not be feasible, as all of the contaminated soils cannot be excavated from the site, due to inaccessibility and undermining of the railroad platform.

G. Cost Effectiveness

The cost for a Track 1 cleanup would be greater than either the No Action alternative or the Track 4 alternative due to the fact that a greater amount of material would have to be removed from the site and disposed of. This would also involve marginally more effort for shoring, site control and railroad safety. The Track 1 cleanup would not require engineering controls or long term site management, as all the material would be removed, but this is not feasible due to the presence of the railroad platform abutting the site.

H. Community Acceptance

Fact sheets have been mailed to the site contact list regarding the Remedial Workplan with 30-day comment period, Remedial Investigation Report and the Remedial Work Plan with 45-day comment period.

I. Land Use

Track 1 provides for unrestricted remedies which allow the property to be developed for any use. Restrictions on the use of the site are not permitted.

2.2.3 Track 4

A. Protection of Human Health and the Environment

Potential exposure pathways for the contaminants include ingestion of soil, skin contact with soil or inhalation of particulate matter, and ingestion of contaminated groundwater. The remedy for this site will eliminate the potential exposure to contaminated soil by removing the majority of source material from the site, and capping the remaining soils with a membrane, where the gaseous contaminants will be captured and vented out by the sub-slab venting system. An open-air break (in the form of the parking garage) will be provided between the source material and residences.

B. Standards, Criteria, and Guidance (SCG)

Since this site is to be redeveloped as residential property, it will utilize Engineering Controls and Institutional Controls to allow for the proposed use. The Track 4 cleanup would not obtain the Restricted Residential SCO's but would rely on EC/IC to allow the proposed use.

C. Short-term Effectiveness and Impacts

Short-term impacts to the site and surrounding areas during excavation and construction would include truck traffic and associated noise.

Increased truck traffic would occur along nearby roads, as trucks would need to be available to haul material off the site. During construction of the project, the existing 179 municipal parking spaces will be relocated until construction of the below grade parking structure is complete.

Special parking rules and exceptions will be implemented to accommodate displaced parking. Parking regulation exceptions may include temporary permitting of on-street parking for commuters and merchants Village-wide.

D. Long-term Effectiveness and Permanence

The bulk of the contamination would be removed from the site. Exposure pathways and contact with metals will be prevented, being that a permanent cap will be put on the entire site. Any gaseous contaminants remaining in soils after excavation will be vented out by the sub-slab venting system. Annual inspection of the venting system will be done to ensure its effectiveness as well as performance. The venting system will be permanently in place beneath the parking garage structure.

E. Reduction of Toxicity, Mobility, or Volume

By removing the source material, the volume of contaminants will be greatly and directly reduced.

F. Implementability

This proposed action will remove all grossly contaminated soils to the extent feasible, leaving in place some residual contamination to be vented out by the sub-slab system. This action will not compromise the integrity of the railroad platform.

G. Cost Effectiveness

The cost for a Track 4 cleanup would be less expensive than the No Action alternative due to the fact that less material would have to be removed from the site and disposed of.

H. Community Acceptance

Fact sheets have been mailed to the site contact list regarding the Remedial Workplan with 30-day comment period, Remedial Investigation Report and the Remedial Work Plan with 45-day comment period. No negative feedback has been received from the community, and the project has been looked upon favorably by the community.

I. Land Use

This site will be developed as 54 residential condominiums with a 300 space subsurface parking garage. In 1996, the Village of Bronxville adopted zone text amendments for the Six-Story Multiple Residence D zoning district. These amendments were adopted in order to permit an age-restricted multiple residence facility to be constructed on the subject property.

3.0 SITE ACTIVITIES

The following scope of work is an outline of the process and steps that are to be used in the cleanup of the Site. The NYSDEC and Westchester County Department of Health (WCDOH) will both be notified at least seven (7) days in advance of any work being performed on site, so that arrangements can be made, if desired, for their representatives to be present to witness the excavation and obtain samples.

Thirty days prior to the start of remediation, residents of the Village of Bronxville will be notified that the parking lots will be under construction, and that alternative parking will need to be found. The site will be unavailable for further parking until completion of construction.

The site is currently utilized as a municipal parking lot, divided into three sections. The dimensions of the entire site are approximately 650 feet long and 100 feet wide. Contaminated soil is present on the lots, as delineated on the Site Plan with Contamination Overlay shown in Appendix B. The development of the property is to include a subsurface parking garage; one level four and a half feet below grade, and the second level twenty feet below grade.

The Scope of Work is summarized as follows:

1. Collect one sample from every 1,000 cubic yards of soil to be excavated;
2. Send soil samples to laboratory to perform waste characterization;
3. Excavate and stockpile (if necessary) contaminated soil on 6-mil plastic sheeting and cover with 6-mil plastic sheeting;
4. Load, transport, and dispose of contaminated soil to appropriate facility;
5. PID monitoring and dust control monitoring;
6. Storm water management
7. Endpoint sampling of soil, with laboratory analysis;
8. Install active soil venting system during excavation activities;
9. Concurrently, install filtration system for storm water management
10. Cap remaining contaminated soils in place with membrane;
11. Bring in clean fill materials for backfilling purposes as necessary;
12. Dust mitigation;

13. Health and safety meetings before the start of every day;
14. Record keeping;
15. Preparation of a Remedial Report.

The goals of this scope of work are to 1) remove contaminated soil to bedrock or to a depth of 99 feet MSL, whichever is deeper, and where feasible; and 2) to provide measures to mitigate the effects of any residual contamination. Material removal is necessary to accommodate the space needed for the proposed sub-grade parking garage on the site and to meet program requirements to remove the maximum amount of grossly contaminated soil. The contaminated soil that is not excavated (that nearest the railroad tracks and above bedrock in the southwest corner of the BCP site) will remain in place, to be capped with a geomembrane, and actively vented through a system permanently installed beneath the floor of the parking garage.

Groundwater was not encountered in the deep structural soil borings done in previous site investigations. Given that the property is not in a flood prone zone; that the groundwater is not a source of potable drinking water; and that the groundwater contamination is minimal and is isolated, no need to remediate the groundwater on site is anticipated. Monitoring wells installed offsite and downgradient to the west revealed no contamination by VOC's or SVOC's above regulatory limits.

The selected remedy for the subject property must eliminate or mitigate all significant threats to public health and/or the environment through the proper application of scientific and engineering principles. Specifically, the remediation goals for this site are to reduce or eliminate human exposure to contaminated soils on site by excavation and removal of soils; as well as installing an active venting system and capping the site. The items in the scope of work are further detailed in the following paragraphs. A project schedule is included in Appendix I.

3.1 Site Security

Before excavation operations begin, a site enclosure fence will be installed in a manner that will prevent people and animals from easily entering the site except by entrance gates. Protection

will be provided along the railroad platform and along the street. Any additional gaps in the existing fencing will be blocked off as well. Entrance gates will be provided for construction vehicles and will be locked at the end of each work day. Vehicular access to the work area shall be restricted to authorized vehicles only. A log of security incidents will be maintained. No visitors shall be allowed on-site without the expressed approval of the site contractor.

A sign will be posted at the site, indicating that remedial activities are being performed. The sign will include the program name, site name, site number, name of party performing remedial actions, and the names of the Governor, Commissioner and Municipal Executive.

3.2 Soil Sampling

Soil will be excavated to remove or reduce the contamination in the soil as well as excavate enough of the soil from the site to accommodate the subsurface parking garage structure. Soil samples will be collected prior to excavation to characterize the waste soil for disposal. Soil samples will be collected using a geoprobe, and then transported to the laboratory for analysis. Soil samples collected for the purpose of waste characterization will be grab samples collected from the section of each boring which is the most highly contaminated (portion of the soil boring with the highest PID reading or the strongest odor, or soils which are determined to be grossly contaminated by means of visual inspection). If no signs of contamination are encountered in a boring, samples will be collected according to the requirements of the disposal facility.

The degree of contamination will be characterized using the United States Environmental Protection Agency (US EPA) methods for volatile organic compounds (VOC's), semi-volatile organic compounds (SVOC's), total petroleum hydrocarbons (TPH), priority pollutant metals, polychlorinated biphenyls (PCB's), toxicity characteristics leaching procedure (TCLP) for metals, and RCRA characteristics (ignitability, corrosivity and reactivity) to determine characterization for disposal. One trip blank and one field blank will be collected for quality control purposes. Galli Engineering, P.C. will follow generally accepted industry practices and NYSDEC protocols and guidelines and submit the samples to a NYSDOH ELAP-Certified Laboratory for analysis. Additional analytes may be included depending on the requirements of the selected disposal

facility.

The degree of contamination will be determined by a laboratory analysis of one sample from every 1,000 cubic yards of excavated soil, or at a different frequency, depending on the requirements of the selected disposal facility. The actual volume of excavated soil may vary based upon actual field conditions encountered. Depending on the laboratory findings, the contaminated soils will be transported to one or more facilities permitted to handle the appropriate level of contamination. The estimated total amount of rock to be removed is 12,000 tons. No special disposal is needed for the excavated rock.

Any remaining contaminated soils that will be left on site will be actively vented to remove contaminants and prevent their accumulation, and will be capped with a geomembrane. A two-foot thick layer of clean fill material will be brought on-site and placed over all areas that will ultimately be unpaved as well as encapsulate the existing on-site soils during construction of the property.

3.3 Excavation and Removal Methodology

The excavation of the contaminated soil will consist of mobilization of equipment, excavation of the soil, erosion control, storm water management, stockpiling of the soil, air monitoring, and laboratory testing of soil for waste characterization. Laboratory testing will be performed prior to excavation so that soils can be transported away to the proper disposal facility as soon as they are excavated. Soil samples will be collected using a geoprobe, and then transported to the laboratory for analysis.

Soil excavation will proceed on a cell by cell basis starting on the northern portion of the site and working south, as shown on the Areas of Excavation Plan in Appendix E. At each section of soil removal, the soil will loaded into trucks to be sent to a licensed disposal facility. If necessary, excavated soil will be stockpiled in a designated area and placed between two layers of 6-mil plastic sheeting, in preparation for loading. The sides of the bottom sheet will be folded up, the top sheet will be placed to overlap the folds, and they will be secured to the ground to prevent the contaminated soil from spreading. Erosion control will be implemented using silt fences and

hay bales primarily along the western portion of the site.

All of the soil will be removed until all grossly contaminated soils are removed or until enough area is excavated to accommodate the parking garage structure. A reasonable effort will be made to remove as much soil as practicable, without compromising the integrity of the railroad platform. The following chart gives a breakdown of the estimated total amount of material needed to be excavated.

Type of Material	Amount of Material
Uncontaminated Soil plus C&D debris	14,620 tons
Contaminated Soil	25,540 tons
Rock	11,830 tons
Total material to be removed	51,990 tons

The mix of uncontaminated soil and debris is unknown; therefore a breakdown of 50/50 is used. Based upon the volume of material to be removed, the lack of ingress or egress into the subject property and the local regulations, we estimate that 500 tons of contaminated soil or 650 tons of uncontaminated soil and rock can be removed on a daily basis.

All excavation work will be conducted in a safe manner in order to protect workers, the public and adjacent property. All applicable Federal, State and local requirements will be observed and necessary permits obtained by the Contractor.

Shoring will be employed to facilitate removal of as much contaminated soil as possible adjacent to the Metro-North tracks. An excerpt from the construction drawings showing the relationship between Right-Of-Way grade level, the lower floor of the parking garage, and bedrock at the southern end of the lot has been included as Appendix G. The anticipated depth of shoring has been added to this detail. Approximately three feet of soil remains between

bedrock and the floor at this location. If the shoring had to be extended to allow removal of this soil layer, it would have to bear against at least two times the depth. Because the load on the shoring is a squared function, it would have to resist four times the movement.

It must be kept in mind that any such shoring will be placed just inside the railroad right-of-way. This is a very active commuter rail line and no disruptions can be tolerated. Therefore, we consider the additional three foot layer of contaminated soil cannot be removed within practical or reasonable constraints. It was agreed to install the sub-slab venting system partially for this reason, knowing that some contaminants will necessarily remain.

The extent of shoring and bracing work includes, but is not limited to, the following:

- Shoring, bracing and other protection as necessary in conforming with Industrial Code Rule 23 of the Rules and Regulations of the State of New York and with Subsection 107-05 of the NYSDOT Standard Specifications.
- Shoring and bracing necessary to protect existing buildings, streets, walkways, utilities, and other improvements and excavation against loss of ground or caving embankments.
- Maintenance of shoring and bracing.
- Removal of shoring and bracing, as required.

The shoring and bracing system shall be designed by the Contractor on a Means and Methods basis. Shoring may consist of soldier piles with wood or concrete lagging, driven sheet pole, or other appropriate systems. Other methods acceptable to the agency having jurisdiction and conforming to Industrial Code Rule 23 will be considered by the Consultant upon written request by the Contractor. Tie-back anchors shall not be permitted to extend under Metro North Railroad.

Wherever shoring is required; locate the system to clear permanent construction and to permit forming and finishing of concrete surfaces. Provide shoring system adequately anchored and braced to resist earth and hydrostatic pressures. Shoring and bracing shall be well-constructed, carefully aligned, substantial and firm, securely braced and fastened in position, and shall be

maintained in that condition. Shoring should be placed in order to allow access to grossly contaminated soils to the maximum extent possible (as far west as possible, and as deep as possible).

3.3.1 Tank Removal Methodology

There is one known abandoned tank on the site, and three other tanks were previously removed. This tank is believed to be located in the south parking lot of the site, encased in a concrete slab. If this abandoned UST or any other USTs remaining on the site are found to be closed improperly, they will be removed from the site. Before development of the property, the existing USTs on site will be properly registered, cleaned, removed and disposed of in accordance with applicable regulations. Soils surrounding the tanks will be excavated, and after excavation of the soils in the areas of the existing UST, endpoint samples will be taken and analyzed for VOC's, SVOC's, PCB's and priority pollutant metals according to applicable methodologies to ensure proper cleanup in these areas. Endpoint samples for any tank excavation will coincide with final endpoint samples. If the tank excavation requires excavation deeper than otherwise needed, the bottom of the tank excavation would be the bottom of the final excavation and therefore would need final endpoint samples.

Pursuant to DER-10, the New York State Department of Environmental Conservation will be notified in writing one week prior to tank removal and collection of endpoint samples. After proper analysis, these soils will be disposed of in accordance with all applicable regulations.

The WCDH and NYSDEC will be notified at least one week prior to the start of any field work or sampling, including excavation of the UST.

A licensed waste oil recycler will be engaged to pump out the contents of and clean out the tank and render it vapor free. The clean-out and removal of the tank will be performed in accordance with NYSDEC Bulk Storage Regulations. All piping will be exposed, drained back to the tank (prior to tank cleaning), and removed. The UST will be excavated and removed from the ground. An engineer will be present on site and will note the condition of the tank and the

condition of the excavation area. The excavation will be examined for stains and odors. The tank will be rendered useless by perforation and appropriately disposed of.

At the completion of the tank excavation, endpoint samples will be collected from each of the four walls and the floor of the finished excavation. The holes will not be filled in until written WCDH or NYSDEC approval of endpoint analyses is obtained.

Petroleum contaminated soils will be disposed of in accordance with the NYSDEC STARS Program. Soil removed from the excavation will be placed directly into dump trucks or trailers for transport to an authorized disposal facility if suitable arrangements can be made. Otherwise, contaminated soil will be stockpiled, sampled for waste characterization purposes, and transported at a later date. If necessary, excavated soil will be stored on top of, and be covered by, layers of plastic sheet. Contaminated soil will be sampled for waste characterization purposes using analyses likely to be required by anticipated disposal facilities.

Appropriate load tickets will be logged to provide proof of disposal.

3.4 Disposal of Contaminated Soil

The soil excavated from the areas of known contamination will be loaded for transport to the disposal site. The actual volume of excavated soil may vary based upon actual field conditions encountered. If necessary, soil will be stockpiled on-site, on and under polyethylene sheeting. Stockpiling may be necessary if the quantity of soil excavated exceeds the amount of soil that is able to be transported in one truck trip.

The contaminated soil will be transported for disposal or treatment to an appropriately permitted facility. The final disposition of the contaminated materials will be in accordance with all applicable federal, state, and local regulations. Disposal facilities will be selected based on the results of laboratory analysis for disposal parameters, distances to facility and cost of disposal. Based on the known nature of the soil contamination, disposal facilities and options are readily available.

The NYSDEC will be notified in writing at least two weeks prior to the removal of any contaminated soils or groundwater with the names of the waste transporters and disposal facilities and their respective licenses and permits for agency review. All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364.

Loaded vehicles leaving the site must be appropriately lined, tarped, securely covered, manifested and placarded in accordance with appropriate local, State, and NYSDOT regulations.

A stabilized construction entrance will be constructed to prevent tracking of soil from the site. The entranceway and adjacent roadway will be monitored for evidence of off-site soil tracking and appropriate measures taken if tracking occurs. Trucks leaving the site will be monitored to ensure the exterior of the trucks are clean. Trucks will be cleaned prior to leaving the site as necessary. Any water used to clean trucks will be collected and disposed of properly.

