INTERIM REMEDIAL MEASURE CLOSURE REPORT

Sub-Slab Depressurization System
Former Rome Cable Corporation Facility
421 Ridge Street
Rome, New York 13440
NYSDEC ERP Site No. E633053

Prepared for

Oneida County Industrial Development Agency
and
Rome Community Brownfields Restoration Corporation

SCE Project No. 00514.04

By

SHUMAKER
Consulting Engineering & Land Surveying, D.P.C.
430 Court Street
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October 10, 2013

TABLE OF CONTENTS

FIGURES

Figure No.

APPENDICES

1.0 INTRODUCTION

This Interim Remedial Measure (IRM) Closure Report is submitted for the New York State Department of Environmental Conservation (NYSDEC) Environmental Restoration Program (ERP) Project Number E633053, Former Rome Cable Corporation Site, Building Complexes 1 and 3, City of Rome, New York. This report documents the installation of a sub-slab depressurization (SSD) system at the office building located at 421 Ridge Street, Rome, New York. The location of the subject property is shown on Figure 1.

The *Final Remedial Investigation/Alternatives Analysis (RI/AA) Report for the Former Rome Cable Corporation, Building Complexes 1 and 3* was issued in April 2012. Findings of the RI detected and delineated a chlorinated ethene groundwater plume emanating from Building Complex 1 and migrating southwest beneath Ridge Street, the office building located at 421 Ridge Street, and adjacent residential properties. The extent of the chlorinated ethene groundwater plume in the shallow portion if the water table aquifer is depicted in Figure 2 (tetrachloroethene, PCE), Figure 3 (trichloroethene, TCE), Figure 4 (dichloroethene, DCE) and Figure 5 (vinyl chloride, VC).

The *Soil Vapor Intrusion Investigation Report, Former Rome Cable Corporation Facility, 421 Ridge Street, Rome, New York,* was issued on August 30, 2007. This study was conducted in conformance with the New York State Department of Health (NYSDOH) *Final Guidance for Evaluating Soil Vapor Intrusion in New York State* (October 2006).

The chlorinated volatile organic compounds PCE (0.27 to 0.6 ug/m^3), TCE (0.51 ug/m^3), 1,2-DCE (0.23 to 0.35 ug/m^3), and cis-1,2-DCE (0.25 to 0.38 ug/m^3) were reported in indoor air samples collected at 421 Ridge Street. These compounds were also detected in air samples collected from beneath the concrete slab foundation of the building (PCE 2.4 to 520 ug/m^3, TCE 4.1 to 910 ug/m^3, 1,2-DCE 6.7 to 4,800 ug/m^3, and cis-1,2-DCE 6.7 to 4,400 ug/m^3). Based on the relationship between indoor air concentrations and sub-slab vapor concentrations for TCE

and cis-1,2-DCE, NYSDOH guidance indicated that soil vapor mitigation should be initiated to minimize potential exposures associated with soil vapor intrusion.

2.0 SUB-SLAB DEPRESSURIZATION SYSTEM DESIGN AND INSTALLATION

Pilot testing was conducted in August 2011 and September 2011 to determine design criteria (air flow rates, vacuum distribution) for the design of a SSD system to address soil vapor intrusion at the 421 Ridge Street office building. Design and contract documents are contained in the *Project Manual, Oneida County Industrial Development Agency, Sub-Slab Depressurization System Installation, 421 Ridge Street, City of Rome, Oneida County, New York*, dated March 28, 2012.

Appendix A of this IRM Closure Report contains the Summary of the Work from the Project Manual that details the specifications for the SSD system. Following public bidding, the contract for the SSD system installation was awarded to Paragon Environmental Construction, Inc. (Paragon). System installation took place between January 3, 2013 and March 1, 2013. The 421 Ridge Street SSD system consists of six (6) SSD points drawing soil vapor from the sub-slab through 4-inch PVC pipes to exterior mounted fans (Fantech Model HP190SL) which discharge above the building roofline (Appendix A). Each installation is fitted with a manometer to monitor applied vacuum and serve as an indicator that the fans are operational. Appendix B contains photographs of the installations.

The following deviations from the specifications were found necessary during construction:

- SSD-1 was relocated to the east of the adjacent building column to accommodate a new interior wall.
- SSD-4 discharge was re-routed to the west side of the building rather than passing through a roof penetration.
- An interior section of SSD-5 pipe was reduced to 1-inch to pass between building utilities and a support beam.
- Clearances of discharge points were reduced from 10- to 6-feet from building window openings.

3.0 SUB-SLAB DEPRESSURIZATION START-UP TESTING

Following completion of the installation of the fans and piping, the SSD system was operated for 3 days prior to measuring the sub-slab pressure (vacuum) field induced by the system beneath the building foundation. Figure 6 shows the measured vacuum beneath the building with all six (6) SSD points running. The vacuum applied to each point ranged from 1.7 to 2 inches of water. With the exception of no vacuum measured in a utility room located on the north side of the building, vacuum readings indicate that the system influences the entire area beneath the building foundation. Air flow testing was conducted on all the chimney vents of the building gas-fired heating units to assure that the SSD system did not induce any back drafting.

4.0 OPERATION AND MAINTENANCE

The SSD system fans are rated for continuous operation and no regular maintenance is required. Building maintenance personnel have been instructed to regularly check the manometers to assure that the fans are operating and to report any failures to the owner. In accordance with provisions of the Environmental Restoration Program, an annual Engineer inspection will be performed and a report sent to the NYSDEC documenting SSD system operation and maintenance.

FIGURE 1

SITE LOCATION MAP

FIGURE 1

Drawn By: PHE
Checked By: RWM
Project Mgr: RAK
Date: AUG 2013
Project No: 00514.04

DRAWING TITLE
SITE LOCATION MAP

FORMER ROME CABLE CORPORATION
RIDGE STREET SITE
REMEDIAL INVESTIGATION/ALTERNATIVES ANALYSIS
CITY OF ROME NEW YORK

LAWMAKER
Consulting Engineering & Land Surveying, P.C.
Telephone (315) 234-0100 Fax (315) 234-0715

FIGURE 2

GROUNDWATER PLUME – PCE

LEGEND

MW-07 [70] — MONITORING WELL
[70] = PCE (ppb)
[N/D] = NOT DETECTED

TETRACHLOROETHENE GROUNDWATER PLUME CONTOUR (ppb)

NEW YORK CENTRAL RAILROAD

MW-08S [N/D]
MW-18 [N/D]
MW-15 [N/D]
MW-31S [N/D]
MW-23S [1.4]
MW-16 [N/D]
MW-09 [N/D]
MW-32S [N/D]
MW-26S [29]
MW-25S [12]
MW-19S [1.5]
MW-07S [N/D]
MW-20 [9.2]
MW-17 [N/D]
MW-29S [N/D]
MW-30S [N/D]
MW-28S [N/D]
MW-27S [N/D]
MW-33S [N/D]
MW-34S [N/D]

