

# J.R. Holzmacher P.E., LLC

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November 14, 2012

New York City Office of Environmental Remediation  
City Voluntary Cleanup Program  
c/o Shaminder Chawla  
100 Gold Street, 2<sup>nd</sup> Floor  
New York, NY 10038

**Re:** 12CVCP092K  
E-Des # 12EHAZ452K  
10504 Flatlands Avenue  
Remedial Action Work Plan (RAWP) Stipulation List

Dear Mr. Chawla:

J.R. Holzmacher P.E., LLC hereby submits a Remedial Action Work Plan (RAWP) Stipulation List for the Site to the New York City Office of Environmental Remediation (OER) on behalf of 128 Merrick Realty LLC. This letter serves as an addendum to the RAWP to stipulate additional content, requirements, and procedures that will be followed during the site remediation. The contents of this list are added to the RAWP and will supersede the content in the RAWP where there is a conflict in purpose or intent. The additional requirements/procedures include the following Stipulation List below:

1. The criterion attached in **Appendix 1** will be utilized if additional petroleum containing tank or vessel is identified during the remedial action or subsequent redevelopment excavation activities. All petroleum spills will be reported to the NYSDEC hotline as required by applicable laws and regulations. This contingency plan is designed for heating oil tanks and other small or moderately sized storage vessels. If larger tanks, such as gasoline storage tanks are identified, OER will be notified before this criterion is utilized.
2. During and as part of remedial action at the site, tank removal will be undertaken. Four known USTs will be removed from the property and properly closed. OER issued a Notice of No Objection for an NYCDOB excavation permit to the project prior to enrollment in the NYCVCPC. The New York State Department of Environmental Conservation was notified of the pending removal/closure action. The tank closure documentation will be completed in accordance with applicable rules and regulations. OER will be forwarded all closure documentation submitted to the New York State Department of Environmental Conservation.
3. A pre-construction meeting is required prior to start of remedial excavation work at the site. A pre-construction meeting will be held at the site and will be attended by OER, the

developer or developer representative, the consultant, excavation/general contractor, and if applicable, the soil broker.

4. A pre-approval letter from all disposal facilities will be provided to OER prior to any soil/fill material removal from the site. Documentation specified in the RAWP - Appendix 3 - Section 1.6 "Materials Disposal Off-Site" will be provided to OER. If a different disposal facility for the soil/fill material is selected, OER will be notified immediately.
5. A CD containing the final RAWP including this approved Stipulation List will be placed in the library that constitutes the primary public repository for project documents.
6. Signage for the project will include a sturdy placard mounted in a publically accessible right of way to building and other permits signage will consist of the NYC BCP Information Sheet (attached **Appendix 2**) announcing the remedial action. The Information sheet will be laminated and permanently affixed to the placard.
7. This NYC BCP project involving the removal and transportation of hazardous waste may be subject to the New York state Department of Environmental Conservation's Special Assessment Tax (ECL 27-0923) and Hazardous Waste Regulatory Fees (ECL 72-00402). See DEC's website for more information: <http://www.dec.ny.gov/chemical/9099.html>.
8. Section 4.3 of the RAWP indicates that the cellar of the building will be built to the groundwater interface. Therefore, a sub-slab depressurization system (SSDS) will be constructed beneath the slab-on-grade areas of the proposed building, but not beneath the partial on-site cellar. A passive SSDS is designed to mitigate any potential sub-slab gases. The system will consist of new 4-inch HDPE slotted pipe, 3-inch ductile iron vent risers and a sub-slab vent piping access box located at grade on the exterior of the building footprint. **Appendix 3** provides PE/RA certified building plans with SSDS installation details (sub-slab matrix, piping configuration, risers, depressurization mechanism, etc.) with respect to the proposed building foundation, footings, slab, and sidewalls.
9. Section 4.3 of the RAWP describes the VaporBlock Plus VBP 20-mil vapor barrier, manufactured by Raven Industries that will be installed beneath the structure's slab and along foundation sidewalls. **Appendix 4** provides PE/RA certified building plans with the extent of the vapor barrier installation details (penetrations, joints, etc.) with respect to the proposed foundation, footings, and the hydraulic lift station slab.
10. An engineered composite site cover will be placed over the entire footprint of the Site. The composite cover system will be comprised of asphalt covered parking areas, concrete covered sidewalks, and a concrete building slab. PE/RA certified drawings of the composite site cover are provided as **Appendix 5**. Sheet Z-001.00 in **Appendix 5** shows

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the typical design for the remedial cover type to be used on this site and the location of each cover type to be built at the site, respectively.

Very Truly Yours,

A handwritten signature in black ink that reads "James M. DeMartinis". The signature is written in a cursive, flowing style.

James M. DeMartinis  
Senior Hydrogeologist  
J.R. Holzmacher, P.E. LLC

cc: Z. Schreiber, OER

**Appendix 1**  
Generic Procedures for Management of Underground Storage Tanks  
Identified under the NYC BCP

Prior to Tank removal, the following procedures should be followed:

- Remove all fluid to its lowest draw-off point.
- Drain and flush piping into the tank.
- Vacuum out the “tank bottom” consisting of water product and sludge.
- Dig down to the top of the tank and expose the upper half.
- Remove the fill tube and disconnect the fill, gauge, product, vent lines and pumps. Cap and plug open ends of lines.
- Temporarily plug all tank openings, complete the excavation, remove the tank and place it in a secure location.
- Render the tank safe and check the tank atmosphere to ensure that petroleum vapors have been satisfactorily purged from the tank.
- Clean tank or remove to storage yard for cleaning.
- If the tank is to be moved, it must be transported by licensed waste transporter. Plug and cap all holes prior to transport leaving a 1/8 inch vent hole located at the top of the tank during transport.
- After cleaning, the tank must be made acceptable for disposal at a scrap yard, cleaning the tanks interior with a high pressure rinse and cutting the tank in several pieces.

During the tank and pipe line removal, the following field observations should be made and recorded:

- A description and photographic documentation of the tank and pipe line condition (pitting, holes, staining, leak points, evidence of repairs, etc.).
- Examination of the excavation floor and sidewalls for physical evidence of contamination (odor, staining, sheen, etc.).
- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation, with a calibrated photoionization detector (PID).

Impacted Soil Excavation Methods

The excavation of the impacted soil will be performed following the removal of the existing tanks. Soil excavation will be performed in accordance with the procedures described under Section 5.5 of Draft DER-10 as follows:

- A description and photographic documentation of the excavation.
- Examination of the excavation floor and sidewalls for physical evidence of contamination (odor, staining, sheen, etc.).

- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation, with calibrated photoionization detector (PID).

Final excavation depth, length, and width will be determined in the field, and will depend on the horizontal and vertical extent of contaminated soils as indentified through physical examination (PID response, odor, staining, etc.). Collection of verification samples will be performed to evaluate the success of the removal action as specified in this document. The following procedure will be used for the excavation of impacted soil (as necessary and appropriate):

- Wear appropriate health and safety equipment as outlined in the Health and Safety Plan.
- Prior to excavation, ensure that the area is clear of utility lines or other obstructions. Lay plastic sheeting on the ground next to the area to be excavated.
- Using a rubber-tired backhoe or track mounted excavator, remove overburden soils and stockpile, or dispose of, separate from the impacted soil.
- If additional UST's are discovered, the NYSDEC will be notified and the best course of action to remove the structure should be determined in the field. This may involve the continued trenching around the perimeter to minimize its disturbance.
- If physically contaminated soil is present (e.g., staining, odors, sheen, PID response, etc.) an attempt will be made to remove it, to the extent not limited by the site boundaries or the bedrock surface. If possible, physically impacted soil will be removed using the backhoe or excavator, segregated from clean soils and overburden, and staged on separated dedicated plastic sheeting or live loaded into trucks from the disposal facility. Removal of the impacted soils will continue until visibly clean material is encountered and monitoring instruments indicate that no contaminants are present.
- Excavated soils which are temporarily stockpiled on-site will be covered with tarp material while disposal options are determined. Tarp will be checked on a daily basis and replaced, repaired or adjusted as needed to provide full coverage. The sheeting will be shaped and secured in such a manner as to drain runoff and direct it toward the interior of the property.

Once the site representative and regulatory personnel are satisfied with the removal effort, verification of confirmatory samples will be collected from the excavation in accordance with DER-10.

**Appendix 2**  
NYC BCP Signage



## **NYC Brownfield Cleanup Program**

**10504-10524 FLATLANDS AVENUE**

**Site #: 12CVCP092K**

This property is enrolled in the New York City Brownfield Cleanup Program for environmental remediation. This is a voluntary program administered by the NYC Office of Environmental Remediation.

