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workplan.bcp.C356032.2009-09-15.SSDS_Design

September 15, 2009

James E. Candiloro, P.E.
Project Engineer
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway, Albany, New York 12233-7014

Clayton Engineering Project Number 99008-008205.09

Re: Sub-Slab Depressurization System Design and Effectiveness Evaluation Plan
10 East Chester Street
Site No. C356032
Kingston, Ulster County

Dear Mr. Candiloro:

Clayton Engineering, P.C. (Clayton), on behalf of PPI Broadway, Ltd. and Walgreen Company, is pleased to submit the final sub-slab depressurization system design and effectiveness evaluation plan for the redevelopment of the 10 East Chester Street site (the Site) in Kingston, New York. This submittal is made in accordance with the requirements of the Site Management Plan (SMP), dated December 2006, and correspondence from the New York State Department of Environmental Conservation (NYSDEC) on August 20 and December 15, 2008.

Clayton submitted a draft sub-slab depressurization system design on December 10, 2008 for review by the NYSDEC and New York State Department of Health (NYSDOH). The NYSDEC stated in its December 15, 2008 response to the draft submittal that "sampling to determine the effectiveness of the system must be conducted in accordance with Section 4.3 of the NYSDOH, Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006" (guidance document). The NYSDEC also requested that a final sub-slab depressurization system design, stamped by a professional engineer licensed in the State of New York, be prepared. The design must be submitted along with a plan to evaluate the effectiveness of the system. The final stamped design is attached. The plan to evaluate the effectiveness of the system is provided herein.

The NYSDEC also requested that a construction completeness report be provided to document the construction, operation and evaluation of the sub-slab depressurization system. Construction is anticipated to be completed in late 2009. The construction completeness report will be prepared and submitted following construction, initiation of system operation and completion of the effectiveness sampling and evaluation.

BACKGROUND

The Site consists of approximately 1.0 acre of land. The Site and surrounding properties have been used for a variety of commercial operations including a dry cleaning facility, gasoline service station, and a trolley barn/school bus maintenance garage. Based on findings detailed in previous reports, the contaminants of concern at the Site include volatile organic compounds associated with solvents (i.e. trichloroethylene and tetrachloroethylene) and petroleum

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compounds. The NYSDEC has accepted the Site into the Brownfield Cleanup Program (BCP). Site remediation activities were conducted in accordance with a Remedial Action Plan and Remedial Design Plan approved by the NYSDEC. A Certificate of Completion (COC), dated December 14, 2006, was issued by NYSDEC for the Site brownfield activities. The COC was issued to affirm that the Site remediation has been (or will be) completed in accordance with the remedial work plan and in accordance with New York State Environmental Conservation Law.

Clayton Engineering understands that the Site is currently subject to institutional / engineering controls as described in the SMP, dated December 2006, and use restrictions stipulated in the COC. The SMP and COC require that any structures on the Site be "constructed with a sub-slab depressurization system approved by the NYSDEC". This submission provides the final sub-slab depressurization system design and the methodology for conducting an effectiveness evaluation of the system following installation.

SUB-SLAB DEPRESSURIZATION SYSTEM DESIGN

The sub-slab depressurization system (SSD) was designed by Clayton Engineering pursuant to Section 4.2 "Design and Installation of Mitigation Systems" and subsection 4.2.2 (c) "Depressurization Systems" of the NYSDOH guidance document. The SSD is a passive system designed to be modified to an active system if required by the NYSDOH.

The draft plan was submitted to the NYSDEC and NYSDOH in December 2008 for review. Clayton Engineering received the NYSDEC letter dated December 15, 2008 including comments and direction to submit the Design in final form, signed and sealed by a State of New York licensed Professional Engineer as well as an effectiveness sampling plan. The final system design is submitted as an 11 by 17-inch attachment and D-size drawing.