10
1

4 5 6 30 15 2 23 21 18 19 1 11 16 26 12 22

SOUTH JAY STREET
RIDGE
HENRY STREET
SOUTH MADISON STREET
MATTHEW

0' 100' 200'
APPROXIMATE GRAPHIC SCALE

FIGURE 2

Drawn By: PHE
Checked By: DEB
Project Mgr: RAK
Date: AUG 2013
Project No: 00514.04

CHLORINATED ETHENE PLUME
MARCH 2007 - CONTOUR MAP
TETRACHLOROETHENE
SHALLOW WELLS

FORMER ROME CABLE CORPORATION
RIDGE STREET SITE
REMEDIAL INVESTIGATION/ALTERNATIVES ANALYSIS
CITY OF ROME NEW YORK

LaBella Associates, P.C.
Consulting Engineering & Land Surveying
300 State Street, Suite 201, Rochester, NY 14614-1008
Telephone (315) 724-0100 Fax (315) 724-4275

FIGURE 3

GROUNDWATER PLUME – TCE

LEGEND

MW-07 [70] — MONITORING WELL
[70] = TCE (ppb)
[N/D] = NOT DETECTED

TRICHLOROETHENE GROUNDWATER PLUME CONTOUR (ppb)

NEW YORK CENTRAL RAILROAD

MW-08S [N/D]
MW-18 [N/D]
MW-15 [N/D]
MW-31S [N/D]
MW-23S [0.51]
[N/D]
MW-16 [0.76]
10
100
MW-09 [N/D]
MW-32S [N/D]
MW-26S [60]
MW-19S [25]
MW-07S [310]
MW-25S [53]
MW-20 [11]
MW-17 [N/D]
100
10
[N/D]
MW-29S [0.91]
MW-30S [N/D]
MW-28S [N/D]
MW-27S [N/D]
MW-33S [N/D]
MW-34S [N/D]

JAY STREET
RIDGE
HENRY STREET
SOUTH MADISON STREET

0' 100' 200'
APPROXIMATE GRAPHIC SCALE

FIGURE 3

Drawn By: PHE
Checked By: DEB
Project Mgr: RAK
Date: AUG 2013
Project No: 00514.04

CHLORINATED ETHENE PLUME
MARCH 2007 - CONTOUR MAP
TRICHLOROETHENE
SHALLOW WELLS

FORMER ROME CABLE CORPORATION
RIDGE STREET SITE
REMEDIAL INVESTIGATION/ALTERNATIVES ANALYSIS
CITY OF ROME NEW YORK

SHUMAKER
Consulting Engineering & Land Surveying, P.C.
Telephone (315) 724-0100 Fax (315) 724-4715

FIGURE 4

GROUNDWATER PLUME – DCE

LEGEND

MW-07 [70] — MONITORING WELL
[70] = DCE (ppb)
[N/D] = NOT DETECTED

DICHLOROETHENE GROUNDWATER PLUME CONTOUR (ppb)

NEW YORK CENTRAL RAILROAD

MW-08S [N/D]
MW-18 [9.6]
MW-15 [100]
MW-31S [8.7]
MW-23S [130]
MW-16 [34]
MW-09 [N/D]
MW-32S [N/D]
MW-26S [241.1]
MW-19S [1,206.7]
MW-07S [1,455.5]
MW-20 [28]
MW-25S [67.57]
MW-17 [N/D]
MW-29S [38]
MW-30S [N/D]
MW-28S [N/D]
MW-27S [N/D]
MW-33S [N/D]
MW-34S [N/D]

10
100
1,000

MELJAY STREET
RIDGE
HENRY STREET
SOUTH MADISON STREET

0' 100' 200'
APPROXIMATE GRAPHIC SCALE

FIGURE 4

Drawn By: PHE
Checked By: DEB
Project Mgr: RAK
Date: AUG 2013
Project No: 00514.02

CHLORINATED ETHENE PLUME
MARCH 2007 - CONTOUR MAP
DICHLOROETHENE
SHALLOW WELLS

FORMER ROME CABLE CORPORATION
RIDGE STREET SITE
REMEDIAL INVESTIGATION/ALTERNATIVES ANALYSIS
CITY OF ROME NEW YORK

HUMMER
Consulting Engineering & Land Surveying, P.C.
Telephone (315) 724-0100 Fax (315) 724-0775

