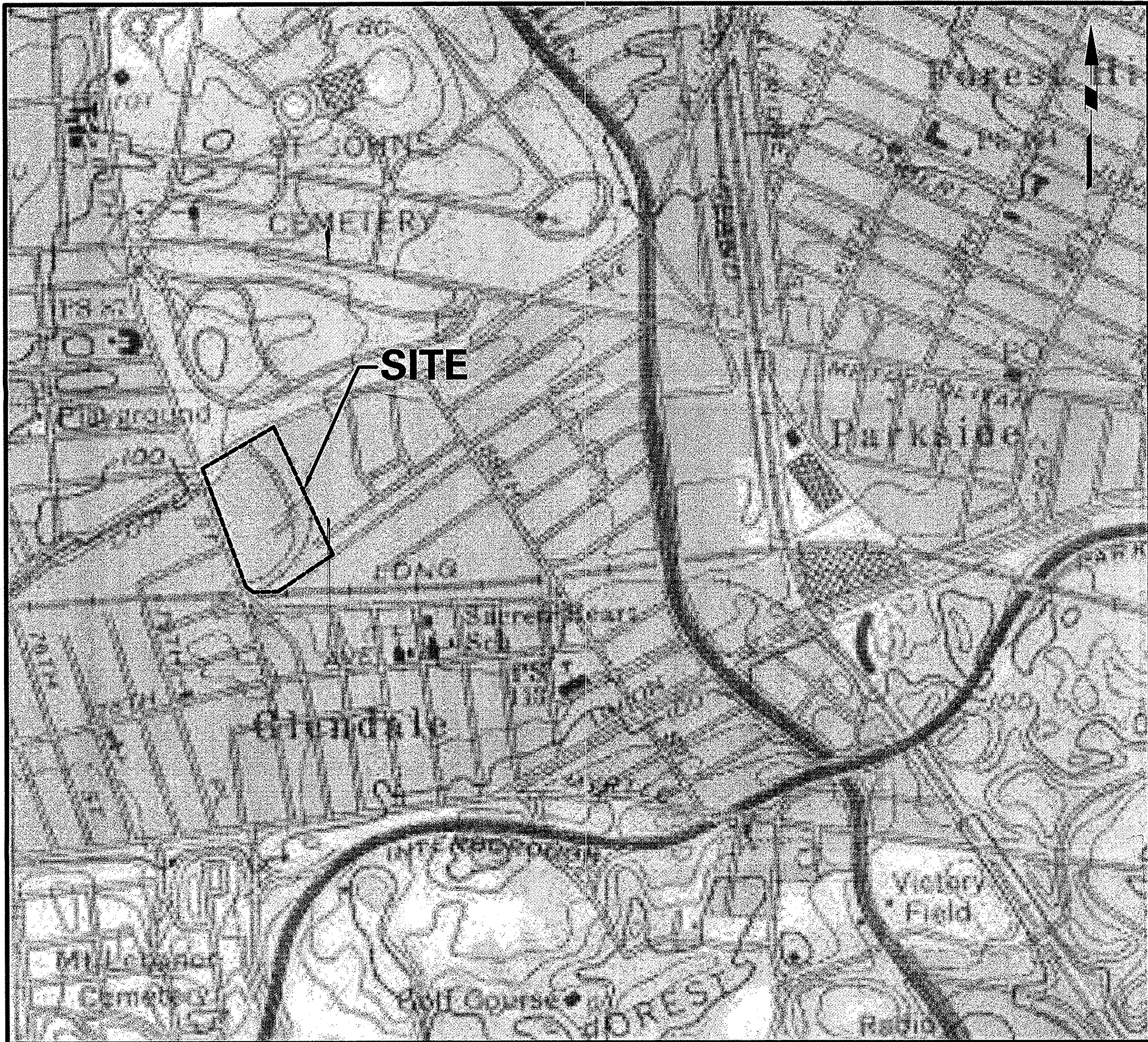


APPENDIX L

SSDS AS-BUILT DRAWINGS – BUILDING 4

THE SHOPS AT ATLAS PARK
BUILDING 4 SUB-SLAB DEPRESSURIZATION SYSTEM
AS-BUILT DRAWINGS
QUEENS, NEW YORK

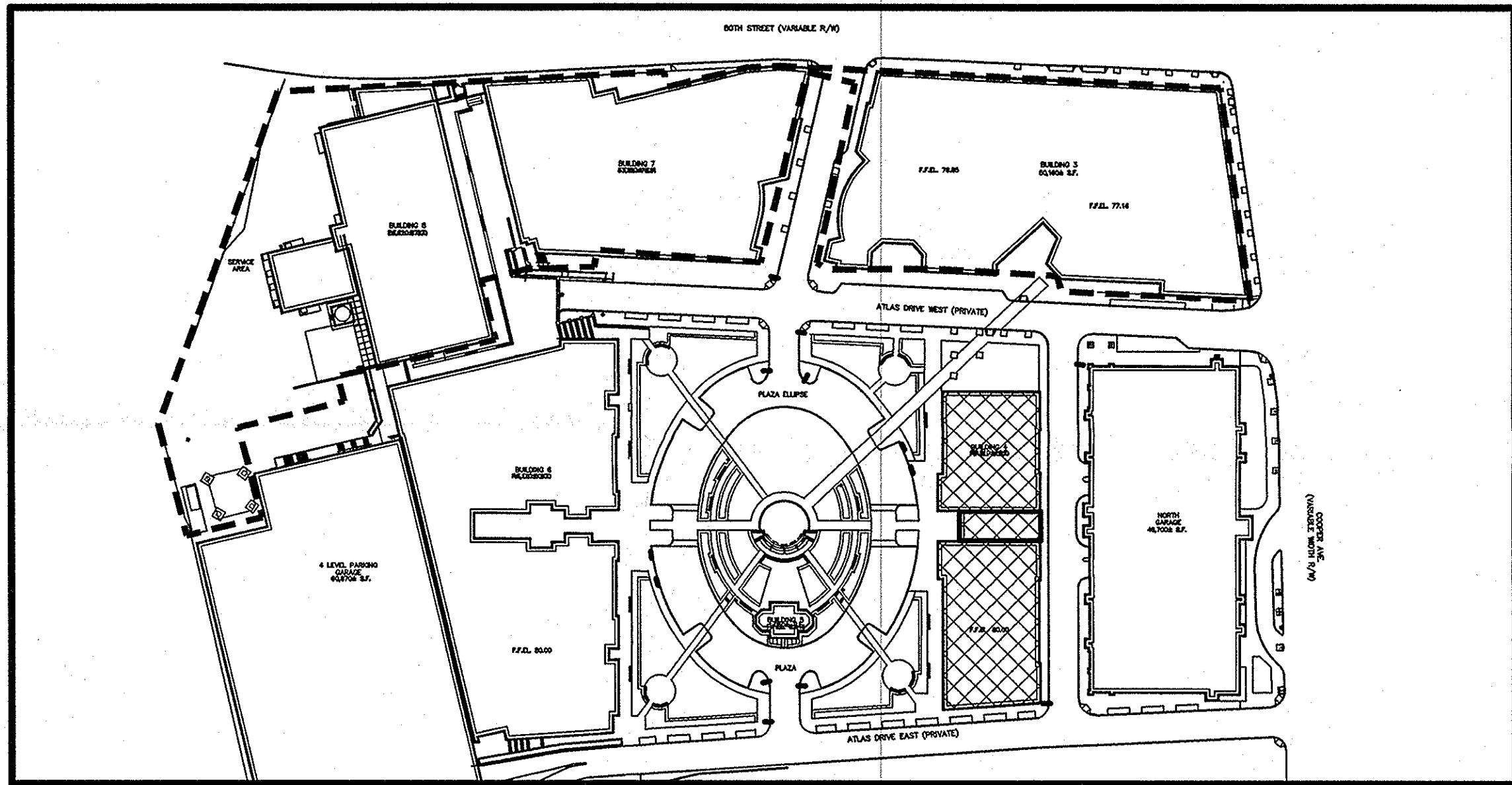



Base Map taken from New York USGS Quadrangle Map - Jamaica

SITE LOCATION MAP

LIST OF DRAWINGS		
DRAWING NAME	SCALE	DRAWING NUMBER
COVER SHEET	NOT TO SCALE	B4-SSDS-0
SUB-SLAB DEPRESSURIZATION SYSTEM LAYOUT (AS-BUILT)	1" = 16'	B4-SSDS-1
CELLAR AND FIRST FLOOR PLANS (AS-BUILT)	1" = 16'	B4-SSDS-2
SECOND FLOOR AND ROOF PLANS (AS-BUILT)	1" = 16'	B4-SSDS-3
SUB-SLAB DEPRESSURIZATION SYSTEM DETAIL (AS-BUILT)	AS SHOWN	B4-SSDS-4