SUB-SLAB DEPRESSURIZATION SYSTEM - EFFECTIVENESS SAMPLING PLAN

Clayton Engineering will monitor the installation of the SSD system to document that it is constructed in accordance with the system design. Following installation of the system and construction of the proposed building, Clayton Engineering will implement the SSD system effectiveness sampling plan as described in the following bullet points:

- A smoke tube will be introduced into the completed depressurization system to check for leaks through concrete cracks, floor joints, and at the roof vent riser piping. The smoke tube will be lowered into the system through the roof vent riser and the vent sealed to permit the smoke to disperse throughout the system. Leaks identified in this manner will be resealed until smoke is no longer observed flowing through the opening. Following completion of the test, the vent riser will be unsealed and the smoke tube removed.
- The SSD system design includes a manometer or differential pressure gauge mounted on the wall adjacent to the vent riser as an indicator of system operation. The purpose of the manometer or differential pressure gauge is to demonstrate that the pressure within the SSD system does not exceed the pressure within the structure. The manometer or gauge function will be confirmed following the manufacturer's procedures. The manufacturer's recommended procedure(s), as available, will be provided to the NYSDEC upon request.
- Sampling of the indoor air and vented sub-slab vapors will be conducted following completion of the construction of the building. Air samples will be collected before potentially interfering factors (e.g. paints, adhesives, carpets, etc.) are brought into the building. If sampling cannot be completed prior to the introduction of potentially

interfering factors, sampling will be completed after an off-gassing period of 45 days. Sampling is proposed to be conducted during the 2009-2010 heating season which extends from approximately November 15 to March 31. However, these dates are not absolute; the timeframe for sampling may vary depending on factors such as weather conditions for a particular year.

- Air samples will be collected as follows: 1) indoor air within the center of the proposed structure, and 2) sub-slab vapors from a sample-cock to be installed in the system vent riser. Outdoor air samples are not required for newly constructed buildings (guidance document Section 4.3.1 "System with Sealing") and therefore, are not proposed as part of this plan.
- Vapor and air samples will be collected using 6 liter (L) stainless steel summa canisters. The samples will be analyzed for volatile organic compounds by a NYSDOH-certified and Environmental Laboratory Approval Program (ELAP) laboratory using United States Environmental Protection Agency method TO-15, in accordance with guidance document Section 2.9 "Analytical Methods".
- The vacuum will be checked in the Summa canister prior to collecting samples. The sampling rate will be set to approximately 12.5-13.0 milliliters per minute. Based on this rate the approximate sample time for a 6 L stainless steel Summa canisters will be 8 hours, which is representative of an 8-hour work shift consistent with the proposed commercial use of the structure.
- Conditions of the structure and Site during the sampling event will be documented in accordance with guidance document Section 2.7.3 "Indoor Air", including, but not limited to:
    - Site history and environmental background,
    - HVAC equipment operating at the time of sampling,
    - Floor plan and structure interior conditions/finishes,
    - Site exterior conditions and weather conditions, and
    - Any pertinent field observations such as noticeable spills, odors and field instrument readings (i.e., photoionization detector)
    - Condition of the building slab for possible breaches (i.e., cracks penetrations, etc.).
    - Inspection of the discharge point to verify that no intakes have been located nearby.

  Additional data and records to be collected / prepared during sampling include:
    a. sample identification
    b. date and time of sample collection
    c. identity of samplers
    d. sampling methods and devices
    e. volume of vapor extracted
    f. vacuum of canisters before and after samples collected, and
    g. chain of custody protocols and records used to track samples from sampling point to analysis.
- The State of New York has not developed standards, criteria or guidance values for concentrations of volatile chemicals in subsurface vapors such as sub-slab vapors; however, the NYSDOH has developed air guideline values which are presented in the guidance document Section 3.2.5 "Relevant Standards, Criteria and Guidance Values". Indoor air and sub-slab vapor sampling results will be evaluated following the soil vapor intrusion Guidance Section 3.3, "Sampling Results and Recommended Actions". A

determination of whether or not additional sampling is required will be made by the NYSDOH after review of the analytical data.

- Evaluation of the operation and a summary of the system maintenance and condition will be included in the review reports to be prepared annually for submission to the NYSDEC in accordance with the SMP and NYSDEC direction.

The proposed structure is not to include natural draft combustion appliances; therefore, backdrafting concerns are not anticipated for this structure. The SSD system is designed as a passive system, rather than an active system; therefore pressure field extension testing is not proposed for the system evaluation.

