

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 8
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October 1, 2019

Mr. Joseph Loboizzo II
Ridgecrest Associates, L.P.
135 Orchard Park Blvd
Rochester, NY 14609

**Re: 820 Linden Ave Site (#C828200)
820 Linden Ave, Pittsford, NY 14625
IRM Work Plan #3
Sub-Slab Depressurization System Extension in the 1954 Construction Area;
February 21, 2019**

Dear Mr. Loboizzo II;

The New York State Departments of Environmental Conservation (NYSDEC) and Health (NYSDOH; collectively referred to as the Departments) have completed their review of the document entitled "*Interim Remedial Measures Work Plan #3*" (the Work Plan) dated August 12, 2019 and prepared by Stantec for the 820 Linden Ave Brownfield Cleanup Program (BCP) site located in the Town of Pittsford, Monroe County. In accordance with 6 NYCRR Part 375-1.6, the Departments have determined that the Work Plan substantially addresses the requirements of the Brownfield Cleanup Program. The Work Plan is hereby approved.

The attached schedule received on June 19, 2019 will be adhered to as part of the Work Plan. The schedule is enforceable under the Brownfield Cleanup Agreement and is not 'estimated'. Extensions to the approved schedule must be requested in writing and approved by NYSDEC.

Please notify me at least 7 days in advance of the start of field activities.

By **October 15, 2019** please attach a copy of this letter to the Work Plan and distribute the approved Work Plan as follows:

- Tasha Mumbrue (1 hard copy with an original signature on the certification page);
- Kristin Kulow (NYSDOH – Oneonta, electronic file/CD); and
- The document repository at the Pittsford Community Library located at 24 State St. Pittsford, NY 14534 (1 bound hard copy).

If you have questions or concerns, please contact me at (585) 226-5459 or tasha.mumbrue@dec.ny.gov.

Sincerely,



Tasha Mumbrue
Geologist Trainee

ec:

Mike Storonsky, Stantec
Stephanie Reynolds Smith, Stantec
Dwight Harrienger, Stantec
Justin Deming, NYSDOH
Kristin Kulow, NYSDOH
Linda Shaw, Knauf Shaw LLP

Dusty Tinsley, NYSDEC
Danielle Miles, NYSDEC
David Pratt, NYSDEC
Frank Sowers, NYSDEC
Michael Cruden, NYSDEC

Estimated Schedule for SSDS Design, Construction, and Reporting in 1954 Construction Area

820 Linden Ave Site, BCP #C828200

820 Linden Avenue, Pittsford, NY

Estimated Schedule	Task
June 12, 2019	NYSDEC and NYSDOH approved request to prepare an IRM WP
June 12 - Aug 12, 2019	Design SSDS and Prepare IRM WP #3
August 12, 2019	Submit IRM WP #3 to NYSDEC and NYSDOH
September 26, 2019	Receive comments from Departments on IRM WP#3
October 10, 2019	Respond to comments from NYSDEC on IRM WP#3
October 17, 2019	Receive NYSDEC approval of IRM WP#3
Late September - Late October 2019	Obtain contractor bids
Early to Mid November 2019	Construction, Full-time construction observation and CAMP monitoring
Mid February 2020	Submit Construction Completion Report (CCR) and Operations, Maintenance and Monitoring Plan (OM&M Plan)



**IRM Work Plan #3 - Sub-Slab
Depressurization System
Extension in the 1954
Construction Area**

820 Linden Ave Site
Pittsford, New York
Site # C828200

August 2019

Prepared for:

New York State Department of
Environmental Conservation
6274 East Avon-Lima Road
Avon, New York 14414

Prepared on Behalf of:

Ridgecrest Associates, L.P.
125 Orchard Park Boulevard
Rochester, NY 14609

Prepared by:

Stantec Consulting Services Inc.
61 Commercial Street, Suite 100
Rochester NY 14614-1009

Revision	Description	Author		Quality Check		Independent Review	

Certification

I, Dwight A. Harrienger, certify that I am currently a NYS registered professional engineer and that this IRM Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).



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Abbreviations

BCP	Brownfield Cleanup Program
CAMP	Community Air Monitoring Plan
CCR	Construction Completion Report
DER-10	Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation, May 2010
ELAP	Environmental Laboratory Approval Program
HASP	Health and Safety Plan
IRM	Interim Remedial Measure
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PID	Photoionization Detector
POGW	Protection of Groundwater
PVC	Polyvinyl Chloride
REC	Recognized Environmental Condition
RI	Remedial Investigation
SGVs	Standards and Guidance Values
SSDS	Sub-Slab Depressurization System
SVI	Soil Vapor Intrusion
TCE	Trichloroethene
TO-15	USEPA Air Method, Toxic Organics – 15
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

IRM WORK PLAN

Introduction

1.0 INTRODUCTION

This document presents a Work Plan for an Interim Remedial Measure (IRM) that will be implemented at the existing structure located at 820 Linden Avenue, Pittsford, New York, in the 1954 construction area in the southern tenant space (refer to Figure 1). This is IRM #3 for 820 Linden Avenue (the Site) and will consist of the construction of a sub-slab depressurization system (SSDS) in the 1954 construction area in order to address soil vapor intrusion sampling results. [Please note that IRM WP#2 related to the septic systems has not yet been prepared or submitted, but it has been referred to as such previously, and in order to keep references consistent, the numbering conventions will not be changed.] Stantec Consulting Services, Inc. (Stantec) has prepared this IRM Work Plan at the request of Ridgecrest Associates, L.P and the New York State Department of Environmental Conservation (NYSDEC).

1.1 SITE BACKGROUND

The Site description, Site history, previous investigations, environmental conditions and nature and extent of contamination were detailed in Stantec's July 2018 IRM Work Plan #1 for the initial SSDS installation, which was approved by NYSDEC on September 19, 2018.

1.2 SUMMARY OF IRM

A SSDS was installed as IRM #1 per Stantec's July 2018 IRM Work Plan #1. The IRM consisted of the installation and operation of a SSDS in the majority of the southern tenant space, including the 1966, 1958 and 1956 building construction spaces (see design drawings in Appendix A for depiction of building construction phases). It was installed to address soil vapor intrusion sampling results. After installation and start-up of the system, per the July 2018 IRM Work Plan, demonstration of sub-slab depressurization was confirmed and soil vapor intrusion (SVI) sampling was conducted in March 2019 in areas outside the influence of the SSDS. The results are outlined below:

- All three sampling locations in the northern tenant space (occupied by Newport) (IA/SS-4, IA/SS-5, and IA/SS-13) demonstrated *No Further Action* matrix outcomes (see Figure 2a).
- One of the two sample locations in the southern tenant space (occupied by JML) (IA/SS-14) demonstrated *No Further Action* matrix outcomes (see Figure 2b).
- The second JML sample location (IA/SS-7) demonstrated *No Further Action* matrix outcomes for the compounds assessed except TCE. No concentration of TCE was reported in the indoor air sample, but the sub-slab vapor concentration was 80 µg/m³ resulting in a *Mitigate* matrix recommendation.

Based on the results at IA/SS-7, this IRM Work Plan #3 is being prepared to extend the SSDS into the 1954 building construction area. This system extension will be referred to as Zone 8 (see Drawing ENV-100). The IRM will consist of the installation and operation of a SSDS in this area of the southern tenant space. After installation and start-up of the system, demonstration of sub-slab depressurization will be confirmed, and thereafter periodic maintenance and monitoring of the continuing system function will be performed.

IRM WORK PLAN

Goals and Objectives

2.0 GOALS AND OBJECTIVES

The IRM is being implemented to address the March 2019 sampling results at IS/SS-7 to mitigate TCE impacts noted in sub-slab SVI sampling. The objective of this IRM is to mitigate the potential migration of soil vapor impacted by TCE from beneath certain portions of the building footprint into the interior, occupied space where SVI sampling indicated a need for mitigation based upon comparison to the May 2017 NYSDOH matrices. To achieve the objective, the goal of the IRM will be to achieve and maintain a minimum pressure differential vacuum of 0.002-inches of water column between the applicable sub-slab areas and the building interior space in portions of the building's footprint using a SSDS. However, there are some factors that may prevent the goal from being attained under some portions of the slab (see Section 3.1).