SITE KEY PLAN





JOEL B. LANDES
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12/27/06



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NEW JERSEY PENNSYLVANIA NEW YORK CONNECTICUT FLORIDA

NJ Certificate of Authorization No: 24GA27998400

Project

THE SHOPS AT ATLAS PARK
BUILDING 4 SUB-SLAB
DEPRESSURIZATION SYSTEM
AS-BUILTS

QUEENS

NEW YORK

Drawing Title

COVER SHEET

Project No. 5555113

Date 12/26/06

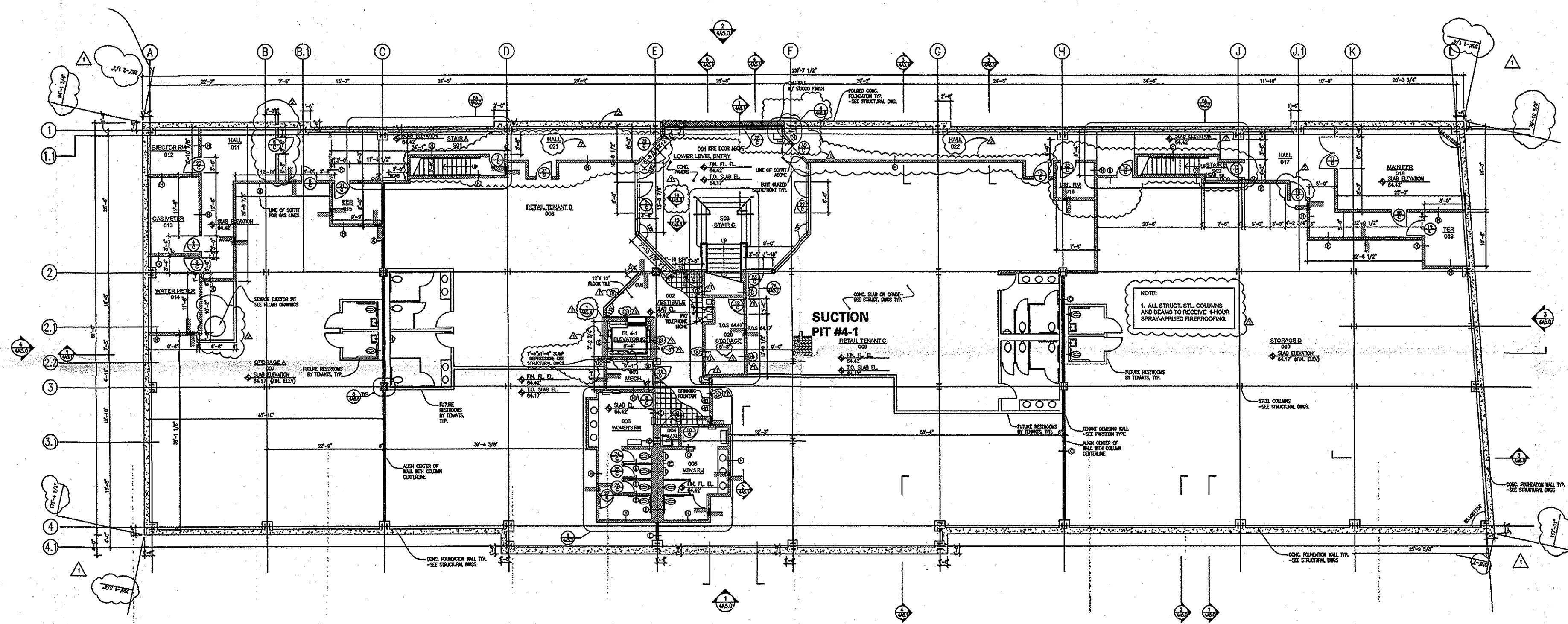
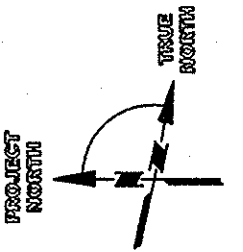
Scale NOT TO SCALE

Drn. By PP

Last Revised

Drawing No.

B4-SSDS-0



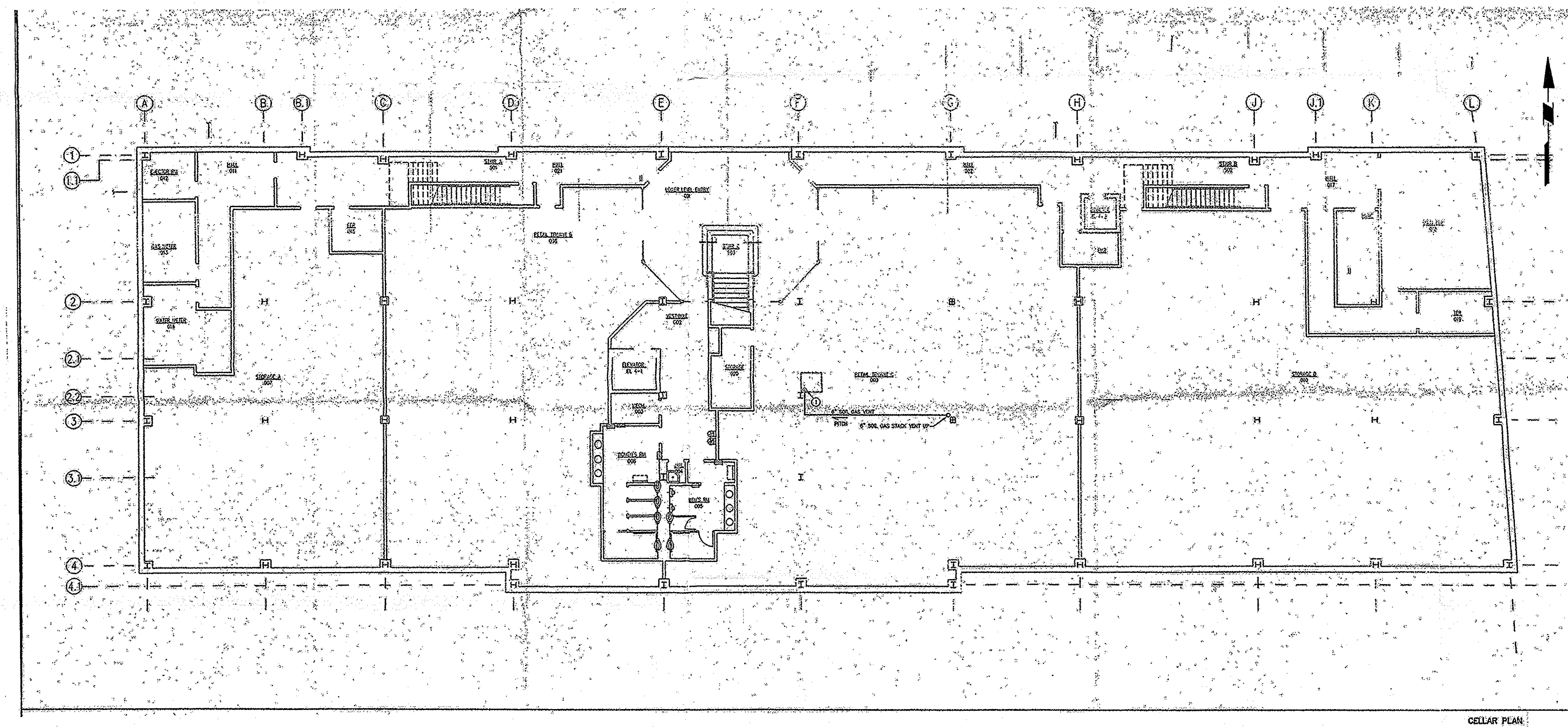
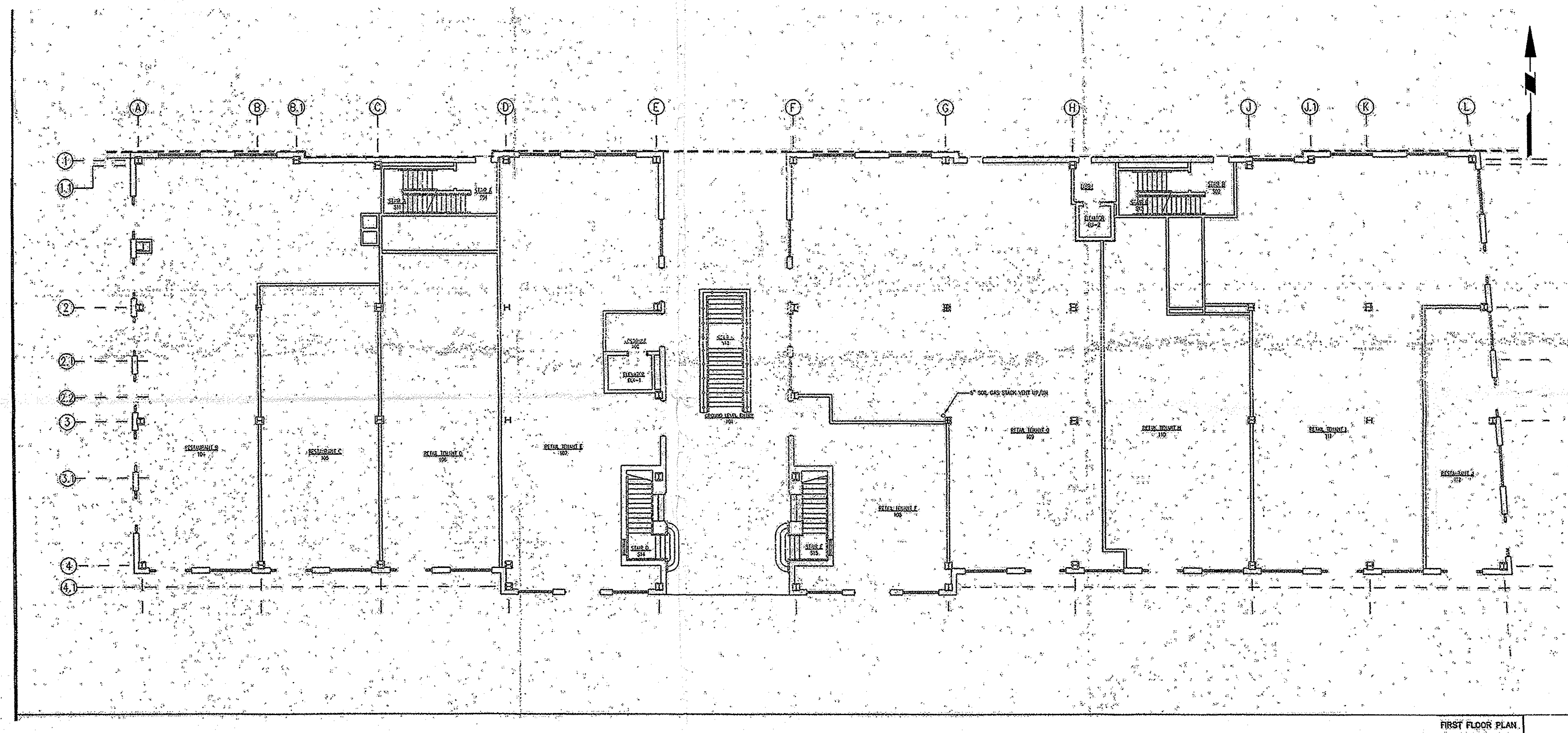
NOTES:



(1) BASE PLAN IS THE BUILDING 4 BASEMENT LEVEL PLAN, DRAWING 4-A2.0, DEVELOPED BY THANHAUSER ESTERSON KAPPELL ARCHITECTS AND DATED 19 APRIL 05.

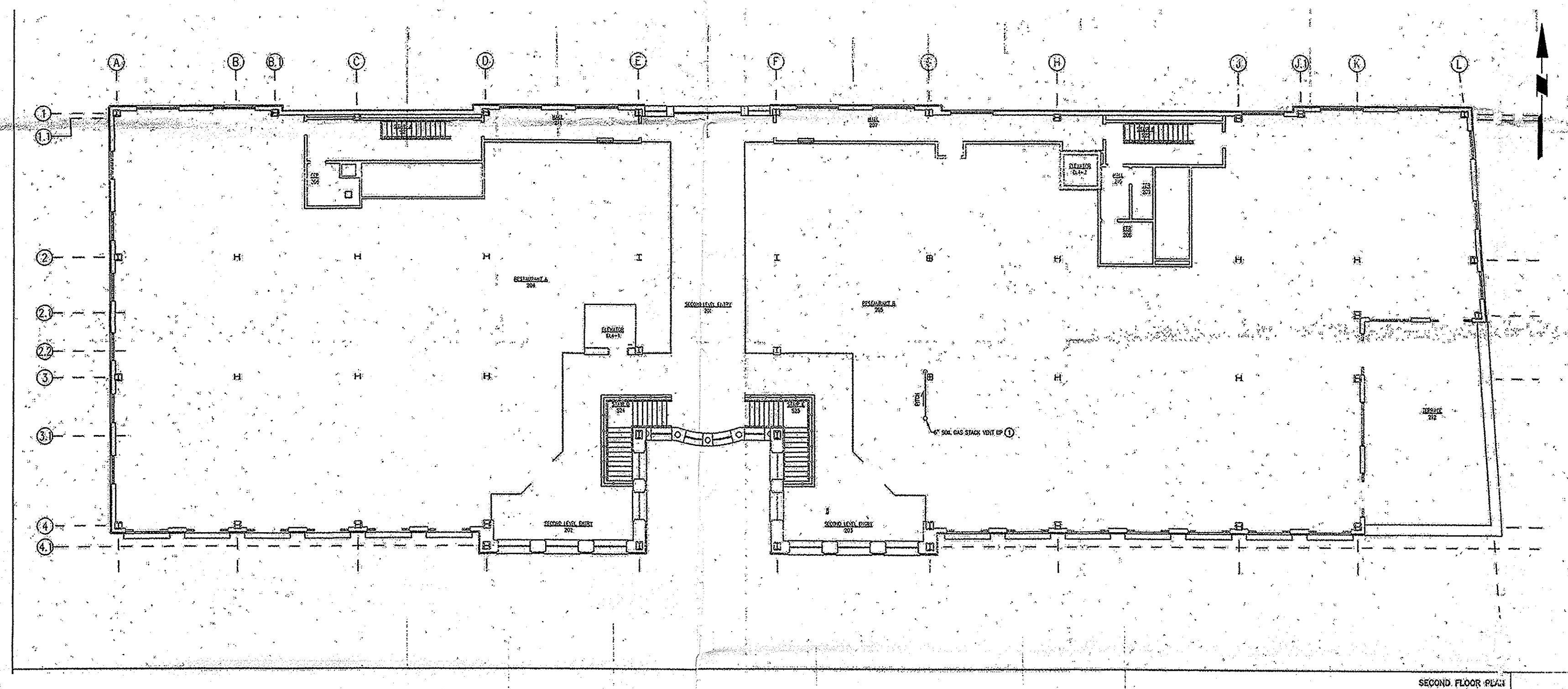
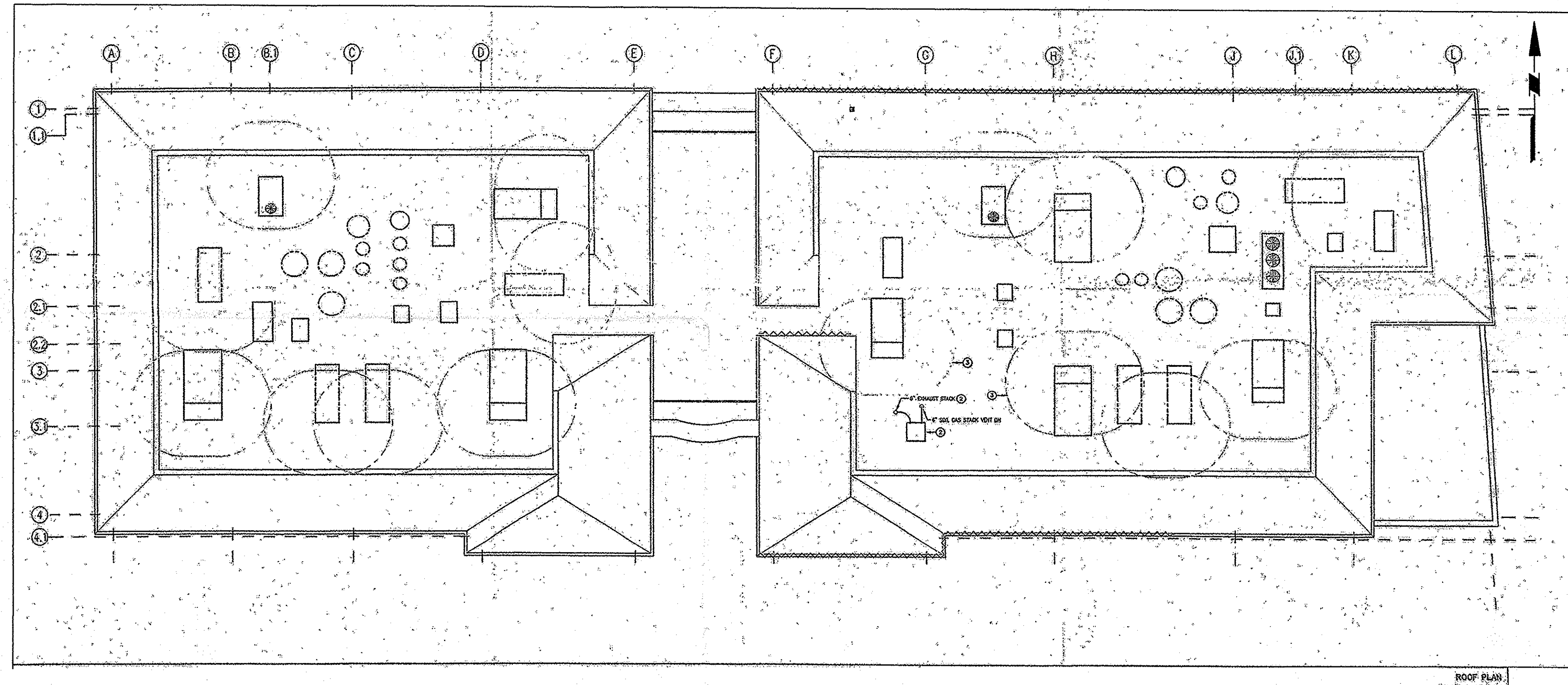
(2) A DETAIL OF THE SUCTION PIT IS SHOWN ON DRAWING B4-SSDS-4.

