September 4, 2020

Ms. Stephanie Fitzgerald
NYS Department of Environmental Conservation
615 Erie Boulevard West
Syracuse, New York 13204

RE: Revised Sub-Slab Depressurization System and Soil Vapor Intrusion Work Plan
Oswego Midtown Plaza – C738045
18 East Cayuga Street & 83-87 East First Street, Oswego, New York
LaBella Project #2200482

Dear Ms. Fitzgerald,

LaBella Associates, D.P.C. ("LaBella") is pleased to submit this revised Sub-Slab Depressurization System (SSDS) and Soil Vapor Intrusion (SVI) Work Plan associated with the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) Site (BCP ID No. C738045) located at 18 East Cayuga Street & 83-87 East First Street, Oswego, New York, hereinafter referred to as the "Site." This letter work plan is to seek approval on the design of the SSDS.

PROJECT BACKGROUND

The Site is approximately 2.03-acres and currently developed with one (1) two-story commercial plaza building and a concrete parking lot (former parking garage). The Plaza Building is planned to be demolished in Spring 2020 and a multi-family housing and commercial use development is planned to be constructed which will include a 5-story residential and commercial building with a footprint of approximately 15,500 square-feet. The project is currently in the investigation stage and a Remedial Investigation (RI) Report was submitted to the Department in February 2020.

Due to the presence of volatile organic compounds (VOCs) in the subsurface at the Site, an active SSDS will be installed in the building to be constructed to mitigate potential soil vapor intrusion (SVI) impacts. Following installation of the system, soil vapor intrusion (SVI) samples will be collected to confirm successful mitigation.

SSDS DESIGN

Design drawings and specifications for the SSDS are attached. If any alterations to building plans result from permit approvals, etc. that warrant substantial changes to the SSDS, an amendment will be made to this document detailing necessary changes based on any architectural/ structural changes.

Two (2) separate systems are planned to be installed; System #1 located in the northern portion of the building and System #2 located in the southern portion of the building.

Each system will consist of a series of parallel 4-inch diameter perforated HDPE pipes connected to a solid schedule 40 PVC header pipe. The header pipes will penetrate the floor slab in the utility room and be routed through the building to above the roofline. The sub-base material beneath the entire floor slab will consist of a minimum of 8 inches of #2 washed stone. SSDS piping will be installed within a 12-inch by 12-inch pea stone trench as shown on R-200. A minimum 15-mil vapor barrier will be installed directly beneath the floor slab.

Eight (8) monitoring points will be installed for pressure field extension (PFE) testing consisting of ¼ inch diameter stainless steel tubing routed beneath the floor slab to various locations throughout the building. The monitoring points will penetrate the floor slab in the utility room where they will be accessible for pressure monitoring and SVI sampling. The points are referred to as "Monitoring Points 1-8" on the attached figure R-100 Sub-Slab Depressurization System Layout with further details on the attached figure R-200 Sub-Slab Depressurization System Details. Five (5) of these monitoring points will be utilized for SVI sampling. All eight (8) of these monitoring points will be utilized for PFE testing.

Penetrations (e.g., piping, utilities) through the vapor barrier as well as the edges of the vapor barrier will be sealed using Stego® Tape, or similar.

A manometer will be installed on each vertical pipe in an accessible location. A Radon Away GP-501 fan (or equivalent) will be installed on System #1 and System #2 above the roof. Alarms (RadonAway Checkpoint IIA Mitigation System Alarm or equivalent) will be installed on the vertical pipes in an accessible location to alert if a loss of pressure occurs. Labels will be attached to the vertical risers indicating the piping is for a SSDS. A SSDS Operation and Maintenance Contingency Plan is attached and will be provided to the building owner and property management staff. This plan is subject to change following installation of the SSDSs to reflect any additional installation information, and will be include in the final Site Management Plan. The completed SSDS will be documented in the Final Engineering Report.

POST-INSTALLATION SVI SAMPLING

A minimum of thirty (30) days after SSDS startup, SVI sampling will be completed. To complete this sampling, five (5) sets of sub-slab vapor and co-located indoor air samples will be collected from the lowest level of the new Site building. Approximate sample locations are depicted on attached Figure R-100 and include one (1) in the community room, two (2) in lease space A and two (2) in apartment units. Note that SVI sample locations are subject to change pending final building construction. Any significant changes will be discussed with the Department prior to sample collection.

One (1) outdoor air sample will also be collected as part of this sampling event for control purposes; the location of the outdoor air sample will be dependent on wind direction on the day of sampling and thus is not shown in Figure R-100. Pending results, these samples will act as "endpoint" samples to confirm "the effectiveness of remedial measures" per the NYSDOH Guidance.