2.1 STANDARDS, CRITERIA AND GUIDANCE

This IRM Work Plan was developed in general accordance with and to address the applicable standards, criteria and guidance (SCGs) contained or referenced in NYSDOH's "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006, with matrices updated May 2017, and the IRM Work Plan requirements of the Department's "DER-10 Technical Guidance for Site Investigation and Remediation" dated May 2010.

SVI investigation analytical results were compared to the May 2017 New York State Department of Health (NYSDOH) soil vapor/indoor air decision matrices (Matrices A through C), which address the following volatile chemicals: carbon tetrachloride, 1,1-dichloroethene, *cis*-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, and vinyl chloride.

3.0 IRM WORK PLAN

3.1 TECHNICAL APPROACH AND PROJECT PLAN

The SSDS will be designed in accordance with the performance guidelines specified in the NYSDOH SVI guidance document referenced above.

The 1954 construction portion of the building is primarily office space, not manufacturing, and does not have the dust sensitivity the balance of the building has. While the majority of construction will be completed in the 1954 construction area (see Drawing ENV-100), limited work will need to occur in the 1956 building portion to locate the discharge and exhaust piping in a location acceptable to Ridgecrest Associates. The methods to minimize and control dust generation will be observed as necessary within the 1956 building area.

The SSDS will be designed to provide as much pressure field extension within the 1954 construction area of the southern tenant space as reasonably practical based on the observed limits of air flow conductivity beneath the slab. Other NYSDOH recommended methods of mitigation such as sealing cracks in the concrete slab and sealing existing electrical conduits will be utilized as needed to minimize current or potential exposures associated with SVI.

Based upon the radii of influence observed in each building footprint in the southern tenant space during preliminary sub-slab air flow communication testing, described in Section 1.2.2.7 of Stantec's July 2018 IRM Work Plan #1, four extraction points and one fan are proposed to comprise this new portion of the SSDS. Fan sizing may be adjusted following installation depending on the radius of influence for each suction point determined by post-mitigation pressure field extension testing. Proposed suction point locations are provided in Appendix A, Drawing ENV-100. Actual locations may need to be adjusted in the field during installation to accommodate tenant preferences or existing equipment and operations.

The SSDS suction points will be installed using one of the following methods, which were used in the previous installation:

1. A hole will be cut through the concrete floor to allow a suction cavity of approximately 1 cubic foot to be excavated. Clean, washed #2 gravel will be placed in the suction cavity.
2. A 4-inch diameter perforated polyvinyl chloride (PVC) pipe will be installed to a depth of approximately 12 inches below the bottom of the floor slab and encased with clean, washed #2 gravel.

A network of vapor collection and discharge pipes/vent fan will be installed to convey the vapor to above the building roof line. Specifications for the discharge system are provided on the attached design drawings provided in Appendix A. Labels on the depressurization piping will clearly identify the purpose of the system. Discharge pipes will penetrate walls and be ultimately routed to the roof where each fan will be mounted to a vertical discharge point. The building facility manager has provided information on the location of air intakes on the building's roof. Discharge locations for the SSDS will be located a minimum of 25 horizontal feet away from air intakes. Vertical discharge piping will terminate 10 feet above the highest roof line.

One differential pressure gauge per system fan will be permanently installed on the suction side of each fan to allow for monitoring and confirmation of effective operation. The gauge will be combined, as practical, into the existing

IRM WORK PLAN

IRM Work Plan

system's centralized monitoring panels. The gauge will have a warning light that will be actuated if a fan is not creating suction.

After the installation of the SSDS, sub-slab pressure monitoring point(s) will be drilled into the slab in applicable areas of the southern tenant space. Sub-slab pressure will be measured using a digital manometer to measure that the system lowers sub-slab pressure below the building ambient interior pressure. Two (2) permanent sub-slab monitoring points will be installed at various locations based on the pressure readings of the temporary sub-slab pressure monitoring points to allow for the confirmation of a minimum of 0.002-inches of water pressure differential between the sub-slab and the indoor air in the future. Should the differential pressure vacuum be less than 0.002 inches of water column, crack sealing or system modifications will be completed to attempt to meet the goal. The location of these monitoring points will be determined in coordination with the NYSDEC, the Owner and the Tenant. Temporary monitoring points that will not be utilized as permanent sub-slab pressure monitoring points will be sealed after acceptable system performance has been established.

Immediately following installation, adequate operation of the warning system (a pressure indicator) will be confirmed, and the building occupants will be made aware of this warning device and how it functions. In addition, "smoke tubes" can be used, as necessary, to check for leaks through cracks or floor joints near the suction point. Observable leaks will be sealed with polyurethane caulk. Factors that can impact the creation of a 0.002-inches of water pressure differential include the lack of an existing stone layer below the floor slab, a stone layer with few voids or interior footers.

3.2 DESIGN AND SPECIFICATIONS

Components of the system will be designed and installed in accordance with the NYSDOH SVI guidance document referenced above and in compliance with the applicable building codes. System components and piping will be PVC, and exterior piping and fans will be installed to minimize condensation on the exterior of the piping and permit condensation on the inside of the piping to drain back into the subsurface. The electrical components of the system will be low-power equipment compatible with the normal electrical loads and systems of the facility.

Specifications for the SSDS piping, fans and equipment are presented on the Design Drawings in Appendix A.

3.3 POST-MITIGATION PRESSURE FIELD EXTENSION TESTING

As discussed in Section 3.1, temporary sub-slab pressure monitoring points will be drilled into the slab in the applicable areas of the southern tenant space. Sub-slab pressure will be measured using a digital manometer to evaluate the sub-slab pressure below the building ambient interior pressure. Should the differential pressure vacuum be less than 0.002 inches of water column, crack sealing or system modifications will be completed to attempt to meet the goal. Two (2) permanent sub-slab monitoring points will be installed at various locations based on the pressure readings of the temporary sub-slab pressure monitoring points to allow for the confirmation of a minimum of 0.002-inches water pressure differential between the sub-slab and the indoor air in the future. The location of these monitoring points will be determined in coordination with the NYSDEC, the Owner and the Tenant. Temporary monitoring points that will not be utilized as permanent sub-slab pressure monitoring points will be sealed after acceptable system performance has been established.

IRM WORK PLAN

IRM Work Plan

3.4 IRM CONSTRUCTION COMPLETION REPORT

As per IRM Work Plan #1, an IRM Construction Completion Report (IRM CCR) including an Operations, Maintenance, and Monitoring (OM&M) Plan will be submitted. The CCR and OM&M Plan will cover the portions of the SSDS installed as per both IRM Work Plan #1 and #3.

3.5 MAINTENANCE AND MONITORING

Future monitoring, maintenance and potential termination of operation will be in accordance with the July 2018 IRM Work Plan #1.

3.6 POST-SSDS INSTALLATION INDOOR AIR/SUB-SLAB VAPOR MONITORING

Sub-slab pressure relative to the pressure of the interior, occupied space in Zone 8 will be measured at SS-7 using a digital manometer (see Figure 2b). If the IRM's pressure differential vacuum goal of 0.002 inches of water column or greater is observed, that location will be considered mitigated to reduce the potential migration of soil vapor impacted by CVOCs into the interior, occupied space. In the event this pressure differential vacuum goal is met, no additional SVI monitoring will be conducted.

Should the differential pressure vacuum be less than 0.002 inches of water column, crack sealing or system modifications will be completed to attempt to meet the goal.

3.7 SCHEDULE

Construction of the SSDS is planned to begin after approvals of this IRM Work Plan by the NYSDOH and NYSDEC and is expected to take approximately four weeks.

Coordination with the tenant will occur to schedule acceptable work times. It is expected that the construction hours used during the IRM #1 construction phase will still be acceptable. Construction will need to be coordinated with each tenant's manufacturing timelines due to equipment sensitivities. NYSDEC and NYSDOH will be notified in advance of the installation activities.