For more information, log on to:

[www.nyc.gov/oer](http://www.nyc.gov/oer)



If you have questions or would like more information,  
please contact:

Zach Schreiber at (212) 788-3056  
or email us at [brownfields@cityhall.nyc.gov](mailto:brownfields@cityhall.nyc.gov)

*The Third Generation of Excellence  
In Water Supply, Water Resources, Civil and Environmental Engineering*

**Appendix 3**  
Sub-Slab Depressurization System Design and Details

**GENERAL NOTES-  
SUB-SLAB DEPRESSURIZATION SYSTEM  
(Soil Gas Mitigation)**

**I. PURPOSE**

The intent of the Sub-Slab Depressurization System described in this plan is to promote public safety and welfare by controlling soil gas intrusion potentially emanating from beneath the proposed building sub grade. The system is not intended to regulate flammable vapors that may originate in and propagate from other sources, which include, but are not limited to, ruptured hazardous material transmission lines, underground atmospheric tanks, or similar installations.

**II. GENERAL REQUIREMENTS**

**CODES:**

All work shall be in compliance with the current Building Code and policies of the Department of Building and all applicable County, State, and Federal Codes.

**INSPECTION:**

All work, requiring inspection by the Department of Building, shall be available to the inspector prior to being covered by subsequent work.

**III. MITIGATION REQUIREMENTS**

**A. MAINTENANCE OF MITIGATION SYSTEMS**

All mechanical ventilation systems shall be maintained and serviced in proper working condition and meet all requirements of the Department of Building Electrical and Mechanical Code. The testing, maintenance and service procedure for gas detection and mechanical ventilation systems shall be performed in accordance with the manufacturer's current written instructions and the following:

- The manufacturer's instructions shall be approved by the Fire Department. A person certified by the Fire Department shall perform testing and servicing of each system.

**IV. CONSTRUCTION CRITERIA**

**A. ACTIVE SYSTEM**

The Active System consists of the following: Sub-Slab Vent System, Impervious Membrane and Mechanical Extraction System including controls and alarms.

**1. Sub-Slab Vent System**

Sub-Slab Vent System shall consist of Perforated Horizontal Pipes, Gravel Blanket Under Impervious Membrane, Gravel Around Perforated Horizontal Pipes and Vent Risers.

**a. Perforated Horizontal Pipes:**

- Perforated Horizontal Pipes shall be listed, minimum Schedule 40, slotted or perforated High Density Polyethylene (HDPE) or Polyvinyl Chloride (PVC) pipe or other materials approved by the Department of Building for the intended use.

**ii. Perforated Horizontal Pipe shall be installed as follows:**

- Spacing and location of Perforated Horizontal Pipes shall be as indicated on the plans.
- Pipes used only as vents may be installed in the horizontal position.
- Undulations in the Perforated Horizontal Pipes, which may impede the passage of gas, shall be avoided (e.g. Perforated Horizontal Pipes shall not be deformed to pass below interior footings).

**b. Gravel Blanket Thickness Under Impervious Membrane:**

- The thickness of the Gravel Blanket under Impervious Membrane shall be as indicated on the plans.
- The composition of gravel shall be washed particles that have no more than one fractured face.
- The gradations of gravel shall conform to Table 1 shown on this sheet.

**c. Gravel Thickness Around Perforated Horizontal Pipes:**

- Gravel thickness around Perforated Horizontal Pipes shall be as indicated on the plan details.
- Gravel shall be composed entirely of particles that have no more than one fractured face.

**d. Vent Risers:**

- Vent Risers shall be connected to Perforated Horizontal Pipes and constructed of cast or ductile iron. Exception:
  - Acrylonitrile Butadiene Styrene (ABS) pipes may be allowed for residential buildings up to two (2) stories if approved by NYCDOB for the intended use as soil gas Vent Riser.
- Vent Risers shall be spaced and located as per plan layout.
- Vent Riser outlets shall be located at least:
  - 10 feet above grade,
  - 10 feet away from any window, doors, roof hatch, opening or air intake into the building,
  - 3 feet above highest point of roof within a 10' radius of outlet,
  - 3 feet away from any parapet,
  - 4 feet away from the property line and
  - 5 feet away from any electrical device.
- If rain guards are provided, they shall be non-restricting.

**2. Impervious Membrane**

**a. Impervious Membrane Installation:**

- Installation shall comply with the conditions of approval by the NYCDOB, NYSDEC and manufacturer's specification of the Impervious Membrane.
- Impervious Membrane shall be installed at the following locations:
  - Below the building slab surrounded by the inner face of the exterior footings
  - On the exterior surface of walls from the finished grade level to a minimum of 6 inches below the bottom of the adjoining building slab
  - Around sides of pile caps and caisson caps (if applicable).

**iii. Impervious Membranes at sump pits shall be installed as follows:**

- Two layers of Impervious Membrane below slabs and footings of all sump pits and holding tanks (if applicable).

**iv. The individual certified by the manufacturer of the Impervious Membrane shall certify that the Impervious Membrane was installed per approved plans.**

**b. Seals at Impervious Membrane Penetrations:**

- Where footings, plumbing pipes, electrical conduits and other materials penetrate the Impervious Membrane, the penetrations shall be sealed by using sleeves or boots composed of the same material or other approved materials and methods in accordance with the specifications of the manufacturer for the Impervious Membrane.

- To retard soil gas entry, large openings through concrete slabs, wood, and other floor assemblies in contact with the soil, such as spaces around bathtub, shower, or toilet drains, shall be filled or closed with materials that provide a permanent airtight seal such as non-shrink mortar, grouts, expanding foam, or similar materials designed for such application.

- To retard soil gas entry, smaller gaps around all pipe, wire, or other objects that penetrate concrete slabs or other floor assemblies shall be made air tight with an elastomeric joint sealant, as defined in ASTM C920-87, and applied in accordance with the manufacturer's recommendations.

- To retard soil gas entry, all control joints, isolation joints, construction joints, and any other joints in concrete slabs or between slabs and foundation walls shall be sealed. A continuous formed gap (for example, a "tooled edge") which allows the application of a sealant that will provide a continuous, airtight seal shall be created along all joints. When the slab has cured, the gap shall be cleared of loose material and filled with an elastomeric joint sealant, as defined in ASTM C920-97, and applied in accordance with the manufacturer's recommendations.

- Joints, cracks, or other openings around all penetrations of both exterior and interior surfaces of masonry block or wood foundation walls below the ground surface shall be sealed with an elastomeric sealant that provides an air-tight seal. Penetrations of poured concrete walls should also be sealed on the exterior surface. This includes sealing of wall tie penetrations.

- To resist soil gas entry, the exterior surfaces of portions of poured concrete and masonry block walls below the ground surface shall be constructed in accordance with water proofing procedures.

- A gas tight seal shall be provided where the Impervious Membrane is attached to all interior footings and exterior wall footings.

**c. Impervious Membrane Protection Prior to Floor Slab Placement**

- Installation Sequence for Protection of the Impervious Membrane:
  - Finish the Gravel Blanket smooth using mechanical means (e.g. roller).
  - Place concrete, reinforcing steel, piping and other forms so as not to be supported directly on the Impervious Membrane. Equipment shall not be driven over the Impervious Membrane.

**3. Mechanical Extraction System**

The Mechanical Extraction System shall consist of Pressure Sensor in Vent Risers, Control/Alarm Panel and Gas extraction powered devices and shall be constructed for the migration of subsurface gas.

- Sensors in Vent Risers
  - Sensors and associated transmitters shall be listed by a recognized testing laboratory for the intended use.
  - Sensors and associated wiring shall be immune to radio frequency and infrared remote-transmitters frequency interference.
  - Sensors shall be fitted within the vent pipe so that no gas may leak through the fittings.
  - The associated wiring and associated raceways shall be:
    - Mounted to a secure surface independent of sensors and their associated transmitter.
    - Protected from physical damage.

**b. Gas Extraction Powered Devices**

- Gas extraction powered devices shall consist of fans, blowers, or other powered devices to exhaust the space below the Impervious Membrane and shall be capable of ventilating the Gravel Blanket and Perforated Horizontal Pipes spaces to create a negative pressure below the slabs.
- Unless porosity of the gravel blanket material is established by a test report prepared by a licensed engineer or registered geologist, porosity of the gravel blanket material may be taken as 25%.

**4. Alarm Systems**

- Alarm Systems shall consist of audible and visual signals to notify buildings Superintendent or occupants of mechanical malfunction or failure of active system components.
- Audible alarms shall be at least 15dB above ambient noise level.
- Visual alarms shall be a minimum of 15-candela output and be located at each audible device.
- The audible signal shall be distinctively different from the fire alarm systems.

