Geosyntec consultants

engineers | scientists | innovators

Beech and Bonaparte engineering p.c.

an affiliate of Geosyntec Consultants

INTERIM SITE MANAGEMENT PLAN

FORMER SPERRY REMINGTON SITE – NORTH PORTION
777 SOUTH MAIN STREET
CITY OF ELMIRA, CHEMUNG COUNTY, NY
NYSDEC PROJECT C808022

Prepared for

Unisys Corporation

3199 Pilot Knob Road

Eagan, MN 55121

Prepared by

Geosyntec Consultants, Inc. and Its Affiliate
Beech and Bonaparte Engineering, PC
10211 Wincopin Circle, Floor 4
Columbia, Maryland 21044

Project Number MN0832F
Document Number MD19160

December 2019

Former Sperry Remington - North Portion

CHEMUNG COUNTY

ELMIRA, NEW YORK

INTERIM SITE MANAGEMENT PLAN

NYSDEC Site Number: C808022

Prepared for:

Unisys Corporation

3199 Pilot Knob Road

Eagan, MN 55121

Prepared by:

Geosyntec Consultants, Inc. and Its Affiliate

Beech and Bonaparte Engineering, PC

10211 Wincopin Circle, Floor 4

Columbia, Maryland 21044

410 381 4333

Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

DECEMBER 2019

CERTIFICATION STATEMENT

I ARON KRASNOPOLER certify that I am currently a NYS registered professional engineer as in defined in 6 NYCRR Part 375 and that this Interim Site Management 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).

_____ P.E.

12 December 2019 DATE

TABLE OF CONTENTS

Former Sperry Remington - North Portion

CHEMUNG COUNTY

ELMIRA, NEW YORK

INTERIM SITE MANAGEMENT PLAN

TABLE OF CONTENTS

List of Tables

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS

AOC	Order on Consent and Administrative Settlement
BCP	Brownfield Cleanup Program
BCA	Brownfield Cleanup Agreement
BMP	Best Management Practice
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
COC	Certificate of Completion
COPC	Compound of Potential Concern
CSM	Conceptual Site Model
DCE	Dichloroethene
DER	Division of Environmental Remediation
EC	Engineering Control
ECSD	Elmira City School District
EDD	Electronic Data Deliverable
EHS	Elmira High School
ELAP	Environmental Laboratory Approval Program
EMP	Environmental Management Plan
EWP	Excavation Work Plan
GMP	Groundwater Management Plan
HASP	Health and Safety Plan
HVAC	Heating, Ventilation, and Air Conditioning
HVS	High Volume Sampling
IC	Institutional Control
IRM	Interim Remedial Measure
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
NYSED	New York State Education Department
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
PAH	Polycyclic aromatic hydrocarbons
PAOC	Potential Areas of Concern
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethene
PID	Photoionization Detector
PRR	Periodic Review Report
QAPP	Quality Assurance Project Plan
ROI	Radius of Influence
RP	Remedial Party
RSO	Remedial Site Optimization
SCG	Standards, Criteria and Guidelines

SCO	Soil Cleanup Objective
SED	State Education Department
SHS	Southside High School (now Elmira High School)
SMO	Soil Management Objective
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SSV	Sub-slab Venting
STCC	Southern Tier Commerce Center
SVIA	Supplemental Vapor Intrusion Assessment
SWPPP	Storm Water Pollution Prevention Plan
SVOC	Semi-Volatile Organic Compound
TAL	Target Analyte List
TCE	Trichloroethene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
TOGS	NYSDEC Technical Operational Guidance Series
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VI	Vapor Intrusion
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance and reporting activities required by this interim Site Management Plan:

Site Identification: Former Sperry Remington Site - North Portion
777 South Main Street
Elmira, Chemung County, New York

Institutional Controls:	1. The property may be used for restricted residential use;
	2. The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Chemung County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department. ECSD currently uses, and will continue to use, groundwater for non-contact cooling water without treatment. Spent non-contact cooling water is discharged to Coldbrook Creek under SPDES Discharge Permit #NY0106216.
	3. All ECs must be inspected at a frequency and in a manner defined in the interim SMP.
Engineering Controls:	1. Cover system
	2. Sub-slab depressurization system.

Inspections:	Frequency
1. Cover inspection • Permanent • Temporary	Annually Daily- during seasonal and weather influenced time periods Monthly- until final remedy is complete
2. Non-contact Cooling Water Discharge	Monthly

Site Identification: Former Sperry Remington Site - North Portion
777 South Main Street
Elmira, Chemung County, New York

Monitoring:	
1. SSD Fan Motors	Continuous and real-time
2. Indoor Air: K-Wing Science Addition, Gymnasium, Cafeteria Addition, F-Wing, Music Wing	Annually during heating season
3. Non-contact Cooling Water Discharge	Monthly
Maintenance:	
1. Cover maintenance	As needed/Annual
2. Blower maintenance	As needed/Annual
Reporting:	
1. Certification of Institutional and Engineering Controls and Report	Annual
2. Discharge Monitoring Report	Annual

Further descriptions of the above requirements are provided in detail in the latter sections of this interim Site Management Plan. Once approved, this interim Site Management Plan will replace the Environmental Management Plan prepared by Elmira City School District in 2009.

1.0 INTRODUCTION

1.1 General

On behalf of Unisys Corporation (Unisys), Geosyntec Consultants, Inc. and its New York affiliate Beech and Bonaparte Engineering, P.C. (collectively Geosyntec) are submitting this interim Site Management Plan (SMP) for the Former Sperry Remington Site – North Portion Site (Site No. c808022) located in Elmira, New York (hereinafter referred to as the "Site"). On 26 April 2016, Unisys applied to enter the Site into the New York State Department of Environmental Conservation (NYSDEC) Brownfields Cleanup Program (BCP). NYSDEC gave an initial determination that the BCP application is complete on 10 June 2016 and received public comments until 22 July 2016. The BCP Agreement (BCA) for the Site was executed on 23 March 2017. The Site is located at the Elmira High School (EHS) property (formerly known as Southside High School [SHS]), 777 South Main Street in Elmira, Chemung County, New York (see **Figure 1-1**) and is owned by the Elmira City School District (ECSD).

A figure showing the Site location and boundaries of this Site is provided in **Figure 1-2**. The boundaries of the Site are more fully described in the metes and bounds site description that is part of the Property Description provided in **Appendix A**. The necessity for an environmental easement requiring compliance with the SMP will be evaluated when a final remedy for the Site has been completed and a final SMP has been prepared.

Institutional and Engineering Controls (ICs and ECs) have been incorporated into Site management to control potential exposure to Compounds of Potential Concern (COPCs) that may be present in soil, groundwater and soil vapor on EHS property to ensure protection of public health and the environment. In 2003, New York State Department of Health (NYSDOH) completed a Health Consultation for Southside High School (now EHS) that recommended that ECSD develop a written soil management plan to "minimize potential public exposures to contaminated subsurface materials…" In June 2009, ECSD prepared an Environmental Management Plan (EMP) in response to a request from the State Education Department (SED) to formalize environmental management operations and practices at EHS. NYSDEC and NYSDOH provided technical assistance to SED in development and review of the EMP. The intent of the EMP was to advise construction personnel and the general community regarding the potential for exposure to COPCs that may be present in soil, groundwater and soil vapor on EHS property.

This interim SMP was prepared to address ICs and ECs that have been implemented as interim measures until a Site remedy has been selected and to describe required monitoring and operation and maintenance (O&M) activities. It incorporates and replaces the current EHS EMP. This interim SMP will be incorporated into the SMP for the Site upon completion of the remedial program, as necessary. This interim SMP may only be revised

with the approval of the NYSDEC and ECSD.- Responsibilities for implementation of this interim SMP are divided between ECSD as the Site owner and Unisys as a party to the BCA as presented in **Appendix B-1**

All reports associated with the site can be viewed by contacting the Chemung County Library, the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the site is provided in **Appendix B-2** of this SMP.

This interim SMP was prepared by Geosyntec on behalf of Unisys, in accordance with the requirements of the NYSDEC Department of Environmental Remediation's (DER) DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010, and the guidelines provided by the NYSDEC.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shut-down of a remedial system, additional remedial actions, post-remedial removal of contaminated sediment or soil, or other significant change to the Site conditions.

1.3 Notifications

Notifications will be submitted by the property owner, ECSD, and/or Unisys as party to the BCA to the NYSDEC, as needed, in accordance with NYSDEC's DER-10 for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the BCA, 6NYCRR Part 375 and/or Environmental Conservation Law. Change of use may include any activity that is likely to disrupt or expose contamination or to increase direct human exposure: or any other conduct that will or may tend to significantly interfere with an ongoing remedial program.
- 7-day advance notice of any field activity associated with the remedial program.
- 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan (EWP).
- Notice within 48-hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness

of ECs in place at the site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the site or the responsibility for implementing this interim SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the BCA, and all approved work plans and reports, including this interim SMP.
- Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table **1-1** on the following page includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in **Appendix B**.

When Unisys anticipates undertaking intrusive physical work at Elmira High School, Unisys will consult with ECSD in non-emergency situations at least five (5) business days in advance prior to developing a proposed plan for such work in order to discuss timing and logistics. While emergencies may not allow for such advance consultation., Unisys will consult with ECSD in emergency situations as far in advance as reasonably possible under the particular circumstances. In the event of an emergency, Unisys shall provide notice to ECSD contemporaneously with the NYSDEC.

Unisys will provide ECSD at least 10 business days to review and provide comments on drafts of substantive reports, work plans, etc. related to investigation and remediation at EHS prior to submission to NYSDEC; provided such advance review requirement will not apply to (i) the submission of standard reports such as progress reports, the submission of raw data, and similar materials, or (ii) in situations where Unisys reasonably concludes that timing concerns prevent such advance review period - however, in the case of (i) or (ii), or emergency situations in which no advance consultation could reasonably occur under the circumstances, Unisys will provide a copy of such materials at the same time Unisys submits them to NYSDEC.

Table 1-1: Notifications*

Name	Contact Information
Timothy Schneider, PE Project Manager	Phone: 585-226-5480 Email: timothy.schneider@dec.ny.gov
Bernette Schilling, PE Regional Hazardous Waste Remediation Engineer	Phone: 585-226-5315 Email: bernette.schilling@dec.ny.gov
Kelly Lewandowski, PE Site Control	Phone: 518-402-9553 Email: kelly.lewandowski@dec.ny.gov
Joe Magliocca Director of Facilities Elmira City School District	Phone: 607-735-3980 jmagliocca@elmiracitycityschools.com
Dominic Insogna Health & Safety Compliance Specialist GST BOCES/Elmira City School District	Phone: 607-735-3992 Email: dinsogna@gstboces.org
Kevin Krueger Director, Global Environmental, Safety, Health and Security Corporate Real Estate and General Services Unisys Corporation	Phone: 651-212-7273 Email: kevin.krueger@unisys.com

* Note: Notifications are subject to change and will be updated as necessary.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The Site is located in Elmira, Chemung County, New York and is identified as Section 99 Block [20-1] and Lot [74.2] and Section 99 Block 16 Lot 1.16 on the Chemung County Tax Map (and depicted in **Figure 2-1**). The Site is an approximately 34-acre area and is bounded by vacant land to the north, Southern Tier Commerce Center (STCC) to the south, the Consolidated Rail Corp. property to the east, and South Main Street to the west (see **Figure 2-1** – Site Layout Map). The boundaries of the Site are more fully described in **Appendix A**. The owner(s) of the Site parcel(s) at the time of issuance of this SMP is ECSD.

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following: parking lots, athletic fields, and academic buildings. The Site is zoned "Residential – A" and is currently a public high school. Site occupants include ECSD personnel and students. Use includes typical activities associated with a secondary school, including academic classes and sporting events involving the congregation of students and the general public.

The properties adjoining the Site and in the neighborhood surrounding the Site primarily include residential and commercial properties. The properties immediately south of the Site include commercial/manufacturing properties; the properties immediately north of the Site include residential properties; the properties immediately east of the Site include the Consolidated Rail Corp. properties; and the properties to the west of the Site include residential properties.

2.2.2 Geology

A stratigraphic layer comprised of reworked native soils and fill material is located on the Site at a depth of approximately zero (0) to six (6) feet below ground surface (bgs) (thickness varies). That fill unit is composed of primarily of medium to fine sand with silt and medium to fine gravel and includes some red brick, concrete fragments, and wood debris.

Two (2) naturally-occurring continuous stratigraphic units underlie the fill unit. The upper unit is post-glacial outwash. This unit consists of gray-brown fine sand and sub-rounded to rounded coarse to fine gravel. The post-glacial outwash unit extends from approximately six (6) feet below grade to approximately thirty-eight (38) feet below grade.

The second unit is a glacio-lacustrine silt and clay. The unit is relatively impermeable and consists of soft, gray-brown silt and clay, and extends from approximately thirty-eight (38) feet to approximately seven-eight (78) feet below grade in undisturbed areas. The top of weathered bedrock underlies the lacustrine unit and overlays competent shale which dips slightly to the north.

A geologic cross section is shown in **Figures 2-2A, 2-2B,** and **2-2C** (plan view of cross-sections available in **Figure 2-3**). Site specific boring logs are provided in **Appendix C**.

2.2.3 Hydrogeology

Previous investigations conducted for the EHS property indicate that the general groundwater flow direction based on Site monitoring data is to the east in the overburden water bearing zone. Depth to groundwater is generally 15 to 20 feet. Two (2) production wells which provide non-contact cooling water are located to the south of the EHS building. Based on data provided by ECSD, the pumping capacity of each well is approximately six hundred (600) gallons per minute (gpm).

A groundwater contour map is shown in **Figure 2-4**. Groundwater elevation data is provided in **Table 2-1**. Groundwater monitoring well construction logs and the production well construction logs are provided in **Appendix D**.

2.3 Investigation and Remedial History

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8.0 - References.

2.3.1 Site History

From the late 1880's to the early 1970's, the EHS property has been occupied by various industrial facilities:

- 1887 – 1909: B. W. Payne & Sons, manufacturer of high-speed steam engines;
- 1909 – 1935: Morrow Manufacturing, manufacturer of drill chucks, machine parts and tools;
- 1935 – 1937: Elmira Precision Tool Company, manufacturer of typewriter parts for Remington Rand; and
- 1936 – 1972: Remington Rand, manufacturer of typewriters and adding machines.

From 1974 to 1977, Westinghouse Electric Corporation (Westinghouse) occupied approximately ten (10) acres of the EHS property south of the City of Elmira-Town of

Southport line, primarily for warehousing. On 21 April 1977, Chemung County Industrial Development Agency conveyed the SHS Property to Westinghouse and that same day Westinghouse conveyed that property to ECSD. SHS was constructed in 1979.

2.3.2 Previous Investigations

Previous investigations at the EHS property include:

- Soils and Foundation Study, Southside Recreation and Education Facility, Elmira, New York, Empire Soils Investigations, Inc. 13 May 1977.
- Subsurface Environmental Assessment Report, 777 South Main Street to Parkside Drive, Matrix Environmental Technologies, 9 November 1998.
- May-October 2000 NYSDEC Sampling Report, Southside High School and Adjacent Properties, City of Elmira, Chemung County, NYSDEC, 30 September 2001.
- Health Consultation Report, Southside High School, City of Elmira, Chemung County, NYSDOH, 30 September 2003.
- IIWA Report on Groundwater Chlorinated Solvent Investigation, Southside High School and Adjacent Properties, City of Elmira, Chemung County, NYSDEC, 1 March 2004.
- Soils Characterization Report, Elmira City School District, Southside High School, Elmira, New York. Sterling Environmental. July, 2008.
- Report for Soil Investigation beneath Addition to Cafeteria, Elmira City School District, Southside High School, Elmira, New York. Sterling Environmental. January, 2013.
- Vapor Intrusion Assessment and Mitigation Report Elmira High School, Former Sperry Remington Site – North Portion, NYSDEC Project 808022, Geosyntec Consultants, October, 2014.
- Site Characterization Data Report, Former Sperry Remington Site – North Portion, NYSDEC Project 808022, Geosyntec Consultants, February, 2015.
- Site Characterization Work Plan Addendum #2, Former Sperry Remington Site – North Portion, NYSDEC Project 808022, Geosyntec Consultants, January, 2016.
- Site Characterization Report, Former Sperry Remington Site – North Portion, NYSDEC Project 808022, Geosyntec Consultants, May 2017; Revised March 2019.

- Construction Completion Report, Interim Remedial Measure #1, Former Sperry Remington Site – North Portion, NYSDEC Project C808022, Geosyntec Consultants, April 2018; Revised February 2019

- Interim Remedial Measures #2 Work Plan, Former Sperry Remington Site – North Portion, NYSDEC Project C808022, Geosyntec Consultants, July 2018

- Remedial Investigation Work Plan, Former Sperry Remington Site – North Portion, NYSDEC Project C808022, Geosyntec Consultants, September 2018; Revised January 2019

- Supplemental Vapor Intrusion Assessment Report, Former Sperry Remington Site – North Portion, NYSDEC Project C808022, Geosyntec Consultants, September 2018; Revised January 2019

- Music Wing SSD System Construction Completion Report, Former Sperry Remington Site – North Portion, NYSDEC Project C808022, Geosyntec Consultants, September 2018; Revised January 2019

- Construction Completion Report, Interim Remedial Measure #2, Former Sperry Remington Site – North Portion, NYSDEC Project C808022, Geosyntec Consultants, February 2019

2.3.3 Previous Investigation and Remediation by Others

In 1995, a fuel oil sheen was observed on Miller Pond east of the EHS property. Subsequent investigation by NYSDEC between 1995 through 1998 identified petroleum related chemicals in groundwater approximately fifteen (15) feet below grade extending from the EHS property to Miller Pond. Former fuel oil tanks located in the area of the current EHS gymnasium were considered a potential source. A remedial action (NYSDEC Spill #94-16668) was completed by NYSDEC between 2000 and 2011 with the installation and operation of oxygen-injection systems to stimulate aerobic biodegradation of petroleum in subsurface soil and groundwater as follows:

- 2000 – 2001: a forty-three (43) point oxygen-injection system (OIS) operated east of the EHS gymnasium;
- 2003 – 2006: a twenty-four (24) point OIS operated in the southern portion of the EHS football field; and
- 2006 – 2011: a seventeen (17) point OIS operated northeast of the EHS building.

Subsequently NYSDEC conducted an environmental investigation of soil, groundwater, surface water and sediment at EHS in 2000 (NYSDEC, 2001). NYSDOH initiated a cancer study based on a concern of parents regarding a perceived unusual number of testicular

cancer in past and present students at EHS at that time, which was brought to its attention by the NYSDEC. NYSDOH evaluated all available information on cancer in students at EHS, collected indoor air samples from inside EHS and issued a Health Consultation Report in September 2003 (NYSDOH, 2003). The 2003 NYSDOH Health Consultation Report stated:

"Based on ATSDR's public health hazard category classification, the environmental conditions at Southside High School pose no apparent health hazard. This classification is used because average levels of contaminants in surface soils do not exceed public health comparison values. Although a few samples exceed health comparison values, people are unlikely to be exposed frequently to soil at these locations and the associated health risks are unlikely to be significant. Nevertheless, because average levels of total PCBs exceed typical background levels and average levels of carcinogenic PAHs are somewhat below the upper range of background levels, exposures to these contaminants at Southside High School may be greater than those typically experienced from soil. Students, faculty, staff and the community are not currently being exposed to subsurface soil, although it contains chemicals at levels exceeding public health comparison values."

In June 2009, ECSD prepared the EMP in response to a request from the NYSED to formalize environmental management operations and practices at EHS. NYSDEC and NYSDOH provided technical assistance to NYSED in the development and review of the EMP, which was submitted to prevent construction personnel and the general community from exposure to potential residuals of COPCs in soil, groundwater and soil vapor. The components of the EMP included a Soil Management Plan, Indoor Air Quality Action Plan, Groundwater Management Plan, and an Operations, Monitoring and Maintenance Plan for Engineering Controls.

In March 2010, NYSDOH issued a Health Consultation Report (NYSDOH, 2010) that evaluated indoor and outdoor air quality as well as sub-slab vapor samples collected by ECSD in 2009. NYSDOH concluded that exposures to concentrations of volatile organic compounds (VOCs) in indoor air at EHS were not expected to be harmful to human health if the actions specified in the environmental management plan were implemented (i.e. operation of heating, ventilation, and air conditioning (HVAC) system in a positive-pressure mode). Since 2009, ECSD has installed vapor mitigation systems as a preemptive measure whenever existing floor areas of the school were renovated, or new areas were constructed. Vapor mitigation systems have been installed in the Gymnasium, Science Addition (K-Wing) and the Cafeteria. These vapor mitigation systems have been inspected regularly by ECSD and have run continuously since installed.

2.3.4 Vapor Intrusion Assessment and Mitigation

In June 2013, NYSDEC contacted Unisys with information regarding the 2009 ECSD testing program and 2010 NYSDOH Health Consultation Report including historic

demolition, construction and facility plans provided in digital form that NYSDEC had recently received from ECSD. In response, Unisys voluntarily conducted an initial assessment of HVAC operations at Room 127 of SHS in July 2013. Unisys subsequently submitted a work plan to assess indoor air and sub-slab soil vapor in June 2014 (Geosyntec, 2014a) that included a program to assess the potential for soil vapor intrusion (VI) at twenty-three (23) locations based on historical use of the EHS property and previous environmental investigations. The 2014 VI assessment program included:

- Collection of field-based screening level data;
- Collection of indoor air and sub-slab soil vapor samples for laboratory-based chemical analyses suitable for comparison with NYSDOH VI guidance matrices;
- Collection of high volume sampling (HVS) flow and vacuum data to assess the transmissive properties of the sub-slab fill material;
- Collection of differential pressure data to assess the impacts of operation of the school HVAC system on cross-slab air pressures; and,
- Completing a building reconnaissance to assess potential impacts of activities and materials inside the building that could influence indoor air concentrations of VOCs.

The results of the VI assessment are described in the Vapor Intrusion Assessment and Mitigation Report which was submitted to the NYSDEC in October 2014 (Geosyntec, 2014b). The key findings were:

- Indoor air sampling results did not exceed the NYSDOH Guideline Values for air; and,
- Sub-slab sampling results from one area, F Wing, exceeded NYSDOH Vapor Intrusion Decision Matrices (NYSDOH, 2006) guidance values that recommend further actions (monitoring or mitigation) to address potential exposures due to VI.

As a proactive measure and in coordination with NYSDEC and NYSDOH, Unisys installed a sub-slab depressurization (SSD) system in the F Wing in August 2014 to mitigate the VI potential. Post-installation pressure testing and chemical testing of the indoor air in that area indicates that the SSD system is achieving that goal.

In May 2018, at the request of the NYSDEC (NYSDEC 2018), Unisys evaluated SSD systems operating at EHS, including the following:

- Documentation of SSD system equipment;

- Operation and maintenance requirements;
- Minimum vacuum required at each point to maintain protection;
- Alarm requirements, notification procedures, and corrective actions; and
- Recommendations for upgrades and expansions of existing systems.

This evaluation concluded SSD systems were operating as intended to mitigate the potential for vapor intrusion.

In June 2018, at the request of NYSDEC (NYSDEC 2018), Unisys submitted a Supplemental Vapor Intrusion Assessment (SVIA) work plan to further assess the VI potential at EHS. The SVIA work plan was approved by NYSDEC on June 21, 2018 and SVIA report summarizing completed activities was submitted in September 2018. SVIA program components included:

- Collection of field-based screening level data;
- Collection of laboratory-based chemical data;
- Collection of HVS flow and vacuum data to assess the transmissive properties of the sub-slab fill material;
- Collection of differential pressure data to assess the impacts of operation of the school HVAC system on the VI potential; and
- Building reconnaissance to assess impacts of floor cracks on the VI potential.

SVIA testing results indicated:

- Indoor air sampling results did not exceed NYSDOH Guideline Values for air; and
- Sub-slab sampling results from Room 148 in the Music Wing exceeded NYSDOH Vapor Intrusion Decision Matrices (NYSDOH, 2006) guidance values that recommend further actions (monitoring or mitigation) to address potential exposures due to VI.

As a protective measure, Unisys installed an SSD system in the Music Wing in August 2018 to mitigate the VI potential. Subsequent pressure testing and chemical testing of the indoor air in that area indicates that the SSD system is protective.

SVIA conclusions are as follows:

- VI potential at EHS is well understood. Areas where sub-slab soil gas readings were above NYSDOH Matrix values are being addressed by SSD systems, even in situations where indoor air readings at these locations are below NYSDOH Guideline values;

- Differential pressure monitoring data demonstrate that SSD systems continuously maintain depressurized conditions in the area of their operation. Operation of the HVAC system is not necessary to maintain the efficacy of any SSD system;

- Post-mitigation chemical monitoring results have demonstrated that the SSD systems effectively control the potential for VI-related exposures to VOCs at the school. Full time operation of the HVAC system in occupied mode to mitigate potential VI-related exposures in areas within or beyond the SSD systems zones of influence is not necessary; and

- The presence of floor cracks does not result in a demonstrable diminution of the efficacy of any SSD system and does not enhance VI potential at EHS.

