REMEDIAL DESIGN/REMEDIAL ACTION WORK PLAN

FOR

AWARD PACKAGING CORP. SITE
625 SOUTH STREET
GARDEN CITY, NEW YORK

NYSDEC SITE # 130155

PREPARED FOR

ROCOCO HOLDING CORP.

PREPARED BY

FPM group™

909 MARCONI AVENUE
RONKONKOMA, NEW YORK 11779

DECEMBER 2012

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APPENDICES

REMEDIAL DESIGN/REMEDIAL ACTION WORK PLAN

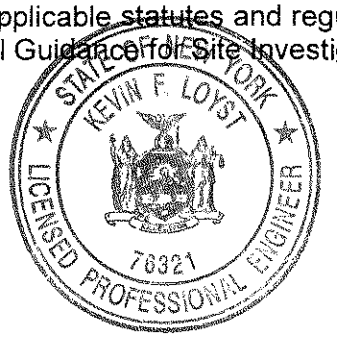
Prepared for

Facility: Award Packaging Corp. Site
625 South Street
Garden City, New York
NYSDEC Site # 130155

FPM File No: 963-12-03

CERTIFICATION

I Kevin F. Loyst, PE certify that I am currently a NYS registered Professional Engineer and that this Remedial Design/Remedial Action 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).



NYS registered Professional Engineer

Signature

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LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
AS	Air Sparging
ASP	Analytical Services Protocol
Award	Award Packaging Corp.
CAMP	Community Air Monitoring Plan
CoC	chain-of-custody
DUSR	Data Usability Summary Report
EC	Engineering Control
EDD	Electronic Data Deliverable
EIMS	Environmental Information Management System
ELAP	Environmental Laboratory Approval Program
FER	Final Engineering Report
FPM	FPM Group, Ltd.
GPS	Global Positioning System
HASP	Health and Safety Plan
IC	Institutional Control
MS/MSD	Matrix spike/matrix spike duplicate
MSL	mean sea level
NYCRR	New York Code of Rules and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	Operation and Maintenance
OM&M	Operation, Monitoring and Maintenance
Objective	Soil Cleanup Objective
OSHA	Occupational Safety and Health Administration
PE	Professional Engineer
PID	Photoionization detector
PRR	Periodic Review Report
PVC	Poly vinyl chloride
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
RAO	Remedial Action Objective
RCA	Recycled concrete aggregate
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial Design/Remedial Action

LIST OF ACRONYMS (CONTINUED)

RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
ROI	Radius of Influence
SCGs	Standards, criteria and guidance
SMP	Site Management Plan
Standards	Class GA Ambient Water Quality Standards
SVE	Soil vapor extraction
SVI	Soil vapor intrusion
SVOCs	semivolatile organic compounds
TCL	Target Compound List
ug/l	micrograms per liter
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Agency
USGS	United States Geologic Survey
USTs	Underground Storage Tanks
VOC	volatile organic compound

SECTION 1.0
INTRODUCTION AND PURPOSE

This Remedial Design/Remedial Action (RD/RA) Work Plan has been prepared by FPM Group (FPM) for New York State Department of Environmental Conservation (NYSDEC) Inactive Hazardous Waste Disposal Site #130155, identified as the Award Packaging Corp. Site located at 625 South Street, Garden City, New York (Site). This RD/RA Work Plan was prepared to describe the remedial actions and provide the associated procedures to be implemented for each area of concern (AOC) at the Site. The selected remedial actions for each AOC are documented in the Record of Decision (ROD) for the Site, a copy of which is included in Appendix A.

The Site consists of an approximately 1.76-acre property containing an approximately 48,000-square-foot single-story industrial building surrounded by an asphalt parking lot and limited landscaped areas. The building was constructed in 1967 and the majority of the building (western 35,000 square feet) was used from that time up until January 2007 by Award Packaging Corp. (Award) for application of print to plastic packaging material. Award ceased operations and left the Site in January 2007. The space is presently utilized for warehousing of lighting products. The remaining portion of the building, which was most recently utilized as a physical fitness club, is presently vacant. None of Award's operations occurred in the eastern portion of the building.

It was reported that wastes were disposed by Award into two exterior drywells located on the northwest corner of the Site until approximately 1981. The drywells were then filled and paved over. A floor drain was also formerly present in a storage room inside a portion of the building used by Award. This floor drain was closed in 1991.

Various limited site assessments were conducted beginning in 1991 and remediation was conducted in 2004 at the two exterior drywells and at the interior floor drain. An additional investigation was conducted in 2007. Resource Conservation and Recovery Act (RCRA) closure activities were also conducted in 2007. A Remedial Investigation/Feasibility Study (RI/FS), which included additional site assessment activities, was completed in 2011. The previous site assessment, remediation, investigation, and closure activities are documented in the RI/FS Report and are summarized in Section 2 herein.

Detailed descriptions of the selected remedial actions are provided in Section 3. This section also includes information about the remedial action schedule, sampling activities, reporting, site management, and the institutional control (IC).

Supporting documents are included in the appendices. In addition to the ROD (Appendix A), these documents include a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) in Appendix B, a Quality Assurance Project Plan (QAPP) in Appendix C, and a Citizen Participation Plan (CPP) in Appendix D.

SECTION 2.0
SITE BACKGROUND AND SELECTED REMEDIAL MEASURES

The Site description and environmental setting were described in the RI/FS Report and are presented below in summary form for reference. Investigations and remediation conducted at the Site were documented in the RI/FS Report. A summary of the remaining identified impacts at each AOC, together with the approved remedial measures, is provided below. The SCGs applicable to remedial activities at this Site are also summarized in this section. A summary of green remediation principles applicable to remedial activities at this Site is also presented.

2.1 Site Description

The Site consists of an approximately 1.76-acre property containing an approximately 48,000-square-foot single-story industrial building. The surrounding area is primarily industrial and commercial; Figure 2.1.1 shows the Site and surrounding vicinity. Figure 2.1.2. shows the property layout, including the RI sampling locations and AOCs identified for the Site. The Meadowbrook Parkway directly adjoins the Site on the north and east and Long Island Rail Road tracks are present further to the west and south. Commercial and industrial properties are present directly to the west, south, and southeast. The Roosevelt Field shopping center is located approximately 2,000 feet northwest of the Site and a stormwater recharge area is present between the shopping center and the Site.

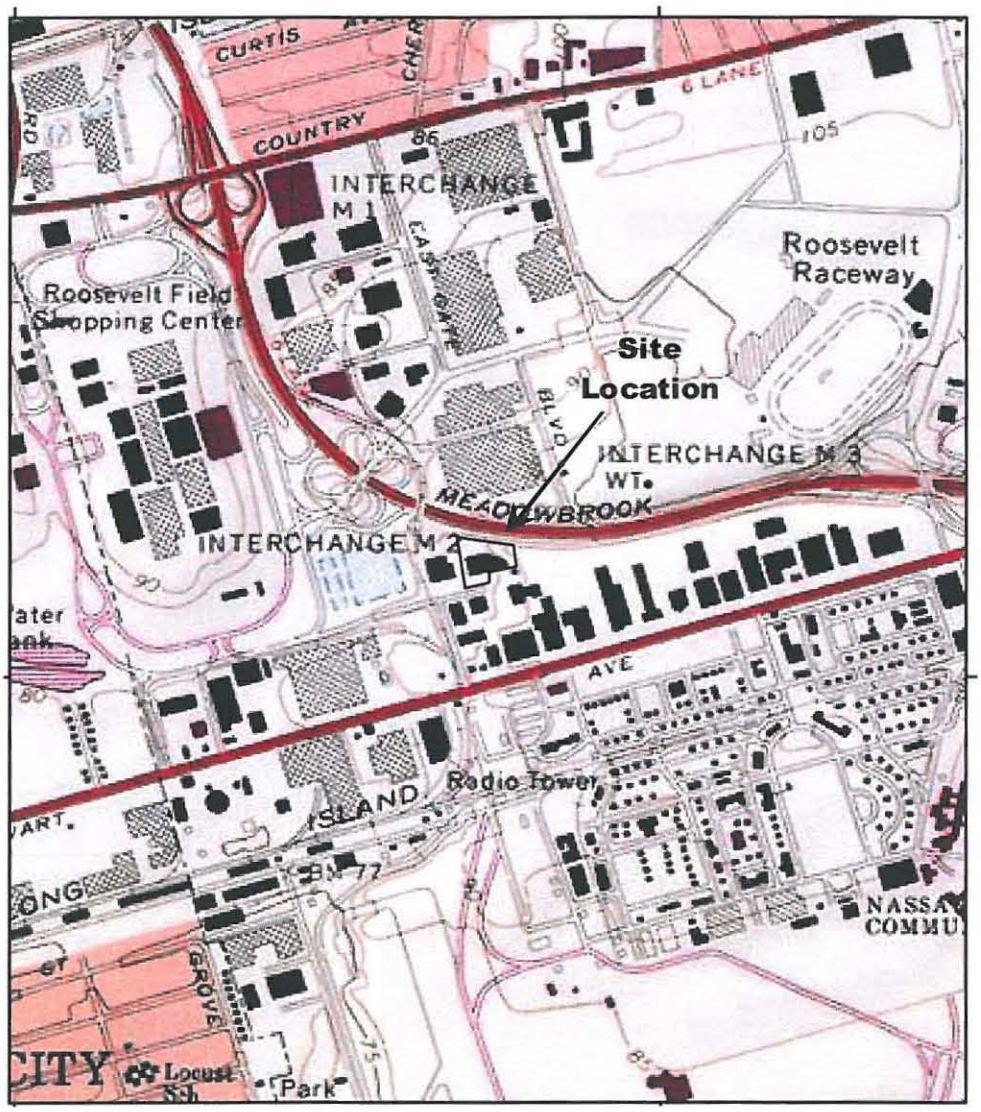
The Site building was constructed in 1967 and the majority of the building (western 35,000 square feet) was used from 1967 until January 2007 by Award for application of print to plastic packaging material. Manufacturing, warehousing, and office operations were conducted inside of the building. Storage of materials occurred in portions of the Site exterior. Materials were formerly stored on a concrete pad with two drywells (DW-02 and DW-03) located on the northwest corner of the Site. Wastes were reportedly disposed into these drywells until approximately 1981 when they were filled and paved over. A floor drain (DW-01) was also formerly present in an inside room where materials were stored. This floor drain was closed in 1991. Remediation of the two drywells on the concrete pad and the floor drain in the storage room was conducted in 2004, as described in Section 2.3 below.

Award ceased operations and left the Site in January 2007. RCRA closure activities for Award were conducted in 2007. Subsurface investigation activities were also conducted in 2007 and between 2008 and 2010 during the RI. Award's former space is presently utilized for warehousing of lighting products.

2.2 Environmental Setting

The property is located in the central portion of Nassau County, New York. The topographic elevation of the property (US Geological Survey Freeport, NY Quadrangle, photorevised 1979) is approximately 90 feet above mean sea level (MSL) and has been significantly modified from its original grade by placement of fill, presumably in conjunction with historic development and road construction. The topographic elevations in the Site vicinity are shown in Figure 2.1.1. The current property surface slopes to the west-southwest, away from the Meadowbrook Parkway. No natural surface water bodies were identified within one mile of the property.

Groundwater at the property is found at a depth of approximately 30 feet below grade. The depth to groundwater and local direction of groundwater flow appear to be affected by the presence of a large stormwater recharge facility located approximately 500 feet to the west-northwest of the property. The regional groundwater flow direction in the property vicinity is approximately S20°W, based on the September 1998 Nassau County Water Table Elevation Map (NCDPW, 1999) and the water table



FPM GROUP		
FIGURE 2.1.1 SITE AREA MAP AWARD PACKAGING CORP. SITE 625 SOUTH STREET GARDEN CITY, NEW YORK		
Drawn by: TAC	Checked By: SOD	Date: 6/6/12

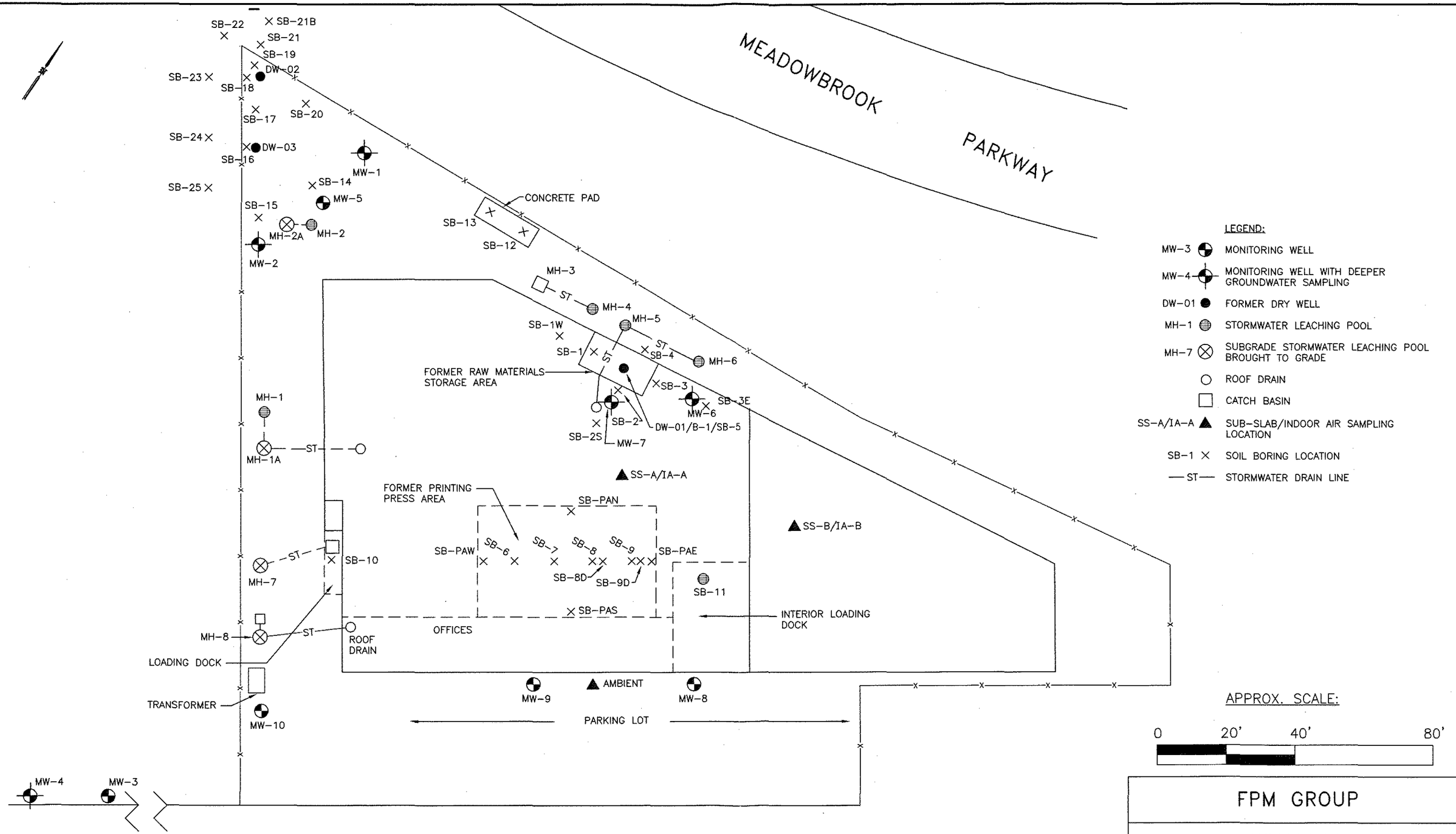


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FIGURE 2.1.2
SITE PLAN

625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C.	Checked By: S.D.	Date: 6/6/12

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elevation at that time was approximately 55 feet above MSL. However, the results of the groundwater level surveys during the RI show that there is variation in the groundwater flow direction caused by periodic discharges from the stormwater recharge basin to the west-northwest of the Site. Groundwater primarily flows in a southerly direction at the Site, as shown in Figure 2.2.1, except after a significant rainfall when a more easterly direction is observed, as represented in Figure 2.2.2. The groundwater sampling locations have been found sufficient to characterize groundwater quality downgradient of the AOCs with which groundwater impacts are associated throughout the range of groundwater flow directions observed at the Site.

2.3 Summary of Identified Impacts and Selected Remedial Measures

The Site has been investigated on several occasions and remediation has been performed on two exterior drywells and an interior floor drain. Two underground storage tanks (USTs) have also been removed and RCRA closure activities have been conducted. The investigations and remediation have been documented in detail elsewhere, including the RI/FS Report where the nature and extent of remaining impacts at each AOC were defined such that potential remedial measures for each AOC could be evaluated. The following summarizes the identified impacts at each AOC and the remedial measures, as articulated in the ROD.

2.3.1 Soil/Sediment

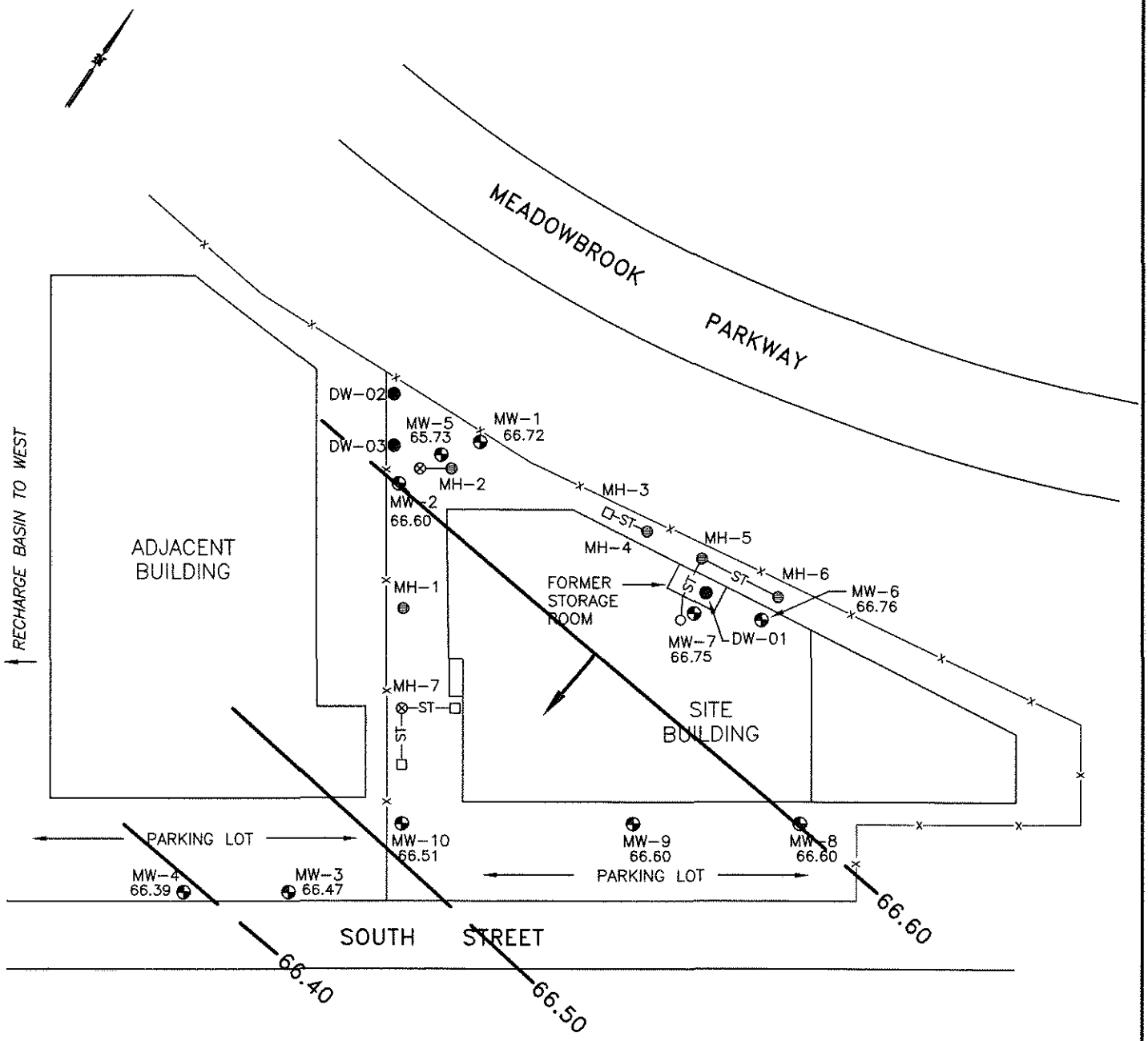
- Former DW-01Area

A floor drain, DW-01, was formerly present in an interior materials storage room. Some soil removal has previously been conducted in this area. However, residual soil impacts remain. The delineation of soil impacts in the former DW-01 area is complete. One volatile organic compound (VOC), acetone, was identified in soils in this area at concentrations above its NYSDEC Part 375 Soil Cleanup Objective (Objective) for unrestricted use; two detections at one location also exceeded its NYSDEC Objective for commercial use. No metals or semivolatile organic compounds (SVOCs) were noted above the NYSDEC Objectives for unrestricted use, with the exception of one detection of copper at one location that slightly exceeded its NYSDEC Objective for unrestricted use, but did not exceed the NYSDEC Objective for commercial use. The area of acetone- impacted soils is generally limited to a distance of approximately 20 feet from the former DW-01 structure and extends from just below grade to the water table, which is approximately 30 feet below grade. This area is completely covered by the reinforced concrete slab of the building. The copper exceedance does not appear to correlate with any Site-related impacts in this area and was found only in shallow soil near the building foundation; this detection may be related to the original building construction.

Figure 2.3.1.1 depicts the soil constituents for which concentrations exceeded the applicable NYSDEC Objectives on the former DW-01 area. Remedial measures will be implemented in this area to address the soil impacts, including soil vapor extraction (SVE) to address the VOC impacts and excavation and disposal to address the copper impact.

- Former Printing Press Area

A printing press area was formerly present in the Award portion of the building, as shown on Figure 2.1.2. RCRA closure activities were conducted in this area, including decontamination of the former printing press area and sub-slab soil sampling. One VOC, acetone, and several SVOCs have been identified in shallow soils underlying the slab at concentrations above the NYSDEC Objectives for unrestricted use but generally below the NYSDEC Objectives for commercial use. Only one SVOC was noted at a concentration just above its NYSDEC Objective for commercial use at two locations; those



LEGEND:

MW-4 66.39 ◔ MONITORING WELL WITH GROUNDWATER RELATIVE ELEVATION, IN FEET

DW-01 ● FORMER DRY WELL

MH-1 ◍ STORMWATER LEACHING POOL

MH-7 ⊗ SUBGRADE STORMWATER LEACHING POOL

□ CATCH BASIN

*WATER LEVEL MEASURED FOLLOWING SIX DAYS OF NO RAINFALL

APPROXIMATE SCALE

0' 30' 60' 120'

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FIGURE 2.2.1
GROUNDWATER RELATIVE ELEVATION CONTOURS, JUNE 8, 2010*
625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C.	Checked By: S.D.	Date: 6/6/12

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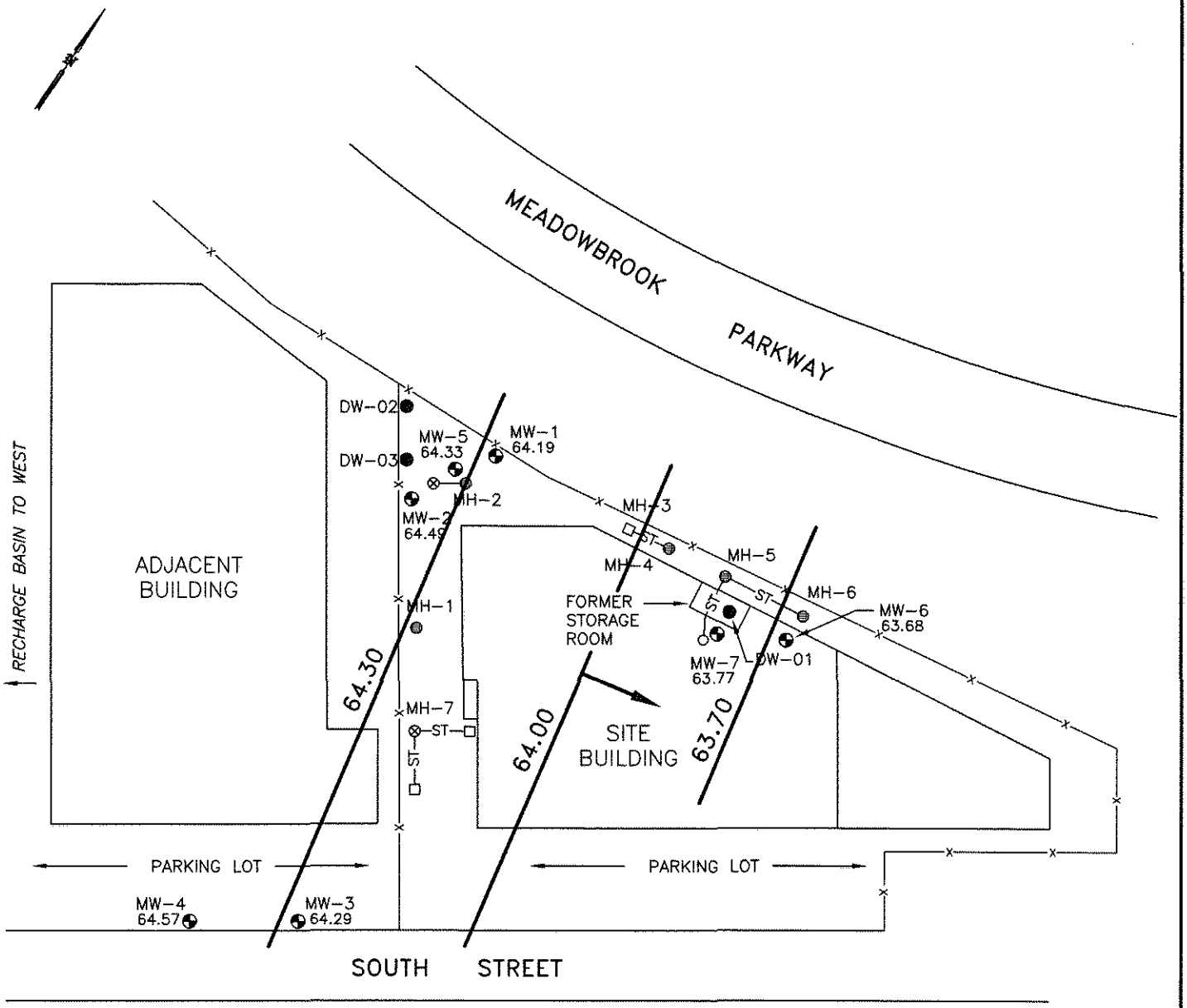

APPROXIMATE SCALE

0' 30' 60' 120'

LEGEND:

MW-4 64.57 ⊕ MONITORING WELL WITH GROUNDWATER RELATIVE ELEVATION, IN FEET

DW-01 ● FORMER DRY WELL

MH-1 ◍ STORMWATER LEACHING POOL

MH-7 ⊗ SUBGRADE STORMWATER LEACHING POOL

□ CATCH BASIN

* WATER LEVELS MEASURED ONE DAY AFTER A 3-INCH STORM

FPM GROUP

FIGURE 2.2.2
GROUNDWATER RELATIVE ELEVATION CONTOURS, SEPTEMBER 8, 2008*
625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C., J.S.	Checked By: S.D.	Date: 6/6/12

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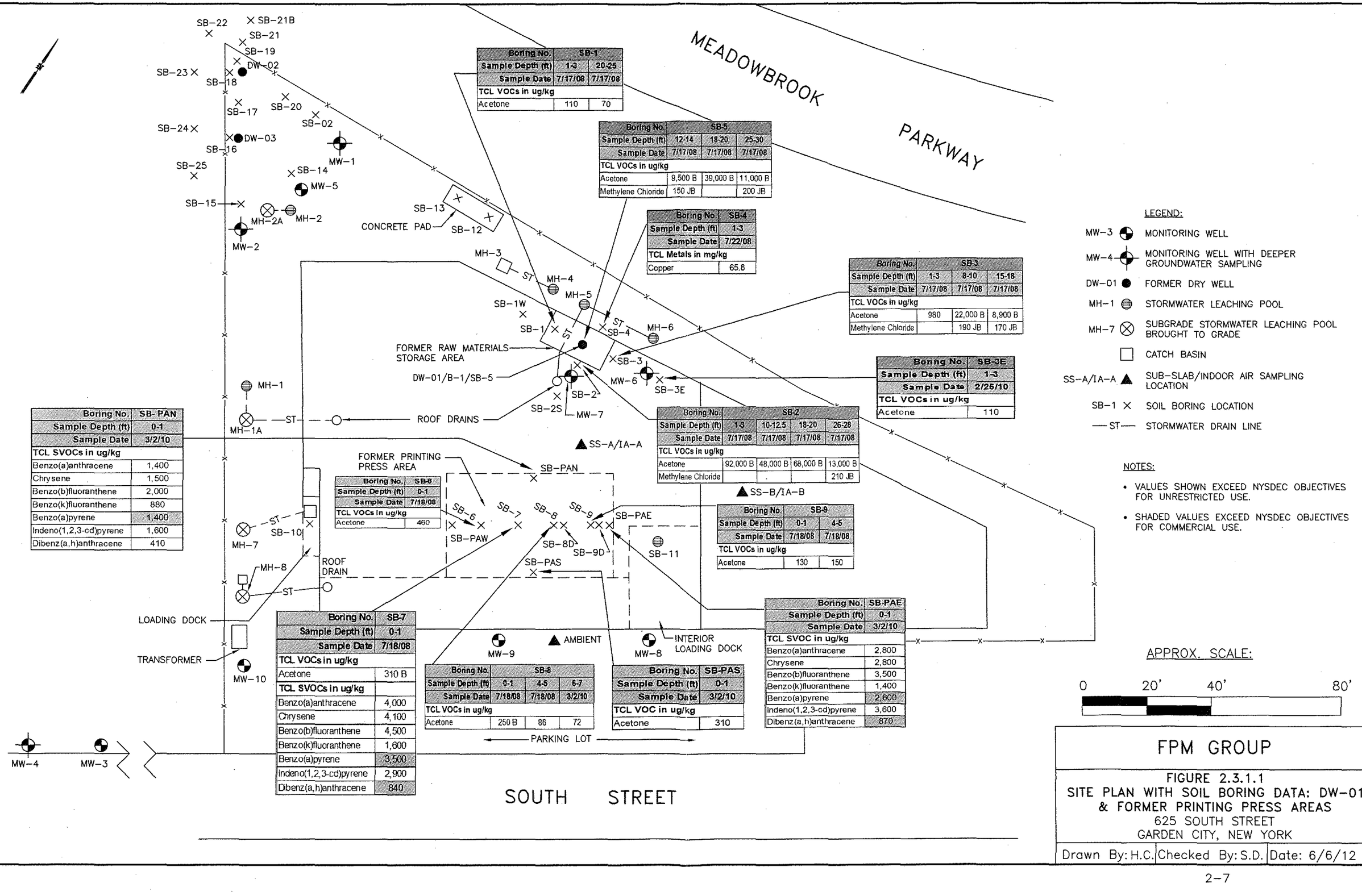

Boring No.	SB-1	
Sample Depth (ft)	1-3	20-25
Sample Date	7/17/08	7/17/08
TCL VOCs in ug/kg		
Acetone	110	70

Boring No.	SB-5		
Sample Depth (ft)	12-14	18-20	25-30
Sample Date	7/17/08	7/17/08	7/17/08
TCL VOCs in ug/kg			
Acetone	9,500 B	39,000 B	11,000 B
Methylene Chloride	150 JB		200 JB

Boring No.	SB-4
Sample Depth (ft)	1-3
Sample Date	7/22/08
TCL Metals in mg/kg	
Copper	65.8

Boring No.	SB-3		
Sample Depth (ft)	1-3	8-10	15-18
Sample Date	7/17/08	7/17/08	7/17/08
TCL VOCs in ug/kg			
Acetone	980	22,000 B	8,900 B
Methylene Chloride		190 JB	170 JB

Boring No.	SB-3E
Sample Depth (ft)	1-3
Sample Date	2/26/10
TCL VOCs in ug/kg	
Acetone	110

Boring No.	SB-2			
Sample Depth (ft)	1-3	10-12.5	18-20	26-28
Sample Date	7/17/08	7/17/08	7/17/08	7/17/08
TCL VOCs in ug/kg				
Acetone	92,000 B	48,000 B	68,000 B	13,000 B
Methylene Chloride				210 JB

Boring No.	SB-9	
Sample Depth (ft)	0-1	4-5
Sample Date	7/18/08	7/18/08
TCL VOCs in ug/kg		
Acetone	130	150

Boring No.	SB-PAN
Sample Depth (ft)	0-1
Sample Date	3/2/10
TCL SVOCs in ug/kg	
Benzo(a)anthracene	1,400
Chrysene	1,500
Benzo(b)fluoranthene	2,000
Benzo(k)fluoranthene	880
Benzo(a)pyrene	1,400
Indeno(1,2,3-cd)pyrene	1,600
Dibenz(a,h)anthracene	410

Boring No.	SB-6
Sample Depth (ft)	0-1
Sample Date	7/18/08
TCL VOCs in ug/kg	
Acetone	460

Boring No.	SB-7
Sample Depth (ft)	0-1
Sample Date	7/18/08
TCL VOCs in ug/kg	
Acetone	310 B
TCL SVOCs in ug/kg	
Benzo(a)anthracene	4,000
Chrysene	4,100
Benzo(b)fluoranthene	4,500
Benzo(k)fluoranthene	1,600
Benzo(a)pyrene	3,500
Indeno(1,2,3-cd)pyrene	2,900
Dibenz(a,h)anthracene	840

Boring No.	SB-8		
Sample Depth (ft)	0-1	4-5	6-7
Sample Date	7/18/08	7/18/08	3/2/10
TCL VOCs in ug/kg			
Acetone	250 B	86	72

Boring No.	SB-PAS
Sample Depth (ft)	0-1
Sample Date	3/2/10
TCL VOC in ug/kg	
Acetone	310

Boring No.	SB-PAE
Sample Depth (ft)	0-1
Sample Date	3/2/10
TCL SVOC in ug/kg	
Benzo(a)anthracene	2,800
Chrysene	2,800
Benzo(b)fluoranthene	3,500
Benzo(k)fluoranthene	1,400
Benzo(a)pyrene	2,600
Indeno(1,2,3-cd)pyrene	3,600
Dibenz(a,h)anthracene	870

LEGEND:

- MW-3 — MONITORING WELL
- MW-4 — MONITORING WELL WITH DEEPER GROUNDWATER SAMPLING
- DW-01 — FORMER DRY WELL
- MH-1 — STORMWATER LEACHING POOL
- MH-7 — SUBGRADE STORMWATER LEACHING POOL BROUGHT TO GRADE
- CATCH BASIN
- SS-A/IA-A — SUB-SLAB/INDOOR AIR SAMPLING LOCATION
- SB-1 — SOIL BORING LOCATION
- —ST— STORMWATER DRAIN LINE

NOTES:

- VALUES SHOWN EXCEED NYSDEC OBJECTIVES FOR UNRESTRICTED USE.
- SHADED VALUES EXCEED NYSDEC OBJECTIVES FOR COMMERCIAL USE.

APPROX. SCALE:

0 20' 40' 80'

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FIGURE 2.3.1.1
SITE PLAN WITH SOIL BORING DATA: DW-01 & FORMER PRINTING PRESS AREAS
625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C. | Checked By: S.D. | Date: 6/6/12

H:\ROCOCO\RARDWP\SOIL BORING DATA DW-01 AREA.dwg, 7/16/2012 11:19:05 AM, BW Minolta, DX17

exceedances were of the same order of magnitude as the Objective. The impacted area is completely covered with the reinforced concrete slab of the building.

Figure 2.3.1.1 depicts the soil constituents for which concentrations exceeded the applicable NYSDEC Objectives in the former printing press area. The engineering control (EC) of capping has been selected as the remedy for the former printing press area. Capping may also be used in other areas of the Site, following completion of other selected remedial measures, if soils exceeding levels that allow for commercial use remain present.

➢ Loading Docks and Stormwater Leaching Pools

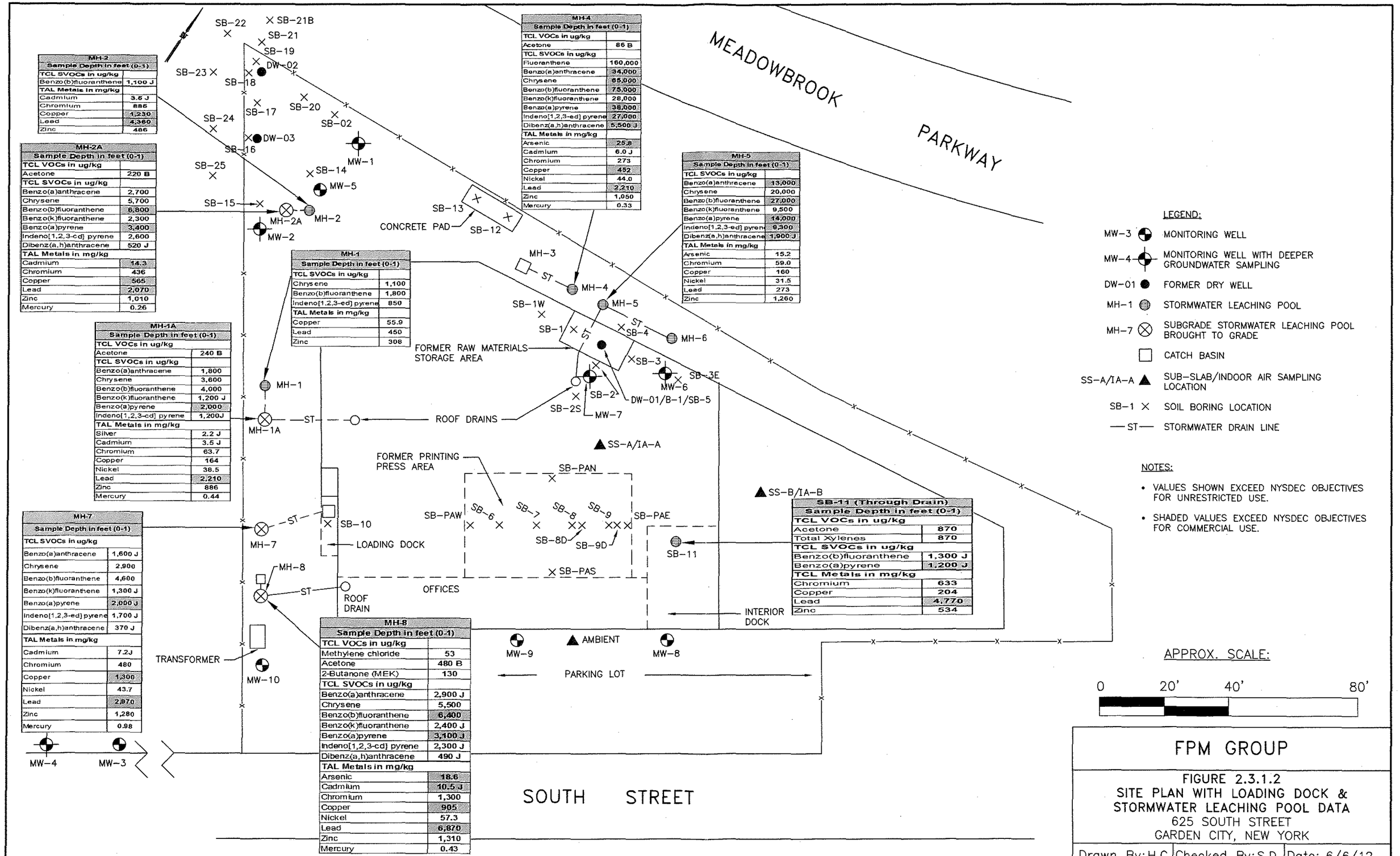
Several stormwater leaching pools are present on the property and stormwater drainage structures are also located in two interior loading docks. All of the loading dock drains and stormwater leaching pools have been investigated and soils impacted with VOCs, SVOCs, and/or metals have been identified at concentrations above the NYSDEC Objectives for unrestricted use and/or the NYSDEC Objectives protective of groundwater quality at all locations sampled, with the exception of the soil beneath the west loading dock (SB-10) where no exceedances were noted.

Figure 2.3.1.2 depicts the soil constituents for which concentrations exceeded the applicable NYSDEC Objectives in the loading docks and leaching pools. Excavation and disposal of the affected soil has been selected as the remedy for the impacted soil in the loading docks and leaching pools.

➢ Former DW-02/03 Area

Materials were formerly stored on a concrete pad with two drywells (DW-02 and DW-03) located on the northwest corner of the Site. Wastes were reportedly disposed into these drywells. Remediation of the drywells was conducted in 2004. However, residual impacts remained. The DW-02/DW-03 area was investigated during the RI. Several VOCs and metals were identified at concentrations above their respective NYSDEC Objectives for unrestricted use (but generally below the Objectives for commercial use) along the western and northern onsite perimeter of the DW-02/-03 area during the RI. Several detections at depth in borings SB-18 and SB-19 were also noted to exceed the NYSDEC Objectives for commercial use; these exceedances were generally of the same order of magnitude as the Objectives. Previous sampling in this area identified soil impacts exceeding NYSDEC Objectives for unrestricted use at depth in several borings in proximity to the former DW-02 and DW-03 structures and in post-remediation samples from the structures; no exceedances of the NYSDEC Objectives for commercial use were noted in the previous samples. Offsite sampling was performed and no impacts were identified offsite to the west of the DW-02/03 area. Impacts above the NYSDEC Objectives for unrestricted use, but below the Objectives for commercial use, were noted for copper, xylenes, and lead at one location (SB-21) approximately five feet north of the Site on the NYSDOT/NYS Parks-owned property associated with the adjoining Meadowbrook Parkway. Further soil sampling conducted at boring SB-21B, approximately 10 feet further to the north, did not identify any exceedances of NYSDEC Objectives. Therefore, the impact identified at offsite boring SB-21 is limited to exceedances of the NYSDEC Objectives for unrestricted use within approximately five feet of the property line and at a depth of approximately 8 to 10 feet below grade. No impacted soils were noted above or below this interval.

Figure 2.3.1.3 depicts the constituents for which concentrations in the RI samples exceeded the applicable NYSDEC Objectives in the DW-02/DW-03 area. Remedial measures will be implemented in this area to address the soil impacts, including SVE to address the VOC impacts and excavation and disposal to address the metals impacts.