(3) SUCTION PIT LOCATIONS MAY BE SHIFTED WITH APPROVAL FROM LANGAN ENGINEERING TO ACCOMMODATE OTHER BUILDING COMPONENTS OR ARCHITECTURAL DETAILS.

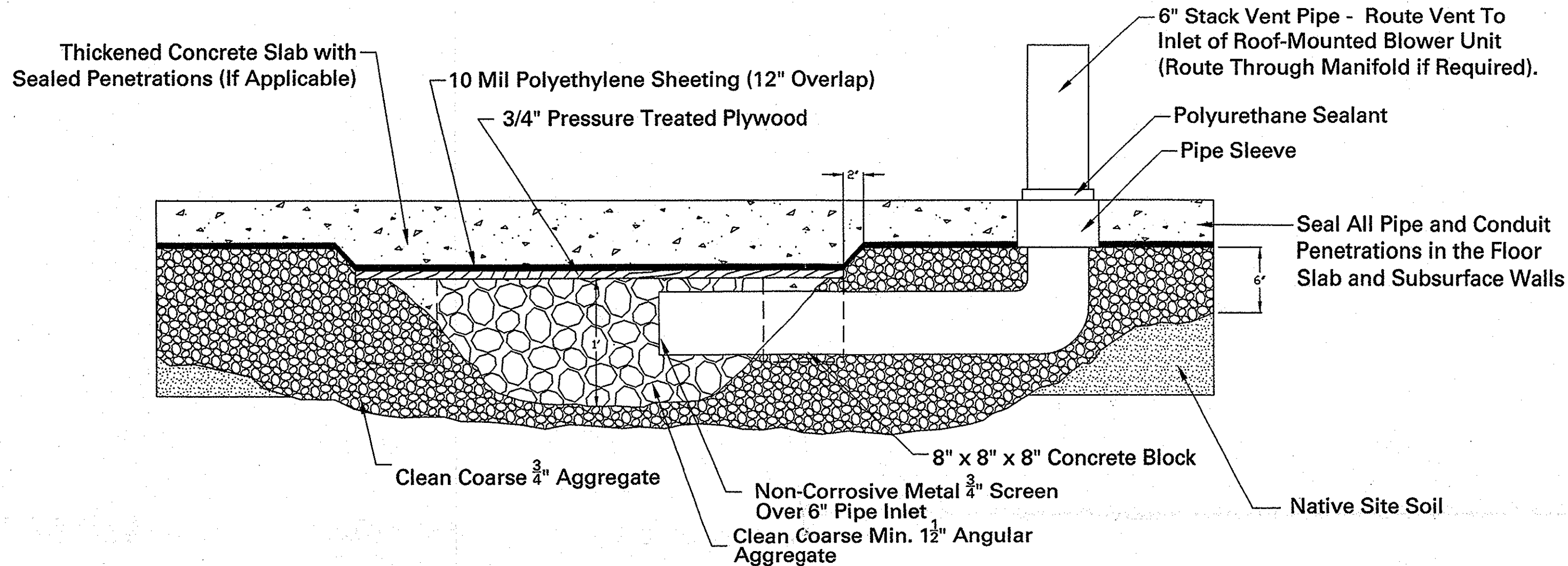
ANY REVISIONS REQUIRE EDIT TO LAST REVISED DATE					Project THE SHOPS AT ATLAS PARK GLENDALE QUEENS NEW YORK	Drawing Title BUILDING 4 SUB-SLAB DEPRESSURIZATION SYSTEM LAYOUT (AS-BUILT)	Project No. 5555107	Drawing No.
Date	Description	No.					Date 12/22/06	B4-SSDS-1
	Revisions						Scale 1" = 16'	
							Drn. By JH	
			JOEL B. LANDES PROFESSIONAL ENGINEER N.Y. LIC. No. 076348 12/27/06	NEW JERSEY PENNSYLVANIA NEW YORK CONNECTICUT FLORIDA NJ Certificate of Authorization No. 24GA27886400			Last Revised	1 Of 4



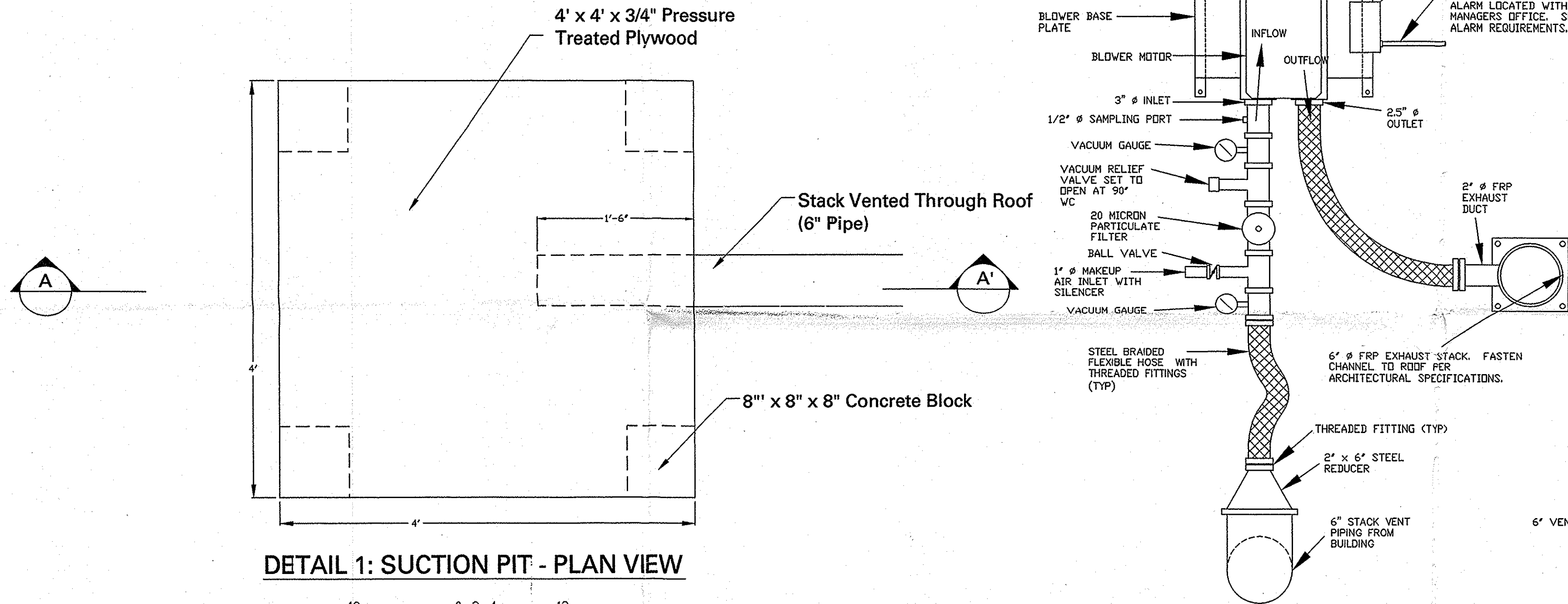
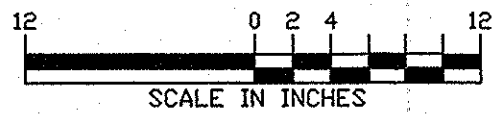
				 21 Penn Plaza 360 West 31st Street, Suite 900 New York, NY 10001-2727 P: 212.479.5400 F: 212.479.5444 www.langan.com NEW JERSEY PENNSYLVANIA NEW YORK CONNECTICUT FLORIDA NJ Certificate of Authorization No: 24GA27998400	Project THE SHOPS AT ATLAS PARK GLENDALE QUEENS NEW YORK	Drawing Title BUILDING 4 CELLAR AND FIRST FLOOR PLANS (AS-BUILT)	Project No. 5555107 Date 12/22/06 Scale 1" = 16' Drn. By JH Last Revised	Drawing No. B4-SSDS-2 2 Of 4
ANY REVISIONS REQUIRE EDIT TO LAST REVISED DATE								
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Revisions								
JOEL B. LANDES PROFESSIONAL ENGINEER N.Y. LIC. No. 076348			12/27/06					