The Engineering Controls, Monitoring and Operation and Maintenance components of this SMP that are related to VI reflect those conclusions (see Sections 3.3.3, 4.41 and 5.3, respectively).

2.3.5 Site Characterization

In October 2013, NYSDEC presented to Unisys Potential Areas of Concern (PAOCs) for the Site and provided corresponding historic plans and details depicting industrial waste facilities and operations from 1967 (Lancy, 1967). Portions of the 1967 Lancy report were initially provided to NYSDEC in 1988 (Dames & Moore, 1988). The PAOCs for the Site identified by NYSDEC based on previous investigations and prior industrial use of the property are summarized on **Table 2-2** and **Figure 2-5**.

A Site Characterization (SC) Work Plan submitted to NYSDEC on 29 July 2014. Revisions submitted on 8 and 27 October 2014 and accepted by NYSDEC on 2 December 2014. Soil investigations, groundwater investigation and former combined storm sewer inspections for Site Characterization were conducted at the Site between July and October 2014, with all data validated by 10 November 2014.

A SC Data Report was submitted to NYSDEC on 6 February 2015. The SC Data Report identified polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and metals as COPCs at the Site based on comparison to Restricted Residential Soil Cleanup Objectives (SCOs). Report recommendations included additional delineation of PCBs in soils from select areas of the Site.

Additional SC activities were conducted between July 2015 and May 2017 in accordance with SC Work Plan Addendum #1 (Geosyntec, 2015c), SC Work Plan Addendum #2 (Geosyntec, 2016a), SC Work Plan Addendum #3 (Geosyntec, 2016b), SC Work Plan Addendum #4 (Geosyntec, 2017a) and SC Work Plan Addendum #5 (Geosyntec, 2017b). Additional investigations included delineation of PCBs in soils, evaluation of potential PCB migration in groundwater, evaluation of intermediate groundwater east of the gymnasium, characterization of VOCs in groundwater in the vicinity of the F-Wing and catch basin inspection and sampling.

A SC Report was submitted to NYSDEC on 17 May 2017 describing SC and remedial activities conducted to date. A final SC Report was submitted to NYSDEC on 28 March 2019 in response to 15 August 2018 agency comments.

2.3.6 Soil Interim Remedial Measures

Unisys conducted Interim Remedial Measures (IRMs) for impacted soil removal in coordination with EHS capital improvements conducted by ECSD at the EHS Tennis Courts and Main Parking Lot (IRM #1) and Rear Parking Lot (IRM #2) in 2017 and 2018, respectively. A third IRM (IRM #3) is being contemplated for the Football Field Complex while other investigative activities proceed. Soil removal IRM activities are described in the following sections.

2.3.6.1 IRM #1 (EHS Tennis Courts and Main Parking Lot):

An IRM Work Plan submitted to NYSDEC on 5 April 2017 with subsequent revisions on 26 April 2017, 2 June 2017, and 27 June 2017 7 in response to agency comments. The Final Revised IRM [#1] Work Plan was submitted to NYSDEC on 11 July 2017 and approved on 10 August 2017. IRM #1 activities included removal of PCB-impacted soils in the vicinity of the EHS Tennis Courts (North Excavation) and Main Parking Lot (South Excavation. IRM construction in the South Excavation was limited to excavation to four (4) feet below ground surface (ft bgs) in the main parking lot and to two (2) ft bgs in areas to the east due to time constraints to accommodate completion of ECSD capital improvements in 2017. The balance of the South Excavation will be completed in accordance with the IRM Work Plan at a later date.

Amendment #1 to IRM #1 Work Plan submitted to NYSDEC on 11 August 2017. This amendment presented plans for surface soil removal in the southwest portion of the football field and high jump pit area to minimize potential exposure to PCBs in those areas. Activities associated with the football field and high jump pit area were completed in September 2017.

The Construction Completion Report (CCR) for IRM #1 was submitted to NYSDEC on 30 April 2018 with revision on 28 February 2019. This report summarizes IRM #1 activities, including information regarding the depths and extent of excavation, the presence of

demarcation layers, the nature of the protective cover and materials used to backfill excavations.

2.3.6.2 IRM #2 (EHS Rear Parking Lot)

IRM #2 Pre-Design Investigation (PDI) Work Plan submitted to NYSDEC on 13 December 2017. This work plan presented plans to collect data to support the design of IRM #2 to remove PCB-impacted soils in the EHS rear parking lot in 2018. NYSDEC comments were received on 4 January 2018 with conditional approval to proceed. A revised IRM #2 PDI Work Plan was submitted on 12 January 2018. IRM #2 PDI field work was conducted between 5 and 24 January 2018. Additional PDI activities were conducted between 26 February 2018 and 20 June 2018 in accordance with Amendments #1 through #5 submitted to NYSDEC.

An agency Draft IRM #2 Work Plan was submitted to NYSDEC on 15 March 2018 with revision on 10 April 2018. NYSDEC comments to this work plan were received on 29 May 2018.

The Final IRM #2 Work Plan was submitted to NYSDEC on 6 June 2018 in response to agency comments. Conditional approval was received on 20 June 2018 with responses submitted on 22 June 2018. A Revised Final IRM #2 Work Plan was submitted in response to agency comments on 13 July 2018 and approved on 25 July 2018.

Amendment #2 to IRM #2 Work Plan was submitted to NYSDEC on 16 July 2018. This amendment was prepared to address construction issues due to refusal encountered at multiple locations during sheet pile wall installation. Amendment #2 presented modified plans to support excavations and subsurface utilities to remain in place during construction and was accepted on 31 July 2018 by NYSDEC. IRM #2 was conducted between 22 June and 25 October 2018.

The Construction Completion Report (CCR) for IRM #2 was submitted to NYSDEC on 1 February 2019. This report summarizes IRM #2 activities, including information regarding the depths and extent of excavation, the presence of demarcation layers, the nature of the protective cover and materials used to backfill excavations.

2.3.6.3 IRM #3 (EHS Football Field Complex)

A Football Field Complex (FFC) Remedial Investigation (RI) and PDI Work Plan (RI/PDI Work Plan) submitted to NYSDEC on 17 July 2018. This work plan presented plans to complete soil investigations to further characterize the nature and extent of COPCs in the football field complex. NYSDEC comments were received on 17 July 2018 with conditional approval to proceed. PDI activities were conducted between 19 July 2018 and 2 November 2018 in accordance with the RI/PDI Work Plan and FFC PDI Activities Work Plan Amendment dated 23 August 2018, and FFC PDI Activities Work Plan Amendment

#2 dated 12 October 2018. A Preliminary (60%) IRM #3 Design was submitted to NYSDEC on 16 November 2018.

In April 2019, Unisys, ECSD and NYSDEC agreed the IRM #3 would be conducted in phases. The first phase to be conducted in Summer 2019 would focus on completion of the IRM #1 South Excavation. The 2019 IRM Work Plan was submitted to NYSDEC on 24 May 2019 with final revision on 13 June 2019 after contingent NYSDEC approval. Construction of the 2019 IRM will be conducted between 29 June and 31 August 2019.

The second phase of IRM #3 will address the remainder of the FFC and will be conducted following completion of FFC PDI activities, submittal and approval of an IRM Work Plan by NYSDEC and a Restoration Plan by ECSD. Ongoing FFC PDI activities include soil investigation, groundwater investigation and evaluation of the former combined industrial sewer and existing EHS storm sewer system.

2.3.7 Remedial Investigation

A BCP RI Work Plan was submitted on 7 September 2018 to NYSDEC in accordance with DER-10. Revisions were submitted in January 2019 and May 2019 in response to agency comments received in January 2019 and March 2019, respectively. NYSDEC approved the BCP RI Work Plan with modifications on 24 July 2019.

2.4 Remedial Action Objectives

Remedial Action Objectives have not been determined for the Site and will be provided in the SMP upon completion of the Decision Document.

2.5 Draft Conceptual Site Model

A conceptual site model (CSM) presents the current understanding of environmental conditions at a site, helps to identify data gaps, helps to focus data collection needs, and if warranted can ultimately support remedial decision making. A CSM is updated to reflect information and additional data collected during subsequent investigative activities associated with a site. The following sections summarize the nature and extent of COPCs detected in environmental media at the Site during previous investigations conducted by others, Site Characterization, IRM pre-design investigations and the FFC RI.

2.5.1 Soil

Site COPCs for soil include metals, PCBs, PAHs, and VOCs. COPCs for soils are presented in **Table 2-3** for surface soils (0 to 2 inches below ground surface [bgs] [1]),

[1] Below ground surface is interpreted as below vegetative cover.

shallow subsurface soils (2 inches to 2 feet [ft] bgs) and deeper subsurface soils (> 2 feet bgs).

Detected concentrations of total PCBs based on the sum of detected Arochlors in Site soils have exceeded the Restricted Residential SCO of one (1) milligram per kilogram (mg/kg). Detected Arochlors include Arochlors 1248, 1254, 1260, and 1262. Of those, Arochlor 1248 was detected most frequently and tended to comprise the largest component where detected. Arochlor 1254 and Arochlor 1260 were detected with similar frequency. Arochlor 1254 was detected primarily in the vicinity of the athletic stands and the football field. Arochlor 1260 was detected primarily in the vicinity of the gymnasium and the rear parking lot. Arochlor 1262 was detected infrequently (in less than one per cent (1%) of samples) with detections only in the football field and west of the A-Wing.

PCBs have been detected above the Restricted Residential SCO in surface soils below the vegetated layer in an approximately 800 square foot area at the southwest portion of the football field and at single locations west of the A-Wing, south of the athletic stands, and east of the gymnasium. PCBs have been detected above the Restricted Residential SCO in shallow subsurface soils above two (2) feet bgs and currently remain in place in the following areas, as depicted in **Appendix E**:

1. An approximately 130,000 square foot area within the football field complex, consisting of approximately 8,000 square feet southeast of the football field, 11,000 square feet northeast of the football field, and 111,000 square feet within the football field area; and
2. Areas east of the gymnasium with an estimated combined area of 57,000 square feet.

Total PCB concentrations in shallow subsurface soils above Restricted Residential SCO have been addressed by IRMs implemented in 2017 and 2018 in the following areas:

- An approximately 40,000 square foot area on the northern and eastern portions of the tennis courts was removed during IRM #1 in 2017;
- An approximately 40,000 square foot area south of the home football field grandstands and west of A-Wing was removed during IRM #1 in 2017; and
- An area of approximately 70,000 square feet in the rear parking lot was removed during IRM #2 in 2018.

PCBs have been identified in deeper subsurface soils (>2 feet bgs) above Restricted Residential SCOs to depths up to sixteen (16) feet bgs in areas of the Site and currently remain in place as depicted in **Appendix E.** These areas are below the soil cover system. The extent of total PCB concentrations in those areas described above decrease with depth.

Total PCB detections in subsurface soils below two (2) feet bgs are compared to a screening value of ten (10) mg/kg. PCB detections within one (1) foot above the seasonal high-water table are comparand to the Protection of Ground Water SCO of 3.2 mg/kg. Soils at depths below two (2) feet bgs with detections of total PCBs greater than ten (10) mg/kg were removed from the main parking lot to a depth of four (4) feet bgs during IRM #1 in 2017 and in the rear parking lot to depths of fourteen (14) feet bgs in the rear parking lot during IRM #2 in 2018.

Temporary cover was installed in areas shown in **Appendix E** as part of Short-Term Remedial Action to prevent potential exposure to surface and shallow subsurface soils in April 2015 (Geosyntec, 2015b). IRM#1 and IRM#2 implemented in 2017 and 2018 resulted in removal of the temporary covers in several areas. IRM #1 (Summer 2017) addressed soils under the mulch beds at the EHS main parking lot and the tennis courts. IRM #2 (Summer 2018) addressed the mulch beds that were present in the southern rear parking lot. Potential exposure in areas not addressed by temporary cover (e.g. the football field) is mitigated by maintenance of well-established vegetative cover.

PAHs were the only semi-volatile organic compounds (SVOCs) detected in soil at concentrations above Restricted Residential SCOs. Those PAHs included benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-c,d)pyrene. As shown in **Appendix E**, SVOCs that exceed the Restricted Residential SCOs are located on the football field, the athletic field, in the vicinity of the tennis courts, and beneath the main and rear parking lots.

Arsenic, copper, lead, manganese, mercury, and nickel are the metal COPCs detected above Restricted Residential SCOs, primarily in the rear parking lot. Metals exceedances that remain in place are shown in **Appendix E**.

Trichloroethene is the VOC COPC detected above Restricted Residential SCOs, primarily in vicinity of F-Wing and the main parking lot. VOCs were not detected above Restricted Residential SCOs in any soil sample collected during Site Characterization in 2014. VOC exceedances that remain in place are shown in **Appendix E**.

Constituents including cyanide and pesticides, were not detected above Restricted Residential SCOs in any soil sample collected during Site Characterization in 2014. Those constituents are not considered to be COPCs for the Site.

A number of underground utilities including electrical, stormwater and sanitary sewer are present at the Site within the soil management areas shown in **Appendix E**. **Figure 2-6** presents the extent of the stormwater sewer system. A sprinkler system is present beneath the football field. **Appendix F** presents results an underground utility survey conducted between 13 and 15 July 2015. Note that **Appendix F** is provided as a reference only and should not be used as a substitute for a professionally conducted utility location conducted prior to any ground-intrusive work.

2.5.2 Groundwater

Groundwater investigations at the Site have been conducted by NYSDEC as part of NYSDEC Spill #94-16668 (Matrix, 1998) and in later investigations of chlorinated solvents (NYSDEC, 2004) and by Unisys as part of Site Characterization in accordance with the Administrative Order on Consent (AOC) (Geosyntec, 2015a). COPCs for groundwater were identified by comparing the most recent groundwater analytical data to NYSDEC *Technical Operational Guidance Series (TOGS) 1.1.1* (NYSDEC, 1998). COPCs for groundwater are presented in **Table 2-4** with the most recent analytical results for groundwater samples collected on EHS property. COPCs for groundwater include metals, PCBs, SVOCs and VOCs.

Figure 2-7 presents the extent of COPC exceedances in groundwater. Trichloroethene (TCE) was detected above groundwater standards in groundwater grab samples collected just outside the EHS F wing. TCE, Freon 113, and acetone have been detected above groundwater standards in the area east of the gymnasium. PAHs, benzo(a)anthracene and chrysene, were detected at concentrations above groundwater standards in groundwater grab samples collected just outside of the gymnasium and swimming pool. Potentially suspect detections of PCBs above groundwater standards have been identified in the area east of the gymnasium and southeast of the football field. PCBs in groundwater are under further investigation pursuant to the BCA.

2.5.3 Soil Vapor and Indoor Air

NYSDEC and NYSDOH conducted investigations at EHS in 1997 and 2000 to evaluate whether vapor intrusion of VOCs was occurring and whether vapor intrusion could affect indoor air quality at EHS. Investigation results from this work indicated VOCs were present below EHS, but that VI did not lead to reported levels in indoor air that were expected to be a health concern (NYSDOH 2003). The EMP prepared by ECSD in 2009 contained an Indoor Air Quality Action Plan component to address the VI potential that included:

- A program to monitor differential air pressure above and below the sub-slab of the building;
- A program to sample and evaluate indoor air and sub-slab vapor;
- Provisions for installation of sub-slab depressurization systems in the building during renovation (gymnasium) and new construction (science addition, cafeteria addition); and
- Provisions to use the building HVAC system to reduce the potential entry of sub-slab vapors into the building by maintaining positive differential pressure between the indoor and sub-slab air during periods when the building is occupied.

In March 2010, NYSDOH issued a Health Consultation Report (NYSDOH, 2010) that evaluated historic indoor and outdoor air quality results as well as sub-slab vapor samples collected by ECSD in 2009. NYSDOH concluded that exposures to concentrations of VOCs in indoor air at EHS were not expected to be harmful to human health if the actions specified in the EMP are implemented (i.e. operation of HVAC system in a positive-pressure mode). NYSDOH recommended continued operation of the building HVAC system for positive pressurization, continued routine monitoring of differential pressures between the sub-slab and building interior, additional evaluation of indoor air quality and collection of pressure differential data in Room 127 of EHS, and modifying HVAC system operation in the area of Room 127 to reduce any concentration of TCE in indoor air. To date, ECSD has continued to operate the HVAC system during periods of building occupancy and continues to monitor indoor air quality and collect pressure differential data. SSD systems were installed during construction of the K-Wing Science Addition in 2009, renovation of the gymnasium in 2010 and construction of a cafeteria addition in 2013 (See "Institutional and Engineering Controls," Section 3).

In July 2014, indoor air samples, sub-slab vapor samples, and HVS were collected by Unisys at twenty-three (23) locations in the EHS building and outdoor air samples were collected at three (3) locations. In June 2018 indoor air samples, outdoor air samples, sub-slab vapor samples, and HVS samples were collected by Unisys to supplement previous VI investigations. HVS testing consisted of extracting and sampling soil vapor at a high flow rate (hundreds or thousands of liters per minute) over a period of time (typically 30 to 60 minutes). Analytical results from 2014 and 2018 are presented in **Table 2-5** and **Table 2-6**, respectively**.** Non-detect results have been omitted from **Table 2-5** and **Table 2-6** to allow for a streamlined presentation of data. Overall, air sampling analytical data are similar to those obtained by ECSD in the 2009 vapor intrusion sampling program (Sterling, 2009).

New York State's updated "Guidance for Evaluating Vapor Intrusion in The State of New York" (NYSDOH, 2017) (VI Guidance) contains Air Guideline Values for several chemicals including TCE (2 $\mu g/m^3$), PCE (30 $\mu g/m^3$) and Methylene Chloride (60 $\mu g/m^3$) "to help guide decisions about the nature of efforts to reduce exposure to the chemical" (NYSDOH, 2017).

The VI Guidance also includes Soil Vapor/Indoor Air Decision Matrices that recommend a range of possible actions to address VI potential based on various paired sub-slab/indoor sampling results (NYSDOH 2017). Currently, eight (8) VOCs have been assigned to one (1) of three (3) matrices.

(https://www.health.ny.gov/environmental/indoors/vapor_intrusion/docs/svi_decision_matrices_abc.pdf).

The VOCs include:

Matrix A	Matrix B	Matrix C

carbon tetrachloride 1,1-dichloroethene cis-1,2-dichloroethene trichloroethene	methylene chloride tetrachloroethene 1,1,1-trichloroethane	vinyl chloride

TCE and cis-1,2-DCE are the only compounds detected at EHS where the paired concentrations are associated with a Matrix recommended action of mitigation. Neither compound exceeded the Air Guideline Value in effect when the samples were collected.

Historical sampling results collected by the NYSDOH in 1999 and 2003, by EHS in 2009 and by Geosyntec in 2014 and 2018 are portrayed in the context of the Decision Matrices in **Figure 2-8**.

The locations where vapor mitigation systems have been installed to address the VI potential are depicted by green rectangles on **Figure 2-8**. All of the occupied areas where indoor/sub-slab sample pairs with a Matrix recommended action of mitigate are being addressed by an SSD system which has been shown to be effective (i.e. create a robust vacuum field below the floor area) without the need for HVAC operation to positively pressurize the building, and despite the presence of unsealed cracks in the building slab.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since COPCs are present in media at the Site, Institutional Controls (ICs) and Engineering Controls (ECs) are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs at the site. The IC/EC Plan is one component of the interim SMP and is subject to revision by the NYSDEC.

This plan provides:

- A description of all IC/ECs on the site;
- The basic implementation and intended role of each IC/EC;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of IC/ECs, such as the implementation of the Excavation Work Plan (EWP) (as provided in **Appendix G**) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the IC/ECs required by the site remedy, as determined by the NYSDEC.

3.2 Institutional Controls

A series of ICs have been developed to: (1) implement, maintain and monitor EC systems; and (2) prevent future exposure to COPCs present in media at the Site. Adherence to these ICs will be implemented under this interim SMP. These ICs are:

- All ECs must be operated and maintained as specified in this interim SMP;
- All ECs must be inspected at a frequency and in a manner defined in this interim SMP.
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Chemung County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department. ECSD currently uses, and will continue to use, groundwater for non-contact cooling water without treatment. Spent cooling

water is discharged to Coldbrook Creek under State Pollution Discharge Elimination System (SPDES) Discharge Permit #NY0106216 (Appendix H).

- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;
- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP;
- Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner;
- The potential for vapor intrusion must be evaluated and any expansions of the existing building footprint that includes occupied spaces, and any potential impacts that are identified must be monitored or mitigated; and
- Vegetable gardens and farming on the site are prohibited;

3.3 Engineering Controls

3.3.1 Permanent Cover

Potential exposure to COPCs that may be present in soil at the Site is to be prevented by existing and proposed cover systems at the Site. Existing and proposed cover systems include:

- Soil - minimum of twenty-four (24) inches of vegetated soil cover. Permanent cover systems in areas where COPCs in subsurface soils (>2 ft bgs) remain in place, meeting NYSDEC approved cleanup criteria will include a demarcation layer consisting of orange snow fencing material immediately below the soil cover. This demarcation layer provides a visual reference for future excavations below which impacted material may exist;
- Asphalt - a minimum of six (6) inches of asphalt (including subbase material) in areas containing roads, sidewalks, and parking lots;

- Concrete - a minimum of six (6) inches of concrete (including subbase material) in areas containing roads, sidewalks or parking lots constructed of concrete in lieu of asphalt; or

- Building slabs and foundations.

All intrusive work, unless in a remediated unrestricted area, must follow the requirements of this interim SMP which includes (but is not limited to) notice requirements and implementation of the EWP. The EWP provided in **Appendix G** outlines the procedures required to be implemented in the event the cover system is to be breached, penetrated or temporarily removed, and any underlying remaining impacted soil is disturbed. At the request of ECSD, major ground intrusive activities must only be conducted when the High School is not in session. Exceptions will be made in cases of emergencies and interim remedial measures (IRMs) or other remedial measures conducted under NYSDEC approved work plans, in which case adequate safeguards will be used to eliminate potential exposure pathways and, in the case of IRMs or other remedial measures only when operational concerns of ECSD have been addressed adequately at the sole discretion of ECSD such as restoration plans, evacuation plans, and other accommodations to ensure the safe and prudent operation of the High School. The integrity of the permanent cover system will be inspected by Unisys or its designee at defined intervals in accordance with this ISMP. Procedures for the inspection of this cover are provided in the Monitoring and Sampling Plan included in Section 4.0 of this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and associated Community Air Monitoring Plan (CAMP) prepared for the Site and provided in **Appendix H**.

3.3.2 Temporary Cover

Temporary cover was installed at the Site between 29 March and 3 April 2015 as part of Short-Term Response Action designed and implemented to temporarily address PCBs analyzed to be present in shallow soils (0 to 2 feet bgs) in several unpaved areas of the Site (Geosyntec, 2015b). **Figure 3-1** presents the locations of the temporary cover. Temporary cover consisted of non-woven geotextile and approximately twelve (12) inches of hardwood mulch. Mulch was kept in place by wood frames secured by rebar. Ground surface in each area was prepared by removal of angular or sharp objects. After surface preparation, geotextile was used to cover existing ground surface and held in place with landscaping staples. An approximate twelve-inch (12-in) high border was prepared for each area using landscaping timbers, anchored in place using rebar as ground-spikes. Each area was completed by adding an approximate twelve-inch (12-in) hardwood mulch layer. After completion, the surrounding area was broom swept /raked to remove mulch from outside the completed area.

Surface soil were removed in the southwest portion of the football field and high jump pit area to minimize potential exposure to PCBs in those areas in September 2017. Six (6) inches of topsoil and sod were placed above a demarcation layer as temporary cover as shown on **Figure 3-1**. All activities occurring with the Football Field Complex have been restricted to those activities that will not damage or degrade the turf cover (i.e. no activities with cleats are allowed). Any staff that use the field for educational activities shall be advised to report any damages to the field. Appropriate maintenance personnel will be notified and activities in the area of damage will be halted until the repair is completed.

Temporary cover was removed in the areas west of A-Wing and the rear parking lot during construction of IRM #1 and IRM #2, respectively, as shown on **Figure 3-1**. During those IRMs, PCB-impacted soils were excavated and permanent cover was installed.

Procedures for the inspection of temporary cover are provided in the Monitoring and Sampling Plan included in Section 4.0 of this SMP.

3.3.3 Sub-slab Vapor Mitigation Systems

Sub-slab vapor mitigation systems restrict the movement of sub-slab vapors into interior space. ECs for sub-slab vapor mitigation in use at EHS include vapor barriers and SSD systems. A vapor barrier is a low-permeability layer installed beneath the building slab to reduce transport of vapors through potential cracks. A SSD system uses a blower to pull air from the soil below the floor slab at one or more “suction points” with the goal of creating negative pressures below the buildings. These negative pressures cause indoor air to flow down from the building interior into the soil through cracks or opening in the slab, rather than allowing vapors to flow up from the ground into the building, thus eliminating or minimizing the potential for vapor intrusion.

While depressurization is the dominant mechanism for vapor intrusion mitigation at the location of the suction points, sub-slab venting (SSV) will also occur at the edges of the SSD system radius of influence (ROI). The SSV process involves air being drawn in along the edges of the SSD influence zone. This “make-up” air provides a dilution effect which can reduce sub-slab vapor concentrations.