3.5 Sub-Slab Venting System and Geomembrane

To contain and prevent exposure to site-related contaminants, a soil vapor intrusion mitigation system consisting of an active ventilation system will be installed just beneath the concrete slab of the parking garage to positively vent any vaporized contaminants. The system includes a combination of fresh air inlet vents (Geovent) and contaminated air exhaust vents (also Geovent). Geovent is the product name given to a fabricated highly porous strip of material, approximately 1" thick and one-foot wide laid in long strips over the area to be vented. The end of each strip is connected to a header pipe which is connected, in turn, to a fan. The exhausted air will be passed through a stack and discharged above the roof.

Information from previous studies has documented the presence of contaminants consistent with the prior use of the site as a former gasoline station, an automotive repair shop, and a coal burning power plant. Due to the presence of heterogeneous fill material at this site, vapor concentrations and migratory pathways cannot be predicted with any accuracy. Because

bedrock is quite shallow on this site, approximately 2/3 of the contaminated soil will need to be removed to provide clearance for foundations, and more will be removed within limits of feasibility to meet program requirements to remove as much contamination as possible. Additionally, it has been agreed that an active venting system will be installed beneath the area where a small portion of the contaminated soil will remain and remove vapors as they accumulate. An impervious barrier, sealed around the entire perimeter and at all penetrations, will be provided. The proposed system will prevent vapors from migrating and accumulating inside future buildings by providing a positively vented pathway to the outside atmosphere.

The sub-slab venting system will consist of a ventilation system, a vapor barrier, graded fill placed beneath the vapor barrier, and blowers to prevent vapors from accumulating in the subsurface and ultimately from entering the buildings. These specifications apply to the ventilation system components including the Geovent vapor collector, the geotextile, headers, Liquid Boot® sprayed on impervious barrier, and blowers.

The ventilation system will consist of two four-inch diameter PVC headers laid in sand or finely crushed gravel beneath the garage floor slab. One of these will serve as a fresh air supply header; the other a vent header for vapor laden air. These will be run along the length of the vented area. Pairs of Geovent strips will extend perpendicular to the headers (alternating the fresh air supply Geovents with the exhaust Geovents). The Geovents will connect to an adapter and then to a 2" diameter PVC nipple and reducer before connection to the header. The vent header will extend beyond the building footprint and turn up into a fan enclosure at grade. A PVC riser will extend to above the roofline.

As vapors rise through the sub-surface, they will be blocked from entering the garage building by the continuous impervious barrier and collected by the sub-slab collectors, and carried away and vented to the atmosphere by the fan and riser.

A capping system will be placed over the contaminated soil that remains after excavation. The total area to be capped is estimated at 14,545 square feet. The final placement of vent piping will be determined at the time of construction of such system.

A sub-slab venting system has been specified rather than a sub-slab depressurization system due to the fact that the proposed system serves as an extra precaution against accumulation of vapors. Since the two lower parking levels of the proposed construction amount to open air structures, it won't be possible for vapors to accumulate. Therefore, the inclusion of any sub-slab system is somewhat superfluous. The rate of fresh air intake can be restricted, if necessary, using a gate valve installed at the fresh air intake vent - but the system would typically operate without that restriction. Any attempt to generate low pressures beneath the building is not advisable. It does not produce any significant benefit with respect to mitigating potential vapor migration to the interior of the building; it would have a tendency to increase the vapor level beneath the building, and if the blower were shut down for any reason, the rate of vapor migration to the interior of the building would spike upwards; and last but not least, inducing a partial vacuum beneath the building has the same effect as increasing the effective weight of the building - it can result in soil settlement and associated distress. Without restricting the fresh air inlet, the proposed system should produce a negative pressure of a few inches of water beneath the building.

The Westchester County Department of Health will be contacted regarding the sub-slab venting system. Air discharge permits will be applied for and received regarding the air discharge stacks, if applicable.

The soil vapors from this project may be colorless and odorless gas which presents an explosion hazard at concentrations in air by volume from 5% (the lower explosive limit, LEL) to 15% (upper explosive limit, UEL). Due to the presence of poly aromatic hydrocarbons at this site, soil vapor concentrations and migratory pathways cannot be predicted with any accuracy. Accordingly, it has been agreed that an active venting system will be installed beneath the basement slabs of the parking garage and remove the soil vapors as it accumulates. An impervious barrier, sealed around the entire perimeter and at all penetrations, will be provided. The proposed system will prevent soil vapors from migrating and accumulating inside future buildings by providing a positively vented pathway to the outside atmosphere.

The sub-slab soil vapors mitigation system will consist of a ventilation system, a vapor barrier, graded fill placed beneath the vapor barrier, and blowers to prevent soil vapors from

accumulating in the subsurface and ultimately from entering the buildings. These specifications apply to the ventilation system components including the Geovent vapor collector, the geotextile, headers, Liquid Boot® sprayed on impervious barrier, and blowers.

The general arrangement of the venting system is shown on Drawing EV-1. Construction details are shown on Drawing EV-2. This specification is to be used in conjunction with the drawings and the Liquid Boot® specifications appended hereto. These provide detailed descriptions of materials and installation techniques. No changes are to be made in the field without prior approval of Galli Engineering.

The ventilation system will consist of two four-inch diameter PVC headers laid in sand or finely crushed gravel beneath the basement slab. One of these will serve as a fresh air supply header; the other a vent header for soil vapors laden air. These will be run along the length as shown on the General Arrangement. Two Geovent strips will extend perpendicular to the headers (one from each) parallel to the centerline of each individual unit as shown on the Plans. The Geovents will connect to an adapter and then to a 2" diameter PVC nipple and reducer before connection to the header. The vent header will extend beyond the building footprint and turn up into a fan enclosure at grade. A PVC riser will extend to above the roofline.

As soil vapors rise through the sub-surface, they will be blocked from entering the building and garage by the continuous impervious barrier and collected by the sub-slab collectors, and carried away, treated and vented to the atmosphere by the fan and riser.

MATERIALS

Gas Permeable Aggregate

Gas Permeable Aggregate to be used under interior slabs for backfill and bedding material for the sub-slab soil vapors ventilation system shall consist of rounded, hard, durable particles of stone or gravel meeting the manufacturer's specifications and will be supplied by the Excavation Contractor. Crushed material from on-site sources may be used provided all wood, rebar, and putrescible material is removed and that the particle size and sharpness is consistent with the

manufacturers recommendations. Aggregate shall be round, ¾" minus, and rolled smooth prior to pipe laying, geotextile placement, and spray application of the Liquid Boot® system.

Gas Permeable Aggregate shall meet the following gradation requirements:

Sieve Size	% Passing by Weight
1-1/2"	100
1"	90-100
¾"	55-85
3/8"	8-20
No. 4	0-5
No. 8	0-5
No. 200	0-2
ASTM C131 Test Grading	B

Cushion Layer

If aggregate is larger or coarser than that specified, a cushion layer of Geotextile will be placed. The cushion fabric (G-800) is a non-woven polypropylene geotextile and will be placed on the crushed rock sub-base material to protect subsequent layers and to bridge over voids in the aggregate while subsequent layers cure. This layer may or may not be required, depending on the quality of aggregate used.

Base Fabric Geotextile

A layer of Geotextile material will be placed above the gas permeable aggregate layer (or the cushion layer, if used) and shall be of a non-woven polypropylene type, such as Liquid Boot Base Fabric T-60, or approved equal.

Geovent® Low Profile Piping

Geovent® is a fabricated assembly of spacers and textile coverings designed to provide a low-loss gas collector. Geovent® adapters will be used where the Geovent® transitions to 2" PVC piping.

Polyvinyl Chloride (PVC) Piping

Polyvinyl Chloride (PVC) pipe for the underground gas vapor collection system shall be 4" diameter for header mains and 2" diameter for connector stubs, Schedule 40 solid pipe. Joints will be solvent welded. All fittings shall be of the same manufacturer, material, class, and Schedule as the pipe. Any threaded joints (if required) shall be provided with Teflon tape or flanged joints with nitrile or urethane gaskets. Solvent welded joints shall be made in accordance with the manufacturer's recommendations.

Liquid Boot Vapor Barrier Membrane

The Vapor Barrier Membrane shall consist of Base Fabric T-60, 60 mils dry thickness of spray applied Liquid Boot®, and a protective course of G-800.

Exterior Risers

Exterior risers shall be 3" diameter Schedule 40 PVC pipe. Joints will be solvent welded. All fittings shall be of the same manufacturer, material, class, and Schedule as the pipe. No threaded or flanged joints will be allowed. Solvent welded joints shall be made in accordance with the manufacturer's recommendations. All building penetrations shall be in accordance with the design drawings and provided with sleeves and/or firestop material in accordance with all applicable building standards and codes. Visible runs will be made of unmarked clean white pipe. No solvent cement runoff shall be visible on exposed runs.

Blower

Because soil vapors concentration excursions within the explosive limits are possible, fans will be explosion proof to meet Class I, Group D, Division 1 criteria. Conduit, wiring, and devices will meet the same explosion-proof rating within ten feet of the fan enclosure. The fan shall be manufactured by Ametek Rotron Industrial Products and will be a Model EN101 sealed regenerative blower (or approved equal) with 0.5 h.p. horsepower electric motor, 3 phase, 230 VAC, 4.5 amps (max. 19 amps inrush at start-up) explosion proof motor. The blower will be capable of delivering 20 cubic feet per minute at a pressure of 12.5 inches water column. The blower shall have a cast aluminum blower housing, cover, impeller and manifold. The Flanges will cast iron (threaded), with a teflon lip. The electric motor shall be UL and CSA approved with permanently sealed ball bearings for explosive gas atmospheres: Class D Group 1 minimum and sealed blower assembly. The blower shall come complete with corrosion resistant surface treatments and sealing on its housing. Each blower assembly will come complete with flowmeters to read in standard cubic feet minute (SCFM), filters and moisture separators, pressure gauges, vacuum gauges and relief valve: air flow, pressure, temperature cut-off switches and an external muffler for additional silencing.

Carbon Adsorption System

The carbon adsorption system will consist of two carbon canisters attached in series and one as a spare, manufactured by Siemens / Westates or approved equal. Each canister shall be a Model VS-200 with VoCarb P60 carbon, 22 inches in diameter and 34 inches in height, capable of holding 200 pounds of activated carbon at a flow rate of 100 CFM(max). Each canister shall include a false bottom and distributor screen to allow for even distribution and lower pressure drops. The canisters shall have open top drums to allow for easy carbon access and change-out. The canister shall have inlet 2" FNPT and outlet 2" MPT connections.

The activated carbon shall consist of approx. 200 pounds of granular activated Vo Carb P60 carbon per canister. Empty vessel weight is approx. 250 lbs.

EXECUTION

Gas Permeable Aggregate and Collection Pipe Network

The 4" diameter PVC fresh air and vent headers will be laid in trenches beneath the grade beams and will not have any dips or low points. "T" connections will be provided for connection to each Geovent strip. Following the completion of the building footers, the sub-base between each footer shall be excavated to a depth of 4" below the bottom of the slab. A 2" layer of round, ¾" stone will then be placed as bedding for the Geovent. The Geovent strips will then be placed (two per residential unit). PVC adapters and 2" diameter connector pipes will then be run to the fresh air and vent headers.

A 2" layer of gas permeable aggregate shall be placed and compacted as necessary on the geotextile. The collection pipe shall be assembled and placed as identified in the Plans, with 2" of aggregate below and above the centerline of the Geovent® and 2"-diameter PVC pipe. PVC transition pipe at interior riser penetration locations shall be assembled and placed with supports as necessary to maintain accurate locations for application of the gas vapor barrier and concrete slab. Following inspection, gas permeable aggregate shall be placed and backfilled to achieve 4 inches of gravel below the bottom of slab elevation.

Spray-Applied Vapor Barrier

The spray-applied vapor barrier shall be installed as specified in the Plans and Specifications and in accordance with manufacturer's recommendations.

Base Fabric T-60 shall be placed on all areas to receive the product, followed by a 60-mil application of the product. Following the recommended curing time, thickness inspections shall

be performed. Corrective thickness applications of the product will be applied as necessary and test locations sealed. Following curing and testing of the product, the protective Liquid Boot® G-800 layer shall be placed on top.

The gas vapor barrier shall be applied horizontally to create a continuous vapor barrier beneath the entire footprint of the building, with durable seals to every footing and penetration to ensure a single membrane layer. All horizontal application of the vapor barrier shall be on top of placed gas permeable aggregate and immediately below the poured slab.

The gas vapor barrier shall be applied vertically to all subsurface building walls and extend an additional 6 inches, forming a lateral barrier on all sides of the gas permeable layer.

Installation of the Vent Risers and Ventilator Caps

Vent risers shall be identified on the Plans. A minimum of one sign per floor and one on each roof location shall be permanently installed on each riser and shall read:

CAUTION: DO NOT TAP OR PUNCTURE
SUB-SURFACE VAPOR VENT PIPE
NOT FOR DOMESTIC USE

Protection

It is the responsibility of the Contractor to ensure that no damage occurs to components of the Soil vapors Mitigation System prior to, during, or following installation of the system, or during any subsequent performance or construction for the facility as identified on the contract drawings and plans. This includes the installation of all sub-surface utilities required for the operation of the building systems. Any damages to the system occurring during performance of the Work shall be repaired and tested at no additional cost to the Owner.

Testing

It is the Contractor's responsibility to test the system to ensure that all components of the Soil vapors Mitigation System, including the vapor barrier, piping, and interior riser piping, comply with system intention and requirements as demonstrated by proper testing and documentation. The Contractor must submit results of testing on each system for approval by the Engineer.

1. Test Liquid Boot® spray-applied gas vapor barrier and Geovent® piping as per Liquid Boot® Specification.

Each of the interior risers shall undergo a pressure test to ensure that all components of the Soil vapors Mitigation System that pass through the facility interior can withstand 10 inches of water column pressure. A cleanout shall be permanently installed on each riser pipe within 12 inches of the pipe entry into the facility and prior to any additional joints, couplings, or pipe segments. A pressure-stop balloon shall be inflated between the foundation wall and the cleanout, creating an airtight seal. A temporary airtight seal shall be placed at the riser termination on the roof. A static pressure using gas (not water) of at least 10 inches of water column shall be applied to the pipe at the cleanout location and maintained for at least 30 minutes. All gauges, materials, and equipment for this test shall be provided by the Contractor. If the pipe riser does not successfully maintain pressure, it will be the responsibility of the Contractor to identify and seal all leaks. The test shall be performed following all application of sealants as required until a successful test results.

3.6 Backfill and Cover System

The proposed construction appears to encapsulate the entire site. Any gardens rendered on the proposed plan are potted plants above the impervious concrete slab. If any part of the site is to remain uncapped, two feet of clean soil will be used as a cover system in those areas. Two feet of clean soil will be used in areas of excavation after enough source material is removed to provide clearance for the structure. The source of the backfill will be documented

as being acceptable prior to any soil being brought to the site. A demarcation layer consisting of a geotextile will be installed above the contaminated soils that will be left in place, to alert anyone performing excavations at the site in the future, that residual contaminated soil is present. The figure in Appendix F depicts the building footprint.

3.7 Demolition of Existing Structures

Demolition of existing structures will be required before construction can commence. Any applicable permits will be applied for, before demolition begins.

3.8 Soil Vapor Sampling

Off-site soil vapor samples will be collected to confirm that site-related contamination has not impacted migrating soil vapor. Samples will be collected from beyond the eastern edge of the site, along Kensington Road, in conjunction with the NYSDOH document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York". Samples of soil vapor will be obtained by installation of temporary probes constructed of polyethylene, stainless steel or Teflon tubing. One to three implant volumes (the volume of the sample probe and tube) should be purged prior to collecting the sample. Flow rates for purging and collecting will not exceed 0.2 liters per minute to minimize outdoor air filtration during sampling. Tracer gas will be used at each sampling location to serve as a quality control measure. Samples will be collected in the appropriate container which is certified clean by the laboratory. The sample will then be submitted to a NYSDOH ELAP-Certified Laboratory for analysis for VOCs by Method 8260 and SVOCs by method 8270.

The field sampling team will maintain a sample log sheet summarizing the following:

Sample identification, date and time of sample collection, sampling depth, identity of samples, sampling methods and devices, purge volumes, purge rate, time, volume of soil vapor extracted, apparent moisture content of the sampling zone and chain of custody protocols.