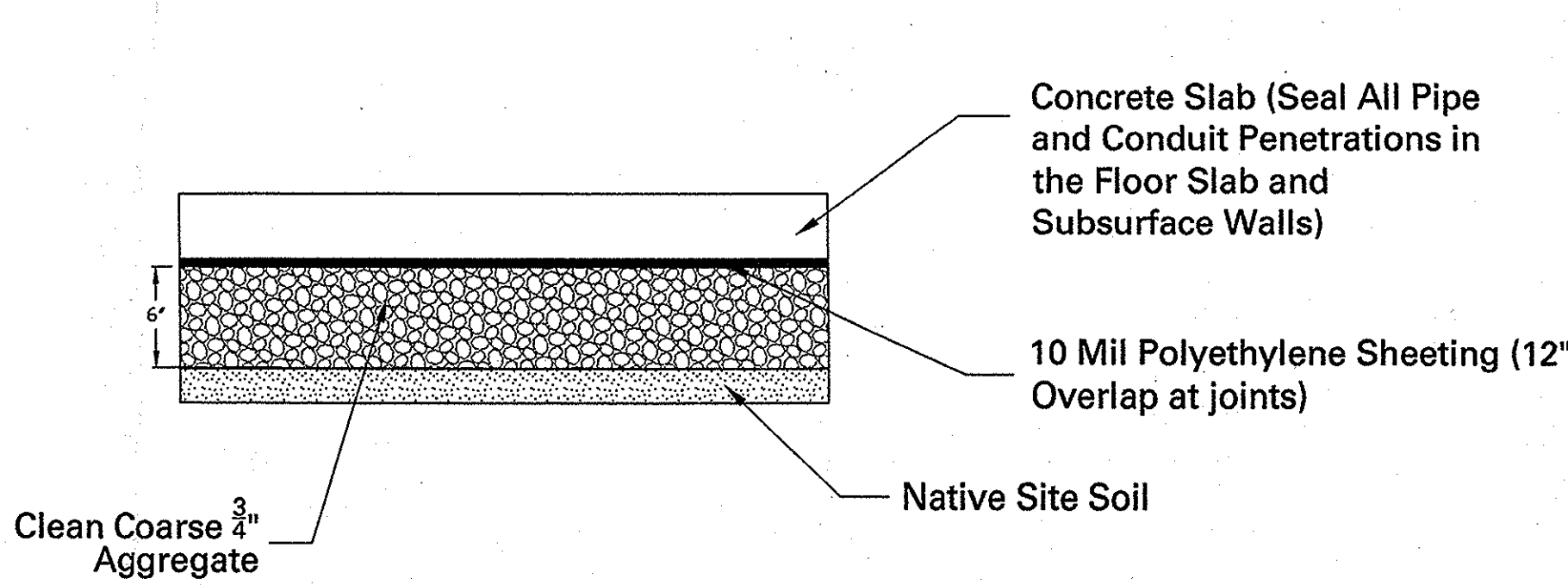
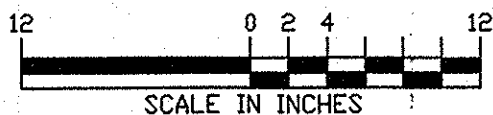
ANY REVISIONS REQUIRE EDIT TO LAST REVISED DATE <table border="1"> <thead> <tr> <th>Date</th> <th>Description</th> <th>No.</th> </tr> </thead> <tbody> <tr> <td colspan="3">Revisions</td> </tr> </tbody> </table>			Date	Description	No.	Revisions			<p>JOEL B. LANDES PROFESSIONAL ENGINEER N.Y. LIC. No. 076343</p>	<p>21 Penn Plaza 380 West 31st Street, Suite 900 New York, NY 10001-2727 P: 212.479.5400 F: 212.479.5444 www.langan.com</p> <p>NEW JERSEY PENNSYLVANIA NEW YORK CONNECTICUT FLORIDA NJ Certificate of Authorization No. 24GA27998400</p>	Project THE SHOPS AT ATLAS PARK GLENDALE QUEENS NEW YORK	Drawing Title BUILDING 4 SECOND FLOOR AND ROOF PLANS (AS-BUILT)	Project No. 5555107 Date 12/22/06 Scale 1" = 16' Dwn. By JH Last Revised	Drawing No. B4-SSDS-3 3 Of 4
Date	Description	No.												
Revisions														



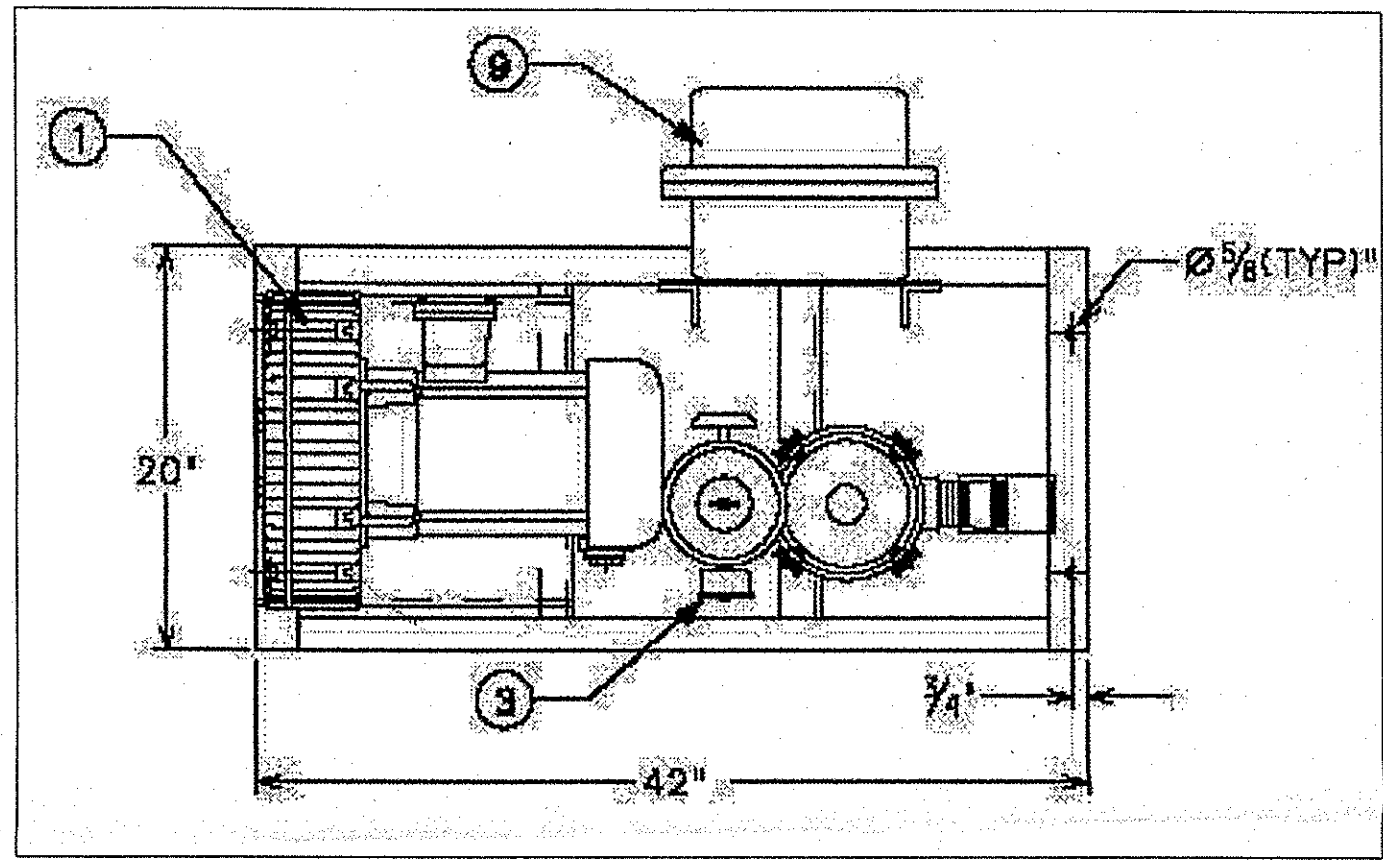
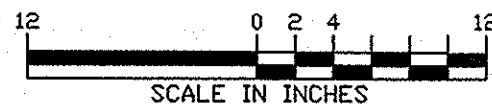
DETAIL 2: SUCTION PIT SECTION A - A'