Small areas of the area to be mitigated may not be within the ROI of any of the suction points; however, the area at the periphery of the SSD system will be operating as an SSV, thus dilution of sub-slab VOC concentrations will be occurring in this area. Finally, because SSD systems typically decrease sub-slab vapor concentrations through dilution, mitigation objectives are still likely to be met as long as negative pressure objectives are met over the majority of the slab area (USEPA, 1993).

Sub-slab vapor mitigation systems were installed during construction of the K-Wing Science Addition in 2009, during renovation of the gymnasium in 2010, during

construction of a cafeteria addition in 2013, and as IRMs in F-Wing in 2014 and in the Music Wing in 2018.

Procedures for operating and maintaining the SSD systems are documented in the Operation and Maintenance Plan (Section 5.0 of this SMP). As built drawings, signed and sealed by a professional engineer, are included in **Appendix I**. **Figure 2-8** shows the location of the SSD systems for the Site. The following sections present details for each system including system location, system start date; system design information, components, materials, layout, and operating conditions.

3.3.3.1 K-Wing Science Addition

A sub-slab vapor mitigation system was installed as part of the construction of the 12,000 square foot K-Wing Science Addition on the east side of the EHS building in 2009. The system design is described in the Soil Vapor Mitigation Design Plan prepared by Sterling Consultants in February 2009 for ECSD and revised in April 2009 (Appendix 4C of the EMP, Sterling, 2009). The vapor mitigation system consists of a SSD system and a vapor barrier. The SSD system consists of a gas permeable layer consisting of a minimum of six (6) inches of crushed stone or crushed gravel. A collection plenum is installed in the gas permeable layer consisting of a 40-inch square void, the full thickness of the stone layer. The plenum is formed by six (6) 8 x 8 x 16-inch concrete blocks. The soil gas and any vapors enter the plenum space unobstructed, then enter a six (6) inch diameter solid wall fiberglass reinforced plastic pipe. This six (6) inch duct is connected by means of wet lay-up joints to a 90-degree elbow connected to a vertical riser passing through the slab, the interior of the addition and the roof of the addition. A U-tube pressure manometer is placed in this riser so that the vacuum exerted by the fan will be evident at the manometer whenever the fan is operating normally. A fan is mounted above the roof at the termination of the riser to create a negative pressure through the duct and system beneath the concrete slab. The exhaust is 44-inches above the roof of the building, is located above all eaves, is at least fifteen (15) feet above ground level, is at least ten (10) feet away from air intakes and is at least ten (10) feet from any openings that are less than two (2) feet below the exhaust point and is more than ten (10) feet from the adjoining EHS Main Building. As-built drawings of the K-Wing SSD system are provided in **Appendix I**.

The vapor barrier consists of six (6) mil polyethylene sheets overlapped a minimum of twelve (12) inches with Sikaflex-1A sealant applied a minimum of four (4) inches wide between the overlaps. Polyethylene sheets are sealed to the pile caps with the same sealant.

The K-Wing SSD system is designed to operate without regular maintenance or monitoring. The system blower is connected to the school district central monitoring system which will alert district personnel if the blower fails. If a blower failure or other problems with the SSD system occur, the school district has been instructed to alert Unisys for repair. See “Operations and Maintenance Plan” in Section 5 for further details.

3.3.3.2 Gymnasium

A sub-slab vapor mitigation system was installed in the EHS gymnasium as part of a remodeling project conducted in 2010 (Sterling, 2011). The vapor mitigation system consists of a vapor barrier and a SSD system. The Gymnasium SSD consists of a stone gas permeable layer with a plenum constructed of concrete blocks within the permeable layer and a vent duct. The vent duct rises from the plenum and is connected to the exhaust fan that creates a negative pressure within the permeable layer. The vapor barrier consists of Stego Wrap™ ten (10) mil polyolefin sheets overlapped a minimum of twelve (12) inches with Sonoclastic™ NP1 caulk applied a minimum of four (4) inches wide between the overlaps. Polyethylene sheets are sealed to the pile caps with the same sealant.

The Gymnasium SSD system is designed to operate without regular maintenance or monitoring. The system blower is connected to the school district central monitoring system which will alert district personnel if the blower fails. If a blower failure or other problems with the SSD system occur, the school district has been instructed to alert Unisys for repair. See "Operations and Maintenance Plan" in Section 5 for further details.

3.3.3.3 Cafeteria Addition

A sub-slab vapor mitigation system was installed as part of construction of an addition to the EHS cafeteria (Sterling, 2014). The vapor mitigation system consists of a vapor barrier and a SSD system. The Cafeteria Addition SSD consists of a stone gas permeable layer with a plenum constructed of concrete blocks within the permeable layer and a vent duct. The vent duct rises from the plenum and is connected to the exhaust fan that creates a negative pressure within the permeable layer. The vapor barrier consists of Stego Wrap™ ten (10) mil polyolefin sheets overlapped a minimum of twelve (12) inches with Sonoclastic™ NP1 caulk applied a minimum of four (4) inches wide between the overlaps. Polyethylene sheets are sealed to the pile caps with the same sealant.

The Cafeteria Addition SSD system is designed to operate without regular maintenance or monitoring. The system blower is connected to the school district central monitoring system which will alert district personnel if the blower fails. If a blower failure or other problems with the SSD system occur, the school district has been instructed to alert Unisys for repair. See "Operations and Maintenance Plan" in Section 5 for further details.

3.3.3.4 F-Wing

A sub-slab vapor mitigation system was installed in the EHS F-Wing by Unisys in August 2014 following a vapor intrusion (VI) assessment as part of Site Characterization (Geosyntec, 2015a). The SSD system includes four (4) suction points connected through a manifold to a riser pipe that extends through the roof. Suction points are located in Rooms 124, 126, 127, and 130 of the EHS F-Wing. Suction points were located near interior walls to avoid open space and provide vertical supports for the riser pipes. Suction point riser

pipes were joined via a horizontal conveyance pipe manifold above the suspended ceiling on the first floor and then extended vertically via a single riser pipe through the first floor ceiling, a second floor classroom (Room Number 234) and to the roof. A roof mounted Obar GBR 76 SOE fan is connected to the piping network and is used to create a sub-slab vacuum field below the building. As-built drawings of the F-Wing SSD system are provided in **Appendix I**.

The F-Wing SSD system is designed to operate without regular maintenance or monitoring. The system blower is connected to the school district central monitoring system which will alert district personnel if the blower fails. If a blower failure or other problems with the SSD system occur, the school district has been instructed to alert Unisys for repair. See "Operations and Maintenance Plan" in Section 5 for further details.

3.3.3.5 Music Wing

A sub-slab vapor mitigation system was installed in the music wing in August 2018 following a Supplemental Vapor Intrusion Assessment. The SSDS consists of five (5) suction points (SP-M1 through SP-M5) installed within classrooms in the Music Wing of EHS. Suction points were located near interior walls to avoid open space and provide vertical supports for the riser pipes. Suction point riser pipes were joined via a series of horizontal conveyance pipe manifolds and vertical riser pipes above both the suspended ceiling on the first floor and below the second floor HVAC Mechanical Room ceiling and then extended vertically via a single riser pipe through the roof to the SSD blower. Piping was labeled "Active Soil Depressurization System, Do Not Alter" at all accessible locations. PVC blast gate valves and Magnehelic vacuum gauges were installed in each suction pipe to allow air flow through the system and vacuum to be balanced. Magnehelic gauges were installed on each suction point riser pipe to indicate static vacuum levels. Magnehelic gauges were selected with a scale appropriate for the blower (i.e. 0-30 inches WC) and were attached to the block wall near the blast gate valve for each suction point. As-built drawings of the Music Wing SSD system are provided in **Appendix I**.

An Obar Model GBR76 SOE Compact Radial Blower is located on the roof of the building and draws soil vapors from the five (5) suction points through the pipes and exhausts above the roofline. Blower exhaust was installed approximately seven (7) feet above the roofline and twenty (20) feet from windows, doors, and air intakes. The blower is connected to the building's Day Automation System which monitors blower operation and will alert district personnel if the blower fails.

The Music Wing SSD system is designed to operate without regular maintenance or monitoring. If a blower failure or other problems with the SSD system occur, the school district has been instructed to alert Unisys for repair. See "Operations and Maintenance Plan" in Section 5 for further details.

3.3.4 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10

3.3.4.1 Permanent Cover

The composite cover system is a permanent control and the quality and integrity of this system will be inspected and maintained by Unisys or its designee at defined, regular intervals in accordance with this SMP in perpetuity.

3.3.4.2 Sub-slab Vapor Mitigation System

Active sub-slab vapor mitigation systems will not be discontinued unless prior written approval is granted by the NYSDEC and the NYSDOH. In the event that monitoring data indicates that a sub-slab vapor mitigation system may no longer be required, a proposal to discontinue the system will be submitted by the remedial party to the NYSDEC and NYSDOH with a copy to ECSD.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring and Sampling Plan may only be revised with the approval of the NYSDEC.

This Monitoring and Sampling Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs), particularly groundwater standards and Part 375 SCOs for soil; and
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment.

Monitoring and Sampling Plan activities are summarized in **Table 4-1** including the responsibility, schedule and section for further details.

Table 4-1 – Monitoring and Sampling Plan Activities and Schedule

Activity	Performed by	Schedule	Section
Site-Wide Inspection	Unisys or its designee	Quarterly	4.2
Site-Wide Cover Inspection	Unisys or its designee	Annually after the winter snow season*	4.2
SSD Stack Vacuum Monitoring	Unisys or its designee	Annually	4.3.1
Soil Vapor Intrusion Sampling	Unisys or its designee	Annually	4.4.1
Non-Contact Cooling Water Discharge Sampling	ECSD	Monthly	Appendix H

*Site-Wide Cover Inspection will be performed in conjunction with a quarterly Site-Wide Inspection.

To adequately address these issues, this Monitoring and Sampling Plan provides information on:

- Sampling locations, protocol and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this interim SMP.

4.2 Site-wide Inspection

Site-wide inspections will be completed by Unisys or its designee on a quarterly basis while ongoing investigations and construction activities are in progress. Upon completion of the remedy and with approval from the Department, site-wide inspections will be performed by Unisys or its designee at a minimum of once per year. Modification to the frequency or duration of the inspections will require approval from the NYSDEC. Site-wide inspections will also be performed by Unisys or its designee after all severe weather conditions that may affect ECs or monitoring devices and a site-wide cover inspection will performed after the winter snow season when the ground cover has become visible again. Site-wide cover inspection will be performed in conjunction with a quarterly site-wide inspection.

During these inspections, an inspection form will be completed as provided in **Appendix J** – Site Management Forms. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- A visual inspection of the groundwater monitoring network;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and
- Confirm that site records are up to date.

At a minimum, inspections of all remedial components installed at the Site will be conducted by Unisys or its designee annually. A comprehensive site-wide inspection will

be conducted and documented according to the interim SMP schedule, regardless of the frequency of the Periodic Review Report (PRR). The site-wide inspection will include 1) visual inspection of the cover systems, including at a minimum, floor cracks, holes, or penetrations, erosion or damage to concrete or asphalt and vegetative cover of soil cover systems, including the football field turf, for missing or damaged areas to ensure the effectiveness of the protective cover; and 2) inspection of visible SSD system components, including piping and vent stacks. Additional inspections for floor cracks, holes and penetrations may be conducted at the end of the academic year in order to allow for repairs to be conducted over the summer.

The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this interim SMP;
- Achievement of remedial performance criteria; and
- If Site records are complete and up to date.

Reporting requirements are outlined in Section 7.0 of this plan.

Inspections will also be performed in the event of an emergency by Unisys or its designee. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, verbal notice to the NYSDEC must be given by Unisys or its designee by noon of the following day. In addition, an inspection of the Site will be conducted by a qualified environmental professional (QEP), as determined by the NYSDEC, within five (5) days of the event to verify the effectiveness of the IC/ECs implemented at the Site. Written confirmation must be provided to the NYSDEC by Unisys or its designee within seven (7) days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

4.3 Treatment System Monitoring and Sampling

4.3.1 Remedial System Monitoring

SSD systems have been installed in the gymnasium, the K-Wing Science Addition, the cafeteria and cafeteria addition, the F-wing and the Music Wing of EHS to mitigate the vapor intrusion pathway (see **Appendix I**). No other areas of the school building require mitigation or monitoring to address vapor intrusion. The SSD systems installed at EHS were designed to operate on a continuous basis and have been essentially trouble free since they were installed. Substantial maintenance of the SSD systems has not been necessary because the fan motors have a proven record of trouble-free operation and most of the

system components are located within the walls or below the slab so are not subject to accidental breakage. Some sections of the exhaust stacks are exposed and could potentially be subject to accidental damage. Cleaning and maintenance activities throughout the school are performed daily by a team of full-time facilities maintenance personnel who have been instructed to look for and report any damage to the SSD system components to the head of Buildings and Grounds. Unscheduled inspections and/or sampling may take place when a suspected failure of an SSD system has been reported or an emergency occurs that is deemed likely to affect the operation of the system. SSD system components to be monitored include, but are not limited to, the components included in **Table 4-2** below.

The previous EMP OM&M monitoring activities have been performed on a regular basis since the SSD systems were installed. Differential pressure monitoring has demonstrated that the SSD systems have continuously maintained a depressurized condition in the sub-slab in their vicinity, and that the operation of the school HVAC system is not a necessary vapor intrusion control. Post-mitigation chemical monitoring results demonstrate that the SSD systems effectively control the potential for vapor intrusion related exposures to VOCs at the school. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

Table 4-2 – Remedial System Monitoring Requirements and Schedule

Remedial System Component	Monitoring Parameter	Operating Range	Monitoring Schedule
K-Wing SSD Vent Stack	Stack Vacuum	0 – 1 in. WC	Annually
Gymnasium SSD Vent Stack	Stack Vacuum	0 – 1 in. WC	Annually
Cafeteria SSD Vent Stack	Stack Vacuum	0 – 1 in. WC	Annually
F-Wing SSD Vent Stack	Stack Vacuum	0 – 20 in. WC	Annually
Music Wing SSD Vent Stack	Stack Vacuum	0 – 20 in. WC	Annually

If any equipment readings indicate that a fan motor is no longer functioning, maintenance and repair, as per the Operation and Maintenance Plan, is required immediately.

Reporting requirements for remedial system monitoring are specified in Section 7.0 of this plan.

4.3.2 Remedial System Sampling

A sufficient number of post-mitigation pressure field and indoor air samples have been collected to clearly verify the efficacy of the SSD systems.

In the event that replacement of a SSD system fan or other repairs to a SSD system are needed, cross-slab differential pressure measurement(s) will be obtained from existing (or new, if necessary) sub-slab sampling ports associated with the SSD system to verify that the necessary repairs have reestablished the pressure field below the VI mitigation area. The stack vacuum measurements will be obtained using the existing Magnehelic Gauges and pressure field measurements will be obtained with either an existing Magnehelic Gauge or with a DG-700 (or equivalent) differential pressure meter temporarily connected to sub-slab monitoring ports associated with the SSD system.

4.4 Post-Remediation Media Monitoring and Sampling

The Site RI is on-going and a final remedy for Site has not been selected. Soil removal IRMs conducted in 2017 and 2018 do not require post-remediation monitoring and sampling. Sub-slab vapor mitigation systems were installed by ECSD and Unisys as ECs as discussed in Section 3.3.3. Soil vapor intrusion sampling is discussed below. Other post-remediation media monitoring and sampling requirements will be determined after selection of a final remedy for the Site. Reporting requirements for post-remediation media monitoring and sampling are specified in Section 7.0 of this plan.

4.4.1 Soil Vapor Intrusion Sampling

Multiple rounds of soil vapor intrusion sampling have been performed to assess the performance of the remedy. Indoor air and pressure monitoring results demonstrate that the SSD systems are effectively addressing the VI potential at the school. While routine VI monitoring is no longer needed as long as the SSD systems remain in operation, indoor air sampling will be conducted annually to document no potential exposure to faculty, staff, and students or other users of the school building.

Samples of indoor air shall be collected annually during the heating season (typically during the ECSD winter break) in areas where SSD systems have been installed or at other locations to address specific areas of concern. Samples of outdoor air shall be collected from the building rooftop to characterize the potential influence of background ambient air sources. Sampling locations and required analyses are provided in **Table 4-3** below. A soil vapor/indoor air sampling work plan will be submitted to NYSDEC/NYSDOH for approval a minimum of thirty (30) days before each sampling event is scheduled to commence and will identify sampling locations.

Table 4-3 – Post Remediation Sampling Requirements

SSD System	Sampling Location	Analyses
K-Wing	K-Wing Corridor	EPA Method TO-15
Gymnasium	Gymnasium	EPA Method TO-15
Cafeteria Addition	Cafeteria	EPA Method TO-15
F-Wing	Room 127	EPA Method TO-15
Music Wing	Room 148	EPA Method TO-15
Outdoor Air	F-Wing Rooftop K-Wing Rooftop	EPA Method TO-15

Detailed sample collection and analytical procedures and protocols are provided in **Appendix L** – Quality Assurance Project Plan (QAPP).

Deliverables for the soil vapor intrusion sampling program are specified in Section 7.0 – Reporting Requirements.

4.4.2 Groundwater Sampling

The RI groundwater investigation is ongoing and is intended to delineate the vertical and horizontal extent of COPC TOGS exceedances in groundwater and address the groundwater-related AOCs. The RI program will include an inventory of existing monitoring wells and installation of new monitoring wells to achieve the RI objectives. Post-remediation groundwater sampling may be required as part of the final remedy. The groundwater monitoring network and monitoring requirements will be determined at that time as necessary. Groundwater monitoring wells shall be maintained at the Site.

The NYSDEC will be notified prior to any repair or decommissioning of any monitoring well for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent PRR. Well decommissioning without replacement will be done only with the prior approval of the NYSDEC. Well abandonment will be performed in accordance with NYSDEC's guidance entitled "CP-43: Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be replaced in kind in the nearest available location, unless otherwise approved by the NYSDEC.

4.4.3 Monitoring and Sampling Protocol

All sampling activities will be recorded in a field book and associated sampling log as provided in **Appendix J** - Site Management Forms. Other observations (e.g., groundwater monitoring well integrity, etc.) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

This Operation and Maintenance Plan provides a brief description of the measures necessary to operate, monitor and maintain the ECs in place for the Site. This Operation and Maintenance Plan:

- Includes the procedures necessary to allow individuals unfamiliar with the Site to maintain permanent and temporary cover and to operate and maintain the SSD systems; and

- Will be updated periodically to reflect changes in site conditions or the manner in which the SSD systems are operated and maintained.

Further detail regarding the Operation and Maintenance of the SSD systems is provided in **Appendix K** - Operation and Maintenance Manual. A copy of this Operation and Maintenance Manual, along with the complete interim SMP, is to be maintained at the site. This Operation and Maintenance Plan is not to be used as a stand-alone document, but as a component document of this interim SMP.

5.2 Engineering Control Performance Criteria

Minimum thicknesses of permanent cover and temporary cover are presented in Sections 3.3.1 and 3.3.2, respectively. The only moving part of each SSD system is the fan motor. Pressure monitoring data (stack and cross-slab) have been consistent since start-up for each SSD system.

5.3 Cover Maintenance

Site inspections will include visual inspection of the cover systems, including at a minimum, floor cracks, holes, or penetrations, erosion or damage to concrete or asphalt and vegetative cover of soil cover systems, including the football field turf, for missing or damaged areas to ensure the effectiveness of the protective cover. Deficiencies in the soil cover systems observed during site inspections or at other times will be corrected by 1) sealing floor cracks, holes or penetrations; 2) repairing damage to concrete and asphalt; 3) reseeding vegetated areas; or 4) installing additional mulch for temporary cover. Soil cover systems disturbed by intrusive work will be restored in accordance with the EWP (Appendix G) or, in the case of remedial work, other work plans approved by NYSDEC (e.g. IRM Work Plans.). Unisys or its designee shall be responsible for cover maintenance; however, some minor repairs at the athletic fields or grassed areas may be performed by ECSD personnel and reported to Unisys if it is practical, efficient, and expeditious to do so. All actions related to cover maintenance will be documented for inclusion in the PRR (See Section 7.2)

5.4 SSD System Operation and Maintenance

SSD systems installed at EHS were designed to operate on a continuous basis. SSD system fan motors are the only components with moving parts; fan bearings are sealed, thus not requiring periodic lubrication or maintenance.

As-built drawings for each system are provided in **Appendix I.** An SSD Operation and Maintenance Plan and cut sheets for SSD equipment are provided in **Appendix K.**

5.4.1 System Start-Up and Testing

System start-up and testing has already been performed at each SSD system and no significant changes to the systems are anticipated. Therefore, additional system start-up and testing is not necessary.

If an SSD system goes down or significant changes are made to the system and the system must be restarted, the procedures described in Section 5.3.3 will be followed.

5.4.2 Routine System Operation and Maintenance

The SSD systems are designed to run continuously without adjustments and do not require routine maintenance.

5.4.3 Non-Routine Operation and Maintenance

The only system components with moving parts subject to periodic failure are the fan motors. Unisys will be responsible for maintaining replacement SSD fans on-Site at all times to ensure that there is minimal downtime if a SSD fan must be replaced. If a fan fails, the electronic monitoring system display will alert EHS maintenance personnel who will contact the responsible party for expedited replacement. Thereafter, the cause of the failure will be determined and, if necessary, the fan will be replaced in a timely fashion. In the event that a fan motor needs replacement, it will either be replaced in kind, or with a model offering similar flow and vacuum performance. Once the new fan is operational, cross-slab differential pressure measurement(s) will be obtained from existing or temporary sub-slab sampling ports associated with the SSD system to verify that the necessary repairs have reestablished the pressure field below the VI mitigation area. The differential pressure measurements will be obtained using the existing Magnehelic Gauges or with a DG-700 (or equivalent) differential pressure meter temporarily connected to a sub-slab monitoring port.

In the event that an SSD system vent stack develops a mechanical break, the broken segment of the stack will be replaced with material of similar diameter and construction and will be tested for leaks after it has been repaired.

In the event any of the real-time SSD system electronic monitoring components fail, the component will be replaced in a timely fashion with an equivalent device.

The ECSD has copies of all SSD system as-built diagrams for reference in the event that replacement of a system component is necessary.

5.4.4 System Monitoring Devices and Alarms

Each SSD system is equipped with an electronic monitoring device connected to the school's HVAC computer control program that includes an SSD system computer display screen indicating whether the SSD system fan is running or not. If the "fan not running" warning light on the computer display screen is activated, applicable maintenance and repairs will be conducted, as specified in the Operation and Maintenance Plan, and the SSD system will be restarted. Operational problems will be noted in the PRR to be prepared for that reporting period. An Operation and Maintenance Manual for SSD systems is included in **Appendix K**.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given site and associated remedial systems. Vulnerability assessments provide information so that the site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

This section provides a summary of vulnerability assessments that will be conducted for the site during periodic assessments, and briefly summarizes the vulnerability of the site and/or engineering controls to severe storms/weather events and associated flooding.

- Flood Plain: Identify whether the site is located in a flood plain, low-lying or low-groundwater recharge area.
- Site Drainage and Storm Water Management: Identify areas of the site which may flood during severe rain events due to insufficient groundwater recharge capabilities or inadequate storm water management systems.
- Erosion: Identify any evidence of erosion at the site or areas of the site which may be susceptible to erosion during periods of severe rain events.
- High Wind: Identify areas of the site and/or remedial system which may be susceptible to damage from the wind itself or falling objects, such as trees or utility structures during periods of high wind.
- Electricity: Identify the susceptibility of the site/remedial system to power loss and/or dips/surges in voltage during severe weather events, including lightning strikes, and the associated impact on site equipment and operations.

6.2 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section of the interim SMP provides a summary of any green remediation evaluations to be completed for the site during site management, and as reported in the PRR.

6.2.1 Timing of Green Remediation Evaluations

For major remedial system components, green remediation evaluations and corresponding modifications will be undertaken as part of a formal Remedial System Optimization (RSO), or at any time that the Project Manager feels appropriate, e.g. during significant maintenance events or in conjunction with storm recovery activities.

Modifications resulting from green remediation evaluations will be routinely implemented and scheduled to occur during planned/routine operation and maintenance activities. Reporting of these modifications will be presented in the PRR.

6.2.2 Remedial Systems

Remedial systems will be operated properly considering the current site conditions to conserve materials and resources to the greatest extent possible. Consideration will be given to operating rates and use of reagents and consumables. Spent materials will be sent for recycling, as appropriate.

6.2.3 Frequency of System Checks, Sampling and Other Periodic Activities

Transportation to and from the Site and use of consumables in relation to visiting the Site in order to conduct system checks have direct and/or inherent energy costs. The schedule and/or means of these periodic activities have been prepared so that these tasks can be accomplished in a manner that does not impact remedy protectiveness but reduces expenditure of energy or resources.