3.8 Soil Vapor Sampling

Off-site soil vapor samples will be collected to confirm that site-related contamination has not impacted migrating soil vapor. Samples will be collected from beyond the eastern edge of the site, along Kensington Road (see Appendix J for soil vapor sampling locations), in conjunction with the NYSDOH document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York". Samples will be collected before excavation of the site begins. Samples of soil vapor will be obtained by installation of temporary probes constructed of polyethylene, stainless steel or Teflon tubing. A hammer drill will be used to insert these probes in the ground to the depth of four feet below land surface. This hole will be cleared of any debris that may fall during drilling prior to tube insertion. The annular space surrounding the tubing will be sealed into the hole using plumber's putty or beeswax, to ensure ambient air is not affecting the sample. One to three implant volumes (the volume of the sample probe and tube) will be purged prior to collecting the sample. Flow rates for purging and collecting will not exceed 0.2 liters per minute to minimize outdoor air filtration during sampling. Helium will be used as a tracer gas at each sampling location to serve as a quality control measure. A confined atmosphere will be created above the sampling point, into which Helium will be applied. Once the Helium atmosphere is established (between 50% and 100% Helium), a direct reading instrument will be connected to the sample tubing to determine if Helium is passing through the tubing. If Helium concentrations exceed 10% in the tubing, the seal will be reconstructed and re-tested. Once a proper seal is confirmed, samples will be collected in the appropriate container which is certified clean by the laboratory. Sampling times will be eight hours per sample. The sample will then be submitted to a NYSDOH ELAP-Certified Laboratory for analysis by TO-15. QA/QC procedures for the sampling event will include ambient air sampling concurrently with the soil vapor sampling, as well as a duplicate sample from one of the three soil vapor sample points.

The field sampling team will maintain a sample log sheet summarizing the following:

Sample identification, date and time of sample collection, sampling depth, identity of samples, sampling methods and devices, purge volumes, purge rate, time, volume of soil vapor extracted, apparent moisture content of the sampling zone and chain of custody protocols.

4.0 SOIL VAPOR INTRUSION

The two lower levels of this building will be developed as a parking garage. This garage will have three open entrances without doors for use by the three hundred or so vehicles able to park at any given time. A sub-slab venting system has already been proposed for the areas beneath the structure where soil will not be completely removed. The design and layout of this system was submitted to the DEC in July, 2006. This system vents only the strata beneath the parking garage with no connection to the residential space.

Soil Vapor Intrusion is defined as the process by which volatile chemicals migrate from a sub-surface source into the indoor air of buildings, where they may accumulate and cause health impacts. Because the bulk of the contaminated source material will be removed from the site; and because the open parking garage will provide an open physical barrier between the remaining contaminated soil and any living space; and because that parking garage will itself be vented; and because the sub-slab contaminated soil remaining in place will be actively vented by induced draft and forced draft; no viable pathway will remain by which Soil Vapor Intrusion could pose any threat to human health or the environment.

5.0 AIR MONITORING

Air monitoring will be conducted using dust monitors and a Photo Ionization Detector (PID) to ensure that volatile organic vapors are not present and that particulate matter is not migrating from the site. Air monitoring will take place in accordance with the New York State Department of Health (NYSDOH) guidance values. Details on air monitoring are available in the Health and Safety Plan developed for this project. Monitoring for background levels will take place at the start of each workday. The monitors will then be moved to the downwind side of any ongoing work to monitor for excessive levels of dust or volatile gases. The CAMP requires continuous monitoring of dust levels at upwind and downwind locations. Upwind VOC monitoring may be performed periodically. Air monitoring results will be recorded on the appropriate log sheet. A copy of the Air Monitoring Log form is included in the HASP.

Dust suppression activities will be implemented if conditions indicate that dust may become problematic. Air monitoring will be periodically performed to protect field personnel and the public against exposure to airborne hazardous substances and to determine appropriate levels of PPE for work tasks. Initial monitoring of the work area will be performed prior to site work. This testing will determine background levels, and determine if any immediate hazards exist. Dust monitoring will be performed using a MIE Dust Monitor for PM-10. A PID will be used to monitor for volatile organic vapors. Detection of levels in excess of 5 parts per million (ppm) above background levels will result in a stoppage of work until the levels have dropped back to within 5 ppm of background.

6.0 ENDPOINT SAMPLES

Endpoint samples will be taken when the final depth of excavation is reached, across the entire site, to characterize the nature of the soils remaining after excavation. This will document areas of gross contamination as well as other areas that may be contaminated above unrestricted SCO's, but may not show obvious signs of contamination. The soil will be collected directly from the base of the excavated area, in accordance with DER-10 which requires one sample from the bottom of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area. The samples will be analyzed for VOC's, SVOC's, PCB's and priority pollutant metals according to applicable methodologies. The contaminants remaining in the soils will then be actively vented out, as described in Section 3.5.

7.0 LAB ANALYSIS

Laboratory analysis of contaminated soil will be performed to satisfy disposal facility requirements. The degree of contamination will be characterized using the United States Environmental Protection Agency (US EPA) methods for volatile organic compounds (VOC's), semi-volatile organic compounds (SVOC's), total petroleum hydrocarbons (TPH), priority pollutant metals, polychlorinated biphenyls (PCB's), toxicity characteristics leaching procedure (TCLP) for metals, and RCRA characteristics (ignitability, corrosivity and reactivity).

7.1 Quality Assurance and Quality Control (QA/QC)

The sampling QA/QC protocol is in accordance with the United States Environmental Protection Agency's (USEPA) accepted sampling procedures for hazardous waste streams (Municipal Research Laboratory, 1980, Sampling and Analysis Procedures for Hazardous Material Waste Streams, Environmental Protection Agency, Cincinnati, Ohio, EPA-600/280-018) and ASTM Material Sampling Procedures.

7.2 Sample Personnel

All samples will be taken by or under the auspices of a USEPA Office of Emergency and Remedial Response Certified Sampler for Hazardous Materials. Sampling technicians will possess a minimum of a BA Degree in the Earth and Space Sciences or a BS Degree in Engineering. Sampling technicians will have a minimum of one-year experience in environmental fieldwork.

7.3 Sampling Equipment

Prior to arrival on site and after each sample acquisition, any non-disposable sampling equipment will be decontaminated as follows:

- Washed by brushing with detergent solution (Alconox/Liquinox) and hot potable water

- Rinsed with distilled water
- Rinse with dilute (1%) nitric acid or dilute (1%) hydrochloric acid (for stainless steel)
- Distilled water rinse
- Methanol rinse
- Final rinse with distilled water
- Air dry and wrap in clean unused aluminum foil (shiny side out)

Mixing of soil samples for composites will be conducted using dedicated plastic spatulas.

Dedicated sampling equipment will be used for this sampling event and thrown out after use.

7.4 Sample Acquisition

All sample vessels will be "level A" certified decontaminated containers supplied by a New York State Department of Health Certified Laboratory. Containers will be of appropriate volume and type according to the analysis to be performed. Those samples to be analyzed for volatile organic compounds will be placed in containers with Teflon lined caps.

Those samples requiring preservation to maintain their integrity will be placed in vessels containing the appropriate chemical preservative as prepared by the laboratory. After acquisition, samples will be cooled to 4°C. The number and type of containers and required preservatives are listed in the table below. Samples will be analyzed by a New York State Department of Health ELAP Certified Laboratory. The samples will be Category B deliverables. One trip blank and one field blank will be collected and analyzed for quality control purposes.

SAMPLING CONTAINERS, PRESERVATION AND HOLDING TIMES

PARAMETER	MATRIX	CONTAINER	PRESERVATION	HOLDING TIMES
TCL Volatiles	Aqueous	40 ml. VOA vial w/TFE lined septum cap	HCl to pH<2.0 4°C (2)	10 days
TCL Volatiles	Soils	4 oz. glass jar	4°C (2)	7 Days
TCL Semi-Volatiles	Aqueous	Amber glass w/TFE lined cap (1 liter)	4°C	5 days until extraction 40 days from extraction until analysis (1)
TCL Semi-Volatiles	Soils	Glass wide-mouth w/TFE lined septum cap/8 oz.	4°C	5 days until extraction 40 days from extraction until analysis (1)
TCL Pest/PCBs	Aqueous	Amber glass w/TFE lined cap (1 liter)	None	5 days until extraction 40 days from extraction until analysis (1)
TCL Pest/PCBs	Soils	Glass wide-mouth w/TFE lines septum cap/8 oz.	None	5 days until extraction 40 days from extraction until analysis (1)
TAL Metals (total)	Aqueous	Polyethylene 1 qt.	HNO_3 to pH<2.0 (2)	Hg 28 days All other metals 6 months
TAL Metals	Soil	Polyethylene 1 qt. (250 ml for soil borings)	4°C	Hg 28 days All other metals 6 months

(1) Technical Times (time from sample collection until sample analysis) will be used to audit results.

(2) Acids will be procured from a chemical supplier, trace grade.

TCL Target Compound List

TAL Target Analyte List

7.5 Sample Documentation

To establish proper control, the following sample identification and chain of custody procedures will be followed.

7.5.1 Sample Identification

Sample identification will be executed by use of a sample tag, logbook, and manifest. Said documentation will provide the following information:

- Project Name
- Sample Field Number
- Sample Preservation
- Requested Analysis
- Date Sample Was Secured From Source Soil
- Time Sample Was Secured From Source Soil
- Person Who Secured Sample From Source Soil

7.5.2 Chain of Custody Procedures

Sample possession will be traceable from the time the samples are to be collected until they are received by the testing laboratory. A sample will be considered under custody if:

- It is in a person's possession,
- It was in a person's view, after being in possession,
- It was in locked storage, under a person's control; or
- It is in a designated area.

When transferring custody, the individuals relinquishing and receiving the samples will sign, date, and note the time on the Chain-of-Custody Form.

7.5.3 Laboratory- Custody Procedures

A designated sample custodian will accept custody of the shipped samples and will verify that the information on the sample tags matches that on the Chain-of-Custody Records. Pertinent information as to shipment, pick-up, courier, etc. will be entered in the "Remarks" section. The custodian will then enter the sample tag data into a bound logbook, which will be arranged by project code and station number.

The laboratory custodian will use the sample tag number, or assign a unique laboratory number to each sample tag, and ensure that all samples will be transferred to the proper analyst or stored in the appropriate source area.

The custodian will distribute samples to the appropriate analysts. Laboratory personnel will be responsible for the care and custody of samples, from the time they are received, until the sample is exhausted or returned to the custodian.

All identifying data sheets and laboratory records will be retained as part of the permanent documentation. Samples that are received by the laboratory will be retained until after analysis and quality assurance checks are completed.

All laboratory analysis will be performed by a NYSDOH Environmental Laboratory Approval Program (ELAP) certified lab. The laboratory will provide all sample containers. The laboratory will provide trip and lab blanks if requested.

8.0 INSTITUTIONAL CONTROLS AND ENGINEERING CONTROLS

"Institutional Controls" shall mean any non-physical means of enforcing a restriction on the use of real property that limits human or environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of a remedial program or with the effectiveness and/or integrity of operation, maintenance, or monitoring activities at or pertaining to a Brownfield site.

"Engineering Controls" shall mean any physical barrier or method employed to actively or passively contain, stabilize, or monitor hazardous waste or petroleum, restrict the movement of hazardous waste or petroleum to ensure the long-term effectiveness of a remedial program, or eliminate potential exposure pathways to hazardous waste or petroleum. Engineering controls include, but are not limited to, pavement, caps, covers, subsurface barriers, vapor barriers, slurry walls, building ventilation systems, fences, access controls, provision of alternative water supplies via connection to an existing public water supply, adding treatment technologies to such water supplies, and installing filtration devices on private water supplies.

Engineering Controls used for this project will include a sub-slab venting system, a physical barrier in the form of a parking garage, a geomembrane cap of the site and a clean fill cap.

Institutional Controls used for this project will include an environmental easement on the property to ensure that the Engineering Controls are not compromised. Since this site is to be developed as restricted residential, there will be a restriction on the groundwater use on the site.

A Site Management Plan (SMP) will also be included as an Institutional Control for this site. The SMP will be prepared to manage residual contamination at the site in perpetuity. The SMP addresses the means for implementation of Institutional Controls and Engineering Controls, which are required by the Environmental Easement for the site. The SMP provides a detailed description of all procedures required to manage residual contamination at the Site following the completion of the Remedial Action in accordance with the NYS BCA with the NYSDEC. This includes: (1) development, implementation, and management of all Engineering and Institutional

Controls; (2) development and implementation of monitoring systems and a Monitoring Plan; (3) development of a plan to operate and maintain all treatment, collection, containment, or recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual); (4) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to NYSDEC; and (5) defining criteria for termination of treatment system operation.

9.0 SITE SPECIFIC PERSONNEL

Principal In Charge	Richard D. Galli, P.E. Galli Engineering, P.C. 734 Walt Whitman Road Suite 402A Melville, NY 11747	(631) 271-9292
Project Manager:	Ken Brooks, P.E. Galli Engineering, P.C. 734 Walt Whitman Road Suite 402A Melville, NY 11747	(631) 271-9292
Client Contact:	Craig Klingensmith WCI Spectrum Communities 115 Stevens Avenue Valhalla, NY 10595	(914) 773-1200
Field Geologists:	Marc Califano Galli Engineering, P.C. 734 Walt Whitman Road Suite 402A Melville, NY 11747	(631) 271-9292
	Scott Davidow Galli Engineering, P.C. 734 Walt Whitman Road Suite 402A Melville, NY 11747	(631) 271-9292
Subcontractors:	TBD	

10.0 POST REMEDIATION ACTIVITIES

Upon completion of remedial activities, a Remedial Report will be prepared and submitted to the New York State Department of Environmental Conservation, the New York State Department of Health, the Westchester County Department of Health, and other document depositories in accordance with the Citizen Participation Plan. The goal of the report will be to demonstrate that the materials excavated from the site were disposed of properly and that the site is satisfactorily restored. The report would likely include the following: A brief narrative description of project activities to date; site description and site map; summary of available previous soil and groundwater results; nature and extent of contamination; summary tables of analytical results; evaluation of results; conclusions and recommendations; and documentation (may include tables, photographs, PID readings, laboratory results, and C&D tracking documents, as appropriate). The actual content of the report and its acceptability to DEC will depend on conditions encountered in the field.

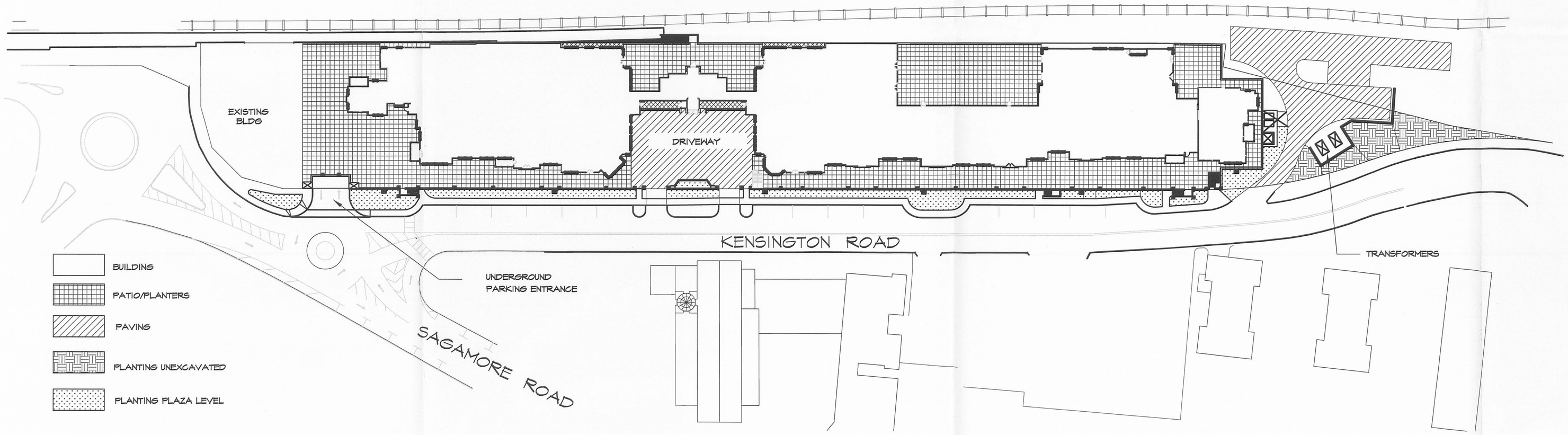
Periodic inspection of the venting system will be done to ensure its effectiveness as well as performance.

A Final Engineering Report will also be prepared to discuss activities completed pursuant to the approved remedial work plan or remedial design and will include site boundaries and a description of any institutional controls that will be used, including mechanisms to implement, maintain, monitor, and enforce such controls. The Final Engineering Report will contain a certification by the professional engineer that the approved Remedial Workplan has been implemented and that all engineering controls are in place as specified. Any changes (and their authorizations) will also be discussed. A log of daily activities will be kept and submitted with the Final Engineering Report. All locations pertinent to the remediation (extent of excavation, location of endpoint samples, etc.) will be surveyed by a professional surveyor and their vertical and horizontal position included in the Final Engineering Report, which will include as-built drawings of the remedy (including excavations performed) stamped by a NYS Professional Engineer.