The IRM CCR and the OM&M will be submitted to NYSDOH and NYSDEC within three (3) months following the completion of post-installation pressure field extension testing in the 1954 building construction area.

3.8 PERMITTING

The SSDS installation contractor(s) will be responsible for obtaining the necessary permits for construction and electrical work.

3.9 WASTE MANAGEMENT

It is anticipated that the soil and concrete generated during the installation of the sub-slab depressurization system will be placed directly in covered DOT-approved 55-gallon steel drums. Each drum will be labeled as to contents,

IRM WORK PLAN

IRM Work Plan

and representative samples from the drums will be collected for waste characterization purposes. Pending analytical results and arrangements for transport and disposal, the drums will be staged on site in one of the designated IRM staging areas. Drums will be disposed of in accordance with applicable regulations. Documentation of waste characterization results and disposal will be included in the IRM CCR.

3.10 HEALTH & SAFETY PLAN

Stantec prepared a Health and Safety Plan (HASP) for Stantec personnel which was attached as Appendix C to IRM Work Plan #1. Contractors working on the site will be required to prepare and follow their own HASPs prepared specifically for the site.

3.11 COMMUNITY AIR MONITORING PROGRAM

The Community Air Monitoring Plan (CAMP) will be implemented using periodic VOC monitoring during the extraction point construction activities. It is anticipated that the upwind and downwind VOC monitoring requirements of the generic NYSDOH CAMP will be applied as feasible and appropriate for work on an indoor construction project. As per procedures approved by NYSDEC during implementation of IRM Work Plan #1, termination of VOC monitoring will occur once subsurface work is completed, and isolation ball valves are installed in the closed position on all vertical suction cavity risers.

VOC monitoring will be performed periodically using a 10.6 eV lamp PID. Exhaust fans will be used to remove air from the work area of each penetration of the concrete slab. The fan exhaust will be piped to the outside of the building except in cases where the distance to an exterior door makes it impractical to run exhaust piping. In these cases, the exhaust fan will be piped to carbon filtration units prior to interior discharge.

An effort will be made to maximize dust containment during work. For example, particulates created from penetrating the slab will be contained using a shop vacuum with a high efficiency particulate air (HEPA) cartridge filter. Particulate monitoring will be performed by visual inspection. Real time measuring of the particulates is not anticipated.

3.12 QUALITY ASSURANCE AND QUALITY CONTROL

Field monitoring instrument calibration will be performed in accordance with DER-10 guidance.

A NYSDOH ELAP certified analytical laboratory will be used for any needed analytical services of the project. With the exception of waste disposal samples, laboratory deliverables will be prepared in general accordance with NYSDOH ASP Category B guidelines and will be evaluated in a data usability summary report.

IRM WORK PLAN

References

4.0 REFERENCES

ASTM, 2013 E1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

NYSDEC, 1998 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (April 2000 and June 2004 addenda).

NYSDEC, 2006 6NYCRR Part 375 Environmental Remediation Programs. December 14, 2006.

NYSDEC, 2010a NYSDEC's DER-10, Technical Guidance for Site Investigation and Remediation. May 3, 2010.

NYSDEC, 2010b NYSDEC's Commissioner Policy CP-51 Soil Cleanup Guidance. October 21, 2010.

NYSDOH, 2006 Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York. October 2006.

NYSDOH, 2017 Soil Vapor Intrusion Updates, May 2017: Updates to Soil Vapor/Indoor Air Decision Matrices. Website: https://health.ny.gov/environmental/indoors/vapor_intrusion/update.htm, accessed 7/26/2017.

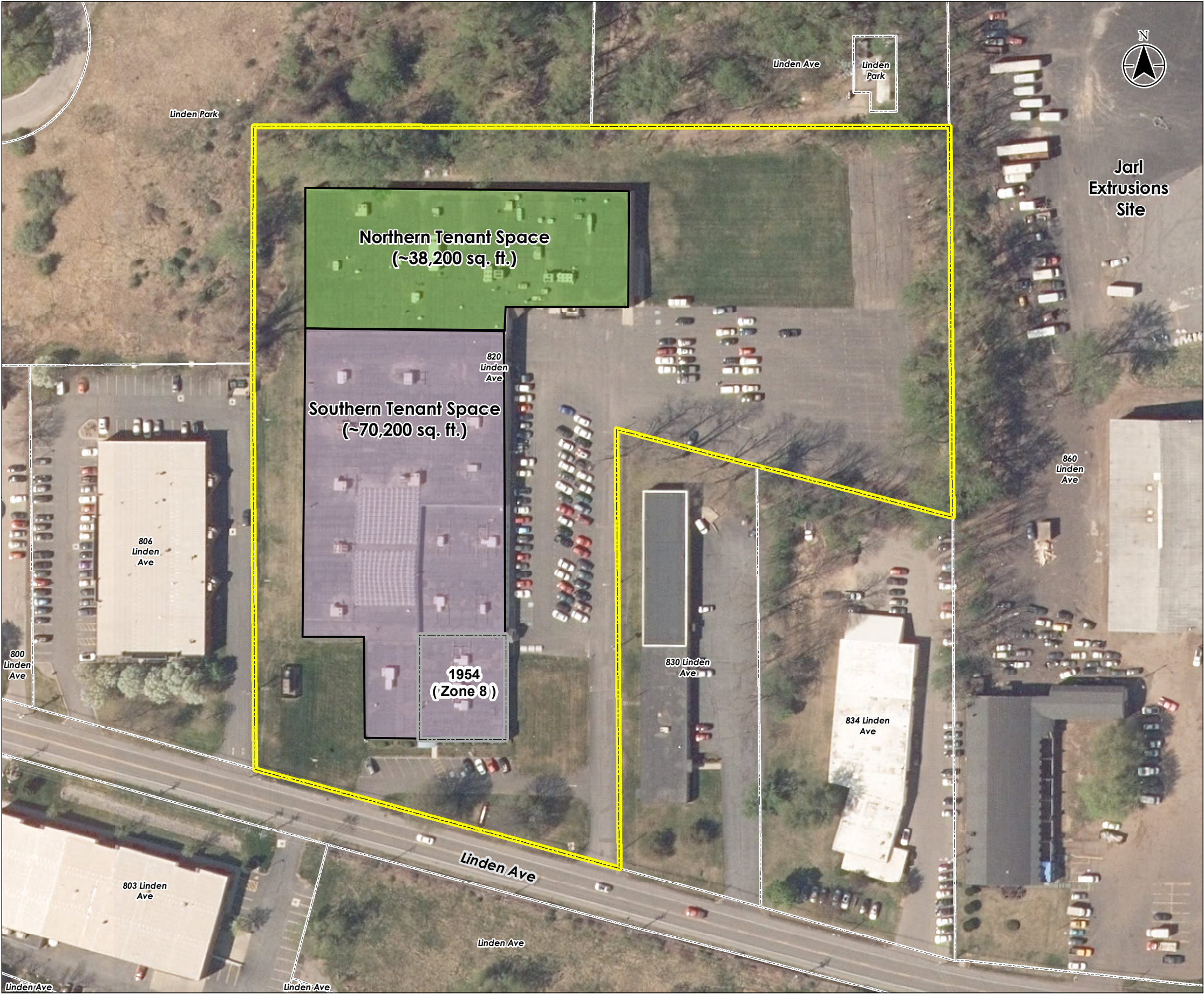
Stantec, 2018 IRM Work Plan. July 2018.

IRM WORK PLAN

References

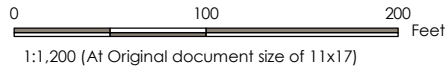
FIGURES

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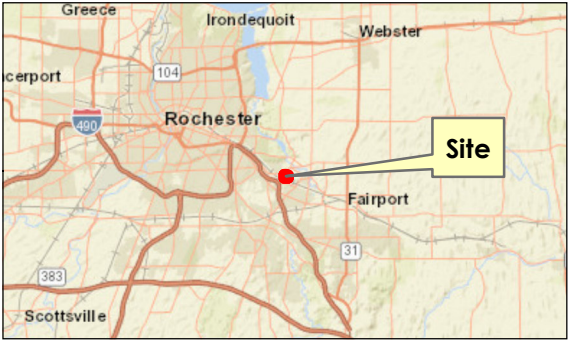
Legend

- Site Property Outline
- Nearby Parcel Boundaries
- Building Tenant Spaces
- JML Optical (Southern Tenant Space)
- Newport (Northern Tenant Space)



Notes

1. Coordinate System: NAD 1983 StatePlane New York West FIPS 3103 Feet
2. Orthoimagery (2015) downloaded from gis.ny.gov.
3. Site building is occupied by two tenants: JML Optical in the southern building section and Newport in the northern building section.