The SVI sampling will be completed in substantial accordance with the procedures provided in the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006. The applicable procedures to be implemented as part of this investigation are summarized below:

- Sub-slab vapor samples will be collected from beneath the floor slab by connecting to PFE monitoring points that have intakes beneath the floor slab. Polyethylene tubing will be used to connect to a Summa® canister with a pre-set regulator set to 24-hours to the barbed attachment fitting for sub-slab soil vapor collection.
- A tracer gas (e.g. helium) test will not be completed prior to sampling at points. PFE monitoring points are constructed of stainless steel tubing that extends to subsurface locations beneath the concrete slab. Monitoring points will penetrate the floor slab near the center of the building. In addition, a vapor barrier will be installed beneath the floor slab which will ensure the sub-slab stainless steel monitoring points are not open to the indoor air. As such, leaks in the PFE monitoring point assembly are not anticipated. Prior to sample collection PFE monitoring point stainless steel tubing will be purged to ensure that a representative sample of sub-slab vapor is collected.
- Indoor air samples and the outdoor air sample will be collected over the same general time period and in the same manner at all locations to minimize possible discrepancies. Indoor air and outdoor air samples will be collected using one (1) Liter Summa Canisters® equipped with pre-calibrated laboratory supplied flow regulators. The regulators will be calibrated by the laboratory for a sampling time of twenty-four (24) hours. The Summa Canisters® will be certified clean by the laboratory.
- Indoor air samples will be collected from a height of approximately three (3)-feet above the floor surface and co-located in the same general area as the sub-slab sample point (i.e., the end point of the tubing that is beneath the slab; refer to R-100)
- An outdoor air sample will be collected at an upwind location.
- Sub-slab and indoor air sampling will be completed prior to building occupancy and during operation of the HVAC system.

Subsequent to completing the sub-slab, indoor and outdoor air sampling, the samples will be sent under standard COC procedures to the laboratory for testing. The samples will be analyzed for VOCs by a New York State Environmental Laboratory Accreditation Program (ELAP) certified laboratory using USEPA Method TO-15 with a minimum detection limit of 1 µg/m^3 with 0.25 µg/m^3 for TCE and vinyl chloride. An "ASP-Category B-like" deliverables package will be generated by the laboratory and a DUSR will be completed.

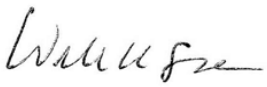
REPORTING

Construction details for the system including the final system layout, system components and typical operating pressures as well as post-installation SVI sampling data will be documented in the Final Engineering Report.

If you have any questions, or require additional information, please do not hesitate to contact me at (315) 243-8441.

Respectfully submitted,

LABELLA ASSOCIATES, D.P.C.

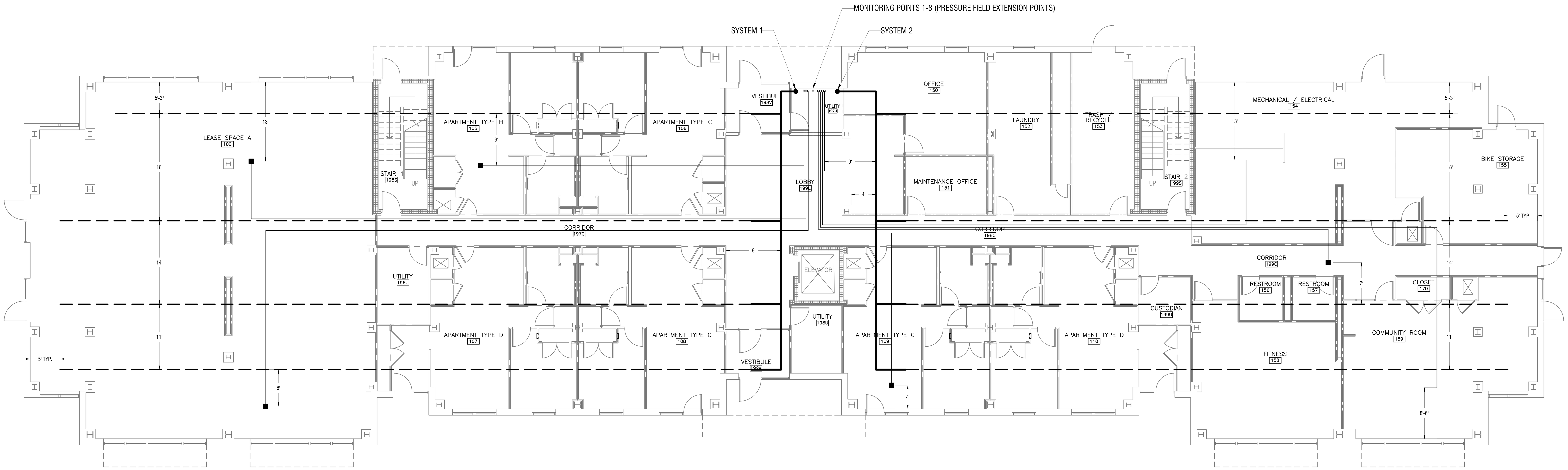


William K. Sisco
Project Manager

Attachments:
R-100 Sub-Slab Depressurization System Layout
R-200 Sub-Slab Depressurization System Details
Specification Section 030516- Sub-Slab Depressurization System
SSDS Operation & Maintenance Contingency Plan