FIGURE 5

GROUNDWATER PLUME – VC

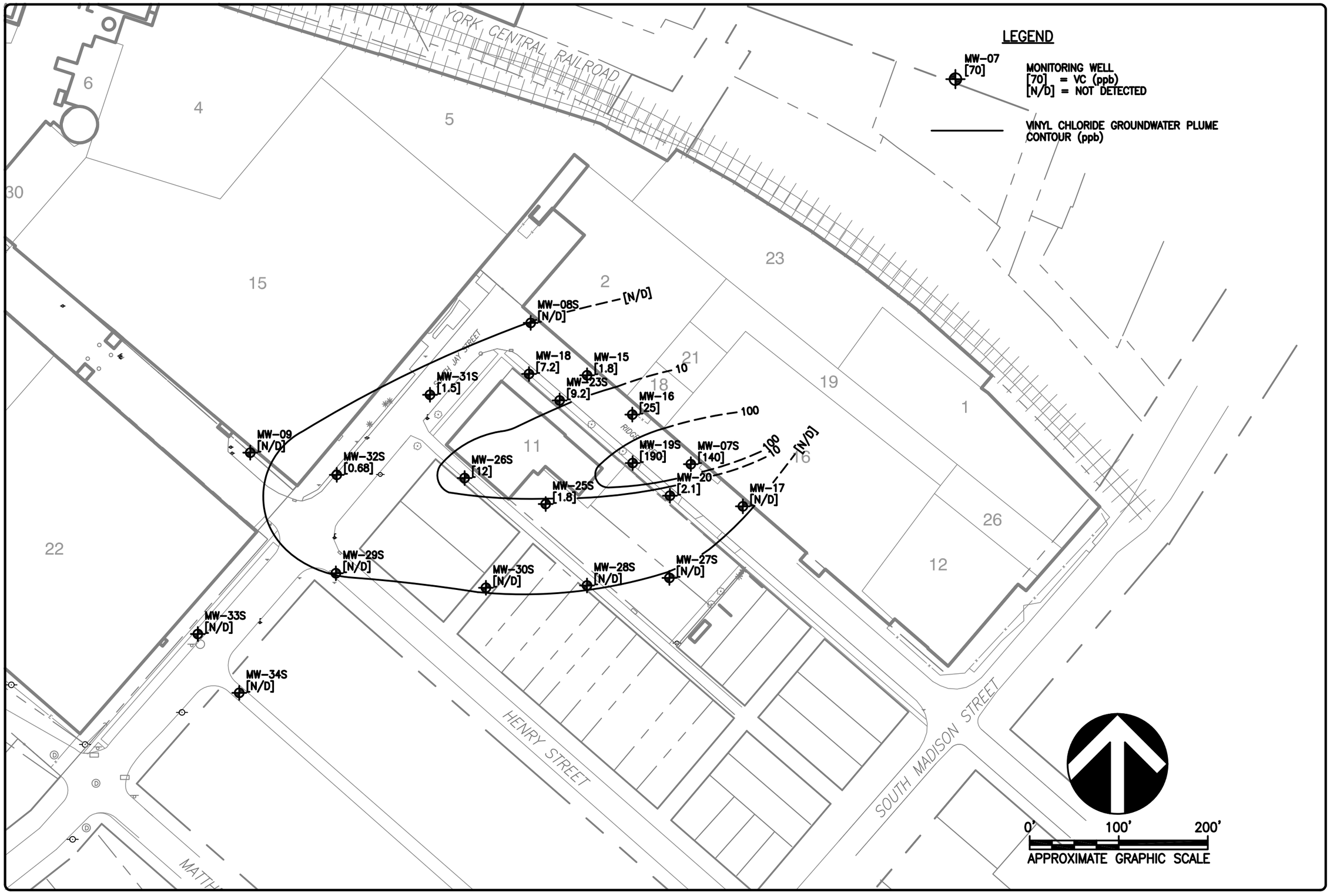

FIGURE 5

Drawn By: PHE
Checked By: DEB
Project Mgr: RAK
Date: AUG 2013
Project No: 00514.04

CHLORINATED ETHENE PLUME
MARCH 2007 - CONTOUR MAP
VINYL CHLORIDE
SHALLOW WELLS

FORMER ROME CABLE CORPORATION
RIDGE STREET SITE
REMEDIAL INVESTIGATION/ALTERNATIVES ANALYSIS
CITY OF ROME NEW YORK

LaBella Associates
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300 State Street, Suite 201, Rochester, NY 14614-1008
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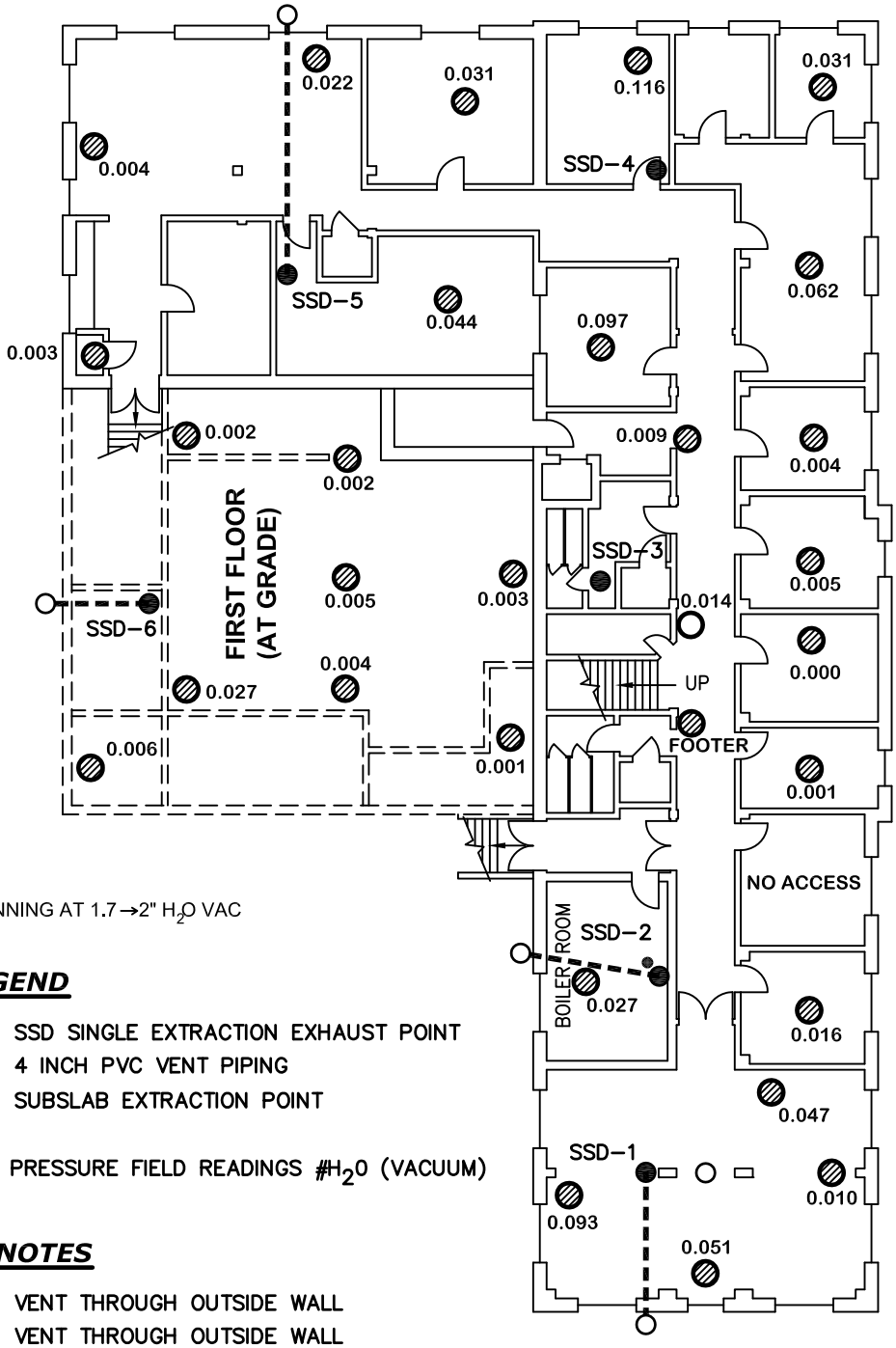
FIGURE 6

SSD SYSTEM PRESSURE FIELD

SOUTH JAY STREET



RIDGE STREET

2/14/13
ALL SSD's RUNNING AT 1.7→2" H_2O VAC

LEGEND

- ○ SSD SINGLE EXTRACTION EXHAUST POINT
- ▬▬▬ 4 INCH PVC VENT PIPING
- ● SSD-6 SUBSLAB EXTRACTION POINT
- ◍ # PRESSURE FIELD READINGS #H_2O (VACUUM)