MH-2	
Sample Depth in feet (0-1)	
TCL SVOCs in ug/kg	
Benzo(b)fluoranthene	1,100 J
TAL Metals in mg/kg	
Cadmium	3.6 J
Chromium	886
Copper	1,230
Lead	4,360
Zinc	486

MH-2A	
Sample Depth in feet (0-1)	
TCL VOCs in ug/kg	
Acetone	220 B
TCL SVOCs in ug/kg	
Benzo(a)anthracene	2,700
Chrysene	5,700
Benzo(b)fluoranthene	6,800
Benzo(k)fluoranthene	2,300
Benzo(a)pyrene	3,400
Indeno[1,2,3-cd] pyrene	2,600
Dibenz(a,h)anthracene	520 J
TAL Metals in mg/kg	
Cadmium	14.3
Chromium	436
Copper	565
Lead	2,070
Zinc	1,010
Mercury	0.26

MH-1A	
Sample Depth in feet (0-1)	
TCL VOCs in ug/kg	
Acetone	240 B
TCL SVOCs in ug/kg	
Benzo(a)anthracene	1,800
Chrysene	3,600
Benzo(b)fluoranthene	4,000
Benzo(k)fluoranthene	1,200 J
Benzo(a)pyrene	2,000
Indeno[1,2,3-cd] pyrene	1,200J
TAL Metals in mg/kg	
Silver	2.2 J
Cadmium	3.5 J
Chromium	63.7
Copper	164
Nickel	38.5
Lead	2,210
Zinc	886
Mercury	0.44

MH-1	
Sample Depth in feet (0-1)	
TCL SVOCs in ug/kg	
Chrysene	1,100
Benzo(b)fluoranthene	1,800
Indeno[1,2,3-cd] pyrene	850
TAL Metals in mg/kg	
Copper	55.9
Lead	450
Zinc	308

MH-4	
Sample Depth in feet (0-1)	
TCL VOCs in ug/kg	
Acetone	86 B
TCL SVOCs in ug/kg	
Fluoranthene	160,000
Benzo(a)anthracene	34,000
Chrysene	65,000
Benzo(b)fluoranthene	75,000
Benzo(k)fluoranthene	28,000
Benzo(a)pyrene	38,000
Indeno[1,2,3-cd] pyrene	27,000
Dibenz(a,h)anthracene	5,500 J
TAL Metals in mg/kg	
Arsenic	25.8
Cadmium	6.0 J
Chromium	273
Copper	452
Nickel	44.0
Lead	2,210
Zinc	1,050
Mercury	0.33

MH-5	
Sample Depth in feet (0-1)	
TCL SVOCs in ug/kg	
Benzo(a)anthracene	13,000
Chrysene	20,000
Benzo(b)fluoranthene	27,000
Benzo(k)fluoranthene	9,500
Benzo(a)pyrene	14,000
Indeno[1,2,3-cd] pyrene	9,300
Dibenz(a,h)anthracene	1,900 J
TAL Metals in mg/kg	
Arsenic	15.2
Chromium	59.0
Copper	160
Nickel	31.5
Lead	273
Zinc	1,260

SB-11 (Through Drain)	
Sample Depth in feet (0-1)	
TCL VOCs in ug/kg	
Acetone	870
Total Xylenes	870
TCL SVOCs in ug/kg	
Benzo(b)fluoranthene	1,300 J
Benzo(a)pyrene	1,200 J
TCL Metals in mg/kg	
Chromium	633
Copper	204
Lead	4,770
Zinc	534

MH-7	
Sample Depth in feet (0-1)	
TCL SVOCs in ug/kg	
Benzo(a)anthracene	1,600 J
Chrysene	2,900
Benzo(b)fluoranthene	4,600
Benzo(k)fluoranthene	1,300 J
Benzo(a)pyrene	2,000 J
Indeno[1,2,3-ed] pyrene	1,700 J
Dibenz(a,h)anthracene	370 J
TAL Metals in mg/kg	
Cadmium	7.2J
Chromium	480
Copper	1,300
Nickel	43.7
Lead	2,970
Zinc	1,280
Mercury	0.98

MH-8	
Sample Depth in feet (0-1)	
TCL VOCs in ug/kg	
Methylene chloride	53
Acetone	480 B
2-Butanone (MEK)	130
TCL SVOCs in ug/kg	
Benzo(a)anthracene	2,900 J
Chrysene	5,500
Benzo(b)fluoranthene	6,400
Benzo(k)fluoranthene	2,400 J
Benzo(a)pyrene	3,100 J
Indeno[1,2,3-cd] pyrene	2,300 J
Dibenz(a,h)anthracene	490 J
TAL Metals in mg/kg	
Arsenic	18.6
Cadmium	10.5 J
Chromium	1,300
Copper	905
Nickel	57.3
Lead	6,870
Zinc	1,310
Mercury	0.43

LEGEND:

- MW-3 — MONITORING WELL
- MW-4 — MONITORING WELL WITH DEEPER GROUNDWATER SAMPLING
- DW-01 — FORMER DRY WELL
- MH-1 — STORMWATER LEACHING POOL
- MH-7 — SUBGRADE STORMWATER LEACHING POOL BROUGHT TO GRADE
- CATCH BASIN
- SS-A/IA-A — SUB-SLAB/INDOOR AIR SAMPLING LOCATION
- SB-1 — SOIL BORING LOCATION
- —ST— STORMWATER DRAIN LINE

NOTES:

- VALUES SHOWN EXCEED NYSDEC OBJECTIVES FOR UNRESTRICTED USE.
- SHADED VALUES EXCEED NYSDEC OBJECTIVES FOR COMMERCIAL USE.

APPROX. SCALE:

0 20' 40' 80'

FPM GROUP

FIGURE 2.3.1.2
SITE PLAN WITH LOADING DOCK & STORMWATER LEACHING POOL DATA
625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C. | Checked By: S.D. | Date: 6/6/12

H:\ROCOCO\RARDWP\STORMWATER LEACHING POOL DATA.dwg, 7/16/2012 11:20:01 AM, BW Minolla, 11x17

Boring No.	SB-21
Sample Depth (ft)	8-10
Sample Date	11/1/10
TCL VOCs in ug/kg	
Methylene Chloride	73 JB
Xylenes (total)	6,900
TCL Metals in mg/kg	
Copper	53.0
Lead	77.0

Boring No.	SB-19	
Sample Depth (ft)	4-5	8-10
Sample Date	7/22/08	7/22/08
TCL VOCs in ug/kg		
Methylene Chloride		2,200 JB
Ethylbenzene		17,000
Toluene		290,000
Xylenes (total)	2,300	120,000
TCL Metals in mg/kg		
Chromium	1,180	**1,540**
Copper	**273**	**485**
Lead	**5,270**	**6,750**

Boring No.	SB-17
Sample Depth (ft)	27-29
Sample Date	7/22/08
TCL VOCs in ug/kg	
Methylene Chloride	3,100 JB
Ethylbenzene	85,000
Toluene	310,000
Xylenes (total)	460,000

Boring No.	SB-18	
Sample Depth (ft)	9-10	27-29
Sample Date	7/22/08	7/22/08
TCL VOCs in ug/kg		
Ethylbenzene		150,000
Toluene		**3,000,000**
Xylenes (total)		**970,000**
TCL Metals in mg/kg		
Chromium	197	
Copper	169	
Lead	760	

Boring No.	SB-16
Sample Depth (ft)	27-30
Sample Date	7/22/08
TCL VOCs in ug/kg	
Methylene Chloride	2,700 JB
Ethylbenzene	40,000
Toluene	310,000
Xylenes (total)	320,000

MEADOWBROOK PARKWAY

SB-22, SB-21B, SB-21, SB-19, SB-23, DW-02, SB-18, SB-17, SB-20, SB-24, SB-02, SB-16, DW-03, MW-1, SB-14, MW-5, SB-25, SB-15, MH-2A, MH-2, MW-2, SB-13, CONCRETE PAD, SB-12, MH-3, ST, MH-4, MH-5, SB-1W, SB-1, SB-4, MH-6, FORMER RAW MATERIALS STORAGE AREA, DW-01/B-1/SB-5, SB-3, MW-6, SB-3E, SB-2, SB-2S, MW-7, MH-1, MH-1A, ROOF DRAINS, SS-A/IA-A, FORMER PRINTING PRESS AREA, SB-PAN, SB-6, SB-7, SB-8, SB-9, SB-PAE, SB-PAW, SB-8D, SB-9D, SB-11, SS-B/IA-B, MH-7, SB-10, MH-8, SB-PAS, ROOF DRAIN, OFFICE, INTERIOR LOADING DOCK, LOADING DOCK, TRANSFORMER, MW-10, AMBIENT, MW-9, MW-8, PARKING LOT, MW-4, MW-3

SOUTH STREET

LEGEND:

- MW-3 — MONITORING WELL
- MW-4 — MONITORING WELL WITH DEEPER GROUNDWATER SAMPLING
- DW-01 — FORMER DRY WELL
- MH-1 — STORMWATER LEACHING POOL
- MH-7 — SUBGRADE STORMWATER LEACHING POOL BROUGHT TO GRADE
- CATCH BASIN
- SS-A/IA-A — SUB-SLAB/INDOOR AIR SAMPLING LOCATION
- SB-1 — SOIL BORING LOCATION
- —ST— STORMWATER DRAIN LINE

NOTES:

- VALUES SHOWN EXCEED NYSDEC OBJECTIVES FOR UNRESTRICTED USE.
- SHADED VALUES EXCEED NYSDEC OBJECTIVES FOR COMMERCIAL USE.

APPROX. SCALE:

0 20' 40' 80'

FPM GROUP

FIGURE 2.3.1.3
SITE PLAN WITH SOIL BORING DATA:
DW-02/DW-03 AREA
625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C. | Checked By: S.D. | Date: 6/6/12

H:\ROCCO\RARDWP\SOIL BORING DATA DW-02_03 AREA.dwg, 7/16/2012 11:21:11 AM, BW Minolta, 11x17

2.3.2 Groundwater

VOCs exceeding their NYSDEC Class GA Ambient Water Quality Standards (Standards) were noted in shallow monitoring wells MW-2 and MW-7, situated downgradient of DW-02/03 and DW-01 areas, respectively. Two SVOCs were also noted in well MW-7 at concentrations slightly above their NYSDEC Standards. These impacts appear to be limited to the immediate downgradient (south) vicinity of the DW-01 and DW-02/DW-03 areas; no impacts were noted in the wells immediately to the east of these areas (wells MW-1, MW-5, or MW-6), which are downgradient following significant rainfall events, or in wells further to the south of these areas (wells MW-8 through MW-10). Several metals, including iron, manganese, and/or sodium, were also noted above their NYSDEC Standards in the samples from the most recent sampling event, which was conducted using procedures to minimize sample turbidity. These metals detections do not present a concern as iron and manganese are often elevated in Long Island groundwater and sodium is also often elevated due to recharge of stormwater runoff containing road deicing materials. These detections appear to be characteristic of groundwater in the Site vicinity.

No VOCs were detected in any of the deep groundwater samples with the exception of GMW-1, where PCE was found in the deeper sample at a concentration slightly in excess of the NYSDEC Standard. PCE was not found in the shallower sample from this location, nor has PCE ever been detected in any of the Site wells. This sampling location is on the upgradient side of the Site; it is concluded that this detection is not Site-related. As for the shallow groundwater, the metals iron, manganese, and/or sodium were detected in excess of the NYSDEC Standards at several of the deep groundwater sample locations; these detections are not Site-related. It is concluded that there are no Site-related deep groundwater impacts.

Figure 2.3.2.1 depicts all constituents for which concentrations exceeded the NYSDEC Standards. Remedial measures will be implemented to address VOC-impacted groundwater. Air sparging (AS) has been selected as the remedy for groundwater, with SVE to remove the resulting vapor-phase VOCs, and groundwater monitoring to document remedial progress.

2.3.3 Sub-Slab Soil Gas and Indoor/Outdoor Air

Indoor air, outdoor air and sub-slab vapor sampling were performed in the former Award manufacturing space and in the adjoining tenant space of the onsite building. The sampling results indicate that a response action of monitoring is indicated for PCE in the former Award space, in accordance with New York State Department of Health (NYSDOH) guidance. No other actions were indicated.

Figure 2.3.3.1 depicts the constituents detected in the indoor air, outdoor air, and sub-slab soil vapor during the RI. Soil vapor intrusion (SVI) monitoring will be implemented at this Site. SVE that will be implemented to treat VOC-impacted soil in the DW-01 area and to capture vapors from the groundwater AS system will also prevent SVI into the onsite building. SVI monitoring will be used to confirm that SVI is not occurring into the building and to assist in documenting the progress of soil remediation.

2.4 Additional Controls

In addition to the above-described remedial measures, the Site will be subject to controls, including an institutional control (IC) in the form of an environmental easement and a Site Management Plan (SMP). These controls are summarized below and described in greater detail in Section 3.2.4.

Well No.	MW-1			
Sample Date	3/19/07	10/30/08		06/08/10
TAL Metals in ug/l	Unfilt.	Unfilt.	Filt.	Unfilt.
Arsenic		26		
Beryllium		8.4 J		
Chromium		190		
Iron	2,100	62,700		
Lead		200		
Manganese		450		
Sodium	93,300	94,200	88,600	92,300

Well No.	MW-5			
Sample Date	5/16/07	10/30/08		06/08/10
TAL Metals in ug/l	Unfilt.	Unfilt.	Filt.	Unfilt.
Beryllium		5.2 J		
Chromium		59		
Iron	651	27,100		
Lead		35		
Sodium		76,800	76,900	92,800

Well No.	MW-2				
Sample Date	3/19/07	10/30/08		06/08/10	01/03/11
TCL VOCs in ug/l					
Benzene		1.8 J			7.6 J
Ethylbenzene		35		120	95
Methylene Chloride				5.4 JB	
Toluene		220		490	
Xylenes, Total		36		220	110
TAL Metals in ug/l	Unfilt.	Unfilt.	Filt.	Unfilt.	-
Arsenic		66			
Beryllium		22			
Chromium		190			
Iron	15,700	89,700	1,400	9,040	
Lead		68			
Manganese	900	520		551	
Sodium		33,600	32,600	23,200	

Boring No.	GMW-2			
Sample Depth (ft)	50		60	
Sample Date	7/18/08		7/18/08	
TCL Metals in mg/l				
	Unfilt.	Filt.	Unfilt.	Filt.
Arsenic	28			
Beryllium	4.3		3.4	
Chromium	270		170	
Iron	72,300	700	73,700	750
Lead	28		48	
Manganese	440		930	
Sodium	51,800	50,200	45,000	43,600

Well No.	MW-4		
Sample Date	4/9/07	10/30/08	
TAL Metals in ug/l	Unfilt.	Unfilt.	Filt.
Beryllium		4.4 J	
Chromium		150	
Iron	1,300	50,400	

Boring No.	GMW-4			
Sample Depth (ft)	50		60	
Sample Date	07/23/08		07/23/08	
TCL Metals in mg/l				
	Unfilt	Filt.	Unfilt.	Filt.
Beryllium			3.6	
Chromium	86		170	
Iron	25,700		65,400	
Lead	58		31	
Manganese	320		780	

Boring No.	GMW-1			
Sample Depth (ft)	50		60	
Sample Date	7/18/08		7/18/08	
TCL VOCs in ug/l				
Tetrachloroethene			9.5	
TCL Metals in mg/l				
	Unfilt.	Filt.	Unfilt.	Filt.
Arsenic	38			
Beryllium	7.9		6.7	
Chromium	440		520	
Iron	136,000		149,000	970
Lead	43		63	
Manganese	880		3,200	1,500
Nickel	110		120	
Sodium	25,100	21,900	38,100	36,000
Thallium	9.4 J		20 J	

Well No.	MW-6			
Sample Date	5/16/07	10/30/08		06/08/10
TAL Metals in ug/l	Unfilt.	Unfilt.	Filt.	Unfilt.
Arsenic		88		
Beryllium		9.6 J		
Chromium		170		
Iron	649	299,000		719
Lead		80		
Manganese		760		

Boring No.	GMW-6			
Sample Depth (ft)	50		60	
Sample Date	7/18/08		7/18/08	
TCL Metals in mg/l				
	Unfilt.	Filt.	Unfilt.	Filt.
Beryllium	5.9		3.7	
Chromium	320		190	
Iron	117,000	1,800	69,900	
Lead	40		29	
Manganese	1,500	620	1,900	1,200
Sodium	112,000	109,000	53,800	52,200

Well No.	MW-7		
Sample Date	10/30/08		06/08/10
TCL VOCs in ug/l			
Acetone	19,000		16,000
Methylene Chloride			170 JB
TCL SVOCs in ug/l			
Phenol			26
4-Methylphenol	5.9		53
TAL Metals in ug/l	Unfilt.	Filt.	Unfilt.
Antimony	10 J		
Arsenic	220		
Beryllium	21	28	
Chromium	1,100		
Copper	430		
Iron	269,000	17,400	46,900
Lead	130		
Manganese	990		1,270
Nickel	240		

Boring No.	GMW-7			
Sample Depth (ft)	50		60	
Sample Date	7/18/08		7/18/08	
TCL Metals in mg/l				
	Unfilt.	Filt.	Unfilt.	Filt.
Beryllium			3.6	
Chromium	380		180	
Iron	90,100		70,600	
Lead	26		31	
Manganese	1,100	480	4,400	1,700
Sodium	37,200	37,900	43,800	42,600
Thallium	11 J			

Well No.	MW-9
Sample Date	06/08/10
TAL Metals in ug/l	Unfilt.
Iron	590
Sodium	20,400

Well No.	MW-10
Sample Date	06/08/10
TAL Metals in ug/l	Unfilt.
Iron	508
Sodium	38,100

Well No.	MW-3		
Sample Date	4/9/07	10/30/08	
TAL Metals in ug/l	Unfilt.	Unfilt.	Filt.
Beryllium		3.7 J	
Chromium		140	
Iron	7,800	47,200	

MEADOWBROOK PARKWAY

SOUTH STREET

SB-22, SB-21B, SB-21, SB-19, SB-23, DW-02, SB-18, SB-17, SB-20, SB-02, SB-16, SB-24, DW-03, MW-1, SB-14, MW-5, SB-25, SB-15, MH-2A, MH-2, MW-2, SB-13, SB-12, CONCRETE PAD, MH-3, ST, MH-4, SB-1W, MH-5, SB-1, SB-4, MH-6, SB-2, SB-3, MW-7, MW-6, SB-3E, DW-01/B-1/SB-5, SB-2S, SS-A/IA-A, SB-PAN, SB-PAW, SB-6, SB-7, SB-8, SB-9, SB-PAE, SB-8D, SB-9D, SB-11, SB-PAS, SS-B/IA-B, MH-1, MH-1A, ST, ROOF DRAINS, FORMER RAW MATERIALS STORAGE AREA, GENERAL GROUNDWATER FLOW DIRECTION, FORMER PRINTING PRESS AREA, MH-7, SB-10, LOADING DOCK, MH-8, ST, ROOF DRAIN, OFFICES, INTERIOR LOADING DOCK, TRANSFORMER, MW-10, MW-9, AMBIENT, MW-8, PARKING LOT, MW-4, MW-3

LEGEND:

- MW-3 — MONITORING WELL
- MW-4 — MONITORING WELL WITH DEEPER GROUNDWATER SAMPLING
- DW-01 — FORMER DRY WELL
- MH-1 — STORMWATER LEACHING POOL
- MH-7 — SUBGRADE STORMWATER LEACHING POOL BROUGHT TO GRADE
- CATCH BASIN
- SS-A/IA-A — SUB-SLAB/INDOOR AIR SAMPLING LOCATION
- SB-1 — SOIL BORING LOCATION
- ST — STORMWATER DRAIN LINE
- -100- — TOTAL VOC ISOPLETHS IN MICROGRAMS PER LITER (JUNE 2010, JANUARY 2011)

NOTES:

- PRINTED VALUES EXCEED NYSDEC CLASS GA AMBIENT WATER QUALITY STANDARDS.

APPROX. SCALE:

0 20' 40' 80'

FPM GROUP

FIGURE 2.3.2.1
SITE PLAN WITH GROUNDWATER DATA

625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C. | Checked By: S.D. | Date: 6/6/12

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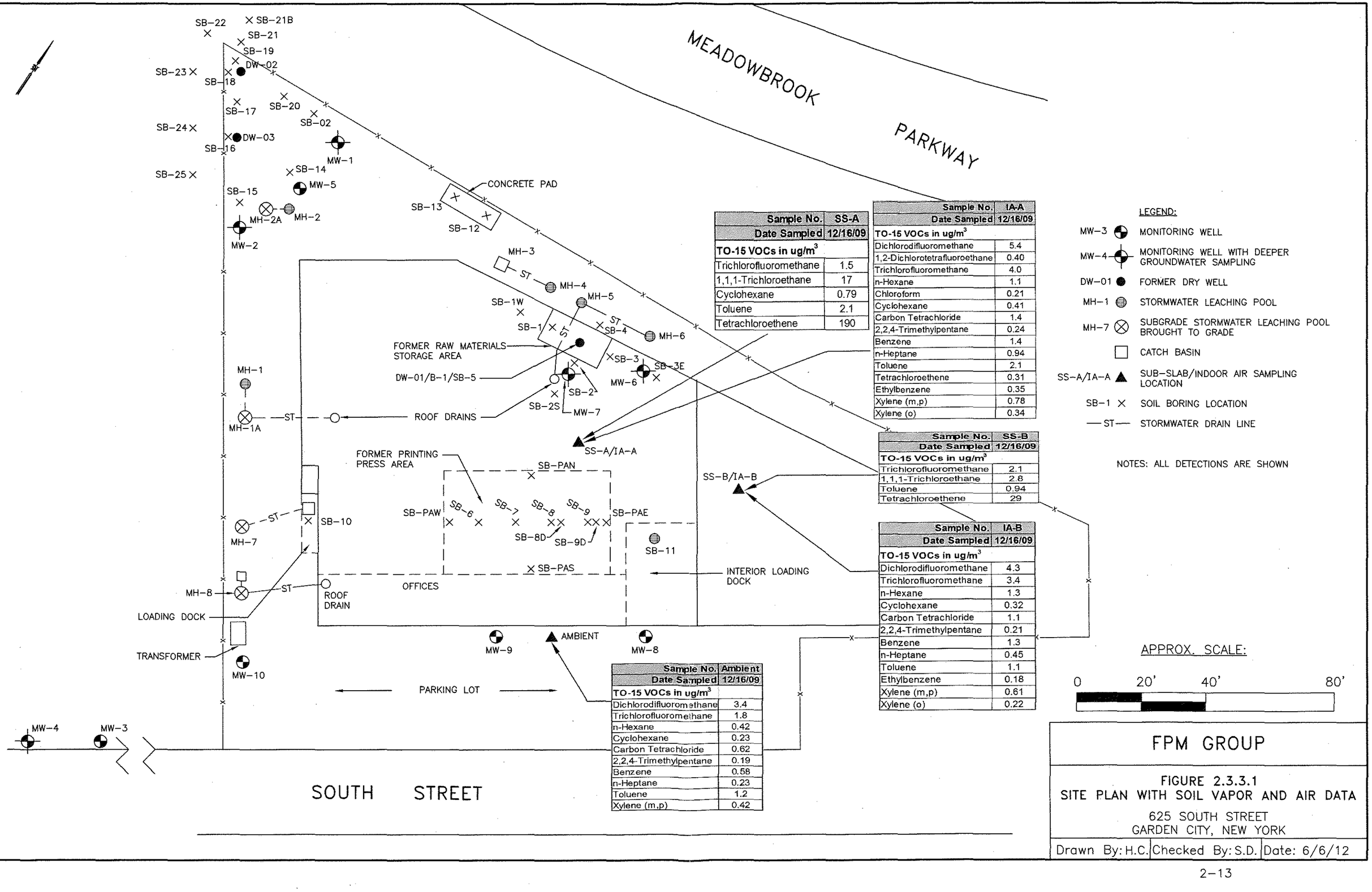

Sample No.	SS-A
Date Sampled	12/16/09
TO-15 VOCs in ug/m³	
Trichlorofluoromethane	1.5
1,1,1-Trichloroethane	17
Cyclohexane	0.79
Toluene	2.1
Tetrachloroethene	190

Sample No.	IA-A
Date Sampled	12/16/09
TO-15 VOCs in ug/m³	
Dichlorodifluoromethane	5.4
1,2-Dichlorotetrafluoroethane	0.40
Trichlorofluoromethane	4.0
n-Hexane	1.1
Chloroform	0.21
Cyclohexane	0.41
Carbon Tetrachloride	1.4
2,2,4-Trimethylpentane	0.24
Benzene	1.4
n-Heptane	0.94
Toluene	2.1
Tetrachloroethene	0.31
Ethylbenzene	0.35
Xylene (m,p)	0.78
Xylene (o)	0.34

Sample No.	SS-B
Date Sampled	12/16/09
TO-15 VOCs in ug/m³	
Trichlorofluoromethane	2.1
1,1,1-Trichloroethane	2.8
Toluene	0.94
Tetrachloroethene	29

Sample No.	IA-B
Date Sampled	12/16/09
TO-15 VOCs in ug/m³	
Dichlorodifluoromethane	4.3
Trichlorofluoromethane	3.4
n-Hexane	1.3
Cyclohexane	0.32
Carbon Tetrachloride	1.1
2,2,4-Trimethylpentane	0.21
Benzene	1.3
n-Heptane	0.45
Toluene	1.1
Ethylbenzene	0.18
Xylene (m,p)	0.61
Xylene (o)	0.22

Sample No.	Ambient
Date Sampled	12/16/09
TO-15 VOCs in ug/m³	
Dichlorodifluoromethane	3.4
Trichlorofluoromethane	1.8
n-Hexane	0.42
Cyclohexane	0.23
Carbon Tetrachloride	0.62
2,2,4-Trimethylpentane	0.19
Benzene	0.58
n-Heptane	0.23
Toluene	1.2
Xylene (m,p)	0.42

LEGEND:

- MW-3 — MONITORING WELL
- MW-4 — MONITORING WELL WITH DEEPER GROUNDWATER SAMPLING
- DW-01 — FORMER DRY WELL
- MH-1 — STORMWATER LEACHING POOL
- MH-7 — SUBGRADE STORMWATER LEACHING POOL BROUGHT TO GRADE
- CATCH BASIN
- SS-A/IA-A — SUB-SLAB/INDOOR AIR SAMPLING LOCATION
- SB-1 — SOIL BORING LOCATION
- —ST— STORMWATER DRAIN LINE

NOTES: ALL DETECTIONS ARE SHOWN

APPROX. SCALE:

0 20' 40' 80'

FPM GROUP

FIGURE 2.3.3.1
SITE PLAN WITH SOIL VAPOR AND AIR DATA

625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C. | Checked By: S.D. | Date: 6/6/12

H:\ROCCO\FARDWP\SOIL VAPOR AND AIR DATA.dwg, 7/16/2012 11:22:36 AM, BW Minolta, 11x17

2.4.1 Environmental Easement

The ROD for the Site specifies that an IC in the form of an environmental easement will be imposed on the Site. The environmental easement will require periodic certification of the Site's engineering controls (ECs) and IC, restrict the use of the property to commercial and industrial uses, restrict the use of Site groundwater, prohibit agriculture and vegetable gardens on the property, and require compliance with a NYSDEC-approved SMP. This RD/RA Work Plan includes a description of the environmental easement to be implemented for this Site. The environmental easement will be implemented in conjunction with the Final Engineering Report (FER) to be submitted following implementation of the selected remedial measures.

2.4.2 Site Management Plan

The ROD for the Site requires that an SMP be implemented for the Site. The SMP will include an Institutional and Engineering Control Plan, a Monitoring Plan, and an Operation and Maintenance (O&M) Plan. This RD/RA Work Plan includes a description of the SMP to be prepared for this Site (see Section 3.4). The SMP will be prepared during the implementation of the remedial measures and will be submitted to the NYSDEC as part of the FER.

2.5 Standards, Criteria and Guidance

Chemical-specific remediation goals have been developed to define the area and volume of the impacted media to be addressed at this Site, as documented in the RI/FS. These remediation goals are based on the evaluation of guidance SCGs and have been supplemented by the findings of risk evaluations. These evaluations are used to determine contaminant levels that will not endanger human health or the environment.

There are three types of SCGs that remedial actions may have to comply with:

- Chemical-specific SCGs set concentrations for the chemicals of concern (e.g., drinking water standards);

- Location-specific SCGs may restrict remedial actions based on the characteristics of the site or its environs (remedial activities proposed for wetlands may be restricted by regulations protecting these areas); and

- Action-specific SCGs may affect remediation activities based on the type of technology selected (alternatives involving groundwater extraction at greater than 45 gallons per minute may be impacted by the Long Island Well Permit Program).

SCGs have been established for the remedial program for this Site, including chemical-specific, location-specific, and action-specific SCGs. These SCGs have been incorporated into each remedial element, as documented in Section 3.

The following chemical-specific SCGs have been identified for sediments and soils at the Site:

- Federal RCRA regulations establish regulatory levels for various contaminants to be utilized in the evaluation of whether a solid waste is a hazardous waste;

- The 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives and the associated CP-51 Soil Cleanup Guidance Policy provide soil cleanup objectives for various contaminants present in sediment and soil at the Site; and

- The New York State regulations for hazardous waste management (6 NYCRR Parts 370, 371 and 372) establish requirements for hazardous waste characterization and disposal.

The following chemical-specific SCGs have been identified for groundwater at the Site:

- Federal Maximum Contaminant Levels (MCLs) established for groundwater protection (equivalent to the MCLs established pursuant to the Safe Drinking Water Act); and

- NYSDEC Water Quality Regulations for Surface Waters and Groundwaters (6 NYCRR Parts 700-705, revised January 17, 2008), established water quality standards for surface waters, groundwater, and effluent discharges.

The following chemical-specific SCGs have been identified for soil vapor/indoor air at the Site:

- The NYSDOH Guidance Document for Evaluating Soil Vapor Intrusion in the State of New York (October 2006) provides guidance concerning remediation levels for various contaminants that may be present in indoor air and soil vapor at the Site.

One location-specific SCG was identified for the Site:

- The Safe Drinking Water Act is applicable due to the Site's location over a sole-source drinking water aquifer.

Several action-specific SCGs were identified for remedial activities at this Site:

- The Town of Hempstead regulations governing stormwater management impacts the remediation of the leaching pools since the required number and size of operating stormwater leaching pools for each developed property is governed by these stormwater management requirements. If stormwater leaching pools are rendered inoperative or their function is reduced by the proposed remedial alternative, it is likely that they would require replacement;

- New York State regulations governing the transportation of non-hazardous and hazardous waste (6 NYCRR Part 374 – Waste Transporters), which govern how wastes to be generated from the Site will be transported to the selected disposal facilities;

- NYSDEC regulations concerning discharge of emissions to the atmosphere (6 NYCRR Part 257 – Air Quality Standards and Division of Air Resources Air Guide 1), which will govern emissions from the SVE system;

- NYSDEC Division of Water Analytical Services Protocol (ASP), which includes chemical analytical procedures for media samples;

- The Occupational Safety and Health Administration (OSHA) regulations concerning hazardous waste operations and emergency response (29 CFR Part 1910.120) will govern health and safety measures during remedy implementation; and

- Town of Hempstead regulations concerning construction activities will impact the implementation of the remedial systems, including construction materials and methods, electrical service, connections and controls.

The selected remedial measures for this Site are consistent with remedial action objectives (RAOs) developed based on the continued commercial use of the Site and on potential impacts to the surrounding community and environment.

For leaching pool and floor drain sediments/soils, the NYSDEC Soil Cleanup Objectives have been established as the RAOs. These NYSDEC Objectives are applicable to leaching pool sediment/soil and were formulated to be protective of human health and the environment. In addition, Town of Hempstead regulations regarding stormwater management are also established as an action-specific RAO as the leaching pools to be remediated presently function as stormwater discharge facilities and this function must be maintained following remediation.

For soils in the former DW-01, former DW-02/DW-03, and former printing press areas the NYSDEC Soil Cleanup Objectives have been established as the RAOs. These NYSDEC Objectives are applicable to soil and were formulated to be protective of human health and the environment.

For groundwater, the NYSDEC Class GA Ambient Water Quality Standards established in the NYSDEC Water Quality Regulations for Surface Waters and Groundwaters (6 NYCRR Parts 700-705, revised March 8, 1998) have been selected as the RAOs. These standards are well-established water quality standards for fresh groundwater that has the potential to be utilized for water supply.

For sub-slab soil vapor, the guidance in the NYSDOH Guidance Document for Evaluating Soil Vapor Intrusion in the State of New York (October 2006) has been selected as the RAO. This guidance is used to establish no further action, monitoring, and mitigation levels for VOCs in indoor air and soil vapor.

It should be recognized that although these RAOs have been identified, it may be economically and technically impractical to actively remediate the media of concern to the levels dictated by these RAOs. Implementation of ECs and an IC is part of the remedy for this Site because of the Site location in a commercial/industrial area, the presence of much of the impacted material beneath cover materials (building slab or continuous pavement) and/or at depths where no human health impact is reasonably anticipated with the use of appropriate controls, the lack of use of the groundwater in proximity to the Site for water supply purposes, and the absence of groundwater impacts downgradient of the impacted leaching pools.

2.6 Green Remediation Principles

The NYSDEC has adopted an approach to remediating sites in the context of the larger environment; this approach is articulated in the NYSDEC's DER-31 program policy. This green remediation policy is defined as "the practice of considering all environmental effects of remedy implementation and incorporating options to minimize the environmental footprint of cleanup actions". The major green remediation principles articulated in DER-31 include:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gasses and other emissions;
- Increasing energy efficiency and minimizing the use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling, and increasing reuse of materials that would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes that balance ecological, economic, and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable redevelopment.

As per the ROD for this Site, green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy. Green remediation techniques to be applied at this Site are described in the following section. Cost concerns will be respected and implementing a remedy that is protective of public health and the environment will remain the primary remedial priority.

SECTION 3.0
REMEDIAL DESIGNS/REMEDIAL ACTIONS

3.1 Introduction

The following sections present the detailed descriptions of the remedial actions and technologies to be implemented for each AOC at the Site. Information is also provided regarding the remedial action schedule, confirmation sampling, short-term monitoring during the system startup period, reporting, the SMP, and the IC (environmental easement). It should be noted that the SMP to be submitted with the FER will include detailed information regarding long-term operation, monitoring, and maintenance of the implemented remedy; this information is not included herein.

All onsite remedial activities will be conducted in accordance with a site-specific HASP; the HASP for this remedial program is included in Appendix B. All onsite intrusive activities will be conducted in accordance with a CAMP. The CAMP for this remedial program is included as Section 11 of the HASP in Appendix B. Citizen participation activities will be undertaken in accordance with the CPP in Appendix D.

All media sampling and chemical analyses will be performed in accordance with the site-specific QAPP, a copy of which is included in Appendix C. All analyses will be performed by a NYSDOH ELAP-certified laboratory. All data will be reported in a suitable format for uploading to the NYSDEC's Electronic Information Management System (EIMS) as electronic data deliverables (EDDs).

Prior to any onsite intrusive activities, a utility markout will be performed on the adjoining public streets to identify all subsurface utilities that enter the Site. In addition, Site documents regarding the locations of onsite utilities will also be reviewed. If necessary, an onsite utility markout will be performed to confirm the absence of utilities in the areas where intrusive remedial activities will be performed.

A portion of the Site building is occupied by a tenant that uses the space for warehouse purposes. The Site building is accessed by a limited number of warehouse employees during normal business hours. There are no onsite uses or activities for the public. Site remedial activities will be coordinated such that warehouse operations may continue during remedial activities.

The Site perimeter is partially secured by fencing. All Site access will be via the existing Site entrance on South Street. Existing fencing will remain in place during remedial activities and additional fencing will be used, as needed, to secure work areas and/or open excavations, as needed. All open excavations will be fenced during non-working hours or when remedial personnel are not present until they can be backfilled. Fencing or other appropriate devices will be used to protect monitoring wells or other remedial/monitoring components in proximity to remedial work areas.

All offsite transport of regulated materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded. Material transported by trucks exiting the Site will be secured with tight-fitting covers. If loads contain wet material capable of producing free liquid, truck liners will be used. All trucks will be cleaned of adhering materials prior to leaving the Site. The Site access point will be kept clean of dirt and other materials during Site remediation.

All truck transport will be via existing roads in primarily commercial/industrial areas. Trucks will avoid residential areas. South Street shall be used for ingress/egress of the Site. Trucks will access South Street via Stewart Avenue and Clinton/Glen Cove Road, which connects to the Long Island

Expressway approximately three miles north of the Site. This truck route is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites, (b) limiting total distance to major highways, (c) promoting safety in access to highways and overall safety in transport, and (d) green and sustainable remedial practices. All trucks loaded with Site materials will exit the vicinity of the Site using only this approved truck route.

Trucks will not queue or idle in the neighborhood near the Site; all queuing will occur onsite. Trucks will be prohibited from stopping and idling in the neighborhood outside the project Site.

All onsite remedial work will be overseen by a qualified environmental professional (QEP), as defined in DER-10, and will be supervised by a New York State licensed professional engineer (PE). Field decisions will be made by the QEP, who may consult with the PE, as needed. During remedial activities the QEP will be onsite to observe and direct the activities, to collect samples, to interface with agency representatives, and to conduct monitoring.

The Site is equipped with onsite stormwater management facilities (leaching pools); these facilities manage all onsite stormwater, in accordance with Town of Hempstead requirements. In accordance with the permit requirements for the State Pollutant Discharge Elimination System (SPDES) General Permit (GP-02-01) for stormwater discharges for construction activities, construction activities that discharge to onsite stormwater management facilities do not require coverage under GP-02-01.

Remedial excavation work will include the onsite stormwater management facilities, as well as two small (less than 100 square feet total) excavations. Excavation of leaching facilities will be scheduled for times of no rainfall such that onsite stormwater management is not affected. The two excavations are in paved areas of the Site; stormwater runoff will not be generated from the excavation areas.

Hay bale and silt fence barriers will be installed around soil stockpiles and inspected at least once a week and after every storm event. Necessary repairs of these facilities shall be made immediately.

In the event that dust suppression becomes necessary during excavation, suppression will be accomplished by spraying potable water onto the affected areas, limiting the areas of open excavations, using gravel in trafficked areas, and/or limiting equipment speeds and movement as feasible to reduce the potential for dust generation.

Odors are not anticipated to present a significant concern for the Site since the soil to be excavated was not noted to be odorous during the RI and previous sampling events. This soil will be contained, either in roll-off bins or in covered stockpiles, following excavation. The Site is located in a commercial/industrial neighborhood with no nearby residences. Therefore, odors are not anticipated to cause concern. Odor control measures will be implemented when necessary to control emissions of nuisance odors to offsite. If nuisance odors are identified that have the potential to impact offsite, then the work will be halted and the source of the odor will be identified and corrected. Work will not resume until the nuisance odors have been abated. Odor control measures may include limiting the area of open excavations, shrouding open excavations with covers, and/or use of foam to cover odorous soils. The NYSDEC will be notified of all odor events and odor complaints.

The designated NYSDEC representative will be notified at least 7 calendar days in advance of any onsite remedial activities and the NYSDEC will be provided with access to the Site throughout the remedial process.

3.2 Descriptions of Remedial Measures

3.2.1 AS/SVE System Description

An air sparge/soil vapor extraction (AS/SVE) system will be implemented to treat onsite groundwater impacted by VOCs. This system will also remediate soil impacted with VOCs and will prevent soil vapor intrusion in to the onsite building. The system will be constructed by a remediation construction contractor firm that is familiar with AS/SVE system construction in the local area. Contractor selection will be conducted following NYSDEC approval of the RD/RA Work Plan. Well installation services may be subcontracted to a well driller with local experience. Well installation and system construction will be overseen by an FPM QEP.

AS will directly address groundwater impacts identified at wells MW-2 and MW-7, located immediately downgradient of the former DW-02/DW-03 and DW-01 areas, respectively. AS will actively reduce VOC concentrations in the affected areas by enhancing volatilization of VOCs from the groundwater. SVE will be used in each of these areas to remove the volatilized VOCs from the subsurface for discharge to the atmosphere. SVE will also remediate soil impacted with VOCs in these areas and will result in sub-slab depressurization, which will prevent soil vapor intrusion into the onsite building. Groundwater monitoring will also be conducted to document the progress of remediation.

It is recognized that the acetone in groundwater in the DW-1 area is not particularly amenable to removal by volatilization due to its low Henry's Constant (3.88×10^{-5} at $m\text{-}m^3/mol$). Although acetone has a relatively high vapor pressure, its solubility in water is very high and, therefore, dissolved acetone in groundwater is not readily volatilized. However, acetone has a short half-life in the natural environment and addition of oxygen to groundwater via the AS system is anticipated to accelerate its natural attenuation rate. Acetone in the unsaturated zone will also be readily removed by the SVE system. Thus, the removal of acetone from the unsaturated zone in the DW-01 area by the SVE system, coupled with the increased oxygenation of groundwater via the AS system, is anticipated to actively reduce acetone concentrations in the DW-01 area.

A site plan showing the layout of the AS system and associated SVE wells is presented in Figure 3.2.1.1. This system will include three AS wells, one centered in the DW-01 area and two in the DW-02/03 area. The AS screens will be set at a depth of approximately 50 to 55 feet so as to treat the shallow groundwater. An SVE well will be installed in proximity to each AS area to capture vapors resulting from sparging; the SVE well locations are also shown on Figure 3.2.1.1.

The AS system is intended to treat the VOC source areas and areas where groundwater VOC contamination has been observed downgradient of the VOC source areas. In the case of the former DW-01 area, the AS well is centered at the former DW-01 location and is intended to treat this area and downgradient groundwater to a distance somewhat downgradient of well MW-7. Further downgradient at wells MW-8 and MW-9 there are no detections of VOCs or SVOCs, despite the presence of source material at DW-01 for many years. Therefore, it is anticipated that the AS treatment at the former DW-01 area combined with the downgradient flow of treated groundwater will result in the remediation of the groundwater impacts in this area, which consist primarily of acetone that readily degrades in the environment. Groundwater monitoring will be performed to confirm the progress of groundwater VOC remediation.

In the case of the former DW-02/DW-03 area, the AS radii of influence (ROIs) cover the source area (former DW-02 and DW-03 structures) and downgradient groundwater to a distance somewhat downgradient of well MW-2 and beyond the projected extent of the plume. Further downgradient at,

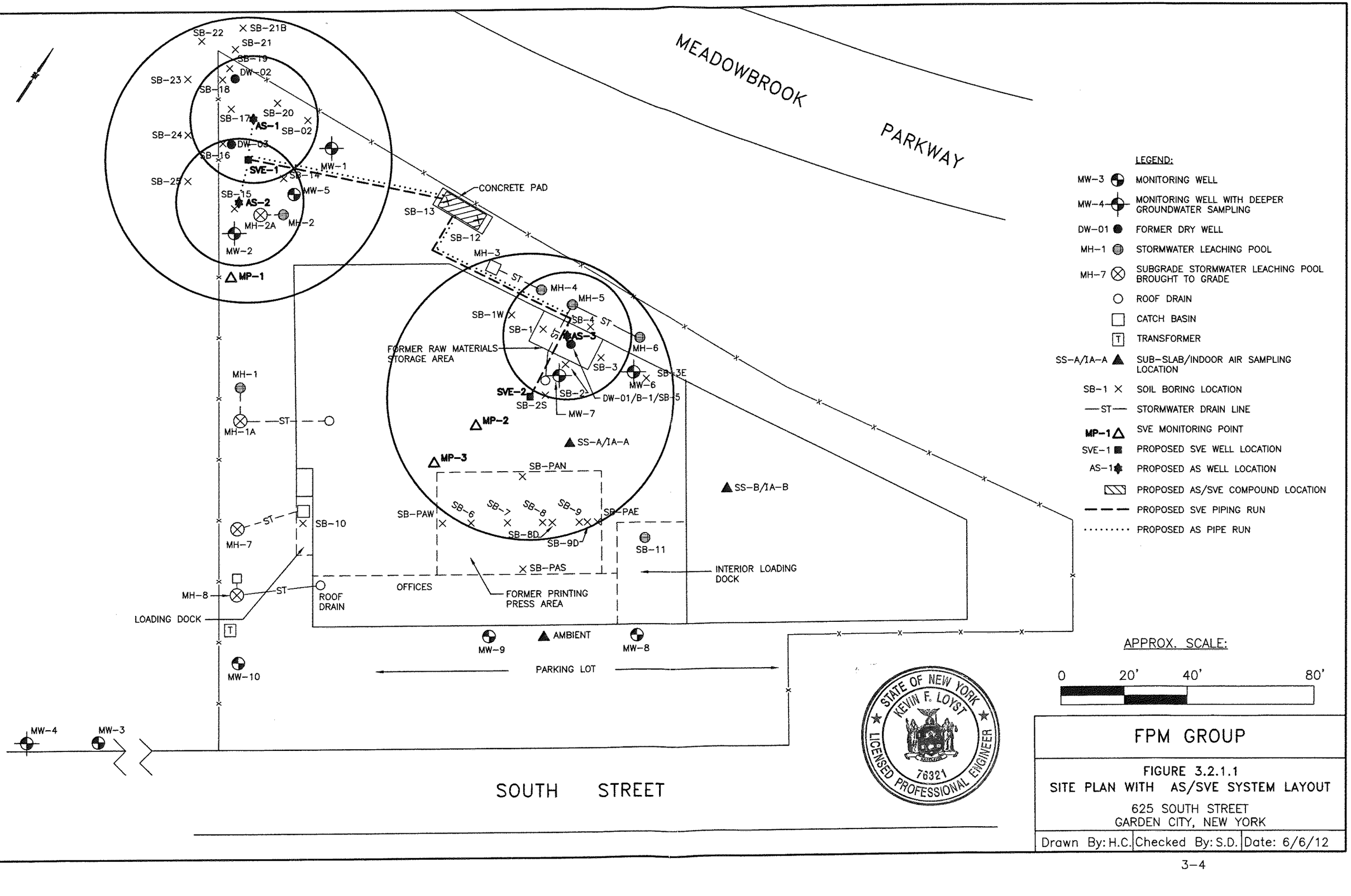

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FIGURE 3.2.1.1
SITE PLAN WITH AS/SVE SYSTEM LAYOUT
625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C. | Checked By: S.D. | Date: 6/6/12

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wells MW-3, MW-4 and MW-10 there have been no detections of the VOCs observed at well MW-02 despite the presence of source material at DW-02 and DW-03 for many years. Therefore, it is anticipated that AS treatment at the former DW-02/DW-03 area will result in the full remediation of groundwater impacts in this area. Groundwater monitoring will be performed to confirm the progress of groundwater VOC remediation.

- AS, SVE and Monitoring Point Installation

Well installation will be performed by a contractor with local well installation experience. All well installation shall be observed by a QEP, who shall document the well construction details. All wells are anticipated to be installed using direct-push equipment due to overhead clearance limitations inside the Site building, the absence of fine-grained materials in the intervals targeted for remediation, and previous successful installation of all of the other Site wells using direct-push techniques.