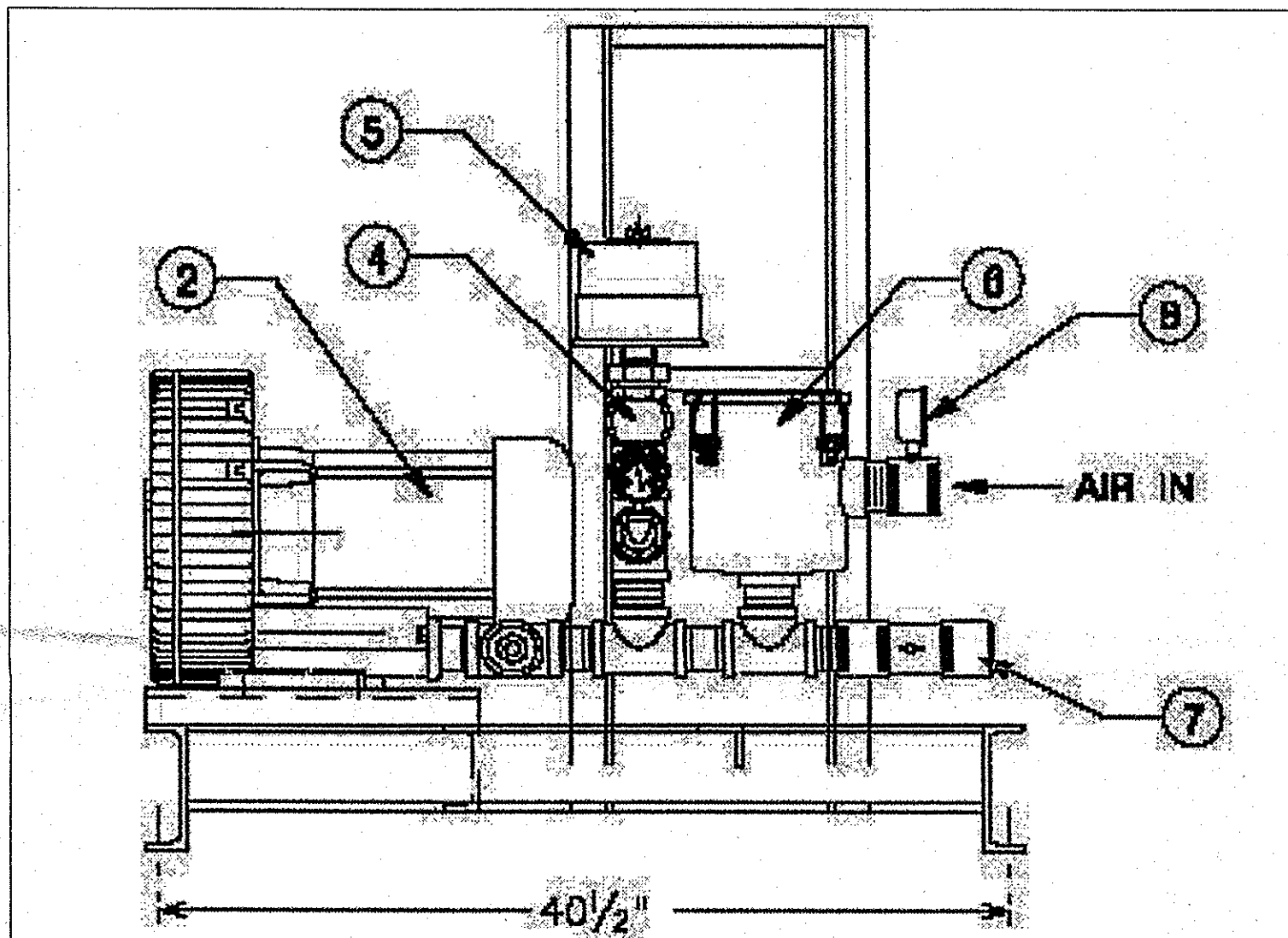
DETAIL 1: SUCTION PIT - PLAN VIEW



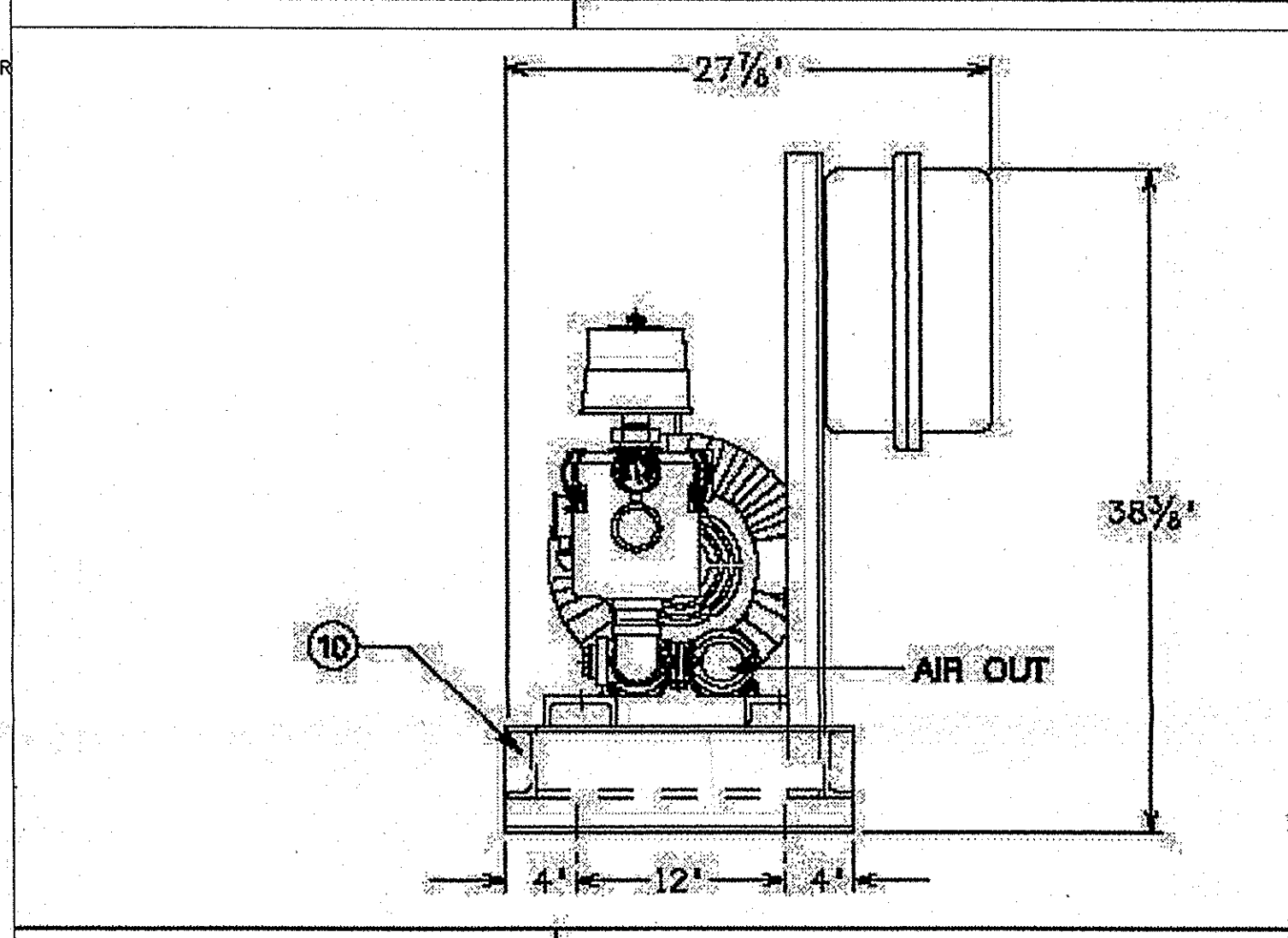
DETAIL 3: TYPICAL SLAB-ON-GRADE CONSTRUCTION



DETAIL 6
ROOF-MOUNTED BLOWER SKID SCHEMATIC
- PLAN VIEW
NOT TO SCALE



DETAIL 5: VALVE MANIFOLD FOR BLDG 6,
SUCTION PIT #6-1 AND #6-2
NOT TO SCALE



DETAIL 7: ROOF-MOUNTED BLOWER SKID
SCHEMATIC - ELEVATION VIEWS
NOT TO SCALE

GENERAL NOTES

- (1) DESIGN DETAILS AND DRAWING ARE ADAPTED FROM EPA DOCUMENT EPA/625/R-92/016.
- (2) INSTALLATION OF THE SOIL GAS COLLECTION AND VENT PIPING MUST BE COORDINATED WITH THE INSTALLATION OF OTHER UTILITIES.
- (3) ALL CONNECTIONS AT THE VENT PIPE FITINGS AND JOINTS SHALL BE LEAK FREE. THIS SHALL BE DEMONSTRATED BY THE PERFORMANCE OF A 10 PSI (MIN.) AIR PRESSURE TEST FOLLOWING PIPE/FITTINGS ASSEMBLY.
- (4) VENT (RISER) PIPE MATERIAL SHALL BE SELECTED BY THE CONTRACTOR IN ACCORDANCE WITH APPLICABLE BUILDING CODE.
- (5) RISER PIPE SHALL BE EXTENDED TO THE ROOF WITH MINIMAL CHANGES IN DIRECTION.
- (6) ALL PIPE AND CONDUIT PENETRATIONS THROUGH THE SLAB AND SUBSURFACE WALLS SHALL BE SEALED WITH A HIGH ADHESIVE SEALANT (GE POLYURETHANE SEALANT, MODEL GE39495 12C, OR APPROVED EQUIVALENT).
- (7) ALL HORIZONTAL PIPE RUNS MUST BE PITCHED A MINIMUM OF 1/8\"/>

BLOWER NOTES

- (1) THE BLOWER ASSEMBLY FOR PITS #6-1 AND #6-2 (COMBINED WITH MANIFOLD) SHALL PROVIDE A 65 CFM FLOW RATE AT A MINIMUM OF 35 INCHES WC VACUUM (IN CONTINUOUS OPERATION) AT THE BLOWER INLET. THE BLOWER ASSEMBLY FOR PIT #6-3 SHALL PROVIDE A 180 CFM FLOW RATE AT A MINIMUM OF 35 INCHES WC VACUUM (IN CONTINUOUS OPERATION) AT THE BLOWER INLET. THE BLOWER ASSEMBLY FOR PIT #4-1 SHALL PROVIDE A 120 CFM FLOW RATE AT A MINIMUM OF 35 INCHES WC VACUUM (IN CONTINUOUS OPERATION) AT THE BLOWER INLET.
- (2) THE BLOWER SCHEMATICS ARE SHOWN TO ILLUSTRATE THE REQUIRED COMPONENTS AND THEIR GENERAL LOCATIONS IN THE PIPING RUN. THE ACTUAL CONFIGURATION AND DIMENSIONS OF THE BLOWER ASSEMBLY MAY VARY BASED ON MANUFACTURING METHODS AND FIELD CONDITIONS.
- (3) EACH BLOWER ASSEMBLY INCLUDING BLOWER, MOTOR, BASEPLATE, CONTROL PANEL, REMOTE VISUAL ALARM, VALVES, GAUGES, FILTER, AND FLEXIBLE HOSE SHALL BE AIRTECH MODEL NUMBERS 2BH1 400-7A H16 (PITS #6-1 AND #6-2), 2BH1 600-7A H16 (PIT #6-1), AND 2BH1 500-7A H16 (PIT #4-1) BLOWER PACKAGE UNITS. THE BLOWER SHALL BE HOUSED IN AN ANVOR CORPORATION SOUND ENCLOSURE MODEL SDE-8 OR APPROVED ALTERNATIVE. THE BLOWER SHALL BE INSTALLED WITHIN THE ENCLOSURE BY THE BLOWER MANUFACTURER.