Project Location: 820 Linden Avenue Pittsford, Monroe Co., NY	Prepared by	MB	on 2018-07-06
	Technical Review by	SRS	on 2018-07-06
	Independent Review by	MPS	on 2018-07-06

190500898

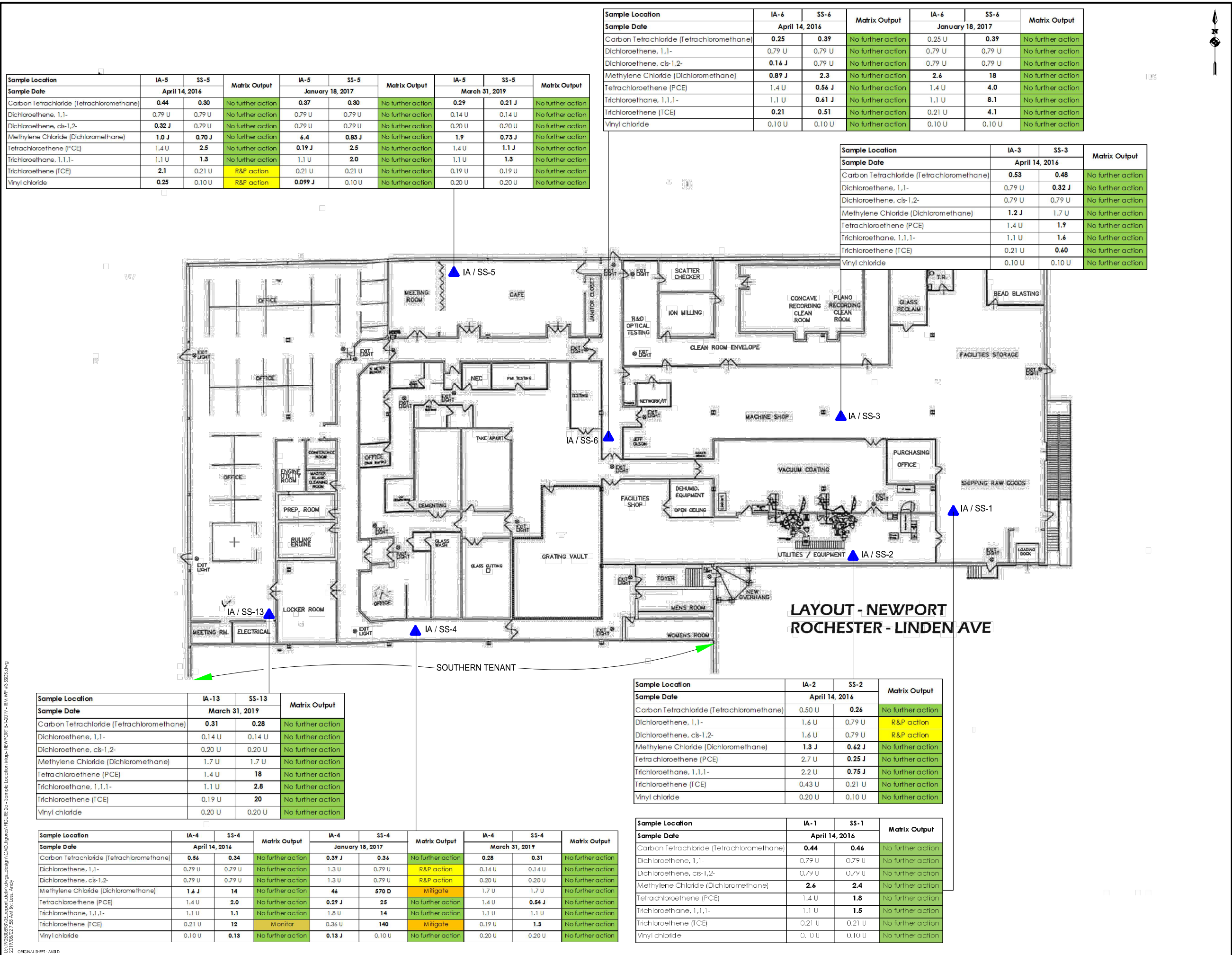
Client/Project
820 Linden Avenue Site
Interim Remedial Measure Work Plan #3
Sub-Slab Depressurization System Extension - Zone 8
Brownfield Cleanup Program Site #C828200

Figure No.

1

Title

820 Linden Avenue Site Layout



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Legend

IA / SS-7
APPROXIMATE SAMPLE LOCATION

NO FURTHER ACTION	NO FURTHER ACTION IS RECOMMENDED.
R & P ACTION	TAKE REASONABLE AND PRACTICAL ACTIONS TO IDENTIFY SOURCES(S) AND REDUCE EXPOSURES.
MONITOR	MONITORING IS RECOMMENDED.
MITIGATE	MITIGATION IS RECOMMENDED.

- Notes
- FIGURE DEVELOPED USING BASE BUILDING PLAN PROVIDED BY NEWPORT.
 - SEE TABLE 1a-1c FOR COMPLETE TABULATION.
 - ABBREVIATIONS:
IA - INDOOR AIR
SS - SOIL SAMPLE
U - ANALYTE WAS NOT DETECTED AT A CONCENTRATION GREATER THAN THE LABORATORY REPORTING LIMIT
J - THE REPORTED RESULT IS AN ESTIMATED VALUE
 - CONCENTRATIONS ARE PROVIDED IN $\mu\text{g}/\text{m}^3$.
 - ALL LOCATIONS SHOWN ARE APPROXIMATE.

IRM #3	APL	KI	19.08.01
SR	LB	MPS	19.02.21
RMP	APL	MPS	17.09.05
Issued	By	Appd.	YY.MM.DD

File Name:	APL	SRS	LB	16.05.13
	Down	Chkd.	Dgn.	YY.MM.DD

Permit-Seal

Client/Project

820 LINDEN AVENUE SITE
INTERIM REMEDIAL MEASURE WORK PLAN #3
SUB SLAB DEPRESSURIZATION SYSTEM EXTENSION - ZONE 8
BROWNFIELD CLEANUP PROGRAM SITE #828200

Title

NEWPORT (NORTHERN) TENANT SPACE INTERIOR BUILDING PLAN
AND SVI SAMPLING RESULTS WITH NYSDOH MATRIX
RECOMMENDATIONS

Project No.
190500898

Scale
NOT TO SCALE

Drawing No.
Sheet

Revision

Figure 2a of

U:\190500898\GIS_report_data\dwg_design\CAD_figures\FIGURE 2b - Sample Location Map - JML OPTICAL AREA S-1-2019 - IRM VP #3 SS25.dwg
2019/08/02 2:53 PM By: kst, Arcty

Sample Location	IA-9	SS-9	Matrix Output
Sample Date	April 14, 2016		
Carbon Tetrachloride (Tetrachloromethane)	1.5 U	0.38	R&P action
Dichloroethene, 1,1-	4.8 U	0.79 U	R&P action
Dichloroethene, cis-1,2-	4.8 U	0.79 U	R&P action
Methylene Chloride (Dichloromethane)	530	120	Mitigate
Tetrachloroethene (PCE)	8.2 U	16	No further action
Trichloroethane, 1,1,1-	6.6 U	5.7	No further action
Trichloroethene (TCE)	1.3 U	3.1	R&P action
Vinyl chloride	0.62 U	0.10 U	R&P action