SSD SYSTEM - CONSTRUCTION COMPLETENESS REPORT

Clayton Engineering will prepare a letter report summarizing the site observations, sampling activities, analytical results, and data evaluation for submittal to the NYSDOH and NYSDEC. The letter report will include recommendations for additional soil vapor intrusion sampling, if considered warranted, and recommendations regarding continued passive SSD system operation and maintenance. If analytical results indicate that the system is not functioning to control vapor migration into the structure, the source of the vapors and corrective actions will be evaluated. If necessary, a possible corrective action, for which the SSD system is designed, may be conversion of the system to an active depressurization system with a powered venting unit.

CLOSURE

If you have any questions or need additional information, please contact one of the undersigned at (732) 225-6040.

Sincerely,

Bureau Veritas North America, Inc.

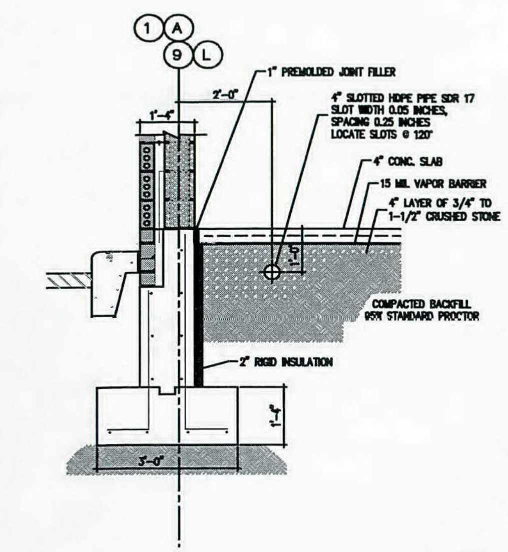
John A. Stangline
Senior Environmental Consultant

William S. Munoz, P.E., P.G.
President

Michael G. Roche, P.G.
Senior Project Manager

Attachment: SSD System Design

Cc: Mr. Randy Peacock, PPI Broadway, Ltd.
Mr. Brett Richer, Walgreen Co.



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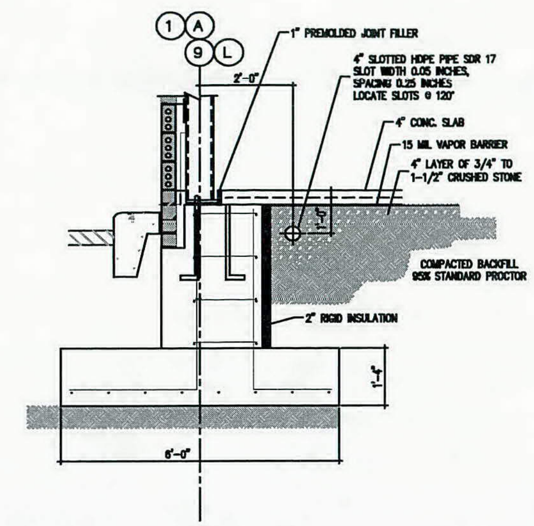
S1 SV-1