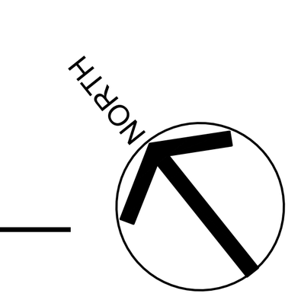
I:\EAST LAKE COMMONS LLC\2200482 - OSWEGO MIDTOWN PLAZA SSDS\SSDS WORK PLAN\C738045- OSWEGO MIDTOWN PLAZA REVISED SSDS WORK PLAN (9.4.2020).DOC

ATTACHMENTS



SUB-SLAB DEPRESSURIZATION SYSTEM

R-100 1/8" = 1'



0' 10' 20' 30'

1/8" = 1'

NOTES:

1. THIS PLAN NOT INTENDED TO PROVIDE STRUCTURAL DETAILS. REFER TO STRUCTURAL DRAWINGS.
2. VERTICAL PIPE IS 4 INCH SCHEDULE 40 PVC. CONTRACTOR TO ROUTE VERTICAL PIPE THROUGH MECHANICAL OR ELECTRICAL ROOM ON FLOORS 2-5 TO ABOVE THE ROOF.
3. VERTICAL RISER SHALL TERMINATE 12 INCHES ABOVE THE ROOF LINE AND NOT WITHIN 25 FEET OF ANY AIR INTAKE.
4. INSTALL RADONAWAY GP-501, OR EQUIVALENT ABOVE ROOF LINE.
5. ALL SUB-SLAB VAPOR COLLECTION PIPING IS GEOTEXTILE-WRAPPED 4 INCH PERFORATED DUAL-WALLED CORRUGATED EXTERIOR SMOOTH INTERIOR HDPE.
6. INSTALL 4" CAP AT EACH VAPOR COLLECTION PIPE TERMINATION.
7. PRESSURE MONITORING POINTS ARE ¼ INCH STAINLESS STEEL, FABRIC WRAPPED AT END AND PLACED ABOVE COMPACTED STONE.
8. TRENCHES SHALL BE BACKFILLED WITH PEA STONE. PEA STONE SHALL CONSIST OF WASHED MATERIAL THAT WILL PASS THROUGH A 2 INCH SIEVE AND BE RETAINED BY A 1/4 INCH SIEVE.
9. PERFORATED PIPE MAY BE MOVED WITHIN PEASTONE TRENCH TO AVOID PLUMBING. MAINTAIN MINIMUM 3-INCHES OF PEA STONE ON ALL SIDES OF PIPING.
10. HORIZONTAL SOLID PVC PIPE TO MAINTAIN ⅛ INCH PER 1 FOOT SLOPING AWAY FROM THE VERTICAL RISER TO ALLOW WATER TO DRAIN TOWARDS THE PERFORATED PIPE.
11. SEAL ALL PENETRATIONS IN THE FLOOR SLAB WITH AN ELASTOMERIC JOINT SEALANT.
12. INSTALL RADON AWAY GP-501 FAN (OR EQUIVALENT) ON VERTICAL RISER ABOVE ROOF. CONTRACTOR TO PROVIDE ELECTRICAL OUTLET FOR THE FAN.
13. INSTALL MANOMETER IN AN ACCESSIBLE LOCATION WITHIN UTILITY ROOM.
14. INSTALL AN ALARM (RADON AWAY CHECKPOINT IIA, OR EQUIVALENT) ON THE VERTICAL RISER AND ROUTE TO OFFICE/MAINTENANCE OFFICE. CONTRACTOR TO PROVIDE AN OUTLET FOR THE ALARM. ALARMS TO BE ON SEPARATE CIRCUITS FROM THE FANS.

LEGEND

- FABRIC WRAPPED 4 INCH HDPE PERFORATED PIPE PLACED WITHIN PEA STONE TRENCH
- 4 INCH HDPE SOLID PIPE
- 1/4 INCH STAINLESS STEEL
- PROPOSED SVI (SUB-SLAB/INDOOR AIR) SAMPLE LOCATIONS

NO.	REVISION	BY	DATE
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PROJECT/CLIENT