- (4) THE ELECTRICAL PANEL FOR THE BLOWER SHALL INCLUDE AN AUXILIARY CONTACT FOR THE REMOTE ALARM AND WILL BE MOUNTED ON THE EXTERIOR OF THE ENCLOSURE. THE ELECTRICAL PANEL SHALL BE HOUSED IN NEMA 3R ENCLOSURE. THE REMOTE ALARM SHALL BE LOCATED WITHIN A BUILDING MANAGERS OFFICE. THE ALARM SHALL CONSIST OF A WARNING LIGHT, NEMA 12 ENCLOSURE, AND ASSOCIATED RELAYS AS MANUFACTURED BY AIRTECH. THE REMOTE ALARM AND BLOWER CONTROL PANEL SHALL BE CONFIGURED SUCH THAT IF THE BLOWER STOPS OPERATING, THE REMOTE ALARM WILL BE ACTIVATED. A 120V ELECTRICAL SUPPLY SHALL BE PROVIDED TO THE REMOTE PANEL.
- (5) THE REMOTE VISUAL ALARM SHALL BE LABELED AS FOLLOWS:
 - SUB-SLAB VAPOR VENTING SYSTEM ALARM
 - BLOWER MALFUNCTION IF LIT
 - SERVICE BLOWER IMMEDIATELY
- (6) THE BLOWER MOTOR WILL REQUIRE A 3 PHASE, 60 HZ, 480 VOLT POWER SUPPLY (230 VOLT MAY BE ACCEPTABLE UPON OWNER APPROVAL). THE CONTROL PANEL FOR THE BLOWER WILL REQUIRE A 115 VOLT POWER SUPPLY. THE REMOTE VISUAL ALARM WILL REQUIRE A 115 VOLT POWER SUPPLY FROM THE BUILDING'S ELECTRICAL SYSTEM. COORDINATE POWER SUPPLIES WITH BUILDING POWER FLOOR PLAN.

ANY REVISIONS REQUIRE EDIT TO LAST REVISED DATE	

JOEL B. LANGAN
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12/27/06

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Project
THE SHOPS AT ATLAS PARK
GLENDALE
QUEENS
NEW YORK

Drawing Title
SUB-SLAB DEPRESSURIZATION SYSTEM DETAIL (AS-BUILT)

Project No. 5555107	Drawing No. B4-SSDS-4
Date 12/22/06	
Scale As Shown	
Drn. By JH	
Last Revised	4 Of 4



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December 30, 2005

Mr. Jamie P. Barr
Assistant Project Manager

LANGAN | *ENGINEERING & ENVIRONMENTAL SERVICES*

21 Penn Plaza

360 West 31st Street, 8th Floor

New York, NY 10001-27278, via email jbarr@Langan.com

Re: Atlas Park Sub-Slab Evaluation and Smoke Test
Buildings 4 & 6, Glendale, Queens, NY
LEA Project #05-323

Dear Mr. Barr:

On December 14, 2005, Scott Yanuck and Nicholas Mouganis completed evaluation of the effectiveness of the existing sub-slab venting (depressurization) system by measuring the created pressure field. Upon inspection of the buildings, we found all sub-slab systems operational, all suction pits completed, and the majority of the joints in the slab sealed.