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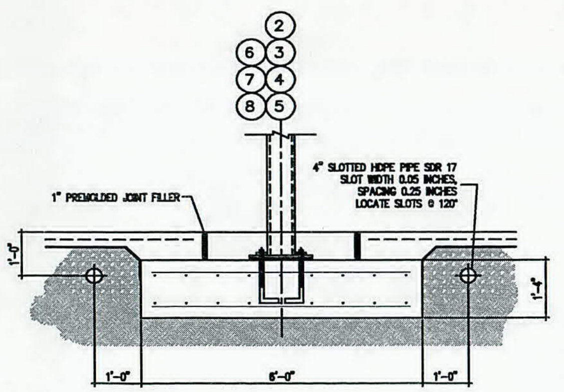
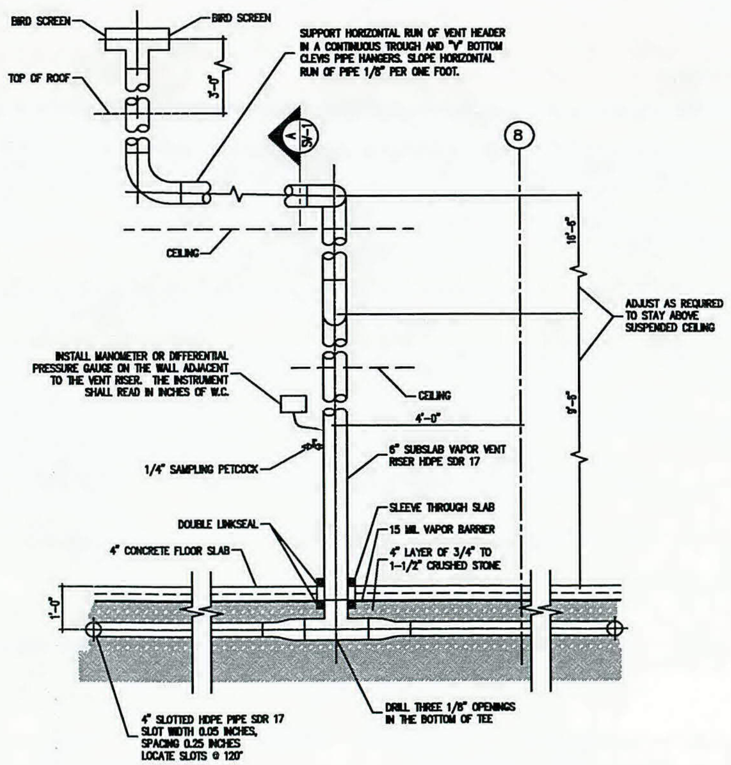
S2 SV-1



SECTION S3
1/2" = 1'-0"
S3 SV-1

NOTES:
1. ALL SLOTTED PIPING JOINTS SHALL BE FUSED OR SNAP ON BARBED TYPE



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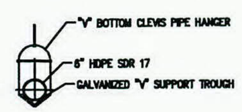
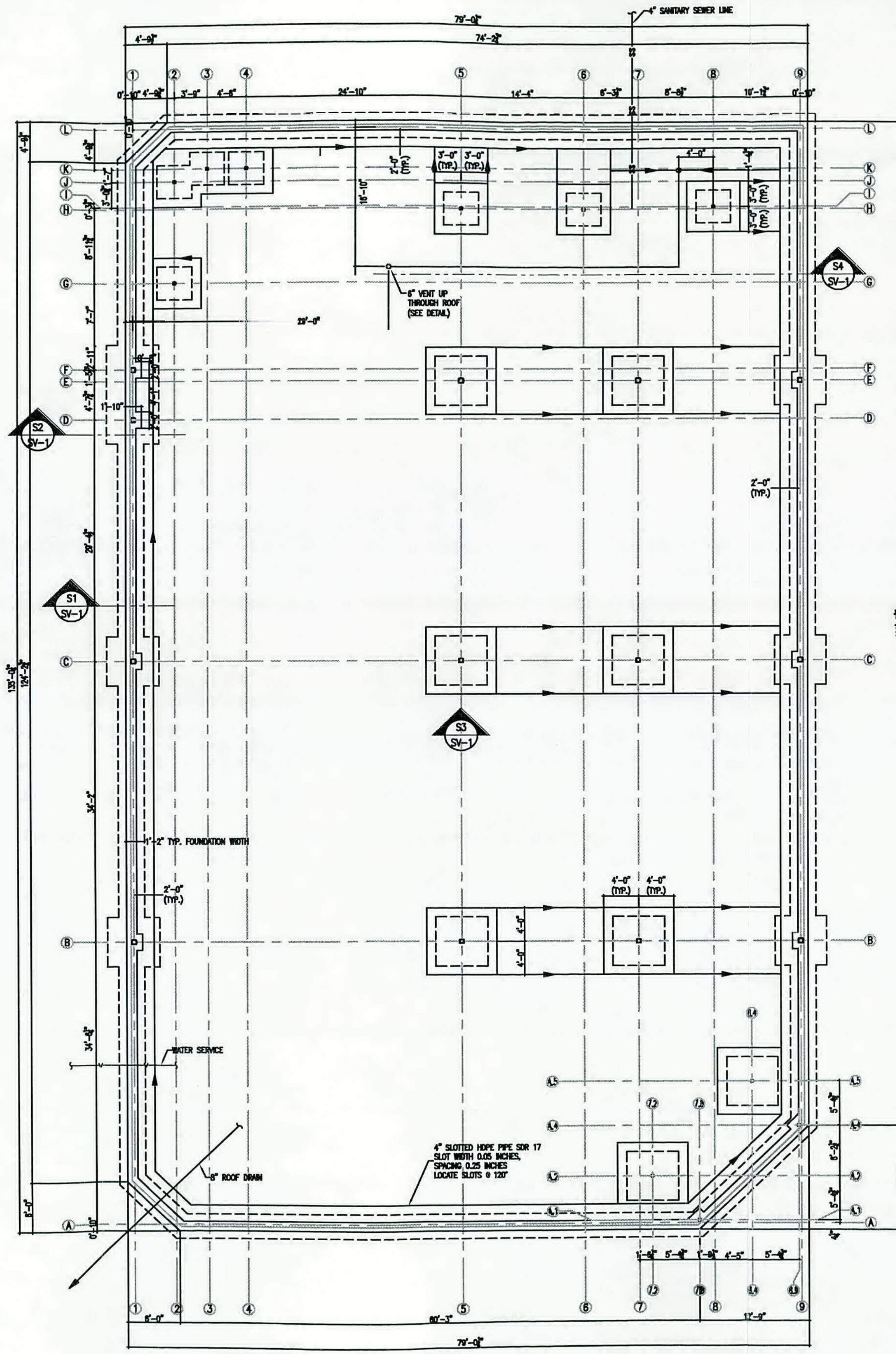
S4 SV-1