EAST LAKE COMMONS

EAST LAKE COMMONS, LLC
18 E CAYUGA ST AND 83-87 E FIRST ST
OSWEGO, NEW YORK

DRAWING TITLE

SUB-SLAB DEPRESSURIZATION SYSTEM LAYOUT

ISSUED FOR
REVISION 1

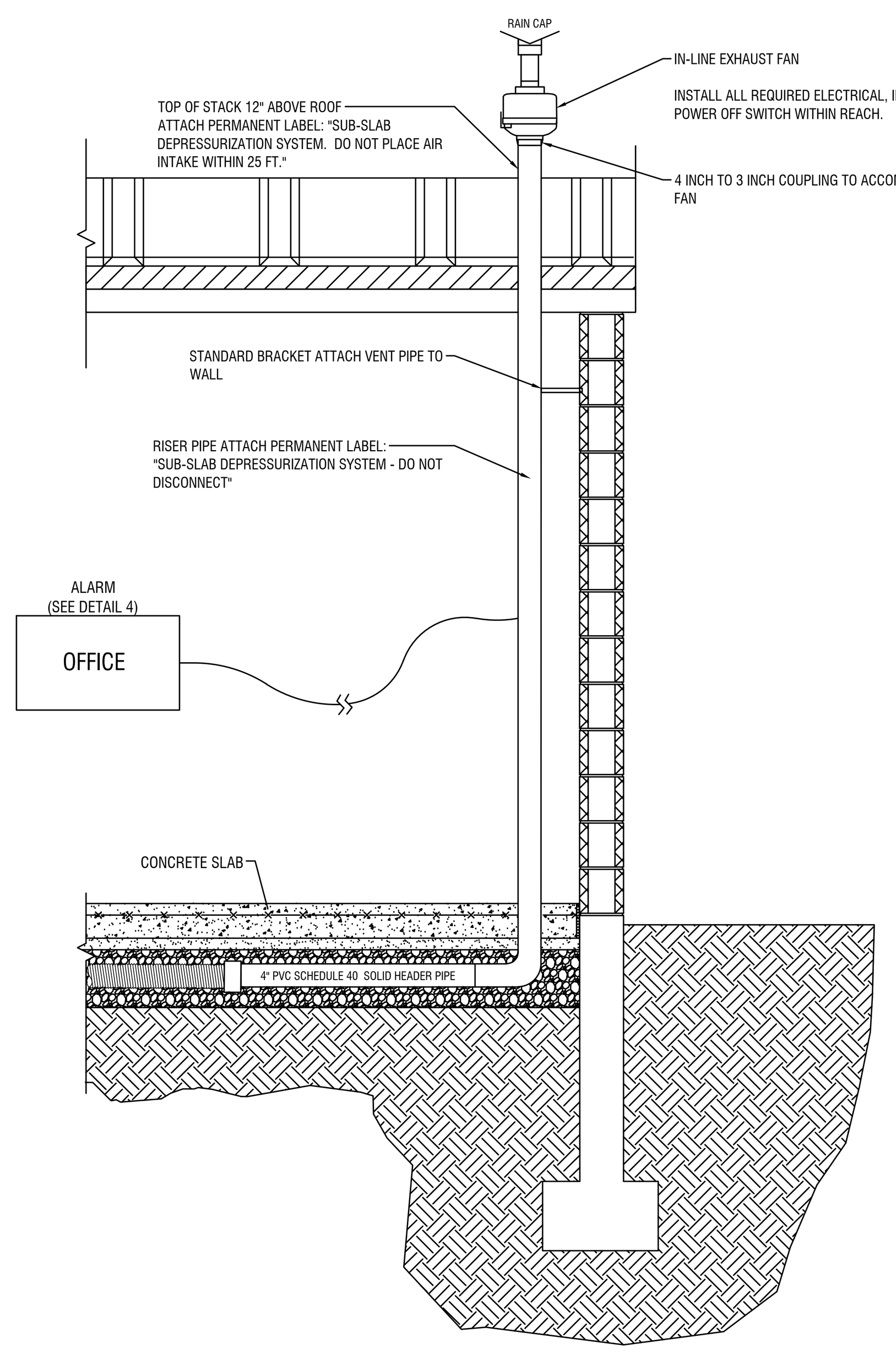
DATE: SEPTEMBER 3, 2020

DESIGNED BY: AA
DRAWN BY: DRP
REVIEWED BY: AA
SCALE: 1/8" = 1'