6.3 Remedial System Optimization

A Remedial Site Optimization (RSO) study will be conducted any time that the NYSDEC or the remedial party requests in writing that an in-depth evaluation of the remedy is needed. An RSO may be appropriate if any of the following occur:

- The remedial actions have not met or are not expected to meet RSOs in the time frame estimated in the Decision Document;
- The management and operation of the remedial system is exceeding the estimated costs;
- The remedial system is not performing as expected or as designed;
- Previously unidentified source material may be suspected;
- Plume shift has potentially occurred;
- Site conditions change due to development, change of use, change in groundwater use, etc.;

- There is an anticipated transfer of the site management to another remedial party or agency; and
- A new and applicable remedial technology becomes available.

An RSO will provide a critique of a site's conceptual model, give a summary of past performance, document current cleanup practices, summarize progress made toward the site's cleanup goals, gather additional performance or media specific data and information and provide recommendations for improvements to enhance the ability of the present system to reach RSOs or to provide a basis for changing the remedial strategy.

The RSO study will focuses on overall site cleanup strategy, process optimization and management with the intent of identifying impediments to cleanup and improvements to site operations to increase efficiency, cost effectiveness and remedial time frames. Green remediation technology and principals are to be considered when performing the RSO.

7.0 REPORTING REQUIREMENTS

7.1 Site Management Reports

All site management inspection, maintenance and monitoring events will be recorded on the appropriate site management forms provided in **Appendix J**. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the Site by Unisys or others during the reporting period will be provided in electronic format to the NYSDEC by Unisys or its designee in accordance with the requirements of **Table 7-1** and summarized in the PRR.

Table 7-1: Schedule of Interim Monitoring/Inspection Reports

Task/Report	**Reporting Frequency***
Inspection Reports	Quarterly
Periodic Review Report	Annually, or as otherwise determined by the Department

* The frequency of events will be conducted as specified until otherwise approved by the NYSDEC.

All interim monitoring/inspections reports will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached spreadsheet);
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc.);
- Copies of all field forms completed (e.g., well sampling logs, chain of custody documentation, etc.);

- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in NYSDEC-identified format);
- Any observations, conclusions or recommendations; and
- A determination as to whether contaminant conditions have changed since the last reporting event.

Routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist form).

Data will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html

7.2 Periodic Review Report

A PRR will be prepared and submitted by Unisys to the Department beginning on the 22nd of January in the year following approval of this interim SMP by the Department. In the event that the site is subdivided into separate parcels with different ownership, a single PRR will be prepared that addresses the Site described in Appendix A. The report will be prepared in accordance with NYSDEC's DER-10. Media sampling results will also be incorporated into the PRR. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site.

- Results of the required annual site inspections and severe condition inspections, if applicable.

- All applicable site management forms, continuous monitoring data and other records generated for the site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.

- A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions.

- Data summary tables and graphical representations of COPCs by media (e.g., soil, indoor air, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends.

- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS^{TM} database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Work Plan will be submitted to NYSDEC for approval. This plan will explain the failure and provide details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC.

7.4 Certification of Institutional and Engineering Controls

Following the last inspection of the reporting period, a Professional Engineer licensed to practice in New York State will prepare, and include in the PRR the following certification as per the requirements of NYSDEC DER-10:

"*For each institutional or engineering control identified for the site, I certify that all of the following statements are true:*

- *The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*

- *The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;*

- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*

- *Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;*

- *Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*

- *If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;*

- *The engineering control systems are performing as designed and are effective;*

- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices; and*

- *The information presented in this report is accurate and complete.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, _____, of _____, am certifying as Owner's/Remedial Party's Designated Site."

"I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, _____, of _____, am certifying as Owner/Owner's Designated Site Representative for the site."

- *No new information has come to my attention, including groundwater monitoring data from wells located at the site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of off-site contamination are no longer valid; and*

- *The assumptions made in the qualitative exposure assessment remain valid.*

The signed certification will be included in the PRR.

The PRR will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the site is located and the NYSDOH Bureau of Environmental Exposure Investigation. The PRR may need to be submitted in hard-copy format, as requested by the NYSDEC project manager.

8.0 SCHEDULE

Table 8-1 presents the schedule for monitoring, sampling reporting tasks by month beginning in the month of January following SMP approval.

Table 8-1 –Schedule of Monitoring, Sampling and Reporting Activities by Month

Month*	Activity	Performed by	Section
January	Inspection Report	Unisys or its designee	7.1
	Periodic Review Report	Unisys or its designee	7.2
February	NYSDEC EQuIS™ EDD	Unisys or its designee	7.1
March	Site-Wide Inspection	Unisys or its designee	4.2
April	Site-Wide Cover Inspection	Unisys or its designee	4.2
	Inspection Report	Unisys or its designee	7.1
May	No activity scheduled		
June	Site-Wide Inspection	Unisys or its designee	4.2
	Building Crack Inspection	Unisys or its designee	4.2
July	Inspection Report	Unisys or its designee	7.1
August	No activity scheduled		
September	Site-Wide Inspection	Unisys or its designee	4.2
October	Inspection Report	Unisys or its designee	7.1
November	Soil Vapor/Indoor Air Sampling Work Plan	Unisys or its designee	4.4.1
December	Site-Wide Inspection	Unisys or its designee	4.2
	SSD Stack Vacuum Monitoring	Unisys or its designee	4.3.1
	Soil Vapor Intrusion Sampling	Unisys or its designee	4.4.1

* The schedule of events will be conducted as specified until otherwise approved by the NYSDEC.

9.0 REFERENCES

Beech and Bonaparte, 2018a, Engineering P.C., Sub-slab Depressurization Systems Evaluation Former Sperry Remington Site – North Portion (#c808022), 777 South Main Street, City of Elmira, Chemung County, NY.

Beech and Bonaparte, 2018b, Engineering P.C., Supplemental Vapor Intrusion Assessment Work Plan Former Sperry Remington Site – North Portion (#c808022), 777 South Main Street, City of Elmira, Chemung County, NY.

Beech and Bonaparte, 2018c, Engineering P.C., Supplemental Vapor Intrusion Assessment Report Former Sperry Remington Site – North Portion (#c808022), 777 South Main Street, City of Elmira, Chemung County, NY.

Dames & Moore, 1988, Preliminary Site Assessment, Remington Rand Plant, City of Elmira, Chemung County, New York.

Geosyntec Consultants, Inc, 2015a, Site Characterization Data Report, Former Sperry Remington Site – North Portion, NYSDEC Project 808022, February 2015.

Geosyntec Consultants, Inc, 2015b, Short Term Response Action Report, Former Sperry Remington Site – North Portion (#808022), May 2015.

Geosyntec Consultants, Inc, 2015c, Site Characterization Work Plan Addendum #1, Former Sperry Remington Site – North Portion, NYSDEC Project 808022, July, 2015.

Geosyntec Consultants, Inc, 2016a, Site Characterization Work Plan Addendum #2, Former Sperry Remington Site – North Portion, NYSDEC Project 808022, January, 2016.

Geosyntec Consultants, Inc, 2016a, Site Characterization Work Plan Addendum #3, Former Sperry Remington Site – North Portion, NYSDEC Project 808022, August, 2016.

Geosyntec Consultants, Inc, 2017a, Site Characterization Work Plan Addendum #4, Former Sperry Remington Site – North Portion, NYSDEC Project 808022, February, 2017.

Geosyntec Consultants, Inc, 2017b, Site Characterization Work Plan Addendum #4, Former Sperry Remington Site – North Portion, NYSDEC Project 808022, May, 2017.

Geosyntec Consultants, Inc., 2017c, Site Characterization Report, Former Sperry Remington Site – North Portion, NYSDEC Project 808022, May 2017; Revised March 2019.

Geosyntec Consultants, Inc., 2018a. Construction Completion Report, Interim Remedial Measure #1, Former Sperry Remington Site – North Portion, NYSDEC Project C808022, April 2018; Revised January 2019.

Geosyntec Consultants, Inc., 2018b, Interim Remedial Measures #2 Work Plan, Former Sperry Remington Site – North Portion, NYSDEC Project C808022, July 2018.

Geosyntec Consultants, Inc., 2018c, Remedial Investigation Work Plan, Former Sperry Remington Site – North Portion, NYSDEC Project C808022, September 2018.

Geosyntec Consultants, Inc., 2018d, Supplemental Vapor Intrusion Assessment Report, Former Sperry Remington Site – North Portion, NYSDEC Project C808022, October 2018; Revised January 2019.

Geosyntec Consultants, Inc., 2019. Construction Completion Report, Interim Remedial Measure #2, Former Sperry Remington Site – North Portion, NYSDEC Project C808022, February 2019; Revised March 2019.

Geosyntec, see Geosyntec Consultants, Inc.

Lancy Laboratories, Inc., 1967, Final Engineering Report and Description of Proposed Waste Treatment Installation.

Matrix Environmental Technologies., 1998, Subsurface Environmental Assessment Report, 777 South Main Street to Parkside Drive, Elmira, New York, NYSDEC Spill #94-16668.

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

NYSDEC DER-10 – "Technical Guidance for Site Investigation and Remediation".

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

NYSDEC, 2001, May – October 2000 NYSDEC Sampling report, Southside High School and Adjacent Properties. City of Elmira, Chemung County.

NYSDEC, 2004, IIWA Report on Groundwater Chlorinated Solvent Investigation, Southside High School and Adjacent Properties, City of Elmira, Chemung County

NYSDOH, 2003, Health Consultation, Southside high School in the City of Elmira, Chemung County, New York.

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

NYSDOH, 2010, Letter Health Consultation: Evaluation of Exposure Related to Soil Vapor Intrusion Mitigation Verification – December 2009, Southside High School, Elmira, Chemung County, New York.

Sterling Environmental Engineering, P.C., 2009, Elmira City School District, Southside High School, Elmira, New York, Environmental Management Plan.

Sterling Environmental Engineering, P.C., 2011, Elmira City School District, Southside High School, Elmira, New York, Environmental Management Plan.

Sterling Environmental Engineering, P.C., 2013, Elmira City School District, Southside High School, Elmira, New York, Environmental Management Plan.

Sterling Environmental Engineering, P.C., 2014, Elmira City School District, Southside High School, Elmira, New York, Environmental Management Plan.

Sterling, see Sterling Environmental Engineering, P.C.

TABLE 2-1
MONITORING WELL NETWORK

Former Sperry Remington - North Portion
Elmira, New York

Well ID	Northing	Easting	Diameter (inches)	TOC Elevation [ft amsl]	DTB [ft bTOC]	DTW [ft bTOC]	DTP [ft bTOC]	GW Elevation [ft msl]
MW-7	753928.0	762705.5	3/4	852.47	13.3	Dry (>13.3)	ND	<839.17
MW-8	754022.5	762648.8	2	853.73	17.8	15.36	ND	838.37
MW-9	754165.8	762571.7	2	853.90	20.4	15.64	ND	838.26
MW-10	754303.1	762480.5	2	853.13	20.1	15.2	ND	837.93
MW-11D	754704.9	762292.0	2	855.07	78.1	18.71	ND	836.36
MW-11S	754699.6	762292.8	2	854.74	21.1	17.08	ND	837.66
MW-12	754101.4	762480.3	2	854.74	19.5	16.27	ND	838.47
MW-13	754234.0	762356.8	2	854.80	22.0	16.11	ND	838.69
MW-15D	754148.2	762119.5	2	855.75	76.1	18.71	ND	837.04
MW-15S	754149.2	762124.6	2	855.72	17.8	16.1	ND	839.62
MW-16	754439.3	761973.8	2	854.89	13.5	Dry (>13.5)	ND	<841.39
MW-30	754097.6	762562.4	2	853.44	17.9	15.09	ND	838.35
MW-31	754158.9	762536.2	2	853.75	18.0	15.43	ND	838.32
MW-32	754284.0	762491.8	2	852.75	18.0	15.42	ND	837.33
MW-33	754293.7	762456.4	2	853.89	19.4	15.95	15.94	837.94
MW-34	754327.4	762470.8	2	853.69	19.4	15.9	ND	837.79
MW-36	754326.3	762280.8	2	855.66	19.0	16.99	ND	838.67
MW-37	754294.1	762371.2	2	854.55	18.7	16.01	ND	838.54
MW-38	754419.6	762398.3	2	854.86	19.9	17.02	ND	837.84
MW-39	754295.3	762202.4	2	854.87	24.6	15.6	ND	839.27
MW-40	754360.9	762363.4	2	854.90	24.4	16.67	ND	838.23
MW-41	754348.4	762550.5	2	858.74	27.3	21.17	ND	837.57

Notes:

TOC ft amsl: top of casing feet above mean seal level

ft bTOC: feet below top of casing

ft msl: feet mean sea level

TOC: top of inner casing

DTB: depth to bottom

DTW: depth to water

DTP: depth to product

ND: free product not detected in monitoring well

Northings and Eastings presented in State Plane NAD83 New York Central, coordinate units are feet

GW: groundwater

Water levels measured on 13 November 2014

Vertical datum is North America Vertical Datum 1988

TABLE 2-2
Potential Areas of Concern Identified by NYSDEC
Former Sperry Remington Site – North Portion
Elmira, Chemung County, New York

Potential Area of Concern[1]	Description	NYSDEC Characterization
AOC-1	Sub-slab vapors and Indoor Air Quality	
AOC-1A	Contaminated Sub-Slab Vapors	• Delineation of Extent • Preferential Pathways o Utilities o Storm / Sanitary Sewer o Steam Tunnels
AOC-1B	Indoor Air Quality	• Delineation of Extent • Monitoring • Engineering Controls o HVAC o Sub-Slab Depressurization o Slab Integrity
AOC-2	Pre-1979 Combined Industrial/Storm Sewer	• Structure / Integrity / Contents / Release • Extent • Collection of Surface & Subsurface Contaminants
AOC-2A	18” Clay Pipe at SE Property Corner	Structure / Integrity / Contents / Release o Extent
AOC-2B	Drywell at SE Property Corner	Structure / Integrity / Contents / Release o Extent
AOC-2C	Drywell Near Building 49	Structure / Integrity / Contents / Release o Extent
AOC-2D	Manhole SW-73 Near Building 28A	Structure / Integrity / Contents / Release o Extent
AOC-2E	Waste Pit near Building 44	Structure / Integrity / Contents / Release o Extent
AOC-3	1979 Storm Sewer	Structure / Integrity / Contents / Release Collection of Surface & Subsurface Contaminants
AOC-3A	1979 Drywell Field	Structure / Integrity / Contents / Release Collection of Surface & Subsurface Contaminants
AOC-4	Earthen Waste Pits near SSHS Gym and Pool	Structure / Integrity / Contents / Release Connection to Pre 1979 Combined Sewer Contaminated Soil Vapor

TABLE 2-2
Potential Areas of Concern Identified by NYSDEC
Former Sperry Remington Site – North Portion
Elmira, Chemung County, New York

Potential Area of Concern[1]	Description	NYSDEC Characterization
AOC-5	Sludge Tanks/Beds/Brick Pits near Building 64	Structure / Integrity / Contents / Release Connection to Pre 1979 Combined Sewer Contaminated Soil Vapor
AOC-6	Concrete Vaults	Structure / Integrity / Contents / Release Connection to Pre 1979 Combined Sewer Contaminated Soil Vapor
AOC-7	Drywell Structures	Structure / Integrity / Contents / Release
AOC-8	Westinghouse Transformer Spill near Building 28A	Nature & Extent of Release(s) PCB Contaminated Soils at locations B15 & FB7 Other PCB Containing Equipment During Westinghouse Site Operation
AOC-9	Oil Storage and Handling	Oil House Waste Oil Storage Quench Oil Reservoir Structure / Integrity / Contents / Release Connection to Pre 1979 Combined Sewer
AOC-10	Contaminated Subsurface Soils	Nature & Extent Delineation o PCBs at Locations B3, FB7 & B15 o VOCs at Location FB5 o Metals at Locations B24, B35, SS14, B42, B43 & B52 o SVOCs at Location FB6 o Oil Contaminated Soils at 1977 Empire Report Locations
AOC-11	VOC- and Petroleum-Impacted Groundwater	Nature & Extent Delineation o Potential Soil / Structure Sources
AOC-11A	Measured Oil Product at MW8-10 and MW-32	Extent Delineation Potential Soil / Structure Sources
MW-11B	PCBs at MW-41	Extent Delineation Potential Soil / Structure Sources
AOC-12	Plating, Heat Treatment and Tumbling Areas	Different Locations Over Period of Operation • Spill Collection & Storage Pits, Sumps, Tanks • Material/Chemical Storage & Waste Discharge Extent Delineation Potential Soil / Structure Sources

TABLE 2-2
Potential Areas of Concern Identified by NYSDEC
Former Sperry Remington Site – North Portion
Elmira, Chemung County, New York

Potential Area of Concern[1]	Description	NYSDEC Characterization
AOC-13	Metals Cleaning, Vapor Degreaser and Solvent Still	Different Locations Over Period of Operation • Spill Collection & Storage Pits, Sumps, Tanks • Material/Chemical Storage & Waste Discharge Characterization Extent Delineation Potential Soil / Structure Sources
AOC-14	Power Washer, Rust Prevention Dip Operation	Different Locations Over Period of Operation Solvent Emulsions • Spill Collection & Storage Pits, Sumps, Tanks • Material/Chemical Storage & Waste Discharge Extent Delineation Potential Soil / Structure Sources
AOC-15	Wire Pickling Area	Different Locations Over Period of Operation • Spill Collection & Storage Pits, Sumps, Tanks • Material/Chemical Storage & Waste Discharge Extent Delineation Potential Soil / Structure Sources
AOC-16	Machine Shop Area	Different Locations Over Period of Operation • Spill Collection & Storage Pits, Sumps, Tanks • Material/Chemical Storage & Waste Discharge Extent Delineation Potential Soil / Structure Sources
AOC-17	Possible Disposal Areas	Extent Delineation Potential Soil Sources

Notes

AOC – Area of Concern

NYSDEC – New York State Department of Environmental Conservation

1. AOCs for Southside High School and adjacent properties were identified by NYSDEC in a report dated 4 October 2013.

TABLE 2-3
COMPOUNDS OF POTENTIAL CONCERN - SOIL
Former Sperry Remington Site - North Portion
Elmira, New York

Constituent Type	Sampling Depth (feet)	Constituent Name	Action Level*
SVOC	0 to 0.17	Benz(a)anthracene	1
		Benzo(a) pyrene	1
		Benzo b fluoranthene	1
		Dibenz(a,h)anthracene	0.33
		Indeno(1,2,3-c,d)pyrene	0.5
Metal		Copper	270
PCB		Total PCBs	1
SVOC	0.17-2	Benz(a)anthracene	1
		Benzo(a) pyrene	1
		Benzo b fluoranthene	1
		Benzo k)fluoranthene	3.9
		Chrysene	3.9
		Dibenz(a,h)anthracene	0.33
		Fluoranthene	100
		Indeno(1,2,3-c,d)pyrene	0.5
		Phenanthrene	100
		Pyrene	100
Metal		Arsenic	16
		Barium	400
		Copper	270
		Lead	400
		Mercury	0.81
		Nickel	310
PCB		Total PCBs	1
SVOC	> 2	Benz(a)anthracene	1
		Benzo(a) pyrene	1
		Benzo b fluoranthene	1
		Chrysene	3.9
		Dibenz(a,h)anthracene	0.33
		Indeno(1,2,3-c,d)pyrene	0.5
Metal		Barium	400
PCB		Total PCBs	1
General Chemistry		Cyanide, Total	27

Notes:
all values are in mg/kg
PCB - Polychlorinated biphenyl
SVOC - Semi volatile organic compound
VOC - Volatile organic compound

TABLE 2-4
COMPOUNDS OF POTENTIAL CONCERN - GROUNDWATER
Former Sperry Remington Site - North Portion
Elmira, New York

Analytical Group	Constituent Name	TOGS 1.1.1
VOC	1,1,1-trichloroethane	5
	Acetone	50
	cis-1,2-dichloroethene	5
	Freon 113	5
	Tetrachloroethene	5
	Trichloroethene	5
	Vinyl chloride	2
PCB	Total PCBs	0.09
Metal	Lead	50
SVOC	Benz(a)anthracene	0.002
	Chrysene	0.002

Notes:
All values are in micrograms per litre (µg/L
PCB - Polychlorinated biphenyl
VOC - Volatile organic compound
SVOC - Semi-volatile organic compound
TOGS 1.1.1 - Technical Operational Guidance Series 1.1.1 (NYSDEC, 1998).
NYSDEC - New York State Department of Environmental Conservation

TABLE 2-5
MEASURED CONCENTRATIONS OF VOCs IN INDOOR AIR, OUTDOOR AIR, SUB-SLAB VAPOR AND HVS DISCHARGE SAMPLES
2014
Elmira High School
Elmira, New York

	RESULTS (ug/m3)	Trichloroethene	Q	trans-1,2-Dichloroethene	Q	Freon 12	Q	cis-1,2-Dichloroethene	Q	Freon 113	Q	Freon 11	Q	Toluene	Q	PCE	Q	Styrene	Q	Propylbenzene	Q	o-Xylene	Q	m,p-Xylene	Q
Location	Sample ID																								
Hallway Near Main Entrance	SSHS-07-08-14-01-IA					4.4						1.4		5.3								0.56		1.6	
Hallway Near Main Entrance	SSHS-07-13-14-01-SS					2800												530							
Hallway Near Main Entrance	SSHS-07-16-14-01-HVS-1	9.8				1600								190						58		180		470	
Hallway Near Main Entrance	SSHS-07-16-14-01-HVS-2	17				1200																			
Room 130	SSHS-07-08-14-02-IA	0.51				17						1.5		2.5								0.38			
Room 130	SSHS-07-14-14-02-SS	7300		22		3100		83																	
Room 130	SSHS-07-14-14-02-SS-DUP	7200		22		2900		74																	
Room 130	SSHS-07-15-14-02-HVS-1	6700		23	J	820		120						23											
Room 130	SSHS-07-15-14-02-HVS2	3500				650		70																	
Room 127	SSHS-07-08-14-03-IA	1.9				16		0.25				1.6		2.3								0.43		1.2	
Room 127	SSHS-07-08-14-IAON-127	1.9				11		0.24				0.91		5								0.82		2.4	
Room 127	SSHS-07-13-14-03-SS	39000		170		1100		2000																	
Room 127	SSHS-07-16-14-03-HVS-1	28000		110	J	730		1500																	
Room 127	SSHS-7-16-14-3-HVS-1-DUP	28000		100	J	640		1500																	
Room 127	SSHS-07-16-14-03-HVS-2	20000		69	J	440		970																	
Room 125	SSHS-07-08-14-04-IA	0.28				10								1.8								0.42		1.2	
Room 125	SSHS-07-13-14-04-SS	390				3600																			
Room 125	SSHS-07-15-14-04-HVS1	310				2300																			
Room 125	SSHS-7-15-14-04-HVS-2	330				2600																			
Room 124	SSHS-07-08-14-05-IA	0.18				13000								1.7								0.41		1.2	
Room 124	SSHS-07-13-14-05-SS	2100				13																			
Room 124	SSHS-07-15-14-05-HVS1	2600				18000																			
Room 124	SSHS-07-15-14-05-HVS2	1600				5600																			
Room 122	SSHS-07-08-14-06-IA	0.17				9.9						1		1.9								0.59		1.6	
Room 122	SSHS-07-13-14-06-SS					12000																			
Room 122	SSHS-7-15-14-06-HVS-1					13000																			
Room 122	SSHS-7-15-14-06-HVS-2					12000																			
Room 120	SSHS-07-08-14-07-IA					6.5						1		1.4								0.33		1	
Room 120	SSHS-07-14-14-07-SS					18000																			
Room 120	SSHS-7-15-14-07-HVS-1					15000																			
Room 120	SSHS-7-15-14-07-HVS-2					13000																			
Room 129 (Guidance	SSHS-07-08-14-08-IA	0.44				12								5.6				1				0.68		2.1	
Room 129 (Guidance	SSHS-07-13-14-08-SS	3300				79																			
Hallway Outside Guidance Area	SSHS-07-16-14-08-HVS-1	2800				100								12				97							
Hallway Outside Guidance Area	SSHS-07-16-14-08-HVS-2					67												28							
Room 100 (Library	SSHS-07-08-14-09-IA	0.19				11								4.7				0.83				0.64		1.8	
Hallway Outside Library	SSHS-07-13-14-09-SS					140								49		34		330		16		18		300	
Hallway Outside Library	SSHS-07-15-14-09-HVS-1					64										27									
Hallway Outside Library	SSHS-07-15-14-09-HVS-2					53										25									

TABLE 2-5
MEASURED CONCENTRATIONS OF VOCs IN INDOOR AIR, OUTDOOR AIR, SUB-SLAB VAPOR AND HVS DISCHARGE SAMPLES
2014
Elmira High School
Elmira, New York