**5. Control Panel**

- General Installation
  - Control Panel shall be listed by a recognized testing laboratory.
  - Control Panel shall have the following characteristics:
    - Designed not to override the building fire alarm, smoke control and ventilation systems.
    - A manual shall be provided with the Control Panel describing the installation, wiring, operation, maintenance and testing.
    - Control Panel shall monitor the power to Pressure Sensors, annunciator and associated components.
- Power Source
  - Primary Power Source
    - Control Panel shall be hard wired to the building normal power.
    - The circuits supplying power to the Control Panel shall be lockable in the open position.
  - Back-Up Power Supply (for control panel and alarm)
    - Back-Up battery or emergency power shall be rated for a minimum of 24 hours for standby mode plus 5 minutes of alarm under full load condition.
    - This Back-Up power shall be available within 60 seconds of primary power loss.
- Panel Operation
  - Device Activation
    - Control Panel shall recognize alarm conditions, and then activate required audible devices, visual devices and Gas Extraction Powered Devices.

**B. MISCELLANEOUS SYSTEMS**

**1. Wiring**

The wiring system shall be in accordance with the NYCDOB Electrical Code, International Building Code, NE C and as required herein, including latest code revisions.

- Outdoor Enclosures
 

All outdoor enclosures shall be NEMA rated for each particular situation, (wet, submerged or gaseous vapors).
- Conduit Seal Fittings and Cable Seal Fittings
 

Conduit Seal Fittings and Cable Seal Fittings are designed to prevent the passage of gases, vapors, or flames inside the electrical conduits.

  - Any conduit or cable that penetrates the Impervious Membrane shall be provided with a conduit or cable seal.
  - Conduit Seal Fittings shall be installed in the vertical portion of conduit where the PVC conduit emerges from a sub-slab location. Rigid material shall be rigid metal that has the same trade size as conduit runs.
- Grounding Electrical Systems
 

Electrical systems required to be grounded shall be connected to earth using approved methods in accordance with the NYCDOB Electrical Code.
- Manholes and Other Underground Electric Enclosures Intended for Personnel Entry.
 

The provisions of this section are applicable to all manholes and other underground electric enclosures that are intended for personnel entry. These enclosures herewith will be referred to as underground electrical enclosures.

- Vent System
  - Underground electrical enclosures shall be naturally ventilated at all time to open air in an approved manner to prevent the build-up of potential soil gases.
  - Mechanical ventilation in lieu may be used when back-up power sufficient to run the system for 24 hours is provided and a visual and audible main power failure alarm at a readily accessible location.
- Enclosure Exterior
  - Approved seals shall be used to prevent water and gases from entering the sides of the underground electrical enclosures.
  - Underground electrical enclosures personnel entry access cover shall be provided with an approved restraining system.

**c. Enclosure Interior**

- All wiring terminations, equipment and insulating materials within the enclosure shall be suitable for wet location.
- Approved duct seals shall be used to prevent water from the conduits entering or leaving the manholes and other underground electrical enclosures intended for personnel entry. The seal shall have a depth of not less than the diameter of the conduit.

**V. SYSTEMS MAINTENANCE**

**A. PROCEDURES**

The test, maintenance and service procedure for the Mechanical Ventilation System shall be performed in accordance with the manufacturer's instructions. Maintenance personnel for the development, shall perform testing and arrange for servicing of the Mechanical Ventilation System, if required.

**B. SCHEDULE**

Notwithstanding the recommendations of the manufacturer, testing, maintaining and servicing of each system shall be performed in accordance with the NYS regulatory requirements .

**C. REPAIRS**

All components required to mitigate soil gases shall be repaired or replaced to the manufacturer's original specification.

**D. OCCUPANT NOTIFICATION**

A permanent notification shall be provided at the building indicating the presence of the Impervious Membrane. This notification shall be in the concrete floor of the cellar and placarded inside a main entrance of the building, be visible and be legible as approved by the Engineer and NYCDOB. See Detail below.

## WARNING

**THIS BUILDING IS PROTECTED WITH  
A SOIL GAS CONTROL BARRIER.  
ANY PROPOSED PENETRATION OR  
ALTERATION OF FLOOR SLAB  
REQUIRES NOTIFICATION OF THE  
BUILDING OFFICIAL AND  
INSPECTION BY AN ENGINEER**

**Notes:**

- This notification is to be permanently stamped or etched in the surface of a permanent slab or other location approved by the Building Inspector at the time of construction.
- All letters 1/2" (min.) in height.
- At least one required per individual building unit.

**Soil Gas Membrane Notification Placard**

**FORM 1 - IMPERVIOUS MEMBRANE INSTALLATION CERTIFICATE**  
\*After installation of the Impervious Membrane, a copy of this certificate shall be given to the Building Inspector.

Site Address: \_\_\_\_\_  
Legal Description: \_\_\_\_\_  
Section: \_\_\_\_\_ Block: \_\_\_\_\_ Lot: \_\_\_\_\_  
Building Use: \_\_\_\_\_

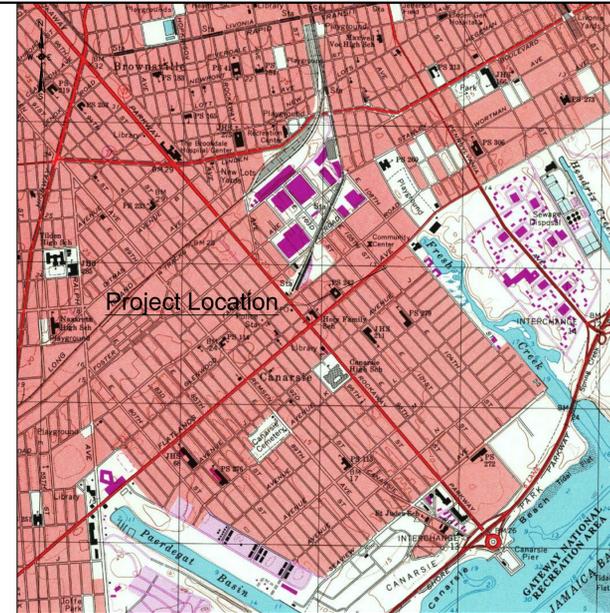
Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

I hereby certify that I have inspected the installation and reviewed the test results of the Impervious Membrane system at the above described property. On the basis of these inspections and tests it is my conclusion that the Impervious Membrane system was installed in conformity with the recommendations of the manufacturer and the requirements of this Plan. Where the inspection and testing of all or part of the work above is delegated, full responsibility shall be assumed by the Certified Installer whose signature is affixed thereon.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_



**LOCATION MAP**  
SCALE: 1" = 2,000'

**Table 1 - SPECIFICATIONS FOR GRAVEL**

SIEVE SIZE	PERCENTAGE PASSING SIEVE	
	3/4" Gravel	3/8" Gravel
1-1/2" (37.5 mm)	100	-
1" (25.0 mm)	90-100	-
3/4" (19.0 mm)	55-85	100
3/8" (9.5 mm)	8-20	85-100
No. 4 (4.75 mm)	0-5	0-30
No. 8 (2.36 mm)	0-5	0-10
No. 200 (75um)	0-2	0-2
ASTM C 131 TEST GRADING	B	C