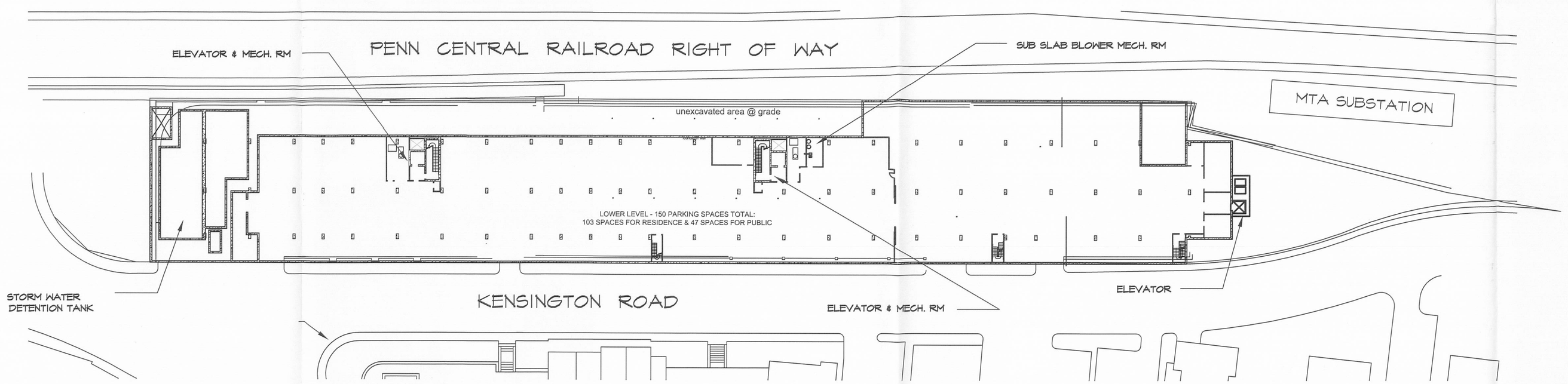
Since the remedy results in contamination above unrestricted levels remaining at the site, a Site Management Plan (SMP) will be developed and implemented. The SMP will include the institutional and engineering controls required to 1) address residual contaminated soils that may be excavated from the site during future redevelopment; 2), evaluate the potential for soil vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; 3), provide for the operation and maintenance of the components of the remedy; 4), monitor groundwater; and, 5), identify any use restrictions on site development or groundwater use.

The SMP will require the property owner to provide a periodic institutional control / engineering control (IC/EC) certification, prepared and submitted by a Professional Engineer licensed to practice in New York, who would certify that the institutional controls and engineering controls put in place are unchanged from the previous certification and that nothing has occurred that would impair the ability of the controls to protect the public health or the environment or constitute a violation or failure to comply with any operation and maintenance or Soil Management Plan.

PENN CENTRAL RAILROAD RIGHT OF WAY



SITE LAYOUT(PLAZA LEVEL)
1"=80'



GARAGE LOWER LEVEL
1"=80'

REV.	DATE	DESCRIPTION	BY

JOB NO. 0221-17-017

DRAWN JC

CHECKED RDG

APPROVED RDG

SEAL

STATE OF NEW YORK · RICHARD D. GALLI · 059461 · LICENSED PROFESSIONAL ENGINEER

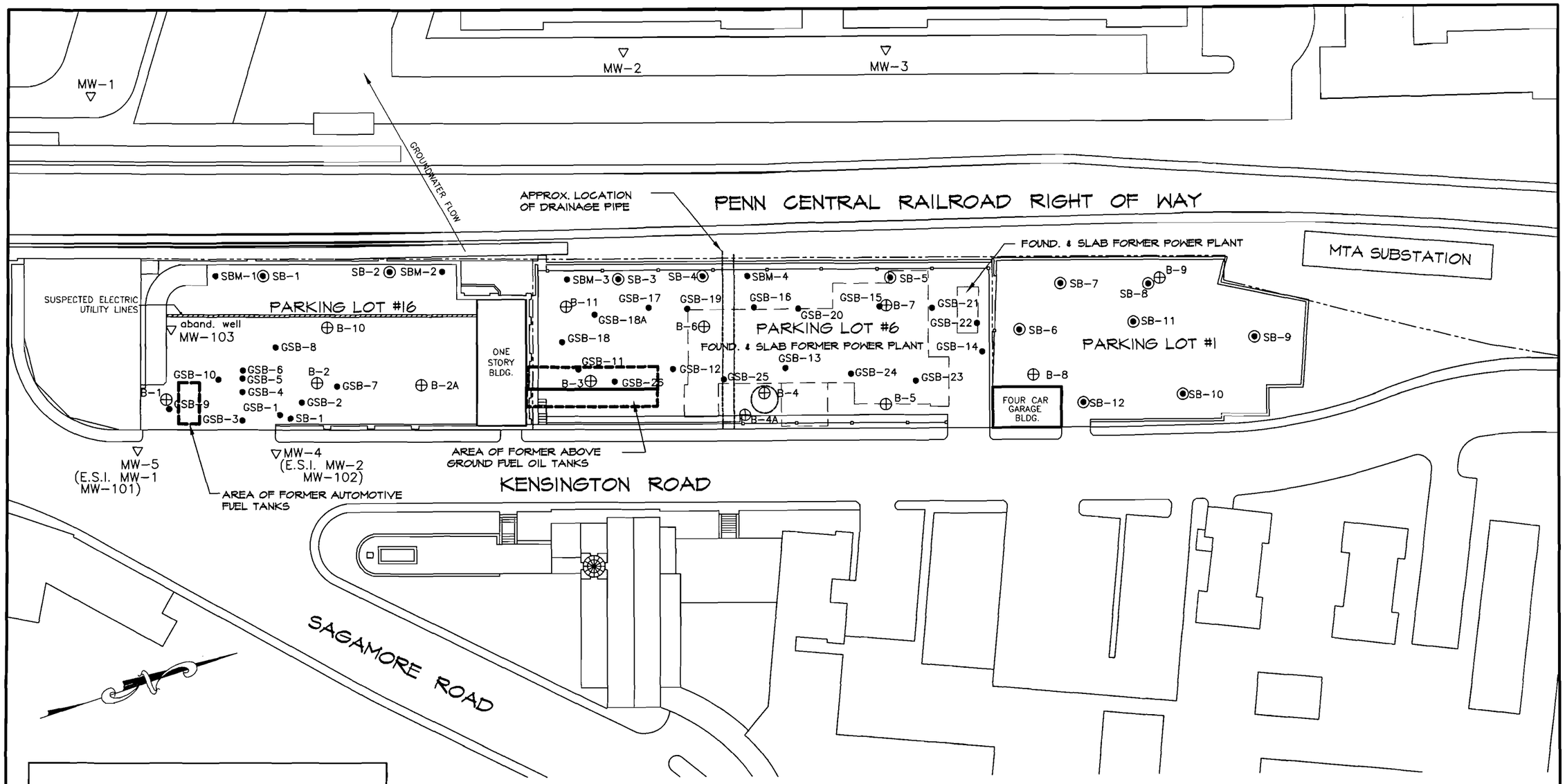
BUILDING FOOTPRINT

3-27 KENSINGTON RD., BRONXVILLE, N.Y.

REMEDIAL ACTION WORK PLAN

Galli engineering, P.C.
734 Walt Whitman Road, Suite 402A
Melville, New York 11747

DATE 08.02.07 | SCALE 1"=40' | DRAWING NO. 1



October 2006 Galli Remedial Investigation Borings	SB-1	SB-3	SB-4	SB-5	SB-6	SB-7	SB-8	SB-9	SB-11	SB-12	
Sample Collection Depth Below Land Surface (feet) C= Composite or G = Grab	0-16' C	0-19' C	12-16' G	0-8' C	0-12' C	0-12' C	0-8' C	0-4' C	0-4' C	0-4' C	
October 2003 Galli Phase II Borings	SB-1	SBM-3	GSB-2	GSB-3	GSB-9	GSB-11	GSB-12	GSB-13	GSB-14	GSB-15	GSB-16	GSB-17
Sample Collection Depth Below Land Surface (feet)	4-8'	4-8'	0-4'	7-8'	4-8'	3-5'	4-7'	2-4'	2-4'	2-4'	1-5'	2-6'
January 1992 ESI Borings	B-1	B-3	B-4a	B-7	B-11							
Sample Collection Depth Below Land Surface (feet)	12-14'	6-7'	1-2'	10-12'	15-17'							

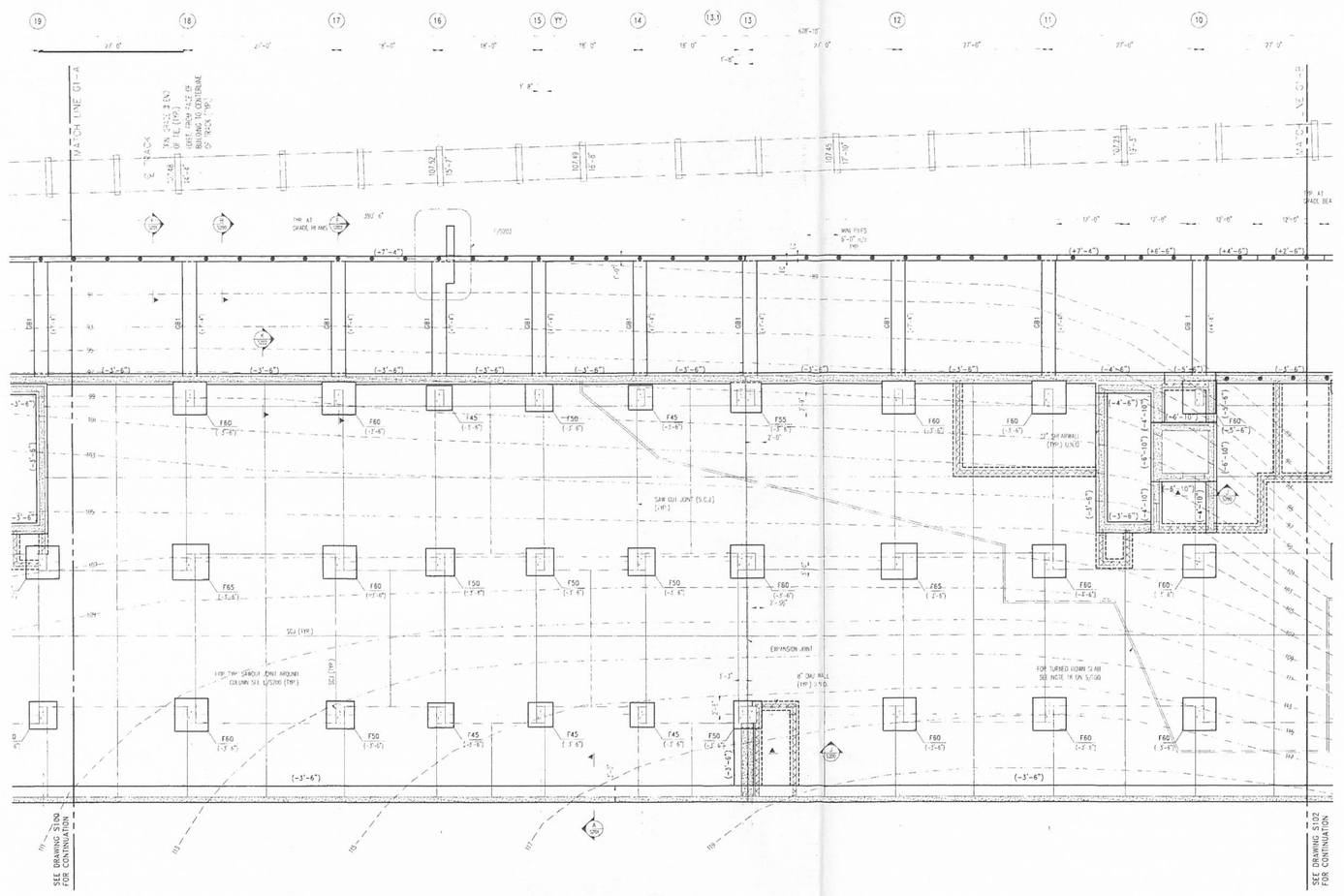
LEGEND	
JAN '92 ESI PHASE II BORING LOCATION	⊕ B-7
OCT '03 GALLI PHASE II BORING LOCATION	• GSB-15
OCT '06 GALLI REMEDIAL INVESTIGATION BORING LOCATION	◉ SB-5
MONITORING WELL LOCATION	▽ MW-4

THREE CONTIGUOUS PARKING LOTS

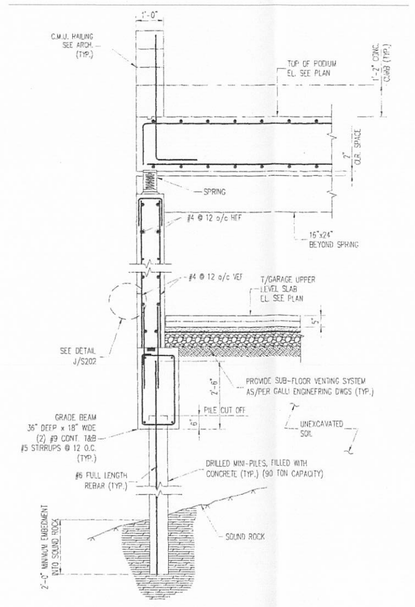
3-27 KENSINGTON RD., BRONXVILLE, N.Y.

HISTORICAL SOIL BORING & MONITORING WELL LOCATION PLAN

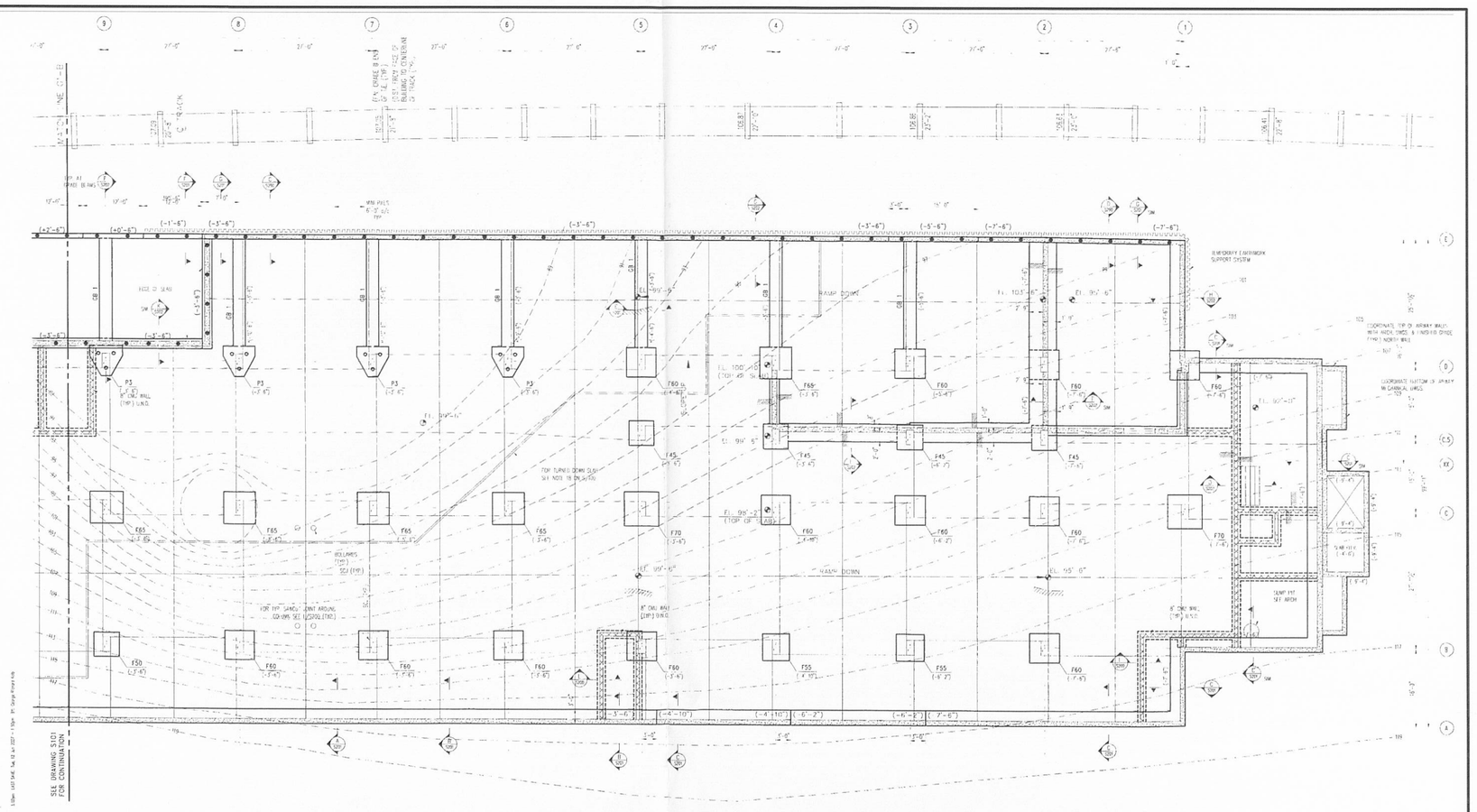
JOB NO. 0221-20-001	Galli engineering, P.C. 734 Walt Whitman Road, Suite 402A Melville, New York 11747		
DRAWN JC			
CHECKED RDG			
APPROVED RDG	DATE 02-12-07	SCALE 1"=60'	FIGURE NO. 1