KEY NOTES

- ● SSD-1 VENT THROUGH OUTSIDE WALL
- ● SSD-2 VENT THROUGH OUTSIDE WALL
- ● SSD-3 VENT UP THROUGH SECOND FLOOR, THIRD FLOOR AND THRU ROOF, FOLLOWING AIR DUCT.
- ● SSD-4 VENT UP THROUGH SECOND FLOOR, THIRD FLOOR AND THRU ROOF, FOLLOWING AC CONDUIT.
- ● SSD-5 VENT THROUGH OUTSIDE WALL
- ● SSD-6 VENT THROUGH OUTSIDE WALL ABOVE WINDOW

NORTH

SCALE = 1:20

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FORMER ROME CABLE CORPARATION
421 RIDGE STREET SITE
REMEDIAL INVESTIGATION/ ALTERNATIVES ANALYSIS

PROJECT TASK
VAPOR INTRUSION INVESTIGATION

DRAWN BY: SRR	DWG. NO.
CHECKED BY: RAK	6
PROJ. MGR: RAK	
DATE: AUG 2013	
PROJ. NO: 0514.02	

APPENDIX A

SUMMARY OF WORK: SSD SYSTEM SPECIFICATIONS

SECTION 01013

SUMMARY OF THE WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including Instructions for Bidders apply to this work. Contractor's attention is specifically called to the attached USEPA document *USEPA Radon Mitigation Standards* (EPA Document 402-R-93-078 rev. April 1994) specifically Section 14 Systems Installation, Section 15 Materials, Section 16 Monitors and Labeling, and Section 17 Post-Mitigation Testing which provide specifications for the work. The project system is intended to eliminate the potential for soil vapor intrusion of solvent-related vapors, the standards for Radon sub-slab depressurization systems apply.

B. This project is part of environmental investigation and cleanup operations of the Former Rome Cable Corporation site funded under a grant from the NYSDEC Environmental Restoration Program. Its purpose is to eliminate the potential for soil vapor intrusion of chlorinated ethene (tetrachloroethene, trichloroethene, dichloroethene, and vinyl chloride) vapors from beneath the building foundation into indoor air. As such, the health and safety requirements of 29 CFR 1910.120 for hazardous waste site activities apply. Contractor is responsible for applicable health and safety regulation compliance for Contractor's personnel and subcontractors. Copies of site investigation reports are available from the Engineer.

C. Due to contractual security requirements, access to the building interior will be limited to hours of operation of the building tenant (Monday through Friday 7:30 AM to 4:30 PM).

1.2 WORK COVERED BY CONTRACT

A. The work under this project is for the installation of a Sub-Slab Depressurization System at the office building located at 421 Ridge Street, Rome, New York, including the following:

1. The sub-slab depressurization system will be installed to comply with Sections 14, 15, 16, and 17 of the *USEPA Radon Mitigation Standards* (EPA Document 402-R-93-078 rev. April 1994). A copy is attached.

2. The sub-slab depressurization system will consist of ventilation piping installed at six (6) sub-slab depressurization points (Figure 1). The ventilation piping will be run through the building interior along the six individual pathways shown on Figure 1, through the building exterior wall (or roof) to six (6) individual radon fans installed outside the structure. Fan exhaust air will be run through ventilation pipe to above the building roofline with clearances from the roofline, windows and building components in accordance with *USEPA Radon Mitigation Standards* (Section 14.2). Specifically, the vent exhaust discharge point will be at least 12-inches above the surface of the roof and at least 10-feet away from any opening to the building. A typical installation is depicted in Figure 2.

3. Six (6) sub-slab depressurization points (6-inch diameter) have been pre-drilled through the basement floor at the locations shown on Figure 1. Sub-slab material (soil) has been removed to 18-inches below the slab at the locations of SSD-1, SSD-3, and SSD-6. Contractor will remove sub-slab material (soil) to a depth of 18-inches below the bottom of the slab at the locations of SSD-4 and SSD-5. Contractor will make a 6-inch diameter horizontal hole through the concrete block wall and remove soil behind wall (assume 5 gallons soil volume) to install ventilation piping at SSD-2.

4. Contractor will provide exterior electrical service for the radon fans. Continuous duty service in accordance with National Fire Protection Association (NFPA) National Electric Code, Standard No. 70 for commercial work, and in accordance with State and Local Codes, and Manufacturer's Installation Instructions are required. System breakers will be labeled "Sub-slab Depressurization System".

5. Contractor will provide, install, and startup test (assume 2 days startup testing) all equipment, materials, and supplies required to produce an operational sub-slab depressurization system as defined within the project Specifications and Drawings issued for Bid and prepared for the Project by Shumaker Consulting Engineering & Land Surveyors, P.C. (SCE), 430 Court Street, Utica, NY 13502. Startup testing consists of:

   a. Verification of integrity of all fan mounting and joint seals.
   b. Measurement of suction or flow to assure the system is operating as designed.
   c. Testing of natural draft combustion appliances for backdrafting during SSD system operation.
   d. Installation of up to 24 (4 per sub-slab depressurization point) pressure field test holes of 1/4- to 3/8-inch diameter through the floor slab at location to be determined by the Engineer.

6. System piping will consist of 4-inch Schedule 40 PVC pipe and fittings. Elements of the exterior discharge pipe exposed to sunlight will be painted. Interior piping runs will be sloped back toward the SSD points at a minimum of 3/8-inch per foot of run such that condensation within the pipe flows to the SSD point. All building interior ventilation pipe runs will be covered in pipe insulation to prevent condensation formation on the outside of the ventilation pipe. The vent discharge will be fitted with a screen and cover to prevent entrance of precipitation and foreign objects into the pipe. Ventilation and discharge pipe installation, hangers, fittings, and sealing of penetrations will be in accordance with the *USEPA Radon Mitigation Standards*. Roof penetrations will be sealed with pipe flashing and sealant to prevent water leakage.

7. Contractor will provide and install in accordance with manufacturer's instructions six (6) radon fan units (Radon Away™ RP145 or equivalent). The radon fan motors will be continuous duty, thermally protected, 120 VAC, 60 Hz. The radon fan will be rated for outdoor use and capable of moving 80 to 120 CFM of air at static pressures of 0.5 to 1.5 inches of water. Typical power consumption will be in the 40 to 90 Watt range. The fans will be plumbed in-line using removable/flexible connections (Fernco™ or equivalent) with a condensate bypass configuration (Figure 2).

8. Contractor will install plastic housings over the exterior radon fans. The housings and exterior discharge pipe will be painted to match the building exterior color (brick) and provide UV protection to these permanent installations.

9. U-Tube manometers will be installed at visible interior locations so that fan operation may be checked. The manometers will be mounted on the exterior of the drywall enclosures (see "10").