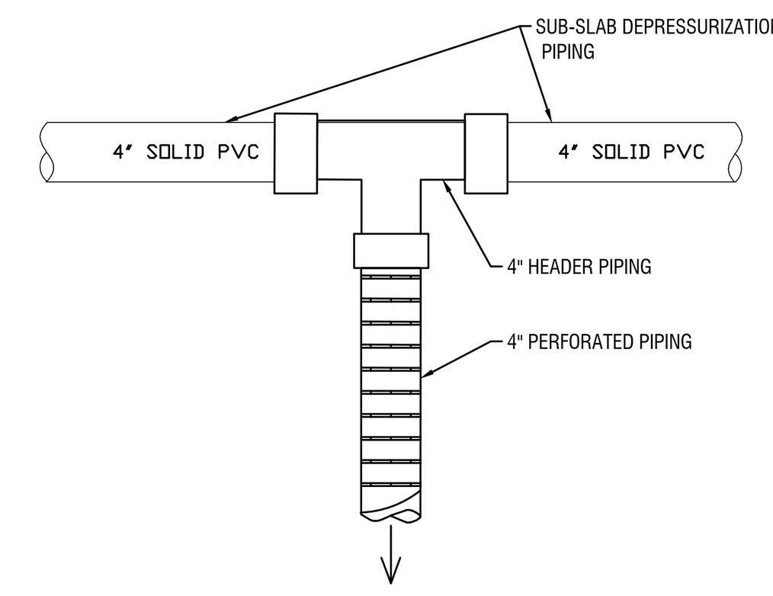
PROJECT/DRAWING NUMBER

2200482

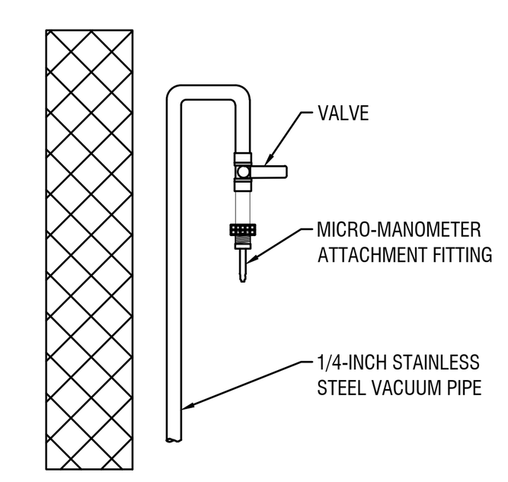
R-100



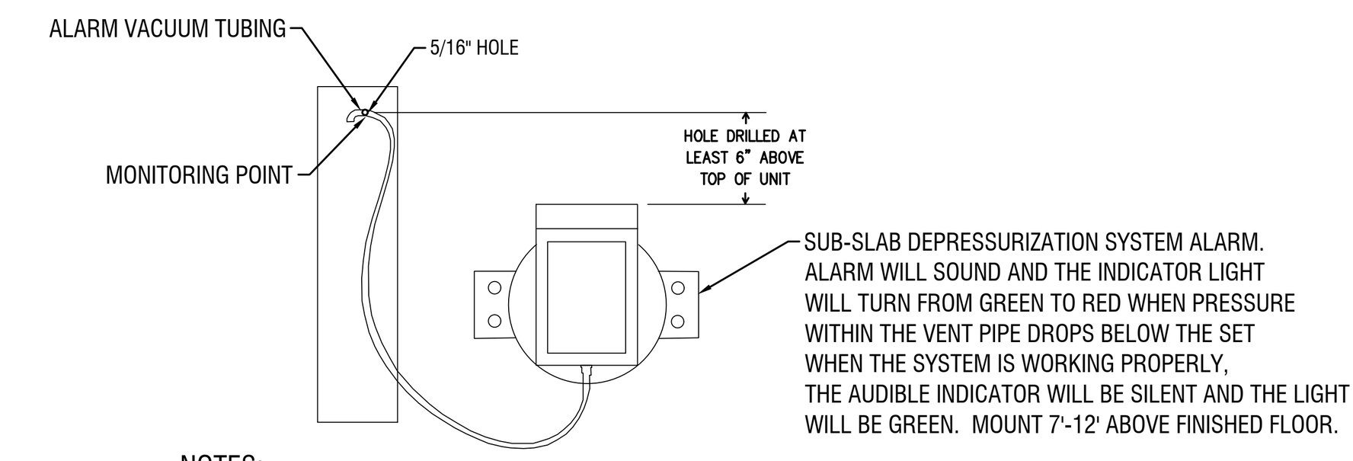
1 REAR END WALL
SCALE: NONE



2 DETAIL AT HEADER
SCALE: NONE

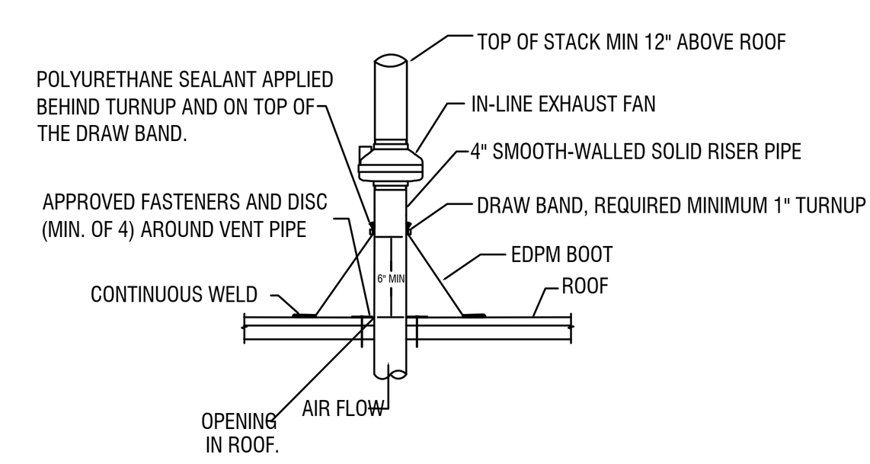


3 PROFILE AT GAUGE POINT
SCALE: NONE

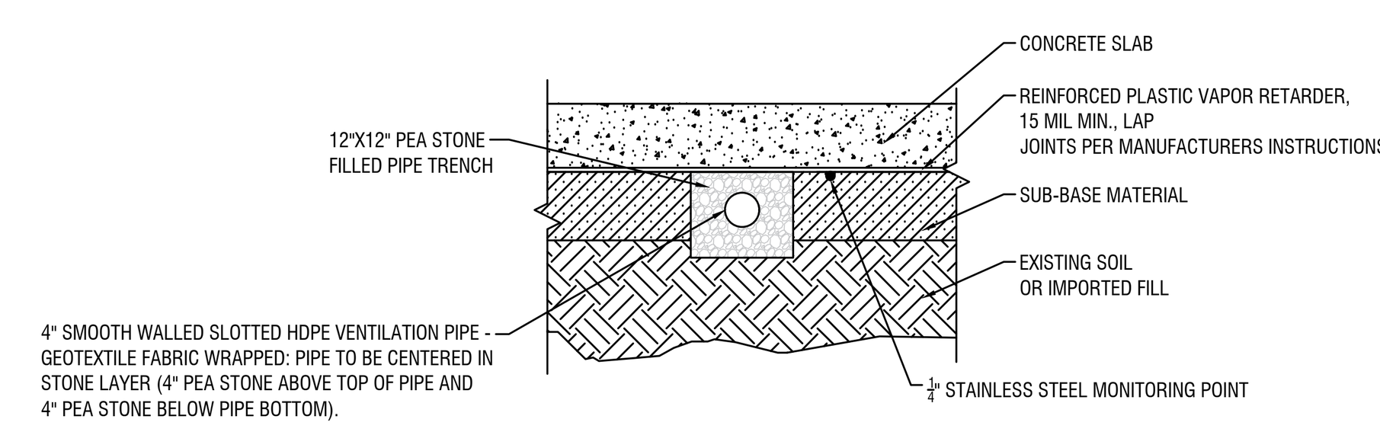


NOTES:
1. CONTRACTOR TO INSTALL ALARM ON SEPARATE CIRCUIT.
2. ALARMS TO BE ROUTED TO OFFICE/MAINTENANCE OFFICE.

4 SUB-SLAB DEPRESSURIZATION SYSTEM ALARM
SCALE: NONE

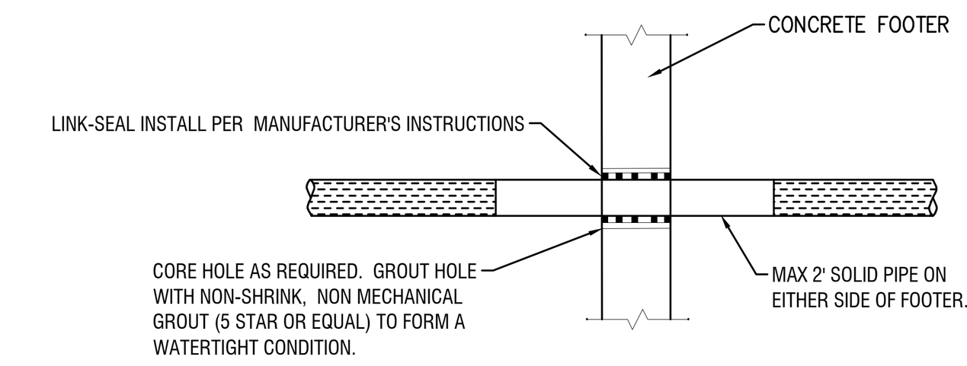


5 DETAIL AT ROOF
SCALE: NONE



NOTES:
1. NOT INTENDED TO PROVIDE STRUCTURAL DETAILS. REFER TO STRUCTURAL DRAWINGS.

6 MATERIAL PROFILE
SCALE: NONE



7 PROFILE AT PENETRATION
SCALE: NONE

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NO.	REVISION	BY	DATE
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PROJECT/CLIENT
EAST LAKE COMMONS
EAST LAKE COMMONS, LLC
18 E CAYUGA ST AND 83-87 E FIRST ST
OSWEGO, NEW YORK

DRAWING TITLE
SUB-SLAB DEPRESSURIZATION SYSTEM DETAILS

ISSUED FOR
REVISION 1

DATE: SEPTEMBER 2, 2020

I:\East Lake Commons LLC\2200482 - Oswego Midtown Plaza SSDS\Drawings\SSDS Plan_1_2146_5329.sv$.dwg

DESIGNED BY: AA
DRAWN BY: DRP
REVIEWED BY: AA
SCALE: 1/8"=1'

PROJECT/DRAWING NUMBER
2200482

R-200

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes sub-slab depressurization system.

PART 2 - PRODUCTS

2.1 VAPOR BARRIER

A. A minimum 10-mil polyethylene or approved equivalent flexible sheeting material shall be placed above the crushed stone layer to serve as a soil-gas-barrier by bridging any cracks that develop in the slab or floor assembly. The sheeting should cover the entire floor area, and separate sections of sheeting should be overlapped at least 12 inches and sealed at these seems according to the manufacturer's instructions. The sheeting shall be sealed around any pipe, wire or other penetrations of the material, per the manufacturer's instructions. All punctures or tears in the material shall be repaired according to the manufacturer's instructions. The sheeting shall meet the following requirements (Stego Wrap 10-mil Class A Vapor Retarder or approved equivalent).