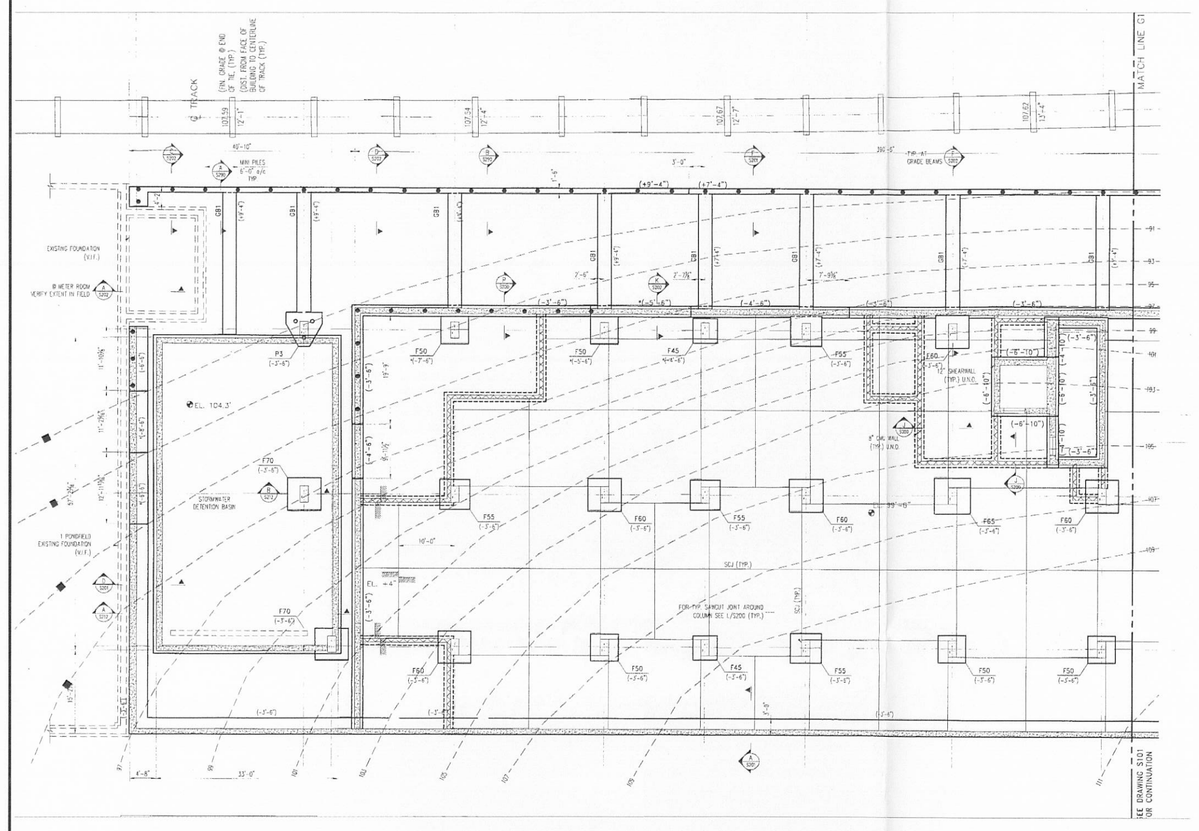
MIDDLE LOT
N.T.S.



1 SECTION @ WEST
S201 1/2" = 1'-0"



NORTH LOT
N.T.S.

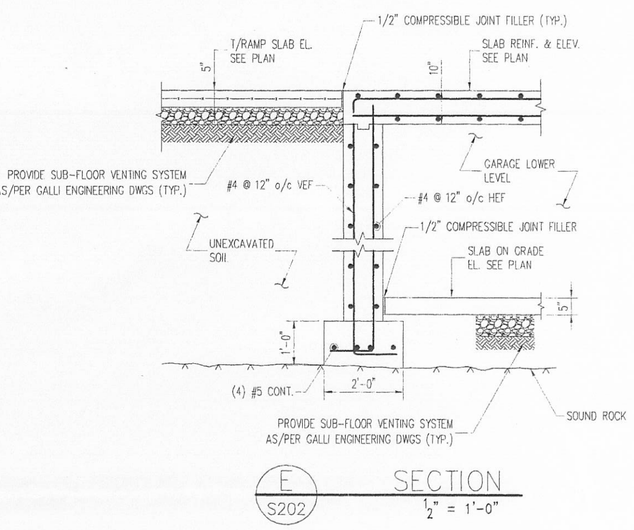


SOUTH LOT
N.T.S.

G SECTION BETWEEN 4 LINE & 2 LINE
S202 1/2" = 1'-0"

H SECTION
S202 1/2" = 1'-0"

G SECTION @ WEST
S201 1/2" = 1'-0"



E SECTION
S202 1/2" = 1'-0"

A EAST FOUNDATION WALL
S202 3/4"=1'-0"

B EAST FOUNDATION WALL
S202 3/4"=1'-0"

C EAST FOUNDATION WALL
S202 3/4"=1'-0"

K SECTION
S202 1/2" = 1'-0"

REV.	DATE	DESCRIPTION	BY

JOB NO. 0221-17-017

DRAWN JC

CHECKED RDG

APPROVED RDG

SEAL

STATE OF NEW YORK · RICHARD D. GALLI · LICENSED PROFESSIONAL ENGINEER · NO. 59461

SHORING DETAILS

3-27 KENSINGTON RD., BRONXVILLE, N.Y.

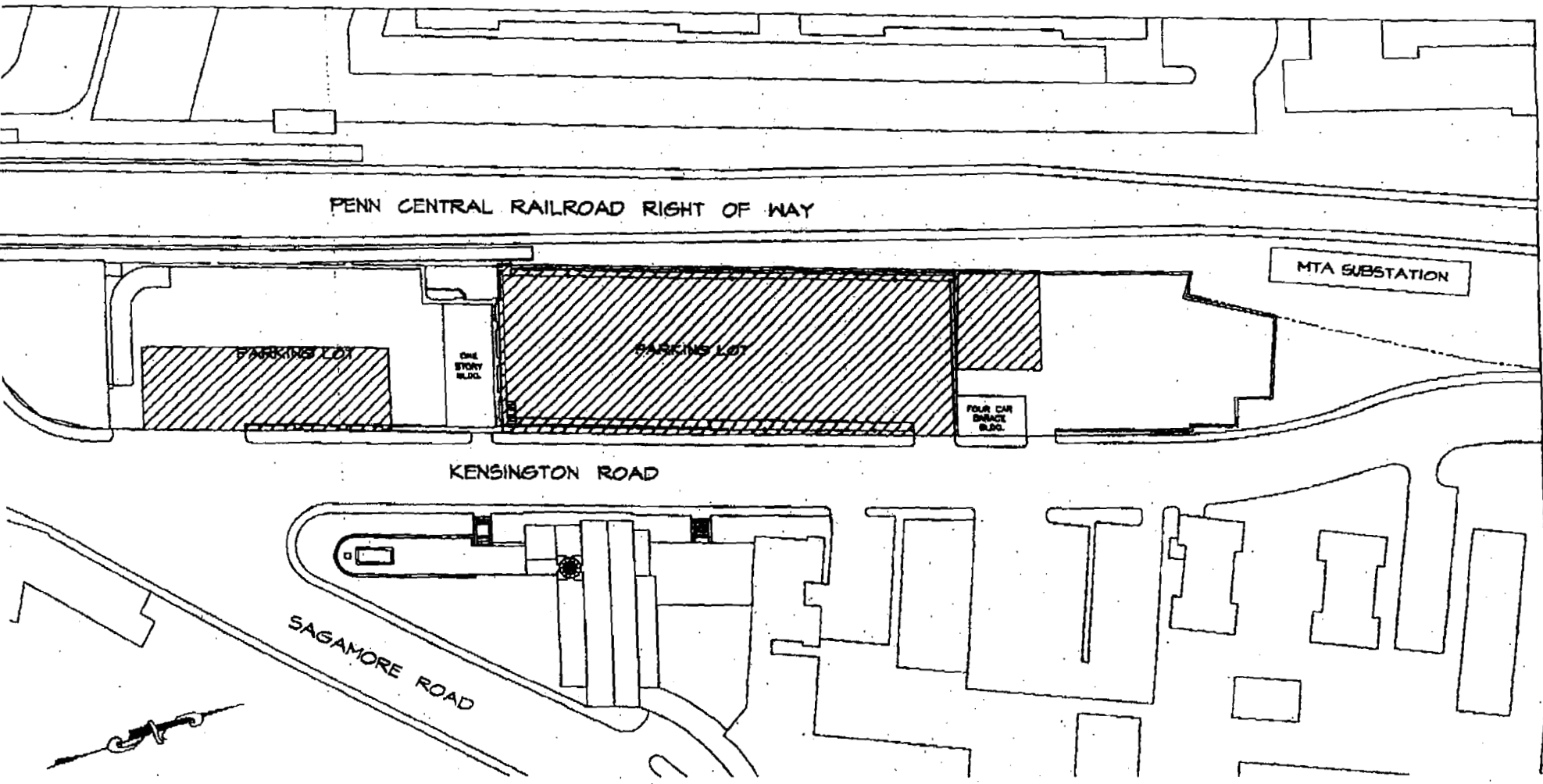
REMEDIAL ACTION WORK PLAN

Galli engineering, P.C.
734 Walt Whitman Road, Suite 402A
Melville, New York 11747

DATE 08.02.07

SCALE AS NOTED

DRAWING NO. 1



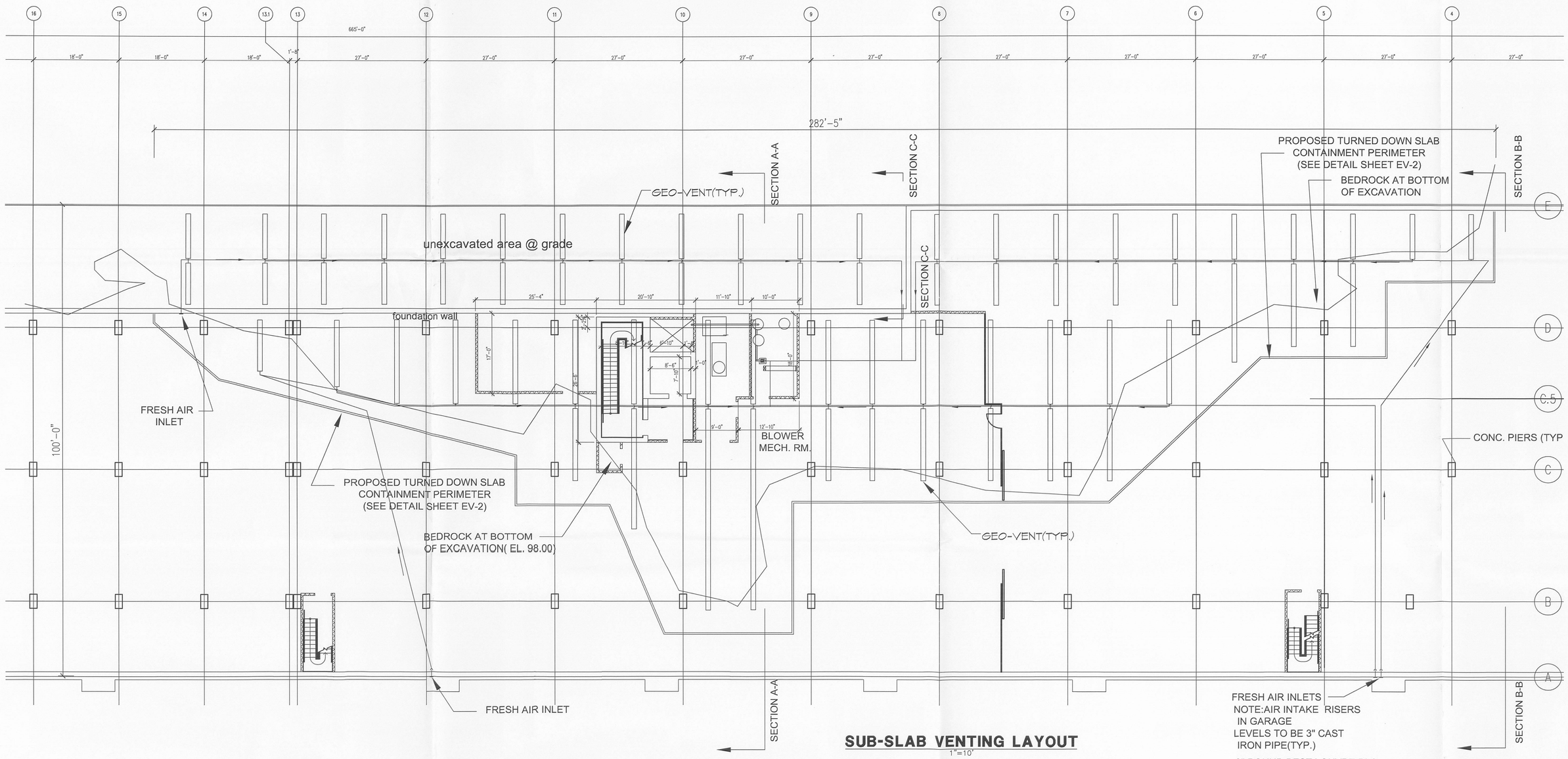
THREE CONTIGUOUS PARKING LOTS

3-27 KENSINGTON RD., BRONXVILLE, N.Y.

CONTAMINATION OVERLAY

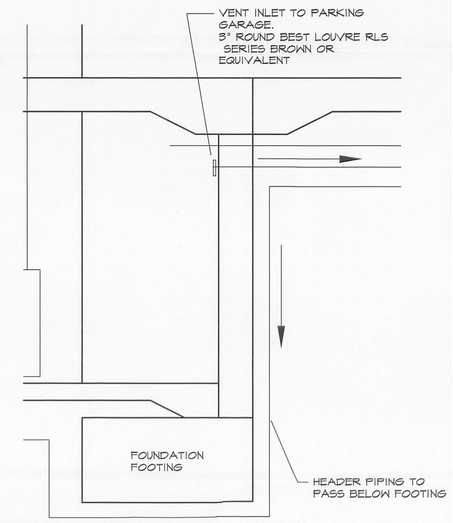
JOB NO.	0221-17-011
DRAWN	AJC
CHECKED	RDG
APPROVED	RDG
DATE	5-31-05
SCALE	1"=60'
FIGURE NO.	

Gatti engineering, P.C.
734 Walt Whitman Road, Suite 403A
Melville, New York 11747

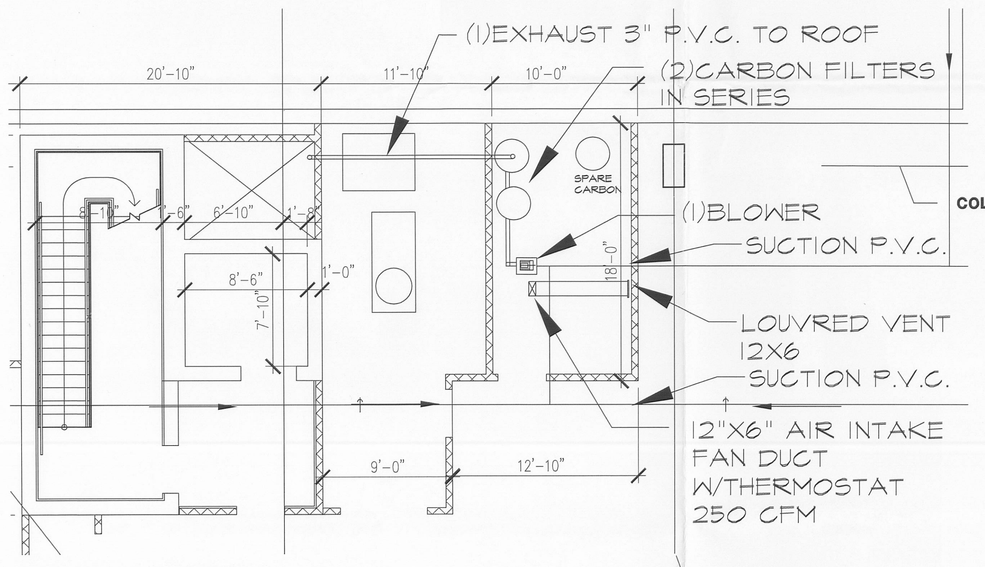


SUB-SLAB VENTING LAYOUT

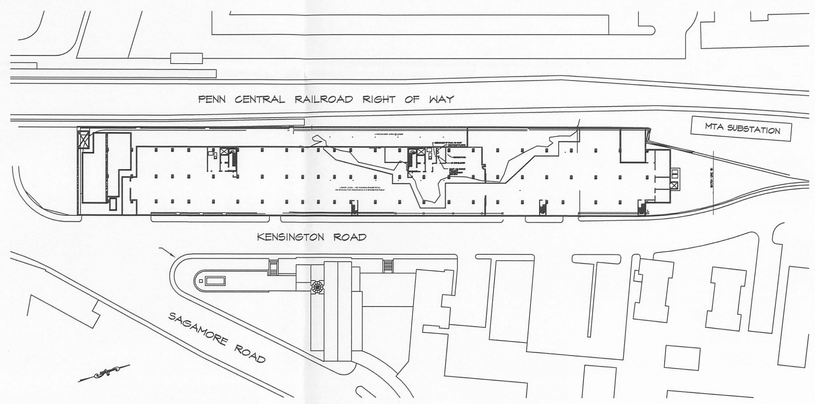
1"=10'



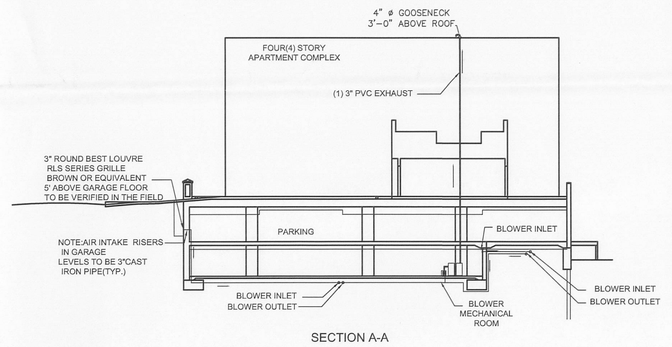
SECTION C-C



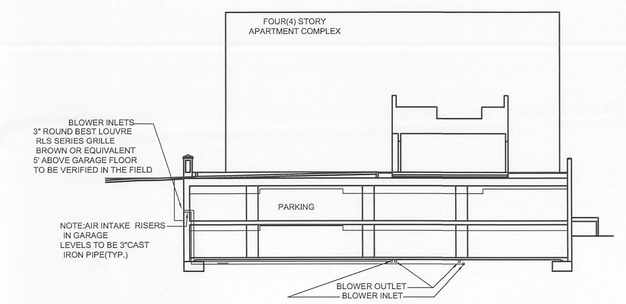
BLOWER ROOM DETAIL
N.T.S.