10. Exposed interior ventilation pipe runs through office areas (including restrooms and file closets) will be enclosed in drywall. Drywall enclosures will be finished and painted to match existing walls. Where a trip hazard is present, drywall enclosure will be raised to table height (30-inches) and tied into existing walls to form a shelf. Carpet and molding sections removed for system installation will be restored.

11. A vapor impermeable sump cover will be installed over the sump in the boiler room. Sealant will be applied between the floor and sump cover. Perforations through the cover for electrical and water lines will also be sealed.

PART 2 – MEASUREMENT AND PAYMENT

2.1 NON-DIRECT PAYMENT

A. The Contractor is advised that while required or called for by the Contract Documents, no direct payment will be made for:

1. Project administration.
2. Bonds and insurance.
3. Demobilization.
4. Maintenance and protection of traffic.
5. Site Security.
6. Areas outside the Work limits damaged by the Contractor's operation.

The cost of this Work, as well as all other Work not specifically identified as Payment Items, shall be included on the unit prices bid for the various items in the Contract.

B. It is the Contractor's responsibility to determine actual quantities of materials needed prior to submitting the Bid. Accordingly, variations in quantities of materials will have no impact on the contract price and schedule.

PART 3 – PROJECT RECORDS

3.1 PROJECT RECORD DOCUMENTS – GENERAL

A. It shall be the Contractor's responsibility to maintain current project record documents as defined herein.

3.2 MAINTENANCE OF DOCUMENTS

A. Contractor shall maintain, at job site, one copy of:

1. Contract Drawings
2. Project Manual
3. Addenda
4. Approved Submittals
5. Supplemental Instructions
6. Change Orders
7. Other Modifications to Contract
8. Correspondence File

B. Make documents available at all times for inspection by Owner and Engineer.

3.3 RECORDING

A. Keep record documents current.

PART 4 – SUBMITTALS

4.1 SUBMITTALS

A. Submit, to the Project Engineer, submittals required by the Project Manual. Submit each required submittal to Shumaker Consulting Engineering and Land Surveying, P.C., 430 Court Street, Utica, NY 13502, Attn: Robert Koslosky.

B. **Submittals required with BID.** The following submittals shall be submitted with the bid.

1. Refer to Bid Document 00002 Bidding Checklist.

C. **Submittals required prior to Commencement of Work**. The following items shall be submitted by selected Contractor for review prior to commencement of work under this Contract.

1. Contract. Signed contract shall be submitted to the Owner.

2. Insurance. Written documentation that contractor is in compliance with all insurances required. This documentation shall be subject to Owner approval. Refer to General Requirements for insurance requirements.

3. Bonds. Written documentation that Contractor has obtained all required performance, payment, material, and labor bonds required. Bonds must be valid and in effect for this Contract. This documentation shall be subject to Owner approval. Refer to General Requirements for bonding requirements.

4. Written documentation that all Contractor employees and subcontractors scheduled to be on-site are in compliance with the health and safety requirements of 29 CFR 1910.120.

D. **Submittals Required During the Work** include:

1. Any changes in personnel, project materials, methods, or schedule shall be submitted in writing to Owner.

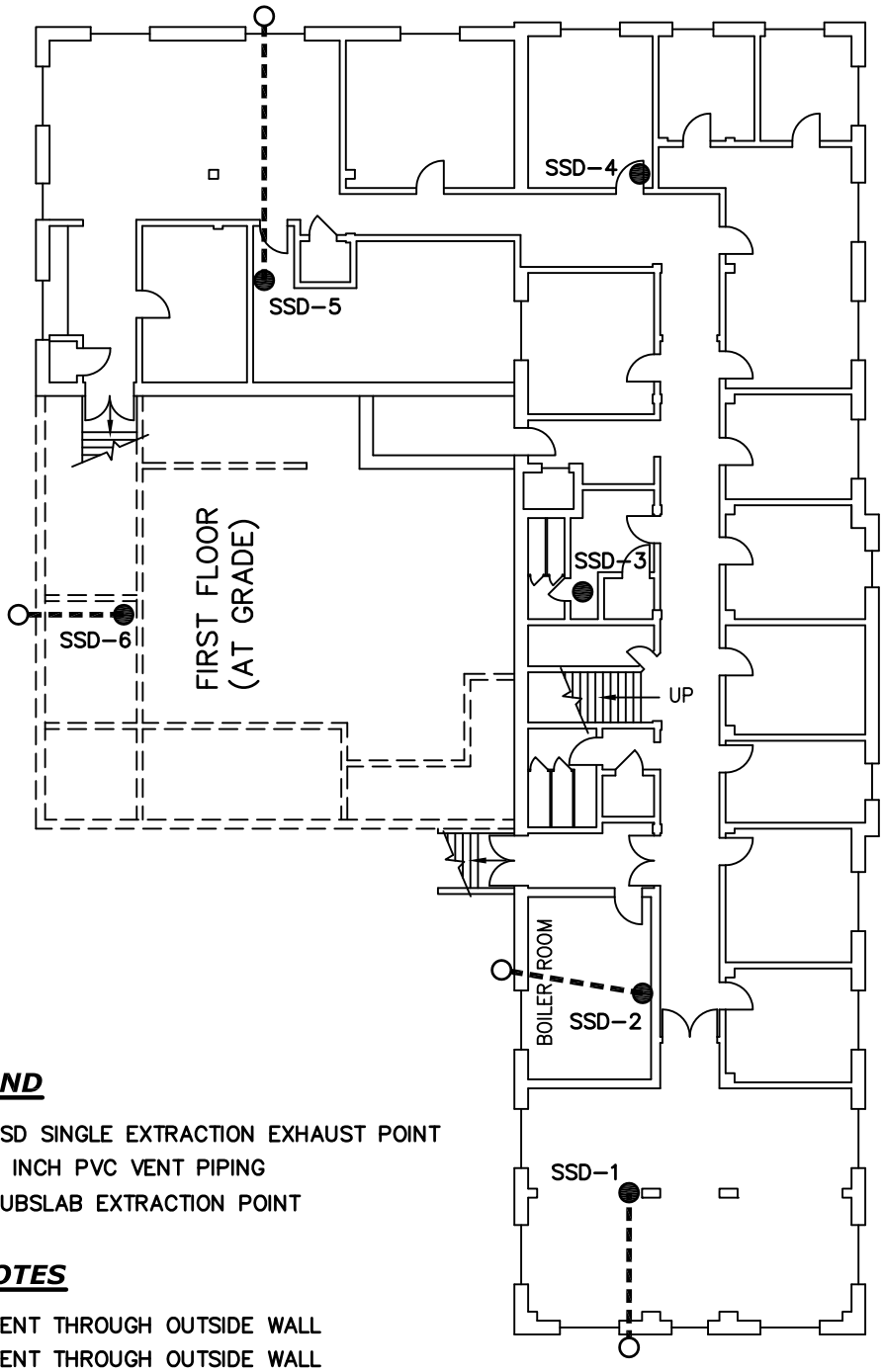
E. **Submittals Required Following the Work** include:

1. Final payment request with guarantee of work and support documentation.

2. All additional certificates, warranties, guarantees or documents called for throughout the project manual.

* * * * *

SOUTH JAY STREET



RIDGE STREET

LEGEND

- ○ SSD SINGLE EXTRACTION EXHAUST POINT
- ----- 4 INCH PVC VENT PIPING
- ● SUBSLAB EXTRACTION POINT
  SSD-6

KEY NOTES

- ● SSD-1 VENT THROUGH OUTSIDE WALL
- ● SSD-2 VENT THROUGH OUTSIDE WALL
- ● SSD-3 VENT UP THROUGH SECOND FLOOR, THIRD FLOOR AND THRU ROOF, FOLLOWING AIR DUCT.
- ● SSD-4 VENT UP THROUGH SECOND FLOOR, THIRD FLOOR AND THRU ROOF, FOLLOWING AC CONDUIT.
- ● SSD-5 VENT THROUGH OUTSIDE WALL
- ● SSD-6 VENT THROUGH OUTSIDE WALL ABOVE WINDOW

NORTH

SCALE = 1:20

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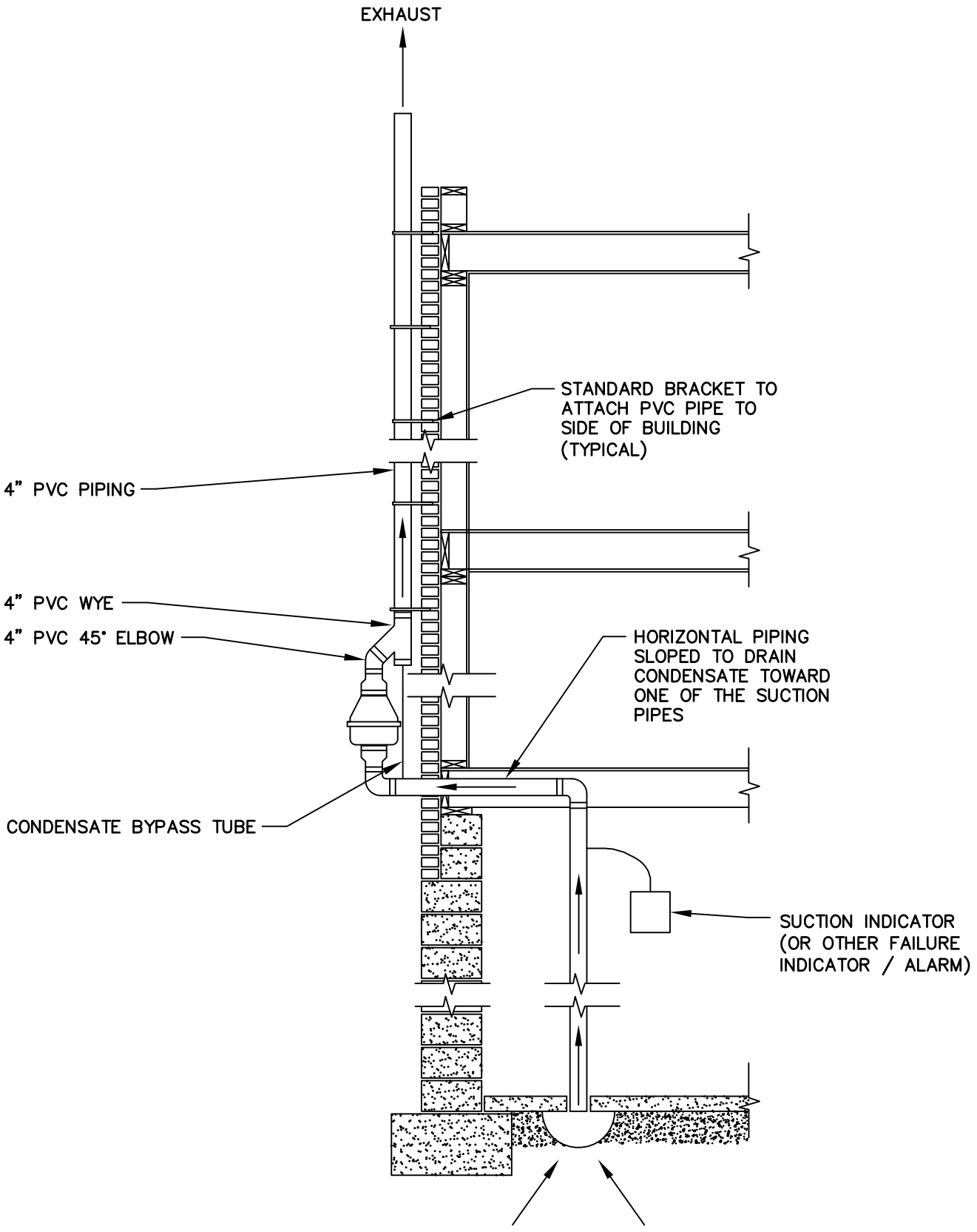
FORMER ROME CABLE CORPARATION
421 RIDGE STREET SITE
SUBSLAB DEPRESSURIZATION SYSTEM

GROUND FLOOR PLAN SUBSLAB EXTRACTION POINT LOCATIONS

DRAWN BY:	SRR
CHECKED BY:	RAK
PROJ. MGR:	RAK
DATE:	11/4/11
PROJ. NO:	0514.04

DWG. NO. 1



TYPICAL SSD SINGLE EXTRACTION POINT INSTALLATION

SCALE = N.T.S.

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FORMER ROME CABLE CORPARATION
421 RIDGE STREET SITE
SUBSLAB DEPRESSURIZATION SYSTEM

TYPICAL SSD SINGLE EXTRACTION POINT INSTALLATION

DRAWN BY:	SRR
CHECKED BY:	RAK
PROJ. MGR:	RAK
DATE:	11/4/11
PROJ. NO:	0514.04

DWG. NO. 2

NOTES:

1. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING INSTRUCTIONS FOR BIDDERS APPLY TO THIS WORK. CONTRACTOR'S ATTENTION IS SPECIFICALLY CALLED TO THE ATTACHED USEPA DOCUMENT USEPA RADON MITIGATION STANDARDS (EPA DOCUMENT 402-R-93-078 REV. APRIL 1994) SPECIFICALLY SECTION 14 SYSTEMS INSTALLATION, SECTION 15 MATERIALS, SECTION 16 MONITORS AND LABELING, AND SECTION 17 POST-MITIGATION TESTING WHICH PROVIDE SPECIFICATIONS FOR THE WORK. ALTHOUGH THE PROJECT SYSTEM IS INTENDED TO ELIMINATE THE POTENTIAL FOR SOIL VAPOR INTRUSION OF SOLVENT-RELATED VAPORS, THE STANDARDS FOR RADON SUB-SLAB DEPRESSURIZATION SYSTEMS APPLY.