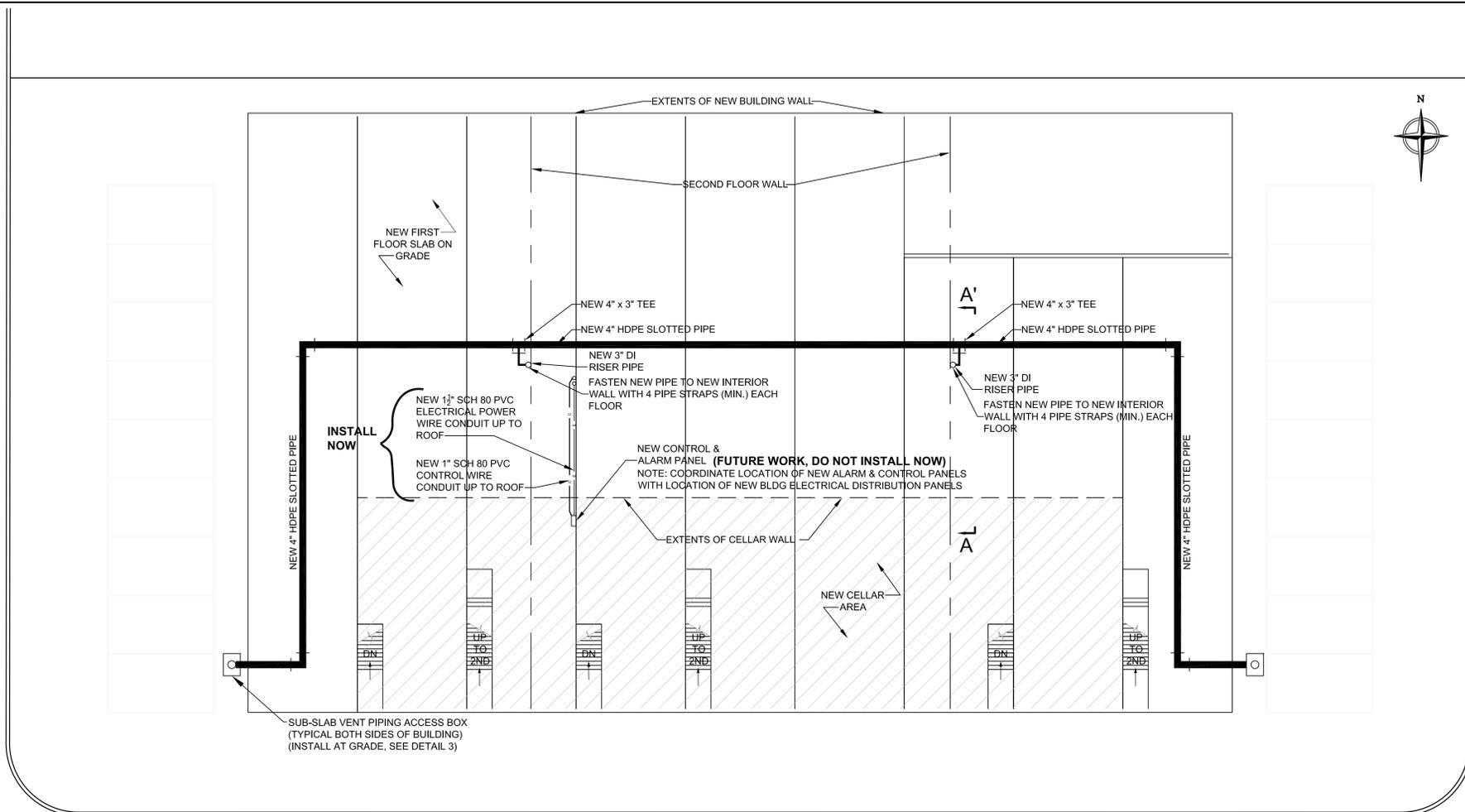
**Table 2 - SPECIFICATIONS FOR SAND**

SIEVE SIZE	PERCENTAGE PASSING SIEVE
3/8" (9.5 mm)	100
No. 4 (4.75 mm)	90-100
No. 8 (2.36 mm)	75-90
No. 16 (1.18 mm)	55-75
No. 30 (600 um)	30-50
No. 50 (300 um)	10-25
No. 100 (150 um)	2-10
No. 200 (75 um)	0-5

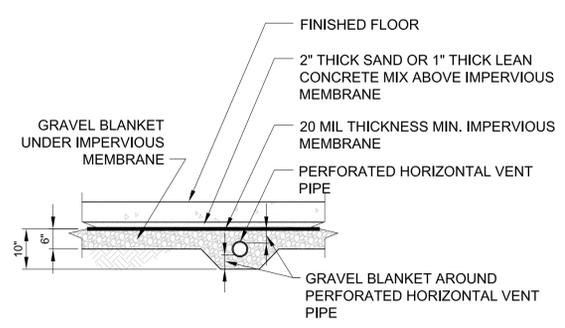
**New York State Dept. of Health Soil Vapor Intrusion Guidance, October 2006.**

Once a mitigation system is installed in a building, an information package must be given to the building's owner and tenants, if applicable, to facilitate their understanding of the system's operation, maintenance and monitoring. This package must include the following: a description of the mitigation system installed and its basic operating principles; how the owner or tenant can check that the system is operating properly; how the system will be maintained and monitored and by whom; a list of appropriate actions for the owner or tenant to take if the system's warning device (e.g., pressure gauge, alarm, etc.) indicates system degradation or failure; and contact information (e.g., names, telephone numbers, etc.) if the owner or tenant has questions, comments or concerns. The building's owner should also receive the following information: any building permits required by local codes; copies of contracts and warranties; and a description of the proper operating procedures of any mechanical or electrical system installed, including manufacturer's operation and maintenance instructions and warranties.

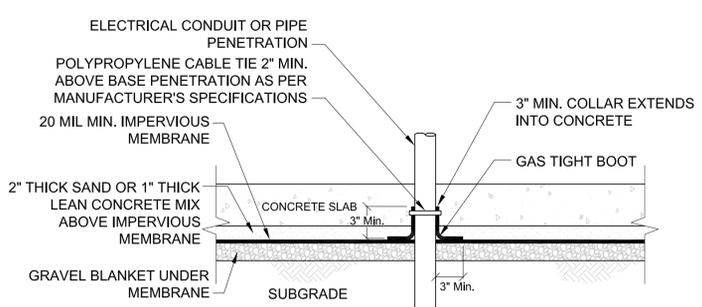
REV	DATE	CK	DESCRIPTION
REVISIONS			
<b>105-04 Flatlands Avenue</b>			
<b>Brooklyn, NY 11225</b>			
<b>SUB-SLAB DEPRESSURIZATION SYSTEM</b>			
<b>J.R. HOLZMACHER P.E., LLC</b>			
<span style="font-size: small;">The Third Generation of Excellence In Water Supply, Water Resources, Civil and Environmental Engineering</span>			
<span style="font-size: x-small;">300 Wheeler Road, Suite 402, Hauppauge, NY 11788 PHONE: (631) 234-2220 FAX: (631) 234-2221 E-MAIL: info@holzmacher.com</span>			
SHEET TITLE: CONSTRUCTION NOTES			
DESIGNED BY:	AJZ	SCALE:	As Shown
REVIEWED BY:	JRH	DATE:	November 12, 2012
PLAN SHEET BY:	DGH	PROJECT NO.:	KoptD 12-05
			<b>SHEET 1</b>



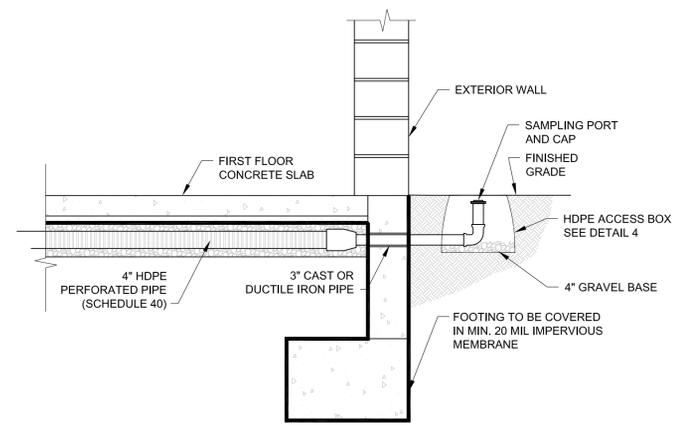
FLATLANDS AVENUE  
**BUILDING SSDS LAYOUT (FIRST FLOOR)**  
 SCALE: 1" = 10'



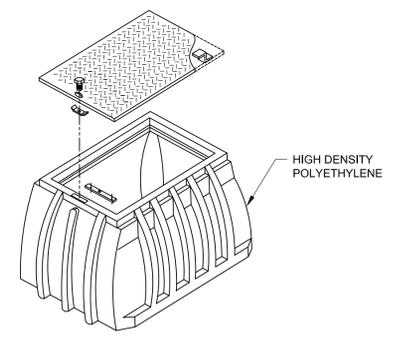
**DETAIL 1 - TYPICAL HORIZONTAL PIPE CROSS-SECTION UNDER NEW FIRST FLOOR SLAB**  
 SCALE: N.T.S.