Three AS wells will be installed to treat the areas of VOC-impacted groundwater. Well AS-1 will be located approximately 12 feet southeast of the former DW-02 location, as shown on Figure 3.2.1.1, and well AS-2 will be located approximately 25 feet south-southeast of AS-1. These wells will be used to treat VOC-impacted groundwater in the vicinity of and downgradient from the former DW-02/DW-03 area. Well AS-3 will be installed at the approximate location of the former DW-01 and will be used to treat VOC-impacted groundwater in this area.

Existing onsite stratigraphic data indicates that the Site is underlain by poorly-graded fine to medium-grained sand (SP in the Unified Soil Classification System, or USCS) to a depth of at least 30 feet. A small interval of silty sand (ML/SM) was identified from approximately three to five feet at two locations. No other stratigraphic variations were observed. These data are consistent with the Site's location in an area underlain by Upper Glacial outwash plain deposits. To confirm the stratigraphy in the zone that will be subjected to air sparging, during the installation of well AS-1 or AS-2 soil samples will be obtained continuously from 30 feet to the total well boring depth of 55 feet. The soil samples will be examined by the QEP and classified using the USCS. Any low-permeability materials (silt or clay) noted will be evaluated with respect to their anticipated impact on AS/SVE design and/or performance. If necessary, minor adjustments may be made in the planned AS well depths to address identified stratigraphic concerns.

At each AS well location, the direct-push rig shall advance rods and cut core continuously so as to advance an approximate two-inch diameter borehole. Soil samples will be obtained continuously below 30 feet at well AS-1 or AS-2, as described above. Following completion of each borehole, each AS well shall be installed. The AS wells will be constructed of one-inch diameter Schedule 40 PVC casing and 0.02-inch slotted screen. The screened interval for each well will extend from approximately 50 to 55 feet below grade (approximately 25 to 30 feet below the water table) so as to treat the shallow groundwater. The screened intervals will be backfilled with Morie #2 well gravel to approximately one foot above the top of the screen. The remaining annulus will be backfilled with bentonite grout to grade.

Two SVE wells will be installed to remove to remove the VOCs volatilized by the AS system from the subsurface and to remediate soil impacted with VOCs. One of the SVE wells will also induce a negative pressure beneath the Site building, thus preventing soil vapor intrusion. Well SVE-1 will be installed approximately 25 feet south-southeast of the former DW-02 location and mid-way between AS-1 and AS-2, as shown on Figure 3.2.1.1, and will be used to remove the VOCs volatilized by the AS system from the subsurface and to remediate soil impacted with VOCs in this area. Well SVE-2 will be installed approximately 20 feet south of the former DW-01 location and will be used to remove the VOCs volatilized by the AS system from the subsurface, remediate soil impacted with VOCs in this area, and for sub-slab depressurization to prevent soil vapor intrusion into the onsite building.

At each SVE well location the direct-push rig shall advance rods to the targeted depth of approximately 20 feet, which is just above the water table. The SVE wells will be constructed of two-inch diameter Schedule 40 PVC casing and 0.02-inch slotted screen. The screened interval for each well will extend from approximately 20 to 15 feet below grade so as to capture volatilized VOCs from near the water table surface and to treat the overlying VOC-impacted soil. The screened intervals will be backfilled with Morie #2 well gravel to approximately one foot above the top of the screen. The remaining annulus will be backfilled with bentonite grout to grade.

Three monitoring points, MP-1, MP-2, and MP-3, will be installed for the purpose of providing additional locations to evaluate the radius of influence of the SVE system. MP-1 will be installed beneath the existing asphalt pavement approximately 15 feet to the southeast of well MW-2, and MP-2 and MP-3 will be installed beneath the concrete slab inside the Site building approximately 20 and 40 feet, respectively, south of SVE-2, as shown on Figure 3.2.1.1. Each monitoring point will consist of one-inch diameter Schedule 40 PVC screened from 1 to 5 feet below grade. MP-2 and/or MP-3 may be installed somewhat deeper if the QEP observing the installation determines that the interval from 1 to 5 feet is composed entirely of sub-slab anthropogenic fill or is otherwise not sufficiently in contact with native materials to fully evaluate subsurface conditions. The top of the PVC screens will be capped and equipped with a valve for monitoring purposes. Each well annulus will be gravel-packed to approximately six inches below grade and a bentonite seal will be installed above the gravel pack. Each monitoring point will be protected by installing a steel protective cover encased in concrete. The base of the protective cover will be layered with poly sheeting to further reduce the potential for short-circuiting to the monitoring point screens.

Following installation, the AS and SVE wells will be pilot tested using portable equipment, as described below. The pilot test results will be used to select the optimum operating parameters for the system and to allow for specification of a blower and compressor to match these parameters. A remedial design will be developed in accordance with Section 5.2(c) of DER-10, to include plans and specifications for the AS/SVE system based on the results of the pilot test. The remedial design will be included in the Pilot Test Report to be submitted to and reviewed by the NYSDEC.

- AS/SVE Well Pilot Testing Procedures

A pilot test will be performed to determine the system operating parameters for optimum performance, confirm the radius of influence of the SVE and AS wells, and to evaluate the vapor emission concentrations. Prior to start-up of the pilot test, the ambient pressure will be recorded at each of the wells to confirm background subsurface pressures and soil vapor samples will be collected from the MP-2 and MP-3 points to evaluate sub-slab soil vapor concentrations. Soil vapor sampling procedures are further described below. To perform the pilot test, vacuum will be applied to the SVE-1 well in increasing steps range from 20 to 60 inches of water column using a two-horse power (HP) regenerative blower (EG&G Rotron Model EN 505 or equivalent) and the observed vacuum will be recorded at wells MW-1, MW-2, MW-5, and MP-1. Vacuum ranging from 20 to 60 inches of water column will then be applied stepwise to the SVE-2 well and the observed vacuum will be recorded at wells MW-6, MW-7, MP-2 and MP-3. During the tests, the air flow rate at each applied vacuum will be recorded using a portable anemometer installed in the PVC piping on the pressure side of the system. The flow rate will be determined by multiplying the recorded flow velocity by the area of the PVC discharge pipe to yield a discharge rate. These data will then be plotted to evaluate the radius of influence (ROI) at each SVE well. The ROI will be determined as the distance at which the observed vacuum is equal to at least 0.2 inches of water.

Effluent VOC concentrations will also be monitored during the tests from a sampling port located on the pressure side of the blower. VOC concentrations will be evaluated using a calibrated PID and also by

obtaining and analyzing air samples in Tedlar bags. Collectively, these data will be used to evaluate the radius of influence of the SVE system, the anticipated vapor concentrations for compliance with NYSDEC Division of Air Resources DAR-1 criteria, and to confirm that the system will induce a vacuum beneath the Site building sufficient for sub-slab depressurization over the affected area in accordance with NYSDOH guidance.

A pilot test will also be performed on the AS-1 and AS-3 wells to determine the system operating parameters for optimum performance, confirm the ROI, and to evaluate the associated emission VOC concentrations in the SVE system for compliance with NYSDEC DAR-1 criteria. The AS-1 well will be operated in a step-wise manner using a two-HP dry rotary vane compressor (Orion KRX6-55 or equivalent) with increasing airflow rates of 5, 10, and 15 standard cubic feet per minute, and the nearby wells MW-1, MW-2 and MW-5 will be monitored to evaluate the presence of air bubbles, changes in dissolved oxygen, and water table elevations. The AS-2 well will then be operated as above in a step-wise manner and the nearby wells MW-6 and MW-7 will be monitored. These data will be utilized to evaluate the radius of influence of each AS well by comparing the changes in dissolved oxygen levels and water table heights to pre-testing conditions. The testing step showing the greatest changes to dissolved oxygen levels and/or water table heights will be utilized in the AS design. Vapor emissions from the SVE system will also be monitored during the AS pilot test to evaluate the mass removal rate and the need for vapor treatment prior to discharge of the emissions. The resulting data will be evaluated to confirm the operating parameters of the AS/SVE system.

During the pilot test an activated carbon unit will be used to treat the SVE effluent prior to discharge.

Following the completion of the pilot test, the results will be evaluated and a Pilot Test Report prepared and submitted to the NYSDEC, together with the remedial design. The report will include the pilot test procedures and results, calculations for sizing the treatment equipment, evaluations of the AS and SVE ROIs, and plans and specifications for the AS/SVE system. The ROIs will be determined using measurements of induced vacuum, water table rise, and dissolved oxygen and observations of air bubbles. The Pilot Test Report and remedial design will be reviewed by the NYSDEC; construction of the AS/SVE system will not begin until the NYSDEC approves the Pilot Test Report and associated remedial design.

➢ AS/SVE System Construction

Following NYSDEC approval of the Pilot Test Report, installation of the AS/SVE system piping and construction of the above-grade portions of the system will commence. The information presented in this section may be modified based on the results of the pilot test; the proposed modifications will be presented in the Pilot Test Report. Any modifications will be subject to the approval of the NYSDEC.

Subsurface system piping will be installed in trenches extending from each individual AS and SVE well to the remediation system enclosure. Subsurface piping, in general, will be Schedule 40 PVC and the anticipated piping diameter for both the AS and SVE wells is two inches. The piping diameter will be selected based upon the specifications of the operating equipment. Galvanized two-inch pipe will be used in the construction of the aboveground portion of the AS manifolds due to the anticipated heat associated with compressed air flow. Following piping placement, each trench shall be backfilled with appropriate granular materials, which shall be field-compacted in a manner to reduce the potential for settlement while not damaging the installed piping. The surface above each trench shall be restored in kind with the surrounding materials (concrete or asphalt).

The operating equipment will be housed in an enclosed compound that shall be insulated to reduce noise. The compound will be located on an existing concrete pad to the north of the Site building, as shown in Figure 3.2.1.1. A schematic plan showing the AS/SVE process flow and the operating equipment to be installed in the compound is presented in Figure 3.2.1.2.

Based on previous AS experience in the Site vicinity, it is anticipated that an airflow of between 10 and 15 SCFM per AS well at a pressure of 5 to 15 pounds per square inch (psi) would be needed to result in an ROI of about 20 feet at each AS well. A compressor capable of a total flow of 20 to 40 SCFM at the targeted pressure is indicated. A Becker model KDT 3.60 5.0-horsepower rotary-vane compressor meets these specifications. This compressor, or equivalent, will be selected based on the results of the pilot test. The selected compressor will be installed in the enclosure and will be equipped with a high-temperature shut off switch, air flow gauges, pressure gauges, an in-line air filter, a galvanized metal manifold, and an associated control panel with timer.

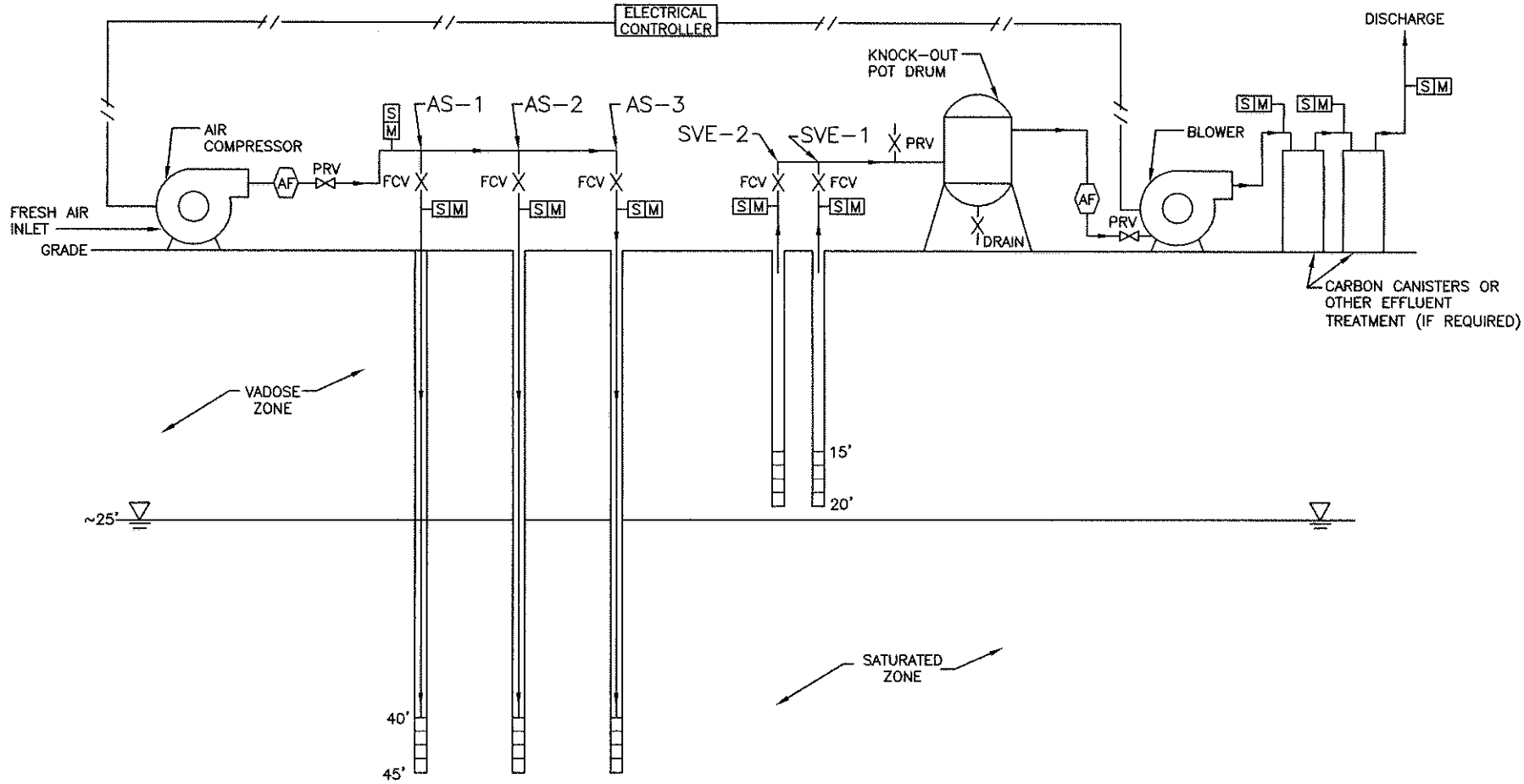
Based on previous experience with SVE systems in the Site vicinity, it is anticipated that an SVE ROI of about 45 feet can be achieved with a flow rate of about 70 SCFM under a vacuum of between 15 and 20 inches of water. A blower capable of a total flow of 140 to 160 SCFM at the targeted vacuum is indicated. A 2-horsepower, regenerative blower (EG&G Rotron model EN505) meets these specifications. This blower, or equivalent, will be selected based on the results of the pilot test. The selected blower will be equipped with a moisture separator with an explosion-proof high water safety switch, an air filter, a manifold, an air flow meter, vacuum gauges, an effluent stack, and an associated control panel. The control panel will be also equipped with an electrical interlock to prevent the AS system from operating when the SVE system is offline.

The system's effluent stack will be extended to an estimated height between 10 and 20 feet above grade. The stack height will be determined based on the results of the system emissions testing performed during the pilot test. Stack discharge limits will conform to the NYSDEC's DAR-1 guidance. The stack will be outfitted to allow the use of carbon or other effluent treatment, if required based on the results of the pilot test.

➢ AS/SVE System Startup

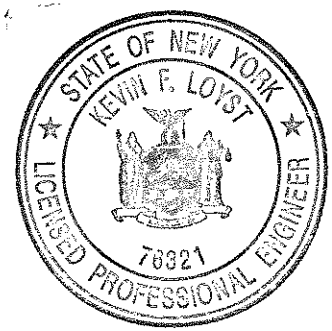
Following the completion of construction, the AS/SVE system will be placed online by the system construction contractor with oversight by the FPM QEP. The system will be monitored until system vacuums, pressures, and airflow are stabilized. Modifications (valve adjustments) may be made to both the AS and SVE operating equipment to optimize system performance. Additional monitoring will be conducted on a weekly basis during the one-month startup period.

A calibrated photoionization detector (PID) will be utilized to monitor initial effluent emissions. Effluent samples will also be collected to evaluate SVE emissions compliance following system startup. During the startup period effluent samples will be collected on a weekly basis from the effluent sampling port located between the blower and the effluent stack pipe utilizing a Tedlar air sampling bag. In the event that effluent treatment is required (carbon canisters or other), then sampling will be performed between the blower and the effluent treatment to monitor system performance and also downstream of the effluent treatment to monitor emissions compliance. Each sample will be transported via overnight courier to a NYSDOH ELAP-certified laboratory for analysis of VOCs by EPA Method T0-15. The analytical results will be compared to NYSDEC's DAR-1 guidance to evaluate system emissions and determine emissions treatment requirements.



LEGEND:

- PROCESS LINE
- CONTROL LINE
- WATER SURFACE
- AF — INLINE AIR FILTER
- PRV — PRESSURE RELIEF VALVE
- FRV — FLOW CONTROL VALVE
- SM — SAMPLE/MONITOR POINT



REVISION DATE: 10/24/2012

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FIGURE 3.2.1.2
SCHEMATIC OF AS/SVE PROCESS FLOW
625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C.	Checked By: S.D.	Date: 6/6/12

All AS/SVE system observations will be recorded in a system logbook that will be kept at the Site for operator reference. The logbook will include operating logs for recording system parameters from the various gauges and figures showing the system wells and equipment configuration. System performance observations to be recorded will include obtaining pressure readings, water levels, and other observations at the designated monitoring points to evaluate the SVE and AS ROIs.

➢ Groundwater Monitoring

Pre-remediation groundwater monitoring will be performed to document the groundwater conditions prior to startup of the AS/SVE system, as described in this section. Groundwater monitoring will also be performed during AS/SVE system operation to document the progress of remediation, and following termination of the system operation to confirm the post-remedial condition. Procedures for groundwater monitoring during and following AS/SVE system operation will be provided in the SMP.

Pre-remediation groundwater monitoring will be conducted at each of the ten Site monitoring wells approximately one month prior to the startup of the AS/SVE system using the same procedures as during the RI. Sampling procedures are described in Section 3.3.2. The resulting data will be reviewed to evaluate the nature and extent of pre-remediation groundwater conditions. The results of the pre-remediation groundwater monitoring will be reported in the FER.
Periodic groundwater monitoring will be continued following the startup of the AS/SVE system to document the progress of groundwater remediation and following termination of the system operation to confirm the post-remedial condition. Procedures for groundwater monitoring during and following AS/SVE system operation will be provided in the Monitoring Plan in the SMP. The Monitoring Plan will also include the procedures for properly abandoning the monitoring wells following the completion of the monitoring program.

➢ Monitoring for Sub-Slab Depressurization

The portion of the SVE system to be installed beneath the Site building is intended, in part, to result in sub-slab depressurization to prevent SVI into the Award space of the building. Following AS/SVE system startup, the function of the SVE system installed beneath the Site building with respect to sub-slab depressurization will be verified by monitoring the pressure beneath the building at the MP-2 and MP-3 monitoring points to confirm that a downward pressure gradient is established. Monitoring will be performed during the startup period.

Monitoring will be performed using magnahelic gauges and/or a calibrated Landtec gas monitor with a sensitivity of 0.01 inches of water. Monitoring will be performed outside of the building, inside of the building, and at each monitoring point to evaluate the relative pressure at each location. The SVE system operating parameters may be adjusted during the startup period as needed to ensure that a downward pressure gradient is established across the building slab. The results of the startup period sub-slab depressurization monitoring will be reported in the FER.

Periodic sub-slab depressurization monitoring will be continued following the startup of the AS/SVE system to confirm that a downward pressure gradient remains established while the AS/SVE system is running. Additional SVI monitoring will be conducted following termination of the system operation to confirm the post-remedial condition. Procedures for sub-slab depressurization and SVI monitoring during and following AS/SVE system operation will be provided in the Monitoring Plan in the SMP.

➢ AS/SVE System Operation, Monitoring and Maintenance

AS/SVE system operation, monitoring and maintenance (OM&M) will be performed on an ongoing periodic basis to ensure proper system operation and emissions compliance and to assess performance. OM&M tasks to be performed are anticipated to include periodic system checks and servicing, recording of all system airflow rates, temperature, pressures, vacuums and other parameters indicative of system operations, adjustment of system operating parameters as necessary to ensure optimal system performance, collection of effluent samples and screening of emissions to ensure compliance with regulations, evaluation of the SVE mass removal rate, and other tasks necessary for proper system operation and documentation.

AS/SVE system OM&M procedures will be presented in an OM&M Plan to be included in the SMP. Remediation system performance and progress will be evaluated on the basis of the SVE system emissions data, the periodic groundwater sampling results, SVI monitoring results, and other factors. This information will be provided in an Annual Periodic Review Report (PRR), together with other monitoring results. The OM&M Plan will also include procedures for dismantling and removing the AS/SVE system following the completion of remediation.

➢ Reporting

The layout, operation, and maintenance of the AS/SVE system will be documented in an AS/SVE Operation, Monitoring and Maintenance (OM&M) Manual. This Manual will include process instrumentation diagrams, equipment specifications, and as-built system drawings showing the equipment layout in the compound, the piping layout from the wells to the compound, and the AS and SVE wells and appurtenances. This Manual will be prepared immediately following system construction such that it is available to system operating personnel by the end of the startup period.

The AS/SVE system construction and startup will also be documented in the FER to be prepared following the implementation of remedial measures. The FER will include an SMP, which will contain the AS/SVE OM&M Manual, as well as the OM&M Plan described above. Additional information concerning the FER and SMP is included in Section 3.4 herein.

3.2.2 Excavation Description

Impacted soils in the stormwater leaching pools, the eastern loading dock floor drain, the exterior DW-01 area, and the former DW-02/DW-03 area that contain metals and/or SVOCs that will not be remediated using the SVE system will be remediated by excavation and transport for offsite disposal. This remedial measure will reduce metals and SVOCs to levels that will allow for commercial use, will reduce the potential for future groundwater impacts, and will improve the stormwater management function of the leaching structures. Confirmatory sampling will be conducted to assess the condition of the remaining soil. If necessary, an EC consisting of a cover will be implemented to control exposures to residual soil.

Excavation will be conducted by a remediation excavation contractor firm that is familiar with local excavation work, including leaching pool excavations. Waste transport will be by licensed waste transporters. Waste disposal will be at licensed waste disposal facilities that are approved to accept the materials to be disposed. Excavation and waste transport/disposal operations will be overseen by an FPM QEP.

A site plan showing the areas that will be subject to remedial excavation, including the estimated lateral and vertical limits of excavation, is presented on Figure 3.2.2.1. These limits were estimated based on the existing data presented in the RI and may be modified during remedial activities based on the results of confirmatory samples.

Excavation procedures are presented below. Excavation of impacted soil in each area is generally described as follows:

Former DW-01 Area: At the SB-4 location, where the metal copper is the only constituent exceeding the SCGs, excavation will be conducted in an approximate five-foot by five-foot area to a depth of approximately eight feet below grade (approximately seven cubic yards of soil). Existing data at SB-4 document that the targeted soil is present in the interval from one to three feet and that the soil from eight to ten feet meets the unrestricted use SCOs. Excavation will be conducted to the depth that meets the unrestricted use SCOs. Confirmatory sampling will be conducted for copper on the sidewalls of the SB-4 excavation. The completed excavation will be backfilled and compacted, and the existing pavement will be restored in kind with the surrounding pavement.

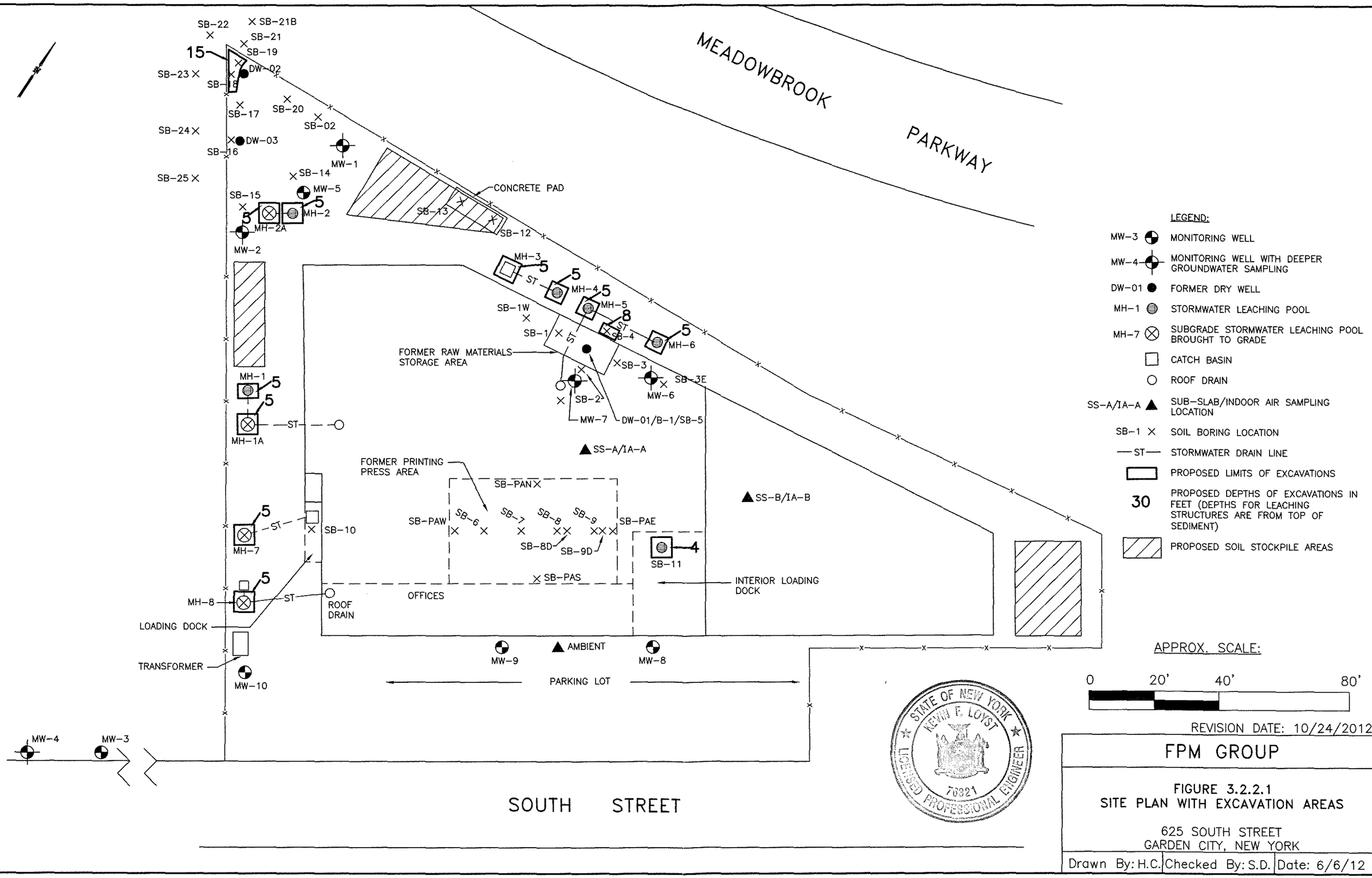
Leaching Pools and Loading Docks: These structures include primarily SVOC and metals impacts. Soil removal will be conducted from within 11 leaching structures, as shown on Figure 3.2.2.1, to estimated depths ranging from three to five feet below the top of sediment in each structure. Confirmatory sampling of the excavation floor and sidewalls will be conducted for all of the structures except SB-11, where the limit of impact was previously established by the RI data; at SB-11 soil removal will be conducted to the depth that meets the unrestricted use SCOs (four feet) and only sidewall sampling will be performed. Confirmatory sampling will include VOCs, SVOCs, and/or metals based on the exceedances of SCGs noted in the original samples (see Figure 2.3.1.2). Following the completion of each excavation, the structures will be backfilled as needed for stabilization. If necessary, the surrounding pavement will be restored.

Former DW-02/03 Area: Excavation will be used to address the metals impacts identified at the SB-18 and SB-19 locations adjoining the property boundary, as shown in Figure 3.2.2.1. Excavation will be conducted in an approximately five-foot by 15-foot area to an estimated depth of 15 feet below grade (approximately 42 cubic yards of soil). Existing data at SB-18 and SB-19 document that the targeted soil is present to 10 feet below grade and that the soil below 18 feet meets the unrestricted use SCOs. The former DW-02 area was previously excavated to 32 feet and was backfilled with clean soil; this former excavation limits the area for which soil removal is indicated. Confirmatory sampling of the excavation floor and sidewalls will be conducted for the targeted metals (chromium, copper and lead). The completed excavation will be backfilled and compacted, and the existing pavement will be restored in kind with the surrounding pavement.

- Soil Excavation Procedures – DW-01 and DW-02/03 Areas

Excavation of soil in the former DW-01 and DW-02/DW-03 areas will be conducted using an excavator or backhoe. Shoring will be used in both excavation areas, as necessary to protect the integrity of the Site building foundation (DW-01) and to control the excavation walls. The overlying pavement will be removed in each area and will be staged onsite for disposal. The impacted soil will then be removed and will be stockpiled onsite pending waste characterization for offsite disposal. Soil stockpiling procedures are discussed below.

Following removal of the targeted soil, the QEP will visually examine the remaining soil and screen it for organic vapors using a calibrated PID. If additional potentially-affected soil is identified, it will be removed, as feasible. Following field determination by the QEP that the targeted soil appears to have


MEADOWBROOK PARKWAY
SB-22
SB-21B
SB-21
SB-19
15
DW-02
SB-23
SB-18
SB-17
SB-20
SB-02
SB-24
DW-03
SB-16
MW-1
SB-25
SB-14
MW-5
SB-15
5
MH-2
MH-2A
MW-2
CONCRETE PAD
SB-13
SB-12
MH-3
5
ST
MH-4
5
MH-5
SB-1W
SB-1
8
SB-4
MH-6
FORMER RAW MATERIALS STORAGE AREA
SB-3
SB-3E
MW-6
SB-2
MW-7
DW-01/B-1/SB-5
MH-1
MH-1A
SS-A/IA-A
FORMER PRINTING PRESS AREA
SB-PAN
SB-PAW
SB-6
SB-7
SB-8
SB-9
SB-PAE
SB-8D
SB-9D
SB-10
MH-7
SS-B/IA-B
4
SB-11
SB-PAS
INTERIOR LOADING DOCK
MH-8
ROOF DRAIN
OFFICES
LOADING DOCK
TRANSFORMER
MW-10
AMBIENT
MW-9
MW-8
PARKING LOT
MW-4
MW-3
SOUTH STREET
LEGEND:
MW-3 MONITORING WELL
MW-4 MONITORING WELL WITH DEEPER GROUNDWATER SAMPLING
DW-01 FORMER DRY WELL
MH-1 STORMWATER LEACHING POOL
MH-7 SUBGRADE STORMWATER LEACHING POOL BROUGHT TO GRADE
CATCH BASIN
ROOF DRAIN
SS-A/IA-A SUB-SLAB/INDOOR AIR SAMPLING LOCATION
SB-1 SOIL BORING LOCATION
ST STORMWATER DRAIN LINE
PROPOSED LIMITS OF EXCAVATIONS
30 PROPOSED DEPTHS OF EXCAVATIONS IN FEET (DEPTHS FOR LEACHING STRUCTURES ARE FROM TOP OF SEDIMENT)
PROPOSED SOIL STOCKPILE AREAS
APPROX. SCALE:
0 20' 40' 80'
REVISION DATE: 10/24/2012
FPM GROUP
FIGURE 3.2.2.1
SITE PLAN WITH EXCAVATION AREAS
625 SOUTH STREET
GARDEN CITY, NEW YORK
Drawn By: H.C.
Checked By: S.D.
Date: 6/6/12
STATE OF NEW YORK
KEVIN F. LOYST
LICENSED PROFESSIONAL ENGINEER
70321

been removed, or determination by the QEP that further removal is infeasible or unsafe, confirmation samples will be collected from the remaining soil, in accordance with the sampling procedures in Section 3.3 herein. The confirmation samples from the DW-01 area will be analyzed for copper and confirmation samples from the DW-02/DW-03 area will be analyzed for chromium, copper and lead. Appropriate quality assurance/quality control (QA/QC) samples will also be collected in accordance with the Quality Assurance Project Plan, (QAPP) presented in Appendix C.

Following confirmation sampling, the excavations will be backfilled with clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d). The backfill will be field-compacted to reduce the potential for settlement and the pavement surface will be restored in kind with the surrounding pavement. Soil imported for use as backfill will originate from a virgin mine/pit and will comply with the provisions of DER-10, Section 5.4(e). Soil proposed for use as backfill will be sampled and tested in accordance with DER-10, Table 5.4(e)10, to include one round of characterization samples for the initial 100 cubic yards of material and additional samples for every 500 cubic yards thereafter. Gravel, rock or stone consisting of virgin material from a permitted mine or quarry or recycled concrete or brick from a NYSDEC-registered construction and demolition debris processing facility may also be imported for backfill; these materials will also comply with the provisions of DER-10, Section 5.4(e). Sources of backfill proposed for use at the Site will be documented and provided to the NYSDEC for approval prior to import to the Site.

➢ Leaching Structure Excavation Procedures

Excavation of soil/sediment within the leaching structures will include removal of any liquids (stormwater) followed by removal of the targeted soil. If stormwater is present, it will be sampled in advance of the remedial work for the purposes of performing waste classification and obtaining disposal approval prior to conducting remedial activities. Waste characterization sampling will be conducted by the QEP and will be coordinated with the proposed disposal facility such that appropriate numbers and types of samples are collected and the necessary analytes are tested. All sampling will be performed in accordance with the QAPP (Appendix C). The resulting waste characterization data will be transmitted to the selected disposal facility together with any supporting information, and waste disposal approval will be obtained.

During the onsite remedial activities, each structure to be remediated will be accessed and any liquids will be removed using a vacuum truck. The liquids will be transported by a licensed waste transporter and disposed at the targeted waste disposal facility, which shall be permitted to accept the liquid wastes. Waste management and disposal shall be documented using a manifest system.

Following liquid removal, each structure targeted for remediation will be accessed and excavation of the targeted soil will be conducted using a Vactor or Guzzler, with assistance from the excavator, as needed. The existing concrete rings of the structures will be used as shoring. If necessary, the cover (dome or slab, as appropriate) will be removed to facilitate access to the soils to be removed. The covers will be staged onsite for later re-use. The targeted soil will be removed from within each structure from the top of the exiting soil to an estimated depth of five feet. The impacted soil will be stockpiled onsite, pending waste characterization for offsite disposal. Removed soils from structures that contained water will be stockpiled in lined roll-off containers. Wastes containing excessive liquids may be consolidated using appropriate liquid absorbents.

Following removal of the targeted soil, the QEP will visually examine the remaining soil and screen it for organic vapors using a calibrated PID. If additional potentially-affected soil is identified, it will be removed, as feasible. Following field determination by the QEP that the targeted soil appears to have been removed, or determination by the QEP that further removal is infeasible or unsafe, confirmation

samples will be collected from the remaining soil, in accordance with the sampling procedures in Section 3.3 herein. Confirmation samples shall generally be obtained from the bottom and sidewalls of each excavation. The confirmation samples from each leaching structure shall be analyzed for the constituents that exceeded the SCGs in the previous samples. Appropriate QA/QC samples will also be collected in accordance with the QAPP presented in Appendix C.

Following confirmation sampling, clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) may be placed in leaching structures if necessary for stabilization. The structure, if previously opened, will be closed and any pavement removed during the remedial process will be restored in kind with the surrounding pavement. Soil imported for use as backfill will originate from a virgin mine/pit and will comply with the provisions of DER-10, Section 5.4(e). Soil proposed for use as backfill will be sampled and tested in accordance with DER-10, Table 5.4(e)10, to include one round of characterization samples for the initial 100 cubic yards of material and additional samples for every 500 cubic yards thereafter. Gravel, rock or stone consisting of virgin material from a permitted mine or quarry or recycled concrete or brick from a NYSDEC-registered construction and demolition debris processing facility may also be imported for backfill; these materials will also comply with the provisions of DER-10, Section 5.4(e). Sources of backfill proposed for use at the Site will be documented and provided to the NYSDEC for approval prior to impact to the Site.

- Removed Soil Management

The excavated soil will be temporarily staged onsite on paved areas within the fencing; the proposed stockpile areas are shown on Figure 3.2.2.1. Any visibly-clean soil that is not targeted for removal may be stockpiled separately, pending determination of onsite reuse. All soil that is not contained within lined roll-off bins will be staged on poly sheeting and covered by poly sheeting to prevent migration. Soil stockpiles will be surrounded by hay bales and silt fencing as needed to control migration. Soil that contains appreciable water will be containerized in lined roll-off bins. The bins will be covered and absorbent materials may be added to reduce the free water content.

The QEP will sample the stockpiled targeted soil for the waste characterization parameters required by the disposal facility, in accordance with the procedures in the QAPP, the facility requirements, and state and federal regulations. If any soil is stockpiled separately for potential onsite reuse, it will be sampled in accordance with DER-10, section 5.4(e) to evaluate if onsite reuse is feasible. Any soil not found suitable for onsite reuse will be disposed offsite together with the targeted soil. Once disposal facility approval is obtained, the targeted soil will be loaded and transported by a licensed waste transporter for offsite disposal at the approved facility. Waste manifests will be used to document soil disposal; copies of the waste manifests will be provided in the FER.

- Confirmation Sample Evaluation

The results of the confirmatory samples will be evaluated with respect to the 6 NYCRR SCOs to assess if soil removal is complete. If exceedances of applicable SCOs are noted, then the feasibility and need for additional soil removal will be evaluated. If additional soil removal is not reasonably feasible (e.g. building structural concerns, offsite issues, safety concerns), then an EC consisting of a cover will be implemented. Any decisions to cease excavation before meeting unrestricted use SCOs are subject to approval by the NYSDEC.

➢ Reporting

The excavation procedures, including waste management and confirmatory sampling, will be fully documented in the FER to be prepared following the completion of remedial measures. An interim report will be prepared following the completion of excavation work. Reporting is detailed in Section 3.4.

3.2.3 Capping Description

Capping has been selected as an engineering control (EC) to address soils in the former printing press area. Capping by the existing building slab will be implemented as an EC in the former printing press area where impacted soil is not readily accessible and where the impacts are not amenable to remediation by other methods. Capping will eliminate the potential for uncontrolled human contact and will also reduce the amount of contaminants that may migrate to groundwater.

The former printing press area includes primarily SVOC impacts at shallow depths (8 feet or less). Some VOC impacts are also present at shallow depths. No groundwater impacts are present downgradient of this area and the area is already capped by the building floor. The area to be addressed by capping is shown on Figure 3.2.3.1.

Capping may also be implemented as an EC in other areas of the Site in the event that residual impacts remain present following completion of the remedial measures discussed above. Capping in these other areas will be implemented on a case-by-case basis with NYSDEC approval. As a cover consisting of existing pavement and building slab presently exists on the Site, implementation of capping as an EC, where necessary, is readily feasible.

Capping will be implemented through the mechanism of an environmental easement, as discussed below. Capped areas will require regular inspections and annual certification, which will be conducted in accordance with the SMP. Capped areas may be accessed in the future, if necessary, in accordance with the SMP.

3.2.4 Institutional Control

An Institutional Control (IC) will be implemented for the Site (controlled property) in the form of an environmental easement. The environmental easement will be implemented in conjunction with the approval of the FER and associated SMP. The environmental easement will:

- Require the remedial party or Site owner to complete and submit to the NYSDEC a periodic certification of ECs and ICs in accordance with Part 375-1.8(h)(3);
- Allow the use and development of the controlled property for commercial and industrial uses as defined by Part 375-1.8(g), subject to land use restrictions under local zoning laws;
- Restrict the use of Site groundwater as a source of potable or process water without necessary water quality treatment as determined by the NYSDOH or Nassau County Department of Health;
- Prohibit agriculture or vegetable gardens on the controlled property; and
- Require compliance with the NYSDEC-approved SMP.

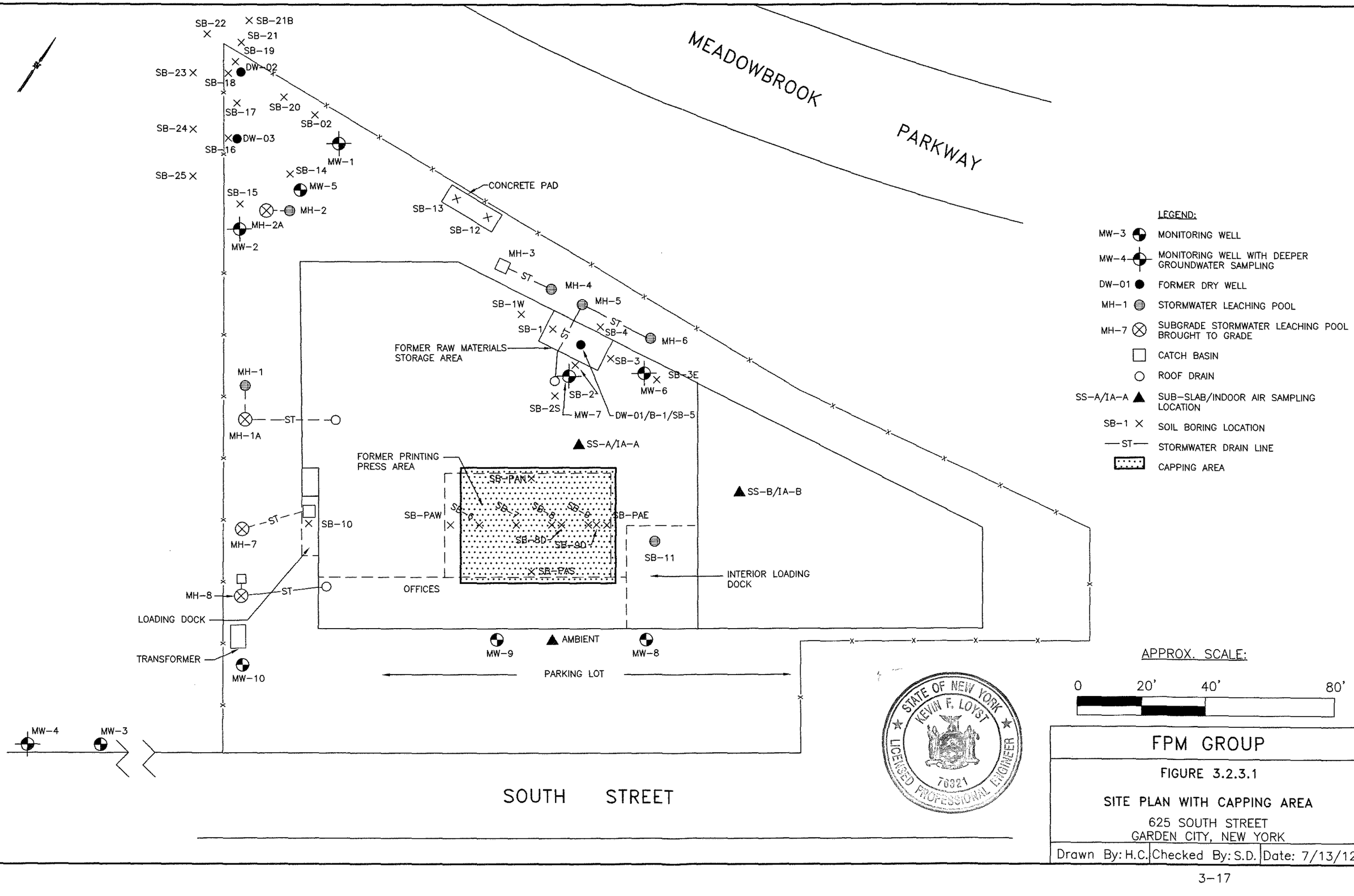


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FIGURE 3.2.3.1

SITE PLAN WITH CAPPING AREA

625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C. | Checked By: S.D. | Date: 7/13/12

3.3 Sampling Procedures

The procedures for soil/sediment sampling, groundwater sampling, sub-slab pressure monitoring, and SVE emissions monitoring during the implementation of remedial actions at the Site are described in the following sections. Additional or modified procedures may be included in the SMP for sampling activities to be conducted once the remedial activities are implemented.

All sample locations during remedial activities will be recorded and identified by unique latitude/longitude coordinates (decimal degrees), as required by the NYSDEC's environmental information management system (EIMS). Sample locations will be recorded by the QEP during field activities using a hand-held global positioning system (GPS). This information will be included in the electronic data deliverables (EDDs) to be uploaded to the EIMS.

QA/QC procedures will be implemented during the remedial actions in accordance with the QAPP included in Appendix C.