2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ACTUAL QUANTITIES OF MATERIALS NEEDED PRIOR TO SUBMITTING THE BID. ACCORDINGLY, VARIATIONS IN QUANTITIES OF MATERIALS WILL HAVE NO IMPACT ON THE CONTRACT PRICE AND SCHEDULE.

3. THE SUB-SLAB DEPRESSURIZATION SYSTEM WILL BE INSTALLED TO COMPLY WITH SECTIONS 14, 15, 16, AND 17 OF THE USEPA RADON MITIGATION STANDARDS (EPA DOCUMENT 402-R-93-078 REV. APRIL 1994) . A COPY IS ATTACHED.

4. THE SUB-SLAB DEPRESSURIZATION SYSTEM WILL CONSIST OF VENTILATION PIPING INSTALLED AT SIX (6) SUB-SLAB DEPRESSURIZATION POINTS (FIGURE 1) . THE VENTILATION PIPING WILL BE RUN THROUGH THE BUILDING INTERIOR ALONG THE SIX INDIVIDUAL PATHWAYS SHOWN ON FIGURE 1, THROUGH THE BUILDING EXTERIOR WALL (OR ROOF) TO SIX (6) INDIVIDUAL RADON FANS INSTALLED OUTSIDE THE STRUCTURE. FAN EXHAUST AIR WILL BE RUN THROUGH VENTILATION PIPE TO ABOVE THE BUILDING ROOFLINE WITH CLEARANCES FROM THE ROOFLINE, WINDOWS AND BUILDING COMPONENTS IN ACCORDANCE WITH USEPA RADON MITIGATION STANDARDS (SECTION 14.2) . A TYPICAL INSTALLATION IS DEPICTED IN FIGURE 2.

5. SIX (6) SUB-SLAB DEPRESSURIZATION POINTS (6-INCH DIAMETER) HAVE BEEN PRE-DRILLED THROUGH THE BASEMENT FLOOR AT THE LOCATIONS SHOWN ON FIGURE 1. SUB-SLAB MATERIAL (SOIL) HAS BEEN REMOVED TO 18-INCHES BELOW THE SLAB AT THE LOCATIONS OF SSD-1, SSD-3, AND SSD-6. CONTRACTOR WILL REMOVE SUB-SLAB MATERIAL (SOIL) TO A DEPTH OF 18-INCHES BELOW THE BOTTOM OF THE SLAB AT THE LOCATIONS OF SSD-4 AND SSD-5. CONTRACTOR WILL MAKE A 6-INCH DIAMETER HORIZONTAL HOLE THROUGH THE CONCRETE BLOCK WALL AND REMOVE SOIL BEHIND WALL (ASSUME 5 GALLONS SOIL VOLUME) TO INSTALL VENTILATION PIPING AT SSD-2.

6. CONTRACTOR WILL PROVIDE EXTERIOR ELECTRICAL SERVICE FOR THE RADON FANS. CONTINUOUS DUTY SERVICE IN ACCORDANCE WITH NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) NATIONAL ELECTRIC CODE, STANDARD NO. 70 FOR COMMERCIAL WORK, AND IN ACCORDANCE WITH STATE AND LOCAL CODES, AND MANUFACTURER'S INSTALLATION INSTRUCTIONS ARE REQUIRED. SYSTEM BREAKERS WILL BE LABELED SUB-SLAB DEPRESSURIZATION SYSTEM. .

7. CONTRACTOR WILL INSTALL PLASTIC HOUSINGS OVER THE EXTERIOR RADON FANS. THE HOUSINGS AND EXTERIOR DISCHARGE PIPE WILL BE PAINTED TO MATCH THE BUILDING EXTERIOR COLOR (BRICK) AND PROVIDE UV PROTECTION TO THESE PERMANENT INSTALLATIONS.

8. EXPOSED INTERIOR VENTILATION PIPE RUNS THROUGH OFFICE AREAS (INCLUDING RESTROOMS AND FILE CLOSETS) WILL BE ENCLOSED IN DRYWALL. DRYWALL ENCLOSURES WILL BE FINISHED AND PAINTED TO MATCH EXISTING WALLS. WHERE A TRIP HAZARD IS PRESENT, DRYWALL ENCLOSURE WILL BE RAISED TO TABLE HEIGHT (30-INCHES) AND TIED INTO EXISTING WALLS TO FORM A SHELF. CARPET AND MOLDING SECTIONS REMOVED FOR SYSTEM INSTALLATION WILL BE RESTORED.

9. U-TUBE MANOMETERS WILL BE INSTALLED AT VISIBLE INTERIOR LOCATIONS SO THAT FAN OPERATION MAY BE CHECKED. THE MANOMETERS WILL BE MOUNTED ON THE EXTERIOR OF THE DRYWALL ENCLOSURES.

10. APPLICABLE PORTIONS OF THE USEPA RADON MITIGATION STANDARDS SECTION 17 POST-MITIGATION TESTING TO BE ACCOMPLISHED BY THE CONTRACTOR INCLUDE:

17.1 VERIFY INTEGRITY OF ALL FAN MOUNTING AND JOINT SEALS.
17.2 MEASURE SUCTION OR FLOW TO ASSURE THE SYSTEM IS OPERATING AS DESIGNED.
17.3 TEST NATURAL DRAFT COMBUSTION APPLIANCES FOR BACKDRAFTING DURING SSD SYSTEM OPERATION.

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FORMER ROME CABLE CORPARATION
421 RIDGE STREET SITE
SUBSLAB DEPRESSURIZATION SYSTEM

NOTES

DRAWN BY:	SRR
CHECKED BY:	RAK
PROJ. MGR:	RAK
DATE:	11/4/11
PROJ. NO:	0514.04

FIGURE 3

Fantech HP190SL

Low Profile Radon Fan

Patent Pending

Fantech has utilized its twenty years of experience as a radon fan manufacturer to develop the new HP190SL. This new fan features a patent-pending design starting from its outward low profile appearance to the high efficiency, continuous duty ebm-papst motor and integrated condensate bypass system.

Radon mitigators will appreciate the ease of its direct wall-mount design that eliminates the need for elbows and reduces labor costs.

Unit is UL Listed for wet locations. 5 year warranty.

SPECIFICATIONS

The HP190SL is engineered specifically for the demanding environments of radon mitigation applications.

Low profile, wall-mount design minimizes installation time.

Fan and discharge pipe are located on surface of exterior wall eliminating need for elbows.