KEY MAP
1"=80'



SECTION A-A



SECTION B-B

SECTIONS
N.T.S.

NOTE: NON WOVEN GEOTEXTILE FABRIC DEMARCATION BARRIER TO BE INSTALLED ON COMPACTED SUB BASE OVER ENTIRE SUBSLAB VENTILATION AREA.

GALLI ENGINEERING, P.C.
734 WALT WHITMAN RD. SUITE 402A
MELVILLE, NY 11747
631-271-9292 (F)631-271-9345
www. gallieng. com

Project Title
The Kensington
Bronxville, New York

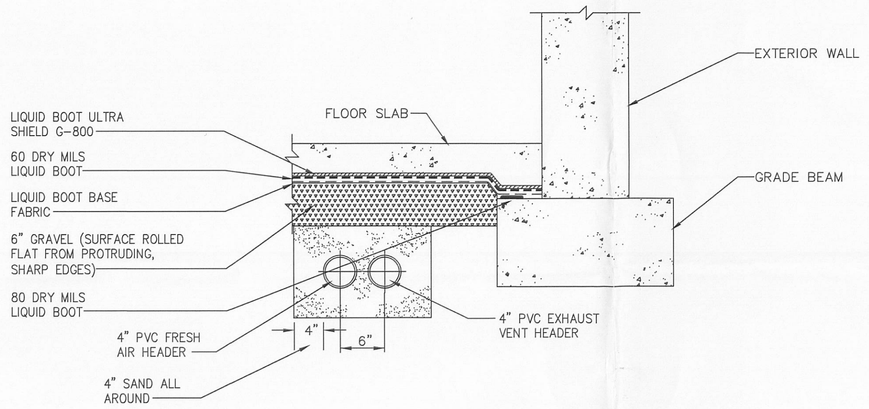
Date Issue	
01.12.07	ADDED SECTION C-C, HEADER UNDER FTG, ADDED NOTES
01.18.07	REVIEW SET
02.09.07	DEMOLITION, SITE EXCAVATION & FOUNDATION PERMIT
02.14.07	TURNED DOWN SLAB CONTAINMENT PERIMETER
03.02.07	90% CD SET
04.13.07	REVIEW SET
04.24.07	REPLACED INLET OSDWS W/ GRILLES
05.29.07	MOVED AIR INTAKES, ADDED LOUVRE SPEC
6.1.07	90% CD SET
6.15.07	95% CD/PERMIT SET
7.10.07	GEOTEXTILE NOTE

Project No.	0232
Date	12.22.06
Drawing By	JC
Scale	AS NOTED

STATE OF NEW YORK · ROLAND D. GALLI · No. 59461 · LICENSED PROFESSIONAL ENGINEER

Drawing Title
SUB-SLAB VENTING

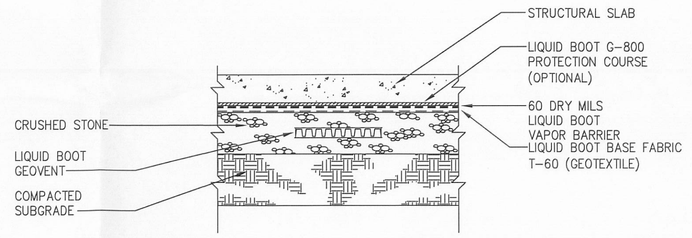
Drawing No.
EV-1



EV 1A

GAS VAPOR BARRIER OVER FOOTING AND GRADE BEAMS

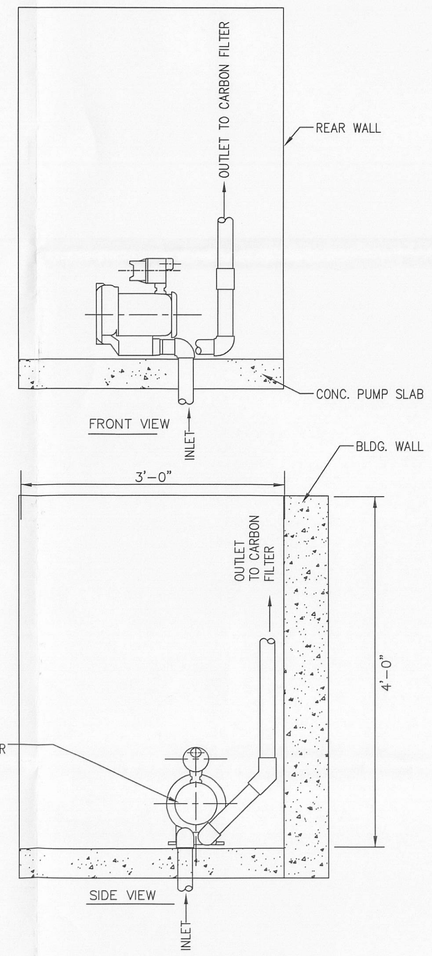
N.T.S.



EV 2A

TYPICAL LIQUID BOOT MEMBRANE AND GEOVENT GAS COLLECTOR

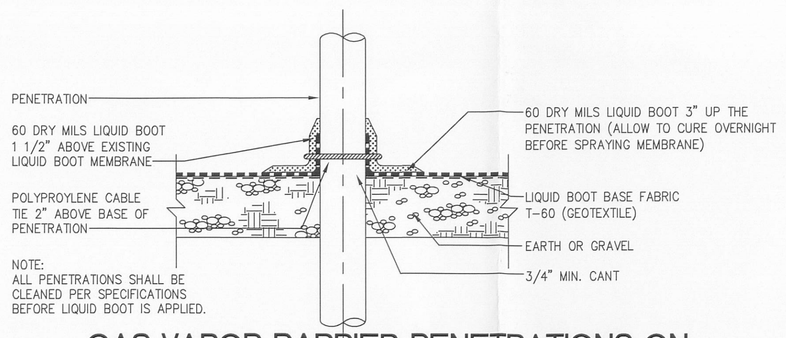
N.T.S.



EV 5A

BLOWER DETAILS

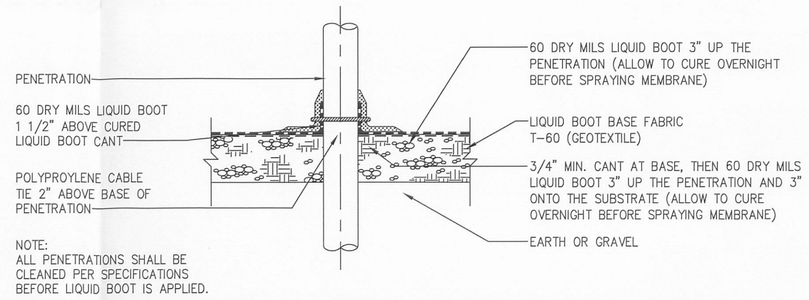
N.T.S.



EV 3A

GAS VAPOR BARRIER PENETRATIONS ON EARTH OR GRAVEL SUB-GRADE (OPTION #2)

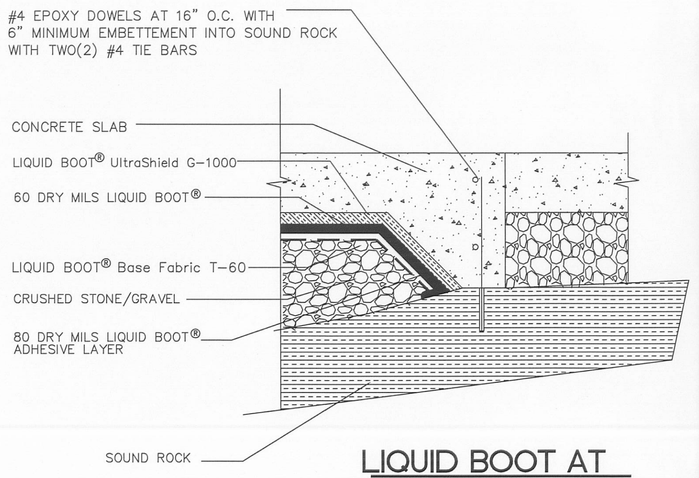
N.T.S.



EV 4A

GAS VAPOR BARRIER PENETRATIONS ON EARTH OR GRAVEL SUB-GRADE (OPTION #1)

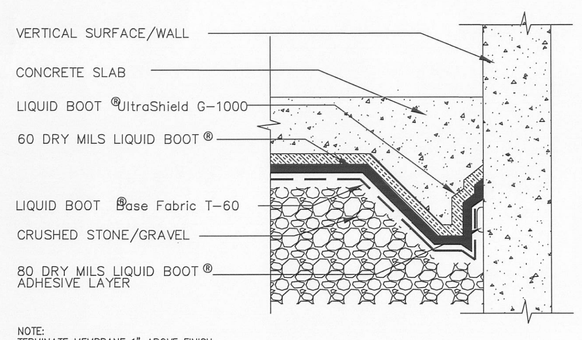
N.T.S.



EV 6A

LIQUID BOOT AT TURNED DOWN SLAB AT CONTAINMENT PERIMETER

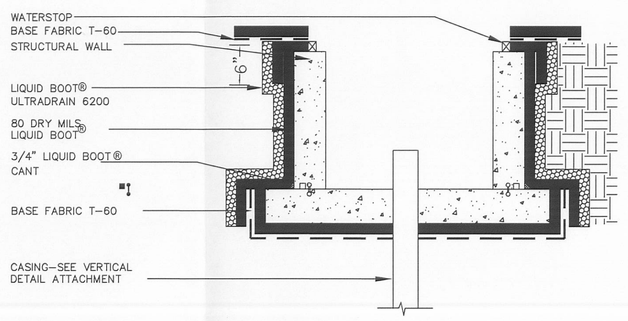
N.T.S.



EV 7A

LIQUID BOOT GAS VAPOR BARRIER VERTICAL ATTACHMENT

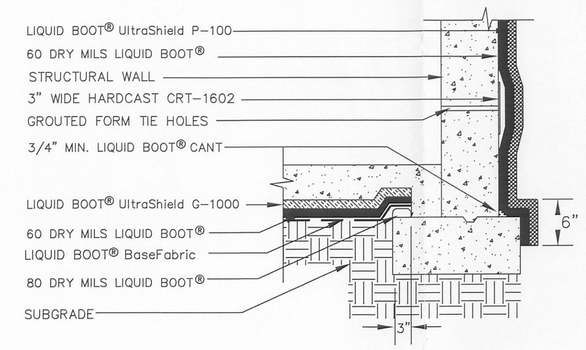
N.T.S.



EV 8A

TYPICAL DETAIL AT ELEVATOR PIT

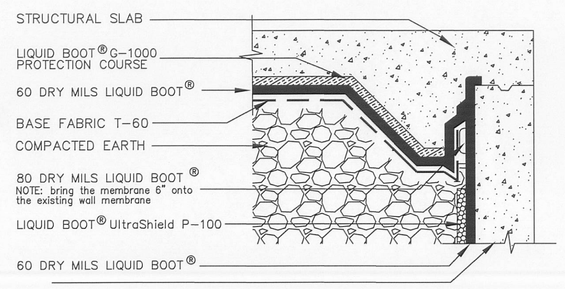
N.T.S.



EV 9A

GAS VAPOR BARRIER UNDERSLAB + WALLS

N.T.S.



EV 10A

GAS VAPOR MEMBRANE WALL TRANSITION

N.T.S.

NOTE: NON WOVEN GEOTEXTILE FABRIC DEMARCATION BARRIER TO BE INSTALLED ON COMPACTED SUB BASE OVER ENTIRE SUBSLAB VENTILATION AREA.

GALLI ENGINEERING, P.C.
734 WALT EHITMAN RD. SUITE 402A
MELVILLE, NY 11747
631-271-9292 (F) 631-271-9345
www. gallieng. com

Project Title: The Kensington, Bronxville, New York

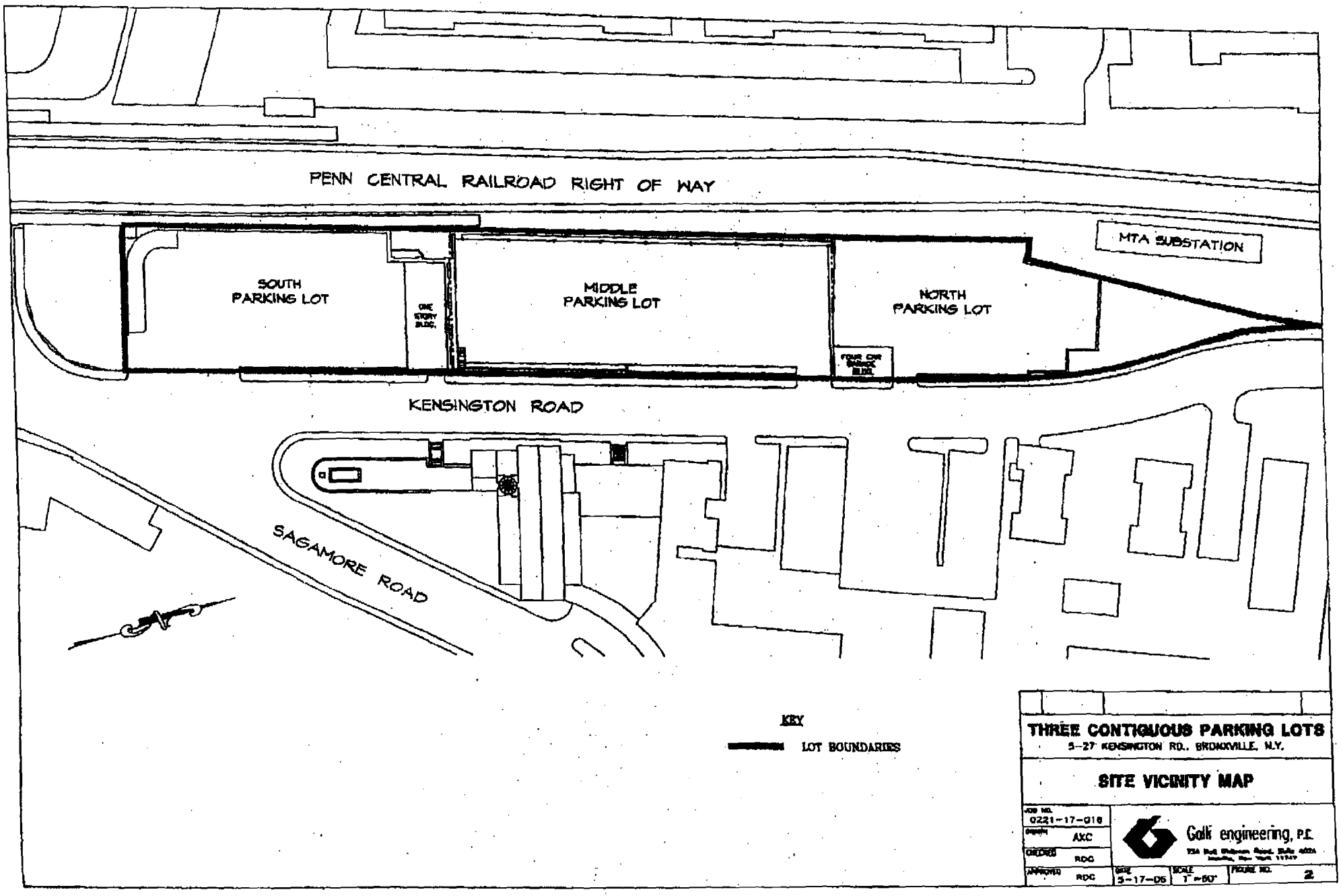
Date Issue:
- 01.12.07 ADDED 3 DETAILS, ADJUSTED PVC IN OVB OVER FTG BY JC
- 01.16.07 REVIEW SET
- 02.06.07 ADDED ELEVATOR PIT DETAIL
- 02.08.07 DONATION, SITE EXCAVATION & FOUNDATION SET
- 03.14.07 CONTAINMENT DETAIL
- 03.02.07 50% CD SET
- 04.13.07 REVIEW SET
- 6.1.07 90% CD SET
- 6.15.07 90% CD/PERMIT SET
- 7.10.07 GEOTEXTILE NOTE