3.3.1 Soil/Sediment Sampling Procedures

Soil or sediment sampling will be performed during several steps of remedial activities, as discussed in Section 3.2 above, including waste characterization sampling, confirmatory sampling, sampling of fill to be imported to the Site, and/or sampling of stockpiled soil targeted for reuse onsite. Soil or sediment sampling will generally be performed using decontaminated hand-held stainless steel hand augers or dedicated disposable hand trowels. The samples will be obtained by the QEP, screened with a calibrated photoionization detector (PID), and classified using the Unified Soil Classification System (USCS). All sample observations will be recorded in the QEP's dedicated field logbook.

Confirmatory soil/sediment samples will generally be collected as single-point grab samples from the surface (0 to 6 inches) that they are intended to characterize. Waste characterization samples will be collected as grabs and/or composite samples, as required by the targeted disposal facility. Samples of soil targeted for onsite reuse and fill to be imported will be collected as both grab and composite samples in accordance with DER-10 Section 5.4(e). In certain cases, such as if visible evidence of potential contamination is noted at the bottom of an excavation, a soil boring may be advanced to evaluate the potential depth of visible impact. In these cases, one or more samples may be collected from the boring.

The Analytical Methods/Quality Assurance Summary table included in the QAPP shows the planned soil samples, estimated depths, and analytes. The analytical methods for all confirmatory and monitoring samples will be as per the NYS ASP with Category B deliverables and full QA/QC. The analytical methods and deliverables for waste classification samples will be in accordance with the selected disposal facility requirements.

3.3.2 Groundwater and Stormwater Sampling Procedures

As described in Section 3.2 above, pre-remedial groundwater sampling will be performed to document the groundwater conditions prior to startup of the AS/SVE system. Pre-remediation groundwater monitoring will be conducted at each of the ten Site monitoring wells approximately one month prior to the startup of the AS/SVE system.

At each well to be sampled, the depth to the static water level and depth of the well will be measured. Weather conditions will be noted, including the amount of elapsed time since the most recent significant rainfall. Then a decontaminated pump will be used to purge the well using low-flow procedures.

Following the removal of each well volume, field parameters, including pH, turbidity, specific conductivity, and temperature, will be monitored. When all stability parameters vary by less than 10 percent between the removal of successive well volumes and the turbidity is less than 50 NTU, the wells will be sampled. Well sampling forms documenting the well purging and sampling procedures will be completed.

Following purging, sampling will be performed. Samples will be obtained directly from the low-flow pump. The retrieved samples will be decanted into laboratory-supplied sample containers. Each sample container will be labeled, and the labeled containers will be placed in a cooler with ice to depress the sample temperature to four degrees Celsius. A chain of custody form will be completed and kept with the cooler to document the sequence of sample possession. At the end of each day, the filled cooler will be transported by FPM or overnight courier to the selected NYSDOH ELAP-certified laboratory. The groundwater samples will be analyzed for TCL VOCs as per NYS ASP with Category B deliverables.

The resulting groundwater chemical analytical data will be used to document groundwater quality prior to the startup of the AS/SVE system. The associated water level data will be used to evaluate the site-specific groundwater flow direction. As the site-specific groundwater flow direction has been demonstrated to be affected by recharge from significant rainfall events, weather conditions, including the elapsed time since the most recent significant rainfall, will be taken into account during the assessment of the groundwater flow direction.

Stormwater may be sampled for waste characterization purposes if it is found to be present in the stormwater leaching pools targeted for remediation. Stormwater sampling, analytical methods and deliverables for waste classification samples will be in accordance with the selected disposal facility requirements.

3.3.3 Sub-Slab Pressure Monitoring Procedures

During pilot testing and startup of the SVE system, sub-slab pressures will be monitored within the Site building to confirm that a downward pressure gradient is established across the slab. Additional monitoring, including monitoring for SVI, will be conducted during the operation of the SVE system. Procedures for this additional monitoring will be included in the SMP.

Pressure monitoring will be performed using Magnehelic gages and/or a Landtec gas monitor with a sensitivity of 0.01 inches of water. The Landtec monitor will be operated by the QEP and calibrated in accordance with the manufacturer's instructions prior to use. Monitoring will be performed outside of the building, inside of the building, and at each monitoring point to evaluate the relative pressure at each location. The resulting data will be recorded in the QEP's field log book and will be used to adjust the SVE system operating parameters as needed to ensure that a downward pressure gradient is established across the building slab.

3.3.4 SVE Effluent Sampling Procedures

Effluent sampling will be performed to evaluate SVE emissions during pilot testing and during the system startup period. During each sampling event an effluent sample will be collected from an effluent sampling port located between the SVE blower and the effluent stack pipe. In the event that effluent treatment is implemented, an additional sample of the treated effluent shall be obtained downstream of the effluent treatment equipment. All samples shall be obtained using a dedicated laboratory-supplied Tedlar air sampling bag. System operating parameters will be recorded by the QEP during each sampling event.

The samples in the filled Tedlar bags will be labeled and transported via overnight courier to a NYSDOH-ELAP-certified laboratory for analysis of VOCs by EPA Method T0-15. The analytical results will be integrated with the system operating parameters and compared to NYSDEC's DAR-1 guidance to evaluate system emissions, determine emissions treatment requirements, and confirm compliance with DAR-1.

3.3.5 Quality Assurance/Quality Control

QA/QC procedures will be implemented throughout the remedial activities and will include visual observations by the QEP, field screening for organic vapors using a calibrated PID, decontamination of non-disposable sampling equipment, use of dedicated disposable sampling equipment when feasible, use of chains of custody to document the sequence of sample possession, and collection and analysis of QA/QC samples. Field-collected QA/QC samples will include blind duplicate samples, trip blank samples, equipment blank samples, and matrix spike/matrix spike duplicate (MS/MSD) samples, as described in the QAPP. In addition, the selected analytical laboratory will use internal QA/QC procedures and samples (including laboratory control samples or LCSs, method blanks or MBs, surrogates, and MS/MSDs) to confirm that the laboratory data are of sufficient accuracy and precision. QA/QC procedures are detailed in the QAPP.

Following receipt of the chemical analytical data, the data packages and associated QA/QC sample results will be evaluated and a Data Usability Summary Report (DUSR) will be prepared for each data package. The DUSRs will be included in the FER.

3.4 Reporting

Reporting will be conducted in several formats during the remedial process, including emergency notifications (if needed), monthly progress reports, interim data submittals, and the Final Engineering Report (FER). All reporting will comply with NYSDEC electronic submittal requirements.

In the event of an emergency, the NYSDEC representative will be contacted via email or telephone within 24 hours of the occurrence and any necessary information about the nature of the emergency and its resolution will be relayed. Emergency notifications will be documented, at a minimum, in the associated monthly progress report and the FER.

Daily field reports (DFRs) will be prepared for all onsite activities and will be submitted to the NYSDEC weekly during periods of active onsite work. DFR submittal to the NYSDEC will occur no later than close of business on the Wednesday of the week following the dates of the DFRs.

Monthly progress reports will be continued in accordance with the Order on Consent for this Site (Index A1-0557-0706), which requires that the Respondent submit written progress reports by the 10th day of each month documenting all action taken during the previous month (reporting period), all anticipated activities for the upcoming month, approved modifications to work plans or schedules, results of sampling or other data generated during the reporting period, QA/QC information, percent complete information, unresolved delays encountered or anticipated, efforts made to mitigate delays, and citizen participation activities undertaken or anticipated. Monthly progress reports will present information in a summary manner and are not intended to be comprehensive.

Interim data submittals will be used to document major remedial milestones that are achieved prior to the completion onsite remedial construction activities. These major remedial milestones are anticipated to include the completion of soil excavation activities and the completion of AS/SVE pilot testing, and may included additional milestones, as warranted. Interim data submittals will document the work

completed to accomplish the milestone, present summary data and supporting lab reports, and include data interpretation and conclusions. If necessary, NYSDEC approval may be requested for proposed modifications of the remedial system(s), remedial program, and/or schedule.

An FER will be prepared to document the completed remedial program; the FER will adhere to the NYSDEC's most recent template for this document. The FER will include the certification for the remedial program, as provided in Section 1.5 of DER-10, by a professional engineer (PE) licensed to practice in New York State. The FER will include sufficient information and documentation to support the certification. The FER will document all activities completed in accordance with the approved RD/RA Work Plan and will include the data supporting the completed construction activities. The summary of the completed remedial actions will include a description of any problems encountered and their resolution, a description of any changes to the design and why the design changes were required, the quantities and concentrations of contaminants removed and/or treated, a full listing of all waste streams, quantities of materials disposed, and the disposal facilities, and restoration actions. The FER will also include a list of the RAOs applicable to the remedial action, tables and figures containing the pre- and post-remedial sampling data sufficient to document the remediation action, figures showing the volume of contaminated soil remediated and residual contamination to be managed under the SMP, as-built drawings to document the remedial action, and identification of the IC (including the boundary of the real property subject to the environmental easement and a copy of the easement). The FER will also include a complete description of the ECs established at the Site, including the AS/SVE system and capping.

An SMP will also be prepared following the NYSDEC's most recent template for this document and will be submitted separately from the FER. The SMP will include an EC/IC Plan, a Monitoring Plan, and an Operation and Maintenance (O&M) Plan. The SMP will also include provisions for NYSDEC access and notifications and will include a HASP and CAMP for all site management activities. Reporting under the SMP will be accomplished through the preparation and submittal of periodic review reports (PRRs) prepared in accordance with the provisions of DER-10.

The EC/IC Plan will identify all ICs (including use restrictions) and ECs for the Site and detail the steps and media-specific requirements necessary to ensure that the ECs and ICs remain in place and effective. The EC/IC Plan will include a description of the environmental easement IC, including land and groundwater use restrictions and the steps needed for periodic review and certification of the IC. The EC/IC Plan will also include a description of the ECs, including provisions for their management and control, and provisions for future excavations and residual materials management (Excavation Plan) for areas of the Site where the soil exceeds residential use SCGs (DER-10, Section 6.2.1(b)1.). The area of the site where residual contamination remains present and is subject to management under the SMP will be identified. The EC/IC Plan will also include provisions for property transfers, including notifications to the NYSDEC.

The Monitoring Plan will include provisions to assess the performance and effectiveness of the remedy. The Monitoring Plan is anticipated to include procedures for groundwater monitoring, AS/SVE system emissions monitoring, sub-slab depressurization monitoring, and SVI monitoring. The Monitoring Plan will also include a schedule of monitoring frequencies and submittals to the NYSDEC and provisions for determining when monitoring is no longer necessary.

The O&M Plan will include provisions to ensure the continued operation, monitoring, maintenance, inspection, and reporting of the mechanical and physical components of the remedy (AS/SVE system and cover). The O&M Plan will include procedures for compliance monitoring and O&M of the physical components of the remedy. The O&M Plan will also include procedures for evaluating the performance of the remedy relative to the remedial objectives.

3.5 Remedial Action Schedule

A schedule for remedial activities is provided on Figure 3.5.1. This schedule includes timeframes for construction contractor procurement, milestone activity dates, projected dates for submittal of deliverables to the NYSDEC, timeframes for submittal reviews, and projected approval dates. It should be noted that this schedule is based on a number of assumptions, including anticipated review times, laboratory analytical turnarounds, achievement of RAOs during the initial round of excavation, and other factors that may vary. The schedule may also be affected by weather conditions and other factors that are not controlled.

The remedial action schedule will be reviewed at least monthly in association with preparation of the monthly progress reports (discussed above) and the NYSDEC will be notified of any proposed modifications, the reason for the modifications, and the proposed actions to mitigate adverse schedule impacts. A revised remedial action schedule will be provided as necessary.

3.6 Green Remediation Principles and Techniques

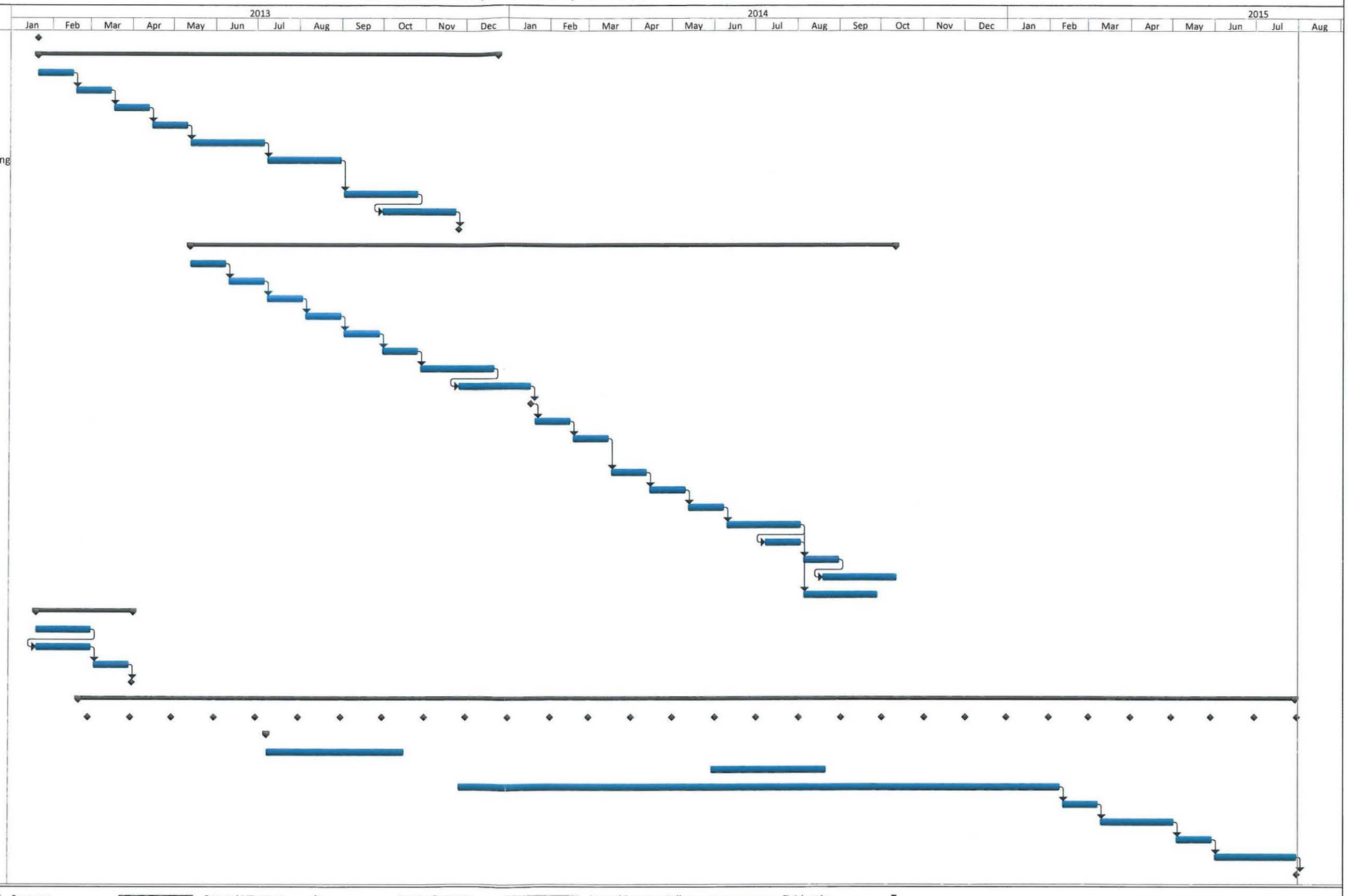
Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy, as per DER-31. Green remediation components may include consideration of the long-term environmental impacts of remedial technologies and stewardship, reducing greenhouse gas and other emissions, increasing energy efficiency and minimizing use of non-renewable energy, conserving resources, reducing waste, conserving and maximizing natural habitat, fostering green communities and working landscapes, and integrating the remedy with the end-use. These components have been incorporated into the development of the remedial procedures presented in this work plan within the context of the selected remedial actions and technologies, the Site's location in a working commercial/industrial area, the absence of significant natural habitat on the Site, cost concerns, and the need for the implemented remedy to be protective of public health and the environment.

Efforts will be made during all remedial operations to reduce the use of energy. These efforts, which will also reduce emissions, include:

- Not allowing trucks to idle while waiting for loading or unloading;
- Properly sizing operating remedial equipment (blowers and compressors);
- Coordination of trucking schedules to reduce partial loads;
- Car-pooling when multiple personnel are needed onsite;
- Combining site visits with travel to other nearby locations;
- Coordination of monitoring and sampling events to reduce vehicle trips;
- Selection of local disposal facilities and backfill sources, as feasible;
- Cycling of the AS system, resulting in improved air contact with the aquifer system (less channeling) and lower energy use; and
- Encouraging subcontractors, through the contracting process, to use alternative fuels and diesel particulate filters.

FIGURE 5.3.1
SCHEDULE FOR REMEDIAL ACTIVITIES
AWARD PACKAGING SITE, NYSDEC #130155
625 SOUTH STREET, GARDEN CITY, NEW YORK

ID	Task Name
1	NYSDEC approval of RD/RA Work Plan (1/21/13)
2	**Leaching Pool Remediation and Excavations**
3	Prepare RFP
4	Solicit Remedial Contractor proposals
5	Negotiations and contractor selection
6	Mobilization
7	Waste characterization and disposal facility approval
8	Remedial excavations, waste disposal, and confirmatory sampling
9	Lab analysis and data evaluation
10	Interim reporting
11	Submit Interim Report to NYSDEC
12	**AS/SVE System**
13	Prepare RFP
14	Solicit Remedial Construction Contractor Proposals
15	Negotiations and contractor Selection
16	Mobilization
17	Install AS and SVE wells
18	Pilot Test
19	Lab analysis and data evaluation
20	Prepare Pilot Test Report and Remedial Design
21	Submit Pilot Test Report and Remedial Design to NYSDEC
22	NYSDEC Review of Pilot Test Report and Remedial Design
23	Address NYSDEC comments on Pilot Test Report and Remedial Design
24	NYSDEC review and approval of Final Pilot Test Report
25	Revise Remedial Construction Contractor contract as needed
26	Mobilization
27	Install AS/SVE system
28	Pre-Remediation groundwater monitoring
29	AS/SVE system startup
30	Lab analysis and data evaluation
31	Prepare OM&M Manual
32	**Institutional Control**
33	Prepare Environmental Easement
34	Prepare Alta Survey
35	NYSDEC review/approval of Environmental Easement
36	Record Environmental Easement
37	**Reporting**
38	**Monthly Progress Reports**
69	**Daily Field Reports**
70	Excavation and Pilot Test DFRs
71	AS/SVE Installation DFRs
72	Prepare Draft FER and SMP
73	NYSDEC review of Draft FER and SMP
74	Revise Draft FER and SMP
75	NYSDEC review of Draft Final FER and SMP
76	Finalize FER and SMP
77	Submit Final FER and SMP for NYSDEC approval



Project: Award Figure351-R2
Date: Tue 12/18/12

Task	Summary	External Milestone	Inactive Summary	Manual Summary Rollup	Finish-only
Split	Project Summary	Inactive Task	Manual Task	Manual Summary	Deadline
Milestone	External Tasks	Inactive Milestone	Duration-only	Start-only	Progress

FPM

Reducing waste is another cornerstone of green remediation; waste reduction will be accomplished by:

- Segregation and testing of apparently unimpacted soil for potential onsite reuse;
- Conducting leaching pool remediation following a period of no rainfall so as to minimize wastewater generation
- Coordinating sampling events so as to minimize the number of QA/QC samples needed;
- Properly designing and locating the SVE emissions stack so as to minimize/eliminate the need for effluent treatment and associated waste generation; and
- Use of electronic submittals for reporting wherever possible.

Recycled materials will be used, where appropriate and feasible, to reduce the need for use of virgin materials. Recycled materials to be considered for use include:

- Recycled concrete aggregate (RCA) for use in select locations as backfill;
- Recycled materials for pavement restoration; and
- Recycled carbon for use in SVE effluent treatment, if needed.

Conservation of the environment and integration of the remedy with the end-use will be addressed through restoration of the groundwater recharge function of the stormwater leaching pool system. The remedial process will not only remove contaminants from the leaching pools that have the potential to affect groundwater quality, but it will also remove fine-grained materials that presently impair the groundwater recharge function of the pools and cause standing water to remain for periods of time, resulting in mosquito breeding. Removal of the contaminants and fine-grained materials will improve the quality of the recharged water and increase the infiltration capacity of the system, resulting in more recharge of the groundwater system and less production of mosquitoes.

The FER will include a discussion of the green remediation practices and technologies employed throughout the remedial program. The SMP will also include green remediation principles and practices, including remedial operation and monitoring optimization.

SECTION 4.0
REFERENCES

FPM Group. December 2011. *Remedial Investigation/Feasibility Study Report for Award Packaging Corp. Site, 625 South Street, Garden City, New York*

Nassau County Department of Public Works. 1999. *September 1998 Nassau County Water Table Elevation Map.*

New York State Department of Environmental Conservation. May 2010. *DER-10 Technical guidance for Site Investigation and Remediation.*

New York State Department of Environmental Conservation. March 2012. *Record of Decision, Award Packaging Corp., State Superfund Project, Garden City, Nassau County, Site No. 130155.*

New York State Department of Health. October 2006. *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York.*

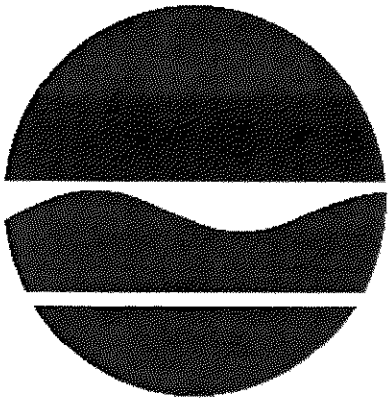
U.S. Geological Survey. 1979. *Freeport, New York Quadrangle.*

APPENDIX A

RECORD OF DECISION

RECORD OF DECISION

Award Packaging Corp.
State Superfund Project
Garden City, Nassau County
Site No. 130155
March 2012



Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - RECORD OF DECISION

Award Packaging Corp.
State Superfund Project
Garden City, Nassau County
Site No. 130155
March 2012

Statement of Purpose and Basis

This document presents the remedy for the Award Packaging Corp. site, a Class 2 inactive hazardous waste disposal site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375, and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Award Packaging Corp. site and the public's input to the proposed remedy presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Air sparging with soil vapor extraction, an in-situ technology, will be used to treat groundwater contaminated with volatile organic compounds (VOCs). The process physically removes contaminants from the groundwater by injecting air into a well that has been installed into the groundwater. The VOCs are carried with the injected air into the vadose zone (the area below the ground surface but above the water table) where a soil vapor extraction (SVE) system is used to capture the injected air.

The SVE system will also remediate soil contaminated with VOCs and prevent soil vapor intrusion into the on-site building. The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The VOC-contaminated soils are in the same locations as the contaminated groundwater.

At this site, air injection wells will be installed in the portion of the site to be treated to a depth of approximately 45 feet, which is 15 feet below the water table. To capture the volatilized contaminants, two SVE wells will be installed in the vadose zone and screened from 20 feet below the ground surface (bgs) to a depth of approximately 25 feet bgs. The air containing VOCs extracted from the SVE wells will be treated with activated carbon, if necessary.

3. A site cover currently exists and will be maintained to allow for commercial use of the site. Any site redevelopment will maintain a site cover, which will consist of the structures such as buildings, pavement, or sidewalks comprising the site. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

4. On-site soils located in the DW-01 area, the DW-02/DW-03 area, the loading dock area and the leaching pools that are not remediated using the SVE system and exceed unrestricted soil cleanup objectives will be excavated and transported off-site for disposal. Approximately 464 cubic yards of soil located in the vadose zone will be removed from these areas of concern. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will then be brought in to replace the excavated soil and establish the designed grades at the site.

5. Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH;
- prohibits agriculture or vegetable gardens on the controlled property; and
- requires compliance with the Department approved Site Management Plan.

6. A Site Management Plan is required, which includes the following:

a. An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in Paragraph 5 above.

Engineering Controls: The site cover discussed in Paragraph 3 and the air sparge/soil vapor extraction system discussed in Paragraph 2 above.

This plan includes, but may not be limited to:

- An Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of groundwater, treatment system emissions, and vapor intrusion to assess the performance and effectiveness of the remedy;
- periodic soil vapor intrusion monitoring at the discretion of the NYSDEC to confirm that the SVE system is preventing soil vapor intrusion into the on-site building. The sampling will be conducted during the heating season and will include subslab vapor, indoor air and outdoor air sampling; and
- a schedule of monitoring and frequency of submittals to the Department.

c. An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records.
- continuing the operation of the components of the remedy until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

March 15, 2012

Date

Robert W. Schick, P.E., Acting Director
Division of Environmental Remediation

RECORD OF DECISION

Award Packaging Corp.
Garden City, Nassau County
Site No. 130155
March 2012

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of hazardous wastes at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of hazardous wastes at this site, as more fully described in this document, has contaminated various environmental media. The remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This Record of Decision (ROD) identifies the selected remedy, summarizes the other alternatives considered, and discusses the reasons for selecting the remedy.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repositories:

Garden City Public Library
Attn: Lucy Jaffe
60 Seventh Street
Garden City, NY 11530
Phone: (516) 742-8405

New York State Department of Environmental Conservation
Attn: William Fonda
50 Circle Road
Stony Brook, NY 11790-3409
Phone: (631) 444-0350

A public meeting was also conducted. At the meeting, the findings of the remedial investigation (RI) and the feasibility study (FS) were presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period was held, during which verbal or written comments were accepted on the proposed remedy.

Comments on the remedy received during the comment period are summarized and addressed in the responsiveness summary section of the ROD.

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The Award Packaging Corp. site is located at 625 South Street in the Town of Hempstead. The property is situated on the north side of South Street in a suburban area.

Site Features: The main site features include one multi-tenant commercial/industrial building, which is surrounded by paved parking.

Current Zoning/Use: The on-site building contains two tenant spaces. One space is used for warehousing and the other space is currently unoccupied. The site is zoned for industrial use. The surrounding parcels are currently used for a combination of commercial, light industrial, and a highway. The nearest residential area is 0.25 miles south of the site.

Historic Use: From 1967-2007, the site was used for application of print to plastic packaging material. During this time, wastes were disposed into two exterior drywells and one interior floor drain. In 2004, contaminated materials were excavated from the drywells and floor drain; however, remediation was incomplete. Groundwater contamination was detected at the bottom of the excavated drywells.

Site Geology and Hydrogeology: The subsurface soils above the water table consist of sand and gravel with discontinuous silt and clay lenses. The water table is located at a depth of 30 feet

below ground surface and groundwater generally flows south. However, the groundwater flow direction changes to southeast or east after heavy rains, due to the presence of a recharge basin west of the site.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to commercial use (which allows for industrial use) as described in Part 375-1.8(g) were/was evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the RI to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is included in the Tables for the media being evaluated in Exhibit A.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include:

Rococo Associates, Inc.

Award Packaging Corp.

The Department and Rococo Associates, Inc. entered into a Consent Order on July 30, 2007. The Order obligates the responsible parties to implement a full remedial program.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A Remedial Investigation (RI) has been conducted. The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,
- Geophysical survey to determine the lateral extent of wastes,

- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,
- Sampling of surface water and sediment,
- Ecological and Human Health Exposure Assessments.

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor
- indoor air

6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. The tables found in Exhibit A list the applicable SCGs in the footnotes. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a hazardous waste that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized in Exhibit A. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

TOLUENE
XYLENE (MIXED)
TETRACHLOROETHYLENE (PCE)
ACETONE
ETHYLBENZENE
CHROMIUM
COPPER
LEAD
BENZO(B)FLUORANTHENE
BENZO[K]FLUORANTHENE
Chrysene
BENZ(A)ANTHRACENE
BENZO(A)PYRENE
indeno(1,2,3-cd)pyrene
DIBENZ[A,H]ANTHRACENE

As illustrated in Exhibit A, the contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil
- soil vapor intrusion

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Record of Decision.

There were no IRMs performed at this site during the RI.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

Based upon the resources and pathways identified and the toxicity of the contaminants of ecological concern at this site, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary for OU 01.

Nature and Extent of Contamination: Based on investigations conducted to date, the site contaminants include volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs) and metals.

Soil: Petroleum-related VOCs include toluene, ethylbenzene and xylene and were found in the soil near the two former drywells in the northwest corner of the property. Maximum concentrations of toluene and xylene were 3,000 parts-per-million (ppm) and 970 ppm, respectively. Toluene and xylene levels exceeded the unrestricted use soil cleanup objectives of 0.7 ppm and 0.26 ppm, respectively. Acetone, a VOC, was detected in the vicinity of the former indoor drain at 92 ppm, exceeding the unrestricted use soil cleanup objective of 0.05 ppm. Semivolatile organic compounds -- including benzo(a)anthracene, chrysene, benzo(b)fluoranthene and other polyaromatic hydrocarbons (PAHs) -- were found in several exterior drainage structures and beneath the former printing press area in the building. For example, benzo(b)fluoranthene was detected in a stormwater leaching pool at a maximum level of 6.8 ppm, exceeding the unrestricted use soil cleanup objective of 1 ppm. Metals, including cadmium, chromium and lead were detected in soils in and around on-site drainage structures. For example, the maximum lead concentration was found in a stormwater leaching pool at 6,870 ppm, exceeding the unrestricted use soil cleanup objective of 63 ppm.

Groundwater: VOCs were also found in on-site groundwater, but groundwater contamination has not migrated off site. Acetone, a VOC, was detected in a groundwater monitoring well near the indoor floor drain at 19,000 parts-per-billion (ppb), exceeding the groundwater standard of 50 ppb. Toluene was detected downgradient of the two former drywells at the northwest corner of

the site at a maximum concentration of 490 ppb, exceeding the groundwater standard of 5 ppb. Inorganic contaminants were detected at levels exceeding SCGs in unfiltered samples. However, groundwater sampling results generally met SCGs for inorganics for filtered samples and wells that were re-sampled using low-flow methods. Therefore, inorganic contaminants were likely detected in the unfiltered samples because of high turbidity and were probably not dissolved in the groundwater.

Soil Vapor: VOCs were also detected in the subslab vapor and indoor air of the on-site building. Tetrachloroethylene (PCE) was detected in the subslab vapor at a maximum level of 190 micrograms per cubic meter (ug/m3). The collocated indoor air sample had a PCE concentration of 0.31 ug/m3, which is lower than the indoor air guideline of 100 ug/m3. No off-site soil vapor testing was needed because VOC contamination has not migrated off-site.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

Direct contact with contaminants in the soil and groundwater is unlikely because the majority of the site is covered with buildings, clean fill and pavement. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. The potential exists for inhalation of site-related contaminants due to soil vapor intrusion in the on-site building. Environmental sampling indicates that soil vapor intrusion is not a concern for off-site buildings.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

SECTION 7: SUMMARY OF THE SELECTED REMEDY

To be selected the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy must also attain the remedial action objectives identified for the site, which are presented in Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the feasibility study (FS) report.

A summary of the remedial alternatives that were considered for this site is presented in Exhibit B. Cost information is presented in the form of present worth, which represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved. A summary of the Remedial Alternatives Costs is included as Exhibit C.

The basis for the Department's remedy is set forth at Exhibit D.

The selected remedy is referred to as the Air Sparging, Soil Vapor Extraction, Excavation and a Cover System remedy.

The estimated present worth cost to implement the remedy is $731,000. The cost to construct the remedy is estimated to be $277,000 and the estimated average annual cost is $83,800.

The elements of the selected remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Air sparging with soil vapor extraction, an in-situ technology, will be used to treat groundwater contaminated with volatile organic compounds (VOCs). The process physically removes contaminants from the groundwater by injecting air into a well that has been installed into the groundwater. The VOCs are carried with the injected air into the vadose zone (the area below the ground surface but above the water table) where a soil vapor extraction (SVE) system is used to capture the injected air.

The SVE system will also remediate soil contaminated with VOCs and prevent soil vapor intrusion into the on-site building. The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The VOC-contaminated soils are in the same locations as the contaminated groundwater.

At this site, air injection wells will be installed in the portion of the site to be treated to a depth of approximately 45 feet, which is 15 feet below the water table. To capture the volatilized contaminants, two SVE wells will be installed in the vadose zone and screened from 20 feet below the ground surface (bgs) to a depth of approximately 25 feet bgs. The air containing VOCs extracted from the SVE wells will be treated with activated carbon, if necessary.

3. A site cover currently exists and will be maintained to allow for commercial use of the site. Any site redevelopment will maintain a site cover, which will consist of the structures such as buildings, pavement, or sidewalks comprising the site. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

4. On-site soils located in the DW-01 area, the DW-02/DW-03 area, the loading dock area and the leaching pools that are not remediated using the SVE system and exceed unrestricted soil

cleanup objectives will be excavated and transported off-site for disposal. Approximately 464 cubic yards of soil located in the vadose zone will be removed from these areas of concern. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will then be brought in to replace the excavated soil and establish the designed grades at the site.

5. Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH;
- prohibits agriculture or vegetable gardens on the controlled property; and
- requires compliance with the Department approved Site Management Plan.

6. A Site Management Plan is required, which includes the following:

a. An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in Paragraph 5 above.

Engineering Controls: The site cover discussed in Paragraph 3 and the air sparge/soil vapor extraction system discussed in Paragraph 2 above.

This plan includes, but may not be limited to:

- An Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of groundwater, treatment system emissions, and vapor intrusion to assess the performance and effectiveness of the remedy;

- periodic soil vapor intrusion monitoring at the discretion of the NYSDEC to confirm that the SVE system is preventing soil vapor intrusion into the on-site building. The sampling will be conducted during the heating season and will include subslab vapor, indoor air and outdoor air sampling; and
- a schedule of monitoring and frequency of submittals to the Department.

c. An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records.
- continuing the operation of the components of the remedy until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation for all environmental media that were evaluated. As described in Section 6.1, samples were collected from various environmental media to characterize the nature and extent of contamination.

For each medium, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into three categories; volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and inorganics (metals and cyanide). Pesticides and polychlorinated biphenyls (PCB's) were determined not to be contaminants of concern at the site; therefore, these contaminants were not included in the sampling program. For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCGs identified in Section 6.1.1 are also presented.

Groundwater

Groundwater samples were collected from overburden wells and direct-push borings to assess groundwater conditions on-site. The overburden wells are screened at or near the water table, which is located at an approximate depth of 30 feet below ground surface (bgs). The direct push samples were obtained at depths of up to 60 feet bgs.

Groundwater sampling conducted during the RI revealed that the areal and vertical extent of the groundwater contamination was limited to the shallow on-site groundwater. Groundwater sampling conducted at the downgradient boundary of the site indicates that contaminated groundwater has not migrated off-site. Deep groundwater sampling results indicate that the groundwater contamination is limited to depths near the water table.

The groundwater contamination consists of VOCs, inorganics, and one SVOC. VOCs were found in the groundwater at levels exceeding SCGs at locations directly downgradient from areas with the same contaminants in soil. Inorganic contaminants were detected at levels exceeding SCGs in unfiltered samples. However, groundwater sampling results generally met SCGs for inorganics for filtered samples and wells that were re-sampled using low-flow methods. Therefore, inorganic contaminants were likely detected in the unfiltered samples because of high turbidity and were probably not dissolved in the groundwater. One semi-volatile organic compound, phenol, exceeded its SCG in one sample.

The groundwater contamination data is summarized in Table 1 and is depicted in Figure 2.

Table 1- Groundwater Award Packaging Corp.			
Detected Constituents	**Concentration Range Detected (ppb)[a]**	**SCG[b] (ppb)[a]**	**Frequency Exceeding SCG**
Metals NYS CLASS GA			
ANTIMONY	ND[C]-10	3	1/44
ARSENIC	ND-220	25	6/44
BERYLLIUM	ND-22	3	14/44
CHROMIUM, TOTAL	ND-1100	50	17/44
COPPER	ND-430	200	1/44
IRON	ND-299000	300	28/44
LEAD	ND-200	25	15/44
MANGANESE	ND-4400	300	20/44
NICKEL	ND-240	100	1/44
SODIUM	970-112000	20000	24/44
THALLIUM	ND-20	0.5	3/44
SVOC NYS CLASS GA			
PHENOL	ND-26	1	1/17
VOC NYS CLASS GA			
ACETONE	ND-19000	50	2/28
BENZENE	ND-7.6	1	2/28
ETHYLBENZENE	ND-120	5	3/28
METHYLENE CHLORIDE	ND-170	5	1/28
TETRACHLOROETHYLENE(PCE)	ND-9.5	5	1/28
TOLUENE	ND-490	5	2/28
XYLENES, TOTAL	ND-220	5	3/28

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.
b- SCG: Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).
c – ND: non-detect, less than minimum reporting limit as per DER-10.

The primary contaminants are acetone, toluene, ethylbenzene and xylene associated with past disposal on the site. As shown in Figure 2, acetone contamination is associated with disposal into an interior drywell while the other contaminants are associated with disposal into two exterior drywells on the northwest corner of the site.

Chromium, lead, and other metals were found in unfiltered samples throughout the site at levels exceeding SCGs. However, these chemicals were generally present at levels below SCGs in filtered samples and during re-sampling using a more representative sampling method. Phenol, an SVOC, was detected in one sample on the site and was not detected in any on-site soil samples. Therefore, the SVOC and metal compounds found are not considered site specific contaminants of concern in groundwater.

Based on the findings of the RI, the presence of acetone, toluene, ethylbenzene and xylene has resulted in the contamination of groundwater. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of groundwater to be addressed by the remedy selection process are: acetone, toluene, ethylbenzene and xylene.

Soil

Only subsurface soil samples were collected at the site during the RI, as the site is covered with pavement and a building. Soil samples were collected from a depth of 0 - 30 feet to assess soil contamination impacts to groundwater. The results indicate that soils at the site exceed the unrestricted SCGs and restricted commercial SCGs for volatile and semi-volatile organics and metals. Shallow soil samples obtained directly beneath the building (approximately 0-1 foot deep) generally exceeded unrestricted use SCGs while shallow soil samples obtained directly beneath outdoor pavement generally met unrestricted use SCGs.

The soil contamination data is tabulated in Table 2 and presented by area of concern in Figures 3 through 5. Soil contamination was found in the following areas of concern:

- DW-01 area: The soil in the vicinity of this former drywell inside the building was partially remediated prior to the remedial investigation. The soil contamination in this area consists primarily of acetone and copper. The maximum acetone concentration was 92 ppm, exceeding the unrestricted use SCG of 0.05 ppm. Copper was detected at 65.8 ppm, exceeding the unrestricted use SCG of 50 ppm. Sampling results for the DW-01 area are depicted in Figure 3.
- Former printing press area: The soil beneath the slab of the building in this area of concern is contaminated with acetone and SVOCs. The maximum acetone concentration was 0.46 ppm, exceeding the unrestricted use SCG of 0.05 ppm. Several SVOCs exceeded unrestricted use SCGs and two SVOCs exceeded restricted commercial use SCGs. The SVOCs were polycyclic aromatic hydrocarbons (PAHs), which are generally found in fuels. Sampling results for the former printing press area are depicted in Figure 3.
- Leaching pools and a loading dock drain: Several exterior former leaching pools and a loading dock drain contained contaminated soil. Contaminants included VOCs, SVOCs and inorganics. VOCs consisted primarily of acetone, with a maximum concentration of 0.87 ppm. The SVOCs were PAHs and their concentrations often exceeded restricted commercial SCGs. Inorganics included chromium, copper and lead, and were also frequently found at levels exceeding restricted commercial SCGs. Two on-site leaching pools (MH-3 and MH-6) were not sampled but were assumed to be contaminated because they are connected to contaminated leaching pools. Sampling results for the leaching pools and loading docks are depicted in Figure 4.
- DW-02/DW-03 area: The soil in the vicinity of these former drywells outside the building was partially remediated prior to the remedial investigation. Soil contamination in this area of concern consists of petroleum-related VOCs and metals. Maximum levels of toluene and total xylenes were 3,000 ppm and 970 ppm, exceeding SCGs for protection of groundwater. Chromium, copper and lead had exceedances of restricted commercial SCGs. Sampling results for the DW-02/DW-03 area are depicted in Figure 5.

Table 2 Soil Award Packaging Corp.					
Detected Constituents	**Concentration Range Detected (ppm)[a]**	**Unrestricted SCG[b] (ppm)[a]**	**Frequency Exceeding Unrestricted SCG**	**Commercial Use SCG[c] (ppm)[a]**	**Frequency Exceeding Commercial SCG**
Metals PART 375					
ARSENIC	ND[d]-18.6	13	1/66	16	1/66
CADMIUM	ND-14.3	2.5	4/66	9.3	2/66
CHROMIUM, TOTAL	1.7-1540	30	7/66	400	5/66
COPPER	1.2-905	50	8/66	270	4/66
LEAD	0.67-6870	63	8/66	1000	6/66
MERCURY	ND-0.44	0.18	3/66	2.8	0/66
NICKEL	0.9-57.3	30	2/66	310	0/66
SILVER	ND-2.2	2	1/66	1500	0/66
ZINC	ND-1310	109	4/66	10000	0/66
SVOC PART 375					
2-METHYLPHENOL (O-CRESOL)	ND-0.88	0.33	1/27	500	0/27
BENZO(A)ANTHRACENE	ND-4	1	6/27	5.6	0/27
BENZO(A)PYRENE	ND-3.5	1	7/27	1	7/27
BENZO(B)FLUORANTHENE	ND-6.8	1	7/27	5.6	2/27
BENZO(K)FLUORANTHENE	ND-2.4	0.8	6/27	56	0/27
CHRYSENE	ND-5.7	1	6/27	56	0/27
DIBENZ(A,H)ANTHRACENE	ND-0.87	0.33	5/27	0.56	2/27
INDENO(1,2,3-C,D)PYRENE	ND-3.6	0.5	6/27	5.6	0/27
VOC PART 375					
ACETONE	ND-92	0.05	25/114	0.05[e]	25/114
ETHYLBENZENE	ND-150	1	4/114	1[e]	4/114
METHYL ETHYL KETONE (2-BUTANONE)	ND-0.13	0.12	1/114	0.12[e]	1/114
METHYLENE CHLORIDE	ND-3.1	0.05	10/114	0.05[e]	10/114
TOLUENE	ND-3000	0.7	4/114	0.7[e]	4/114
XYLENES, TOTAL	ND-970	0.26	7/114	1.6[e]	6/114

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.
c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Commercial Use, unless otherwise noted.
d – ND: non-detect
e - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Groundwater

In summary, the primary soil contaminants are acetone, toluene, ethylbenzene, xylene, PAHs and metals associated with disposal of contaminants into drywells and leaching pools, and previous industrial operations. All of the SVOCs listed in Table 2 are classified as PAHs, which are generally found in fuels. The soil contamination is depicted in Figures 3 through 5.

Based on the findings of the Remedial Investigation, the past disposal of hazardous waste has resulted in the contamination of soil. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process are acetone, toluene, ethylbenzene, xylene, PAHs and metals.

Soil Vapor

The evaluation of the potential for soil vapor intrusion resulting from the presence of site related soil or groundwater contamination was evaluated by the sampling of soil vapor under structures (i.e. sub-slab) and indoor air inside structures.

Soil vapor samples were collected from beneath the slab of the structure located on the former Award Packaging property. Indoor air and outdoor air samples were also collected at this time. The results indicate tetrachloroethylene (PCE) was detected in on-site sub-slab soil vapor and indoor air. Figure 6 shows the results of the sub-slab soil vapor, indoor air and outdoor air sampling.

The primary soil vapor contaminant is tetrachloroethylene (PCE) which may be associated with previous industrial operations on the site. As noted on Figure 6, the primary soil vapor contamination is found in the western tenant space of the on-site building. Therefore, continued monitoring or mitigation is necessary for the on-site building. No off-site soil vapor testing was needed because VOC contamination has not migrated off-site.

Based on the findings of the Remedial Investigation, the presence of PCE has resulted in the contamination of soil vapor. The site contaminant that is considered to be the primary contaminant of concern which will drive the remediation of soil vapor to be addressed by the remedy selection process is PCE.

Exhibit B

Description of Remedial Alternatives

The following alternatives were considered based on the remedial action objectives (see Section 6.5) to address the contaminated media identified at the site as described in Exhibit A. Alternatives were considered for three media: soil, groundwater and soil vapor.

Soil, Groundwater and Soil Vapor Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative leaves the site in its present condition and does not provide any additional protection to public health and the environment.

Soil Alternative 2: Soil Vapor Extraction

This alternative includes installing and operating a soil vapor extraction (SVE) system to remediate contaminated soil on the site. SVE is an in-situ technology used to treat volatile organic compounds (VOCs) in soil. The process physically removes contaminants from the soil by applying a vacuum to a SVE well that has been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells is then run through an activated carbon treatment canister (or other air treatment process as applicable) to remove the VOCs before the air is discharged to the atmosphere.

At this site five SVE wells will be installed in the vadose zone and screened from 20 feet below the ground surface to a depth of approximately 25 feet. The air containing VOCs extracted from the SVE wells will be treated using activate carbon (or other air treatment as applicable).