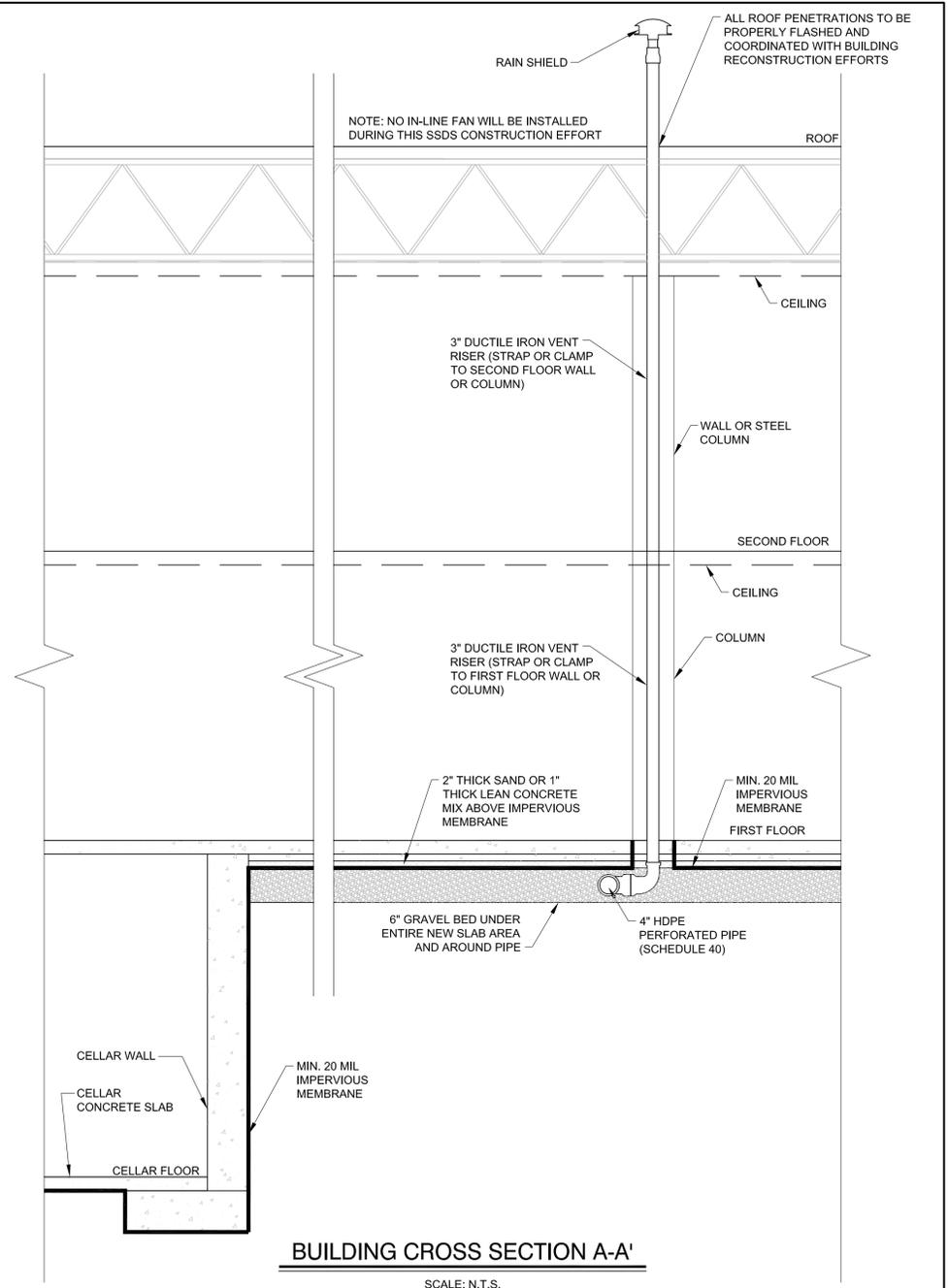
**DETAIL 2 - TYPICAL MEMBRANE BOOT**  
 SCALE: N.T.S.



**DETAIL 3 - SECTION AT EXTERIOR FOUNDATION WALL**  
 SCALE: N.T.S.



**DETAIL 4 - END WALL HDPE ACCESS BOX**  
 SCALE: N.T.S.

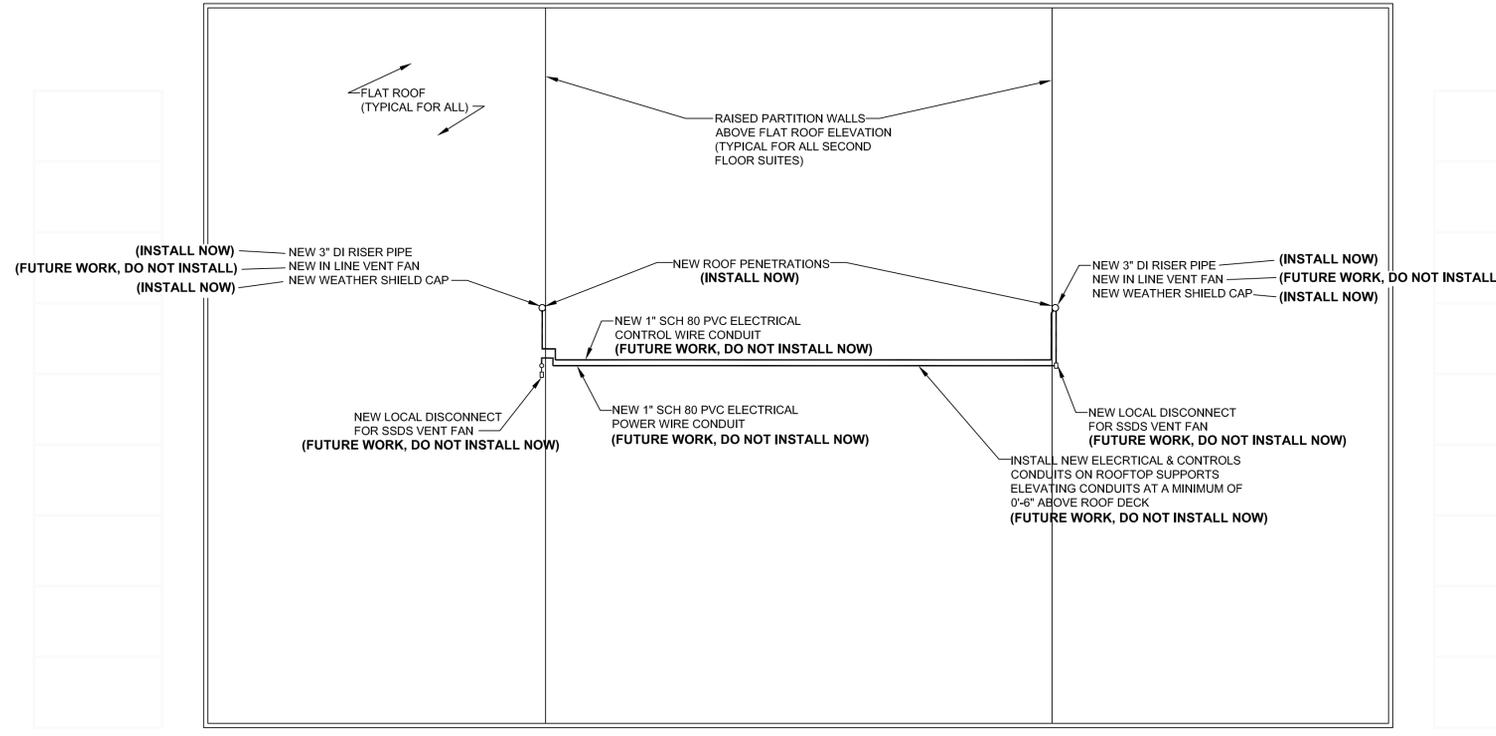


**BUILDING CROSS SECTION A-A'**  
 SCALE: N.T.S.

REV	DATE	CK	DESCRIPTION
REVISIONS			
<b>105-04 Flatlands Avenue</b>			
<b>Brooklyn, NY 11236</b>			
SUB-SLAB DEPRESSURIZATION SYSTEM			
<b>J.R. HOLZMACHER P.E., LLC</b>			
<i>The Third Generation of Excellence In Water Supply, Water Resources, Civil and Environmental Engineering</i>			
300 Wheeler Road, Suite 402, Hauppauge, NY 11788			
PHONE: (631) 234-2220 FAX: (631) 234-2221 E-MAIL: info@holzmacher.com			
SHEET TITLE: <b>SSDS LAYOUT &amp; CONSTRUCTION DETAILS</b>			
DESIGNED BY: <b>AJZ</b>	SCALE: <b>As Shown</b>	<b>SHEET 2</b>	
REVIEWED BY: <b>JRH</b>	DATE: <b>November 12, 2012</b>		
PLAN SHEET BY: <b>DGH</b>	PROJECT NO: <b>KoptD 12-05</b>		