	RESULTS ug/m3	Methylene Chloride	Q	Hexane	Q	Heptane	Q	Ethyl Benzene	Q	Ethanol	Q	Cyclohexane	Q	Cumene	Q	Chloromethane	Q	Chloroform	Q	Carbon Tetrachloride	Q	Carbon Disulfide	Q	Benzene	Q	Acetone	Q
Location	Sample ID																										
Hallway Near Main Entrance	SSHS-07-08-14-01-IA							0.42		5.9						1.2		0.24		0.63						32	
Hallway Near Main Entrance	SSHS-07-13-14-01-SS							9.9		64																200	
Hallway Near Main Entrance	SSHS-07-16-14-01-HVS-1			10		5.3		100																47		63	
Hallway Near Main Entrance	SSHS-07-16-14-01-HVS-2																										
Room 130	SSHS-07-08-14-02-IA							0.29		11						1		0.33		0.62						16	
Room 130	SSHS-07-14-14-02-SS																										
Room 130	SSHS-07-14-14-02-SS-DUP																										
Room 130	SSHS-07-15-14-02-HVS-1																										
Room 130	SSHS-07-15-14-02-HVS2			28																							
Room 127	SSHS-07-08-14-03-IA							0.32		22						0.96				0.66				0.27		20	
Room 127	SSHS-07-08-14-IAON-127					2.3		0.58		21	J					0.84				0.35				0.41		22	J
Room 127	SSHS-07-13-14-03-SS																										
Room 127	SSHS-07-16-14-03-HVS-1																										
Room 127	SSHS-7-16-14-3-HVS-1-DUP																										
Room 127	SSHS-07-16-14-03-HVS-2																										
Room 125	SSHS-07-08-14-04-IA							0.32		12	J					0.79				0.38		2.5		0.25		12	J
Room 125	SSHS-07-13-14-04-SS																										
Room 125	SSHS-07-15-14-04-HVS1																										
Room 125	SSHS-7-15-14-04-HVS-2																										
Room 124	SSHS-07-08-14-05-IA							0.32		6.6	J					0.76				0.39						11	J
Room 124	SSHS-07-13-14-05-SS																										
Room 124	SSHS-07-15-14-05-HVS1													15													
Room 124	SSHS-07-15-14-05-HVS2																										
Room 122	SSHS-07-08-14-06-IA							0.4		8.1	J					0.79				0.39				0.32		11	J
Room 122	SSHS-07-13-14-06-SS																										
Room 122	SSHS-7-15-14-06-HVS-1																										
Room 122	SSHS-7-15-14-06-HVS-2																										
Room 120	SSHS-07-08-14-07-IA							0.26		7.4	J					0.9				0.4						11	J
Room 120	SSHS-07-14-14-07-SS																									320	
Room 120	SSHS-7-15-14-07-HVS-1																										
Room 120	SSHS-7-15-14-07-HVS-2																										
Room 129 (Guidance	SSHS-07-08-14-08-IA					0.98		0.68		55	J					1				0.41				0.44		43	J
Room 129 (Guidance	SSHS-07-13-14-08-SS																									28	
Hallway Outside Guidance Area	SSHS-07-16-14-08-HVS-1																									83	
Hallway Outside Guidance Area	SSHS-07-16-14-08-HVS-2																									94	
Room 100 (Library	SSHS-07-08-14-09-IA			1.8		6.5		0.5		27	J					0.94				0.39				0.4		26	J
Hallway Outside Library	SSHS-07-13-14-09-SS			9.1		5.1		68		100				7.2										86		210	
Hallway Outside Library	SSHS-07-15-14-09-HVS-1																										
Hallway Outside Library	SSHS-07-15-14-09-HVS-2																										

TABLE 2-5
MEASURED CONCENTRATIONS OF VOCs IN INDOOR AIR, OUTDOOR AIR, SUB-SLAB VAPOR AND HVS DISCHARGE SAMPLES
2014
Elmira High School
Elmira, New York

	RESULTS (ug/m3)	2-Butanone (Methyl Ethyl Ketone	Q	4-Methyl-2-pentanone	Q	4-Ethyltoluene	Q	2,2,4-Trimethylpentane	Q	2-Propanol	Q	1,4-Dioxane	Q	1,3,5-Trimethylbenzene	Q	1,2,4-Trimethylbenzene	Q	1,2-Dichloroethane	Q	1,1,1-Trichloroethane	Q
Location	Sample ID																				
Hallway Near Main Entrance	SSHS-07-08-14-01-IA																				
Hallway Near Main Entrance	SSHS-07-13-14-01-SS	29																		42	
Hallway Near Main Entrance	SSHS-07-16-14-01-HVS-1	15				210								67		270				23	
Hallway Near Main Entrance	SSHS-07-16-14-01-HVS-2																			16	
Room 130	SSHS-07-08-14-02-IA																	0.17			
Room 130	SSHS-07-14-14-02-SS																				
Room 130	SSHS-07-14-14-02-SS-DUP																				
Room 130	SSHS-07-15-14-02-HVS-1																				
Room 130	SSHS-07-15-14-02-HVS2																				
Room 127	SSHS-07-08-14-03-IA	2.7																0.53			
Room 127	SSHS-07-08-14-IAON-127	2.9								8.4								1.6			
Room 127	SSHS-07-13-14-03-SS																				
Room 127	SSHS-07-16-14-03-HVS-1																				
Room 127	SSHS-7-16-14-3-HVS-1-DUP																				
Room 127	SSHS-07-16-14-03-HVS-2																				
Room 125	SSHS-07-08-14-04-IA									2								0.18			
Room 125	SSHS-07-13-14-04-SS																				
Room 125	SSHS-07-15-14-04-HVS1																				
Room 125	SSHS-7-15-14-04-HVS-2																				
Room 124	SSHS-07-08-14-05-IA	2.5																0.21			
Room 124	SSHS-07-13-14-05-SS																				
Room 124	SSHS-07-15-14-05-HVS1																				
Room 124	SSHS-07-15-14-05-HVS2																				
Room 122	SSHS-07-08-14-06-IA																				
Room 122	SSHS-07-13-14-06-SS																				
Room 122	SSHS-7-15-14-06-HVS-1																				
Room 122	SSHS-7-15-14-06-HVS-2																				
Room 120	SSHS-07-08-14-07-IA																				
Room 120	SSHS-07-14-14-07-SS			60				7.4													
Room 120	SSHS-7-15-14-07-HVS-1																				
Room 120	SSHS-7-15-14-07-HVS-2																				
Room 129 (Guidance	SSHS-07-08-14-08-IA	5		3.4						11		0.59						0.37			
Room 129 (Guidance	SSHS-07-13-14-08-SS																				
Hallway Outside Guidance Area	SSHS-07-16-14-08-HVS-1	80																			
Hallway Outside Guidance Area	SSHS-07-16-14-08-HVS-2	34																			
Room 100 (Library	SSHS-07-08-14-09-IA	3.2								6.1		0.65				0.96		0.19			
Hallway Outside Library	SSHS-07-13-14-09-SS	44				67								20		72				17	
Hallway Outside Library	SSHS-07-15-14-09-HVS-1	36																		11	
Hallway Outside Library	SSHS-07-15-14-09-HVS-2	36																		8.7	

TABLE 2-5
MEASURED CONCENTRATIONS OF VOCs IN INDOOR AIR, OUTDOOR AIR, SUB-SLAB VAPOR AND HVS DISCHARGE SAMPLES
2014
Elmira High School
Elmira, New York

	RESULTS (ug/m3)	Trichloroethene	Q	trans-1,2-Dichloroethene	Q	Freon 12	Q	cis-1,2-Dichloroethene	Q	Freon 113	Q	Freon 11	Q	Toluene	Q	PCE	Q	Styrene	Q	Propylbenzene	Q	o-Xylene	Q	m,p-Xylene	Q
Room 101	SSHS-07-08-14-10-IA					6.9						1.1		44				0.7				4		13	
Room 101	SSHS-07-14-14-10-SS					120						17				7.7									
Room 101	SSHS-7-16-14-10-HVS-1					71						6.7		620						13		170		410	
Room 101	SSHS-7-16-14-10-HVS-2					60						6.7		6.1								170			
Room 115	SSHS-07-08-14-11-IA					9.5						1		3.9				0.76				0.55		1.6	
Room 115	SSHS-07-14-14-11-SS					26										29									
Room 115	SSHS-07-15-14-11-HVS-01					22										12									
Room 115	SSHS-7-15-14-11-HVS-2					21								6		9.9									
Room 115	SSHS-7-15-14-11-HVS-2-DUP					21								5.9		8.6									
Room 116	SSHS-07-08-14-12-IA					9.7						0.9		1.8								0.34		0.96	
Room 116	SSHS-07-14-14-12-SS					6900																			
Room 116	SSHS-7-15-14-12-HVS-01					4800																			
Room 116	SSHS-07-15-14-12-HVS-02					4600																			
Room 111	SSHS-07-08-14-13-IA					15								1.4								0.29		0.82	
Room 111	SSHS-07-14-14-13-SS	7.3				1400										24									
Room 111	SSHS-07-15-14-13-HVS1					750										9.9									
Room 111	SSHS-07-15-14-13-HVS2					1200								5.4		8.4									
Room 103	SSHS-07-08-14-14-IA					9.6						1		13								1.3		4.1	
Room 106	SSHS-07-14-14-14-SS	11				620								35								5		14	
Room 106	SSHS-07-15-14-14-HVS1					280																			
Room 106	SSHS-07-15-14-14-HVS2					320								5.3											
Room 105	SSHS-07-08-14-15-IA					13								4.4								0.36		0.97	
Room 104	SSHS-07-14-14-15-SS					22000																			
Room 104	SSHS-07-16-14-15-HVS-01					16000																			
Room 104	SSHS-07-16-14-15-HVS-02					3700																			
Auditorium	SSHS-07-10-14-16-IA					2						0.95		0.5											
Auditorium	SSHS-07-10-14-16-IA-DUP					2								0.38											
Back Stage	SSHS-07-14-14-16-SS					270								13				11						9.4	
Back Stage	SSHS-07-16-14-16-HVS-01					180								6.7											
Back Stage	SSHS-07-16-14-16-HVS-02					200																			
Room 136A	SSHS-07-10-14-17-IA					2						1.1		0.63											
Hallway Outside Room 136A	SSHS-07-14-14-17-SS					540				13															
Hallway Outside Room 136A	SSHS-07-16-14-17-HVS-01					1600																			
Hallway Outside Room 136A	SSHS-07-16-14-17-HVS-02					840																			
Custodian Break Room (M14)	SSHS-07-10-14-18-IA	0.67	J			3.5						1.2		20				3.1				2.2		6.4	
Custodian's Storage	SSHS-07-14-14-18-SS					5000						130													
Custodian's Storage	SSHS-07-16-14-18-HVS-01					5800						69													
Custodian's Storage	SSHS-07-16-14-18-HVS-02					6700						75													
Room 138A	SSHS-07-10-14-19-IA					2.2						0.93		0.58											
Room 138A	SSHS-07-14-14-19-SS					880								24								5.6		23	
Room 138A	SSHS-07-16-14-19-HVS-01					3100								16		38									
Room 138A	SSHS-07-16-14-19-HVS-02					4500								13		29									

TABLE 2-5
MEASURED CONCENTRATIONS OF VOCs IN INDOOR AIR, OUTDOOR AIR, SUB-SLAB VAPOR AND HVS DISCHARGE SAMPLES
2014
Elmira High School
Elmira, New York

	RESULTS ug/m3	Methylene Chloride	Q	Hexane	Q	Heptane	Q	Ethyl Benzene	Q	Ethanol	Q	Cyclohexane	Q	Cumene	Q	Chloromethane	Q	Chloroform	Q	Carbon Tetrachloride	Q	Carbon Disulfide	Q	Benzene	Q	Acetone	Q
Room 101	SSHS-07-08-14-10-IA	1.6		5.7		9.4		3.1		25	J	1.4				0.84				0.39				1.5		110	J
Room 101	SSHS-07-14-14-10-SS									63														110		97	
Room 101	SSHS-7-16-14-10-HVS-1							76																110		67	
Room 101	SSHS-7-16-14-10-HVS-2																									67	
Room 115	SSHS-07-08-14-11-IA			1.7		3.7		0.42		22	J					0.92				0.4				0.36		21	J
Room 115	SSHS-07-14-14-11-SS									8.5																	
Room 115	SSHS-07-15-14-11-HVS-01			7																							
Room 115	SSHS-7-15-14-11-HVS-2			12																							
Room 115	SSHS-7-15-14-11-HVS-2-DUI			12																							
Room 116	SSHS-07-08-14-12-IA							0.24		10	J					0.86				0.38				0.26		12	J
Room 116	SSHS-07-14-14-12-SS																										
Room 116	SSHS-7-15-14-12-HVS-01																										
Room 116	SSHS-07-15-14-12-HVS-02																										
Room 111	SSHS-07-08-14-13-IA			1.6				0.23		9.3	J					1.1				0.38						9.6	J
Room 111	SSHS-07-14-14-13-SS			9																							
Room 111	SSHS-07-15-14-13-HVS1																										
Room 111	SSHS-07-15-14-13-HVS2			4.7																							
Room 103	SSHS-07-08-14-14-IA					1.4		1		22	J					0.84				0.38				0.66		37	J
Room 106	SSHS-07-14-14-14-SS									51		6.1												3.8		45	
Room 106	SSHS-07-15-14-14-HVS1									39	J																
Room 106	SSHS-07-15-14-14-HVS2									38																	
Room 105	SSHS-07-08-14-15-IA							0.27		50	J					0.76				0.36						14	J
Room 104	SSHS-07-14-14-15-SS																										
Room 104	SSHS-07-16-14-15-HVS-01																										
Room 104	SSHS-07-16-14-15-HVS-02																										
Auditorium	SSHS-07-10-14-16-IA									2.3	J					0.85				0.42						4.8	J
Auditorium	SSHS-07-10-14-16-IA-DUP									2.3	J					0.78				0.39						3.4	J
Back Stage	SSHS-07-14-14-16-SS			10		15						7.7												5.2			
Back Stage	SSHS-07-16-14-16-HVS-01																									33	
Back Stage	SSHS-07-16-14-16-HVS-02																									33	
Room 136A	SSHS-07-10-14-17-IA									2.5	J					0.74		0.39		0.4						3.8	J
Hallway Outside Room 136A	SSHS-07-14-14-17-SS																									30	
Hallway Outside Room 136A	SSHS-07-16-14-17-HVS-01																										
Hallway Outside Room 136A	SSHS-07-16-14-17-HVS-02																UJ										
Custodian Break Room (M14)	SSHS-07-10-14-18-IA			2.5		1.3		1.4		100	J					0.81		0.7		0.39				0.94		22	J
Custodian's Storage	SSHS-07-14-14-18-SS																										
Custodian's Storage	SSHS-07-16-14-18-HVS-01																										
Custodian's Storage	SSHS-07-16-14-18-HVS-02																										
Room 138A	SSHS-07-10-14-19-IA										UJ					0.74				0.4						4.3	J
Room 138A	SSHS-07-14-14-19-SS			13		11						7.3												7.7			
Room 138A	SSHS-07-16-14-19-HVS-01																									160	
Room 138A	SSHS-07-16-14-19-HVS-02																									210	

TABLE 2-5
MEASURED CONCENTRATIONS OF VOCs IN INDOOR AIR, OUTDOOR AIR, SUB-SLAB VAPOR AND HVS DISCHARGE SAMPLES
2014
Elmira High School
Elmira, New York

	RESULTS (ug/m3)	2-Butanone (Methyl Ethyl Ketone	Q	4-Methyl-2-pentanone	Q	4-Ethyltoluene	Q	2,2,4-Trimethylpentane	Q	2-Propanol	Q	1,4-Dioxane	Q	1,3,5-Trimethylbenzene	Q	1,2,4-Trimethylbenzene	Q	1,2-Dichloroethane	Q	1,1,1-Trichloroethane	Q
Room 101	SSHS-07-08-14-10-IA	4.4				1.4				4.9						1.6					
Room 101	SSHS-07-14-14-10-SS	16																			
Room 101	SSHS-7-16-14-10-HVS-1	23				90								34		120					
Room 101	SSHS-7-16-14-10-HVS-2	23				90										120					
Room 115	SSHS-07-08-14-11-IA	3								4.7						1					
Room 115	SSHS-07-14-14-11-SS																			14	
Room 115	SSHS-07-15-14-11-HVS-01																				
Room 115	SSHS-7-15-14-11-HVS-2																				
Room 115	SSHS-7-15-14-11-HVS-2-DUI																				
Room 116	SSHS-07-08-14-12-IA	2.5																			
Room 116	SSHS-07-14-14-12-SS																				
Room 116	SSHS-7-15-14-12-HVS-01																				
Room 116	SSHS-07-15-14-12-HVS-02																				
Room 111	SSHS-07-08-14-13-IA											0.79									
Room 111	SSHS-07-14-14-13-SS																			9	
Room 111	SSHS-07-15-14-13-HVS1																				
Room 111	SSHS-07-15-14-13-HVS2																				
Room 103	SSHS-07-08-14-14-IA	3.3								2.5		0.92				0.97					
Room 106	SSHS-07-14-14-14-SS																				
Room 106	SSHS-07-15-14-14-HVS1																				
Room 106	SSHS-07-15-14-14-HVS2																				
Room 105	SSHS-07-08-14-15-IA	6.2		2.3								1									
Room 104	SSHS-07-14-14-15-SS																				
Room 104	SSHS-07-16-14-15-HVS-01																				
Room 104	SSHS-07-16-14-15-HVS-02																				
Auditorium	SSHS-07-10-14-16-IA											0.66									
Auditorium	SSHS-07-10-14-16-IA-DUP																				
Back Stage	SSHS-07-14-14-16-SS															6.3					
Back Stage	SSHS-07-16-14-16-HVS-01	31																			
Back Stage	SSHS-07-16-14-16-HVS-02																				
Room 136A	SSHS-07-10-14-17-IA																				
Hallway Outside Room 136A	SSHS-07-14-14-17-SS																				
Hallway Outside Room 136A	SSHS-07-16-14-17-HVS-01																				
Hallway Outside Room 136A	SSHS-07-16-14-17-HVS-02																				
Custodian Break Room (M14)	SSHS-07-10-14-18-IA					2.9				4.6				1.2		3.4					
Custodian's Storage	SSHS-07-14-14-18-SS																				
Custodian's Storage	SSHS-07-16-14-18-HVS-01																				
Custodian's Storage	SSHS-07-16-14-18-HVS-02																				
Room 138A	SSHS-07-10-14-19-IA																				
Room 138A	SSHS-07-14-14-19-SS					6.3										8.6					
Room 138A	SSHS-07-16-14-19-HVS-01																				
Room 138A	SSHS-07-16-14-19-HVS-02																				

TABLE 2-5
MEASURED CONCENTRATIONS OF VOCs IN INDOOR AIR, OUTDOOR AIR, SUB-SLAB VAPOR AND HVS DISCHARGE SAMPLES
2014
Elmira High School
Elmira, New York

	RESULTS (ug/m3)	Trichloroethene	Q	trans-1,2-Dichloroethene	Q	Freon 12	Q	cis-1,2-Dichloroethene	Q	Freon 113	Q	Freon 11	Q	Toluene	Q	PCE	Q	Styrene	Q	Propylbenzene	Q	o-Xylene	Q	m,p-Xylene	Q
Room 142 (Wellness Ctr)	SSHS-07-10-14-20-IA					2.4						0.95		1.1								0.18		1.4	
Room 142 (Wellness Ctr)	SSHS-07-14-14-20-SS					58								6.6										64	
Room 142 (Wellness Ctr)	SSHS-07-16-14-20-HVS-01					87										9.7									
Room 142 (Wellness Ctr)	SSHS-07-16-14-20-HVS-02					140										7.4									
Room 145 Nurses Office	SSHS-07-10-14-21-IA	9.4	J			2						0.94		0.52										0.3	
Room 145 Nurses Office	SSHS-07-10-14-21-IA-DUP					2.2						1.1		0.81										0.34	
Room 145 Nurses Office	SSHS-07-14-14-21-SS	14				14	J		J	15						16								11	
Room 145 Nurses Office	SSHS-07-14-14-21-SS-DUP					20	J		J	16				19											
Room 145 Nurses Office	SSHS-07-16-14-21-HVS-01	7.3				13				11				7.2											
Room 145 Nurses Office	SSHS-07-16-14-21-HVS-02	7.4				12								5.8											
Room 171 (Aux Gym	SSHS-07-10-14-22-IA					4.9						1.1		0.92								0.14		0.36	J
Room 171 (Aux Gym	SSHS-07-10-14-22-IA DUP					4.9						0.88		1.2								0.17		0.41	
Room 171 (Aux Gym	SSHS-07-14-14-22-SS					48																			
Room 171 (Aux Gym	SSHS-07-16-14-22-HVS-01					78								4.7											
Room 171 (Aux Gym	SSHS-07-16-14-22-HVS-02					180																			
Room 156 (Girls Locker Room	SSHS-07-10-14-23-IA					2.1								0.53											
Room 156 (Girls Locker Room	SSHS-07-14-14-23-SS					33								12										6.7	
Room 156 (Girls Locker Room	SSHS-07-16-14-23-HVS1					27																			
Room 156 (Girls Locker Room	SSHS-07-16-14-23-HVS2					29																			
Rooftop	SSHS-07-08-14-OA-01					2						1		1.2								0.2		0.61	
Overnight Rooftop	SSHS-07-08-14-OAON-01					1.6								1.2								0.2		0.58	
Rooftop	SSHS-07-10-14-OA-O2					1.9								0.3											

TABLE 2-5
MEASURED CONCENTRATIONS OF VOCs IN INDOOR AIR, OUTDOOR AIR, SUB-SLAB VAPOR AND HVS DISCHARGE SAMPLES
2014
Elmira High School
Elmira, New York

	RESULTS ug/m3	Methylene Chloride	Q	Hexane	Q	Heptane	Q	Ethyl Benzene	Q	Ethanol	Q	Cyclohexane	Q	Cumene	Q	Chloromethane	Q	Chloroform	Q	Carbon Tetrachloride	Q	Carbon Disulfide	Q	Benzene	Q	Acetone	Q
Room 142 (Wellness Ctr)	SSHS-07-10-14-20-IA							0.14			UJ					0.78		0.24		0.4				0.28		6.3	J
Room 142 (Wellness Ctr)	SSHS-07-14-14-20-SS													15										4.3			
Room 142 (Wellness Ctr)	SSHS-07-16-14-20-HVS-01																									34	
Room 142 (Wellness Ctr)	SSHS-07-16-14-20-HVS-02																									48	
Room 145 Nurses Office	SSHS-07-10-14-21-IA									5.6	J					0.76		0.59		0.39						5.8	J
Room 145 Nurses Office	SSHS-07-10-14-21-IA-DUP									6.8	J					0.73		0.57		0.41				0.27		5.3	J
Room 145 Nurses Office	SSHS-07-14-14-21-SS									43	J							5.9				36	J			36	J
Room 145 Nurses Office	SSHS-07-14-14-21-SS-DUP																	16								27	
Room 145 Nurses Office	SSHS-07-16-14-21-HVS-01																										
Room 145 Nurses Office	SSHS-07-16-14-21-HVS-02																										
Room 171 (Aux Gym	SSHS-07-10-14-22-IA									8.8	J					0.81		0.33		0.41						9.2	J
Room 171 (Aux Gym	SSHS-07-10-14-22-IA DUP							0.14		7.6	J					0.7		0.37		0.39						6.5	J
Room 171 (Aux Gym	SSHS-07-14-14-22-SS																									530	
Room 171 (Aux Gym	SSHS-07-16-14-22-HVS-01																									84	
Room 171 (Aux Gym	SSHS-07-16-14-22-HVS-02																									32	
Room 156 (Girls Locker Room	SSHS-07-10-14-23-IA									3	J					0.71		14		0.35						3.8	J
Room 156 (Girls Locker Room	SSHS-07-14-14-23-SS			4.5																						49	
Room 156 (Girls Locker Room	SSHS-07-16-14-23-HVS1																										
Room 156 (Girls Locker Room	SSHS-07-16-14-23-HVS2																										
Rooftop	SSHS-07-08-14-OA-01									2.9	J					0.84				0.35						9.5	J
Overnight Rooftop	SSHS-07-08-14-OAON-01							0.15		3.3	J					0.79		0.16	J	0.36				0.28		9.4	J
Rooftop	SSHS-07-10-14-OA-O2											ND,UJ				0.79				0.35						5.5	J

TABLE 2-5
MEASURED CONCENTRATIONS OF VOCs IN INDOOR AIR, OUTDOOR AIR, SUB-SLAB VAPOR AND HVS DISCHARGE SAMPLES
2014
Elmira High School
Elmira, New York