This alternative includes institutional controls, in the form of an environmental easement and a site management plan, necessary to protect public health and the environment from any contamination identified at the site. The environmental easement will include a provision limiting the use and development of the controlled property for commercial or industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws.

This alternative meets the unrestricted soil clean objectives listed in Part 375-6.8 (a) for VOCs. However, the alternative does not meet unrestricted or restricted commercial SCGs for the other contaminants in the on-site soils. The design and construction time periods for this alternative are six months and one year, respectively. The Feasibility Study Report estimates that the treatment system will meet the objectives for VOCs in four years.

Present Worth: *$219,000*
Capital Cost: *$127,000*
Annual Costs: *$23,700*

Soil Alternative 3: Soil Excavation and Offsite Disposal

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). This alternative includes excavation and off-site disposal of all waste and soil contamination above the unrestricted use soil cleanup objectives (SCOs).

Unrestricted use soil cleanup objectives (SCOs) will be used to guide excavation of contaminated soils. On-site soils which exceed unrestricted SCOs will be excavated and transported off-site for disposal.

Approximately 3,141 cubic yards of soil will be removed. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site. The design and construction time periods for this alternative are six months and one year, respectively.

Present Worth: *$1,230,000*
Capital Cost: *$1,230,000*
Annual Costs: *$0*

Soil Alternative 4: Implementation of Engineering and Institutional Controls

This alternative manages the existing soil contamination using engineering controls (ECs) and Institutional Controls (ICs). The institutional controls, in the form of an environmental easement and a site management plan, are necessary to protect public health and the environment from any contamination identified at the site. The environmental easement will include a provision limiting the use and development of the controlled property for commercial or industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws.

The ECs include a site cover, which currently exists and will be maintained to allow for restricted commercial or industrial use of the site. Any site redevelopment will maintain a site cover, which may consist either of the structures such as buildings, pavement, sidewalks comprising the site development. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

This alternative requires minimal design and construction time. However, the alternative will leave soil contamination that exceeds unrestricted use and restricted commercial soil clean objectives on the site.

Present Worth: *$125,000*
Capital Cost: *$23,000*
Annual Costs: *$5,060*

Soil Alternative 5: Combined Soil Excavation and Offsite Disposal/SVE

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil cleanup objectives listed in Part 375-6.8 (a). This alternative includes a combination of excavation and SVE to remediate the soil contamination above unrestricted use SCOs at the site. Soil contaminated with SVOCs and metals will be excavated and disposed off-site while VOC-contaminated soil above unrestricted use SCOs will be remediated using an SVE system. Descriptions of SVE systems and soil excavation were provided in the descriptions of soil alternatives 2 and 3, respectively.

For this alternative, two SVE wells will be installed in the vadose zone and screened from 20 feet below the ground surface to a depth of approximately 25 feet. One SVE well will be installed in each of the following areas of concern with VOC contamination: the interior drywell area (DW-1) and the drywell area in the northwest corner of the site (DW-2/3). The air containing VOCs extracted from the SVE wells will be treated using activate carbon (or other air treatment as applicable).

Unrestricted use soil cleanup objectives (SCOs) will be used to guide excavation of soils contaminated with SVOCs and metals. On-site soils which exceed unrestricted SCOs will be excavated and transported off-site for disposal.

Approximately 859 cubic yards of soil will be removed. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

The design and construction time periods for this alternative are six months and one year, respectively. The Feasibility Study Report estimates that the SVE system will meet unrestricted use soil cleanup objectives within four years of startup.

Present Worth: *$508,000*
Capital Cost: *$427,000*
Annual Costs: *$20,900*

Soil Alternative 6: Combined Soil Excavation and Offsite Disposal/SVE/Capping at Former Printing Press Area

This alternative includes a combination of SVE, excavation and disposal, and capping. As with Alternative 5, soil contaminated with SVOCs and metals will be excavated and disposed off-site while VOC-contaminated soil will be remediated using an SVE system. However, the contaminated soil in the former printing press area in the on-site building will be addressed with the existing cap, which is the on-site building. The soil beneath the former printing press area is not a significant source of VOCs, which are the contaminants of concern for groundwater. Descriptions of SVE systems and soil excavation were provided in the descriptions of soil alternatives 2 and 3, respectively.

Soils contaminated with SVOCs and metals in the following areas will be excavated and disposed off-site: the DW-1 area beneath the building, the DW-2/3 area at the northwest corner of the site, and the contaminated leaching pools and loading docks. Unrestricted use soil cleanup objectives (SCOs) will be used to guide excavation of soils in these areas of concern. On-site soils which exceed unrestricted SCOs will be excavated and transported off-site for disposal.

Approximately 339 cubic yards of soil will be removed. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

The former printing press area will be addressed using an engineering control (EC). The EC includes a site cover, which currently exists and will be maintained to allow for restricted commercial or industrial use of the site. Any site redevelopment will maintain a site cover, which may consist either of the structures such as buildings, pavement, sidewalks comprising the site development. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d). As the soil contamination beneath the former printing press area consists primarily of SVOCs, SVE will not remediate the soil contamination in this area of concern.

This alternative includes institutional controls, in the form of an environmental easement and a site management plan, necessary to protect public health and the environment from any contamination identified at the site. The environmental easement will include a provision limiting the use and development of the controlled property for commercial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws.

The design and construction time periods for this alternative are six months and one year, respectively. The Feasibility Study Report estimates that the SVE system will meet unrestricted use soil cleanup objectives for VOCs within four years of startup.

Present Worth: *$344,000*
Capital Cost: *$219,000*
Annual Costs: *$23,100*

Soil Alternative 7: Combined Soil Excavation and Offsite Disposal/SVE/Capping

This alternative also includes a combination of SVE, excavation and disposal, and capping. As with Alternative 5, soil contaminated with SVOCs and metals will be excavated and disposed off-site while VOC-contaminated soil will be remediated using an SVE system. However, the contaminated soil in the former printing press area, the DW-1 area, and the DW-2/DW-3 area will be addressed by capping. This alternative uses capping in more areas of concern than Alternative 6. Descriptions of SVE systems and soil excavation were provided in the descriptions of soil alternatives 2 and 3, respectively.

Soils contaminated with SVOCs and metals in the contaminated leaching pools and loading docks will be excavated and disposed off-site. Unrestricted use soil cleanup objectives (SCOs) will be used to guide excavation of soils in these areas of concern. On-site soils in these areas of concern which exceed unrestricted SCOs will be excavated and transported off-site for disposal.

Approximately 274 cubic yards of soil will be removed. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

The former printing press area, the SVOCs and inorganics in the DW-1 area, and the SVOCs and inorganics in the DW-2/DW-3 area will be addressed using an engineering control (EC). The EC includes a site cover, which currently exists and will be maintained to allow for restricted commercial use of the site. Any site redevelopment will maintain a site cover, which may consist either of the structures such as buildings, pavement, sidewalks comprising the site development. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d). As the soil contamination beneath the former printing press area consists primarily of SVOCs, SVE will not remediate the soil contamination in this area of concern.

This alternative includes institutional controls, in the form of an environmental easement and a site management plan, necessary to protect public health and the environment from any contamination identified at the site. The environmental easement will include a provision limiting the use and development of the controlled property for commercial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws.

The design and construction time periods for this alternative are six months and one year, respectively. The Feasibility Study Report estimates that the SVE system will meet unrestricted use soil cleanup objectives for VOCs within four years of startup.

Present Worth: *$288,000*
Capital Cost: *$163,000*
Annual Costs: *$23,100*

Groundwater Alternative 2: Groundwater Monitoring

This alternative includes monitoring on-site groundwater monitoring wells without actively treating the groundwater. As a natural attenuation evaluation was not conducted during the RI, the Department cannot determine whether naturally occurring bacteria will remediate the groundwater contamination. As the alternative is not expected to meet groundwater SCGs, the cost estimate for this alternative includes monitoring for 30 years.

Present Worth: *$461,000*
Capital Cost: *$3,330*
Annual Costs: *$21,400*

Groundwater Alternative 3: In-Situ Treatment by Air Sparging

This alternative includes air sparging to remediate the on-site groundwater contamination to meet groundwater SCGs. Air sparging is an in-situ technology used to treat groundwater contaminated with volatile organic compounds (VOCs). The process physically removes contaminants from the groundwater by injecting air into a well that has been installed into the groundwater. As the injected air rises through the groundwater it volatilizes the VOCs from the groundwater into the injected air. The VOCs are carried with the injected air into the vadose zone (the area below the ground surface but above the water table) where a soil vapor extraction (SVE) system is used to remove the injected air. The SVE system pulls a vacuum on wells that have been installed into the vadose zone to remove the VOCs along with the air introduced by the sparging process. The air extracted from the SVE wells is then run through activated carbon (or other air treatment as applicable) which removes VOCs from the air before it is discharged to the atmosphere.

The SVE system will also remediate soil contaminated with VOCs. The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The VOC-contaminated soils are in the same areal locations as the contaminated groundwater.

At this site, air injection wells will be installed in the portion of the site to be treated to a depth of approximately 45 feet, which is 15 feet below the water table. To capture the volatilized contaminants, two SVE wells will be installed in the vadose zone and screened from 20 feet below the ground surface to a depth of approximately 25 feet. The air containing VOCs extracted from the SVE wells will be treated with activated carbon, if necessary. These SVE wells are included in all of the soil remediation alternatives that use SVE. Therefore, costs will be lower than those listed in Exhibit C if this alternative is selected in conjunction with a soil remediation alternative that uses SVE.

The design and construction time periods for this alternative are six months and one year, respectively. The Feasibility Study Report estimates that the SVE system will meet unrestricted use soil cleanup objectives for VOCs within four years of startup.

Present Worth: *$279,000*
Capital Cost: *$119,000*
Annual Costs: *$41,700*

Soil Vapor Alternative 2: Soil Vapor Intrusion Monitoring

This alternative includes annual vapor intrusion monitoring to ensure that occupants of the on-site building are not exposed to vapors migrating into the building from the groundwater. Each heating season, subslab vapor, indoor air and outdoor air samples will be collected, analyzed and evaluated. Monitoring will continue until sampling results indicate no further action is needed, as determined by the Department and the NYSDOH. The Feasibility Study Report estimated that monitoring will be needed for six years, assuming Groundwater Alternative 3 (Air Sparging) is implemented.

Present Worth: *$42,900*
Capital Cost: *$4,600*
Annual Costs: *$6,840*

Soil Vapor Alternative 3: Soil Vapor Extraction

This alternative includes installing one SVE well beneath the on-site building to prevent migration of vapors into the building from groundwater. This SVE well is included in all of the soil remediation alternatives that use SVE. Therefore, costs will be lower than those listed in Exhibit C if this alternative is selected in conjunction with a soil remediation alternative that uses SVE. The cost estimate assumes that the SVE system will be running for four years.

Present Worth: *$178,000*
Capital Cost: *$65,600*
Annual Costs: *$29,300*

Exhibit C

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
1: No Action	0	0	0
Soil 2: Soil Vapor Extraction	$127,000	$23,700	$219,000
Soil 3: Soil Excavation and Disposal	$1,230,000	$0	$1,230,000
Soil 4: Implementation of Engineering and Institutional Controls	$23,000	$5,060	$125,000
Soil 5: Combined Soil Excavation and Disposal/SVE	$427,000	$20,900	$508,000
Soil 6: Combined Soil Excavation and Disposal/SVE/Capping at Former Printing Press Area	$219,000	$23,100	$344,000
Soil 7: Combined Soil Excavation and Disposal/SVE/Capping	$163,000	$23,100	$288,000
Groundwater 2: Groundwater Monitoring	3,330	$21,400	$461,000
Groundwater 3: In-Situ Treatment by Air Sparging	$119,000	$41,700	$279,000
Soil Vapor 2: Soil Vapor Intrusion Monitoring	$4,600	$6,840	$42,900
Soil Vapor 3: Soil Vapor Extraction	$65,600	$23,900	$178,000

Exhibit D

SUMMARY OF THE SELECTED REMEDY

The Department has selected a remedy comprising the following Alternatives as the remedy for this site:

- Soil Alternative 6: Combined Soil Excavation and Disposal/SVE/Capping at Former Printing Press Area
- Groundwater Alternative 3: In-Situ Treatment by Air Sparging
- Soil Vapor Alternatives 2 & 3: Soil Vapor Extraction and Soil Vapor Intrusion Monitoring

These Alternatives will achieve the remediation goals for the site by remediating contaminated soil and groundwater and protecting the building occupants from vapor intrusion. The elements of this remedy are described in Section 7. The selected remedy is depicted in Figures 7 and 8. Figure 7 shows the remedy elements for the soil and soil vapor, while Figure 8 shows the groundwater treatment system.

Basis for Selection

The selected remedy is based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

Soil Contamination
The selected remedy will satisfy this criterion by removing the VOCs in on-site soil using SVE and excavating soil contaminated with SVOCs and metals to levels that will allow for commercial use. The existing cap over the soils in the former printing press area will be maintained to prevent public health and environmental exposure. Alternative 1 (No Action) does not provide any protection to public health and the environment and will not be evaluated further. Alternative 2 (SVE) will not be protective to public health and the environment because only VOCs will be addressed; therefore, Alternative 2 will not be evaluated further. Alternatives 3 through 7 meet this threshold criteria, as all of the soil contamination will be addressed using excavation, SVE and/or capping.

Groundwater Contamination
The selected remedy will satisfy this criterion by actively treating the contaminated groundwater using AS/SVE. Alternatives 1 (No Action) and 2 (Groundwater Monitoring) do not provide any protection to public health and the environment and will not be evaluated further.

Soil Vapor Contamination
The selected remedy (soil vapor extraction and soil vapor intrusion monitoring) will satisfy this criterion by preventing vapor intrusion into the on-site building and confirming the efficacy of the remedy through soil vapor intrusion monitoring. Alternative 1 (No Action) does not provide any protection to public health and the environment and will not be evaluated further.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

Soil Contamination
Alternative 6 complies with SCGs for soil to the extent practicable. It addresses soil contamination through excavation and SVE and complies with the restricted use soil cleanup objectives at the former printing press area through maintenance of a cover system. It also creates the conditions necessary to restore groundwater quality to the extent practicable. Alternatives 4 and 7 also comply with restricted use soil cleanup objectives, but rely on maintenance of a cover system in more locations. Alternatives 3 and 5 comply with unrestricted use cleanup objectives by relying on excavation and/or SVE to remediate all of the soil contamination. Because Alternatives 3 through 7 satisfy the threshold criteria, the remaining criteria are particularly important in selecting a final remedy for the site.

Groundwater Contamination
Alternative 3 complies with SCGs for groundwater to the extent practicable. It addresses groundwater contamination by treating the groundwater using air sparge/soil vapor extraction.

Soil Vapor Contamination
Applying the NYSDOH guidance to the soil vapor data indicates that continued vapor intrusion monitoring, at a minimum, is recommended. The selected remedy exceeds this recommendation by both mitigating the potential for vapor intrusion and monitoring the progress of the remedy. As the selected remedy meets the threshold criteria and the other alternative, no action, does not meet either criterion, additional evaluation of the selected soil vapor remedy will not be conducted.

The next six "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

Soil Contamination
The selected remedy exhibits long-term effectiveness because excavation and AS/SVE will permanently remediate VOC-contaminated soil and all exterior soil contamination at the site. The selected remedy also includes maintaining the existing building and pavement as a cover for residual soil contamination, which is effective in the long-term because the building provides a long-term cover and the property owner must follow the site management plan to maintain the cover. Alternatives 3 and 5 are more effective and permanent because they rely solely on SVE and/or excavation to remediate the soil contamination. Alternatives 4 and 7 are less effective and permanent because they rely more on the cover system to address the soil contamination than the selected remedy.

Groundwater Contamination
The selected remedy exhibits long-term effectiveness and permanence because it permanently remediates the groundwater contamination.

4. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

Soil Contamination
The selected remedy will reduce toxicity, mobility and volume of wastes at the site using excavation and SVE. Maintaining the building and pavement as a cover will reduce the mobility of contaminants in that area. Alternatives 3 and 5 will reduce toxicity, mobility and volume in all areas with soil contamination, as these alternatives use excavation and/or SVE to remediate all of the contaminated soil. The selected remedy reduces toxicity and volume better than Alternatives 4 and 7 because both of these alternatives rely more on a cover system than the selected remedy.

Groundwater Contamination
The selected remedy will reduce toxicity, mobility and volume of groundwater contamination by treating the groundwater using AS/SVE.

5. Short-term Impacts and Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Soil Contamination
The selected remedy will achieve remedial objectives within five years and result in minimal short-term impacts. An air monitoring program will be implemented during the excavation work to protect the public. Maintenance of the cover currently exists and excavation will be completed during the one-year construction period. The SVE system will run approximately four years after construction is complete. Alternative 4 will meet remedial objectives upon implementation and will have no short-term impacts, as the alternative only includes maintenance of the building and pavement as a cover. Alternatives 3 and 5 will impact the on-site business, as excavation will be conducted in the on-site building. Alternative 7 has similar impacts to the selected remedy, as all of the excavation will be conducted in the exterior portion of the property. Alternative 3 meets remedial objectives within the one-year construction period, while Alternatives 5 and 7 meet remedial objectives in the same length of time as the selected remedy because they include SVE systems.

Groundwater Contamination
The selected remedy will achieve remedial objectives within five years and result in minimal short-term impacts.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

Soil Contamination
The selected remedy and Alternative 7 are favorable in that they are readily implementable. Alternatives 3 and 5 are implementable, but the excavation inside the on-site building disrupts the on-site business and requires measures to ensure the structural integrity of the building. Alternative 4 is implementable because no construction is required.

Groundwater Contamination
The selected remedy is favorable in that it is readily implementable. AS/SVE is routinely used to remediate groundwater contaminated with VOCs.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision.

Soil Contamination
The selected remedy is less expensive than Alternatives 3 and 5, but is more expensive than Alternatives 4 and 7. Alternatives 3 and 5 are more expensive than the selected remedy because they include more excavation than the selected remedy. Alternatives 4 and 7 rely more on a cover than the selected remedy, resulting in lower costs.

Groundwater Contamination
The selected remedy is the only alternative that meets the threshold criteria; hence, a cost comparison is not applicable. Other active groundwater treatment technologies were rejected in the FS Report due to high cost and/or technical effectiveness.

8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

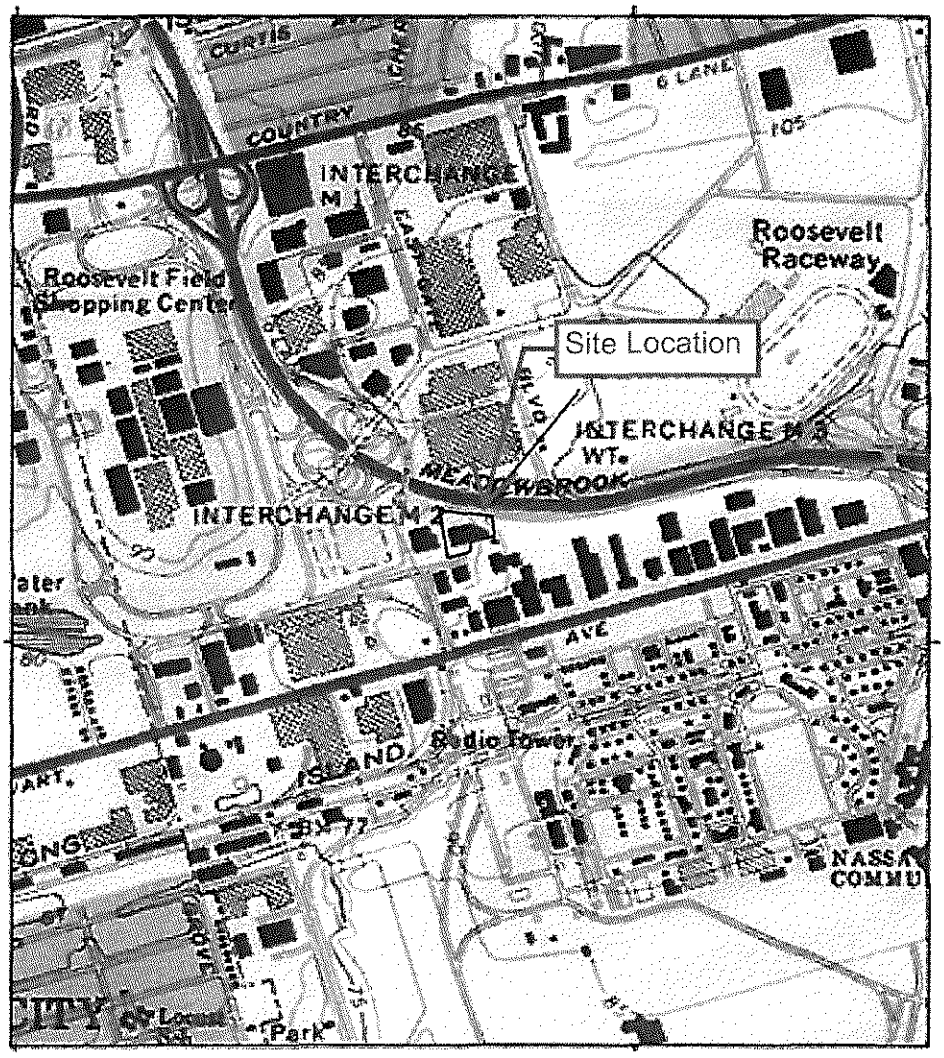
As the remedial objectives for groundwater contamination do not consider land use, only soil remediation is evaluated using this criterion.

Since the anticipated use of the site is commercial, Alternatives 3 and 5 are most desirable because they remove or treat contaminated soil permanently. The selected remedy is more desirable than Alternatives 4 and 7 because the selected remedy removes more contaminated soil than these alternatives. The residual contamination with Alternatives 4, 6, and 7 is controllable with implementation of a Site Management Plan.

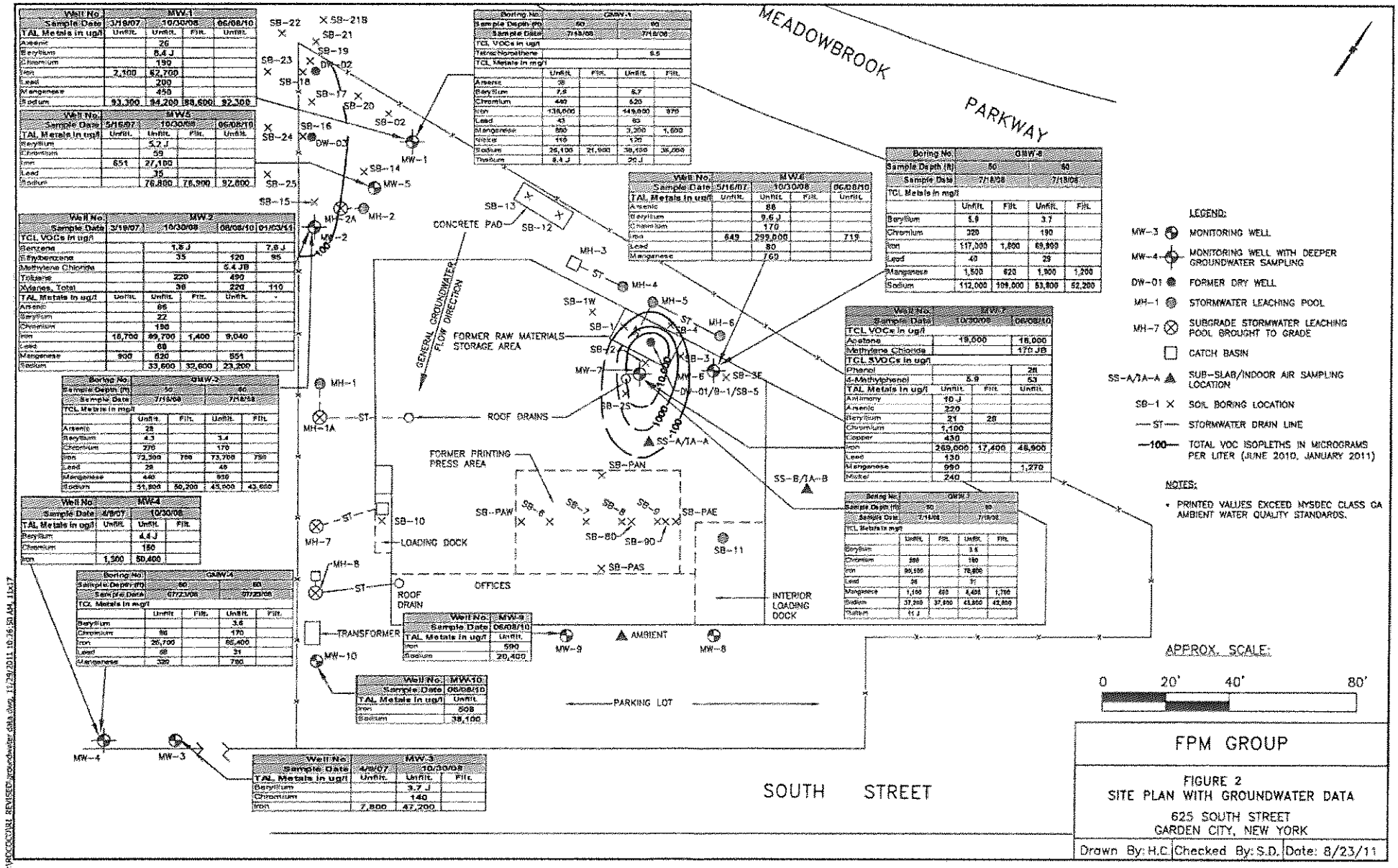
The final criterion, Community Acceptance, is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan (PRAP) have been received.

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP were evaluated. A responsiveness summary has been prepared that describes public comments received and the manner in which the Department will address the concerns raised.

The combination of Soil Alternative 6, Groundwater Alternative 3 and Soil Vapor Alternatives 2 and 3 has been selected because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.



FPM GROUP		
FIGURE 1 Site location Map AWARD PACKAGING CORP. SITE 625 SOUTH STREET GARDEN CITY, NEW YORK		
Drawn by: TAC	Checked By: SOD	Date: 10/2/07



Well No.	MW-1			
Sample Date	3/19/07	10/30/08		06/08/10
TAL Metals in ug/l	Unfilt.	Unfilt.	Filt.	Unfilt.
Arsenic		26		
Beryllium		8.4 J		
Chromium		190		
Iron	2,100	62,700		
Lead		200		
Manganese		450		
Sodium	93,300	94,200	88,600	92,300

Well No.	MW-5			
Sample Date	3/16/07	10/30/08		06/08/10
TAL Metals in ug/l	Unfilt.	Unfilt.	Filt.	Unfilt.
Beryllium		5.7 J		
Chromium		59		
Iron	651	27,100		
Lead		35		
Sodium		76,800	76,900	92,600

Well No.	MW-2				
Sample Date	3/19/07	10/30/08		06/08/10	01/03/11
TCL VOCs in ug/l					
Benzene		1.8 J		120	7.8 J
Ethylbenzene		35		490	95
Methylene Chloride				6.4 JB	
Toluene		220		490	
Xylenes, Total		38		220	110
TAL Metals in ug/l	Unfilt.	Unfilt.	Filt.	Unfilt.	
Arsenic		66			
Beryllium		22			
Chromium		190			
Iron	18,700	89,700	1,400	9,040	
Lead		68			
Manganese	900	820		851	
Sodium		33,600	32,600	23,200	

Boring No.	GMW-2			
Sample Depth (ft)	50		60	
Sample Date	7/15/08		7/15/08	
TCL Metals in mg/l				
	Unfilt.	Filt.	Unfilt.	Filt.
Arsenic	28			
Beryllium	4.3		3.4	
Chromium	270		170	
Iron	72,300	700	73,700	700
Lead	29		49	
Manganese	440		910	
Sodium	31,800	30,200	45,900	43,600

Well No.	MW-4		
Sample Date	4/9/07	10/30/08	
TAL Metals in ug/l	Unfilt.	Unfilt.	Filt.
Beryllium		4.4 J	
Chromium		150	
Iron	1,300	50,400	

Boring No.	GMW-4			
Sample Depth (ft)	50		60	
Sample Date	7/23/08		7/23/08	
TCL Metals in ug/l				
	Unfilt.	Filt.	Unfilt.	Filt.
Beryllium			3.6	
Chromium	98		170	
Iron	26,700		86,400	
Lead	68		31	
Manganese	320		780	

Well No.	MW-10
Sample Date	06/08/10
TAL Metals in ug/l	Unfilt.
Iron	508
Sodium	38,100

Well No.	MW-3		
Sample Date	4/9/07	10/30/08	
TAL Metals in ug/l	Unfilt.	Unfilt.	Filt.
Beryllium		3.7 J	
Chromium		140	
Iron	7,800	47,200	

Boring No.	GMW-1			
Sample Depth (ft)	50		60	
Sample Date	7/15/08		7/15/08	
TCL VOCs in ug/l				
Tetrachloroethene			5.5	
TCL Metals in mg/l				
	Unfilt.	Filt.	Unfilt.	Filt.
Arsenic	28			
Beryllium	7.8		8.7	
Chromium	440		520	
Iron	138,000		149,000	970
Lead	43		65	
Manganese	860		3,300	1,600
Nickel	110		120	
Sodium	26,100	21,000	38,100	36,000
Thallium	8.4 J		26 J	

Well No.	MW-6			
Sample Date	5/16/07	10/30/08		06/08/10
TAL Metals in ug/l	Unfilt.	Unfilt.	Filt.	Unfilt.
Arsenic		88		
Beryllium		9.6 J		
Chromium		170		
Iron	649	299,000		719
Lead		80		
Manganese		760		

Boring No.	GMW-6			
Sample Depth (ft)	50		60	
Sample Date	7/18/08		7/18/08	
TCL Metals in mg/l				
	Unfilt.	Filt.	Unfilt.	Filt.
Beryllium	5.9		3.7	
Chromium	320		190	
Iron	117,000	1,800	69,900	
Lead	40		29	
Manganese	1,500	620	1,900	1,200
Sodium	112,000	109,000	53,800	52,200

Well No.	MW-7		
Sample Date	10/30/08		06/08/10
TCL VOCs in ug/l			
Acetone	18,000		16,000
Methylene Chloride			170 JB
TCL SVOCs in ug/l			
Phenol			28
4-Methylphenol	5.9		53
TAL Metals in ug/l	Unfilt.	Filt.	Unfilt.
Antimony	10 J		
Arsenic	220		
Beryllium	21	28	
Chromium	1,100		
Copper	430		
Iron	269,000	17,400	48,900
Lead	130		
Manganese	950		1,270
Nickel	240		

Boring No.	GMW-3			
Sample Depth (ft)	50		60	
Sample Date	7/16/08		7/16/08	
TCL Metals in ug/l				
	Unfilt.	Filt.	Unfilt.	Filt.
Beryllium			3.6	
Chromium	280		180	
Iron	99,100		78,800	
Lead	36		31	
Manganese	1,100	620	1,400	1,100
Sodium	37,200	37,900	43,800	42,800
Nickel	41 J			

Well No.	MW-9
Sample Date	06/08/10
TAL Metals in ug/l	Unfilt.
Iron	590
Sodium	20,400

Boring No.	GMW-5			
Sample Depth (ft)	50		60	
Sample Date	7/17/08		7/17/08	
TCL Metals in mg/l				
	Unfilt.	Filt.	Unfilt.	Filt.
Beryllium	5.9		3.7	
Chromium	320		190	
Iron	117,000	1,800	69,900	
Lead	40		29	
Manganese	1,500	620	1,900	1,200
Sodium	112,000	109,000	53,800	52,200

Well No.	MW-8			
Sample Date	10/30/08		06/08/10	
TCL VOCs in ug/l				
Acetone	18,000		16,000	
Methylene Chloride			170 JB	
TCL SVOCs in ug/l				
Phenol			28	
4-Methylphenol	5.9		53	
TAL Metals in ug/l	Unfilt.	Filt.	Unfilt.	
Antimony	10 J			
Arsenic	220			
Beryllium	21	28		
Chromium	1,100			
Copper	430			
Iron	269,000	17,400	48,900	
Lead	130			
Manganese	950		1,270	
Nickel	240			

NOTES:

- PRINTED VALUES EXCEED NYSDEC CLASS GA AMBIENT WATER QUALITY STANDARDS.

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FIGURE 2
SITE PLAN WITH GROUNDWATER DATA
625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C. | Checked By: S.D. | Date: 8/23/11

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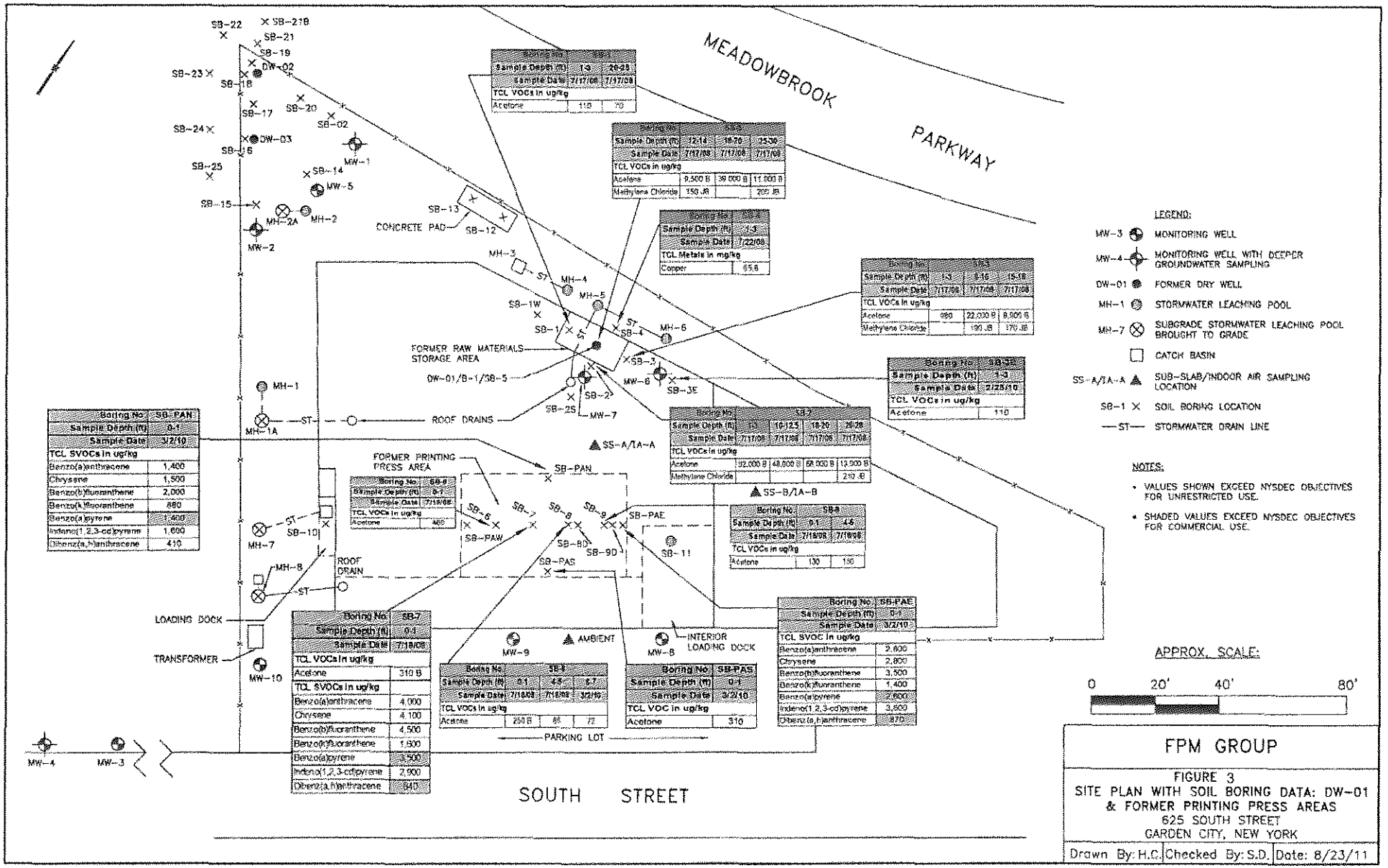

Boring No.	SB-PAN
Sample Depth (ft)	0-1
Sample Date	3/2/10
TCL SVOCs in ug/kg	
Benzo(a)anthracene	1,400
Chrysene	1,500
Benzo(b)fluoranthene	2,000
Benzo(k)fluoranthene	880
Benzo(a)pyrene	1,400
Indeno(1,2,3-cd)pyrene	1,600
Dibenz(a,h)anthracene	410

Boring No.	SB-7		
Sample Depth (ft)	0-1		
Sample Date	7/18/08		
TCL VOCs in ug/kg			
Acetone	310 B		
TCL SVOCs in ug/kg			
Benzo(a)anthracene	4,000		
Chrysene	4,100		
Benzo(b)fluoranthene	4,500		
Benzo(k)fluoranthene	1,500		
Benzo(a)pyrene	3,500		
Indeno(1,2,3-cd)pyrene	2,900		
Dibenz(a,h)anthracene	840		

Boring No.	SB-9		
Sample Depth (ft)	0-1	4-5	6-7
Sample Date	7/18/08	7/18/08	3/2/10
TCL VOCs in ug/kg			
Acetone	250 B	66	72

Boring No.	SB-PAS
Sample Depth (ft)	0-1
Sample Date	3/2/10
TCL VOC in ug/kg	
Acetone	310

Boring No.	SB-PAE
Sample Depth (ft)	0-1
Sample Date	3/2/10
TCL SVOC in ug/kg	
Benzo(a)anthracene	2,800
Chrysene	2,800
Benzo(b)fluoranthene	3,500
Benzo(k)fluoranthene	1,400
Benzo(a)pyrene	2,600
Indeno(1,2,3-cd)pyrene	3,500
Dibenz(a,h)anthracene	870

Boring No.	SB-9	
Sample Depth (ft)	0-1	4-5
Sample Date	7/18/08	7/18/08
TCL VOCs in ug/kg		
Acetone	130	150

Boring No.	SB-3			
Sample Depth (ft)	0-1	10-12.5	18-20	26-28
Sample Date	7/17/08	7/17/08	7/17/08	7/17/08
TCL VOCs in ug/kg				
Acetone	92,000 B	48,000 B	68,000 B	13,000 B
Methylene Chloride				210 JB

Boring No.	SB-3E
Sample Depth (ft)	1-3
Sample Date	2/25/10
TCL VOCs in ug/kg	
Acetone	110

Boring No.	SB-3		
Sample Depth (ft)	1-3	9-10	15-16
Sample Date	7/17/08	7/17/08	7/17/08
TCL VOCs in ug/kg			
Acetone	980	22,000 B	8,900 B
Methylene Chloride		190 JB	170 JB

Boring No.	SB-2		
Sample Depth (ft)	12-14	18-20	25-26
Sample Date	7/17/08	7/17/08	7/17/08
TCL VOCs in ug/kg			
Acetone	9,500 B	39,000 B	11,000 B
Methylene Chloride	150 JB		200 JB

Boring No.	SB-1	
Sample Depth (ft)	1-3	20-23
Sample Date	7/17/08	7/17/08
TCL VOCs in ug/kg		
Acetone	110	72

Boring No.	SB-1
Sample Depth (ft)	1-3
Sample Date	7/22/08
TCL Metals in mg/kg	
Copper	65.6

Boring No.	SB-8
Sample Depth (ft)	0-1
Sample Date	7/18/08
TCL VOCs in ug/kg	
Acetone	460

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FIGURE 3
SITE PLAN WITH SOIL BORING DATA: DW-01 & FORMER PRINTING PRESS AREAS
625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C. Checked By: S.D. Date: 8/23/11

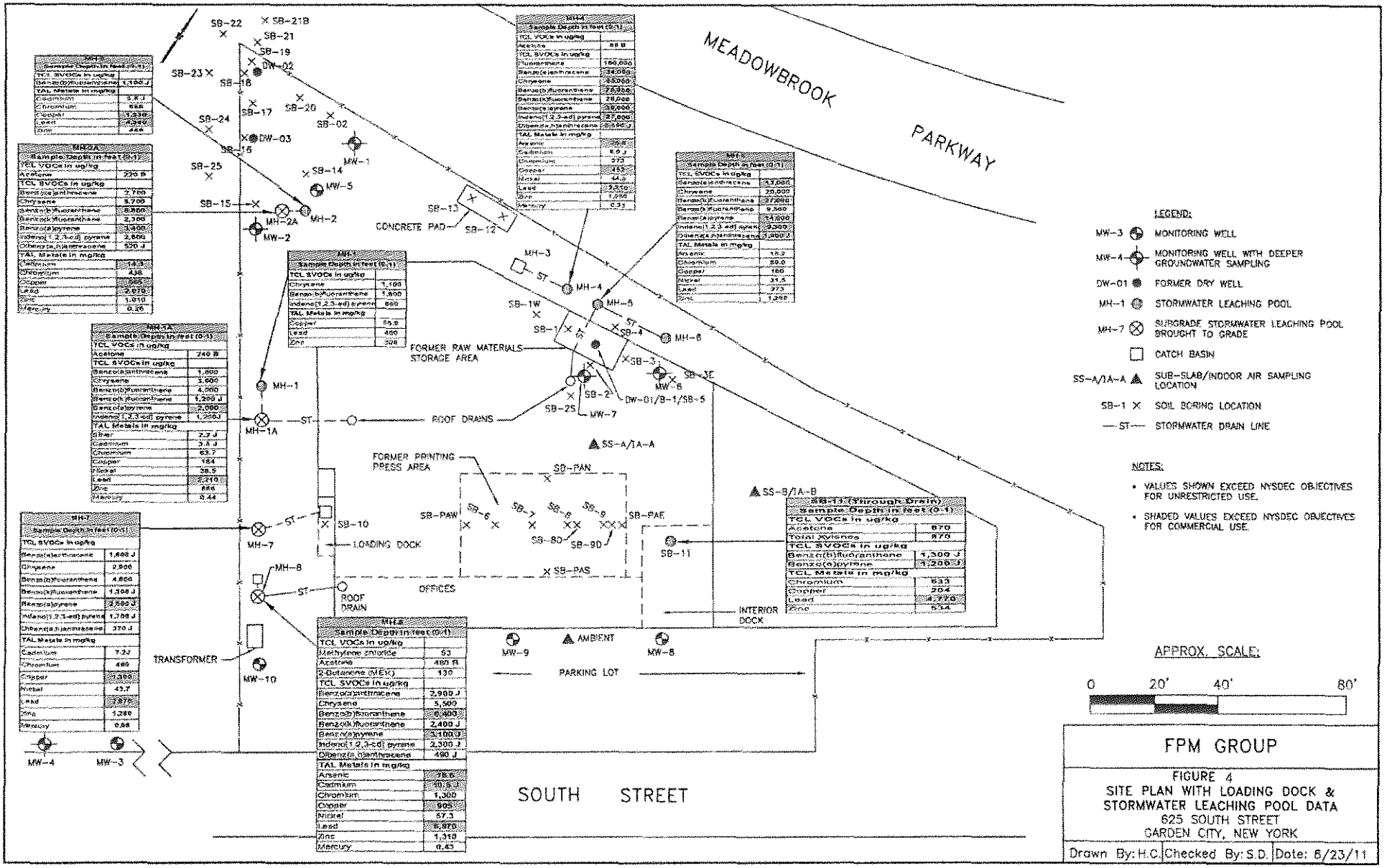

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FIGURE 4
SITE PLAN WITH LOADING DOCK & STORMWATER LEACHING POOL DATA
625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C. | Checked By: S.D. | Date: 6/23/11