Project No. 0232
Date 12.22.06
Drawing By JC
Scale as noted

STATE OF NEW YORK — RICHARD G. GALLI — LICENSED PROFESSIONAL ENGINEER — No. 83451

Drawing Title: SUB-SLAB VENTING DETAILS

Drawing No. EV-2



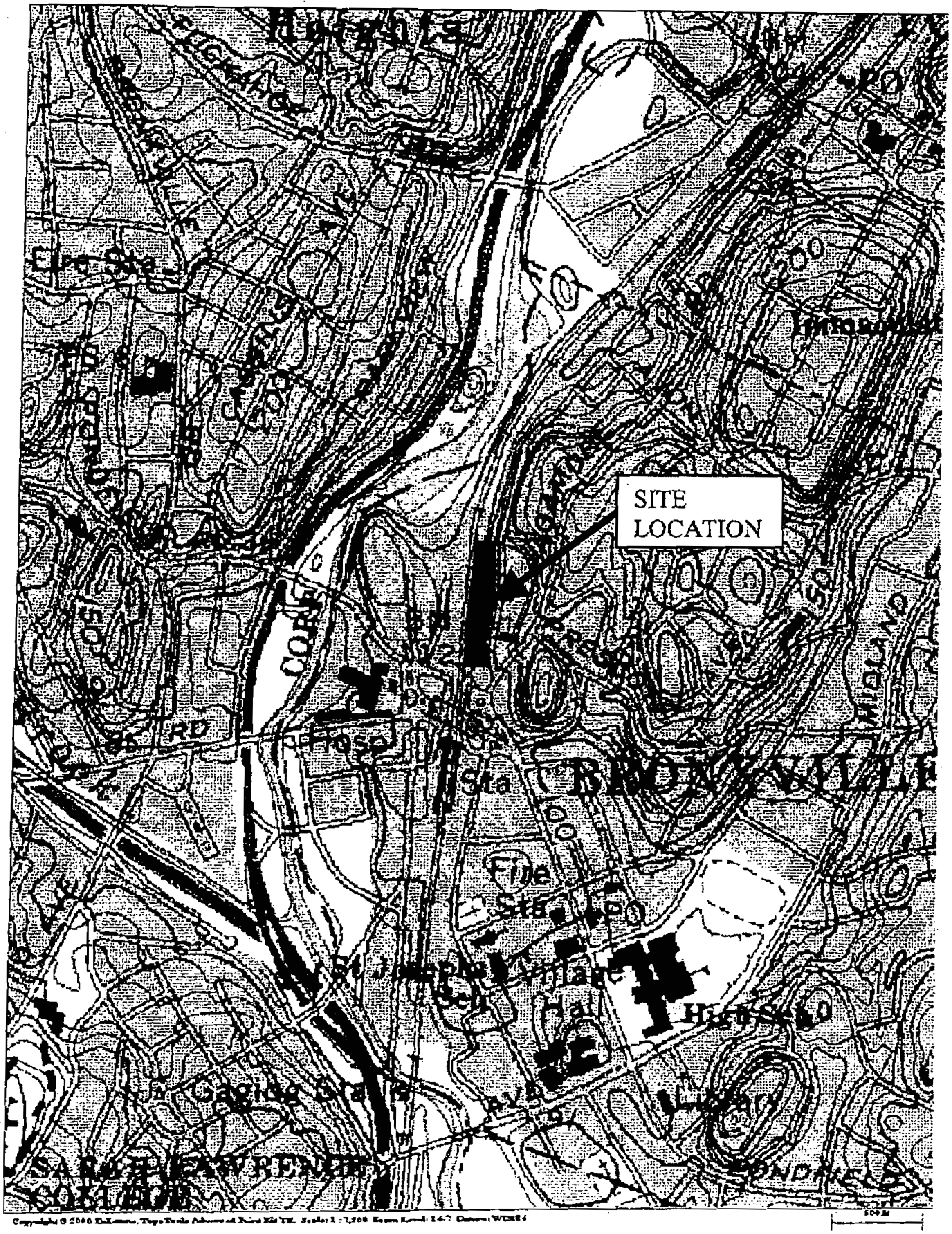
THREE CONTIGUOUS PARKING LOTS

5-27 KENSINGTON RD., BRONXVILLE, N.Y.

SITE VICINITY MAP

JOB NO. 0221-17-018	Galli engineering, P.C.		
DRAWN AXC			
CHECKED RDC			
APPROVED RDC	DATE 5-17-05	SCALE 1" = 50'	FIGURE NO. 2

USGS TOPOGRAPHIC MAP



5-27 Kensington Road
Bronxville, NY 10708

WETLANDS MAP

- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- Coal Gasification Sites
- Sensitive Receptors
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Federal Wetlands

DATA USABILITY SUMMARY REPORT

Applicant: **Spectrum Kensington, LLC ("Applicant")**
Site Name: **The Kensington ("site")**
Site Address: **5 - 27 Kensington Road, Bronxville, NY 10708**
Site County: **Westchester County**
Site Number: **C360081**

A significant volume of data has been generated over the last seventeen years as part of several Phase II Environmental Site Assessments prior to acceptance of the Site into the Brownfield Cleanup Program. These assessments were performed by Empire Soils Investigations, Inc. (ESI) in November, 1989; by Soil Mechanics Drilling Corporation in June, 1992; and by Galli Engineering in October and December, 2003. The need to remediate the site is based largely on the data collected and analyzed as part of these previous investigations.

Before any proposed remedial program can be considered acceptable, it will be necessary to show that the data are of sufficient quality and quantity to meet the stated data quality objectives.

Data Quality Objectives:

The data should be of sufficient quality and quantity to satisfy the following requirements: 1) to assess the nature and extent of contamination in on-site soils and groundwater and in off-site soils in the vicinity of the site and in groundwater downgradient of the site, and 2) to form the basis for the design of a remedial system properly protective of the public health.

1. Is the data package complete as defined under the requirements for the NYSDEC ASP Category B or USEPA CLP deliverables?

The number of samples and the parameters to be analyzed were selected in accordance with industry practice as defined in the American Society for Testing and Materials (ASTM) Standard: Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process (E 1903-97). Lab reports included copies of the Chain-of-Custody forms and case narratives and were completed as appropriate for the level of QA/QC at the time.

2. Have all holding times been met?

Samples collected by Galli Engineering were delivered and analyzed within the appropriate holding times. A review of the laboratory report sheets shows that all samples were delivered to the laboratory and were analyzed within the appropriate time limitations.

Laboratory results obtained from Spectrum Kensington, LLC (the "Applicant") did not reveal whether the holding times were met for the samples analyzed in 1989 and 1992.

3. Do all the QC data: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls, field and trip blanks, and sample data fall within the protocol required limits and specifications?

Internal QC procedures were followed by the laboratory contracted by Galli Engineering, P.C. Laboratory results were reviewed and the analytical methods used by the laboratory were standard EPA methods for determining the various classes of compounds included in the analytical schedule. The laboratory reports included surrogate spike results, which were reviewed to determine whether any samples were outside of the applicable range. Results that were outside of the acceptable recovery percentage limits included compounds which were below quantitation limits. These compounds were qualified by the laboratory. No surrogates were outside their limits.

4. Have all of the data been generated using established and agreed-upon analytical protocols?

Soil and groundwater sampling was conducted under NYSDEC guidelines in accordance with standard EPA methods. Chain-of-Custody forms accompanied the samples to the laboratories and were reproduced in the sample reporting packages.

Laboratory analytical protocols have been developed by the EPA and are published in EPA SW-846 and the *Federal Register*. Analytical results measured in the field have been measured with standard instruments designed for field acquisition of data, calibrated as required, and operated by field technicians trained in their use.

The twelve soil samples collected from the subject property on October 25 and 28, 2003 were maintained in a secure refrigerator until hand delivery to American Analytical Laboratories, Inc., a New York State Certified Commercial Laboratory for analysis on October 29, 2003. These soil samples were analyzed for the presence of volatile organic compounds according to United States Environmental Protection Agency (US EPA) Method 8260; semi-volatile organic compounds (SVOCs) according to US EPA Method 8270; PCBs according to US EPA Method 8082; priority pollutant metals (except mercury) according to US EPA Method 6010; and mercury according to US EPA Method 7470/7471.

The ten soil samples collected from the subject property December 1, 2003 were maintained in a secure refrigerator until hand delivery to American Analytical Laboratories, Inc., a New York State Certified Commercial Laboratory for analysis on December 2, 2003. These soil samples were analyzed for full Toxicity Characteristic Leaching Procedure (TCLP) according to US EPA Methods SW8260B (SW1311) for TCLP VOCs; SW8270D (SW1311) for TCLP SVOCs; SW1311/6010B (SW1311) for TCLP arsenic, barium, cadmium, chromium, lead, selenium and silver; SW1311/7471B for TCLP mercury; SW8151A (SW1311) for TCLP herbicides; and SW8081B (SW1311) for TCLP pesticides.

The groundwater samples collected from the subject property on October 28, 2003 were maintained in a secure refrigerator until hand delivery to American Analytical

Laboratories, Inc., a New York State Certified Commercial Laboratory for analysis on October 29, 2003. The groundwater samples were analyzed for the presence of volatile organic compounds (VOCs) according to United States Environmental Protection Agency (US EPA) Method 624; semi-volatile organic compounds (SVOCs) according to US EPA Method 625; polychlorinated biphenyls (PCBs) according to US EPA method 608; and 8 RCRA metals (except mercury) according to US EPA Method SW6010B; and mercury according to US EPA Method SW7470A.

5. Does an evaluation of the raw data confirm the results provided in the data summary sheets and quality control verification forms?

The evaluation of the data provided in the laboratory reports adheres to the specified parameters listed on the Chain-of-Custody forms.

6. Have the correct data qualifiers been used?

The laboratory uses specific data reporting qualifiers for all samples. The sample results were reviewed and samples that showed results outside the acceptable range were noted and their reported results were checked to determine that the correct qualifiers were used in the reported values given by the laboratory.

Some soil samples carried the "J" qualifiers, indicating the analyte was detected below the quantitation limits.

Copies of the laboratory certifications are attached covering the analytes and testing dates referred to.

Conclusions:

Available data provide a clear picture of historic activity consistent with the use of the central portion of the site as a coal-based power plant. The earlier Phase II studies (1989 and 1992) were performed to a standard appropriate for Phase II Site Assessments. The fact that data were not collected according to a higher specification is mitigated by the fact that 2/3 of the soil on the site will be completely removed.

PENN CENTRAL RAILROAD RIGHT OF WAY

SOILS EXCAVATED FROM SURFACE TO AN ELEVATION OF 109 FEET.

MTA SUBSTATION

SOILS EXCAVATED TO AN ELEVATION OF 99 FEET. OR AS REQUIRED TO REMOVE GROSS CONTAMINATION

99-FT EL.

BEDROCK EXCAVATED TO AN ELEVATION OF 99 FEET.

99-FT EL.

SOILS EXCAVATED TO AN ELEVATION OF 99 FEET. OR AS REQUIRED TO REMOVE GROSS CONTAMINATION

99-FT EL.

BEDROCK EXCAVATED TO AN ELEVATION OF 99 FEET.

KENSINGTON ROAD

SAGAMORE ROAD

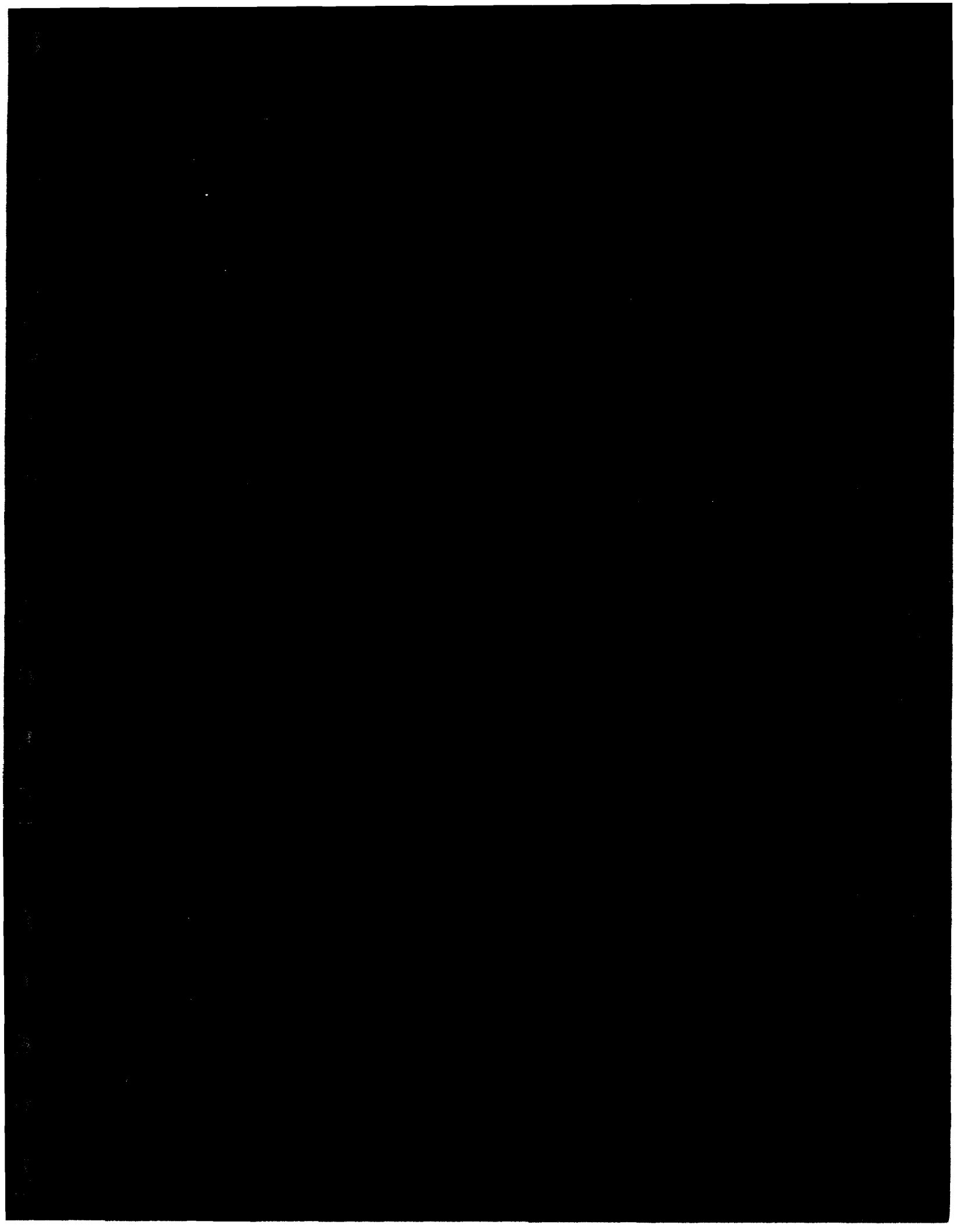
THREE CONTIGUOUS PARKING LOTS

3-27 KENSINGTON RD., BRONXVILLE, N.Y.