Sample Location	IA-8	SS-8	Matrix Output
Sample Date	April 14, 2016		
Carbon Tetrachloride (Tetrachloromethane)	3.0 U	2.5 U	R&P action
Dichloroethene, 1,1-	9.6 U	7.9 U	Mitigate
Dichloroethene, cis-1,2-	9.6 U	7.9 U	Mitigate
Methylene Chloride (Dichloromethane)	500	380	Mitigate
Tetrachloroethene (PCE)	16 U	71	R&P action
Trichloroethane, 1,1,1-	13 U	4.4 J	R&P action
Trichloroethene (TCE)	2.6 U	59	Mitigate
Vinyl chloride	1.2 U	1.0 U	R&P action

Sample Location	IA-7	SS-7	Matrix Output	IA-7 (Duplicate)	SS-7 (Duplicate)	Matrix Output	IA-7	SS-7	Matrix Output
Sample Date	April 14, 2016			April 14, 2016			March 31, 2019		
Carbon Tetrachloride (Tetrachloromethane)	0.50 U	0.40	No further action	0.47 J	0.40	No further action	0.29 U	0.35	No further action
Dichloroethene, 1,1-	1.6 U	0.79 U	R&P action	1.6 U	0.79 U	R&P action	0.14 U	0.14 U	No further action
Dichloroethene, cis-1,2-	1.6 U	0.79 U	R&P action	1.6 U	0.79 U	R&P action	0.20 U	9.9	No further action
Methylene Chloride (Dichloromethane)	76	12	R&P action	99	12	R&P action	1.1 J	1.7 U	No further action
Tetrachloroethene (PCE)	2.7 U	1.9	No further action	2.7 U	1.8	No further action	1.4 U	3.7	No further action
Trichloroethane, 1,1,1-	2.2 U	0.91 J	No further action	2.2 U	0.91 J	No further action	1.1 U	0.79 J	No further action
Trichloroethene (TCE)	0.43 U	0.21 U	No further action	0.43 U	0.21 U	No further action	0.19 U	80	Mitigate
Vinyl chloride	0.20 U	0.10 U	No further action	0.20 U	0.10 U	No further action	0.20 U	2.6 J+	No further action



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Legend

IA / SS-7



APPROXIMATE INDOOR AIR AND SUB-SLAB VAPOR SAMPLE LOCATION

NO FURTHER ACTION	NO FURTHER ACTION IS RECOMMENDED.
R & P ACTION	TAKE REASONABLE AND PRACTICAL ACTIONS TO IDENTIFY SOURCE(S) AND REDUCE EXPOSURES.
MONITOR	MONITORING IS RECOMMENDED.
MITIGATE	MITIGATION IS RECOMMENDED.

Notes

- FIGURE DEVELOPED USING BASE BUILDING PLAN PROVIDED BY JML OPTICAL.
- SEE TABLES 2a-2c FOR COMPLETE TABULATION.
- ABBREVIATIONS:
IA - INDOOR AIR
SS - SOIL SAMPLE
U - ANALYTE WAS NOT DETECTED AT A CONCENTRATION GREATER THAN THE LABORATORY REPORTING LIMIT
J - THE REPORTED RESULT IS AN ESTIMATED VALUE
J+ - THE REPORTED RESULTS IS AN ESTIMATED VALUE THAT MAY BE BIASED HIGH
- CONCENTRATIONS ARE PROVIDED IN $\mu\text{g}/\text{m}^3$.
- ALL LOCATIONS SHOWN ARE APPROXIMATE.

IRM #3	APL	KI	19.08.01
RIR	LB	MPS	19.02.21
RWP	APL	MPS	17.09.05

Issued By Appd. YY.MM.DD

File Name:	APL	SRS	LB	16.07.18
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

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Client/Project

820 LINDEN AVENUE SITE
INTERIM REMEDIAL MEASURE WORK PLAN #3
SUB SLAB DEPRESSURIZATION SYSTEM EXTENSION - ZONE 8
BROWNFIELD CLEANUP PROGRAM SITE #828200

Title

JML OPTICAL (SOUTHERN) TENANT SPACE INTERIOR BUILDING AND SVI SAMPLING RESULTS WITH NYSDOH MATRIX

RECOMMENDATIONS

Project No.	Scale	
190500898	NOT TO SCALE	
Drawing No.	Sheet	Revision

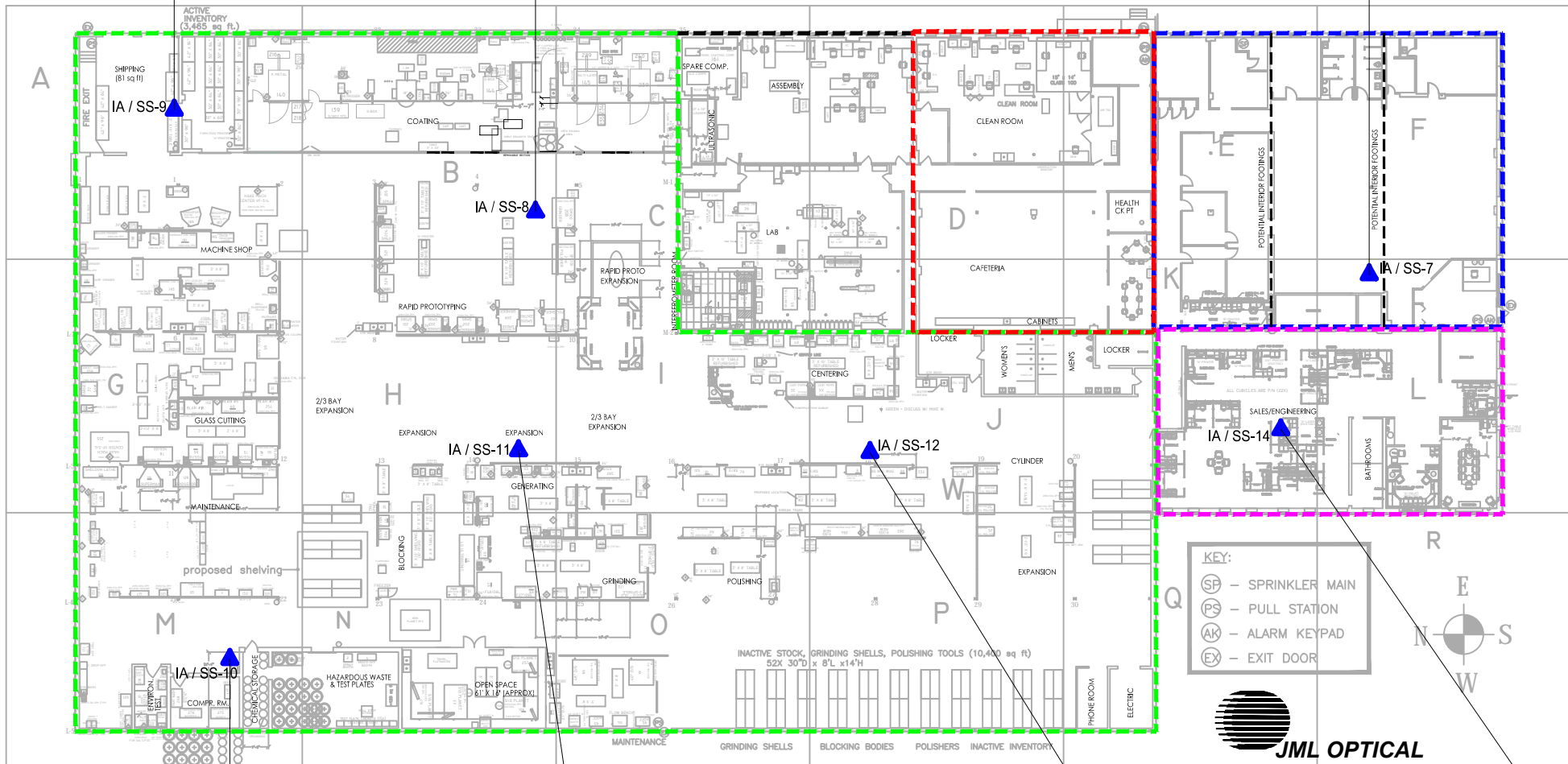
Figure 2b

of

NORTHERN TENANT

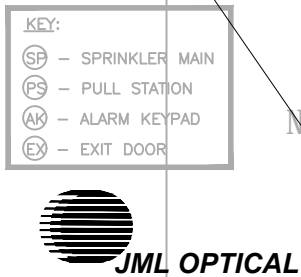
BUILDING ADDITION CONSTRUCTION DATE KEY

	1954
	1956
	1958
	1959
	1966



Sample Location	IA-10	SS-10	Matrix Output
Sample Date	April 14, 2016		
Carbon Tetrachloride (Tetrachloromethane)	2.8 U	0.41 J	R&P action
Dichloroethene, 1,1-	8.9 U	1.6 U	R&P action
Dichloroethene, cis-1,2-	8.9 U	1.6 U	R&P action
Methylene Chloride (Dichloromethane)	890	220	Mitigate
Tetrachloroethene (PCE)	15 U	64	R&P action
Trichloroethane, 1,1,1-	12 U	9.3	R&P action
Trichloroethene (TCE)	2.4 U	71	Mitigate
Vinyl chloride	1.1 U	0.20 U	R&P action