This evaluation consisted of a series of sub-slab air communication tests to measure the pressure differential created by the system in operation at various points in each of two buildings. In the process, we determined the radius of influence for each suction pit. Small diameter test holes were drilled into the slab at strategic measuring point locations and at varying distances from each suction pit. Differential pressure measurements at these points enabled us to characterize, by interpolation or extrapolation, the extent and intensity of the active pressure field. Measurement was by digital manometer. This procedure was repeated until sufficient data was gathered to indicate the perimeter of the detectable influence area (minimum .001 water column inches). Test holes were filled with backer rod and urethane caulk at conclusion of testing.

All measurements are documented in this report and attached pressure field map. Based on inspection of the systems, measurements and smoke testing completed, we have the following comments and conclusions:

1. An inspection of risers and suction pits found all locations complete, with no deficiencies noted.
2. A number of deficiencies in the slab were noted near suction pits 6-1 and 6-2. These consisted of non-caulked joints along the parking garage wall in the 6-2 floor and several areas missing a concrete slab in the 6-1 floor. Sewer or drainage sumps noted near 6-1 are not connected with the sub slab, as smoke did not get drawn into openings at grade.
3. With the exception of deficiencies noted in the concrete slabs near suction pits 6-1 and 6-2, smoke testing did not observe any drawdown of smoke into the slab along expansion joints, cracks, piping protrusions and other likely points of connection to the sub-slab.

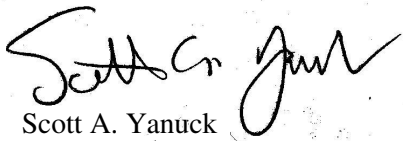
4. A quantitative evaluation of the effectiveness sub-slab system to create a measurable negative pressure field that extends throughout the sub-slab(s) of each building found satisfactory negative pressure fields in slabs treated by suction pits 4-1 and 6-3. The slabs serviced by suction pits 6-1 and 6-2 failed the test. Vacuum measured at the pipe leading into suction pit 6-1 was 0.117 inches of water and was similarly low at 6-2. With a vacuum at the blower specified at 35 inches of water, there was an obvious system malfunction. There was no measurable negative pressure field beyond forty feet from suction pit 6-1. There was no measurable negative pressure field and beyond ninety feet from suction pit 6-2.

A re-evaluation of the effectiveness of suction pits 6-1 and 6-2 should be completed after repairs have been made to the system blower, valves and/or slab and joints. The actual date of system evaluation will be based on weather conditions favorable to performance of the tests in an environment open to the weather, e.g. in the absence of heavy winds that could affect the results of the evaluation.

We will document and report all points of connection or failure to the Langan site representatives. We require two sets of working size building foundation plan drawings indicating the suction pit locations. We also require the personnel or the means to switch the blowers off and on repeatedly during the course of the evaluation. Access to all areas and a means to reach piping is required and 110/120v power is assumed available to power our equipment. The evaluation requires the drilling of a series of 3/4-inch diameter holes in the slab to allow for the temporary installation of a digital manometer. When done, all holes will be filled with urethane caulk.

If you have any questions, please contact me.

Respectfully submitted by,
Laurel Environmental Associates, Ltd.



Scott A. Yanuck
President

Attached: Table I
 Photographs
 Sub-Slab Depressurization Sketches

TABLE I

Evaluation, of Sub-Slab System on December 14, 2005

Suction Point 6-1

Location	Inches WC	Distance from Suction Point in feet
TP-6-1-1	<0.001	40
TP-6-1-2	0.005	16
TP-6-1-3	0.004	20
TP-6-1-4	0.008	30

Suction Point 6-2

Location	Inches WC	Distance from Suction Point in feet
TP-6-2-1	<0.001	90
TP-6-2-2	0.002	55
TP-6-2-3	0.003	40
TP-6-2-4	0.026	20
TP-6-2-5	0.025	20
TP-6-2-1	<0.001	90
TP-6-2-1	<0.001	90

Suction Point 6-3

Location	Inches WC	Distance from Suction Point in feet
TP-6-3-1	0.110	65
TP-6-3-2	0.055	120
TP-6-3-3	0.050	140
TP-6-3-4	0.068	148
TP-6-3-5	0.077	136
TP-6-3-6	0.095	100
TP-6-3-7	0.105	70
TP-6-3-8	0.040	112
TP-6-3-9	0.012	184
TP-6-3-10	0.009	168
TP-6-3-11	0.008	80
TP-6-3-12	0.009	96

Suction Point 4-1

Location	Inches WC	Distance from Suction Point in feet
TP-4-1-1	0.445	56
TP-4-1-2	0.030	132
TP-4-1-3	0.150	104
TP-4-1-4	0.180	75
TP-4-1-5	0.185	128

WC = Water Column

TP = Test Point



Photo 1, Smoke test at test point



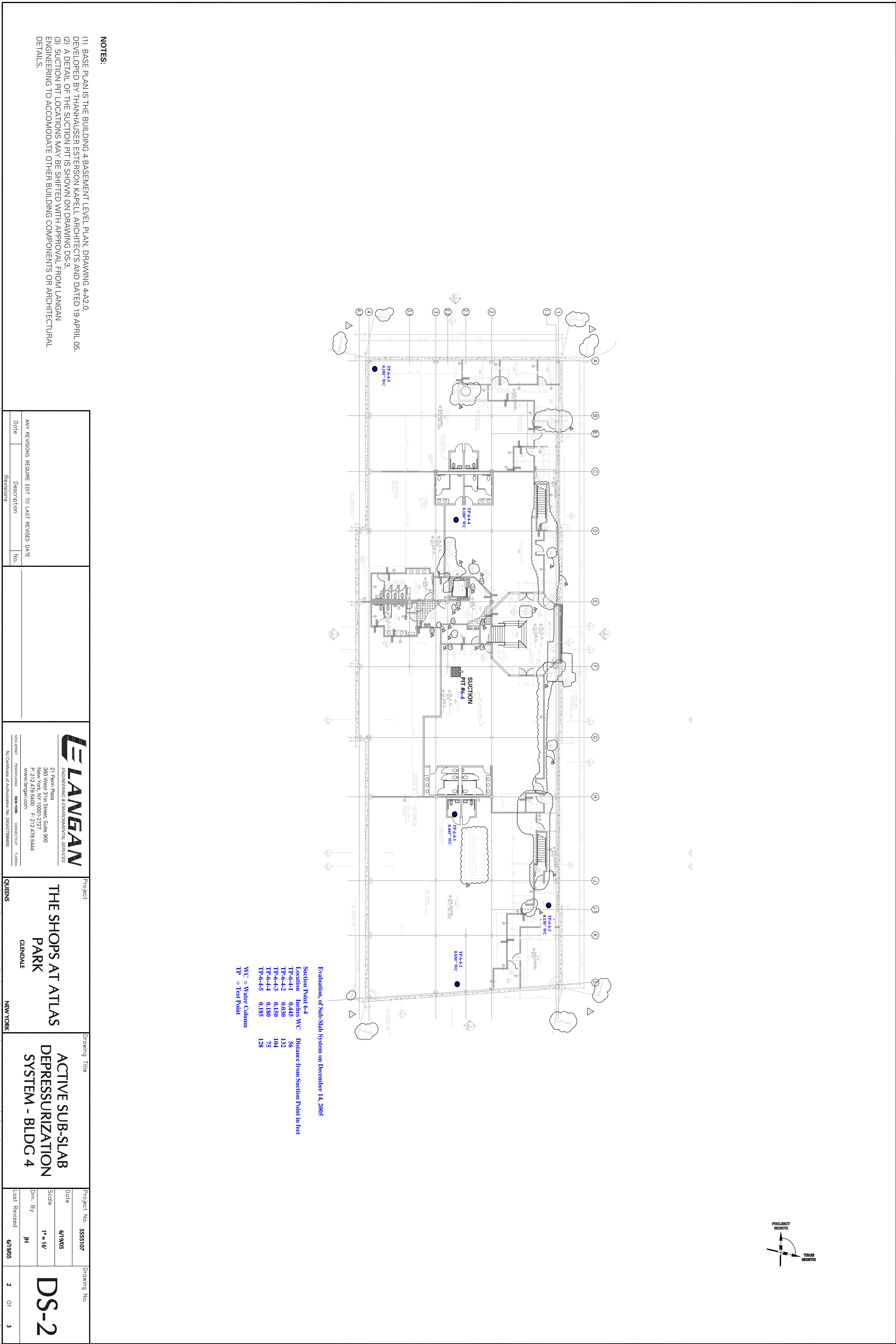
Photo 2, Sealed and labeled test point



Photo 3, Smoke test of electrical conduits



Photo 4, unfinished slab in close proximity to Suction Point 6-1

[illegible][illegible]

- [illegible]

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