	RESULTS (ug/m3)	2-Butanone (Methyl Ethyl Ketone	Q	4-Methyl-2-pentanone	Q	4-Ethyltoluene	Q	2,2,4-Trimethylpentane	Q	2-Propanol	Q	1,4-Dioxane	Q	1,3,5-Trimethylbenzene	Q	1,2,4-Trimethylbenzene	Q	1,2-Dichloroethane	Q	1,1,1-Trichloroethane	Q
Room 142 (Wellness Ctr)	SSHS-07-10-14-20-IA			1.3						8.6											
Room 142 (Wellness Ctr)	SSHS-07-14-14-20-SS			14																40	
Room 142 (Wellness Ctr)	SSHS-07-16-14-20-HVS-01																			26	
Room 142 (Wellness Ctr)	SSHS-07-16-14-20-HVS-02																			19	
Room 145 Nurses Office	SSHS-07-10-14-21-IA																				
Room 145 Nurses Office	SSHS-07-10-14-21-IA-DUP											0.66								6.6	J
Room 145 Nurses Office	SSHS-07-14-14-21-SS																				
Room 145 Nurses Office	SSHS-07-14-14-21-SS-DUP																				
Room 145 Nurses Office	SSHS-07-16-14-21-HVS-01																				
Room 145 Nurses Office	SSHS-07-16-14-21-HVS-02																				
Room 171 (Aux Gym	SSHS-07-10-14-22-IA			1.9						2.8								0.13			
Room 171 (Aux Gym	SSHS-07-10-14-22-IA DUP			1.9														0.13			
Room 171 (Aux Gym	SSHS-07-14-14-22-SS	44		2000						170											
Room 171 (Aux Gym	SSHS-07-16-14-22-HVS-01			180						18											
Room 171 (Aux Gym	SSHS-07-16-14-22-HVS-02			47																	
Room 156 (Girls Locker Room	SSHS-07-10-14-23-IA																				
Room 156 (Girls Locker Room	SSHS-07-14-14-23-SS	19																			
Room 156 (Girls Locker Room	SSHS-07-16-14-23-HVS1																				
Room 156 (Girls Locker Room	SSHS-07-16-14-23-HVS2																				
Rooftop	SSHS-07-08-14-OA-01											1.5									
Overnight Rooftop	SSHS-07-08-14-OAON-01																				
Rooftop	SSHS-07-10-14-OA-O2																				

Table 2-6
Sampling Results Detected Compounds June 2018
Former Sperry Remington Site-North Portion
Elmira, New York

Location	Sample ID	1,1,1-Trichloroethane	Q	1,1,2,2-Tetrachloroethane	Q	1,2,4-Trimethylbenzene	Q	1,2-Dichloroethane	Q	1,2-Dichloropropane	Q	1,3,5-Trimethylbenzene	Q	1,4-Dioxane	Q	2,2,4-Trimethylpentane	Q	2-Butanone (Methyl Ethyl Ketone)	Q
Cafeteria	EHS-062818-EF-CAFA																		
Cafeteria	EHS-062818-EF-CAFR																		
Cafeteria	EHS-062818-IA-CAF-UN					3.4		0.14				0.77		0.93				5	
Cafeteria	EHS-062918-IA-CAF-OCC																	3.1	
F Wing	EHS-062818-EF-FWING																	70	
Gym	EHS-062818-EF-GYM																		
Gym	EHS-062818-IA-GYM-UN																	3.6	
Gym	EHS-062918-IA-GYM-OCC																		
K Wing	EHS-062818-EF-KWING																		
K Wing	EHS-062818-IA-K-UN							0.16										2.6	
K Wing	EHS-062818-OA-K-UN																		
K Wing	EHS-062918-IA-K-OCC																	4.2	
K Wing	EHS-062918-OA-K-OCC					3.9		0.41	J							7.5	J	11	J
Room 100	EHS-062818-IA-100-UN							0.42						1.5				4	
Room 100	EHS-062918-IA-100-OCC																		
Room 100	EHS-062918-IA-100-OCC-DUP																		
Room 103	EHS-062818-IA-103-UN							0.22										3.8	
Room 103	EHS-062818-SS-103-UN																	15	
Room 103	EHS-062918-IA-103-OCC																	2.3	J
Room 104	EHS-062818-IA-104-UN							0.16										3.4	
Room 104	EHS-062918-IA-104-OCC																	2.7	
Room 109	EHS-062818-IA-109-UN							0.12											
Room 109	EHS-062818-SS-109-UN																	37	
Room 109	EHS-062918-IA-109-OCC																	2.4	
Room 120	EHS-062818-IA-120-UN							0.28										3.3	
Room 120	EHS-062818-SS-120-UN																	14	
Room 120	EHS-062918-IA-120-OCC																		
Room 120	EHS-062918-IA-120-OCC-DUP																		
Room 122	EHS-062818-IA-122-UN							0.62										6.7	
Room 122	EHS-062818-SS-122-UN																		
Room 122	EHS-062918-IA-122-OCC																	2.9	
Room 127	EHS-062818-IA-127-UN							1.1										3.1	
Room 127	EHS-062818-OA-127-UN-DUP																		
Room 127	EHS-062818-Oa-127-UN																		
Room 127	EHS-062918-IA-127-OCC							0.27										3.4	
Room 127	EHS-062918-OA-127-OCC													4.2				3.2	
Room 133	EHS-062818-IA-133-UN							0.43						1.2				2.9	
Room 133	EHS-062818-SS-133-UN																		
Room 133	EHS-062918-IA-133-OCC							0.3										4.1	
Room 135	EHS-062818-IA-135-UN					1.2		0.17										3.2	
Room 135	EHS-062818-IA-135-UN-DUP					1		0.18										3.3	
Room 135	EHS-062818-SS-135-UN																	22	
Room 135	EHS-062818-SS-135-UN-DUP																	26	J
Room 135	EHS-062918-HVS-135-1																	23	
Room 135	EHS-062918-HVS-135-2																		
Room 135	EHS-062918-IA-135-OCC																	4.1	
Room 138A	EHS-062818-IA-138A-UN					0.97		0.16										41	
Room 138A	EHS-062918-IA-138A-OCC																	4.4	
Room 139	EHS-062818-IA-139-UN	0.59				2.7		0.16										10	
Room 139	EHS-062918-IA-139-OCC	0.27				0.73	J											5.9	
Room 145	EHS-062818-IA-145-UN							4.6										4.2	
Room 145	EHS-062918-IA-145-OCC			0.37				0.9										3.8	
Room 148	EHS-062818-IA-148-UN																	2.4	
Room 148	EHS-062818-SS-148-UN																	14	
Room 148	EHS-062918-HVS-148-1																		
Room 148	EHS-062918-HVS-148-2																		
Room 148	EHS-062918-IA-148-OCC					2		0.14		1.7						4.4		7.6	
Room 151	EHS-062818-SS-151-UN																		
Room 151	EHS-062918-HVS-151-1																		
Room 151	EHS-062918-HVS-151-2																		
Room 151A	EHS-062818-IA-151A-UN					1.5		0.15										9.1	
Room 151A	EHS-062918-IA-151A-OCC			0.32														4.5	
Room 168	EHS-062818-IA-164-UN					1.6												3.3	
Room 168	EHS-062818-SS-164-UN																	17	
Room 168	EHS-062918-IA-164-OCC					3.5		0.25											

Note: Results are expressed in units of micrograms per cubic meter ($\mu g/m^3$)

Table 2-6
Sampling Results Detected Compounds June 2018
Former Sperry Remington Site-North Portion
Elmira, New York

Location	Sample ID	2-Propanol	Q	4-Ethyltoluene	Q	4-Methyl-2-pentanone	Q	Acetone	Q	Benzene	Q	Bromodichloromethane	Q	Carbon Tetrachloride	Q	Chloroform	Q	Chloromethane	Q
Cafeteria	EHS-062818-EF-CAFA																		
Cafeteria	EHS-062818-EF-CAFR							55								10			
Cafeteria	EHS-062818-IA-CAF-UN	7.3		3.8	J	1.3	J	31		0.52		1.8		0.39		7.1			
Cafeteria	EHS-062918-IA-CAF-OCC							18						0.48		0.45			
F Wing	EHS-062818-EF-FWING	12				9.5		110											
Gym	EHS-062818-EF-GYM															36			
Gym	EHS-062818-IA-GYM-UN							34		0.33		15		0.57		51			
Gym	EHS-062918-IA-GYM-OCC							13				1	J	0.44		3.1			
K Wing	EHS-062818-EF-KWING																		
K Wing	EHS-062818-IA-K-UN	12				1.2	J	26		0.4		1.2		0.42		4.7			
K Wing	EHS-062818-OA-K-UN							13		0.26				0.52		0.17			
K Wing	EHS-062918-IA-K-OCC	5.8						31		0.26				0.42		1.1		1.7	
K Wing	EHS-062918-OA-K-OCC	10	J	3		1.6	J	25	J	1	J			0.47	J	0.43	J		
Room 100	EHS-062818-IA-100-UN	10				0.7	J	42		0.5				0.43		4.4			
Room 100	EHS-062918-IA-100-OCC	2.2	J					16		0.27				0.5		0.42			
Room 100	EHS-062918-IA-100-OCC-DUP	4.2	J					16		0.3				0.5		0.4			
Room 103	EHS-062818-IA-103-UN	4.2				0.69	J	27		0.37				0.42		1.7			
Room 103	EHS-062818-SS-103-UN							120											
Room 103	EHS-062918-IA-103-OCC	1.9						19		0.26				0.48		0.18			
Room 104	EHS-062818-IA-104-UN	2.8						26		0.31				0.45		0.38			
Room 104	EHS-062918-IA-104-OCC							16		0.28				0.49		0.19			
Room 109	EHS-062818-IA-109-UN	3.4						17		0.37				0.4		0.64			
Room 109	EHS-062818-SS-109-UN	23				8		160											
Room 109	EHS-062918-IA-109-OCC							13						0.46		0.17			
Room 120	EHS-062818-IA-120-UN	3.3						22		0.39				0.34		1.2			
Room 120	EHS-062818-SS-120-UN	17				23		140											
Room 120	EHS-062918-IA-120-OCC							11		0.27				0.49		0.17			
Room 120	EHS-062918-IA-120-OCC-DUP							12		0.26				0.5		0.17			
Room 122	EHS-062818-IA-122-UN	9.6				1.2	J	32		0.44				0.35		3.4			
Room 122	EHS-062818-SS-122-UN					10		88											
Room 122	EHS-062918-IA-122-OCC							15		0.29				0.5		0.31			
Room 127	EHS-062818-IA-127-UN	6.8				0.73	J	26		0.42				0.38		2.4			
Room 127	EHS-062818-OA-127-UN-DUP							11		0.29	J			0.51					
Room 127	EHS-062818-Oa-127-UN							12		0.4	J			0.49					
Room 127	EHS-062918-IA-127-OCC	2						16		0.3				0.48		0.42			
Room 127	EHS-062918-OA-127-OCC	2.1						14						0.48					
Room 133	EHS-062818-IA-133-UN	8.9						29		0.47		2.9		0.47		11			
Room 133	EHS-062818-SS-133-UN							160											
Room 133	EHS-062918-IA-133-OCC	6.3						29		0.25				0.39		0.63			
Room 135	EHS-062818-IA-135-UN	5.8		0.98	J	0.94	J	28		0.57		3.9		0.48		16			
Room 135	EHS-062818-IA-135-UN-DUP	5.2		0.92	J	1	J	28		0.6		4.4		0.46		16		1.6	J
Room 135	EHS-062818-SS-135-UN	11		6.6	J			360	J							15	J		
Room 135	EHS-062818-SS-135-UN-DUP			42	J			1400	J	8	J								
Room 135	EHS-062918-HVS-135-1							100											
Room 135	EHS-062918-HVS-135-2							64											
Room 135	EHS-062918-IA-135-OCC	2.2						23						0.4		0.85			
Room 138A	EHS-062818-IA-138A-UN	4.9				1.7	J	84		0.94		3.5		0.49		15			
Room 138A	EHS-062918-IA-138A-OCC							17		0.98				0.36		0.69			
Room 139	EHS-062818-IA-139-UN	8.6		2	J	0.99	J	45		2.5		3.8		0.43		15			
Room 139	EHS-062918-IA-139-OCC	3.8						26		0.48				0.38		1.5			
Room 145	EHS-062818-IA-145-UN	15						41		0.44		11		0.5		48			
Room 145	EHS-062918-IA-145-OCC	4.4						22		0.36		1.4		0.44		5.3			
Room 148	EHS-062818-IA-148-UN	2.7						26		0.3				0.38		1.2			
Room 148	EHS-062818-SS-148-UN							81											
Room 148	EHS-062918-HVS-148-1																		
Room 148	EHS-062918-HVS-148-2																		
Room 148	EHS-062918-IA-148-OCC	6.8		1.7		0.96		36		0.62				0.62		0.53			
Room 151	EHS-062818-SS-151-UN							37											
Room 151	EHS-062918-HVS-151-1							130											
Room 151	EHS-062918-HVS-151-2							43											
Room 151A	EHS-062818-IA-151A-UN	11		1		0.85	J	87		0.52		1.1		0.45		5.3		1.5	
Room 151A	EHS-062918-IA-151A-OCC							23		0.35				0.37		0.34			
Room 168	EHS-062818-IA-164-UN	6		1.3				55		2.9		1.8		0.49		7.6			
Room 168	EHS-062818-SS-164-UN							74											
Room 168	EHS-062918-IA-164-OCC	6.2		2.5				20		0.5						0.5			

Note: Results are expressed in units of micrograms per cubic meter ($\mu g/m^3$)

Table 2-6
Sampling Results Detected Compounds June 2018
Former Sperry Remington Site-North Portion
Elmira, New York

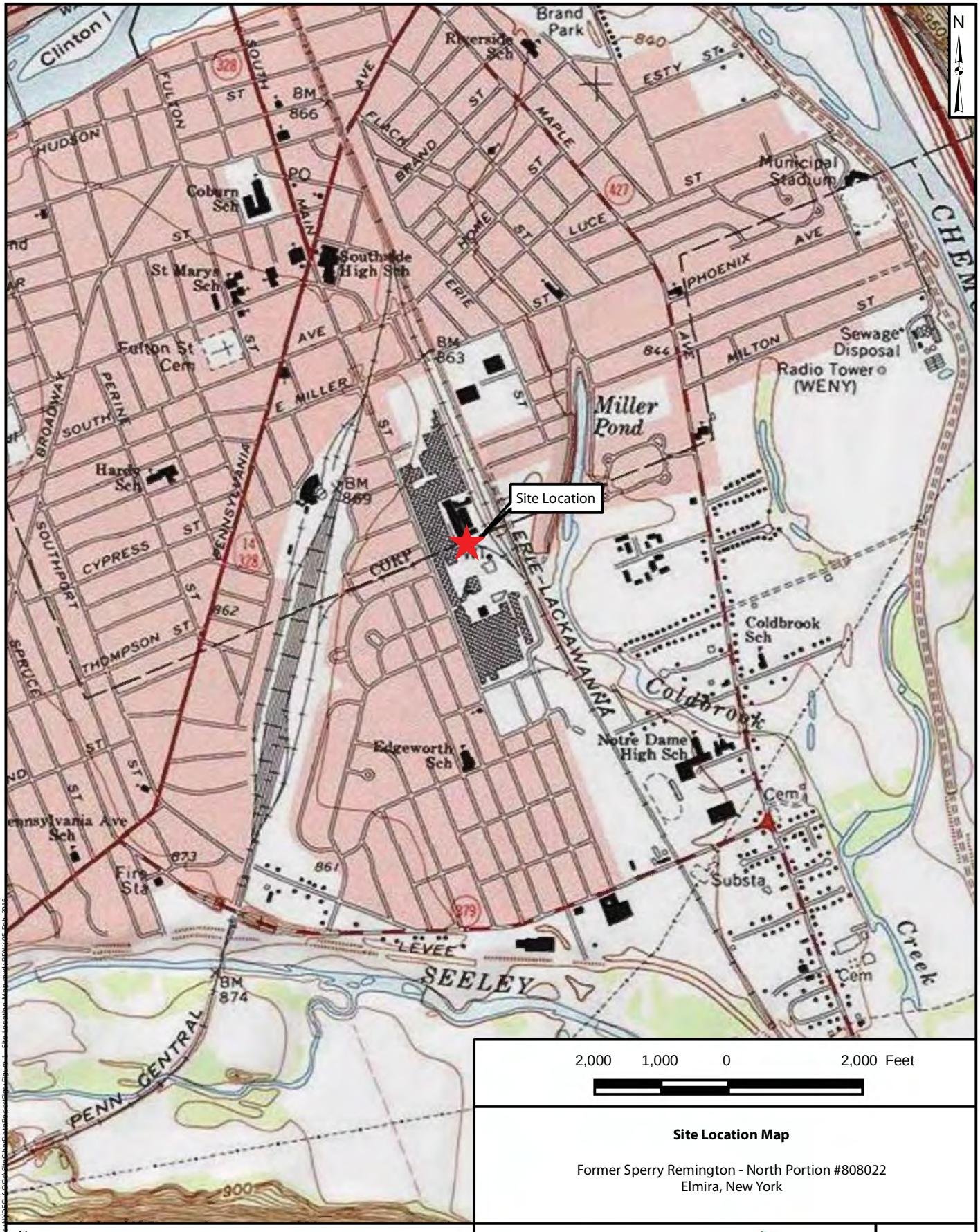
Location	Sample ID	cis-1,2-Dichloroethene	Q	Cumene	Q	Cyclohexane	Q	Dibromochloromethane	Q	Ethanol	Q	Ethyl Benzene	Q	Freon 11	Q	Freon 12	Q	Freon 113	Q
Cafeteria	EHS-062818-EF-CAFA															45			
Cafeteria	EHS-062818-EF-CAFR															31			
Cafeteria	EHS-062818-IA-CAF-UN					0.71				36		2.3		1.2		7.9			
Cafeteria	EHS-062918-IA-CAF-OCC									7.6		0.16		1.3		2.7			
F Wing	EHS-062818-EF-FWING	67								20						140			
Gym	EHS-062818-EF-GYM															150		330	
Gym	EHS-062818-IA-GYM-UN							4.6				0.15				6.9			
Gym	EHS-062918-IA-GYM-OCC									3.7				1.2		3.6			
K Wing	EHS-062818-EF-KWING															56		37	
K Wing	EHS-062818-IA-K-UN									25		2.1		1.3		7.6			
K Wing	EHS-062818-OA-K-UN									3.2						2.5			
K Wing	EHS-062918-IA-K-OCC									11				1.2		3.1			
K Wing	EHS-062918-OA-K-OCC					2.7	J			15	J	3.8	J			2.9	J		
Room 100	EHS-062818-IA-100-UN					1.6				62		0.45		1.5		24			
Room 100	EHS-062918-IA-100-OCC									14				1.4		3.7			
Room 100	EHS-062918-IA-100-OCC-DUP	0.15	J							15		0.15	J	1.3		3.6			
Room 103	EHS-062818-IA-103-UN					1				24		0.29		1.3		32			
Room 103	EHS-062818-SS-103-UN					32				210						12			
Room 103	EHS-062918-IA-103-OCC									6.4				1.3		4.1			
Room 104	EHS-062818-IA-104-UN									8.7		0.18		1.3		51			
Room 104	EHS-062918-IA-104-OCC									6.7		0.18		1.3		22			
Room 109	EHS-062818-IA-109-UN									17		0.21		1.2		25			
Room 109	EHS-062818-SS-109-UN									130						240			
Room 109	EHS-062918-IA-109-OCC									7.7		0.21		1.2		7.3			
Room 120	EHS-062818-IA-120-UN					1.3				21		0.28		1.2		39			
Room 120	EHS-062818-SS-120-UN					28				130						1100			
Room 120	EHS-062918-IA-120-OCC									6.8				1.3		4.3			
Room 120	EHS-062918-IA-120-OCC-DUP									7		0.2	J	1.3		4.3			
Room 122	EHS-062818-IA-122-UN					4.3				62		0.6		1.2		30			
Room 122	EHS-062818-SS-122-UN									160						630			
Room 122	EHS-062918-IA-122-OCC									10		0.15		1.3		12			
Room 127	EHS-062818-IA-127-UN					1.4				36		0.31		1.2		22			
Room 127	EHS-062818-OA-127-UN-DUP									3.3						2.4			
Room 127	EHS-062818-Oa-127-UN									3.8				1.4	J	2.4			
Room 127	EHS-062918-IA-127-OCC									16		0.13		1.3		6.8			
Room 127	EHS-062918-OA-127-OCC	0.36								12				1.3		2.5			
Room 133	EHS-062818-IA-133-UN					0.62				51		0.38		1.4		22			
Room 133	EHS-062818-SS-133-UN									80		5.5				770			
Room 133	EHS-062918-IA-133-OCC									48		0.14		1.2		5.5			
Room 135	EHS-062818-IA-135-UN									26		0.75		1.4		14			
Room 135	EHS-062818-IA-135-UN-DUP									25		0.7		1.3		14			
Room 135	EHS-062818-SS-135-UN			25	J	18	J			210	J	26	J			13			
Room 135	EHS-062818-SS-135-UN-DUP			160	J	12	J			810	J	150	J	25	J	11			
Room 135	EHS-062918-HVS-135-1									29				21		8			
Room 135	EHS-062918-HVS-135-2									20				29		7.7			
Room 135	EHS-062918-IA-135-OCC									12		0.15		1.2		3.2			
Room 138A	EHS-062818-IA-138A-UN									60		0.7		1.6		26			
Room 138A	EHS-062918-IA-138A-OCC									17				1.2		2.9			
Room 139	EHS-062818-IA-139-UN					0.73				32		1.6		1.4		41			
Room 139	EHS-062918-IA-139-OCC									15		0.27		1.2		4.4			
Room 145	EHS-062818-IA-145-UN							2.9		52		0.31		1.2		7.2			
Room 145	EHS-062918-IA-145-OCC									13		0.13		1.3		3.7			
Room 148	EHS-062818-IA-148-UN									13		0.17		1.2		32			
Room 148	EHS-062818-SS-148-UN			11						86						810			
Room 148	EHS-062918-HVS-148-1									12						1800			
Room 148	EHS-062918-HVS-148-2															2800	J		
Room 148	EHS-062918-IA-148-OCC					2.4				14		1.6		1.1		4.2			
Room 151	EHS-062818-SS-151-UN									77						8.9			
Room 151	EHS-062918-HVS-151-1									9.1						12			
Room 151	EHS-062918-HVS-151-2															12			
Room 151A	EHS-062818-IA-151A-UN	1.6				0.52				17		3.4		1.2		14			
Room 151A	EHS-062918-IA-151A-OCC									6.1				1.2		3.1			
Room 168	EHS-062818-IA-164-UN					1.1				99		1.4		1.4		40			
Room 168	EHS-062818-SS-164-UN									120						17			
Room 168	EHS-062918-IA-164-OCC					1.2				12		1.4				3			

Note: Results are expressed in units of micrograms per cubic meter ($\mu g/m^3$)

Table 2-6
Sampling Results Detected Compounds June 2018
Former Sperry Remington Site-North Portion
Elmira, New York