Property and ASTM Standard	**Performance Standard**
Underslab Vapor Retarders, ASTM E 1745 Class A, B, & C	Exceeds Class A, B, & C
Water Vapor Permeance, ASTM F1249	0.0254 perms
Tensile Strength, ASTM D 882	50.60 lbf./in.
Puncture Resistance, ASTM D1709	3006 grams

B. Seams in the vapor barrier shall be sealed with a product designed to be compatible with the vapor barrier (i.e. Stego Tape for Stego Wrap products). Follow all manufacturer's instructions and specifications.

2.2 PREVENTION OF SOIL VAPOR ENTRY

A. All concrete floor slabs shall be designed, mixed, placed, reinforced, consolidated, finished, and cured to minimize the formation of cracks.

B. Large openings, if any, through the concrete floor slab, grade beams, or other foundation components in contact with the soil (e.g., spaces around storm sewer piping, etc.) 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.

C. Smaller gaps around all pipe, wire, or other objects, if any, that penetrate concrete floor slab 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.

D. All control joints, isolation joints, construction joints, and any other joints in the concrete floor slab or between the floor slab and the building's 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.

E. Joints, cracks, or other openings around all penetrations of both exterior and interior surfaces of masonry block or poured concrete foundation components 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, if applicable.

2.3 VAPOR COLLECTION AND VENT SYSTEM

A. Lengths of sub-slab vapor collection piping shall be installed beneath the vapor barrier as depicted on R-200. Sub-slab vapor collection piping shall be geotextile-wrapped, 4-inch diameter, perforated, dual-walled, corrugated exterior, smooth interior high density polyethylene (HDPE).

B. Vapor collection piping shall be geotextile fabric wrapped and installed in the center of 12" x 12" pipe trenches as depicted on R-200. Pipe trenches shall be backfilled with washed stone. Piping may be lowered within the 12" x 12" trench to avoid interference with pluming, as needed. A minimum of 3 inches stone shall be maintained beneath the pipe.

C. Install cap at each vapor collection pipe termination, and slope all solid PVC pipe up ¼-inch per foot from connection with vapor collection piping.

D. The vapor collection piping shall be connected via the appropriate fittings to 4-inch diameter PVC header pipe. The header pipes shall penetrate the building envelope through the concrete floor slab as depicted on R-100.

E. The header pipe shall daylight above the floor slab, in the locations depicted on R-100. The vertical pipe shall extend through the roof and terminate at least 12 inches above the surface of the roof, in a location that is: at least 25 feet from any air intakes, any window, or other opening into the conditioned spaces of the building that is less than 2 feet below the exhaust point; and at least 10 feet from any adjoining or adjacent buildings. All roof penetrations must be properly sealed and completed in accordance with other related specifications.

F. All exposed and visible interior and exterior vent pipes shall be identified with labels placed at least every 25 feet. The labels shall read: "Sub-Slab Depressurization System – Do Not Disconnect."

G. Vent pipes shall be installed in a configuration and supported in a manner that ensures that any rain water or condensation accumulating within the pipes drains downward into the ground beneath the vapor barrier.

H. Each vertical standpipe shall be equipped with a U-tube type manometer or approved equivalent below the fan location and within a visible location, to demonstrate that pressure within the pipe is below atmospheric pressure.

I. The contractor shall provide photo documentation for all piping prior to covering, and of the vapor barrier after it is installed and sealed.

2.4 FAN

A. The fan shall meet the following requirements (in-line exhaust fan, such as the "RadonAway GP-501" or equivalent):

Watts	Max Pres. "wc	Typical flow [ft^3/min (cfm)] vs. static pressure [water column inches ("wc)]								
60-140	4.2	0.0" wc	0.5" wc	1.0" wc	1.5" wc	2.0" wc	2.5" wc	3.0" wc	3.5" wc	4.0" wc
		-- cfm	-- cfm	95 cfm	87 cfm	80 cfm	70 cfm	57 cfm	30 cfm	10 cfm

2.5 ALARM

A. Each fan shall be equipped with a visible or audible warning system (e.g., RadonAway Checkpoint IIA Mitigation System Alarm or approved equivalent) to alert the building maintenance staff if there is loss of pressure or air flow in the vent pipe, or if the fan ceases operation. The alarm shall be installed in an accessible location. Pneumatic tubing shall be installed on vertical standpipe below the fan and routed to the alarm. The Contractor will connect the alarm on a separate breaker.

2.6 MONITORING POINTS

A. Test Points, consisting of a length of stainless steel vacuum tubing, shall be installed above the crushed stone layer after compaction. The open end of the stainless steel vacuum tubing shall be fabric-wrapped at its sub-slab termination. The vacuum tubing shall be routed as shown on R-200 and terminate in a barbed ¼-inch hose fitting above the floor slab in the locations shown. The terminations shall be mounted at an approximate height of three (3) feet above the local grade and fitted with a stop valve beneath the barbed fitting.