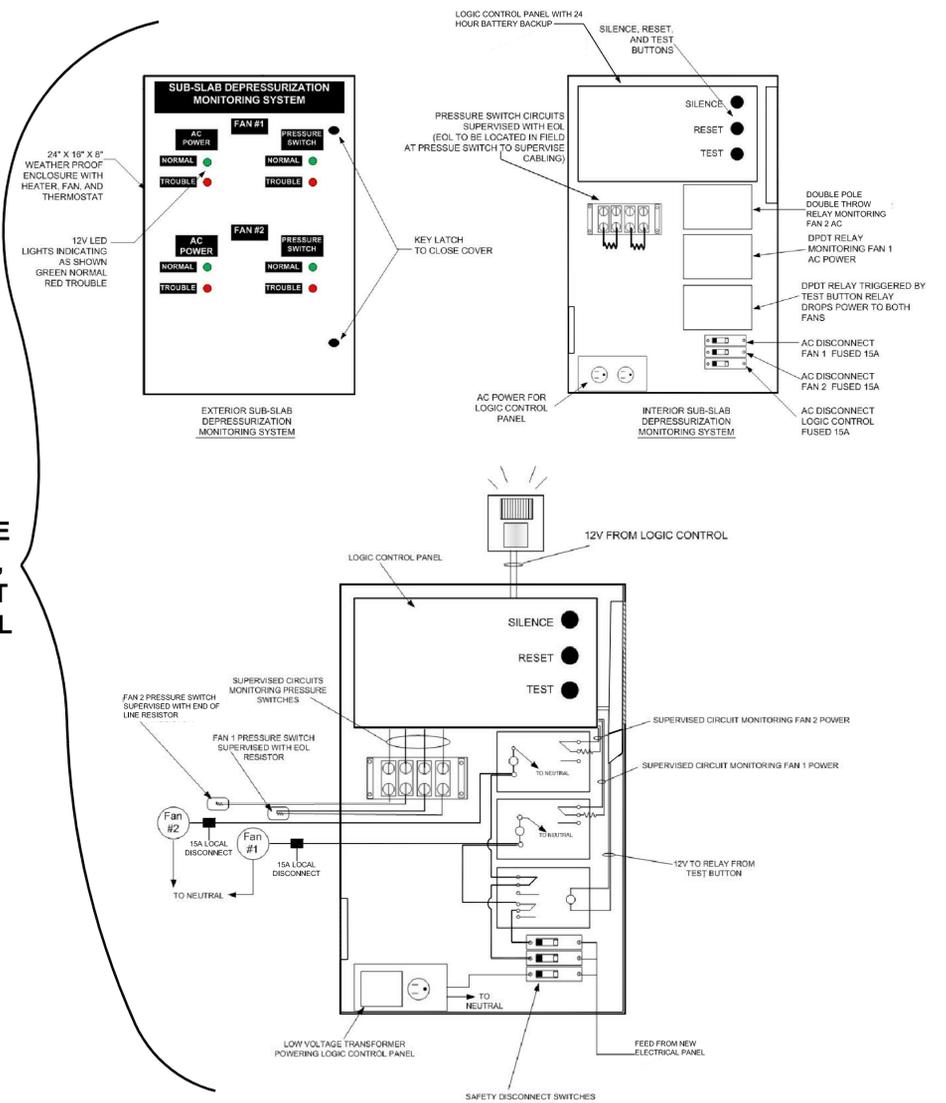
drawing location on the server P:\2012\KoptD12-05 10504 Flatlands Ave\Task 11\SSDS\SSDS SHEETS 2-3 PLAN\REVISED 11-14-12.dwg

ALTERATION OF THIS DOCUMENT EXCEPT BY A LICENSED PROFESSIONAL IS ILLEGAL.



NOTE: NO NEW IN-LINE SSDS VENT FAN, ELECTRICAL CONDUIT, POWER DISCONNECTS, OR POWER & CONTROL WIRES ON ROOF ONLY WILL BE INSTALLED AT THIS TIME. IN ACCORDANCE WITH REGULATORY GUIDANCE THE SYSTEM WILL INITIALLY BE RUN AS PASSIVE BUT WILL REQUIRE AN ELECTRICAL INFRASTRUCTURE TO BE INSTALLED NOW TO SUPPORT THE TRANSITION TO AN ACTIVE SSDS SYSTEM SHOULD THE NEED ARISE BASED ON FUTURE SITE ENVIRONMENTAL SAMPLING RESULTS.

**FUTURE WORK, DO NOT INSTALL NOW**

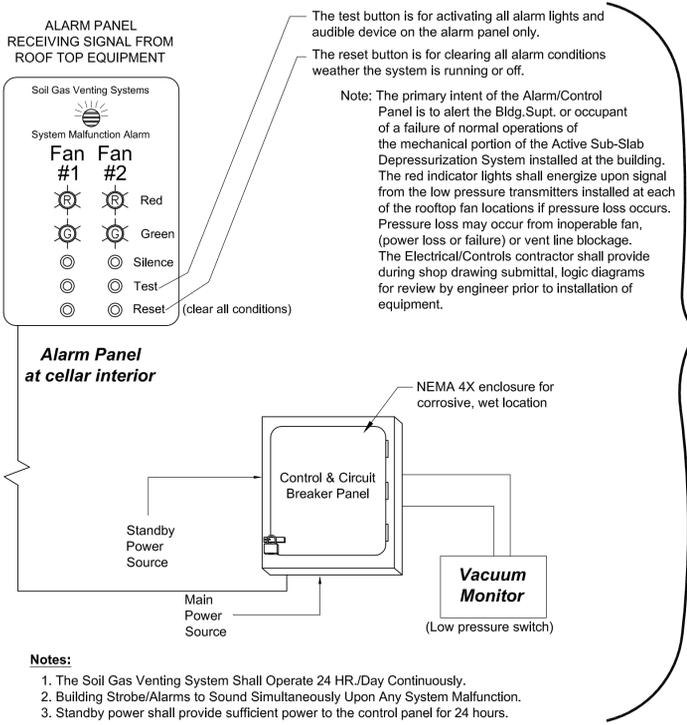


**ELECTRICAL SINGLE LINE DIAGRAM**

SCALE: N.T.S.

**BUILDING SSDS LAYOUT (ROOF PLAN)**

SCALE: 1" = 10'

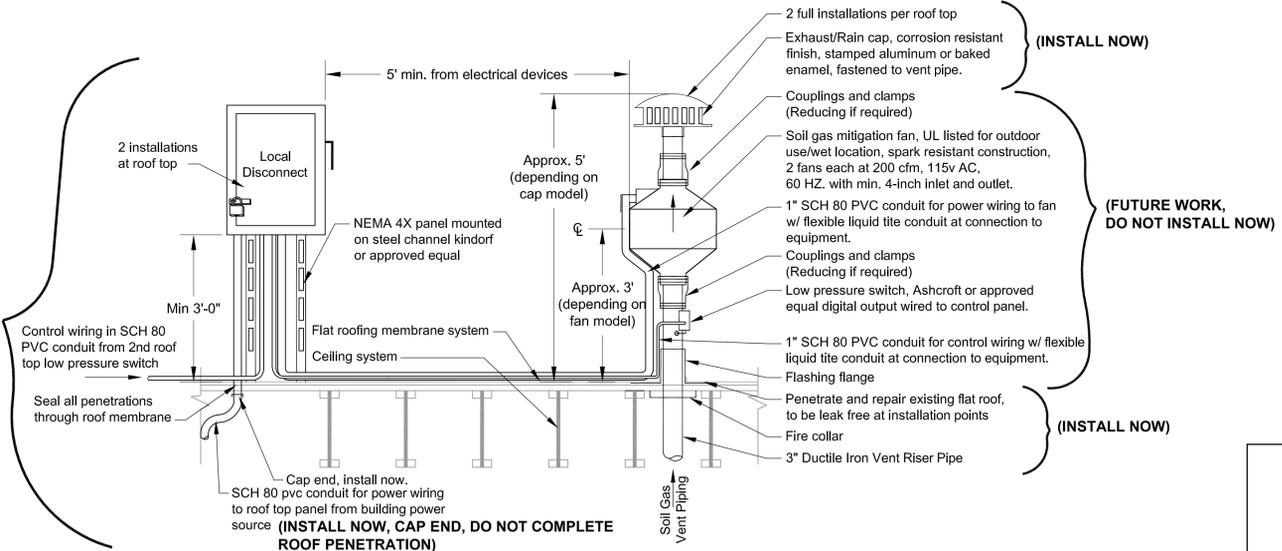


- Notes:**
- The Soil Gas Venting System Shall Operate 24 HR./Day Continuously.
  - Building Strobe/Alarms to Sound Simultaneously Upon Any System Malfunction.
  - Standby power shall provide sufficient power to the control panel for 24 hours.

**SOIL GAS VENTING SYSTEM ELECTRICAL AND CONTROL PANELS**

SCALE: N.T.S.