Location	Sample ID	Heptane	Q	Hexane	Q	Methylene Chloride	Q	Propylbenzene	Q	Styrene	Q	Tetrachloroethene	Q	Tetrahydrofuran	Q	Toluene	Q	Trichloroethene	Q	Xylene (m & p)	Q	o-Xylene	Q	m,p-Xylene	Q
Cafeteria	EHS-062818-EF-CAFA																	26							
Cafeteria	EHS-062818-EF-CAFR																								
Cafeteria	EHS-062818-IA-CAF-UN	1.4		1.6		1.6		0.83		2.5		0.58				6.8						3.2		9.2	
Cafeteria	EHS-062918-IA-CAF-OCC															0.62						0.22		0.58	
F Wing	EHS-062818-EF-FWING															5.9		340							
Gym	EHS-062818-EF-GYM															9.4		19							
Gym	EHS-062818-IA-GYM-UN											0.33				1						0.27		0.51	
Gym	EHS-062918-IA-GYM-OCC															0.54									
K Wing	EHS-062818-EF-KWING																	31							
K Wing	EHS-062818-IA-K-UN	1.4		0.96								0.26				2.6						1.9		7.5	
K Wing	EHS-062818-OA-K-UN											0.29				0.5									
K Wing	EHS-062918-IA-K-OCC															0.83						0.16		0.45	
K Wing	EHS-062918-OA-K-OCC	5	J	5.1	J	4.2	J			3.3	J	0.4	J			140	J					4.9	J	12	J
Room 100	EHS-062818-IA-100-UN	1.8		0.59						0.88						3.6						0.6		1.6	
Room 100	EHS-062918-IA-100-OCC	0.78		0.86												0.85	J					0.14		0.35	
Room 100	EHS-062918-IA-100-OCC-DUP	0.8		0.82												1.2	J	0.16	J			0.19		0.44	
Room 103	EHS-062818-IA-103-UN	1.4		1.3												2.2						0.34		0.92	
Room 103	EHS-062818-SS-103-UN			43																					
Room 103	EHS-062918-IA-103-OCC			0.79								0.26				0.76								0.36	
Room 104	EHS-062818-IA-104-UN	0.76		0.71								0.65				1.3						0.22		0.58	
Room 104	EHS-062918-IA-104-OCC															1.4		0.26				0.22		0.64	
Room 109	EHS-062818-IA-109-UN															3.4						0.26		0.7	
Room 109	EHS-062818-SS-109-UN			5.3														11							
Room 109	EHS-062918-IA-109-OCC															2						0.24		0.76	
Room 120	EHS-062818-IA-120-UN			1.2												2.2		0.48				0.37		1	
Room 120	EHS-062818-SS-120-UN			26																					
Room 120	EHS-062918-IA-120-OCC															0.9	J					0.13	J	0.35	J
Room 120	EHS-062918-IA-120-OCC-DUP															1.7	J					0.3	J	0.7	J
Room 122	EHS-062818-IA-122-UN	2.3								1.3						6.2						0.61		1.5	
Room 122	EHS-062818-SS-122-UN																								
Room 122	EHS-062918-IA-122-OCC	0.73		0.61												1.4						0.18		0.46	
Room 127	EHS-062818-IA-127-UN	6.2		0.77												5.1		0.23				0.37		1	
Room 127	EHS-062818-OA-127-UN-DUP											0.5				0.7		0.2	J					0.28	
Room 127	EHS-062818-Oa-127-UN			0.66	J							0.54				0.74		0.34	J						
Room 127	EHS-062918-IA-127-OCC	0.9														1.4						0.16		0.42	
Room 127	EHS-062918-OA-127-OCC															0.56		0.73							
Room 133	EHS-062818-IA-133-UN	1.1				1.1				0.94		0.21				3.1						0.47		1.3	
Room 133	EHS-062818-SS-133-UN									150															
Room 133	EHS-062918-IA-133-OCC															1.2						0.18		0.49	
Room 135	EHS-062818-IA-135-UN	0.92		0.92						1.1		0.32				4.1						0.97		2.7	
Room 135	EHS-062818-IA-135-UN-DUP	1		1						0.97		0.25				4						0.92		2.6	
Room 135	EHS-062818-SS-135-UN	11	J	31				11	J							540	J			69	J	25	J		
Room 135	EHS-062818-SS-135-UN-DUP	28	J	32				78	J							2900	J			410	J	150	J		
Room 135	EHS-062918-HVS-135-1															130								7.5	
Room 135	EHS-062918-HVS-135-2															90								7.6	
Room 135	EHS-062918-IA-135-OCC															0.85						0.24		0.58	
Room 138A	EHS-062818-IA-138A-UN	1.8		1.6						0.81				140		5.6						0.88		3	
Room 138A	EHS-062918-IA-138A-OCC			1.3										7		0.76						0.15		0.42	
Room 139	EHS-062818-IA-139-UN	1.9		4.3		1.2				4.9		0.29		5.3		17						2.2		6.1	
Room 139	EHS-062918-IA-139-OCC	1.2		0.94						1.3				2.6		3.4						0.37		0.97	
Room 145	EHS-062818-IA-145-UN			0.82								0.22				2.4						0.41		1	
Room 145	EHS-062918-IA-145-OCC															0.96						0.16		0.44	
Room 148	EHS-062818-IA-148-UN	0.92														4.4						0.22		0.58	
Room 148	EHS-062818-SS-148-UN															10		160							
Room 148	EHS-062918-HVS-148-1															8.9		380							
Room 148	EHS-062918-HVS-148-2																	380							
Room 148	EHS-062918-IA-148-OCC	1.6		0.78		8.6				1.2						23		0.37				2.3		5	
Room 151	EHS-062818-SS-151-UN											14													
Room 151	EHS-062918-HVS-151-1													74											
Room 151	EHS-062918-HVS-151-2																								
Room 151A	EHS-062818-IA-151A-UN	2		1.7		1.2				0.94		1.9				11		0.77				5.2		15	
Room 151A	EHS-062918-IA-151A-OCC															1.2						0.18		0.39	
Room 168	EHS-062818-IA-164-UN	2.3		5.2												15						1.7		5	
Room 168	EHS-062818-SS-164-UN											11				6.9									
Room 168	EHS-062918-IA-164-OCC	2.3		1.7		2.4										9						2.4		4.7	

Note: Results are expressed in units of micrograms per cubic meter ($\mu g/m^3$)



Site Location Map

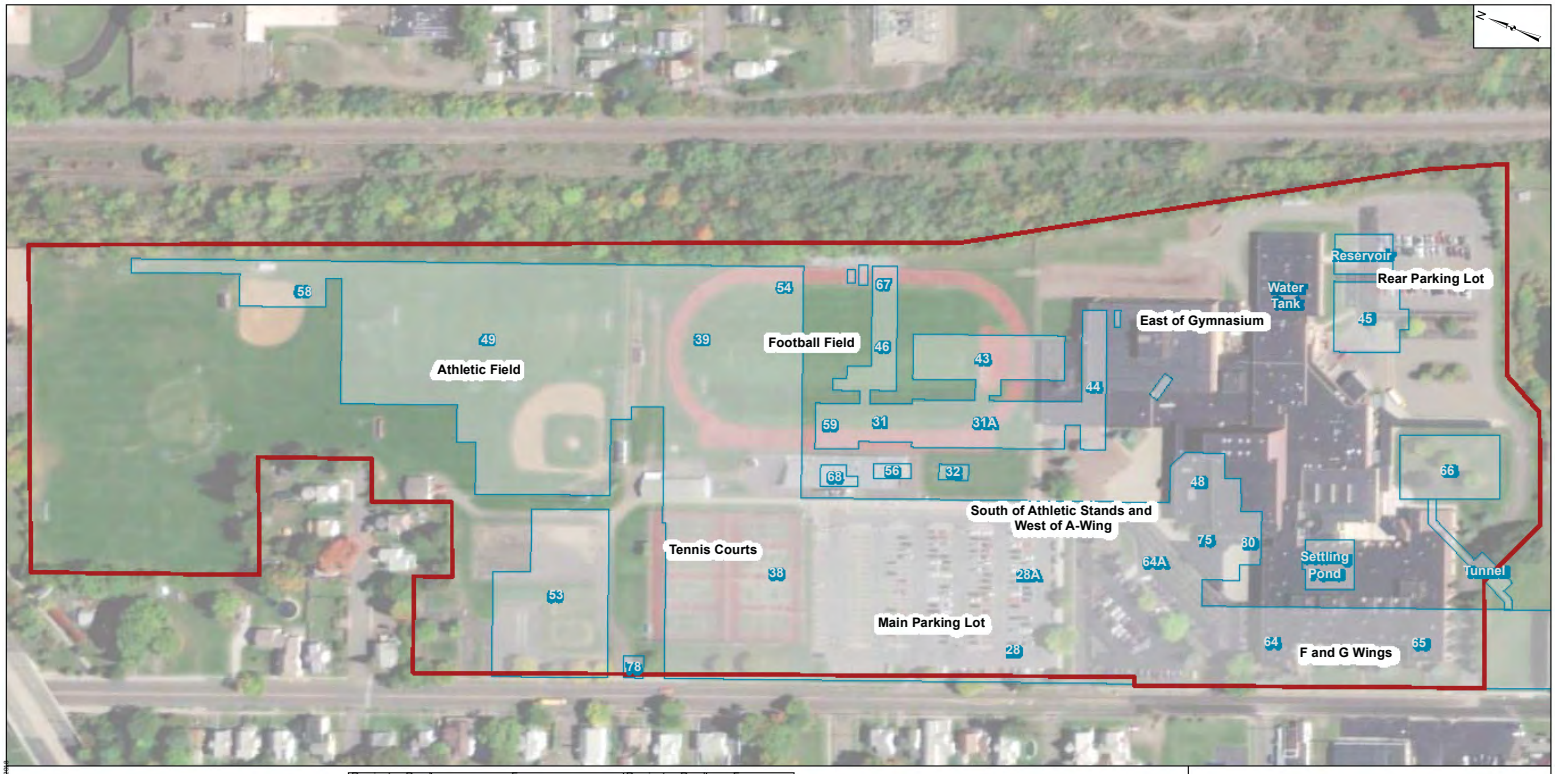
Former Sperry Remington - North Portion #808022
Elmira, New York

Notes:
Topographic map accessed via ArcGIS Online and provided by National Geographic Society and i-cubed on 5 February 2015. Elmira, New York Quadrangle (1971, photorevised 1976) is shown.

Geosyntec consultants

Columbia, Maryland | December 2018

Figure 1-1



Explanation

- Site Boundary
- Historical Structure

Remington Rand Building Number	Former Plant Operation	Remington Rand Building Number	Former Plant Operation
28, 28A, 38, 64A	Machine Shop, Factory Building	54	Oil Handling
31A	Tool Hardening	56	Machine Shop
31	Carbonizing	58	Steel Storage
32	Electrical Building	59	Not Identified
39	Not Identified	64, 65	Machine Shop
43	Heat Treating	66	Storage
44	Blower Room and Cooling Shed	67	Sand Blasting
45	Engine Room	68	Locker Room
46	Sand Blasting	75	Not Identified
48	Not Identified	78	Not Identified
49	Machine Shop	80	Not Identified
53	Garage, Recreation Hall and Cafeteria		

Notes

1. Aerial imagery accessed via ArcGIS Online and provided by Microsoft on 07 August 2018. Image is dated 2 June 2010.
2. Historical structures georeferenced from a PDF drawing ROE-2 Site Plan prepared by Lancy Laboratories, Inc. (1967). Inherently, georeferencing introduces slight distortions and inaccuracies in spatial data, but these distortions and inaccuracies may be exacerbated by the factors listed above. All reasonable efforts were made to accurately reflect the data provided.
3. Site boundary provided by Chemung County, New York on 14 November 2014. Data downloaded from http://www.stcgis.org/stc/DataDownload/chemparcels_12.zip
4. Former plant operation obtained from the Preliminary Site Assessment (Dames & Moore, 1988).

150 75 0 150 Feet

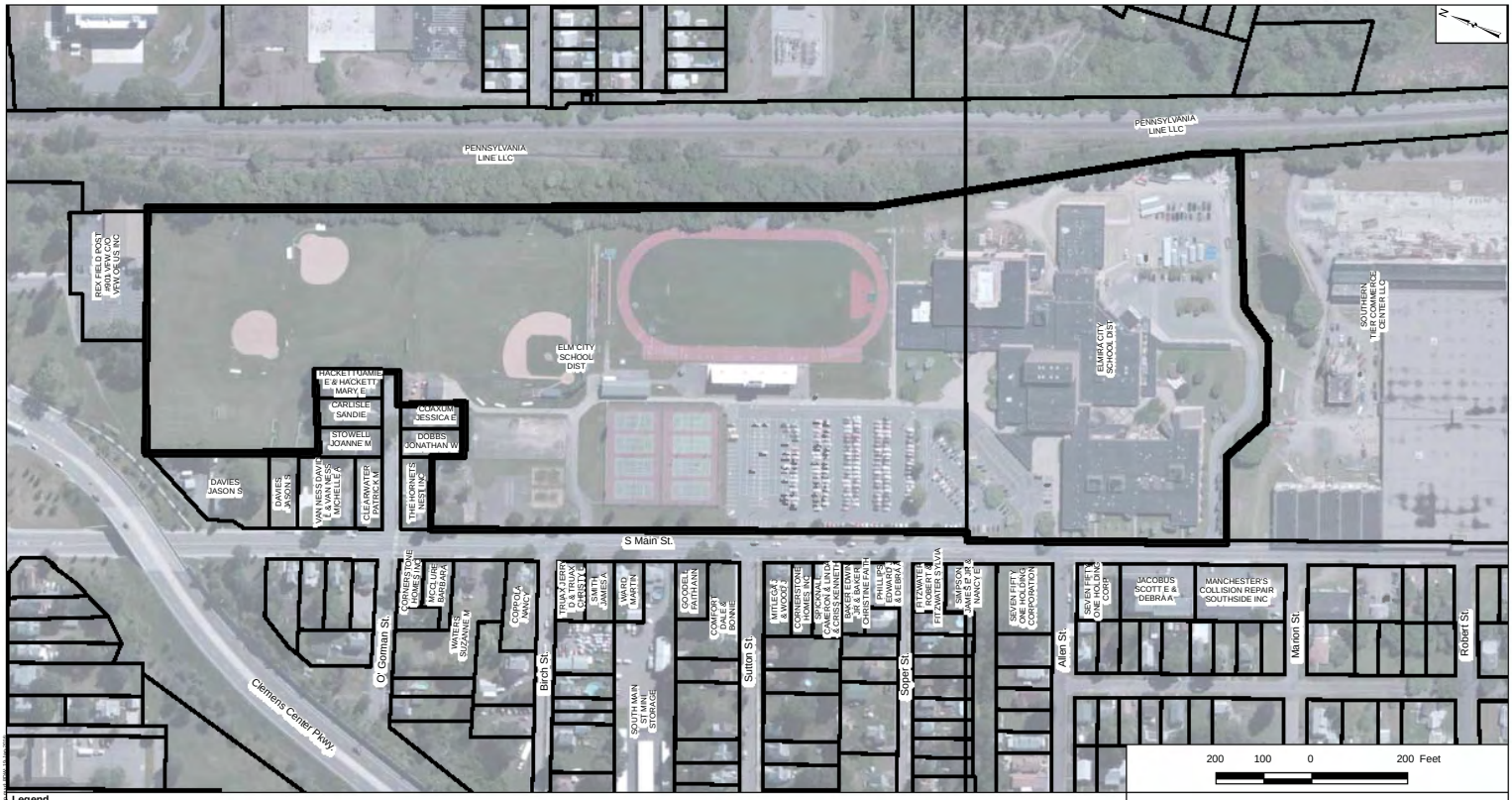
Site Map

Former Sperry Remington - North Portion #808022
Elmira, New York

Beech and Bonaparte engineering p.c.
an affiliate of Geosyntec Consultants

Columbia, Maryland | December 2018

Figure **1-2**



Legend

Site Boundary

Parcel Boundary

Notes:

Property parcels provided by Chemung County, New York on 14 November 2014. Data downloaded from http://www.stcgis.org/stc/DataDownload/chemparcels_12.zip

Aerial imagery accessed via ArcGIS Online and provided by Microsoft on 18 January 2016. Image is dated 2 June 2010.

Site Layout Map

Former Sperry Remington Site

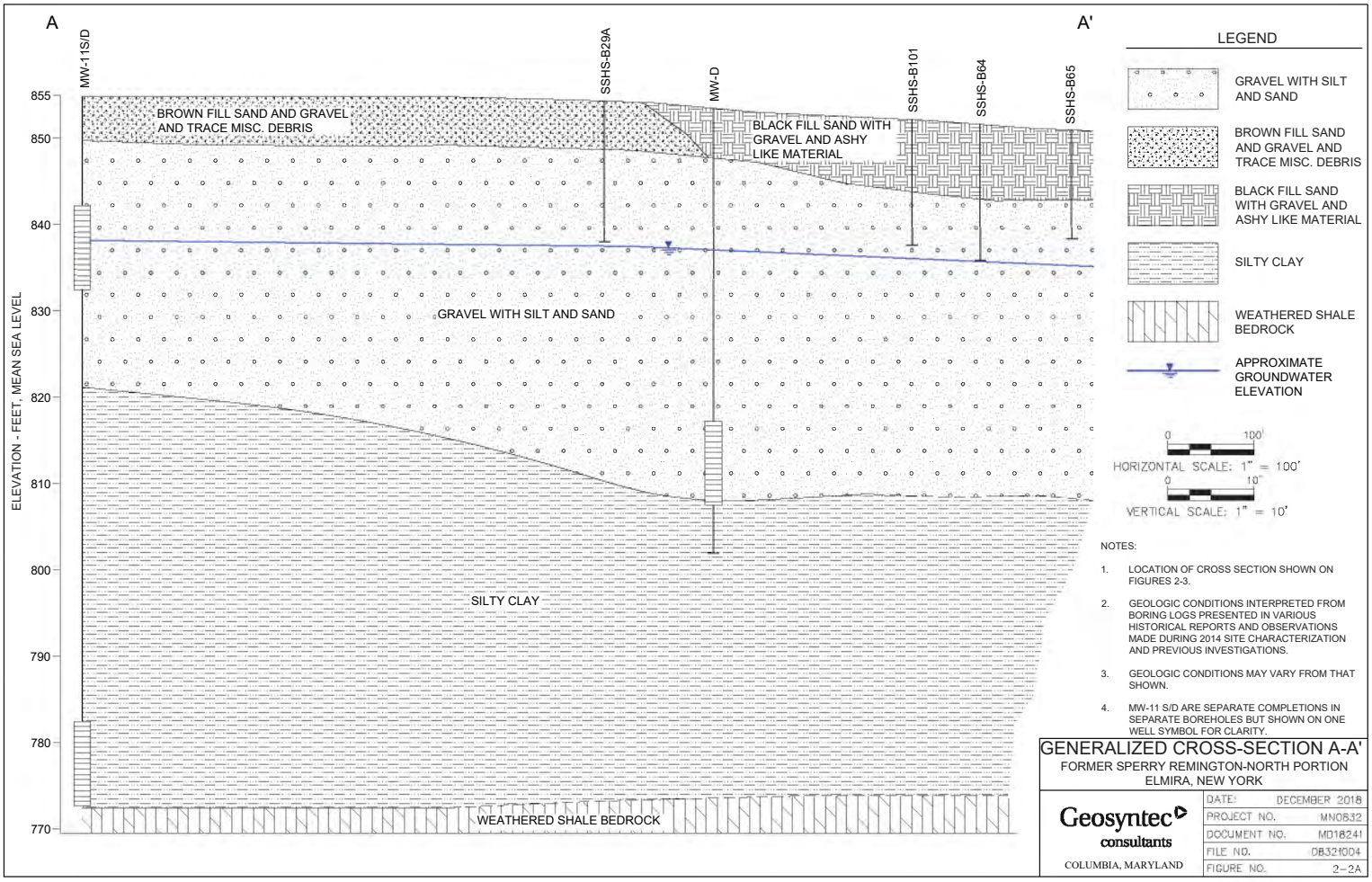
Elmira, New York

Geosyntec consultants

Columbia, Maryland

December 2018

Figure **2-1**



NOTES:

1. LOCATION OF CROSS SECTION SHOWN ON FIGURES 2-3.
2. GEOLOGIC CONDITIONS INTERPRETED FROM BORING LOGS PRESENTED IN VARIOUS HISTORICAL REPORTS AND OBSERVATIONS MADE DURING 2014 SITE CHARACTERIZATION AND PREVIOUS INVESTIGATIONS.
3. GEOLOGIC CONDITIONS MAY VARY FROM THAT SHOWN.
4. MW-11 S/D ARE SEPARATE COMPLETIONS IN SEPARATE BOREHOLES BUT SHOWN ON ONE WELL SYMBOL FOR CLARITY.

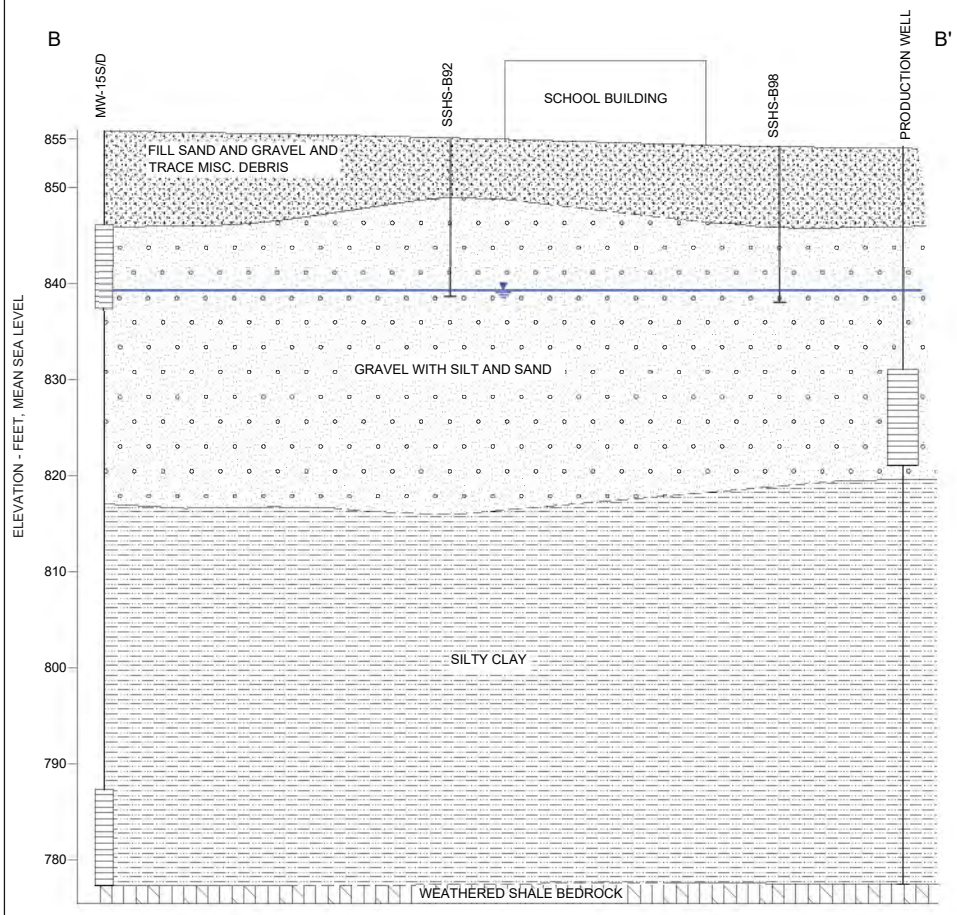
GENERALIZED CROSS-SECTION A-A'

FORMER SPERRY REMINGTON-NORTH PORTION
ELMIRA, NEW YORK

Geosyntec consultants
COLUMBIA, MARYLAND

DATE:	DECEMBER 2018
PROJECT NO.	MN0832
DOCUMENT NO.	MD18241
FILE NO.	DB321004
FIGURE NO.	2-2A

P:\cad\geo-minneapolis\0832 emis\083210\0832t004.dwg, a, 12/7/2018 9:45:59 AM, blenck



LEGEND

- GRAVEL WITH SILT AND SAND
- FILL SAND AND GRAVEL AND TRACE MISC. DEBRIS
- SILTY CLAY
- WEATHERED SHALE BEDROCK
- APPROXIMATE GROUNDWATER ELEVATION

0 100'
HORIZONTAL SCALE: 1" = 100'
0 10'
VERTICAL SCALE: 1" = 10'

NOTES:

1. LOCATION OF CROSS SECTION SHOWN ON FIGURES 2-3.
2. GEOLOGIC CONDITIONS INTERPRETED FROM BORING LOGS PRESENTED IN VARIOUS HISTORICAL REPORTS AND OBSERVATIONS MADE DURING THIS INVESTIGATION.
3. GEOLOGIC CONDITIONS MAY VARY FROM THAT SHOWN.
4. MW-15 S/D ARE SEPARATE COMPLETIONS IN SEPARATE BOREHOLES BUT SHOWN ON ONE WELL SYMBOL FOR CLARITY.

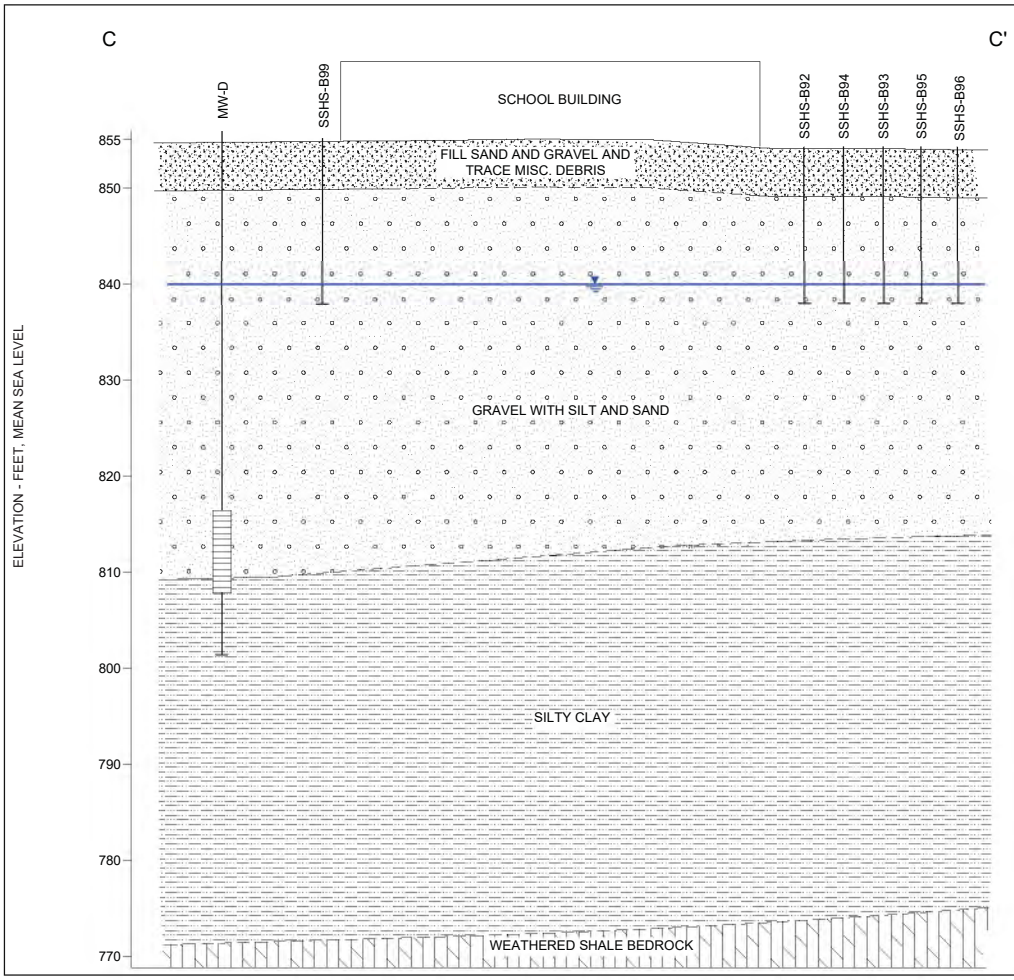
GENERALIZED CROSS-SECTION B-B'

FORMER SPERRY REMINGTON-NORTH PORTION
ELMIRA, NEW YORK

Geosyntec consultants
COLUMBIA, MARYLAND

DATE:	DECEMBER 2018
PROJECT NO.	MN0832
DOCUMENT NO.	MD18241
FILE NO.	DB321004
FIGURE NO.	2-2B

P:\cad\geo-minneapolis\0832 emis\083210\0832f004.dwg, b, 12/7/2018 9:46:02 AM, blenck



LEGEND

- GRAVEL WITH SILT AND SAND
- FILL SAND AND GRAVEL AND TRACE MISC. DEBRIS
- SILTY CLAY
- WEATHERED SHALE BEDROCK
- APPROXIMATE GROUNDWATER ELEVATION

0 100'
HORIZONTAL SCALE: 1" = 100'
0 10'
VERTICAL SCALE: 1" = 10'

NOTES:

1. LOCATION OF CROSS SECTION SHOWN ON FIGURES 2-3.
2. GEOLOGIC CONDITIONS INTERPRETED FROM BORING LOGS PRESENTED IN VARIOUS HISTORICAL REPORTS AND OBSERVATIONS MADE DURING THIS INVESTIGATION.
3. GEOLOGIC CONDITIONS MAY VARY FROM THAT SHOWN.