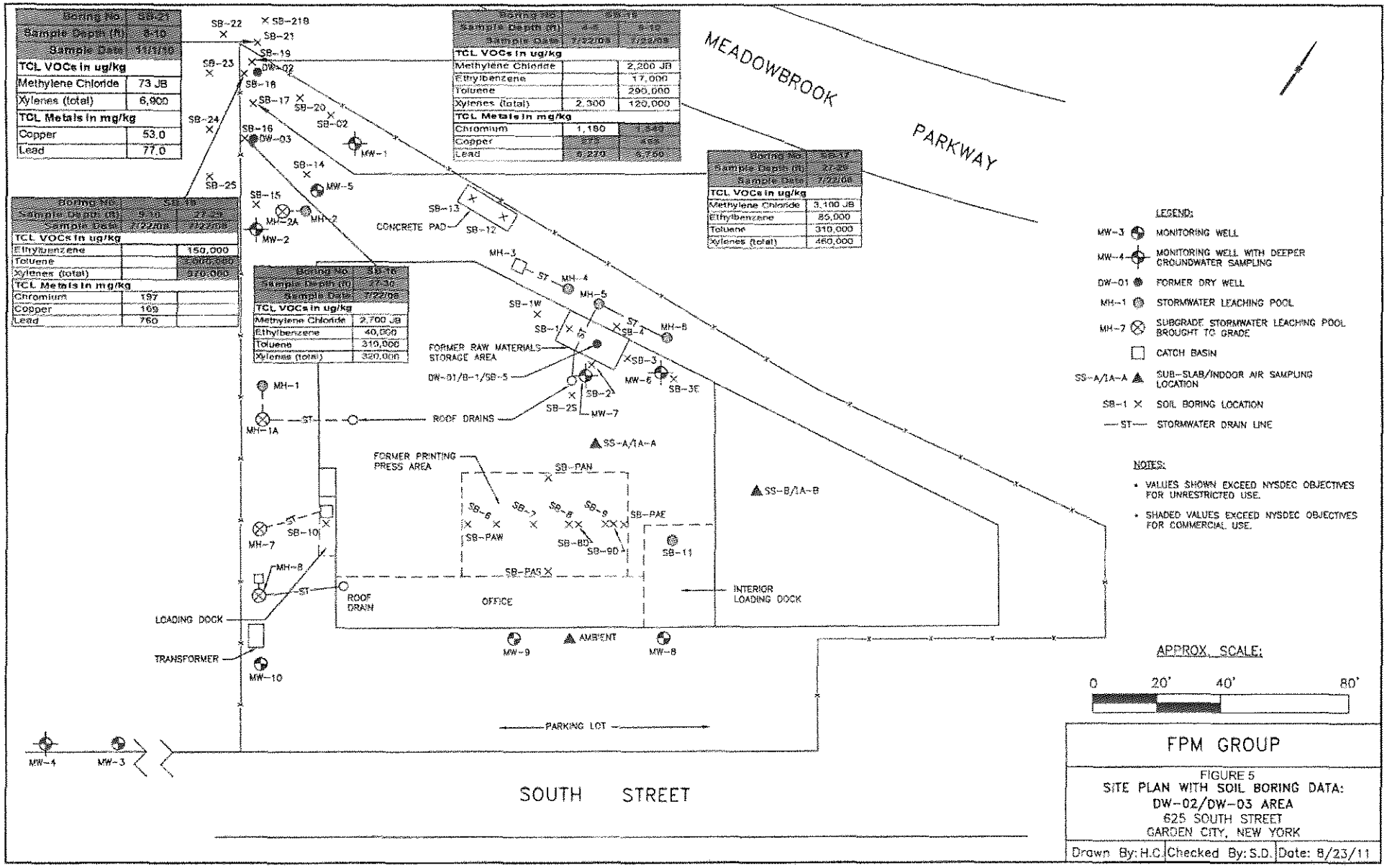

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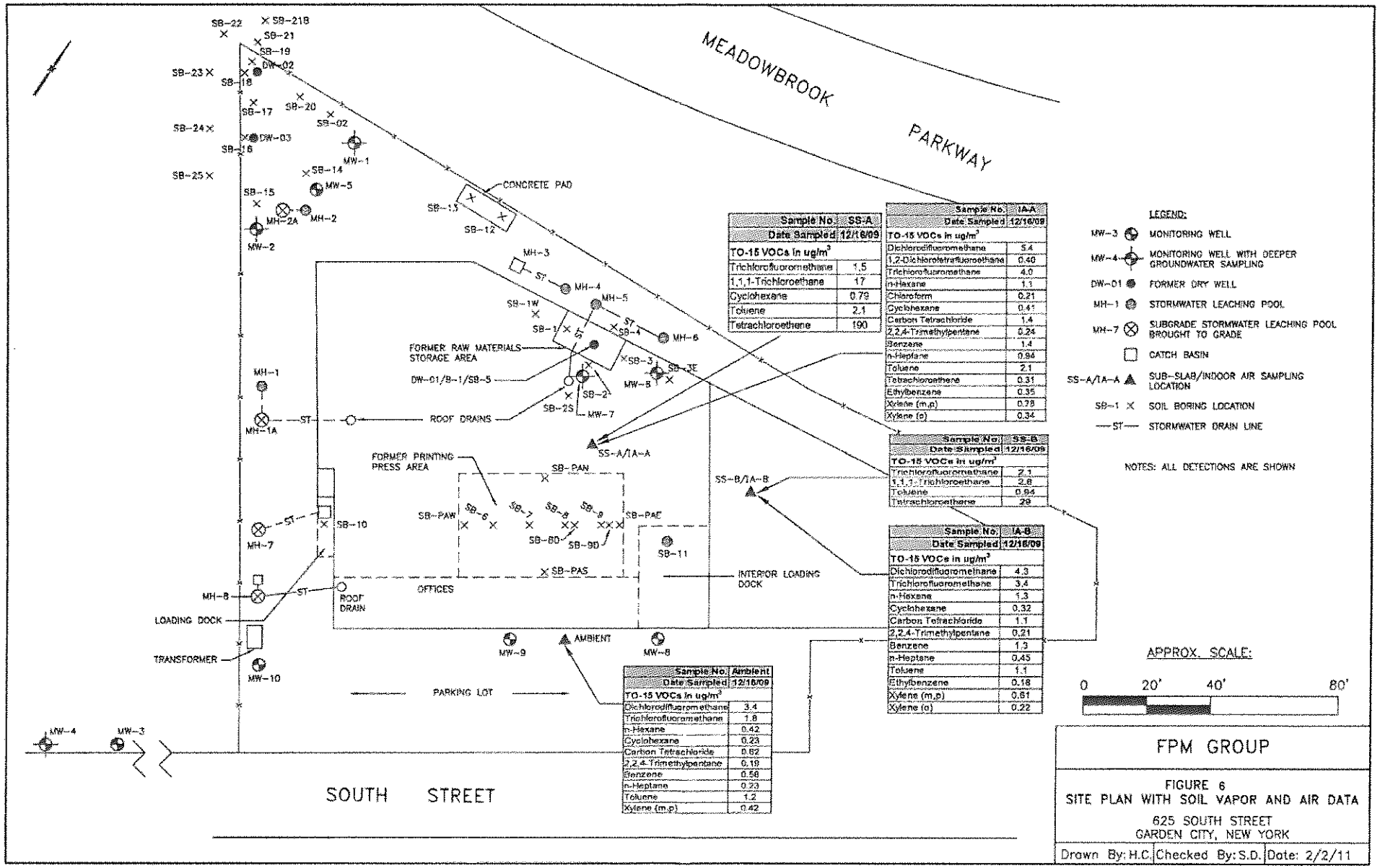
FIGURE 5
SITE PLAN WITH SOIL BORING DATA:
DW-02/DW-03 AREA
625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C. | Checked By: S.D. | Date: 8/23/11



Sample No.	SS-A
Date Sampled	12/16/09
TO-15 VOCs in ug/m³	
Trichlorofluoromethane	1.5
1,1,1-Trichloroethane	17
Cyclohexane	0.79
Toluene	2.1
Tetrachloroethene	190

Sample No.	1A-A
Date Sampled	12/16/09
TO-15 VOCs in ug/m³	
Dichlorodifluoromethane	3.4
1,2-Dichlorotetrafluoroethane	0.40
Trichlorofluoromethane	4.0
n-Hexane	1.1
Chloroform	0.21
Cyclohexane	0.41
Carbon Tetrachloride	1.4
2,2,4-Trimethylpentane	0.24
Benzene	1.4
n-Heptane	0.96
Toluene	2.1
Tetrachloroethene	0.31
Ethylbenzene	0.35
Xylene (m,p)	0.78
Xylene (o)	0.34

Sample No.	SS-B
Date Sampled	12/16/09
TO-15 VOCs in ug/m³	
Trichlorofluoromethane	2.1
1,1,1-Trichloroethane	2.6
Toluene	0.94
Tetrachloroethene	29

Sample No.	1A-B
Date Sampled	12/16/09
TO-15 VOCs in ug/m³	
Dichlorodifluoromethane	4.3
Trichlorofluoromethane	3.4
n-Hexane	1.3
Cyclohexane	0.32
Carbon Tetrachloride	1.1
2,2,4-Trimethylpentane	0.21
Benzene	1.3
n-Heptane	0.45
Toluene	1.1
Ethylbenzene	0.18
Xylene (m,p)	0.61
Xylene (o)	0.22

Sample No.	Ambient
Date Sampled	12/16/09
TO-15 VOCs in ug/m³	
Dichlorodifluoromethane	3.4
Trichlorofluoromethane	1.8
n-Hexane	0.42
Cyclohexane	0.23
Carbon Tetrachloride	0.62
2,2,4-Trimethylpentane	0.19
Benzene	0.56
n-Heptane	0.23
Toluene	1.2
Xylene (m,p)	0.42

LEGEND:

- MW-3 — MONITORING WELL
- MW-4 — MONITORING WELL WITH DEEPER GROUNDWATER SAMPLING
- DW-01 — FORMER DRY WELL
- MH-1 — STORMWATER LEACHING POOL
- MH-7 — SUBGRADE STORMWATER LEACHING POOL BROUGHT TO GRADE
- CATCH BASIN
- SS-A/1A-A — SUB-SLAB/INDOOR AIR SAMPLING LOCATION
- SB-1 — SOIL BORING LOCATION
- ST — STORMWATER DRAIN LINE

NOTES: ALL DETECTIONS ARE SHOWN

APPROX. SCALE:

0 20' 40' 80'

FPM GROUP

FIGURE 6
SITE PLAN WITH SOIL VAPOR AND AIR DATA
625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C. | Checked By: S.D. | Date: 2/2/11

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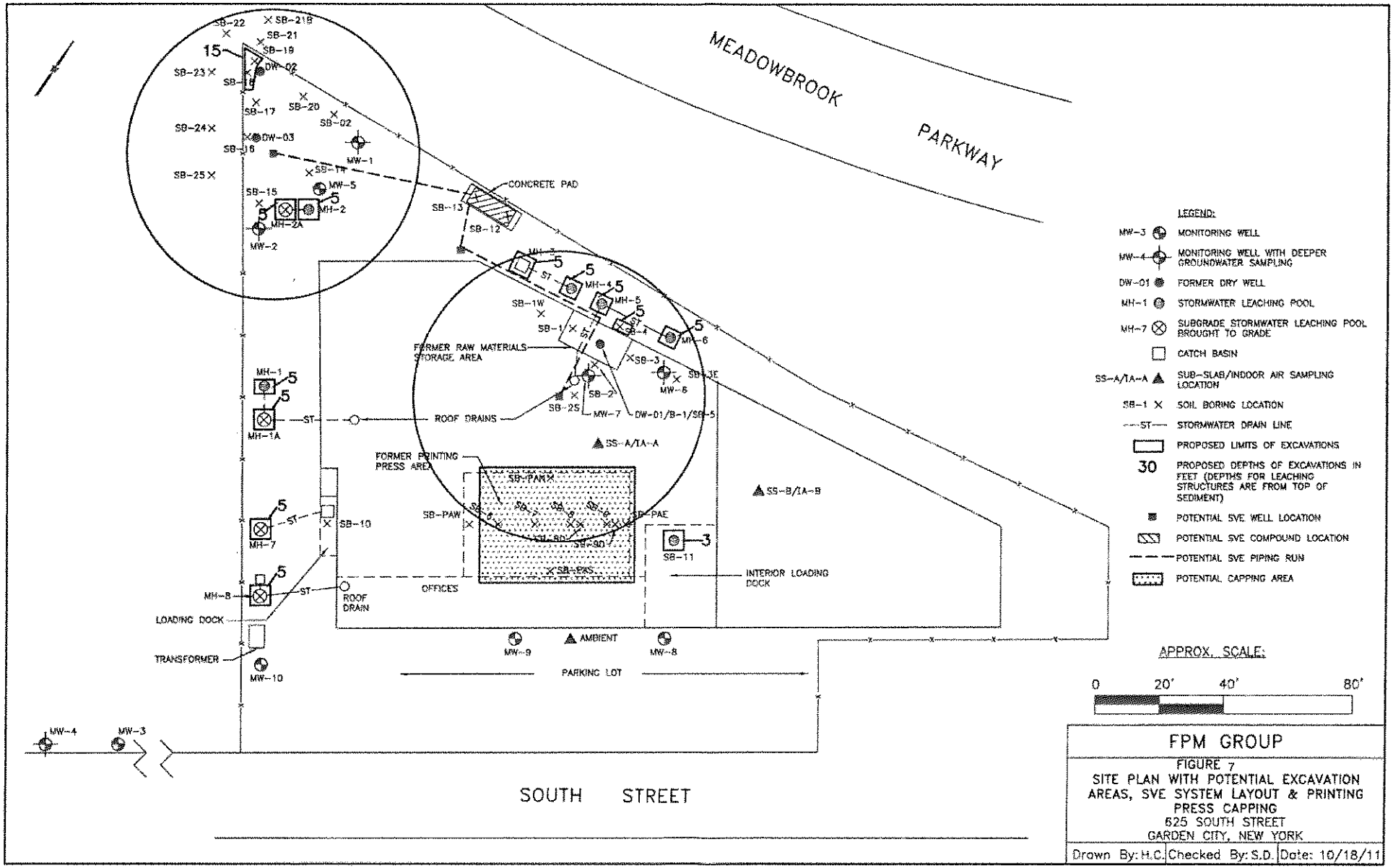
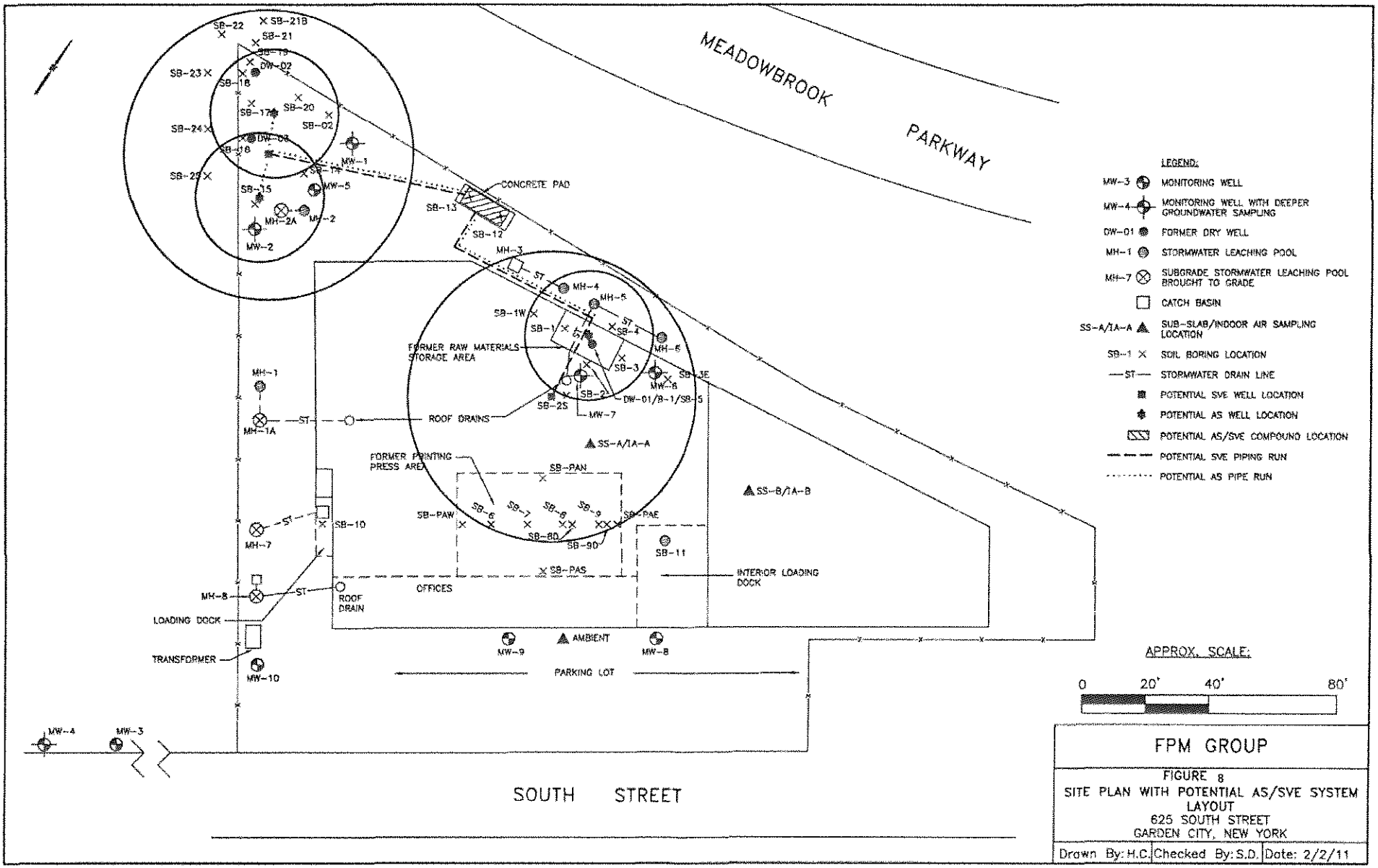


FPM GROUP

FIGURE 7
SITE PLAN WITH POTENTIAL EXCAVATION AREAS, SVE SYSTEM LAYOUT & PRINTING PRESS CAPPING
625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C. | Checked By: S.D. | Date: 10/18/11



FPM GROUP

FIGURE 8
SITE PLAN WITH POTENTIAL AS/SVE SYSTEM LAYOUT
625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C. | Checked By: S.D. | Date: 2/2/11

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APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Award Packaging Corp.
State Superfund Project
Garden City, Nassau County, New York
Site No. 130155

The Proposed Remedial Action Plan (PRAP) for the Award Packaging Corp. site was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 10, 2012. The PRAP outlined the remedial measure proposed for the contaminated soil, groundwater, and soil vapor at the Award Packaging Corp. site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on February 22, 2012, which included a presentation of the remedial investigation/feasibility study (RI/FS) for the Award Packaging Corp. site, as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on March 12, 2012.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following was the only comment received, with the Department's response:

COMMENT 1: How was it determined what the required radii of influence for the treatment wells will be?

RESPONSE 1: The required radii of influence for the treatment wells was based on the extent of the volatile organic compound (VOC) contamination in the soil, groundwater and soil vapor. The remediation systems will be designed to clean up the VOC contamination in the soil, groundwater and soil vapor, and prevent soil vapor intrusion into the on-site building.

APPENDIX B

Administrative Record

Administrative Record

Award Packaging Corp.
State Superfund Project
Garden City, Nassau County, New York
Site No. 130155

Proposed Remedial Action Plan for the Award Packaging Corp. site, dated February 2012, prepared by the Department.

Order on Consent, Index No. A1-0557-0706, between the Department and Rococo Associates, Inc., executed on July 30, 2007.

"Remedial Investigation/Feasibility Study Work Plan for Award Packaging Corp. Site", May 2008, prepared by FPM Group.

"Revised Remedial Investigation Delineation Work Plan", January 7, 2010, prepared by FPM Group.

"Remedial Investigation/Feasibility Study Report for Award Packaging Corp. Site", December 2011, prepared by FPM Group.

APPENDIX B

HEALTH AND SAFETY PLAN, INCLUDING THE COMMUNITY AIR MONITORING PLAN

APPENDIX B
HEALTH AND SAFETY PLAN

This worker Health and Safety Plan (HASP) has been prepared by FPM Group (FPM) for New York State Department of Environmental Conservation (NYSDEC) Inactive Hazardous Waste Disposal Site #130155, identified as the Award Packaging Corp. Site located at 625 South Street, Garden City, New York (Site). This HASP is part of the Remedial Design/Remedial Action (RD/RA) Work Plan for remediation of areas of concern at the Site and includes measures for the protection of worker health and safety during excavations, well installation, sampling activities, and construction of remedial measures. A Community Air Monitoring Plan (CAMP) is also included to address potential air emission issues that may affect the Site community.

B.1 Worker Health and Safety Plan

B.1.1 Introduction

This HASP has been written for compliance with "OSHA Hazardous Waste Operations Standards (29 CFR 1910.120)", the guidance documents, "Standard Operating Safety Guidelines (Office of Solid Waste and Emergency Response, 1992)" and the "Occupational Safety and Health Guidance Manual for Hazardous Waste Activities" (U.S. Department of Health and Human Services, 1985).

B.1.2 Scope and Applicability of the HASP

This HASP is designed to be applicable to locations where excavation, well installation, sampling, and remedial measures construction are performed at the Site by all parties that either perform or witness the activities on Site. This HASP may also be modified or amended to meet specific needs of the proposed work.

This HASP will detail the Site safety procedures, Site background, and safety monitoring. Contractors will be required to adopt this HASP in full or to follow an FPM-approved HASP. The Health and Safety Officer (HSO) will be present at the Site to inspect the implementation of the HASP; however, it is the sole responsibility of the contractor(s) to comply with the HASP.

The HASP has been formulated as a guide to complement professional judgment and experience. The appropriateness of the information presented should always be evaluated with respect to unforeseen Site conditions which may arise.

B.1.3 Site Work Zone and Visitors

The Site work zone (a.k.a. exclusion zone) during the performance of the excavation, well installation, sampling, and remedial construction activities will be a 30-foot radius about the work location. This work zone may be extended if, in the judgment of the HSO, Site conditions warrant a larger work zone.

No visitors will be permitted within the work zone without the consent of the HSO. All visitors will be required to be familiar with, and comply with, the HASP. The HSO will deny access to those whose presence within the work zone is unnecessary or those who are deemed by the HSO to be in non-compliance with the HASP.

All Site workers, including the contractors, will be required to have 40-hour hazardous material training (eight-hour refresher courses annually), respirator fit test certification, and current medical surveillance as stated in 29 CFR 1910.120.

The HSO will also give an on-Site health and safety discussion to all Site personnel, including the contractors, prior to initiating the Site work. Workers not in attendance during the health and safety talk will be required to have the discussion with the HSO prior to entering the work zone.

Emergency telephone numbers and directions to the nearest hospital are shown in Table B.1.3.1 and will be kept at the Site in the possession of the HSO and will be available to all Site workers and visitors.

B.1.4 Key Personnel/Alternates

The project coordinator and Quality Assurance Officer (QAO) for this project is Stephanie Davis. The project manager will be Ben Cancemi. Mr. Cancemi will also act as the HSO. An assistant project manager and assistant health and safety officer may be designated for the field activities.

B.1.5 Site Background

Based on the Site history and previous analyses of samples, the known chemicals present at the Site include metals, VOCs and SVOCs. These chemicals are present in soil, groundwater, leaching pool sediment, and/or soil vapor at the Site. Remedial measures will include excavation and disposal of impacted soil and construction and implementation of an air sparge/soil vapor extraction system. These remedial measures will include excavation, well installation, trenching, construction, and sampling activities.

B.1.6 Task/Operation Health and Safety Analysis

This section presents health and safety analyses for the excavation, well installation, sampling, and remedial construction tasks. In general, FPM will employ one to two persons at the Site. No excavation, well installation or other Site operations will be conducted by contractors without the presence of an FPM representative on Site. In the event that the HSO is not present on the Site, the Assistant HSO will implement the HASP. Levels of personal protection mentioned in this section are defined in Section B.1.9.

- Excavation

Excavation, stockpiling, loading, and other activities associated with the removal of impacted soil will be performed by a remedial excavation contractor with oversight by FPM. Excavation will involve the use of heavy equipment. Safety concerns will include risk of injury due to being struck by equipment, being trapped between moving equipment parts, being struck by dropped materials, and hearing damage due to equipment noise. All site personnel will take precautions against these risks when working in the vicinity of heavy equipment by being aware of equipment locations and movement, by wearing steel-toed boots and hard hats, and by using hearing protection, if necessary. Site personnel who have not previously worked in the vicinity of heavy equipment will be paired with and experienced person for at least one day to familiarize themselves with heavy equipment operations and safety procedures. All mobile equipment will be equipped with audible alarms to indicate when the equipment is being operated in reverse. Excavation procedures will result in open excavations at the Site. To minimize risks associated with open excavations, an effort will be made to minimize the number of open

TABLE B.1.3.1
EMERGENCY TELEPHONE NUMBERS AND
DIRECTIONS TO NASSAU UNIVERSITY MEDICAL CENTER

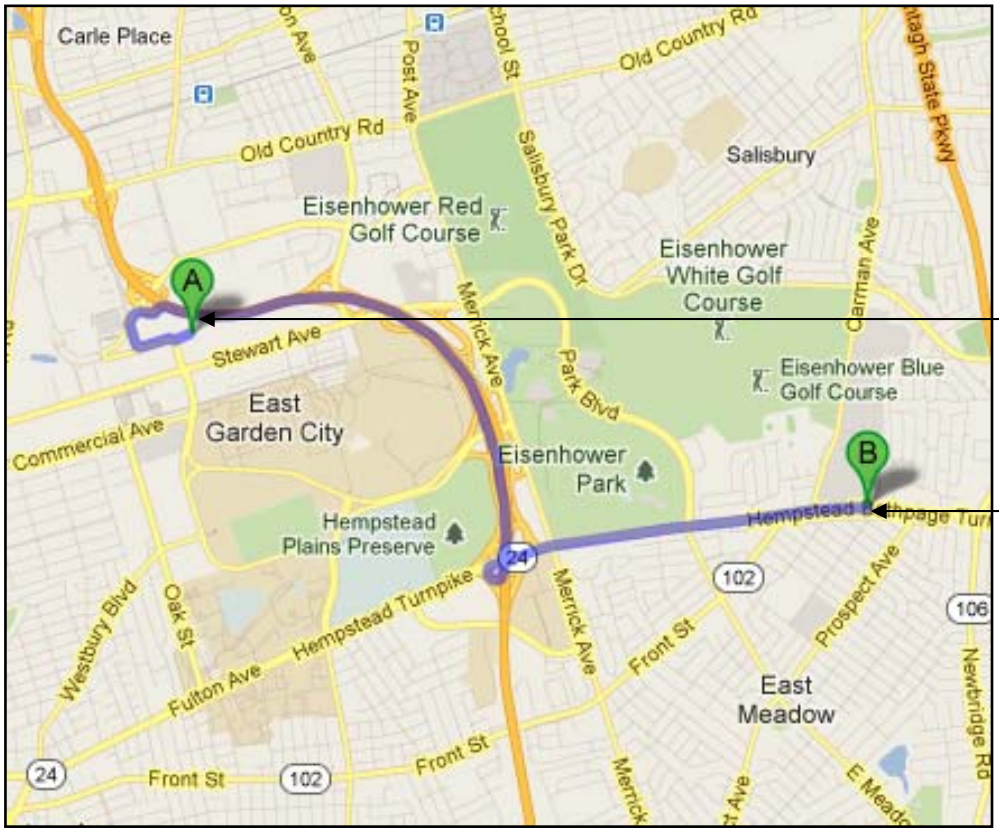
Police 911
Ambulance 911
Poison Control Center 212-689-9014
Nassau University Medical Center (Emergency Room)..... 516-296-2100

FPM Contact Personnel (631-737-6200)

Dr. Kevin J. Phillips, P.E. ..... Cell # 631-374-6066
Stephanie Davis, Project Manager ..... Cell # 516-381-3400
Ben Cancemi ..... Cell # 516-383-7106

Directions to Nassau University Medical Center

Exit the Site and turn right onto South Street. Take the first right onto Ring Road East and continue one block to Zeckendorf Boulevard and turn right. Take an immediate right to merge onto the Meadowbrook State Parkway South. Go approximately two and one-quarter miles south on the Meadowbrook Parkway and take exit M5 to merge onto NY-24E/ Hempstead Turnpike East. Go approximately one and three-quarter miles east on Hempstead Turnpike and turn left on Franklin Avenue. The Nassau University Medical Center is on the left (northwest corner) at the intersection of Hempstead Turnpike and Franklin Avenue. Follow the signs to the Emergency Room.



SITE
625 South Street,
Garden City

Nassau University
Medical Center
2201 Hempstead
Turnpike, East
Meadow

FPM

excavations. Any inactive excavations will be either closed or barricaded with construction fencing or other devices so as to minimize hazards. At the close of each working day, any excavations that are not closed will be secured. Excavations will not be left open during weekends or following the completion of remediation.

Excavation activities may result in exposure to subsurface soil vapors. During these activities, a Photovac MicroTIP Photoionization Detector (PID) with a 10.6 ev bulb will be used by the HSO to screen vapors in the work zone. The PID will be "zeroed" by exposing the PID to ambient air prior to excavation activities and the upper range will be calibrated using 100 parts per million (ppm) isobutylene. Background concentrations will then be established in the work zone prior to the commencement of excavation activities and recorded in the HSO field book. Level C personal protective equipment will be donned if steady-state concentrations exceed five ppm above background. Steady-state readings, for this purpose, will be defined as readings exceeding five ppm above background for a minimum of ten seconds. Level C personal protection may include full-face air-purifying respirators with dust and organic vapor cartridges (personal protective equipment is described in greater detail in Section B.1.9). All FPM and contractor personnel must be properly trained and fit-tested prior to donning respirators. If, at any time, PID readings exceed steady-state levels greater than 50 ppm above background or any conditions exist which the HSO determines will require Level B personal protective equipment, all work at the Site will cease immediately and all personnel will evacuate the work zone. Evacuation will occur in the upwind direction if discernable. Level B conditions are not anticipated to be encountered; however, if Level B conditions arise, no Site work will be performed by environmental professionals or contractors. A complete re-evaluation of the operation will be performed and this worker HASP will be modified.

To minimize the potential for dust inhalation at the Site, the HSO will assess wind, vegetation, and soil moisture conditions and, if deemed necessary by the HSO, the affected area(s) will be wetted with potable water to suppress dust. If this measure is determined to be ineffective, the HSO may decide to upgrade personal protection to Level C respiratory protection to include respirators with dust cartridges. If extremely windy and dusty conditions exist, the HSO may choose to implement additional dust suppression measures or to postpone the excavation until such time as conditions improve.

All site personnel will be required to wear chemical-resistant nitrile gloves when the potential for dermal contact with Site soil and/or groundwater is possible. Dermal contact with soil, groundwater, and equipment that has been in contact with soil or groundwater will be avoided. Gloves will be periodically examined and will be discarded and replaced if indications of wear or deterioration are noted.

All excavations will be inspected and documented daily by the HSO prior to the commencement of work activities. Evidence of cave-ins, sloughing, or surface cracks of excavations will result in the cessation of work until the necessary corrective measures/precautions are undertaken to protect workers.

Although minimal risks are associated with shallow open excavations, the work area will be secured with fencing and other devices to limit access. Any excavations that exceed five feet in depth will be additionally barricaded with construction fencing or other devices at the close of each working day so as to minimize their hazards. There will be no personnel entry into excavations exceeding five feet in depth unless the excavation is properly shored or the sides are laid back to a slope of not more than 1 on 1. A stairway, ladder, ramp, or other safe means of egress will be located in excavations that are four feet or more in depth so as to require no more than 25 feet of lateral travel for workers. Workers will not work in excavations with accumulated water.

Materials or equipment that could affect the stability of excavations or fall into excavations shall be placed at least five feet from the edges of open excavations.

- Well Installation Safety Analysis

Well installation will be performed by a drilling/direct-push company. The wells will be advanced into unconsolidated glacial deposits consisting primarily of sand. The depth to groundwater is approximately 30 feet below grade at the Site. FPM personnel will be present to observe the well installation activities.

To minimize the potential for dust inhalation during well installation, the HSO will assess wind, vegetation, and soil moisture conditions and, if it is deemed necessary by the HSO, the affected area will be wetted with potable water. If this measure is determined to be ineffective, the HSO may decide to upgrade personal protection to Level C respiratory protection to include respirators with dust cartridges. If extremely windy and dusty conditions exist that cannot be successfully controlled by dust suppression with potable water, then the HSO may choose to postpone the well installation until such time as conditions improve.

Organic vapor concentrations will be monitored in the work zone by utilizing a Photovac MicroTIP PID. The PID will be "zeroed" by exposing the PID to ambient air prior to drilling and the upper range of calibration will be established by calibrating at 98 to 100 parts per million (ppm) of isobutylene. Background organic vapor concentrations will then be established in the work zone prior to well installation and recorded in the HSO field book. Upon commencement of well installation, PID readings will be obtained in the workers' breathing zone. Readings will be obtained following the initial auger/rod advance into the ground and every five feet thereafter. At the discretion of the HSO, PID readings may be obtained more frequently. All readings and observations will be recorded in the HSO field book. PID air monitoring will be conducted by FPM personnel. Steady-state PID readings greater than five ppm in the worker's breathing zone will require upgrading to Level C personal protective equipment. Steady-state readings, for this purpose, will be defined as readings exceeding five ppm above background for a minimum of ten seconds at points approximately one foot above and then around the borehole opening. These points will define the worker's breathing zone. Level C personal protection will be implemented including full-face air-purifying respirators with dust and organic vapor cartridges (personal protective equipment will be described in greater detail in Section B.1.9). All FPM personnel and contractors must be properly trained and fit tested prior to donning respirators.

If PID readings exceed steady-state levels greater than 50 ppm above background or any conditions exist for which the HSO determines require Level B personal protective equipment, all work at the Site will cease immediately and all personnel will evacuate the work zone. Evacuation will occur in the upwind direction if discernable. Specific evacuation routes will be discussed prior to commencement of work at each location based on work location and wind direction and an evacuation meeting place will be determined. Wind-direction telltales will be placed in the work zone to monitor wind direction. Level B conditions are not anticipated to be encountered; however, if level B conditions arise, no Site work will be performed by FPM or contractors and a complete evaluation of the operation will be performed and this HASP will be modified.

All well installation personnel will be required to wear chemical-resistant nitrile gloves when the potential for dermal contact with the soil or groundwater is possible. This will include handling rods retrieved from the borehole. Dermal contact with soil and groundwater and equipment that has been in contact with soil and groundwater will be avoided.

- Water Level Measurement and Sampling Safety Analysis

Water level measurements and sampling activities will be performed by FPM personnel. In general, FPM will employ one to two persons at the Site. No water level measurements or sampling activities are anticipated to be performed by contractors.

Organic vapor concentrations will be monitored in the work zone during soil sampling by utilizing a PID. The PID will be "zeroed" by exposing the PID to ambient air prior to sampling and the upper range will be calibrated using 98 to 100 ppm isobutylene. Background concentrations will then be established in the work zone prior to initiating work and recorded in the HSO field book. Upon initiating work, PID readings will be obtained from the vicinity of the sampling areas. At the discretion of the HSO, PID readings may be obtained more frequently. All readings and observations will be recorded in the HSO field book. PID air monitoring will be conducted by FPM personnel.

Steady-state PID readings greater than five ppm in the worker's breathing zone will require upgrading to Level C personal protective equipment, as described above. Upon encountering PID levels greater than 50 ppm above background in the worker's breathing zone, all personnel will be excavated from the work zone in the upwind direction. Specific evacuation routes will be discussed prior to commencement of work at each location based on work location and wind direction, as discussed above. Level B conditions are not anticipated to be encountered; however, if Level B conditions arise, no Site work will be performed by FPM or contractors and a complete evaluation of the operation will be performed and this HASP will be modified.

All personnel will be required to wear chemical-resistant gloves (such as butyl or nitrile) when the potential for dermal contact with soil or groundwater is possible. This will include cleaning and handling of retrieved sampling equipment, water level indicators, bailers, and/or rope from the boreholes or wells. Dermal contact with soil or groundwater and equipment that has been in contact with soil or groundwater will be avoided. For handling sample containers, thin nitrile gloves may be used if dexterity is required. In addition, eye protection will be worn by samplers during periods when the potential for splashing of groundwater is present (such as during well purging).

- Remedial Measures Construction Safety Analysis

Remediation construction activities will occur during the installation of the AS/SVE system and will generally be performed by contractors. FPM personnel are not anticipated to install remediation equipment. Remediation construction may involve the use of heavy equipment. Safety concerns will include risk of injury due to being struck by equipment, being trapped between moving equipment parts, being struck by dropped materials, and hearing damage due to equipment noise. Site personnel will take precautions against these risks when working in the vicinity of heavy equipment by being aware of equipment locations and movement, by wearing steel-toed boots and hard hats, and by using hearing protection, if necessary. Site personnel who have not previously worked in the vicinity of heavy equipment will be paired with an experienced person for at least one day to familiarize themselves with heavy equipment operations and safety procedures.

Remediation construction will likely result in open trenches at the Site. To minimize risks, an effort will be made to minimize the number of open trenches. Any trenches not undergoing active construction will either be closed or will be barricaded with construction fencing or other devices so as to minimize their hazards. At the close of each working day, any trenches that are not closed will be secured. Trenches will not be left open during weekends or following the completion of remediation construction.

During construction involving trench excavation, a PID will be utilized to screen vapors in the work zone. Level C personal protection will be donned if steady-state concentrations exceed five ppm above background. Steady-state readings, for this purpose, will be defined as readings exceeding five ppm above background for a minimum of ten seconds. Level C personal protection may be implemented including full-face air-purifying respirators with dust and organic vapor cartridges (personal protective equipment will be described in greater detail in Section B.1.9). All FPM personnel and contractors must be properly trained and fit tested prior to donning respirators.

If PID readings exceed steady-state levels greater than 50 ppm above background, or any conditions exist which the HSO determines will require Level B personal protective equipment, all work at the Site will cease immediately and all personnel will evacuate the work zone. Evacuation will occur in the upwind direction if discernable. Level B conditions are not anticipated to be encountered; however, if Level B conditions arise, no Site work will be performed by FPM or contractors, a complete evaluation of the operation will be performed, and this HASP will be modified.

All personnel will be required to wear chemical-resistant nitrile gloves when the potential for dermal contact with Site soil is possible. Dermal contact with Site soil and equipment that has been in contact with site soils will be avoided.

➢ Other Safety Considerations

- Noise

During operations that may generate potentially harmful levels of noise, the HSO will monitor noise levels with a Realistic^{tm} hand-held sound level meter. Noise levels will be monitored in decibels (dBs) in the A-weighted, slow-response mode. Noise level readings which exceed the 29 CFR 1910.95 permissible noise exposure limits will require hearing protection (see Table B.1.6.1 for Permissible Noise Exposures).

Hearing protection will be available to all Site workers and will be required for exceedance of noise exposure limits. The hearing protection will consist of foam, expansion-fit earplugs (or other approved hearing protection) with a noise reduction rating of at least 29 dB. Hearing protection must alleviate worker exposure to noise to an eight-hour time-weighted average of 85 dB or below. In the event that the hearing protection is inadequate, work will cease until a higher level of hearing protection can be incorporated.

- Slip/Trip/Fall Preventative Measures

To reduce the potential for slipping, tripping, or falling, the work zone will be kept clear of unnecessary equipment. In addition, all Site workers will be required to wear work boots with adequate tread to reduce the potential for slipping (work boots must be leather or chemical-resistant and contain steel toes and steel shanks).

- Insects

Potential insect problems include, but are not limited to stinging insects such as bees, wasps, and hornets, and ticks. Prior to commencement of work, each work area will be surveyed for nests and hives to reduce the possibility of disturbing stinging insects. In addition, each Site worker will be asked to disclose any allergies related to insect stings or bites. The worker will be requested to keep his or her anti-allergy medicine on Site.

TABLE B.1.6.1
PERMISSIBLE NOISE EXPOSURES*

Duration Per Day Hours	Sound Level dBA Slow Response
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
½	110

Notes:

When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: $C_1/T_1+C_2/T_2+.....C_n/T_n$ exceeds unity, then, the mixed exposure should be considered to exceed the limit value. C_n indicates the total time of exposure at a specified noise level, and T_n indicates the total time of exposure permitted at that level.

Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

*Standards derived from 29 CFR 1910.95

Tick species native to Long Island consist of the pinhead-sized deer tick and the much-larger dog tick. Ticks are unlikely to exist at the Site due to a paucity of suitable habitat. All Site workers will be advised to avoid walking through vegetated areas and will be advised to check for ticks on clothing periodically.

- Potential Electrical and Other Utility Hazards

Potential electric hazards consist mainly of overhead and underground power lines. Other site utilities that may present hazards include telephone lines, gas lines, sewer lines, water lines, and other overhead or underground utilities. Prior to commencement of work at the Site, all excavation, well installation, and remedial construction locations will be inspected with respect to overhead lines. Excavation, well installation, and remedial construction work involving heavy equipment will not be performed when the horizontal distance between the equipment and overhead wires is less than 30 feet.

Underground potential utility hazards will be minimized by contacting the One-Call service to provide markouts of the utilities beneath adjoining public streets. A geophysical survey may also be utilized to mark out subsurface utilities prior to intrusive activities.

- Heat/Cold Stress

Heat stress may become a concern especially if protective clothing is donned that will decrease natural ventilation. To assist in reducing heat stress, an adequate supply of water or other liquids will be staged on the Site and personnel will be encouraged to rehydrate at least every two hours even if not thirsty. In addition, a shady rest area will be designated to provide shelter during sunny or warm days and Site workers will break for at least 10 minutes every two hours in the rest area, and, in very hot weather, workers wearing protective clothing may be rotated.

Indications of heat stress range from mild (fatigue, irritability, anxiety, decreased concentration, dexterity or movement) to fatal. Medical help will be obtained for serious conditions.

Heat-related problems are:

- Heat rash: caused by continuous exposure to heat and humid air and aggravated by chafing clothes. Decreases ability to tolerate heat.

- Heat cramps: caused by profuse perspiration with inadequate fluid intake and chemical replacement (especially salts). Signs: muscle spasm and pain in the extremities and abdomen.

- Heat exhaustion: caused by increased stress on various organs to meet increased demands to cool the body. Signs: shallow breathing; pale, cool, moist skin; profuse sweating; dizziness and lassitude.

- Heat stroke: the most severe form of heat stress. Can be fatal. Medical help must be obtained immediately. Body must be cooled immediately to prevent severe injury and/or death. Signs: red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

Cold exposure is a concern if work is conducted during cold weather, marginally cold weather during precipitation periods, or moderate to high wind periods. To assist in reducing cold exposure the following measures will be taken when cold exposure concerns are present:

- All personnel will be required to wear adequate and appropriate clothing. This will include head gear to prevent the high percentage loss of heat that occurs in this area (thermal liners for hard hats if hard hats are required).

- A readily-available warm shelter will be identified near the work zone.

- Work and rest periods will be scheduled to account for the current temperature and wind velocity conditions.

- Work patterns and the physical condition of workers will be monitored and personnel will be rotated, as necessary.

- Indications of cold exposure include shivering, dizziness, numbness, confusion, weakness, impaired judgment, impaired vision, and drowsiness. Medical help will be obtained for serious conditions if they occur.

Cold exposure-related problems are:

- Frost bite: Ice crystal formation in body tissues. The restricted blood flow to the injured part results in local tissue destruction.

- Hypothermia: Severe exposure to cold temperature resulting in the body losing heat at a rate faster than the body can generate heat. The stages of hypothermia are shivering, apathy, loss of consciousness, decreasing pulse and breathing rate, and death.

➢ The Buddy System

All activities in contaminated or potentially contaminated areas will be conducted by pairing off the Site workers in groups of two (or three if necessary). Each person (buddy) will be able to provide his or her partner with assistance, observe his or her partner for signs of chemical, cold, or heat exposure, periodically check the integrity of his or her partner's protective clothing, and notify the HSO or others if emergency help is needed. The buddy system will be instituted at the beginning of each work day. If new workers arrive on Site, a buddy will be chosen prior to the new worker entering the work zone.

➢ Site Communications

Two sets of communication systems will be established at the Site: internal communication among personnel on-Site, and external communication between on-Site and off-Site personnel. Internal communication will be used to alert team members to emergencies, pass along safety information such as heat stress check, protective clothing check, etc, communicate changes in the work to be accomplished, and maintain Site control. Due to ambient noise, verbal communications may be difficult at times. The HSO will carry a whistle (and compressed air horn if respirators are donned) to signal Site workers. A single whistle blast will be the signal to immediately evacuate the work zone through the access control point. This signal will be discussed with all Site workers prior to commencement of work.

An external communication system between on-Site and off-Site personnel will be established to coordinate emergency response, report to the Project Manager, and maintain contact with essential off-Site personnel. A field telephone will be available at all times in the HSO's vehicle. In addition, a backup telephone will be identified prior to the commencement of Site operations and this location will be relayed to all Site workers.

➢ General Safe Work Practices

Standing orders applicable during Site operations are as follows:

- No smoking, eating, drinking, or application of cosmetics in the work zone.

- No matches or lighters in the work zone.

- All Site workers will enter/exit work zone through the Site access point.

- Any signs of contamination, radioactivity, explosivity, or unusual conditions will require evacuating the Site immediately and reporting the information to the HSO.

- Loose-fitting clothing and loose long hair will be prohibited in the work zone during heavy equipment operations.

- A signal person will direct the backing of work vehicles.

- Equipment operators will be instructed to check equipment for abnormalities such as oozing liquids, frayed cables, unusual odors, etc.

B.1.7 Personnel Training Requirements

All FPM personnel and contractor personnel will receive adequate training prior to entering the Site. FPM and contractor personnel will, at a minimum, have completed OSHA-approved, 40-hour hazardous materials Site safety training and OSHA-approved, eight-hour safety refresher course within one year prior to commencing field work. In addition, each worker must have a minimum of three days field experience under the direct supervision of a trained, experienced supervisor.