DETAIL A
1/2" = 1'-0"
A SV-1



FOUNDATION WALL PLAN
1/8" = 1'

99008-008205.09

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DEERFIELD, IL 60015-4616

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DRAWINGS/SPECIFICATIONS BY:
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■ LANDLORD'S CONSULTANT
ALL CONSTRUCTION WORK, UNLESS NOTED OTHERWISE, BY:
☐ WALGREENS' CONTRACTOR
■ LANDLORD'S CONTRACTOR (TURNKEY CONSTRUCTION)

STORE	BUILDING
NEW ■	NEW ■
REMODELING ☐	EXISTING ☐
RELOCATION ☐	NEW SHELL ONLY ☐
OTHERS ☐	

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I HEREBY CERTIFY THAT THIS PLAN AND SPECIFICATION WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ARCHITECT OR ENGINEER UNDER THE LAWS OF THE STATE OF NEW YORK AS SIGNIFIED BY MY HAND AND SEAL.

Sept 15 2009
WILLIAM SOUTH MUNOZ
NY PE #077698-1

STORE NUMBER 02077
PROJECT NAME
WALGREENS STORE
(NEC) EAST CHESTER & BROADWAY
KINGSTON, NY

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DRAWING TITLE

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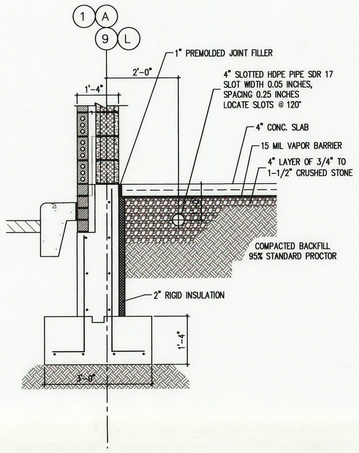
SUPERSEDES PLAN DATED:	DATE: / REVIEWED BY:	OF DWGS.



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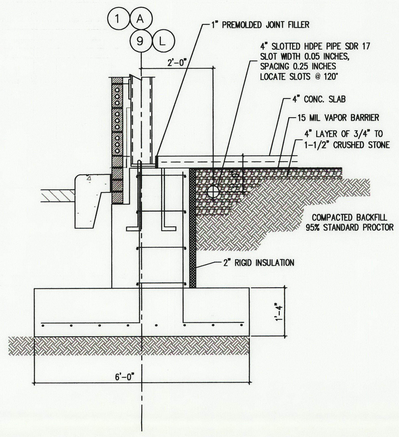

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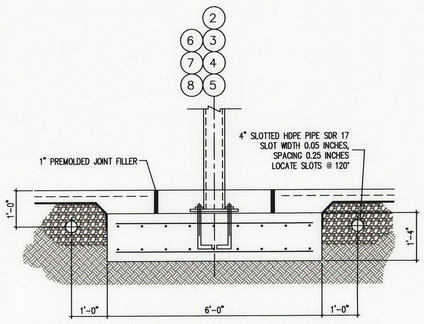