Sample Location	IA-11	SS-11	Matrix Output
Sample Date	April 14, 2016		
Carbon Tetrachloride (Tetrachloromethane)	2.5 U	1.5 U	R&P action
Dichloroethene, 1,1-	7.9 U	4.8 U	R&P action
Dichloroethene, cis-1,2-	7.9 U	4.8 U	R&P action
Methylene Chloride (Dichloromethane)	710	720	Mitigate
Tetrachloroethene (PCE)	14 U	89	R&P action
Trichloroethane, 1,1,1-	11 U	5.9 J	R&P action
Trichloroethene (TCE)	2.1 U	79	Mitigate
Vinyl chloride	1.0 U	0.62 U	R&P action



Sample Location	IA-14	SS-14	Matrix Output	IA-14 (Duplicate)	SS-14 (Duplicate)	Matrix Output
Sample Date	March 31, 2019			March 31, 2019		
Carbon Tetrachloride (Tetrachloromethane)	0.29	0.22 U	No further action	0.29	0.88 U	No further action
Dichloroethene, 1,1-	0.14 U	0.14 U	No further action	0.14 U	0.56 U	No further action
Dichloroethene, cis-1,2-	0.20 U	0.20 U	No further action	0.20 U	3.1	No further action
Methylene Chloride (Dichloromethane)	5.5	1.3 J	No further action	5.7	6.9 U	No further action
Tetrachloroethene (PCE)	1.4 U	12	No further action	1.4 U	13	No further action
Trichloroethane, 1,1,1-	1.1 U	0.81 J	No further action	1.1 U	4.4 U	No further action
Trichloroethene (TCE)	0.19 U	0.45 J	No further action	0.19 U	22 J	No further action
Vinyl chloride	0.20 U	0.20 U	No further action	0.20 U	1.1 J	No further action

Sample Location	IA-12	SS-12	Matrix Output
Sample Date	April 14, 2016		
Carbon Tetrachloride (Tetrachloromethane)	2.5 U	0.66 J	R&P action
Dichloroethene, 1,1-	7.9 U	2.4 U	R&P action
Dichloroethene, cis-1,2-	7.9 U	2.4 U	R&P action
Methylene Chloride (Dichloromethane)	530	320	Mitigate
Tetrachloroethene (PCE)	14 U	100	Mitigate
Trichloroethane, 1,1,1-	11 U	3.3 U	R&P action
Trichloroethene (TCE)	2.1 U	160	Mitigate
Vinyl chloride	1.0 U	0.31 U	R&P action

Appendix A DESIGN DRAWINGS

- A.1 ENV-100 – SUB-SLAB DEPRESSURIZATION SYSTEM COVERAGE PLAN (SOUTHERN TENANT SPACE, 1954 CONSTRUCTION AREA)**
- A.2 ENV-101– SUB-SLAB DEPRESSURIZATION SYSTEM DISCHARGE AND EXHAUST LOCATIONS (SOUTHERN TENANT SPACE)**
- A.3 ENV-500 – SUB-SLAB DEPRESSURIZATION SYSTEM INTERIOR DETAILS**
- A.4 ENV-501 – SUB-SLAB DEPRESSURIZATION SYSTEM EXTERIOR DETAILS**
- A.5 ENV-502 – SUB-SLAB DEPRESSURIZATION SYSTEM PROCESS & INSTRUMENTATION DIAGRAM (SOUTHERN TENANT SPACE)**












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Record Drawing

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Legend

- | | |
|--|---|
|  | APPROXIMATE LOCATION OF TEST HOLES |
| X TH 3 | APPROXIMATE LOCATION OF TEST EXTENSION HOLES |
| H 12 | EXISTING BUILDING COLUMN AND COLUMN NUMBER |
|  | NO ENTRY DUE TO TENANT MANUFACTURING PROCESS |
|  | PROPOSED SUCTION HOLE LOCATION |
|  | VERTICAL DISCHARGE PIPING |
|  | PROPOSED SUCTION PIPE ALIGNMENT (PVC) |
|  | DIFFERENTIAL PRESSURE GAUGES AND WARNING LIGHTS |
|  | CONDENSATE FLOW DIRECTION / PIPE SLOPE
VACUUM FLOW DIRECTION |
| PMP 3 | |
|  | SUB-SLAB PRESSURE MONITORING POINT
LOCATION |
|  | EXISTING SUCTION PIPE ALIGNMENT (PVC) |

Notes

1. FIGURE DEVELOPED USING BASE BUILDING PLAN PROVIDED BY SOUTHERN TENANT.
2. SSDS TESTING WAS PERFORMED BY STANTEC AND MITIGATION TECHNOLOGIES ON 8-18-2017, 8-21-2017, AND 9-11-2017.
3. PROPOSED SUCTION HOLE LOCATION ON COLUMNS TO BE VERIFIED IN FIELD WITH OWNER'S REPRESENTATIVE.