Fan connects directly to low pressure pipe opening on exterior wall.

HOUSING

- Constructed from durable, UV resistant polycarbonate.
- Factory sealed, no leak design.
- Integral condensate bypass.
- Direct wall-mount with integral vibration isolation.

MOTOR

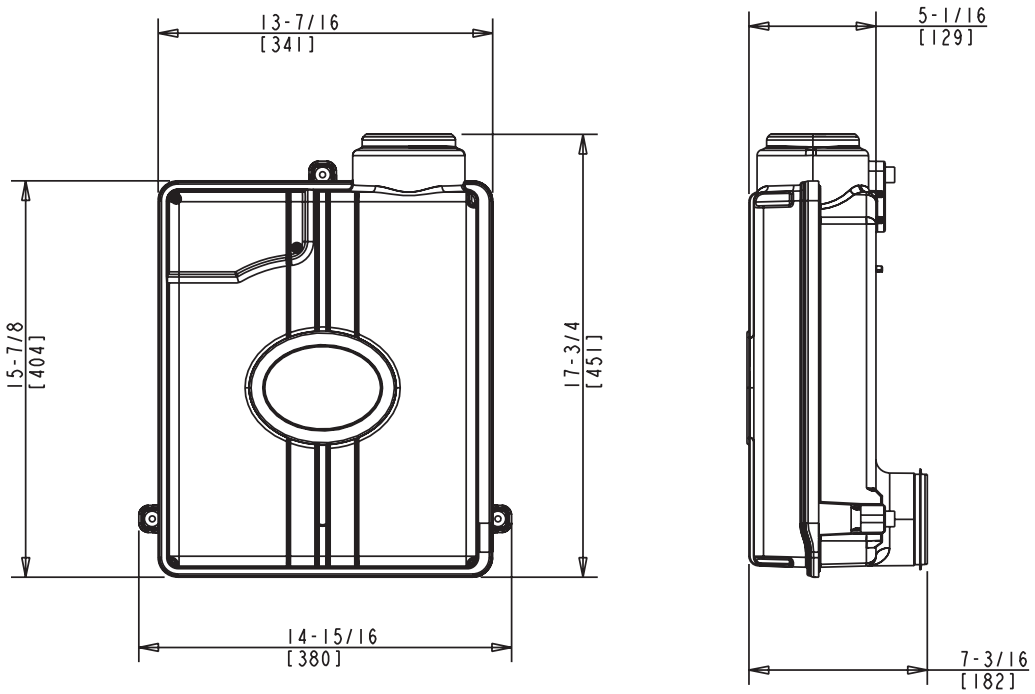
- High efficiency, continuous duty ebm-papst motor.
- Non-overloading motorized impeller.
- Built-in thermal overload protection.

ELECTRICAL SPECIFICATIONS	HP190SL
Input Volts	120VAC 1 Phase
Amperage	0.78 Amps

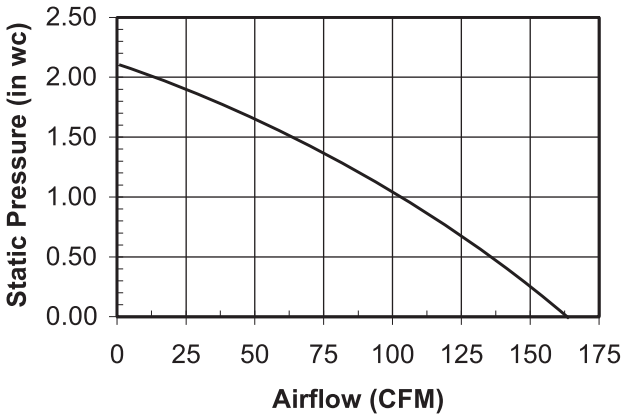
c UL us

HP190SL Low Profile Radon Fan

Dimensions



Fan Performance



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Rev Date: 091809

APPENDIX B

PHOTOGRAPHS

Photo No. 1 Photo Date: 3/26/2013

Description: SSD1 Exterior.

Photo No. 2 Photo Date: 3/26/2013

Description: SSD1 Interior.

Photo No. 3 Photo Date: 3/26/2013

Description: SSD2 Exterior.

Photo No. 4 Photo Date: 3/26/2013

Description: SSD2 Interior.

Photo No. 5 Photo Date: 3/26/2013

Description: SSD2 Sealed Sump.

Photo No. 6 Photo Date: 3/26/2013

Description: SSD3 Exterior.

Photo No. 7 Photo Date: 3/26/2013

Description: SSD3 Interior.

Photo No. 8 Photo Date: 3/26/2013

Description: SSD4 Exterior.

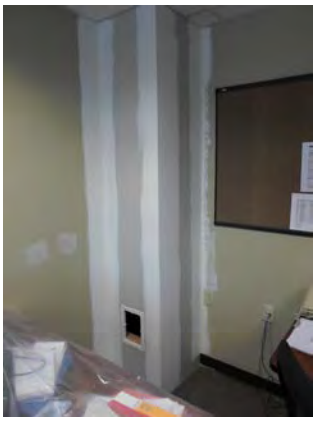

Photo No. 9 Photo Date: 3/26/2013

Description: SSD4 Interior.

Photo No. 10 Photo Date: 3/26/2013

Description: SSD5 Exterior.

Photo No. 11 Photo Date: 3/26/2013

Description: SSD5 Interior.

Photo No. 12 Photo Date: 3/26/2013

Description: SSD6 Exterior.

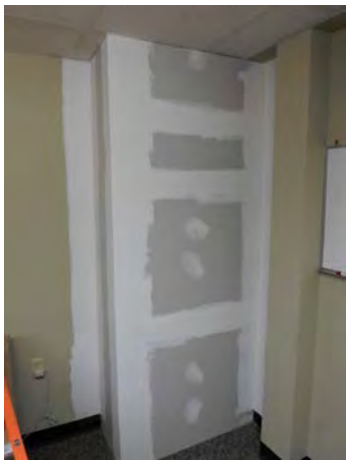

Photo No. 13 Photo Date: 3/26/2013

Description: SSD6 Interior.

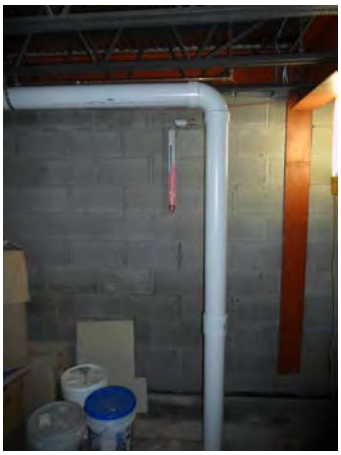

Photo No. 14 Photo Date: 3/26/2013

Description: SSD6 Mezzanine.