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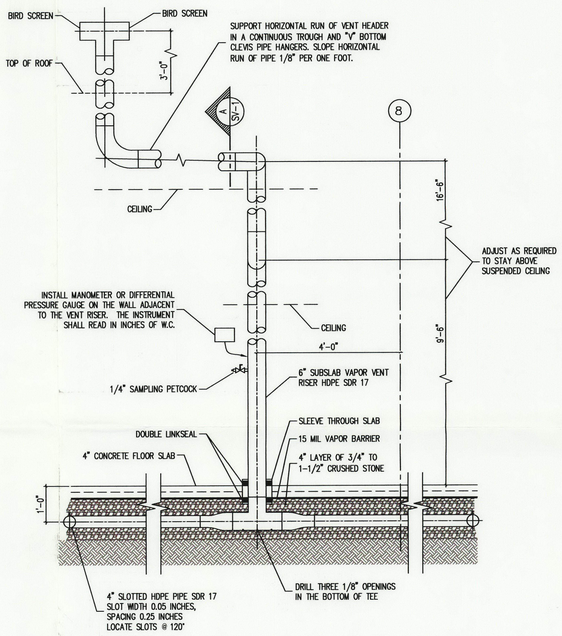

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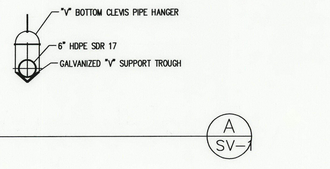
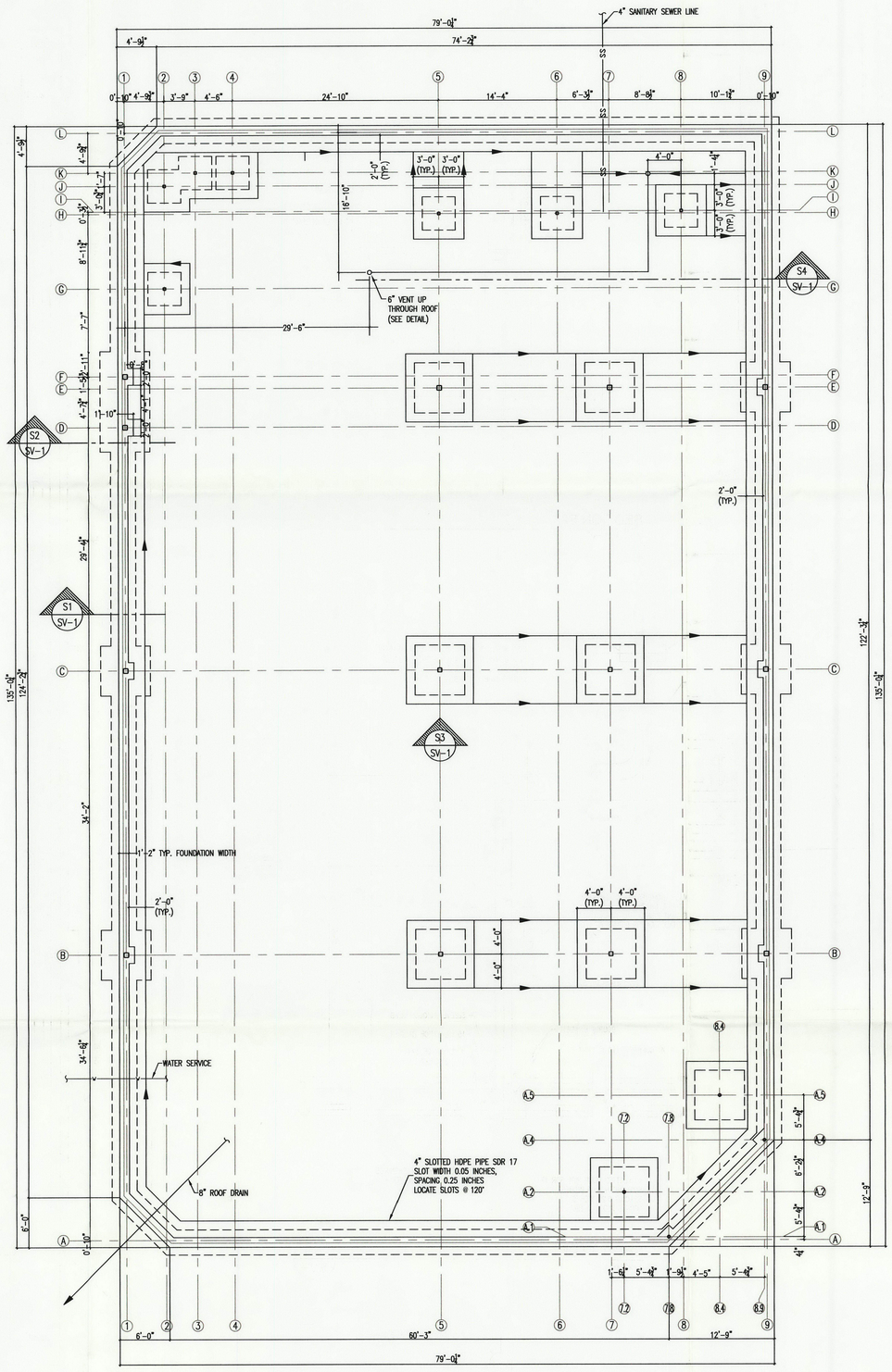