SYSTEM EXTENSION—ZONE 8	AK.DH	19.07.30
Issued	By	Appd. YY.MM.DD

ZONE 8 - ENV-100 - SUB-SLAB DEPRESSURIZATION SYSTEM COVERAGE PLAN- SOUTHERN TENANT SPACE.DWG

File Name:	APL	DH	MB	18.07.31
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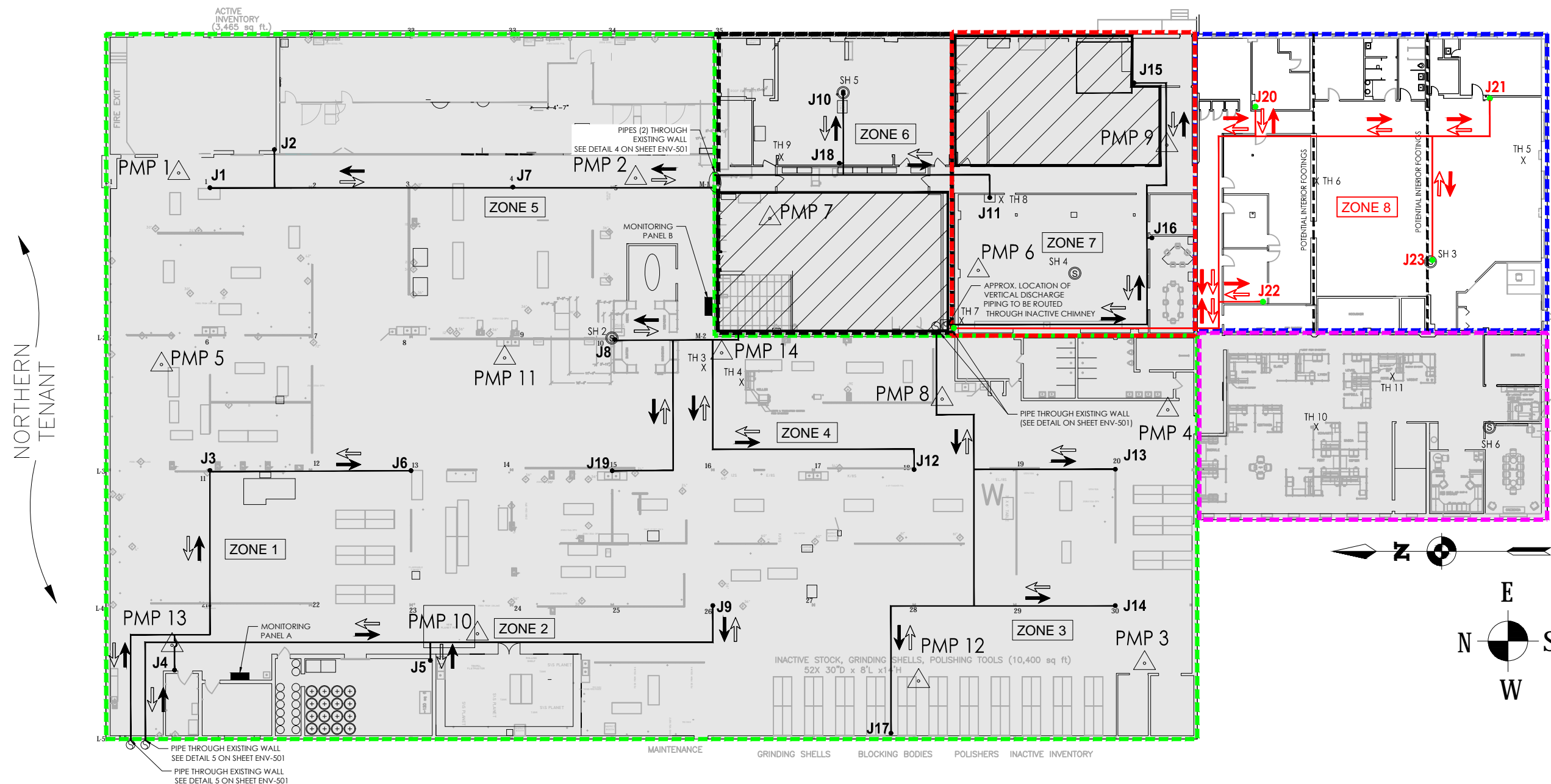
820 LINDEN AVENUE SITE
INTERIM REMEDIAL MEASURE WORK PLAN #3
SUB SLAB DEPRESSURIZATION SYSTEM EXTENSION - ZONE 8
BROWNFIELD CLEANUP PROGRAM SITE #828200

Title
SUB-SLAB DEPRESSURIZATION SYSTEM
COVERAGE PLAN
(SOUTHERN TENANT SPACE, 1954 CONSTRUCTION AREA)

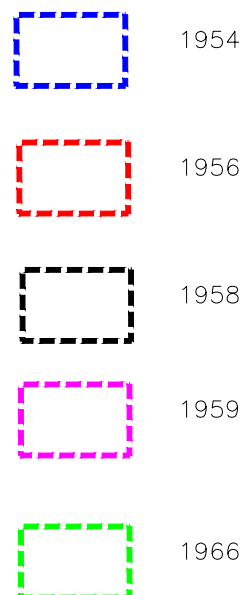
Project No. 190500898	Scale 1/16"=1'-0"	
Drawing No.	Sheet	Revision

ENV-100

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BUILDING ADDITION CONSTRUCTION DATE KEY



NOTE:

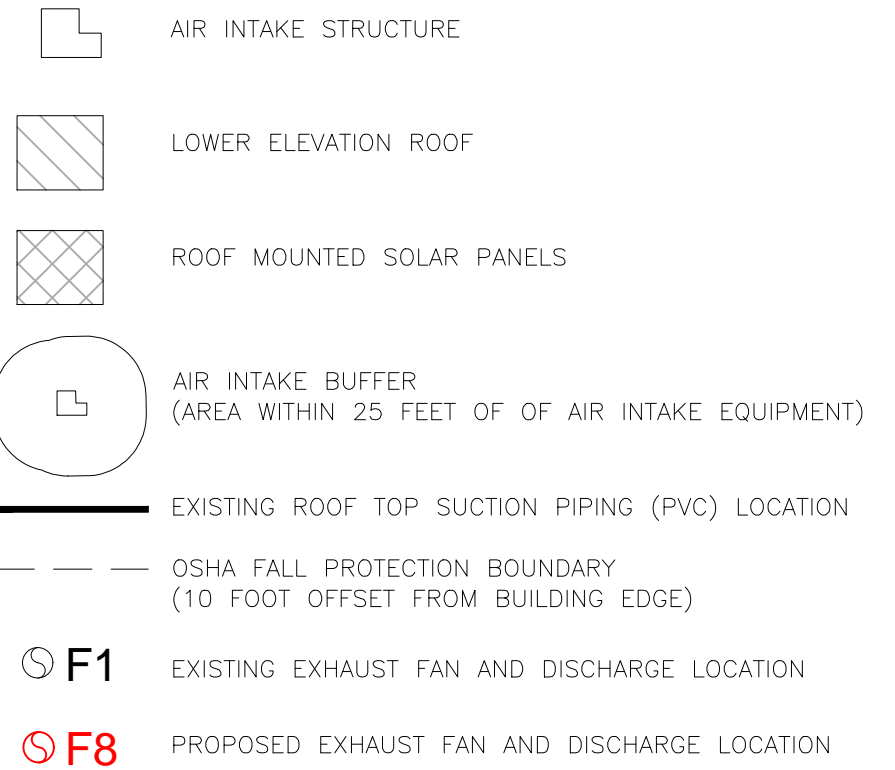
1. NYS DOL ASBESTOS INSPECTOR TO OBSERVE AND SAMPLE BUILDING MATERIALS AS NEEDED.
2. PREVIOUS PHASE WORK INDICATED <1% ASBESTOS IN WHITE CEILING BOARD. IT IS EXPECTED THAT PORTIONS OF PIPE RUN IN 1954 AND 1956 BUILDING SECTIONS WILL REQUIRE USE OF AN ASBESTOS ABATEMENT CONTRACTOR.



Record Drawing

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Legend



Notes

1. FIGURE DEVELOPED USING BASE BUILDING PLAN PROVIDED BY JML OPTICAL.
2. SSDS TESTING WAS PERFORMED BY STANTEC AND MITIGATION TECHNOLOGIES ON 8-18-2017, 8-21-2017, AND 9-11-2017.

[illegible]

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SUB SLAB DEPRESSURIZATION SYSTEM EXTENSION - ZONE 8
BROWNFIELD CLEANUP PROGRAM SITE #828200