B. If located in a high-traffic area, each gauge/test point will be protected by the Contractor.

2.7 MISCELLANEOUS

A. Heating, Ventilating, and Air Conditioning (HVAC) systems shall be designed and installed to avoid depressurization of the building relative to underlying and surrounding soil. Specifically, joints in air ducts and plenums passing through unconditioned spaces shall be sealed.

SSDS Operation & Maintenance Contingency Plan
Midtown Plaza Brownfield Cleanup Site
18 East Cayuga Street and 83-87 East First Street
Oswego, New York
Sub-Slab Depressurization System

This SSDS Operation & Maintenance Contingency Plan describes the measures necessary to operate, monitor and maintain the mechanical components of the planned sub-slab depressurization system (SSDS) for the planned building to be located at 18 East Cayuga Street and 83-87 East First Street, Oswego, New York (NYSDEC Site #C738045). The O&M items identified include the following:

- the steps necessary to allow individuals unfamiliar with the Site to operate and maintain the SSDS;
- steps to take in the event the system goes down;
- system maintenance; and
- system monitoring requirements.

A copy of this Plan should be kept at the Site.

SYSTEM LAYOUT AND COMPONENTS

The SSDS is comprised of two (2) separate systems; System 1 and System 2. Each SSDS consists of one fan above the building roof, a vertical riser that connects to subgrade perforated piping installed beneath the building floor slab in the stone subbase, an alarm, and a manometer. The sub slab piping for each system are connected to vertical risers located in the eastern utility room. Each vertical riser pipe has an in-line fan (Radon Away GP-501 fan or similar) installed on the vertical vent stack on the exterior of the building roof. A U-Tube Manometer (vacuum gauge) is installed on the vertical riser for each system within the utility room. Additionally, eight (8) pressure field extension (PFE) monitoring points daylight in the utility room that will allow for vacuum to be measure beneath the building slab at eight different locations throughout the footprint of the building. PFE monitoring points may also be used for soil vapor intrusion sampling. An audible and visual alarm is also installed on each system so that a pressure loss (or power loss) to the fan will activate the alarm (red light on alarm and audible alarm).

The planned system layout is included as Figure R-100 and system details are included as Figure R-200.

SYSTEM MAINTENANCE

The system was designed and installed to operate with minimal maintenance. In the event of an alarm, the system should be inspected for obvious damage (i.e., breaks in the piping, etc.). The U-tube manometers on the vertical risers in the utility room should also be checked to see if the system is still creating vacuum pressure beneath the slab. In the event no damage is apparent and manometers indicate that there is no vacuum or a reduced vacuum, the system can be shut-off and restarted. If the alarm continues, the alarms and fans should be evaluated for damage.

In the event there is obvious damage to the system that cannot be addressed by maintenance personnel, one of the companies listed on the following page should be contacted immediately to evaluate the system and assist with repairs.

If the alarm sounds but the U-tube manometers indicate that there is still adequate vacuum being created by the system, there is likely a malfunction with the alarm. If evaluation of the alarm connections does not address the issue the alarm should be restarted. If the alarm continues to sound, one of the companies listed below should be contacted to evaluate the system.

Maintenance events must be documented and include the following information:

- Date issue was identified;
- Description of issue identified;
- Condition of SSDS upon arrival;
- Name, company, and position of person(s) conducting maintenance activities;
- Maintenance activities conducted;
- Any modifications to the system;
- Timeframe the SSDS was down;
- Condition of SSDS when finished.

Maintenance events will be included in the annual report.

The following companies can be contacted to assist with repairs to the system:

RadonAway Inc.
3 Saber Way
Ward Hill, MA 01835
(800) 767-3703

Mitigation Tech
55 Shumway Road
Brockport, New York 14420
(585) 637-7430

LaBella Associates
300 State Street
Rochester, NY 14614
(585) 454-6110

MONITORING AND INSPECTIONS

Unless it becomes evident that more frequent monitoring is necessary, annual inspections of the SSDSs will be performed to ensure that the system is operating properly. A visual inspection of the accessible portions of the system will be conducted during each inspection. SSDS components to be visually inspected include: the vent fans, aboveground system piping, system wiring, and system alarms. In addition, the U-Tube Manometer readings should also be recorded. In the event that the vent fan appears to be malfunctioning or operating at a reduced capacity, or if piping or wiring appears damaged, the component(s) in question should be promptly repaired or replaced. Vent fan failure(s), repair(s), replacement(s), and/or operational problems should be documented and included with the annual report.

ADDITIONAL REPORTING

Upon completion of the construction of the SSDS, the final system construction and components as well as typical operating pressures for the system will be described in the Final Engineering Report. In addition the operation, maintenance and monitoring requirements of the system will be further described in a Site Management Plan as well as system specific components and manuals.