DETAIL A — 1/2" = 1'-0" — A / SV-1



FOUNDATION WALL PLAN — 1/8" = 1'

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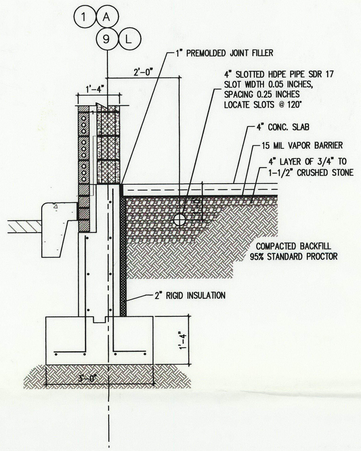

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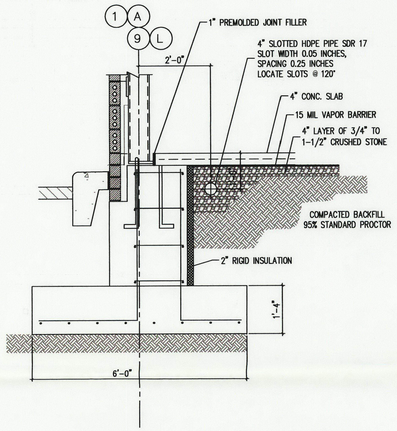

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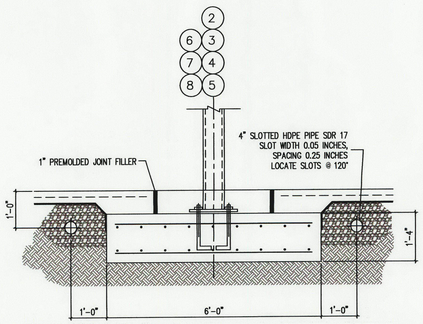

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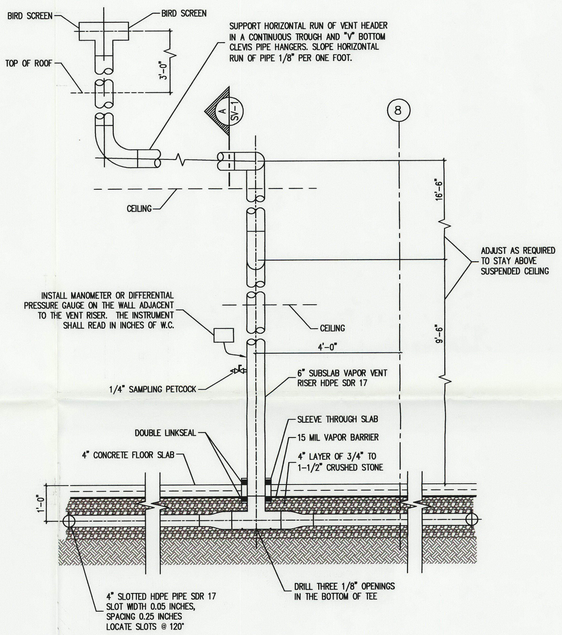