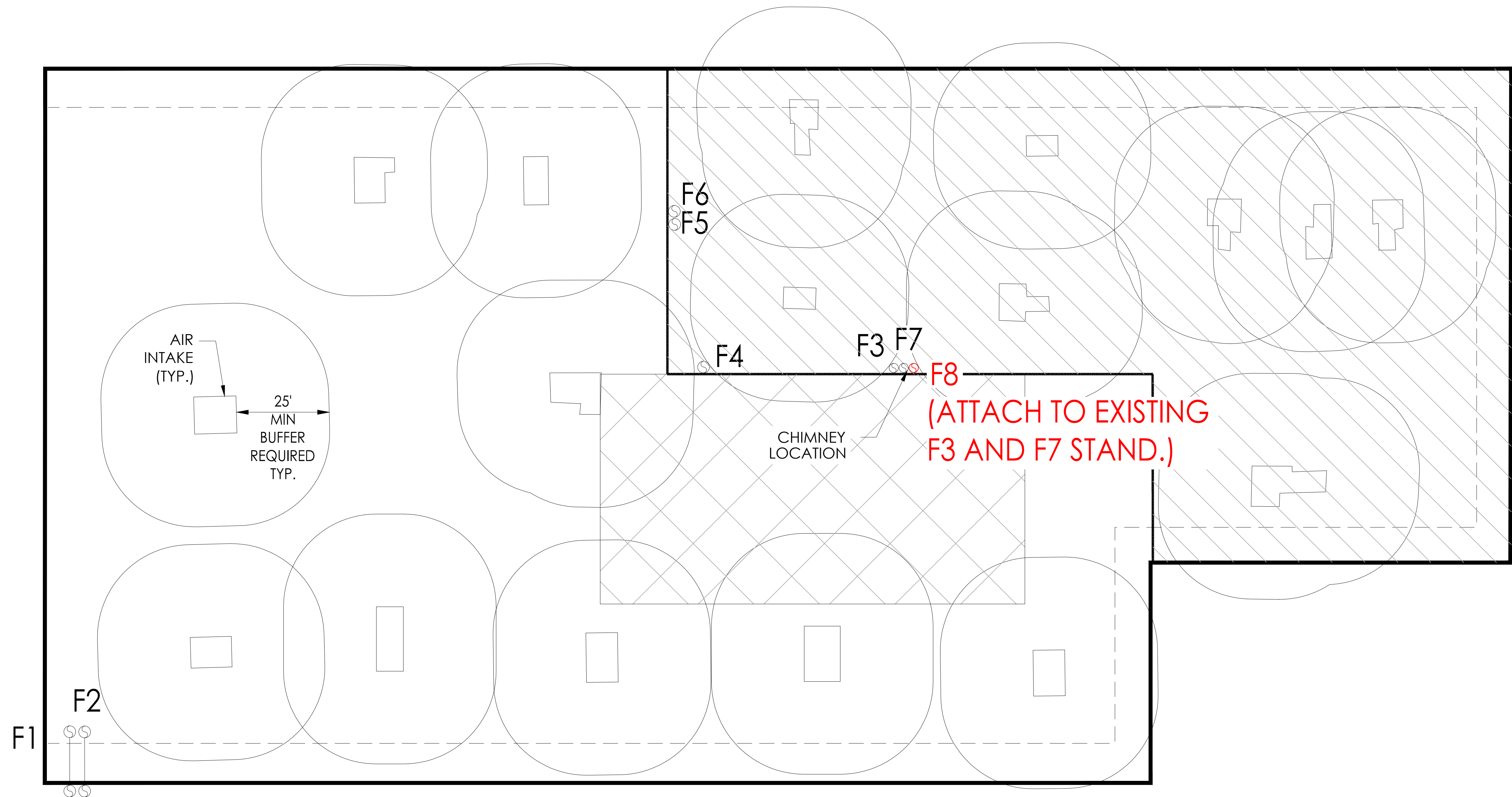
title

SUB-SLAB DEPRESSURIZATION SYSTEM
DISCHARGE AND EXHAUST LOCATION
(SOUTHERN TENANT SPACE)

Project No.	Scale	
190500898	1/16" = 1'-0"	
Drawing No.	Sheet	Revision

ENV-101

2 of 5



BUILDING ROOF PLAN - SOUTHERN TENANT SPACE
Scale : 1/16" = 1'-0"





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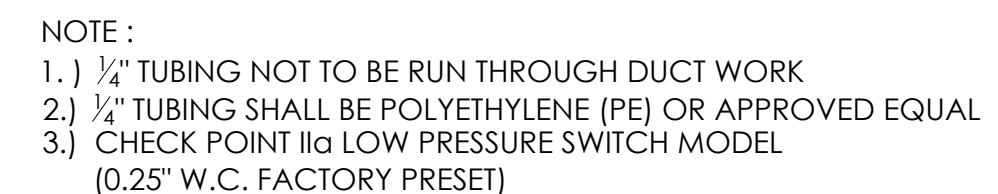
Notes

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820 LINDEN AVENUE SITE
INTERIM REMEDIAL MEASURE WORK PLAN #3
SUB SLAB DEPRESSURIZATION SYSTEM EXTENSION - ZONE 8
BROWNFIELD CLEANUP PROGRAM SITE #828200

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190500898	NOT TO SCALE	
Drawing No.	Sheet	Revision

3 of 5



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2019/08/01 4:49 PM By: Less. Andy

ORIGINAL SHEET - ANSI D



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Notes

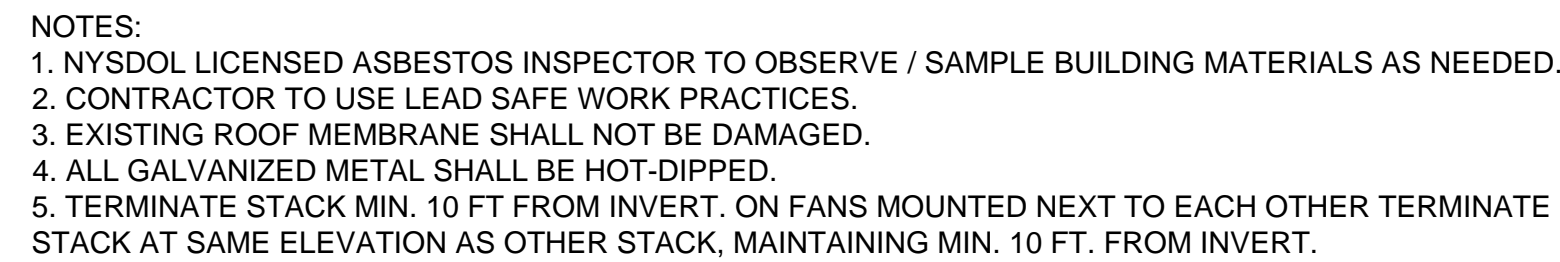
Revision	By	Appd.	YY.MM.DD
SYSTEM EXTENSION-ZONE 8		AK,DH	19.07.30
Issued	By	Appd.	YY.MM.DD

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820 LINDEN AVENUE SITE
INTERIM REMEDIAL MEASURE WORK PLAN #3
SUB SLAB DEPRESSURIZATION SYSTEM EXTENSION - ZONE 8
BROWNFIELD CLEANUP PROGRAM SITE #828200

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Drawing No.	Sheet	Revision

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SSDS VENTING PIPES

SSDS VENTING FANS

CHIMNEY

3 TYPICAL SSDS ROOF EXHAUST STACK
NO SCALE



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EXISTING IN-LINE EXHAUST FAN

POINT OF MEASUREMENT FOR THE
MAGNETIC MODEL 2000 DIFFERENTIAL
PRESSURE GAUGE
(MOUNTED INSIDE DIFFERENTIAL PRESSURE
GAUGE/WARNING LIGHT BOX)

AIR FLOW

PROPOSED IN-LINE EXHAUST FAN

- 1.) ¼" TUBING SHALL NOT BE RUN THROUGH DUCT WORK.
- 2.) REFER TO DRAWINGS FOR CONNECTION OF ¼" TUBING TO DIFFERENTIAL PRESSURE GAUGE.
- 3.) ¼" TUBING TO BE POLYETHYLENE (PE) EATON SYNFLEX 1219FR OR APPROVED EQUAL.
- 4.) ¼" TUBING TO BE RUN THROUGH ROOF JOIST WEBBING IN A WIRE LOOM (PROTECTIVE SLEEVE). PROVIDE SCH 80 PVC ELECTRICAL CONDUIT ON VERTICAL WALLS TO RUN TUBING IN CONNECT TO PANEL.
- 5.) ALL PRESSURE MONITORING POINTS TO BE AT THE SUCTION SIDE OF THE IN-LINE EXHAUST FAN, MOUNTED INSIDE, JUST BELOW THE ROOF.

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820 LINDEN AVENUE SITE
INTERIM REMEDIAL MEASURE WORK PLAN #3
SUB SLAB DEPRESSURIZATION SYSTEM EXTENSION - ZONE 8
BROWNFIELD CLEANUP PROGRAM SITE #828200

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190500898	NOT TO SCALE	
Drawing No.	Sheet	Revision

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Zone	In-line Exhaust Fan	Suction Points in Zone	Monitoring Panel
1	F1	J3, J4, J6	A
2	F2	J5, J9	A
3	F3	J13, J14, J17	B
4	F4	J8, J12, J19	B
5	F5	J1, J2, J7	B
6	F6	J10, J11, J18	B
7	F7	J15, J16	B
8	F8	J20 - J23	TRD