**FUTURE WORK, DO NOT INSTALL NOW**



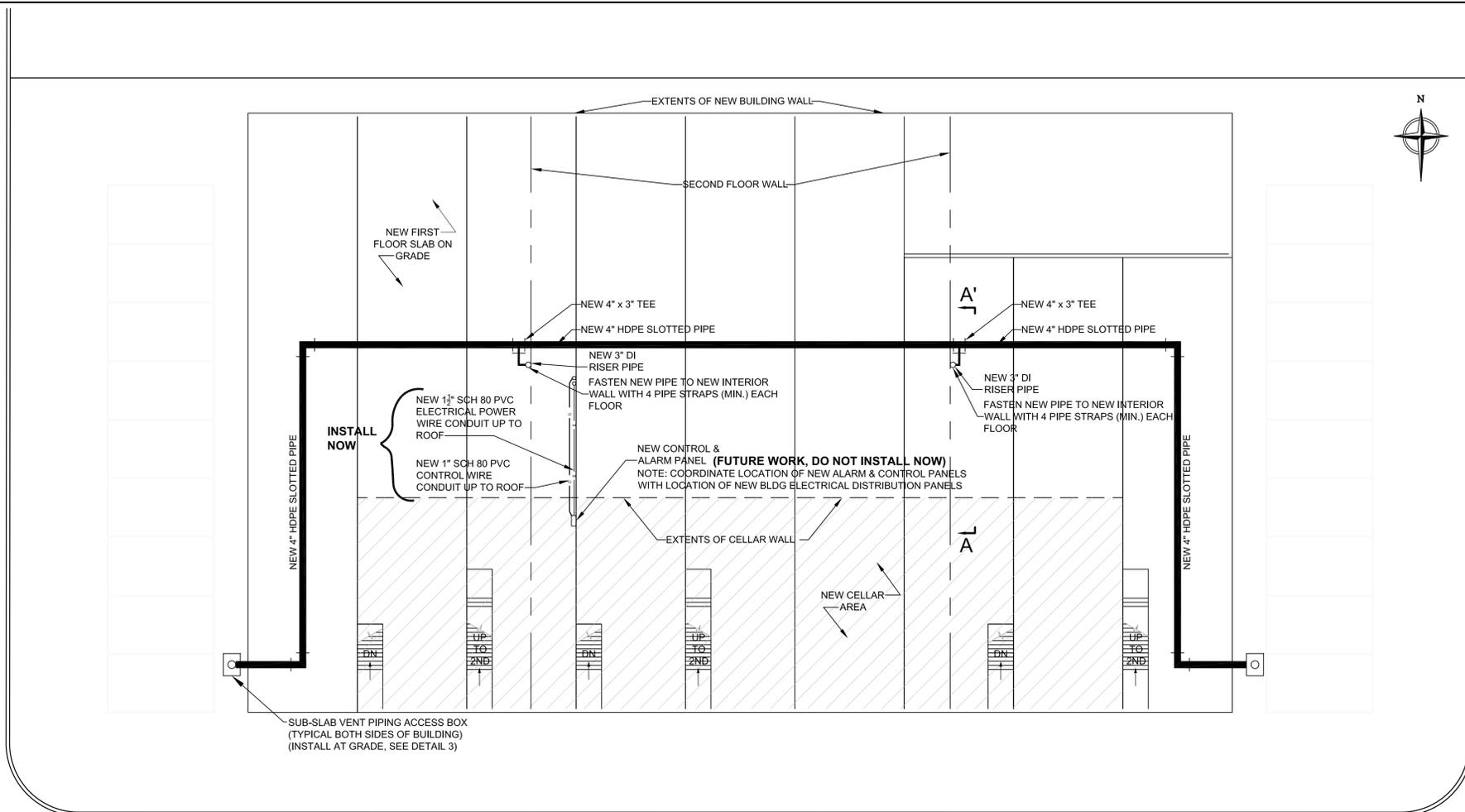
**TYPICAL ROOF TOP EQUIPMENT INSTALLATION**

SCALE: N.T.S.

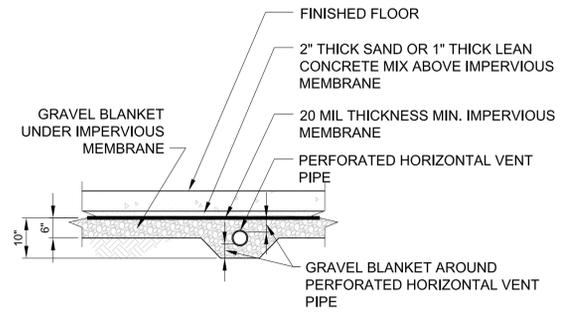
REV	DATE	CK	DESCRIPTION
REVISIONS			
105-04 Flatlands Avenue Brooklyn, NY 11236 SUB-SLAB DEPRESSURIZATION SYSTEM			
<b>J.R. HOLZMACHER P.E., LLC</b>			
<i>The Third Generation of Excellence In Water Supply, Water Resources, Civil and Environmental Engineering</i>			
300 Wheeler Road, Suite 402, Hauppauge, NY 11788 PHONE: (631) 234-2220 FAX: (631) 234-2221 E-MAIL: info@holzmacher.com			
SHEET TITLE: SSDS LAYOUT			SHEET 3
DESIGNED BY: AJZ	SCALE: As Shown		
REVIEWED BY: JRH	DATE: November 12, 2012		
PLAN SHEET BY: DGH	PROJECT NO: KoptD 12-05		

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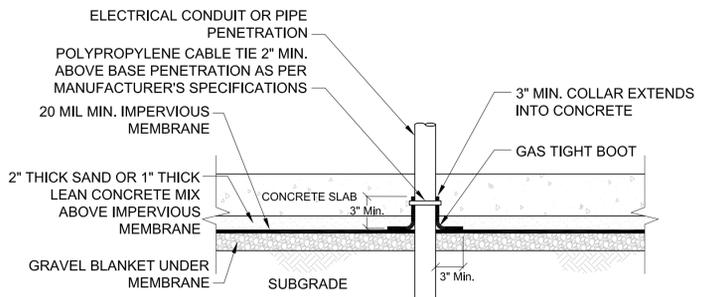
**Appendix 4**  
Vapor Barrier Design and Details



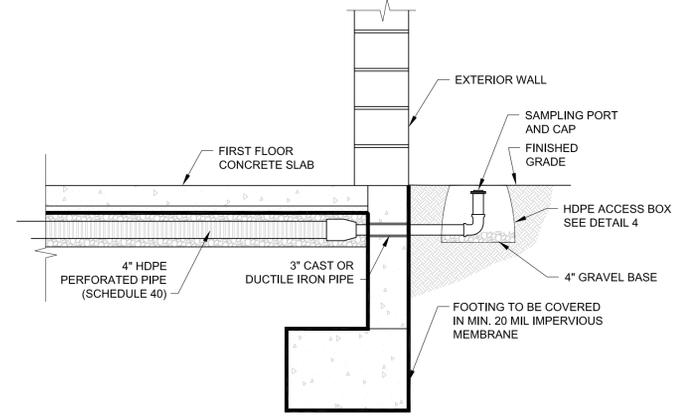
FLATLANDS AVENUE  
**BUILDING SSDS LAYOUT (FIRST FLOOR)**  
 SCALE: 1" = 10'



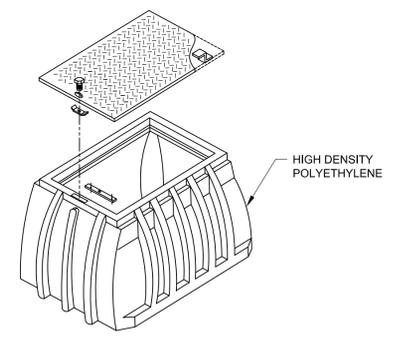
**DETAIL 1 - TYPICAL HORIZONTAL PIPE CROSS-SECTION UNDER NEW FIRST FLOOR SLAB**  
 SCALE: N.T.S.



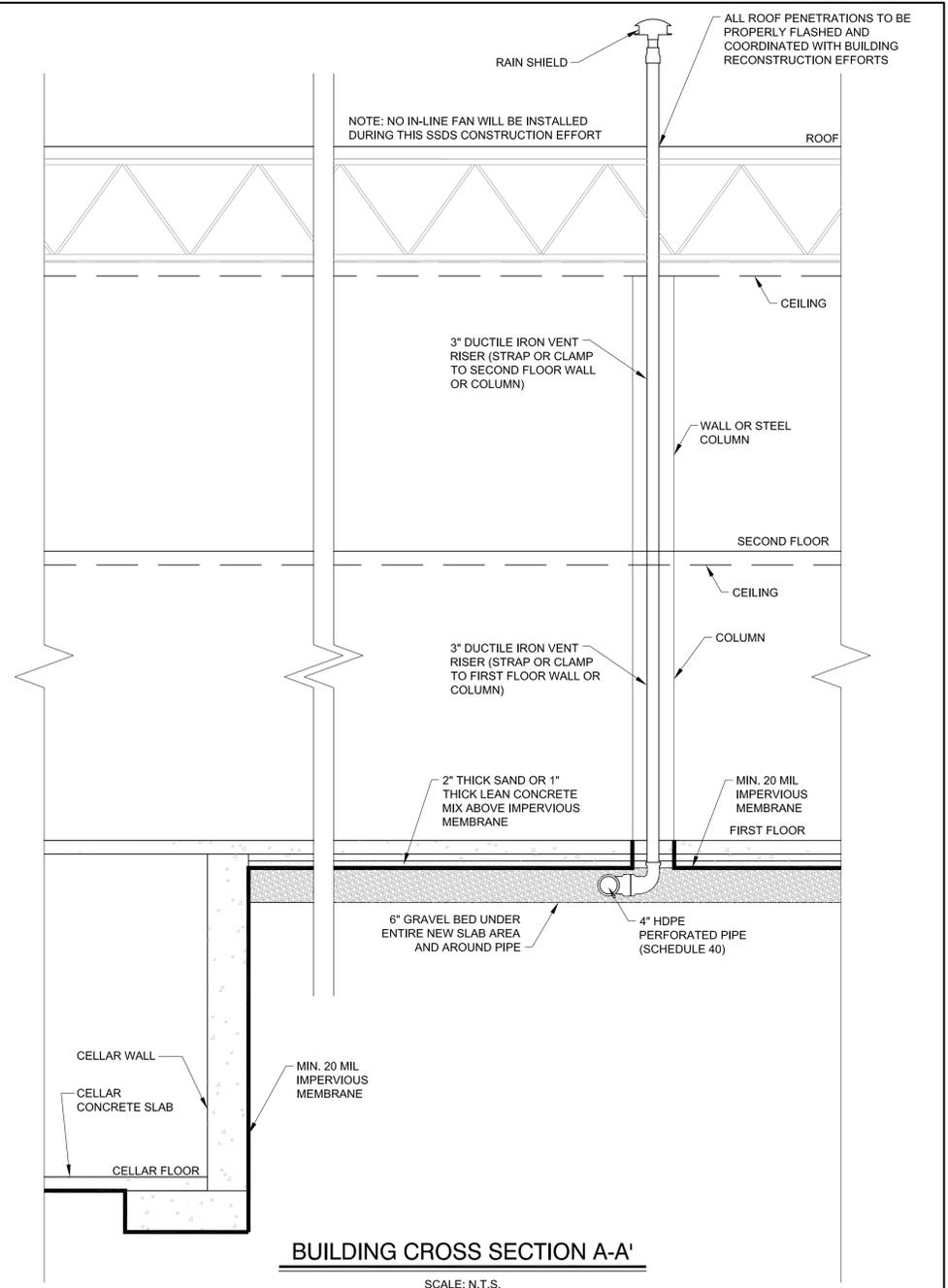
**DETAIL 2 - TYPICAL MEMBRANE BOOT**  
 SCALE: N.T.S.