SECTION S4
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DETAIL A
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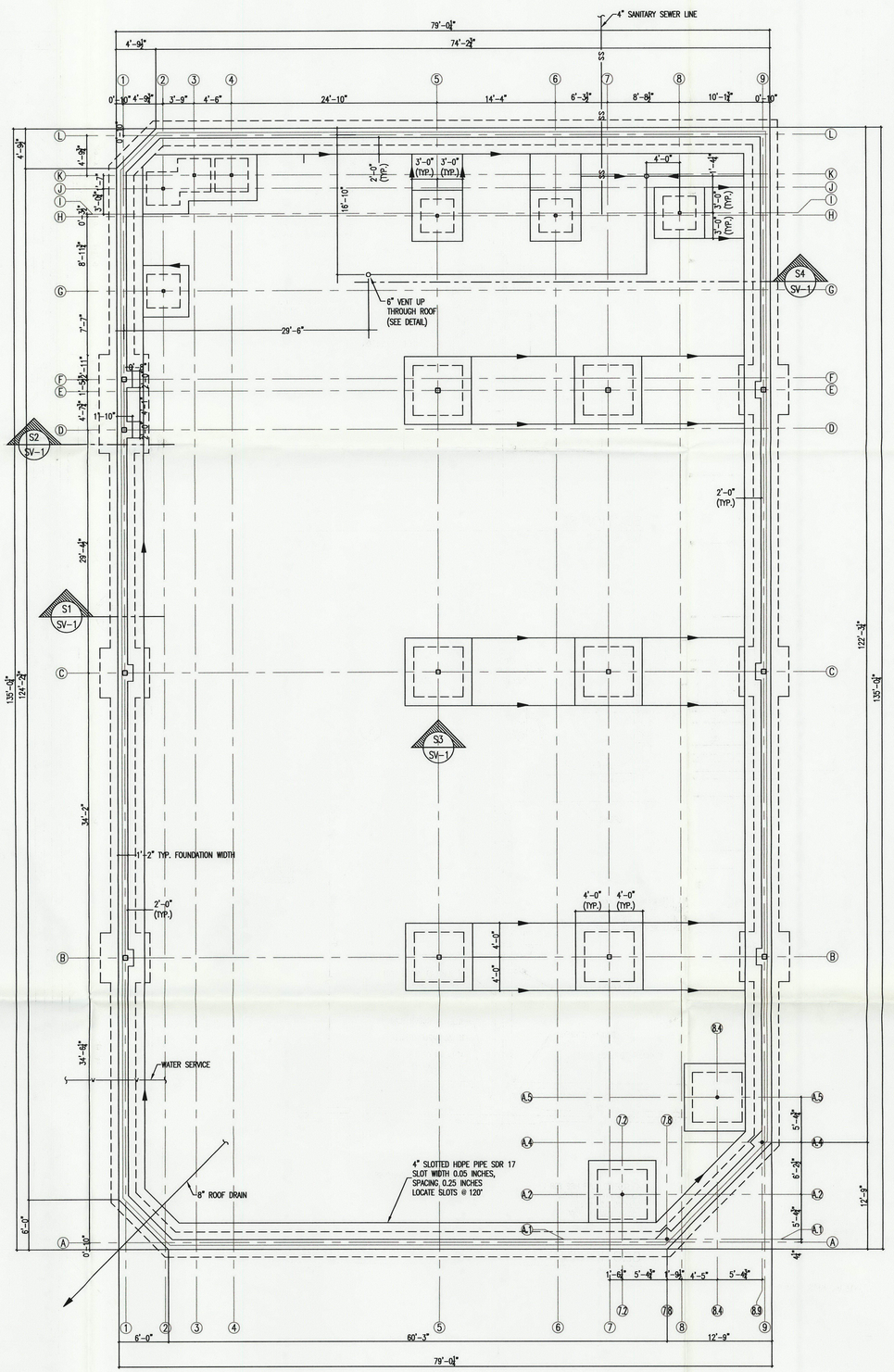
A SV-1



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