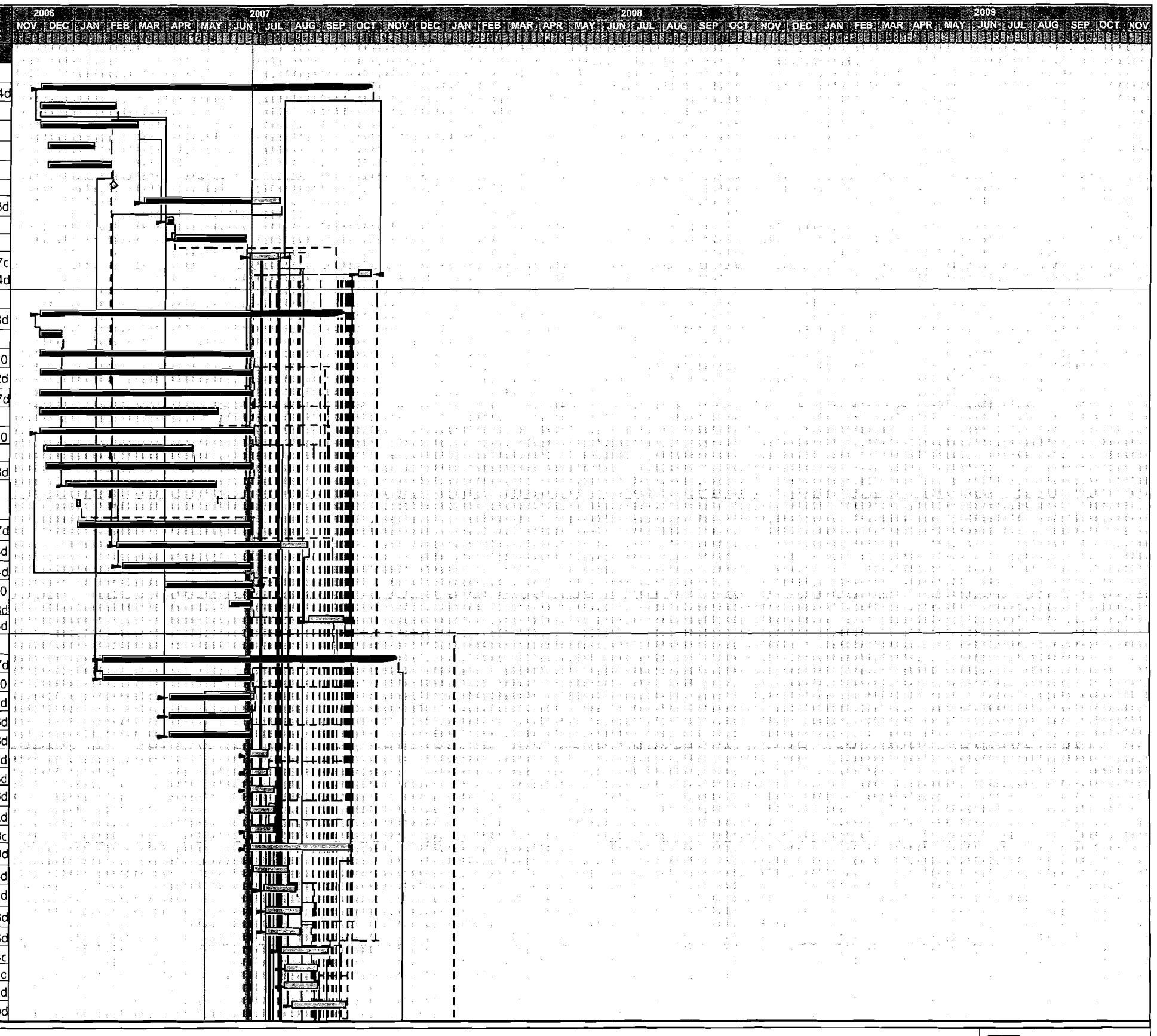
AREAS OF EXCAVATION PLAN

JOB NO. 0221-17-020			
DRAWN AXC			
CHECKED RDG			
APPROVED RDG	DATE 4-17-07	SCALE 1"=60'	FIGURE NO. -

Galli engineering, P.C.
734 Walt Whitman Road, Suite 402A
Melville, New York 11747



Act ID	Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float
Preconstruction						
Design & Engineering						
1000	Design & Engineering	230 *	85 *	30NOV06 A	22OCT07	544d
1030	100% Foundation Permit Documents	49	0	30NOV06 A	12FEB07 A	
1040	50% CD Documents	56	0	30NOV06 A	06MAR07 A	
1020	DD Estimate	30	0	07DEC06 A	22JAN07 A	
1045	Abatement & Demolition Bid Documents	16	0	07DEC06 A	08FEB07 A	
101C	Letter of Intent / Notice to Proce	0	0	09FEB07 A		
1041	ICC Review Of 50% Documents	30	21	12MAR07 A	24JUL07	3d
1047	75% CD Documents (bid Struct, Ext Wall, ME	25	0	02APR07 A	11APR07 A	
105C	95% CD / Permit Document	25	0	12APR07 A	20JUN07 A	
108C	Finalize Document	20	20	25JUN07	23JUL07	447c
1070	Finalize GMP (w/ 95% documents)	10	10	09OCT07	22OCT07	544d
Permitting & Approvals						
1100	Permitting, Bid & Award	211 *	66 *	30NOV06 A	25SEP07	3d
1125	Submit Remedial Action Plan to DEC	10	0	30NOV06 A	22DEC06 A	
1150	Gain Metro North Approvals	60	4	30NOV06 A	28JUN07	0
1160	Obtain Temporary Parking Plan Approval	40	4	30NOV06 A	28JUN07	2d
1163	Gain Water Main Approvals from Westchester	60	4	30NOV06 A	28JUN07	247d
1165	Gain United Water Approvals for Service Tap	40	0	30NOV06 A	25MAY07 A	
117E	Close on Lan	60	1	30NOV06 A	29JUN07	0
114C	Prepare SWPI	30	0	05DEC06 A	30APR07 A	
1156	Obtain Agreement w/ Con Ed; 1 Ponfield	40	4	06DEC06 A	28JUN07	13d
1130	Approval of Remedial Action Plan by DEC	30	0	26DEC06 A	23MAY07 A	
1120	Obtain Site Plan Approval	19	0	05JAN07 A	10JAN07 A	
1157	Obtain Agreement w/ Con Ed; gas	40	4	05JAN07 A	28JUN07	247d
1175	Obtain Foundation Permit	25	20	13FEB07 A	21AUG07	3d
1145	File & Gain Approval of SWPP by DEC	10	4	19FEB07 A	28JUN07	24d
1170	Obtain Demolition & Excavatioin Permit	49	1	02APR07 A	28JUN07	0
115E	Obtain Agreement w/ Con Edision: utility w	26	4	04JUN07 A	28JUN07	23d
1180	Obtain Building Permit	25	25	22AUG07	25SEP07	3d
Bid & Award						
1400	Bid/Award	207 *	104 *	31JAN07 A	16NOV07	447d
1402	Bid/Award-Abatement & Demoliton	10	4	31JAN07 A	28JUN07	0
1403	Bid/Award-Remediation	20	5	06APR07 A	29JUN07	9d
1404	Bid/Award- Excavation, Site Utilit., UG Plumbing	20	3	06APR07 A	27JUN07	26d
1415	Bid/Award- Spring Isolation	20	3	06APR07 A	27JUN07	68d
1405	Bid/Award Foundation Concrete	20	14	25JUN07 A	13JUL07	5d
141C	Bid/Award- Superstructure Concre	25	14	25JUN07 A	13JUL07	98c
1420	Bid/Award- Structural Framing System	25	19	25JUN07 A	20JUL07	46d
1425	Bid/Award- Engineered Metal Framing System	25	19	25JUN07 A	20JUL07	82d
142E	Bid/Award- Exter Panelized Wall Syste	25	19	25JUN07 A	20JUL07	168c
1470	Bid/Award- Drywall, Ceilings, HM, HW, Doors,	70	70	25JUN07	01OCT07	439d
1455	Bid/Award- Fire Protection	25	25	29JUN07	03AUG07	56d
1450	Bid/Award- Plumbing	25	25	09JUL07	10AUG07	51d
1435	Bid/Award- Elevators & Escalators	25	25	11JUL07	14AUG07	278d
1465	Bid/Award- Masonry	25	25	11JUL07	14AUG07	473d
143C	Bid/Award- Window	35	35	26JUL07	12SEP07	314c
144E	Bid/Award- HVAC	25	25	30JUL07	31AUG07	31c
1460	Bid/Award- Electrical	25	25	30JUL07	31AUG07	36d
1440	Bid/Award Roofing	25	40	06AUG07	28SEP07	440d



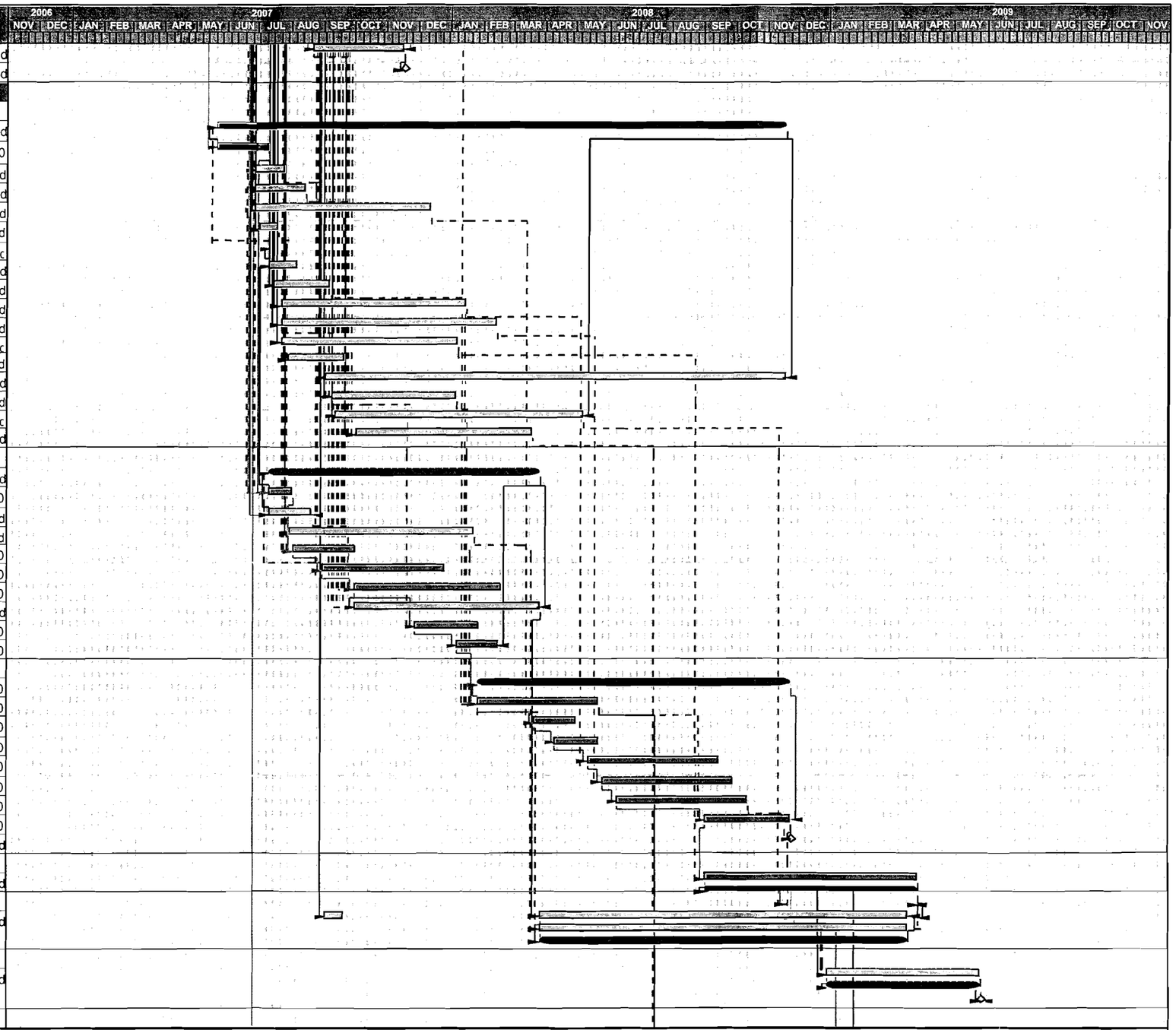
Start date	08NOV06
Finish date	27NOV09
Data date	25JUN07
Run date	27JUN07
Page number	1A

Kensington06250...

Hunter Roberts Construction Group
The Kensington
Bronxville, New York
Project Schedule

- Early bar
- Progress bar
- Critical bar
- Summary bar
- Start milestone point
- Finish milestone point

Act ID	Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float
1475	Bid/Award- Finish Trades	63	63	22AUG07	16NOV07	447d
1480	Bid/Award- Complete	0	0		16NOV07	525d
Construction						
Mobilization, Fabrication						
2000	Mobilization, Fabrication	389 *	360 *	21MAY07 A	19NOV08	265d
2025	Submittals-Abatement & Demolition	15	7	21MAY07 A	10JUL07	0
2045	Submittals- Excavation	25	19	28JUN07	25JUL07	26d
2055	Submittals- Site Utilites	40	34	28JUN07	15AUG07	214d
2073	Submittals / Fabrication- Spring Isolation	126	120	28JUN07	13DEC07	68d
2030	Submittal-Remediation	20	14	02JUL07	20JUL07	9d
201(	Mobilization	1	1	11JUL07	11JUL07	617c
2020	Field Office / Site Fence	20	20	11JUL07	07AUG07	598d
2060	Submittals / Fabrication- Superst Concrete	40	40	16JUL07	07SEP07	98d
2062	Submittals / Fabrication- Engineered Metal Frami	126	126	23JUL07	16JAN08	82d
2063	Submittals / Fabrication- Structural Framing Sys	147	147	23JUL07	14FEB08	46d
207(	Submittals/Fabrication- Exterior Stucco Appl	12(	12(	23JUL07	08JAN0E	168c
2050	Submittals / Fabrication- Foundation Concrete	40	40	30JUL07	21SEP07	5d
2090	Submittals / Fabrication- Long Lead Equipment	315	315	03SEP07	19NOV08	265d
2100	MEP Coordination	84	84	10SEP07	07JAN08	31d
208(	Submittals / Fabrication- Windov	16E	16E	13SEP07	07MAY0E	314c
2110	Submittal / Procurement- General	120	120	02OCT07	19MAR08	439d
Abatement, Demolition, Excavation & Foundations						
3000	Excavations & Foundations	184 *	184 *	11JUL07	26MAR08	182d
3005	Abatement & Demolition	17	17	11JUL07	02AUG07	0
3032	Con Ed Work; 1 Ponfield work	30	30	11JUL07	21AUG07	13d
303(	Con Ed Work; utility work, relocations,	12E	12E	31JUL07	24JAN0E	1d
3010	Remediation	42	42	03AUG07	01OCT07	0
3015	Excavation	84	84	31AUG07	27DEC07	0
3020	Foundations	100	100	01OCT07	19FEB08	0
3040	Site Utilities (removals & new)	126	126	01OCT07	26MAR08	182d
3045	Underground	42	42	28NOV07	28JAN08	0
3050	Slab on Grade	30	30	07JAN08	15FEB08	0
Structure						
4000	Structural	215 *	215 *	28JAN08	24NOV08	0
4010	Garage Structure	84	84	28JAN08	22MAY08	0
4030	Set Spring Isolation	30	30	21MAR08	01MAY08	0
4040	Transfer Slab	30	30	11APR08	22MAY08	0
4050	Engineered Metal Framing System	90	90	12MAY08	15SEP08	0
4180	Structural Framing System	90	90	26MAY08	29SEP08	0
4190	Concrete on Deck	90	90	09JUN08	13OCT08	0
4192	Prefabricated Roof Framing / Gables	60	60	02SEP08	24NOV08	0
4195	Structure Complete	0	0		24NOV08	262d
+Exterior Envelope						
		147	147	02SEP08	27MAR09	175d
+MEP Systems						
		398	398	03SEP07	18MAR09	182d
+Elevators						
		105	105	30DEC08	26MAY09	133d
+Interior Fitout & Finishes						



Start date	08NOV06
Finish date	27NOV09
Data date	25JUN07
Run date	27JUN07
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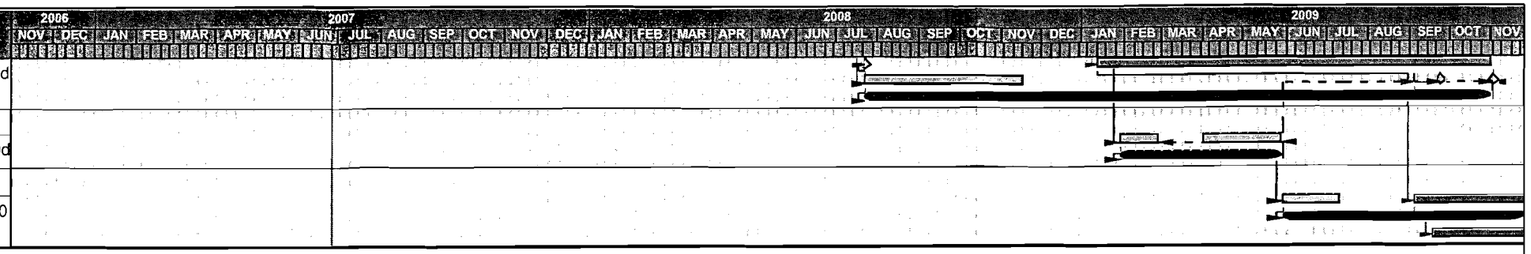
Kensington06250...

Hunter Roberts Construction Group
The Kensington
Bronxville, New York
Project Schedule

- Early bar
- Progress bar
- Critical bar
- Summary bar
- Start milestone point
- Finish milestone point

Act ID	Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float
		332	332	23JUL08	02NOV09	19d
+Sitework						
		86	86	29JAN09	28MAY09	100d
+Punchlist & Close-out						
		131	131	29MAY09	27NOV09	0



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