Prior to Site field work, the HSO will conduct an in-house review of the project with respect to health and safety with all FPM personnel who will be involved with field work at the Site. The review will include discussions of signs and symptoms of chemical exposure and heat/cold stress that indicate potential medical emergencies. In addition, review of PPE will be conducted to include the proper use of air-purifying respirators.

B.1.8 Medical Surveillance Program

All workers at the Site must participate in a medical surveillance program in accordance with 29 CFR 1910.120. A medical examination and consultation must have been performed within the last twelve months to be eligible for field work.

The content of the examination and consultation will include a medical and work history with special emphasis on symptoms related to the handling of hazardous substances, health hazards, and fitness for duty including the ability to wear required personal protective equipment under conditions (i.e., temperature extremes) that may be expected at the work Site.

All medical examinations and procedures shall be performed by, or under the supervision of, a licensed physician. The Physician shall furnish a written opinion containing:

- The results of the medical examination and tests;

- The physician’s opinion as to whether the employee has any detected medical conditions which would place the worker at increased risk of material impairment of the employee's health from work in hazardous waste operations;

- The physician's recommended limitations upon the worker assigned to the work; and

- A statement that the worker has been informed by the physician of the results of the medical examination and any further examination or treatment.

- An accurate record of the medical surveillance will be retained. The record will consist of at least the following information:

- The name and social security number of the employee;
- The physician's written opinions, recommended limitations, and results of examinations and tests; and
- Any worker medical complaints related to exposure to hazardous substances.

B.1.9 Personal Protective Equipment

➢ General Considerations

The two basic objectives of the personal protective equipment (PPE) are to protect the wearer from safety and health hazards, and to prevent the wearer from incorrect use and/or malfunction of the PPE.

Potential Site hazards have been discussed previously in Section B.1.6. The duration of Site activities is estimated to be periods of several weeks. All work is expected to be performed during daylight hours and workdays, in general, are expected to be eight to ten hours in duration. Any work performed beyond daylight hours will require the permission of the HSO. This decision will be based on the adequacy of artificial illumination and the type and necessity of the task being performed.

Personal protection levels for the Site activities, based on past investigations, are anticipated to be Level D with the possibility of upgrading to Level C. The equipment included for each level of protection is provided as follows:

➢ Level C Protection

Level C personnel protective equipment includes:

- Air-purifying respirator, full-face
- Chemical-resistant clothing includes: Tyvek^{tm} (spunbonded olefin fibers) for particulate and limited splash protection or Saranex^{tm} (plastic film-laminated Tyvek) for permeation resistance to solvents.
- Coveralls*, or
- Long cotton underwear*
- Gloves (outer), chemical-resistant
- Gloves (inner), chemical-resistant
- Boots (outer), leather or chemical-resistant, steel toe and shank.
- Boot covers (outer), chemical-resistant (disposable)*
- Hard hat (face shield)*
- Escape mask*
- 2-way radio communications (inherently safe)*

(*) optional

Meeting all of these criteria permits use of Level C protection:

- Oxygen concentrations are not less than 19.5% by volume.
- Measured air concentrations of identified substances will be reduced by the respirator below the substance's threshold limit value (TLV).
- Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect any body area left unprotected by chemical-resistant clothing.
- Job functions do not require self-contained breathing apparatus.
- Direct readings are below 50 ppm on the PID.

➢ Level D Protection

Personnel protective equipment:

- Coveralls
- Gloves*
- Boots/shoes, leather or chemical-resistant, steel toe and shank
- Safety glasses or chemical splash goggles*
- Hard hat (face shield*)
- Escape mask*

(*) optional

Meeting any of these criteria allows use of Level D protection:

- No contaminant levels above 5 ppm organic vapors or dusty conditions are present.
- Work functions preclude splashes, immersion, or the reasonable potential for unexpected inhalation of any chemicals above the TLV.

➢ Additional Considerations for Selecting Levels of Protection

Another factor that will be considered in selecting the appropriate level of protection is heat and physical stress. The use of protective clothing and respirators increases physical stress, in particular, heat stress on the wearer. Chemical protective clothing greatly reduces natural ventilation and diminishes the body's ability to regulate its temperature. Even in moderate ambient temperatures, the diminished capacity of the body to dissipate heat can result in one or more heat-related problems.

All chemical protective garments can be a contributing factor to heat stress. Greater susceptibility to heat stress occurs when protective clothing requires the use of a tightly-fitted hood against the respirator face piece, or when gloves or boots are taped to the suit. As more body area is covered, less cooling takes place, increasing the probability of heat stress.

Wearing protective equipment also increases the risk of accidents. It is heavy, cumbersome, decreases dexterity, agility, interferes with vision, and is fatiguing to wear. These factors all increase physical stress and the potential for accidents. In particular, the necessity of selecting a level of protection will be balanced against the increased probability of heat stress and accidents.

➢ Donning and Doffing Ensembles

- Donning an Ensemble

A routine will be established and practiced periodically for donning a Level C ensemble. Assistance may be provided for donning and doffing since these operations are difficult to perform alone. Table B.1.9.1 lists sample procedures for donning a Level C ensemble. These procedures should be modified depending on the particular type of suit and/or when extra gloves and/or boots are used.

- Doffing an Ensemble

Exact procedures for removing Level C ensembles must be established and followed to prevent contaminant migration from the work area and transfer of contaminants to the wearer's body, the doffing assistant, and others. Doffing procedures are provided in Table B.1.9.2. These procedures should be performed only after decontamination of the suited worker. They require a suitably attired assistant. Throughout the procedures, both worker and assistant should avoid any direct contact with the outside surface of the suit.

➢ Respirator Fit Testing

The fit or integrity of the facepiece-to-face seal of a respirator affects its performance. Most facepieces fit only a certain percentage of the population; thus each facepiece must be tested on the potential wearer in order to ensure a tight seal. Facial features such as scars, hollow temples, very prominent cheekbones, deep skin creases, dentures or missing teeth, and the chewing of gum and tobacco may interfere with the respirator-to-face seal. A respirator shall not be worn when such conditions prevent a good seal. The worker's diligence in observing these factors shall be evaluated by periodic checks. Fit testing will comply with 29 CFR 1910.1025 regulations.

➢ Inspection

The PPE inspection program will entail five different inspections:

- Inspection and operational testing of equipment received from the factory or distributor;
- Inspection of equipment as it is issued to workers;
- Inspection after use;
- Periodic inspection of stored equipment; and
- Periodic inspection when a question arises concerning the appropriateness of the selected equipment, or when problems with similar equipment arise.

TABLE B.1.9.1
SAMPLE LEVEL C DONNING PROCEDURES

1. Inspect the clothing and respiratory equipment before donning (see Inspection in subsection B.1.7).

2. Adjust hard hat or headpiece if worn, to fit user's head.

3. Standing or sitting, step into the legs of the suit; ensure proper placement of the feet within the suit; then gather the suit around the waist.

4. Put on chemical-resistant safety boots over the feet of the suit. Tape the leg cuff over the tops of the boots.

5. Don the respirator and adjust it to be secure, but comfortable.

6. Perform negative and positive respirator facepiece seal test procedures.

   – To conduct a negative-pressure test, close the inlet part with the palm of the hand or squeeze the breathing tube so it does not pass air, and gently inhale for about 10 seconds. Any inward rushing of air indicates a poor fit. Note that a leaking facepiece may be drawn tightly to the face to form a good seal, giving a false indication of adequate fit.

   – To conduct a positive-pressure test, gently exhale while covering the exhalation valve to ensure that a positive pressure can be built up. Failure to build a positive pressure indicates a poor fit.

7. Depending on type of suit:

   – Put on inner gloves (surgical gloves).

   – Additional overgloves, worn over attached suit gloves, may be donned later.

8. Put on hard hat

9. Have assistant observe the wearer for a period of time to ensure that the wearer is comfortable, psychologically stable, and that the equipment is functioning properly.

TABLE B.1.9.2
DOFFING PROCEDURES

1. Remove any extraneous or disposable clothing, boot covers, outer gloves, and tape.

2. Remove respirator by loosening straps and pulling straps over the top of the head and move mask away from head. Do not pull mask over the top of the head.

3. Remove arms, one at a time, from suit, avoiding any contact between the outside surface of the suit and wearer's body and lay the suit out flat behind the wearer. Leave internal gloves on, if any.

4. Sitting, if possible, remove both legs from the suit.

5. After suit is removed, remove internal gloves by rolling them off the hand, inside out.

The inspection checklist is provided in Table B.1.9.3. Records will be kept of all inspection procedures. Individual identification numbers will be assigned to all reusable pieces of equipment and records should be maintained by that number. At a minimum, each inspection should record the ID number, date, inspector, and any unusual conditions or findings. Periodic review of these records may indicate an item or type of item with excessive maintenance costs or a particularly high level of down-time.

➢ Storage

Clothing and respirators will be stored properly to prevent damage or malfunction due to exposure to dust, moisture, sunlight, damaging chemicals, extreme temperatures, and impact. Storage procedures are as follows:

- Clothing: Potentially-contaminated clothing will be stored in a well-ventilated area separate from street clothing, with good air flow around each item, if possible. Different types and materials of clothing and gloves will be stored separately to prevent issuing the wrong materials by mistake, and protective clothing will be folded or hung in accordance with manufacturer's recommendations.

- Respirators: After each use air-purifying respirators will be dismantled, washed, and placed in sealed plastic bags.

➢ PPE Maintenance

Specialized PPE maintenance will be performed only by the factory or an authorized repair person. Routine maintenance, such as cleaning, will be performed by the personnel to whom the equipment is assigned. Respirators will be cleaned at the end of each day with alcohol pads or, preferably, by washing with warm soapy water.

TABLE B.1.9.3
PPE INSPECTION CHECKLIST

CLOTHING

Before use:

- Determine that the clothing material is correct for the specified task at hand.
- Visually inspect for imperfect seams, non-uniform coatings, tears, and/or malfunctioning closures.
- Hold up to light and check for pinholes.
- Flex product and observe for cracks or other signs of deterioration.
- If the product has been used previously, inspect inside and out for signs of chemical attack, including discoloration, swelling, and/or stiffness.

During the work task, periodically inspect for:

- Evidence of chemical attack such as discoloration, swelling, stiffening, and softening. Keep in mind, however, that chemical permeation can occur without any visible effects.
- Indication of physical damage, including closure failure, tears, punctures, and/or seam discontinuities.

GLOVES

Before use:

- Pressurize glove to check for pinholes. Either blow into glove, then roll gauntlet toward fingers or inflate glove and hold under water. In either case, no air should escape.

AIR-PURIFYING RESPIRATORS

- Inspect air-purifying respirators before each use to be sure they have been adequately cleaned.
- Check material conditions for signs of pliability, deterioration, and/or distortion.
- Examine cartridges to ensure that they are the proper type for the intended use, the expiration date has not been passed, and they have not been opened or used previously.
- Check faceshields and lenses for cracks, crazing, and/or fogginess.
- Air-purifying respirators will be stored individually in resealable plastic bags.

- Decontamination Methods

All personnel, clothing, equipment, and samples leaving the work zone area of the Site must be decontaminated to remove any harmful chemicals that may have adhered to them. Decontamination methods either (1) physically remove contaminants (2) inactivate contaminants by chemical detoxification or disinfection/sterilization, or (3) remove contaminants by a combination of both physical and chemical means. In many cases, gross contamination can be removed by physical means involving dislodging/displacement, rinsing, wiping off, and evaporation. Contaminants that can be removed by physical means include dust, vapors, and volatile liquids. All reusable equipment will be decontaminated by rinsing in a bath of detergent and water (respirators, gloves to be reused). Monitoring equipment will be decontaminated by wiping with paper towels and water. All used PPE to be discarded will be disposed offsite as solid waste.

The effectiveness of the decontamination will be evaluated near the beginning of Site activities and will be modified if determined to be ineffective. Visual observation will be used for this purpose. The HSO will inspect decontaminated materials for discoloration, stains, corrosive effects, visible dirt, or other signs of possible residual contamination.

B.2 Community Air Monitoring Plan

This Community Air Monitoring Plan (CAMP) will be implemented at the Site by FPM during the intrusive remedial activities, including excavation, well installation, and remedial measures construction. Due to the nature of the soil and groundwater at the remedial locations, there is a limited potential for organic vapor emissions as these activities occur. In addition, there is the potential for dust to be associated with the excavation, well installation, and/or remedial construction activities. To address these concerns, organic vapor monitoring and dust monitoring will be performed.

Any CAMP monitoring results that exceed the action levels described below will be reported (or notice provided by another arrangement acceptable to the NYSDEC) when identified if a NYSDEC representative is present at the Site or within two hours by phone call or email to the NYSDEC Project manager when no NYSDEC representative is onsite. Exceedances of the CAMP action levels will also be summarized in a weekly CAMP report, including the duration of the exceedance(s) and any response actions taken.

B.2.1 Organic Vapor Monitoring

Under the CAMP, organic vapor concentrations will be monitored at the boundaries of the work zone. It will be the responsibility of the HSO to implement the plan and to ensure that proper action is taken in the event that any of the established action levels are exceeded.

To monitor organic vapors, a PID will be used and maintained in good operating condition. Calibration of the PID will be performed according to manufacturer's instructions. Background levels of organic vapors will be measured at the work zone boundary prior to beginning work and upwind of the work area periodically using a PID. Monitoring may be performed more frequently at the discretion of the HSO. Organic vapors will be monitored continuously at the downwind perimeter of the work area during ground intrusive activities.

PID readings will be recorded in the field logbook for both background and work area perimeter. Logbook recordings will include the time, location, and PID readings observed. Downwind perimeter levels will be recorded in the log whenever the level reaches 5 ppm above the background along with the action(s) taken to mitigate the level. If the level of organic vapors exceeds 5 ppm above the

background at the downwind perimeter of the work area, work activities will be halted and monitoring continued. The vapor emission response plan will then be implemented.

B.2.1.1 Vapor Emission Response Plan

The vapor emission response plan includes the following trigger levels and responses:

- Greater than 5 ppm at perimeter:

  In the event the level of organic vapors exceeds 5 ppm above the background at the downwind perimeter of the work area, activities will be halted and monitoring continued. If the organic vapor level then decreases to below 5 ppm above background, work activities can resume but organic vapor readings will be obtained more frequently as directed by the HSO.

- 5 ppm to 25 ppm at perimeter and less than 5 ppm at the work zone boundary:

  If the level of organic vapors is greater than 5 ppm but less than 25 ppm over background at the downwind perimeter of the work area, activities will be halted, the source of the vapors will be identified and corrective actions will be taken. Monitoring will be continued and activities will resume if the organic vapor concentration at half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background. More frequent intervals of monitoring will be performed as directed by the HSO.

- Above 25 ppm at perimeter:

  If the level of organic vapors is above 25 ppm at the perimeter of the work area, activities will be shut down. Should such a shutdown be necessary, downwind air monitoring will continue as directed by the HSO to confirm that organic vapor concentrations decrease. Actions will be taken to abate the source of vapor emissions and activities will not resume until the source is controlled.

B.2.1.2 Major Vapor Emission Response Plan

The Major Vapor Emission Response Plan shall automatically be placed into effect if:

- Efforts to abate the emission source are unsuccessful and levels above 5 ppm persist for more than 30 minutes in the 20-foot zone; or

- The vapor levels are greater than 10 ppm above background in the 20-foot zone.

Upon activation of the Major Vapor Emission Response Plan, the following activities will be undertaken:

- All emergency response contacts as listed in the HASP will be notified;

- Air monitoring will be conducted at 30-minute intervals within the 20-foot zone. If two successive readings below action levels are measured, air monitoring will be halted or modified as directed by the HSO; or

- If air monitoring readings remain above action levels, work will be halted and further measures taken to reduce organic vapors.

If a Major Vapor Emission Response Plan is implemented, the NYSDEC and NYSODH will be contacted within 24 hours.

B.2.2 Dust Monitoring

Dust monitoring will be performed during excavation, well installation, and remedial construction intrusive activities with the potential to create dust by using a Miniram personal monitor calibrated according to the manufacturer's instructions. The Miniram will be operated continuously at the downwind perimeter of the work zone during ground intrusive activities and the HSO will record the readings in the field logbook. If measurable dust levels are noted, then readings will also be obtained upwind of the work zone. If the downwind particulate level exceeds the upwind level by more than 100 micrograms per cubic meter (ug/m^3), then dust suppression techniques will be employed or work will be halted or controlled such that dust levels are reduced at the downwind perimeter to within 150 ug/m^3 of the upwind level. If dust is generated during boring or well installation activities, then dust suppression will be performed, as discussed in Section B.1.6 of this HASP.

Reasonable fugitive dust suppression techniques will be employed during all intrusive Site activities that may generate fugitive dust. Particulate (fugitive dust) monitoring will be employed during the handling of waste or contaminated soil or when onsite activities may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures are not considered necessary for these activities.

Particulate monitoring will be performed using a real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with minimum performance standards in accordance with Appendix 1B of DER-10. Particulate levels will be monitored upwind and immediately downwind of the working area and integrated over a period not to exceed 15 minutes. To ensure the validity of the fugitive dust measurements, appropriate QA/QC measures will be employed, including periodic instrument calibration, operator training, daily instrument performance (span) checks, and record-keeping on daily log sheets.

The action level for fugitive dust will be established at 150 $\mu g/m^3$ (15-minute average). If particulate levels are detected in excess of 150 $\mu g/m^3$, the upwind background level will be confirmed immediately. If the working area particulate measurement is greater than 100 $\mu g/m^3$ above the background level, additional dust suppression techniques will be implemented to reduce the generation of fugitive dust and corrective action will be taken to protect onsite personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of PPE for onsite personnel and implementing additional dust suppression techniques. Should the action level of 150 $\mu g/m^3$ continue to be exceeded, work will stop and the NYSDEC will be notified as described in Section B.2 above. The notification will include a description of the control measures implemented to prevent further exceedances.

Fugitive dust from waste or contaminated soil that migrates offsite has the potential for transporting contaminants offsite. Although there may be situations when the monitoring equipment does not measure PM10 at or above the action level, visual observation may indicate that dust is leaving the Site. If dust is observed leaving the working area, additional dust suppression techniques will be employed. Activities that have a high dusting potential, such as solidification and treatment involving materials like kiln dust and lime, may require special measures to be considered.

The following techniques have been shown to be effective for controlling the generation and migration of dust during construction activities and will be used as needed during remedial activities at the Site:

- Wetting equipment and excavation faces;
- Spraying water on buckets during excavation and dumping;
- Hauling materials in properly tarped or watertight containers'
- Restricting vehicle speeds to 10 mph;
- Covering excavated areas and material after excavation activity ceases; and
- Reducing the excavation size and/or number of excavations.

When techniques involving water application are used, care will be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will be considered to prevent overly wet conditions, conserve water, and provide an effective means of suppressing fugitive dust.

Evaluation of weather conditions is also necessary for proper fugitive dust control. When extreme wind conditions may make dust control ineffective, remedial actions may be suspended until wind speeds are reduced.

B.2.3 Noise Monitoring

Due to the use of heavy equipment, there is a potential for noise to impact the surrounding community. Work will be performed only during normal working hours when ambient noise levels are elevated due to ongoing activities in the surrounding community, which is commercial and industrial. Therefore, the potential for noise impacts on the surrounding community is low.

However, if pedestrians are present in the Site vicinity, it is possible for noise impacts to occur. To address these concerns and other safety concerns, pedestrians will be barred from entering the work zone. In addition, the HSO will periodically monitor noise levels at the work zone boundary and the closest property boundary with a Realistic^{tm} hand-held sound level meter. Noise levels will be monitored in dBs in the A-weighted, slow-response mode. If noise level readings exceed an eight-hour time-weighted average of 85 dB at the work zone boundary or at the closest property boundary, the HSO will take appropriate measures to reduce noise exposure beyond these boundaries. These measures may include extension of the work zone boundary, issuing appropriate hearing protection devices as discussed in Section B.1.6 of this work plan, or other measures, as appropriate. In the event that the noise exposure measures are inadequate, work will cease until noise levels can be reduced to below 85 dB at the work zone boundary and/or at the closest property boundary.

B.2.4 Excavation Safety Issues

Remedial activities will result in open excavations and trenches at the Site. Although the majority of the Site is fenced, to minimize risks associated with open excavations and trenches, an effort will be made to minimize the number of open excavations and trenches. Any inactive excavations or trenches will either be closed or will be barricaded with construction fencing or other devices so as to minimize their hazards. Barricades will include fencing materials that completely enclose any open excavations/ trenches and extend to a height of at least three feet above grade. Barricades will be secured by posts driven into the ground or by weighted drums or pylons such that they cannot readily be removed. At the close of each working day, any excavations/trenches that are not closed will also be secured. Excavations/trenches will not be left open during weekends or following the completion of construction.

APPENDIX C

QUALITY ASSURANCE PROJECT PLAN

APPENDIX C
QUALITY ASSURANCE PROJECT PLAN

This Quality Assurance Project Plan (QAPP) has been prepared by FPM Group (FPM) for New York State Department of Environmental Conservation (NYSDEC) Inactive Hazardous Waste Disposal Site #130155, identified as the Award Packaging Corp. Site located at 625 South Street, Garden City, New York (Site). This QAPP is part of the Remedial Design/Remedial Action (RD/RA) Work Plan for remediation of areas of concern (AOC) at the Site and includes the quality assurance and quality control (QA and QC) procedures for the remedial sampling activities.

The selected remedial actions for each AOC are documented in the Record of Decision (ROD) for the Site and are described in detail in the RD/RA Work Plan. In general, soil excavation and disposal will be used to address affected soils/sediments in the loading dock floor drain, leaching pools, and portions of the former DW-01 and DW-02/DW-03 areas, air sparging (AS) will be used to address groundwater impacts, and soil vapor extraction (SVE) will be used to address VOC impacts in soil the former DW-01 and DW-02/DW-03 areas. Capping will be used in the former printing press area and may also be used in other areas of the Site, following completion of other selected remedial measures, if residual soils remain present. An Institutional Control (IC) consisting of an environmental easement will also be implemented. A site plan showing the remedial areas and sampling locations is presented on Figure C.1.

C.1 Data Quality Objectives

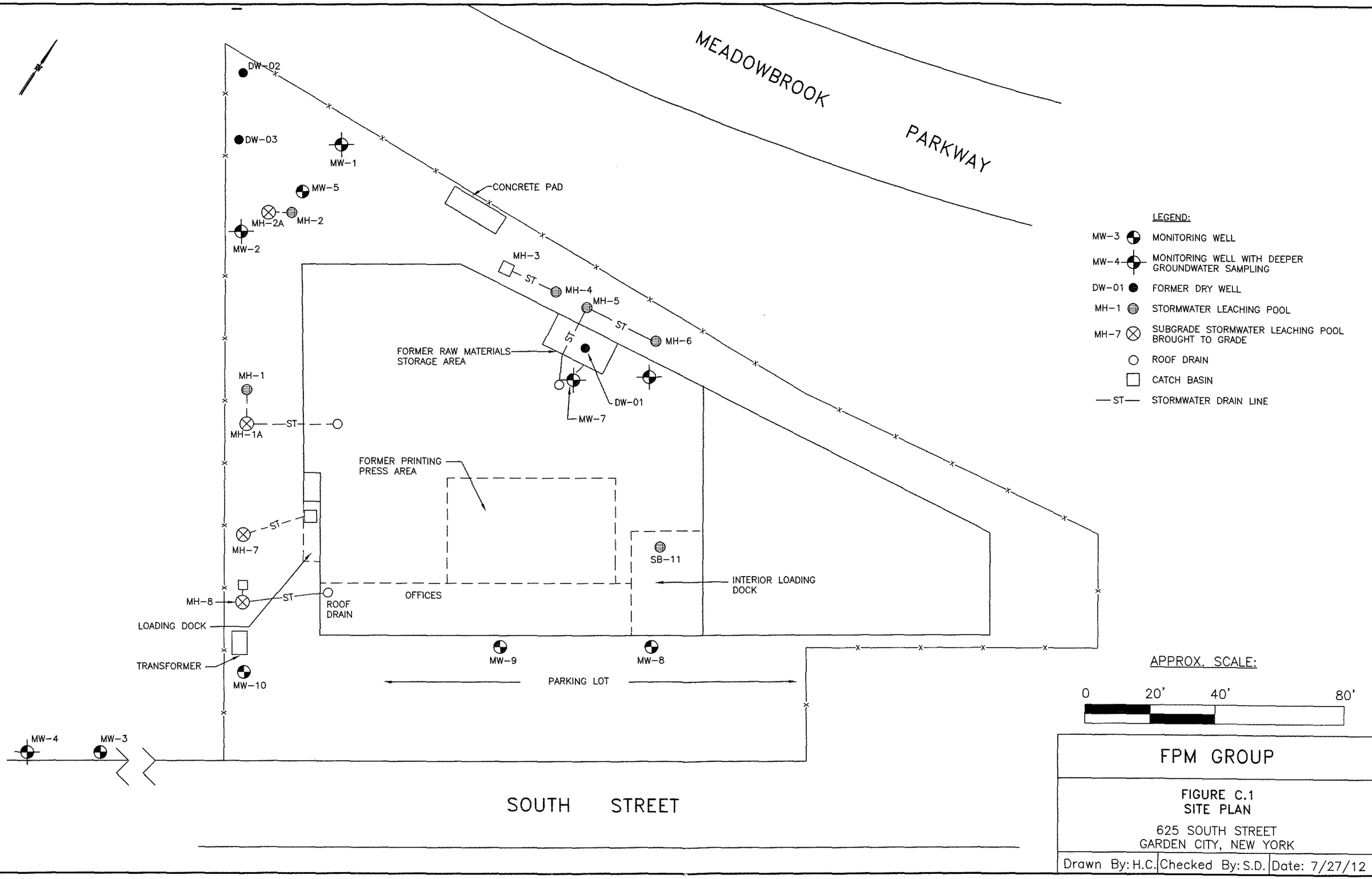
The Data Quality Objectives (DQOs) will be applicable to all data-gathering activities for remedial activities at the Site. DQOs will be incorporated into sampling, analysis, and QA tasks associated with remedial activities.

The data users for this project are FPM Group (FPM), the New York State Department of Environmental Conservation (NYSDEC), the Nassau County Department of Health (NCDOH), and the New York State Department of Health (NYSDOH). The Site owner will also be provided with the data. No other data users are anticipated. The collected data are intended to be used for waste characterization and to evaluate soil, groundwater, and SVE system emissions at the Site.

C.2 Standards, Criteria, and Guidance

As discussed in detail in Section 2.5 of the RD/RA Work Plan, chemical-specific remediation goals have been developed for this Site based on the evaluation of standards, criteria, and guidance (SCGs). Location and action-specific SCGs are also applicable. The selected remedial measures for this Site are consistent with remedial action objectives (RAOs) developed based on the continued commercial use of the Site and on potential impacts to the surrounding community and environment.

For leaching pool and floor drain sediments/soils, the NYSDEC Soil Cleanup Objectives have been established as the RAOs. These NYSDEC Objectives are applicable to leaching pool sediment/soil and were formulated to be protective of human health and the environment. In addition, Town of Hempstead regulations regarding stormwater management are also established as an action-specific RAO as the leaching pools to be remediated presently function as stormwater discharge facilities and this function must be maintained following remediation.



FPM GROUP

FIGURE C.1
SITE PLAN

625 SOUTH STREET
GARDEN CITY, NEW YORK

Drawn By: H.C.	Checked By: S.D.	Date: 7/27/12

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For soils in the former DW-01, former DW-02/DW-03, and former printing press areas the NYSDEC's 6 NYCRR Part 375-6.8 Soil Cleanup Objectives have been established as the RAOs. These NYSDEC Objectives are applicable to soil and were formulated to be protective of human health and the environment.

For groundwater, the NYSDEC Class GA Ambient Water Quality Standards established in the NYSDEC Water Quality Regulations for Surface Waters and Groundwaters (6 NYCRR Parts 700-705, revised March 8, 1998) have been selected as the RAOs. These standards are well-established water quality standards for fresh groundwater that has the potential to be utilized for water supply.

For SVE system emissions, NYSDEC regulations concerning discharge of emissions to the atmosphere (6 NYCRR Part 257 – Air Quality Standards and Division of Air Resources Air Guide 1) are applicable SCGs. These regulations will be used to determine whether SVE emissions will require treatment.

For waste characterization, the New York State regulations for hazardous waste management (6 NYCRR Parts 370, 371 and 372) establish requirements for hazardous waste characterization and disposal and are the applicable SCGs.

C.3 Sampling Procedures

Field screening will be performed during soil and groundwater sampling activities. Field screening includes monitoring for organic vapors in the soil or groundwater samples as they are generated and in the air in the work zone using a Photovac MicroTIP photoionization detector (PID) or equivalent, and making visual observations of soil or groundwater characteristics. All readings and observations will be recorded by the Qualified Environmental Professional (QEP) or designated representative in his or her field notebook and on appropriate sampling logs.

Procedures for soil/sediment sampling, groundwater sampling, and SVE emissions monitoring during the implementation of remedial actions at the Site are described in Section 3.3 of the RD/RA Work Plan and are summarized below. Additional or modified sampling procedures may be included in the Site Management Plan (SMP) for sampling activities to be conducted once the remedial activities are implemented.

All sample locations during remedial activities will be recorded and identified by unique latitude/longitude coordinates (decimal degrees), as required by the NYSDEC's environmental information management system (EIMS). Sample locations will be recorded by the QEP during field activities using a hand-held global positioning system (GPS). This information will be included in the electronic data deliverables (EDDs) to be uploaded to the EIMS.

An Analytical Methods/Quality Assurance Summary Table showing the number and types of primary samples by matrix, analytical parameters and methods, QA/QC samples, and sample containers, preservation, and holding times is shown on Table C.3.1.

C.3.1 Soil/Sediment Sampling Procedures

Soil or sediment sampling will be performed during several steps of remedial activities, including waste characterization sampling, confirmatory sampling, sampling of fill to be imported to the Site, and/or sampling of stockpiled soil targeted for reuse onsite. Soil or sediment sampling will generally be performed using decontaminated hand-held stainless steel hand augers or dedicated disposable hand trowels. The samples will be obtained by the QEP, screened with a calibrated photoionization detector

TABLE C.3.1
ANALYTICAL METHODS/QUALITY ASSURANCE SUMMARY TABLE
AWARD PACKAGING CORP. SITE #130155
625 SOUTH STREET, GARDEN CITY, NEW YORK

Sample Location/ Type	Matrix	Number/ Frequency	Analysis	Sample Containers/Preservation	Holding Time
Former DW-01 Area/Confirmatory	Soil	four sidewalls/one time	Copper	8 oz CWM glass	28 days
Former DW-02/DW-03 Area/Confirmatory	Soil	four sidewalls and one bottom/one time	Chromium, copper, lead	8 oz CWM glass	28 days
Leaching Pools MH-1, MH-2, MH-5, MH-6, MH-7 (four sidewalls and one bottom)/Confirmatory	Soil	25/one time	TCL BN SVOCs	8 oz CWM glass	7 days until extraction, 40 days after extraction
			TAL Metals	8 oz CWM glass	28 days
Leaching Pools MH-1A, MH-2A, MH-3, MH-4, and MH-8 (four sidewalls and one bottom each), loading dock drain SB-11 (four sidewalls)/Confirmatory	Soil	25/one time	TCL VOCs	4 oz CWM glass	14 days
			TAL Metals	8 oz CWM glass	28 days
			TCL BN SVOCs	8 oz CWM glass	7 days until extraction, 40 days after extraction
Excavated Soils/Waste Classification (1)	Sediment/Soil	One to five/one time	TCL VOCs	4 oz CWM glass	14 days
			RCRA Metals	8 oz CWM glass	28 days
			PAH SVOCs	8 oz CWM glass	7 days until extraction, 40 days after extraction
			PCBs	8 oz CWM glass	10 days until extraction, 40 days after extraction
			TCLP VOCs	4 oz CWM glass	14 days until extraction, 14 days after extraction
			TCLP Pesticides/Herbicides	8 oz CWM glass	14 days to prep leachate, 7 days until extraction, 40 days after extraction
			TCLP Metals	8 oz CWM glass	28 days until extraction, 28 days after extraction
			TCLP SVOCs	8 oz CWM glass	14 days to prep leachate, 7 days until extraction, 40 days after extraction
SVE System/Effluent	Air	Eight/one time	VOCs by TO-15	Tedlar bag	72 hours
MW-1 through MW-10/Groundwater	Groundwater	Ten/one time	TCL VOCs	40 ml VOA vials with HCl	14 days
Leaching Pool Stormwater/Waste Classification (1)	Stormwater	Zero to five/ one time	TCL VOCs	40 ml VOA vials with HCl	14 days
			RCRA Metals	500 ml plastic with HNO_3	28 days
			Oil and Grease	1L amber with H2SO4	28 days
Onsite Soil or Fill/Reuse	Soil	Zero to four/ one time	TCL VOCs	4 oz CWM glass	14 days
			TAL Metals	8 oz CWM glass	28 days
			TCL BN SVOCs	8 oz CWM glass	7 days until extraction, 40 days after extraction
			PCBs/Pesticides/Herbicides	8 oz CWM glass	7 days until extraction, 40 days after extraction
Trip Blanks	Water	One per cooler containing VOC samples	TCL VOCs	40 ml VOA vials with HCl	14 days
Equipment Blanks	Water	One per sampling day per matrix	TCL VOCs	40 ml VOA vials with HCl	14 days
			TAL Metals	500 ml plastic with HNO_3	28 days
			TCL BN SVOCS	1L amber	40 days
Blind Duplicates/Groundwater	Water	5% of monitoring samples	TCL VOCs	40 ml VOA vials with HCl	14 days
Blind Duplicates/Confirmatory Samples	Soil	5% of confirmatory samples	TCL VOCs	4 oz CWM glass	14 days
			TAL Metals	8 oz CWM glass	28 days
			TCL BN SVOCs	8 oz CWM glass	7 days until extraction, 40 days after extraction
MS/MSD/Groundwater	Water	One per 20 environmental samples	TCL VOCs	40 ml VOA vials with HCl	14 days
MS/MSD/Confirmatory Samples	Soil	One per 20 environmental samples	TCL VOCs	4 oz CWM glass	14 days
			TAL Metals	8 oz CWM glass	28 days
			TCL BN SVOCs	8 oz CWM glass	7 days until extraction, 40 days after extraction

Notes:

(1) Waste classification analyses may vary, depending on the requirements of the disposal facility
TCL = Target Compound List
RCRA = Resource Conservation and Recovery Act
HCl = Hydrochloric acid
HNO_3 = Nitric acid
$H2SO_4$ = Sulfuric acid

(PID), and classified using the Unified Soil Classification System (USCS). All sample observations will be recorded in the QEP's dedicated field logbook.

Confirmatory soil/sediment samples will generally be collected as single-point grab samples from the surface (0 to 6 inches) that they are intended to characterize. Waste characterization samples will be collected as grabs and/or composite samples, as required by the targeted disposal facility. Samples of soil targeted for onsite reuse and fill to be imported will be collected as both grab and composite samples in accordance with DER-10 Section 5.4(e). In certain cases, such as if visible evidence of potential contamination is noted at the bottom of an excavation, a soil boring may be advanced to evaluate the potential depth of visible impact. In these cases, one or more samples may be collected from the boring.

Table C.3.1 shows the planned soil samples and analytes. The analytical methods for all confirmatory and fill/reuse samples will be as per the NYS ASP with Category B deliverables and full QA/QC. The analytical methods and deliverables for waste classification samples will be in accordance with the selected disposal facility requirements.

C.3.2 Groundwater and Stormwater Sampling Procedures

Pre-remedial groundwater monitoring will be performed to document the groundwater conditions prior to startup of the AS/SVE system. Pre-remediation groundwater monitoring will be conducted at each of the ten Site monitoring wells approximately one month prior to the startup of the AS/SVE system.

At each well to be sampled, the depth to the static water level and depth of the well will be measured. Weather conditions will be noted, including the amount of elapsed time since the most recent significant rainfall. Then a decontaminated pump will be used to purge the well using low-flow procedures. Following the removal of each well volume, field parameters, including pH, turbidity, specific conductivity, and temperature, will be monitored. When all stability parameters vary by less than 10 percent between the removal of successive well volumes and the turbidity is less than 50 NTU, the wells will be sampled. Well sampling forms documenting the well purging and sampling procedures will be completed.

Following purging, sampling will be performed. Samples will be obtained directly from the low-flow pump. The retrieved samples will be decanted into laboratory-supplied sample containers. Each sample container will be labeled, and the labeled containers will be placed in a cooler with ice to depress the sample temperature to four degrees Celsius. A chain of custody form will be completed and kept with the cooler to document the sequence of sample possession. At the end of each day, the filled cooler will be transported by FPM or overnight courier to the selected NYSDOH ELAP-certified laboratory. The groundwater samples will be analyzed for TCL VOCs as per NYS ASP with Category B deliverables.

The resulting groundwater chemical analytical data will be used to document groundwater quality prior to the startup of the AS/SVE system. The associated water level data will be used to evaluate the site-specific groundwater flow direction.

Stormwater may be sampled for waste characterization purposes if it is found to be present in the stormwater leaching pools targeted for remediation. Stormwater sampling, analytical methods and deliverables for waste classification samples will be in accordance with the selected disposal facility requirements.

Table C.3.1 shows the planned water samples and analytes. The analytical methods for all monitoring samples will be as per the NYS ASP with Category B deliverables and full QA/QC.

C.3.3 SVE Effluent Sampling Procedures

Effluent sampling will be performed to evaluate SVE emissions during pilot testing and during the system startup period. During each sampling event an effluent sample will be collected from an effluent sampling port located between the SVE blower and the effluent stack pipe. In the event that effluent treatment is implemented, an additional sample of the treated effluent shall be obtained downstream of the effluent treatment equipment. All samples shall be obtained using a dedicated laboratory-supplied Tedlar air sampling bag. System operating parameters will be recorded by the QEP during each sampling event.

The samples in the filled Tedlar bags will be labeled and transported via overnight courier to a NYSDOH-ELAP-certified laboratory for analysis of VOCs by EPA Method T0-15. The analytical results will be integrated with the system operating parameters and compared to NYSDEC's DAR-1 guidance to evaluate system emissions, determine emissions treatment requirements, and confirm compliance with DAR-1.

Effluent VOC concentrations will also be monitored during the test from a sampling port located on the pressure side of the blower. VOC concentrations will be evaluated using a calibrated PID and also by obtaining and analyzing air samples in Tedlar bags. These data will be used to evaluate the radius of influence of the SVE system and the anticipated vapor concentrations and to confirm that the system will induce a vacuum beneath the Site building sufficient for sub-slab depressurization over the affected area.

Table C.3.1 shows the planned SVE effluent samples and analytes.

C.4 Quality Assurance/Quality Control Procedures

QA/QC procedures will be utilized during the remedial work to ensure that the resulting chemical analytical data accurately represent conditions at the Site. The following sections include descriptions of the QA/QC procedures to be utilized.

Equipment Decontamination Procedures

All non-disposable equipment (i.e., hand augers, etc.) used during sampling activities will be decontaminated by washing in a potable water and Alconox solution and rinsing in potable water prior to use at each location to reduce the potential for cross contamination. All sampling equipment will be either dedicated disposable equipment or will be decontaminated prior to use at each location. The decontamination procedures utilized for all non-disposable sampling equipment will be as follows:

1. The equipment will be scrubbed in a bath of potable water and low-phosphate detergent followed by a potable water rinse;

2. The equipment will be rinsed with distilled water; and

3. The equipment will be allowed to air dry, if feasible, and wrapped in clean protective materials for storage and transportation.

QA/QC Samples

QA/QC samples will be collected and utilized to evaluate the potential for field or laboratory contamination and to evaluate the laboratory's analytical precision and accuracy. The Analytical Methods/Quality Assurance Summary presented on Table C.3.1 shows the number and types of QA/QC samples by matrix, analytical parameters and methods, sample containers, preservation, and holding times. The specific types of QA/QC samples to be collected are described below.

Decontamination procedures will be evaluated by the use of equipment blank samples. These samples consist of aliquots of laboratory-supplied water that are poured over or through the dedicated or decontaminated sampling equipment and then submitted to the laboratory for analysis. An equipment blank sample will be prepared for the soil or groundwater matrix for each day that confirmatory or monitoring sampling is conducted at the Site and will be analyzed for the target constituents for that day. The equipment blanks will be labeled in a manner to prevent identification by the analytical laboratory.

Trip blank samples will be utilized to evaluate the potential for VOC cross-contamination between samples in the same cooler. Trip blank samples consist of laboratory-provided containers filled with laboratory water that are sealed in sample bottles at the laboratory and that are transported to and in the field with the other sample containers. A trip blank will be shipped with each group of confirmatory or monitoring samples that will be analyzed for VOCs and will be managed in the field and analyzed in the laboratory in the same manner as the primary environmental samples.

Blind duplicate samples will be obtained at a frequency of at least one per every 20 confirmatory or monitoring samples per matrix and will be used to attest to the precision of the laboratory. A blind duplicate consists of a separate aliquot of sample collected at the same time, in the same manner, and analyzed for the same parameters as the primary environmental sample. The blind duplicate samples are labeled in a manner such that they cannot be identified by the laboratory. The sample results are compared to those of the primary environmental sample to evaluate if the results are similar.

Matrix spike/matrix spike duplicate (MS/MSD) samples will be collected at a frequency of one per 20 confirmatory or monitoring samples of the same matrix. The purpose of the MS/MSD samples is to confirm the accuracy and precision of laboratory results based on a particular matrix. The MS/MSD results will be evaluated during the preparation of the Data Usability Summary Reports (DUSRs) as discussed below.

Chain-of-Custody Procedures

For each day of sampling, chain-of-custody (COC) sheets will be completed and submitted to the laboratory with the samples collected that day. A copy of each COC sheet will be retained by FPM for sample tracking purposes. Each COC sheet will include the project name, the sampler's signature, the sampling locations, and intervals, and the analytical parameters requested.

Data Usability Summary Reports

All chemical analytical results will be evaluated using the sample data packages, sample data summary packages, and case narratives provided by the analytical laboratory. The data evaluation will be performed by the QA/QC officer (QAO) to verify that the analytical results are of sufficient quality to be relied upon to assess the concentrations of the targeted constituents in the environmental matrices at the Site. A DUSR shall be prepared for each data package following the "Guidance for the

Development of Data Usability Summary Reports" provided by the NYSDEC. The resume of the anticipated QAO is included at the end of this QAPP.

C.5 Sample Analysis

All samples will be submitted to a New York State Department of Health ELAP-certified laboratory. The proposed subcontractor laboratory is Alpha Analytical of Westborough, Massachusetts. All samples will be analyzed for the targeted analytes as specified in Table C.3.1 and in accordance with the NYS Analytical Services Protocol (ASP) with Category B deliverables.

C.6 Data Evaluation

The data collected will be assembled, reviewed, and evaluated following each sampling round. The confirmatory samples will be used to assess the completion of remedial measures at the subject Site. The SVE effluent samples will be used to evaluate system emissions compliance with applicable SCGs. The waste characterization samples will be used to obtain acceptance of remedial wastes at the approved disposal facilities.

C.7 Project Organization

The project manager and field supervisor for this project will be Ben Cancemi. Mr. Cancemi will also serve as the health and safety officer. The overall project coordinator and QAO will be Stephanie Davis, Senior Hydrogeologist. Resumes for these personnel are included at the end of this document. Subcontracted services will include direct push/drilling services, remedial excavation services, remedial construction and pilot testing services, and laboratory services.

Stephanie O. Davis, P.G., C.P.G.

FPM group — Engineering and Environmental Science

Ms. Davis has diversified experience in geology and hydrogeology. Her professional experience includes groundwater and soil investigations, design and management of soil remediation projects, design and installation of groundwater containment and remediation systems, groundwater flow modeling, aquifer testing and interpretation, evaluation of site compliance with environmental regulations, environmental permitting, and personnel training.