**DETAIL 3 - SECTION AT EXTERIOR FOUNDATION WALL**  
 SCALE: N.T.S.



**DETAIL 4 - END WALL HDPE ACCESS BOX**  
 SCALE: N.T.S.

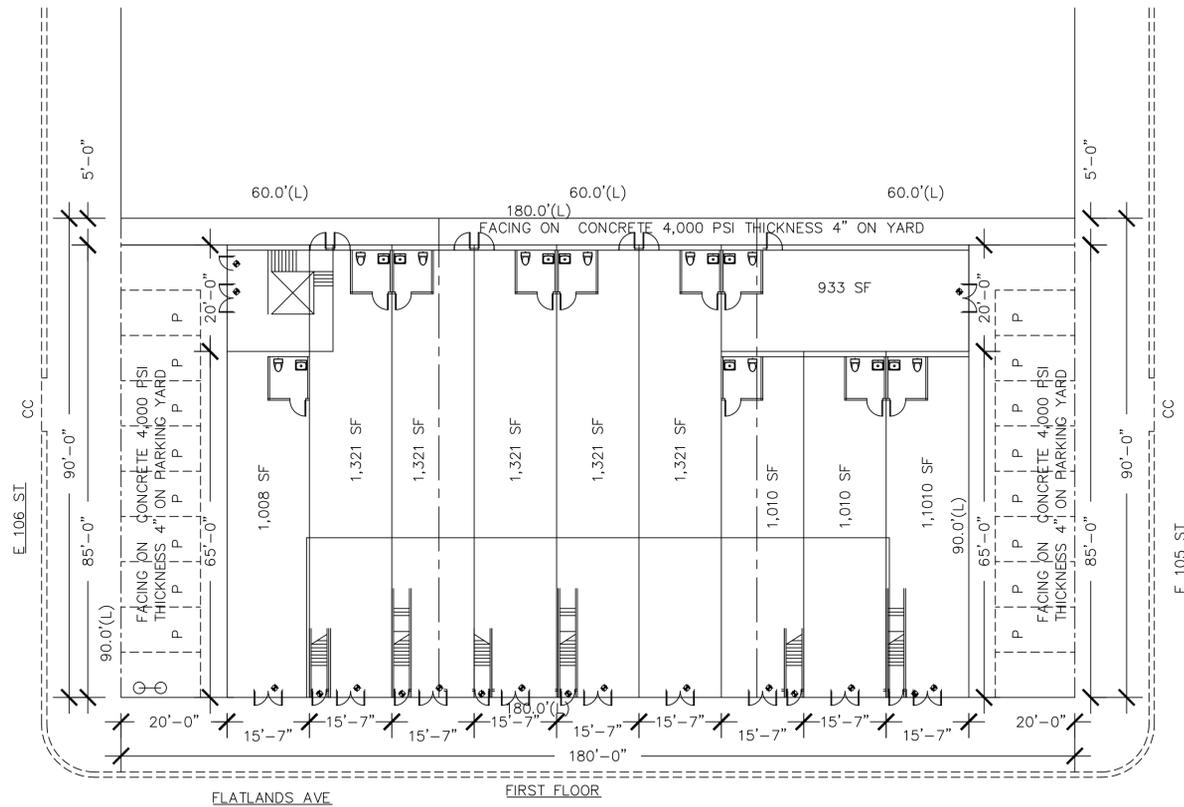


**BUILDING CROSS SECTION A-A'**  
 SCALE: N.T.S.

REV	DATE	CK	DESCRIPTION
<b>105-04 Flatlands Avenue</b> <b>Brooklyn, NY 11236</b> SUB-SLAB DEPRESSURIZATION SYSTEM <b>J.R. HOLZMACHER P.E., LLC</b> <i>The Third Generation of Excellence</i> <i>In Water Supply, Water Resources,</i> <i>Civil and Environmental Engineering</i> 300 Wheeler Road, Suite 402, Hauppauge, NY 11788 PHONE: (631) 234-2220 FAX: (631) 234-2221 E-MAIL: info@holzmacher.com			
SHEET TITLE: <b>SSDS LAYOUT &amp; CONSTRUCTION DETAILS</b>			
DESIGNED BY:	AJZ	SCALE:	As Shown
REVIEWED BY:	JRH	DATE:	November 12, 2012
PLAN SHEET BY:	DGH	PROJECT NO.:	KoptD 12-05

drawing location on the server P:\2012\KoptD12-05 10504 Flatlands Ave\Task 11\SSDS\SSDS SHEETS 2-3 PLAN\REVISED 11-14-12.dwg

**Appendix 5**  
Composite Site Cover Design and Location



LAND AREA 16,200 SF  
 MAX FIRST FLOOR BUILT UP AREA 10,800 SF  
 COMMERCIAL FAR 2.0  
 MAX COMMERCIAL BUILT UP FL AREA = 2.0 X  
 16,200 SF = 32,400 SF  
 FIRST FL BUILT UP 11,900 SF  
 SECOND FL BUILT UP 11,900 SF  
 1ST + 2ND = 11,900 SF + 11,900 SF = 23,800  
 SF  
 WAIVER PARKING 25 CAR X 300 SF = 7,500 SF  
 ONE BUILDING  
 40X85X2 = 6,800 SF < 7,500 SF FOR ONE  
 BUILDING SIDE BUILDING  
 60X60X2 = 7,200 SF < 7,500 SF ONE BUILDING

BOROUGH BROOKLYN  
 ADDRESS 10404 FLATLANDS AVE BROOKLYN  
 NY 11236  
 BLOCK: 8213  
 LOT: 37  
 MAP 23C  
 ZONE C2-3, R5D  
 FAR COMMERCIAL 2.0  
 WAIVER PARKING 25 CAR X 300 SF = 7,500  
 SF ONE BUILDING  
 E DESIGNATION



BLOCK	ZONING DISTRICT	MAP
8213	C2-3, R5D	23C
LOT	BOROUGH	
37,38,39	BROOKLYN	

PROJECT  
 SITE: NB  
 10504 FLATLAND AVE  
 10510 FLATLAND AVE  
 10516 FLATLAND AVE  
 BROOKLYN NY 11236

DRAWING  
 CEL, FIRST, SECOND FLOOR  
 CELLAR AND ELEVATION PLAN

**NOTE:**

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON, OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

CONSULTING ENGINEER  
 DAL H CHUN PE  
 DAL H CHUN ENGINEER PC  
 127 LUDLOW ST #3C  
 NEW YORK NY 10002  
 TEL: 212-254-6801

CLIENT  
 SIMKHO ARANABYEV  
 102-10 METROPOLITAN AVE  
 QUEENS NY 11375  
 TEL: 718-268-1200

**APPROVALS**

DOB  
 JOB NO #

SEAL	DATE 11-12-12
	PROJECT NO.: JB-462-01
	DRAWING BY: DC
	CHK BY: DC
	DRAWING NO.: Z-001.00
	3 OF 4