Functional Role	Title	Years of Experience
Senior Hydrogeologist	Department Manager - Hydrogeology	26

Personal Data

Education

M.S./1984/Geology/University of Southern California
B.S./1981/Geology/Bucknell University

Registration and Certifications

Certified Professional Geologist #9487, (AIPG) 1995
California Registered Geologist #5192, 1991
Pennsylvania Registered Geologist #PG-000529-G, 1994
OSHA – Approved 40 hour Health and Safety Training Course (1990)
OSHA - Approved 8 hour Health and Safety Training Refresher Courses (1991-Present)
OSHA-Approved 8-hour Site Safety Supervisor Training Course (2008)
National Ground Water Association
Long Island Association of Professional Geologists

Employment History

1993-Present	FPM Group
1992-1993	Chevron Research and Technology Co.
1990-1992	Chevron Manufacturing Co.
1984-1990	Chevron Exploration, Land, and Production Company

Continuing Education

- Treatment of Contaminated Soil and Rock
- Groundwater Pollution and Hydrology
- Environmental Law and Regulation
- Remedial Engineering
- Soil and Foundation Engineering
- Environmental Geochemistry

Detailed Experience

Environmental Data Analysis

- Received multiple sessions of environmental geochemistry training provided by environmental geochemists, including physical chemistry, thermodynamics, ionic interactions, complexation, biologic effects, and other basic principles. Training also included field sampling procedures and effects on chemical data, chemical analytical methods and equipment, and QA/QC procedures and interpretation.
- Reviewed and evaluated numerous soil, groundwater, product, indoor/ambient air and soil vapor chemical analytical datasets, including evaluation of batch and site-specific QA/QC samples, laboratory narratives, comparison to regulatory agency criteria, historic data, and background data.
- Developed and implemented numerous Quality Assurance Project Plans (QAPP), including QAPP design, sample delivery group (SDG) evaluations, sampling procedures and sequences, and QA/QC sample preparation/collection.
- Attended periodic environmental chemistry training sessions hosted by environmental laboratories and participated in hands-on training in data and QA/QC evaluation.
- Prepared Data Usability Summary Reports (DUSRs) for numerous chemical analytical datasets for projects overseen by the USEPA, NYSDEC and other regulatory agencies. Datasets evaluated have included soil, groundwater, soil vapor, indoor air, and ambient air.
- Performed forensic assessments of historic environmental chemical analytical data to resolve apparent discrepancies with modern data and other dataset inconsistencies.
- Assessed various leachate test protocols and results to determine the most applicable methods to evaluate and develop soil cleanup objectives for non-regulated compounds.
- Interpreted numerous organic parameter datasets to evaluate breakdown sequences, likely original parameters, and rates of degradation.
- Formulated numerous chemical treatment plans for insitu remediation of environment contaminants, including assessment of contaminant concentrations and distribution, chemical processes and indicators, natural attenuation indicators, additional stociometric demands, and hydrogeologic factors.

Site Investigations

- Provides oversight and coordination for ongoing investigation and remedial projects at several New York State Inactive Hazardous Waste Disposal Sites, Voluntary Cleanup Program Sites, and Brownfield Cleanup Program Sites. Investigations have included site characterization, Remedial Investigation/ Feasibility studies, and RCRA Facility Investigations. Remedial Services have included contaminated soil removals; ORC and ARC injections; design, installation and operation of all sparge/soil vapor extraction systems; sub-slab depress investigation, capping, and other remedial services.
- Provides program coordination and oversight for all Phase I ESA, Phase II investigations, and remediation projects for a major commercial developer on Long Island, New York. Projects have included environmental services associated for the purchase and redevelopment of office buildings, aerospace facilities, former research and development facilities, and large manufacturing plants. Remedial Services have provided RCRA closures, UIC closures, tank removals, and Brownfield Cleanup Program projects.
- Planned and managed a Resource Conservation and Recovery Act (RCRA) Facilities Investigation (RFI) at Barksdale AFB, Louisiana for AFCEE. Responsible for all aspects of field program planning, solicitation and selection of subcontractors, mobilization and establishment of a field office, supervising multiple field crews, installation and sampling of monitoring wells, collection and soil samples, data tracking and management and preparation of an RFI report. The scope of work included characterization of the nature and extent of groundwater and soil contamination at thirteen Solid Waste Management Units (SWMUs), performing a base-wide evaluation of background contaminant concentrations, and developing a long-term groundwater monitoring program for the base.
- Managed field sampling crews for major underground storage tank (UST) investigation at Plattsburgh AFB, NY, for AFCEE. Responsible for field crew training, coordination of sampling crews at separate sites, sample labeling, handling, tracking, and shipping, field data management and remote field office management. The scope of work included collection of over 450 groundwater samples to characterize groundwater conditions in the vicinity of 150 USTs using a Geoprobe sampling rig, wellpoints, and rapid turnaround-time analysis.
- Managed site investigation activities, including soil vapor sampling, soil sampling and analysis, groundwater sampling and analysis, and geotechnical evaluation for numerous sites in Suffolk County, New York. The resulting data were utilized by a major supermarket company in the negotiations for the purchase of the properties and in the property remediation prior to development.
- Performed site investigation activities including soil vapor analysis, soil sample analysis, and groundwater sampling and analysis at an active commercial bus terminal in the Bronx, NY. Made recommendations for site remediation including UST removal, soil excavation and disposal, and free-phase product extraction.
- Prepared various work plans and reports, including a RCRA Facilities Investigation Work plan, incorporating existing geologic, chemical and historical data, evaluating newly-acquired site data, and developing recommendations for further investigation and remedial action at a City of Richmond former municipal landfill
- Managed on-site and off-site soil and ground-water sampling program at a manufacturing facility in Bay Shore, NY. Compiled resulting data and prepared a comprehensive report of the investigation results for the Suffolk County Department of Health Services (SCDHS) and NYS Department of Environmental Conservation (NYSDEC). Proposed remediation technologies for on-site soil contamination and on-site and off-site groundwater contamination.
- Managed and conducted a soil and groundwater sampling program using a Geoprobe sampler adjacent to Newark Airport Runway 29 for the Federal Aviation Administration. Analyzed resulting chemical analytical data and presented results to client.
- Supervised and conducted drilling, soil sampling, cone penetrometer testing, and well installation at a refinery process water effluent treatment system and former municipal landfill.
- Supervised drilling, installation, development, and sampling of monitoring wells at numerous sites in the greater New York metropolitan area. Utilized resulting stratigraphic, hydrologic, and chemical analytical data to evaluate site conditions.

Remediation

- Project Manager for all investigation and remedial activities at a NYSDEC Brownfield Cleanup Program site in New York City. Prepared the Remedial Investigation and Remedial Work Plan; coordinated with the owner, other contractors, and the NYSDEC; prepared for and conducted citizen participation activities; supervised all waste characterization, profile preparation, and waste management; developed the Final Engineering

Report (FER) and Site Management Plan (SMP) for NYSDEC approval; and ensured that all remedial requirements were met such that the Certificate of Completion (COC) was issued. Continuing activities include coordination of the ongoing site management activities, communications with the NYSDEC and NYSDOH, and preparation of the annual Certification Report.

- Developed pilot test plans, evaluated pilot test results, and prepared conceptual designs for several air sparge/soil vapor extraction (AS/SVE) systems to treat petroleum and/or chlorinated solvent VOCs. These systems were subsequently installed and Ms. Davis provides ongoing review of system operations and remedial monitoring results.
- In responsible charge of several task orders for waste characterization of a 90,000-cy construction soil stockpile at a municipal sewer facility. Responsibilities included development and implementation of Sampling and Analysis Plans (SAP), coordination of staffing, review of lab data, preparation of Field Sampling Summary Reports (FSSR), coordination with disposal facilities, and preparation of waste profiles.
- Designed soil remediation plan and managed contractor support for a metal parts plating and manufacturing facility in Suffolk County, New York. Soil remediation was overseen and approved by the SCDHS.
- Designed and performed indoor underground storage tank abandonment program, leaching pool remediation plan, and managed contractor support for a tape measure manufacturing facility in Suffolk County, New York. SCDHS provided oversight and approval.
- Participated in the design process for a groundwater containment and remediation system for a former municipal landfill, including subsurface groundwater barrier walls and extraction wells.
- Designed soil remediation plan and supervised contractor performance of soil remediation activities at an active construction site in Carle Place, NY. Project involved excavation and disposal of approximately 5,000 tons of PCB-, metal-, and petroleum-contaminated soil. NYSDEC provided oversight and approval of the completed remediation.
- Coordinated technical aspects of subsurface groundwater barrier wall construction, including routing, permitting, design, material selection, and field activities.

Hydrogeologic Evaluations

- Prepared Engineer's Report for Long Island Well Permit for a 230-gpm irrigation supply well. Responsible for evaluation of well interference, salt water upcoming, impacts from contaminants, and other factors affecting the proposed well.
- Performed well design (gravel pack size, screen size, etc.) for numerous groundwater wells on Long Island. Familiar with sieve analyses, well construction and development methods.
- Utilized Visual Modflow groundwater modeling program to evaluate the impact of a contaminant plume on a proposed SCWA wellfield. Model development included evaluation of recharge, aquifer properties, subsurface stratigraphy, boundary conditions, plume source and concentration, and various wellfield locations and pumping rates.
- Participated in a multi-day, multi-well aquifer pumping test for New York City Transit (NYCT) Lennox Avenue site. Responsible for operating and maintaining data logging equipment, coordinating manual water level measurements, and analyzing resulting drawdown data.
- Evaluated subsurface geologic conditions for NYCT Avenue T site utilizing existing boring logs, topographic, and historic map data.
- Supervised drilling, installation and development of groundwater extraction, injection, and monitoring wells at a USEPA Superfund site in Deer Park, New York. Interpreted aquifer and well performance from development data and made recommendations for modification of drilling and development procedures.
- Performed slug tests on monitoring wells at a New York City Transit Authority site, and evaluated hydrologic properties using the HYDROLOGIC ISOAQX computer program.
- Performed aquifer pumping and slug tests and evaluated hydrologic properties using the computer program AQTESOLV.
- Performed water level and water quality monitoring at an industrial site in Mattituck, NY. Constructed groundwater elevation contour maps and utilized chemical analytical data to predict contaminant plume migration.

Landfills

- Prepared work plans for Closure Investigations of two Town of East Hampton landfills. Each work plan included a Hydrogeologic investigation, methane investigation, surface leachate investigation, and vector investigation. Prepared final Closure Investigation Reports, which were accepted by the NYSDEC.
- Supervised the installation of groundwater and methane monitoring wells to complete the monitoring networks at the Town of East Hampton landfills. Services provided included hollow-stern auger and mud-rotary well installations, split-spoon

soil sampling and boring log preparation, oversight and interpretation of wireline electric logging, and completion of initial baseline monitoring events.

- Supervises ongoing groundwater and methane monitoring programs for Town of East Hampton landfills. Responsibilities include field team coordination, communications with the Town, report scheduling, data package review, and report review prior to distribution to the client and NYSDEC.
- Performed groundwater sampling at a radio tower facility constructed on a landfill in NJ. Analyzed results and made recommendations to client.
- Conducted methane monitoring at Springs-Fireplace Road and Montauk Landfills for the Town of East Hampton.
- Used the PC-based modeling program FLOW PATH to predict groundwater flow directions and evaluate extraction well locations and pumping rates for a groundwater containment and remediation system at a former municipal landfill.
- Negotiated successfully with NYSDEC for reduced monitoring frequencies at Town of East Hampton based on historic monitoring results. Maintained quarterly monitoring frequency only for specific containments at key locations.
- Manages monthly methane monitoring for all Town of Islip landfills. Monitoring program includes onsite and offsite methane wells, methane collection systems, and flare systems. Data is recorded electronically and downloaded to computer for formatting prior to delivery to Town. Data is reported in final form within two days of collection.
- Supervises and reviews production of quarterly and annual monitoring reports for all monitoring programs at Town of Smithtown landfill. Project includes tabulation and reporting of groundwater and methane monitoring data, solid waste and recycling collection data, yard waste composting operations, and landfill leachate collection and disposal data. Multiple copies of each report are prepared for Town delivery to the NYSDEC.

Community Impacts

- Developed Community Monitoring Plans (CMP) for several hazardous waste sites. These plans included monitoring procedures, action levels, and mitigation measures for odors, traffic, noise, dust and/or vapors with the potential to affect surrounding communities during investigation and/or remediation. Each CMP was reviewed and approved by the NYSDEC and NYSDOH and was implemented under the oversight of these agencies.
- Developed and implemented an odor abatement plan for highly-odorous soil discovered during a remediation project in New York City. The remediation site was surrounded by three public schools and complaints of nuisance odors were received following discovery of the odorous soil, resulting in a job shutdown until the nuisance was abated. The odor abatement plan was prepared and implemented within 24 hours and involved immediate covering of the odorous soil followed by spot excavation and removal during non-school hours (night work) and the use of odor-controlling foam. The removal was completed within one week without further incident and the NYSDEC and NYSDOH approved the completed work, allowing the job to recommence.
- Attended and presented at numerous community meetings for various environmental sites to explain the purpose of CMPs, the types of observations and their interpretation, and mitigation measures. Addressed community and agency questions and issues.
- Evaluated and implemented abatement for vectors (rodents, flies, and seagulls) at several Long Island landfills in association with landfill closure. These activities included inspection and reporting of vector populations, development of vector abatement plans, and assisting Town personnel with vector abatement.
- Conducted inspections of intense fly infestations at a Town transfer station building. The inspections were used to identify the locations and migration pathways of flies inside the building and to develop an abatement plan. This plan was successfully implemented by Town personnel to abate the nuisance fly infestations.
- Developed and implemented air and soil vapor investigations of residential and commercial properties to evaluate potential air quality impacts. These investigations were conducted using plans approved by the NYSDEC and NYSDOH. The resulting data were used to evaluate whether air quality impacts were present and whether mitigation or monitoring were necessary. These evaluations were submitted for NYSDEC and NYSDOH review and approval, together with appropriate monitoring/mitigation designs.
- Conducted odor, dust, noise and organic vapor monitoring at several community areas surrounding environmental sites. Data were collected and interpreted in accordance with NYSDEC and/or NYSDOH guidance and the results were submitted to these agencies together with recommendations for mitigation, if appropriate.

Expert Witness/Technical Services

- Provided expert witness and technical services regarding environmental conditions and remedial procedures for a proposed residential redevelopment of a former oil terminal. Services included preparing and obtaining NYSDEC and NCDOH approval of remedial work plans for three environmental areas of concern, preparing remedial cost estimates and schedules, and providing testimony at a public hearing before the North Hempstead Town Board from which a change of zone was requested. The proposed change of zone, although subject to considerable public opposition, was approved, allowing redevelopment and associated remediation of the property to move forward.
- Provided expert witness and technical services to the legal team defending a petroleum company against NYSDEC cost recovery claims at a petroleum spill site. The spill site was complex, involving two very large petroleum releases at gasoline stations adjoining the defendant's property. Services provided included evaluating petroleum tank tests, groundwater, soil and soil vapor chemical analytical data, petroleum fingerprint data, remediation activities and costs. Products prepared include numerous detailed timelines of various activities, large displays showing site information and subsurface conditions, and cost allocation calculations. A detailed subsurface investigation was also performed to evaluate stratigraphic conditions.
- Assisted the Village of Larchmont legal team in successfully opposing the construction of an IKEA superstore in the adjoining community of New Rochelle. Work performed included evaluating the previous environmental investigations of the proposed store site, developing cost estimates and scopes of work for a full environmental evaluation of the site, preparing scoping cost estimates for likely remediation scenarios, preparing technical documents in support of the Village of Larchmont's position and making a presentation at a large public hearing for the project. The proposed project was subsequently withdrawn.
- Provided technical evaluation of a proposed water district in the Town of Carmel in support of legal efforts to oppose the district. The proposed water district was opposed by existing residents due to limited available water supplies and likely impact on their existing wells. The scope of work included evaluation of aquifer pumping tests, determining impacts on nearby wells, assessment of likely increased water demand, preparation of several supporting documents, and presentations (including providing testimony to a judge) at project hearings. The proposed project was subsequently conditionally approved by the NYSDEC with significant modifications to protect the water rights of existing residents.
- Prepared several affidavits regarding environmental conditions at client properties in support of pending legal actions. Issues evaluated included landfill issues, wetlands and navigatable waterway issues, and petroleum spill issues.
- Provided technical support to the Croton Watershed Clean Water Coalition (CWCWC) in assessing the impacts of several proposed road construction projects on the Kensico Reservoir and other nearby water bodies of the New York City water supply system. This work included evaluating stormwater pollutant loading calculations, assessing impacts to wetlands, promoting application of more accurate stormwater runoff calculation methods, assessing proposed stormwater management techniques, attending and making presentations at public meetings, preparing technical statements for submittal to regulatory agencies, and participating in the NYSDOT's Stormwater Pollution Prevention Plan (SPPP) Guidance committee.

Health and Safety

- Performed health and safety monitoring at investigation and remediation sites during intrusive activities. Monitoring included calibration and operation of photoionization detector (PID) and flame-ionization detector (FID) for organic vapors and combustible gas indicator (CGI) for methane. Compared results to applicable action levels and took preventative/protective measures as necessary.
- Performed community monitoring, including monitoring for noise, particulates (dust), and organic vapors. Recorded observations and compared to applicable action levels. Familiar with calibration and operation of noise meters, particulate monitors, and PID/FID.
- Performed screening for radiation at select sites. Familiar with operation of Geiger counter in different radiation modes and with background readings.

Miscellaneous Projects

- Performed numerous Phase I Site Assessments for residential and industrial sites on Long Island, New York.
- Conducted aquifer pumping and soil vapor extraction test training. Instructed classes for site investigation methods, aquifer pumping test analysis, and risk assessment.
- Performed various project management functions, including development and management of project

- budgets and schedules, coordination of field and office staffing, document preparation, review, editing, and interaction with clients, regulatory, legal, real estate, consultant, and compliance personnel.
- Organized, supervised, and conducted remote field mapping studies in Alaska.
- Directed well site geophysical logging operations and interpreted geophysical well logs.
- Conducted methane monitoring at Springs-Fireplace Road and Montauk Landfills for the Town of East Hampton.
- Processed and interpreted seismic reflection data and constructed seismic velocity models.
- Evaluated site compliance with environmental regulations. Assisted and reviewed regulator's revision of proposed risk assessment-based UST cleanup guidelines. Reviewed proposed USEPA NPDES permits for remediation system effluent.
- Constructed and interpreted structural and stratigraphic cross sections, and structure contour, fault surface, isochore, and isopach maps.

Ben T. Cancemi, CPG

FPM group — Engineering and Environmental Science

Mr. Cancemi has diversified experience in geology and hydrogeology. His professional experience includes groundwater and soil investigations, design and management of soil remediation projects, installation and maintenance of groundwater containment and remediation systems, aquifer testing and interpretation, geotechnical studies, evaluation of site compliance with environmental regulations and environmental permitting.

Functional Role	Title	Years of Experience
Hydrogeologist	Senior Hydrogeologist	16

Personal Data

Education
M.S./2001/Hydrogeology/SUNY Stony Brook
B.S./1995/Geology/SUNY Stony Brook

Registration and Certifications
Certified Professional Geologist – American Institute of Professional Geologists
OSHA 40-hour HAZWOPER and Current 8-hour Health and Safety Training and Current Annual Physical
OSHA 8-hour HAZWOPER Supervisor
OSHA 10-hour Construction Safety and Health
OSHA Permit-Required Confined Space Training
Long Island Geologists
National Groundwater Association
MTA NYC Transit Track Safety Certification

Employment History

2001-Present	FPM Group
1998-2001	Burns & McDonnell Engineering Company
1997-1998	Groundwater and Environmental Services
1996-1997	Advanced Cleanup Technologies

Detailed Experience

Hydrogeologic Evaluations

- Performed constant head hydraulic conductivity (packer) testing in boreholes located in fractured bedrock in lower Manhattan, NY. The testing was conducted to evaluate fracture connectivity with the nearby Hudson and East River and determine parameters such as hydraulic conductivity such that procedures could be implemented for proposed redevelopment of the New South Ferry Subway Station.
- Performed slug tests on monitoring wells at a service station in Nyack, New York to determine aquifer properties such that a dewatering system could be designed to facilitate the removal and installation of a UST system.
- Coordinated and performed a geotechnical investigation which included utility clearing, soil boring installation, rock coring, packer testing, pump testing, and data collection and interpretation. The investigation was performed to evaluate subsurface conditions and determine geologic parameters for a proposed subway extension of the NYC Transit No.7 Line.
- Performed aquifer pumping and slug tests and evaluated hydrologic properties using the computer program AQTESOLV.

Site Investigations/Groundwater Monitoring

- Coordinated and performed soil and groundwater sampling and soil vapor studies at several aerospace manufacturing facilities situated across Long Island, NY to evaluate how the facilities' past usage had effected the environmental quality of the property. Assessments at each facility included an evaluation of how past manufacturing and facility operations relating to the storage and use of materials including solvents, petroleum and manufacturing derived wastes had impacted the underlying soils and groundwater of the site and surrounding properties. Following completion of each investigation areas of concern were identified for further evaluation and/or corrective action.
- Coordinated and perform long term groundwater monitoring at two closed municipal landfills situated in the Town of East Hampton, NY. The monitoring program consists of sampling a multi-depth monitoring well network, analysis and interpretation of analytical and hydrogeologic data and regulatory reporting in accordance with NYSDEC Part 360 requirements.
- Coordinated and performed soil and groundwater investigations at various properties utilized for agriculture and horticulture to evaluate the impact of past herbicide and pesticide usage on the underlying soil and groundwater.

- Coordinated and perform onsite and offsite monitoring at various petroleum release sites on Long Island, the New York Metropolitan area and in Westchester County in accordance with NYSDEC IHWDS, VCP, Brownfield and Spill program requirements. The monitoring program generally consists of sampling multi-depth monitoring well network utilizing low flow sampling techniques, analysis and interpretation of analytical and hydrogeologic data and regulatory reporting.
- Coordinated a soil and groundwater sampling program to evaluate environmental conditions at Terminal A, Logan International Airport, East Boston, Massachusetts. The program included an assessment of the current fuel hydrant system and other locations of potential environmental concern using non-destructive air vacuum extraction-clearing techniques combined with direct push sampling.
- Managed and performed a soil and groundwater investigation, soil excavation and groundwater monitoring at a pyrotechnics manufacturing facility in Suffolk County, NY. The work was performed under the direction of the Suffolk County Department of Health Services to investigate and remediate contamination associated with the historic use of perchlorate containing materials at the facility.
- Coordinated and performed soil and groundwater investigations at several automobile dealerships situated in Westchester County, NY to evaluate how past and present operations associated with petroleum and chemical solvent storage and usage and onsite waste water disposal systems have effected the environmental quality of the property.
- Performed soil remediation by soil excavation at Terminal B, Logan International Airport, East Boston, Massachusetts. Soil excavation was coupled with onsite TPH analysis and confirmatory end point sampling to determine extent of remediation and potential reuse of impacted soils.
- Managed several remediation projects for various aviation clients at JFK and LaGuardia Airports. Duties included groundwater monitoring, reporting, environmental compliance, emergency response and remedial system operation and maintenance.
- Participated in a soil and groundwater investigation/ remediation project at a former petroleum terminal near Atlantic City, New Jersey. Project duties included soil and groundwater sampling and delineation. Following the initial investigation a remedial action plan was prepared and remedial measures implemented. Remedial measures included soil excavation, free product recovery and risk assessment.
- Supervised and conducted soil remediation by field screening and confirmatory endpoint sampling at a former service station, Bronx, New York. Soil removal consisted of the removal of approximately 2,000 cubic yards of petroleum-impacted soil.
- Supervised and coordinated an investigation into a fuel hydrant system failure resulting in the release of an estimated 5,000 gallons of type A jet fuel. Duties included emergency response coordination, a soil and ground-water assessment utilizing direct push technology, monitoring well installation, groundwater monitoring and product recovery using high vacuum extraction techniques.

Phase I Environmental Site Assessments

- Performed numerous Phase I Environmental Site Assessments (ESAs) for various commercial and industrial properties throughout the Northeastern United States for various clients including trucking companies, major airlines, telecommunication companies, chemical/petroleum storage facilities, aerospace manufacturing facilities, machine shops, retail shopping centers, auto dealerships, service stations,

Remediation

- Participated in a NY State Brownfield redevelopment project located in East Harlem, NY. Responsibilities included daily air and noise monitoring to ensure the surrounding community was not affected by site activities, coordinated, oversaw and documented the removal of over 80,000 tons of material to seven separate disposal facilities, performed a soil vapor survey and collected confirmatory end point samples to document completion of remedial excavation with site specific cleanup objectives.

- Have performed pilot testing, design, installation and procurement of numerous multi-depth soil vapor and air sparge remediation systems situated on Long Island and in the NYC metropolitan area to remediate subsurface soils and groundwater impacted with chlorinated and non-chlorinated volatile organic compounds. Other duties have included remediation system operation and maintenance, and evaluations of system performance.
- Have performed numerous storm water and sanitary leaching structures cleanouts utilizing excavation and/or vacuum assisted equipment to remove contaminated sediments and liquids. Other duties have also included waste characterization and profiling, pipe camera surveys and structure locating utilizing water soluble dyes and electronic locating equipment.
- Participated in the delineation and removal of petroleum-impacted soils associated with a former jet fuel hydrant system at San Francisco International Airport. Project duties included directing soil removal activities, manifesting, confirmatory endpoint sampling, and restoration activities oversight.
- Participated in the design and installation of soil vapor extraction system for a former service station in Elwood, New York. Project duties included equipment procurement and installation, monitoring well installation and remedial system operation and maintenance.
- Operated and maintained various remediation systems including; soil vapor extraction, groundwater pump and treat, air sparge, dual-phase extraction, and free-phase petroleum recovery systems.

Health and Safety

- Performed health and safety monitoring at investigation and remediation sites during intrusive activities. Monitoring included calibration and operation of photoionization detector (PID) and flame-ionization detector (FID) for organic vapors and combustible gas indicator (CGI) for methane. Compared results to applicable action levels and took preventative/protective measures as necessary.
- Performed community monitoring, including monitoring for noise, particulates (dust), and organic vapors. Recorded observations and compared to applicable action levels. Familiar with calibration and operation of noise meters, particulate monitors, and PID/FID.
- Prepared community air monitoring and health and safety plans for several NYSDEC inactive hazardous waste, brownfield cleanup program volunteer cleanup program sites and petroleum sites and NYC e-designation program sites.
- Performed screening for radiation at select sites. Familiar with operation of Geiger counter in different radiation modes and with background readings.

Other

- Coordinated RCRA closure activities and performed confirmatory sampling at a former package manufacturing facility in Garden City, NY. Project duties included contractor procurement, rinsate and soil sampling and regulatory agency reporting and coordination.
- Prepared a remedial design plan for a former VA hospital landfill on Long Island. The remedial design included a summary of past investigations, a materials management plan for the excavation and disposal of contaminated soils and debris, a post-excavation sampling plan, a site restoration plan, community air monitoring plan, heal and safety plan and a quality assurance and quality control plan.
- Performed compliance inspections to assess issues of potential environmental concerns at various manufacturing, aviation, trucking, retail and not-for-profit facilities.
- Managed and performed monthly soil gas sampling and quarterly indoor air quality sampling at an elementary school in southwestern Nassau County, NY. The monitoring and related reporting was performed to ensure that an underlying gasoline groundwater plume migrating through the school property was not impacting the school occupants.
- Managed and perform routine methane monitoring at two eastern Long Island landfills to evaluate potential offsite migration to the surrounding community. Indoor air is also monitored with a flame ionization detector to ensure that methane does not pose a concern to landfill operation buildings.

- Participated in a geotechnical evaluation at a new cargo hanger, JFK international Airport. The evaluation consisted of timber and steel monotube pile installation oversight, vertical load testing, and compilation and analysis of data.
- Managed and participated in the coordination of the demolition of two bulk petroleum storage facilities and the removal of various USTs at amajor airline aviation fuel terminal at Logan International Airport, East Boston, Massachusetts. Project duties included regulatory agency coordination and reporting, contractor coordination and oversight, waste management, and health and safety.
- Managed and coordinated the removal of two 6,000-gallon diesel USTs at a trucking terminal in New Cumberland, Pennsylvania. Project duties included contractor coordination, health and safety, field oversight, post excavation sampling and regulatory agency reporting.
- Managed and conducted a UST system upgrade in Enfield, Connecticut. UST system upgrades included the removal of four 15,000-gallon steel storage tanks, conducting end-point sampling and overseeing the installation of two 20,000-gallon double-wall fiberglass reinforced plastic storage tanks.
- Managed and coordinated a petroleum spill investigation to identify and investigate the extent of a fuel oil release at an office building in White Plains, NY. The investigation included excavation and removal of a 5,000-gallon situated over 20 feet below grade, tightness testing of the UST and associated piping, a soil and groundwater investigation, free product recovery utilizing vacuum enhanced fluid recovery techniques and NYSDEC and Westchester County Department of Health regulatory coordination and reporting.

APPENDIX D

CITIZEN PARTICIPATION PLAN

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CITIZEN PARTICIPATION PLAN

A Citizen Participation Plan (CPP) was implemented for the Award Packaging Corporation Site in association with Remedial Investigation and Feasibility Study (RI/FS) activities. The purpose of the CPP is to promote public understanding of the remedial program. The CPP was prepared in accordance with the New York State Department of Environmental Conservation (NYSDEC) CPP Guidebook (NYSDEC June, 1998) and 6 NYCRR Part 375-1.10 (NYSDEC, December 14, 2006) and was included in the May 2008 RI/FS Work Plan approved by the NYSDEC.

This CPP is a working document and may be changed over the course of the project to accommodate community interests as well as new information generated during investigation and remediation activities. The May 2008 CPP was updated for inclusion in the Remedial Design/Remedial Action Work Plan (RD/RA WP). The updates are in accordance with DER-23 (Citizen Participation Handbook for Remedial Programs, January 2010).

1.1 Site Background and Project Description

The Award site (Site) is owned by Rococo Associates, Inc. (Rococo) and is located at 625 South Street, Garden City, New York. The Site consists of an approximately 1.76-acre property containing an approximately 48,000-square-foot single-story industrial building surrounded by an asphalt parking lot and limited landscaped areas. This property has been used for commercial and industrial purposes. No change in use is planned. The Site is listed by the NYSDEC as an Inactive Hazardous Waste Disposal (IHWD) Site.

The building at the Site was constructed in 1967 and the majority of the building (western 35,000 square feet) was used from that time up until January 2007 by Award Packaging Corp. (Award) for application of print to plastic packaging material. Award ceased operations and left the Site in January 2007; Award's portion of the building is presently used for warehousing of lighting products. One other tenant, a physical fitness club, is also present at the Site in the eastern portion of the building. None of Award's operations occurred in the eastern portion of the building.

It was reported that wastes were disposed by Award into two exterior drywells located on the northwest corner of the Site until approximately 1981. The drywells were then filled and paved over. A floor drain was also formerly present in a storage room inside of the portion of the building used by Award. This floor drain was closed in 1991. Past uses of the Site have resulted in soil, groundwater, and soil vapor contamination, some of which has been remediated.

Several investigations and remediation events have been conducted with the oversight and approval of the NYSDEC, the Nassau County Department of Health (NCDOH), and/or the U. S. Environmental Protection Agency (USEPA). Various limited site assessments were conducted beginning in 1991 and remediation was conducted in 2004 at the two exterior drywells and at the interior floor drain. An additional investigation was conducted in 2007. Resource Conservation and Recovery Act (RCRA) closure activities were also conducted in 2007. A Remedial Investigation/Feasibility Study (RI/FS) was conducted between 2008 and 2011; the results were documented in a December 2011 RI/FS Report.

The Preliminary Remedial Action Plan (PRAP) was issued by the NYSDEC in February 2012 and the Record of Decision (ROD) was issued by the NYSDEC in March 2012. The ROD requires the following remedial measures to be implemented for the Site:

- A floor drain, DW-01, was formerly present in an interior materials storage room; residual soil impacts remain present in this area, including impacts by the volatile organic compound (VOC) acetone and the metal copper. Remedial measures will be implemented in this area to address the soil impacts, including soil vapor extraction (SVE) to address the acetone impacts and excavation and disposal to address the copper impact;

- A printing press area was formerly present; acetone and several semivolatile organic compounds (SVOCs) are present in shallow soils underlying the slab in this area. The impacted area is completely covered with the reinforced concrete slab of the building. The engineering control (EC) of capping has been selected as the remedy for the former printing press area. Capping may also be implemented for other areas of the Site if residual impacts remain following remediation.

- Several stormwater leaching pools are present on the property and stormwater drainage structures are also located in two interior loading docks. Soils impacted with VOCs, SVOCs, and/or metals are present at all locations sampled, with the exception of the soil beneath the west loading dock. Excavation and disposal of the affected soil has been selected as the remedy for the impacted soil in the loading docks and leaching pools.

- Soil in proximity to two former drywells (DW-02 and DW-03) located on the northwest corner of the Site was identified with several VOCs and metals. Remedial measures will be implemented in this area to address the soil impacts, including SVE to address the VOC impacts and excavation and disposal to address the metals impacts.

- VOCs and/or SVOCs exceeding their NYSDEC Class GA Ambient Water Quality Standards (Standards) were noted in shallow monitoring wells downgradient of DW-02/03 and DW-01 areas; the areas of impact are limited. Remedial measures will be implemented to address VOC-impacted groundwater; air sparging (AS) has been selected as the remedy for groundwater, with SVE to remove the resulting vapor-phase VOCs, and groundwater monitoring to document remedial progress.

- Soil vapor intrusion (SVI) monitoring will be implemented at this Site. SVE that will be implemented to treat VOC-impacted soil in the DW-01 area and to capture vapors from the groundwater AS system will also prevent SVI into the onsite building. SVI monitoring will be used to confirm that SVI is not occurring into the building and to assist in documenting the progress of soil remediation.

- The ROD for the Site specifies that an Institutional Control (IC) in the form of an environmental easement be imposed on the Site. The environmental easement will require periodic certification of the Site's ECs and IC, restrict the use of the property to commercial and industrial uses, restrict the use of Site groundwater, prohibit agriculture and vegetable gardens on the property, and require compliance with a NYSDEC-approved Site Management Plan (SMP). The SMP will include an Institutional and Engineering Control Plan, a Monitoring Plan, and an Operation and Maintenance (O&M)

Plan. The SMP will be prepared during the implementation of the remedial measures and will be submitted to the NYSDEC as part of the Final Engineering Report (FER).

An RD/RA Work Plan has been prepared for the Site to describe the remedial actions and provide the associated procedures to be implemented for each area of concern at the Site. Following NYSDEC approval, the RD/RA WP will be implemented.

2.0 Interested/Affected Members of the Public

The following is a list of contacts for the Site (Site Contact List, or SCL). This list will be updated throughout the investigation and remeidation process to ensure that it includes all interested people.

Nassau County Officials

County Executive Officer:
Edward P. Magnano
1550 Franklin Avenue
Mineola, NY 11501
(516) 686-4260

Nassau County Department of Health:
Commissioner of Health
106 Charles Lindbergh Boulevard
Uniondale, NY 11553
(516) 227-9697

Adjoining Property Owners

Property	Location	Owner's Name	Address	City	State	Zip
Meadowbrook Parkway	Adjoining north and east	NYS Department of Transportation, Region 10	250 Veteran's Highway	Hauppauge	NY	11788
615 South Street	Adjoining west	WAC Lighting	615 South Street	Garden City	NY	11530

Local News Media

Newsday:

Newsday
Long Island Newsroom
235 Pinelawn Road
Melville, NY 11747
(631) 843-2700

The Garden City News:

The Garden City News
821 Franklin Avenue, Suite 206
Garden City, NY
(516) 294-8900

Public Water Supplier

Carle Place Water District
578 Mineola Avenue
Carle Place, NY 11514

School Facilities Near the Site

Garden City School District
Stewart Elementary School
501 Stewart Avenue
Garden City, NY 11530

Garden City School District
Locust Street Elementary School
220 Boylston Street
Garden City, NY 11530

Local Residents

Residents, property owners, and occupants adjoining the Site and any other persons who contact the NYSDEC regarding environmental matters at the Site who request to be included in the SCL.

3.0 Regulatory Agency Contacts

The following regulatory agencies may be contacted for information regarding the Site:

- New York State Department of Environmental Conservation
  625 Broadway, 11th Floor
  Albany, NY 12233-7015
  Attn: Jeffrey Dyber, PE (518) 402-9621

- New York State Department of Health
  Empire State Plaza
  Corning Tower, Room 1787
  Albany, NY 12237
  Attn: Steven Karpinski (518) 402-7880

4.0 Document Repositories

The following locations serve as repositories for documents related to investigation and remedial activities at the Site. Documents in the repositories are available for public review and copying.

Public Library

Garden City Public Library
Reference Section
60 Seventh Street
Garden City, NY 11530
(516) 742-8405

Hours:

Monday-Thursday – 9:30 AM to 9 PM
Friday – 9:30 AM to 5:30 PM
Saturday – 9 AM to 5 PM
Sunday – 1 PM to 5 PM

NYSDEC Office

New York State Department of Environmental Conservation
Region 1 Office
50 Circle Road
Stony Brook, NY 11794-3409
Contact Jeffrey Dyber at (516) 402-9621 for access

Documents that are available, or will be added to the repositories as they become available, include: RI/FS Work Plan, Fact Sheets, RI/FS Report, ROD, RD/RA WP, and other pertinent documents.

5.0 Specific Citizen Participation Activities

This section describes the citizen participation (CP) activities that have been undertaken or are planned during the investigation and remedial process for the Site. These CP activities were originally formulated in accordance with the requirements in the NYSDEC CPP Guidebook (NYSDEC June, 1998) and 6 NYCRR Part 375-1.10 (NYSDEC, December 14, 2006) and have been updated in accordance with DER-23 (Citizen Participation Handbook for Remedial Programs, January 2010).

All CP materials will be approved by the NYSDEC prior to their release to the public and will be prepared by the Owner, unless otherwise indicated. CP activities that have been or will be performed for the Site are described below.

Completion of RI/FS Work Plan:

Upon the determination that the RI/FS Work Plan was complete, the Owner, in cooperation with the NYSDEC, provided a Fact Sheet (June 2008) to the SCL to announce the availability of the final RI/FS Work Plan. The RI/FS Work Plan was transmitted by the Owner on June 9, 2008 for placement into the document repositories.

Completion of RI/FS Report and Completion of the Preliminary Remedial Action Plan:

The NYSDEC prepared and transmitted a Fact Sheet (February 2012) to the SCL describing the RI/FS Report and outlining the Proposed Remedial Action Plan (PRAP). The PRAP was placed into the document repositories by the NYSDEC. A 30-day public comment period (February 10 to March 12, 2012) was held during which public comments were accepted by the NYSDEC. A public meeting was held on February 22, 2012 to discuss the PRAP, the remedial alternatives considered, the schedule for future work, and to receive public comments.

Following Selection of a Remedy and Issuance of a Record of Decision:

A Fact Sheet was mailed by the NYSDEC to the SCL announcing the Record of Decision (ROD). This Fact Sheet (February 2012) described the remedy, discussed any significant changes from the PRAP, and summarized and responded to significant comments received during the public comment period for the PRAP. A copy of the ROD was placed into the document repositories by the NYSDEC.

Before the Start of Remedial Action:

Upon the determination that the Remedial Design/Remedial Action (RD/RA) Work Plan is complete and prior to the start of remedial action (RA), the Owner, in cooperation with the NYSDEC, will prepare and provide a Fact Sheet to the SCL to describe the upcoming RA.

When NYSDEC Issues Site Certificate of Completion:

Upon the NYSDEC's issuance of the Certificate of Completion (COC) for the Site, a copy of the COC shall be placed in the document repository and the Owner, in cooperation with the NYSDEC, will provide a Fact Sheet to the SCL to announce the issuance of the COC.

If the Site is Proposed for Delisting:

In the event that the Site is proposed for delisting a notice will be published in the Environmental Notice Bulletin (ENB) announcing the proposed Site delisting and a 30-day public comment period. The content of the ENB notice shall also be published in a local newspaper and mailed to the SCL. A 30-day public comment period will be held during which public comments will be accepted by the NYSDEC. The NYSDEC shall prepare a responsiveness summary to the public comments received. The responsiveness summary shall be made publicly available.

6.0 Glossary of Key Terms

Key terms and phrases used in the CPP are defined in this section.

Air Sparging (AS): A remedial method to treat groundwater by blowing air into the groundwater such that volatile organic compounds dissolved in the groundwater are transferred to the air, which migrates to the water table surface and can be captured, thereby removing the volatile organic compounds from the subsurface.

Citizen Participation (CP): A process to inform and involve the public in the decision-making process during identification, assessment, and remediation of Inactive Hazardous Waste Disposal sites. This process helps to assure that the best decisions are made from environmental, human health, economic, social, and political perspectives.

Citizen Participation Plan (CPP): A document that describes the site-specific citizen participation activities that will take place to complement the technical investigation and remedial activities.

Document Repository: Typically, a regional NYSDEC office and/or public building, such as a library, near a particular site at which documents related to investigation, remediation and citizen participation activities at the site are available for public review. Provides access to documents at times and locations convenient to the public.

Engineering Control (EC): a physical barrier or method employed to contain, stabilize, restrict the movement of, or monitor contamination or eliminate potential exposure pathways to contamination.

Fact Sheet: A written discussion of a site's remedial process, or some part of it, prepared by the Owner and approved by the NYSDEC for the public in easily understandable language. A Fact Sheet will be prepared for the general public or a particular segment of the public. Uses may

include, for example: discussion of an element of the remedial program, opportunities for public involvement, availability of a report or other information, or announcement of a public meeting. The Fact Sheet will be mailed to the BSCL, distributed or made available at meetings, or sent on an "as requested" basis.

Feasibility Study (FS): A process for developing, evaluating and selecting remedial actions using data gathered during the remedial investigation to define the objectives of the remedial program for the site and broadly develop remedial action alternatives; perform an initial screening of these alternatives; and, perform a detailed analysis of a limited number of alternatives that remain after the initial screening.

Final Engineering Report (FER): A report that documents the complete remedial program, including the necessary certifications.

Groundwater: Water found beneath the earth's surface that fills pores between materials such as sand, soil, and gravel and also may fill cracks in bedrock.

Inactive Hazardous Waste Disposal (IHWD) Site: A site with known or suspected hazardous waste disposal identified by the NYSDEC.

Institutional Control (IC): a non-physical means of enforcing a restriction on the use of real property that limits exposure to contaminants, provides notice to potential owners, operators, and/or the public, and prevents actions that would interfere with the effectiveness of the remedial program and/or with the effectiveness and/or integrity of site management activities.

Preliminary Remedial Action Plan (PRAP): A document outlining alternatives considered by the NYSDEC for the remediation of an IHWD site and highlighting the alternative preferred by the NYSDEC. The PRAP is based on information developed during the site's RI and FS. The PRAP is developed by the NYSDEC and is reviewed by other state agencies and the public.

Public Meeting: A scheduled gathering of the NYSDEC staff and the public to give and receive information, ask questions, and discuss concerns. A public meeting will take one of the following forms: large-group meeting called by the NYSDEC; participation by the NYSDEC at a meeting sponsored by another organization such as a Town Board or Department of Health; a working group or workshop; or, a tour of the IHWD site.

Public Notice: A written or verbal informational technique for telling people about an important part of a site's remedial program coming up soon (example: announcement that the report for the RI is publicly available and a public meeting has been scheduled). The public notice may be formal and meet legal requirements (for example: it may announce the beginning of a formal public comment period).

Record of Decision (ROD): A document that provides the definitive record of the cleanup alternative that will be used to remediate an IHWD site. The ROD is based on the RI/FS and public comments on the PRAP.

Remedial Design/Remedial Action Work Plan: Once a remedial action has been selected, a document (work plan) is prepared that states the remedial methods to be used at a site and the process by which the remedial methods will be implemented. A remedial design, including technical drawings and specifications for remedial construction, are developed and included in the work plan. Design documents are used to obtain bids and to construct the chosen remedial

actions. Remedial design is performed by consulting professionals with experience in remedial actions.

Remedial Investigation (RI): A process to determine the nature and extent of contamination by collecting data and evaluating the site. The RI includes sampling and monitoring, as necessary, and the gathering of sufficient information to determine the necessity for, and proposed extent of, a remedial program for the site.

Remediation: Actions taken to clean up contamination at a site.

Resource Conservation and Recovery Act (RCRA): Federal law governing the treatment, storage, handling, disposal, and overall management of solid and hazardous wastes.

Semivolatile Organic Compound (SVOC): organic chemicals amenable to analysis after extraction of the chemical with an organic solvent.

Site Contact List (SCL): Names, addresses, and/or telephone numbers of individuals, groups, organizations, and media interested and/or affected by a particular IHWD site. Interest in the site, stage of remediation, and other factors guide how comprehensive the list becomes. It is used to assist the NYSDEC and to inform and involve the public.

Site Management Plan (SMP): A document that details the institutional and engineering controls required for a site, any physical components of the remedy required for the site, and the operation, monitoring and reporting of the remedy.

Soil Vapor Extraction (SVE): A remedial method to treat soil contaminated by volatile organic compounds by extracting air from the subsurface such that the VOCs associated with the soil evaporate into the air and are removed from the subsurface. This method also removes VOCs that result from air sparging from the subsurface.

Soil Vapor Intrusion (SVI): A process whereby subsurface air containing volatile organic compounds migrates into buildings, resulting in contamination of indoor air.

Volatile Organic Compound (VOC): Organic compounds that have a high vapor pressure (low boiling point) under ordinary (room temperature) conditions, resulting in ready evaporation of these chemicals into the air or soil vapor.