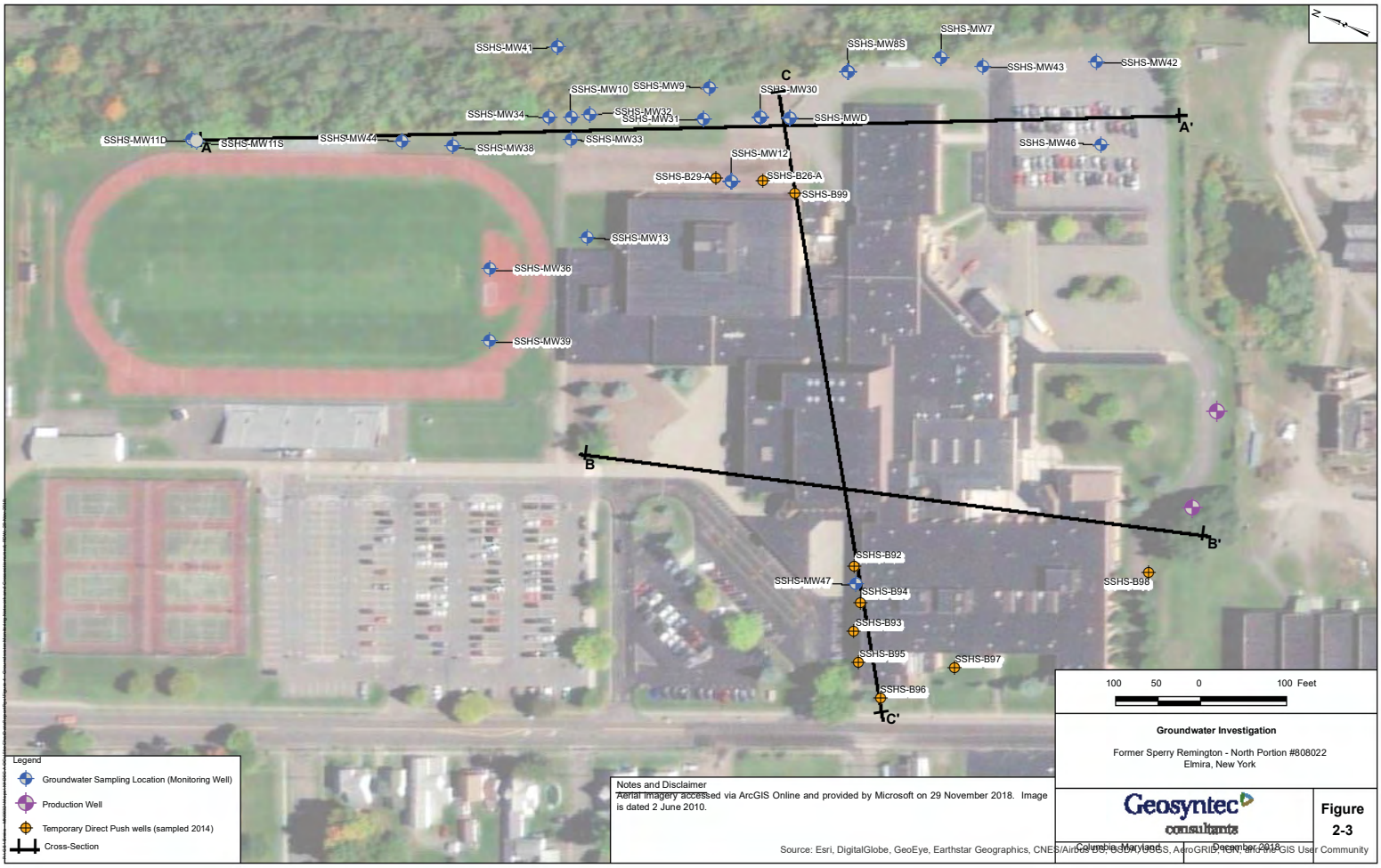
GENERALIZED CROSS-SECTION C-C'

FORMER SPERRY REMINGTON-NORTH PORTION
ELMIRA, NEW YORK

Geosyntec consultants
COLUMBIA, MARYLAND

DATE:	DECEMBER 2018
PROJECT NO.	MN0832
DOCUMENT NO.	MD18241
FILE NO.	DB321004
FIGURE NO.	2-2C

P:\cad\geo-minneapolis\0832 emira\063\2010\0832f004.dwg, C, 12/7/2018 9:46:07 AM, blenck



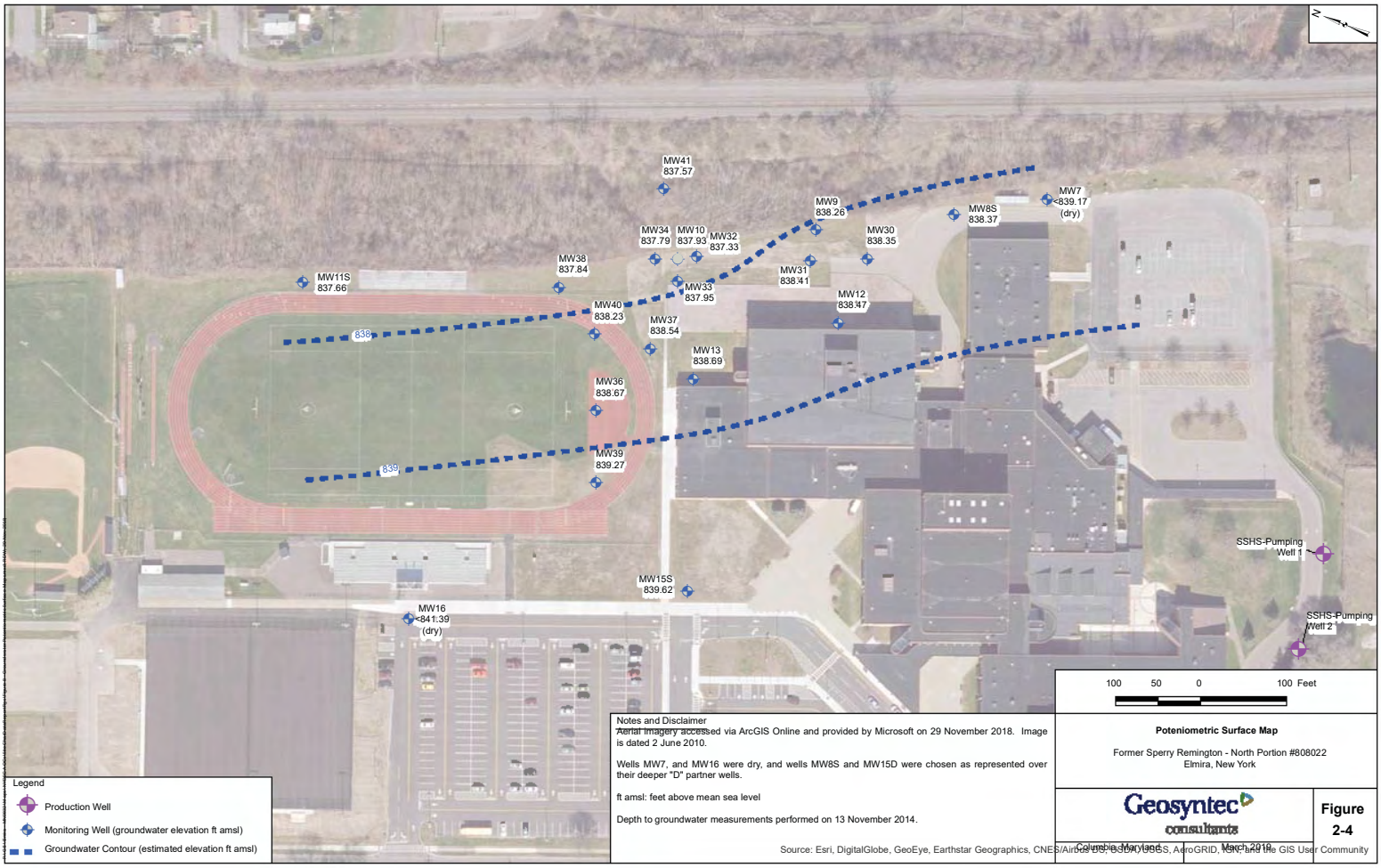
Groundwater Investigation

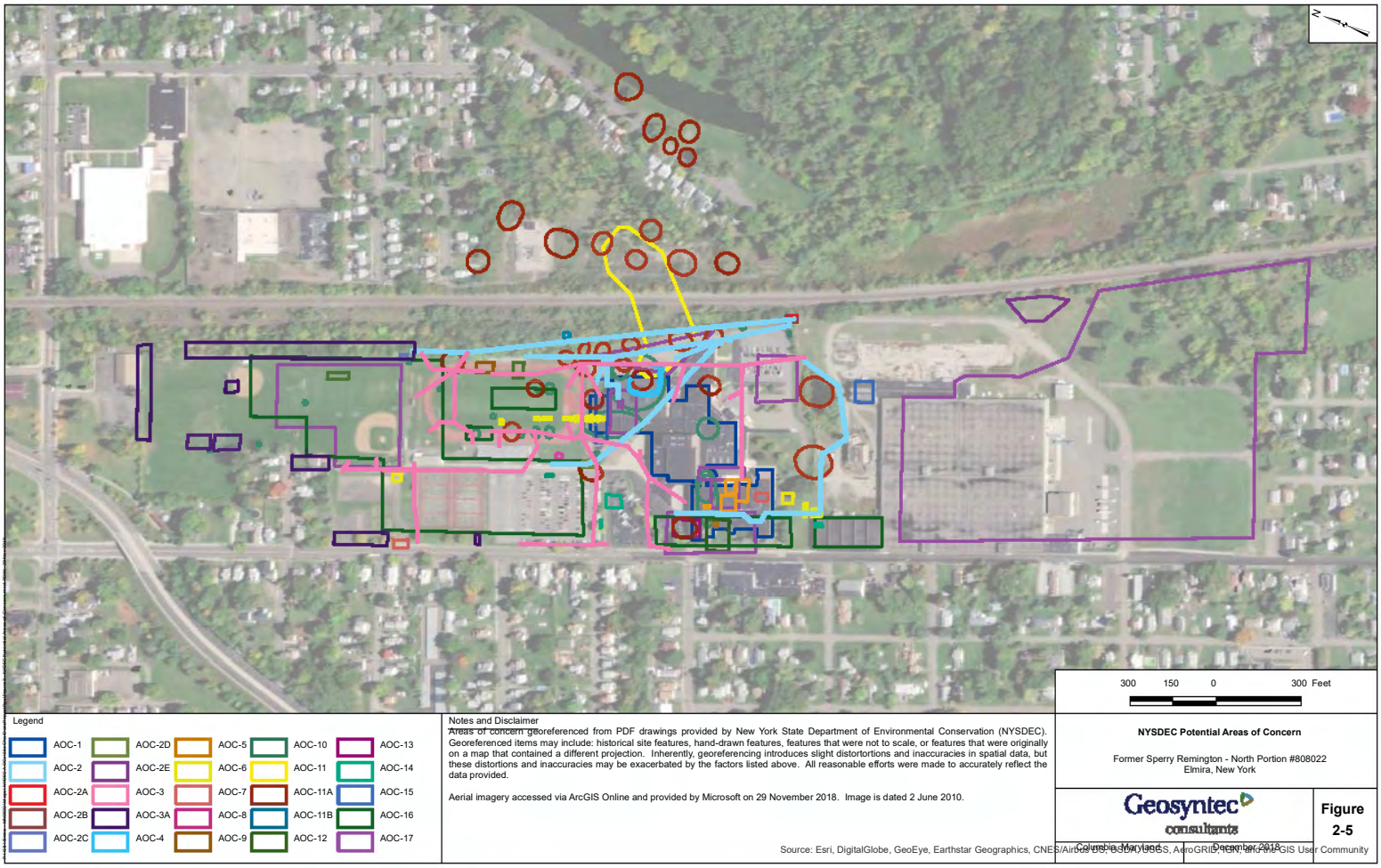
Former Sperry Remington - North Portion #808022
Elmira, New York

Geosyntec consultants
Columbia, Maryland

December 2018

Figure 2-3


N
MW41
837.57
MW9
838.26
MW7
<839.17
(dry)
MW8S
838.37
MW34
837.79
MW10
837.93
MW32
837.33
MW30
838.35
MW38
837.84
MW31
838.41
MW11S
837.66
MW33
837.95
MW12
838.47
MW40
838.23
MW37
838.54
838
MW13
838.69
MW36
838.67
839
MW39
839.27
SSHS-Pumping
Well 1
MW15S
839.62
MW16
<841.39
(dry)
SSHS-Pumping
Well 2
100 50 0 100 Feet
Legend
Production Well
Monitoring Well (groundwater elevation ft amsl)
Groundwater Contour (estimated elevation ft amsl)
Notes and Disclaimer
Aerial imagery accessed via ArcGIS Online and provided by Microsoft on 29 November 2018. Image is dated 2 June 2010.
Wells MW7, and MW16 were dry, and wells MW8S and MW15D were chosen as represented over their deeper "D" partner wells.
ft amsl: feet above mean sea level
Depth to groundwater measurements performed on 13 November 2014.
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Poteniometric Surface Map
Former Sperry Remington - North Portion #808022
Elmira, New York
Geosyntec consultants
Columbia, Maryland
March 2019
Figure
2-4



Notes and Disclaimer

~~Areas of concern~~ georeferenced from PDF drawings provided by New York State Department of Environmental Conservation (NYSDEC). Georeferenced items may include: historical site features, hand-drawn features, features that were not to scale, or features that were originally on a map that contained a different projection. Inherently, georeferencing introduces slight distortions and inaccuracies in spatial data, but these distortions and inaccuracies may be exacerbated by the factors listed above. All reasonable efforts were made to accurately reflect the data provided.

Aerial imagery accessed via ArcGIS Online and provided by Microsoft on 29 November 2018. Image is dated 2 June 2010.

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

NYSDEC Potential Areas of Concern

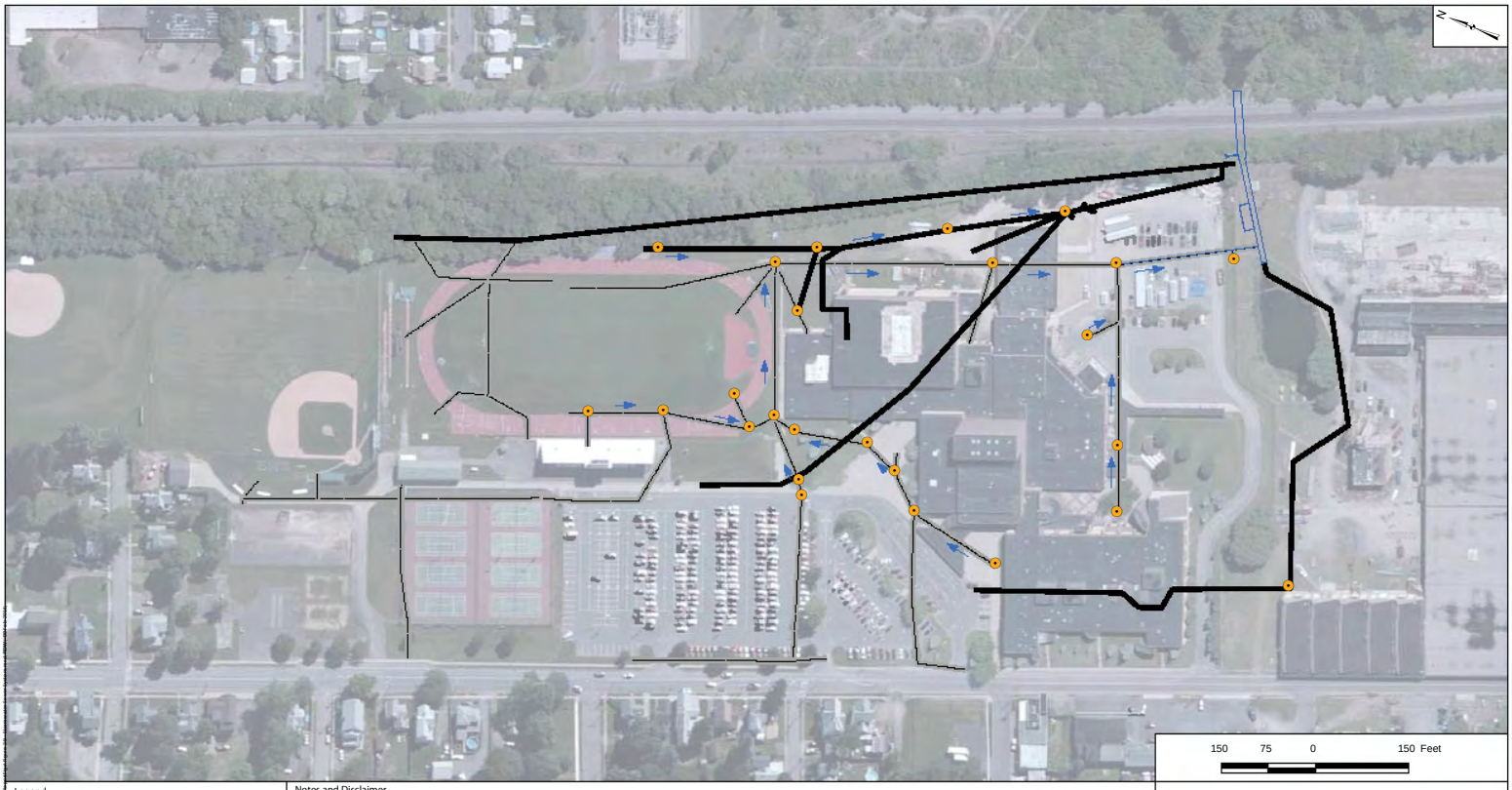
Former Sperry Remington - North Portion #808022
Elmira, New York

Geosyntec consultants

Columbia, Maryland

December 2018

Figure 2-5



Legend

- Catch Basin
- Direction of Stormwater Flow
- Former Storm Water Sewer (Pre-1979)
- Current Combined Industrial Sewer (Post-1979)
- Former Sperry Remington Site (#808043) Investigation (Geosyntec 2013)

Notes and Disclaimer

Former Combined Industrial Sewer (Pre-1979) and Current Storm Water Sewer (Post-1979) are georeferenced from PDF drawings provided by New York State Department of Environmental Conservation (NYSDEC). Georeferenced items may include: historical site features, hand-drawn features, features that were not to scale, or features that were originally on a map that contained a different projection. Inherently, georeferencing introduces slight distortions and inaccuracies in spatial data, but these distortions and inaccuracies may be exacerbated by the factors listed above. All reasonable efforts were made to accurately reflect the data provided.

Catch basin locations are approximate. Only catch basins related to the sewer inspection scope of work are presented on this figure.

Aerial imagery accessed via ArcGIS Online and provided by Microsoft on 09 February 2016. Image is dated 2 June 2010.

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

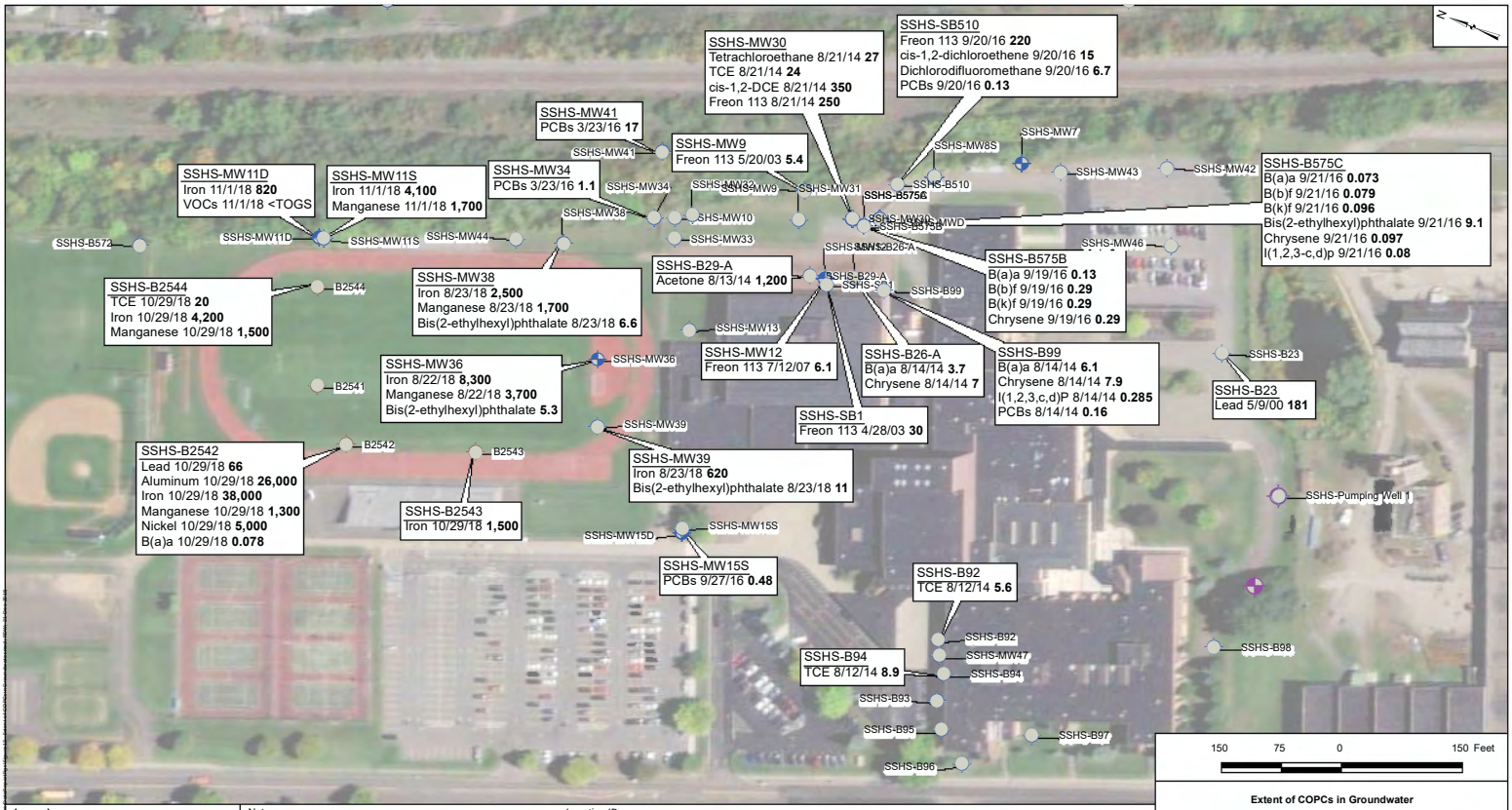
Stormwater Sewer System

Former Sperry Remington - North Portion #808022
Elmira, New York

Geosyntec consultants
Columbia, Maryland

Figure 2-6

February 2016



Legend

- Monitoring Well Location
- Proposed Temporary Groundwater Well

Notes

~~COPC~~ - Chemical of Potential Concern
VOC - Volatile Organic Compound
PCB - Polychlorinated Biphenyl
TOGS - Technical and Operational Guidance Series
TCE - Trichloroethene
cis-1,2-DCE - cis-1,2-Dichloroethene
B(a)a - Benzo(a)anthracene
I(1,2,3,c,d)P - Indeno(1,2,3-cd)Pyrene

Location ID
~~Parameter~~ Date Concentration

Units are in µg/L.

Bold indicates an exceedance of TOGS.

Aerial imagery accessed via ArcGIS Online and provided by Microsoft on 21 December 2018. Image is dated 2 June 2010.

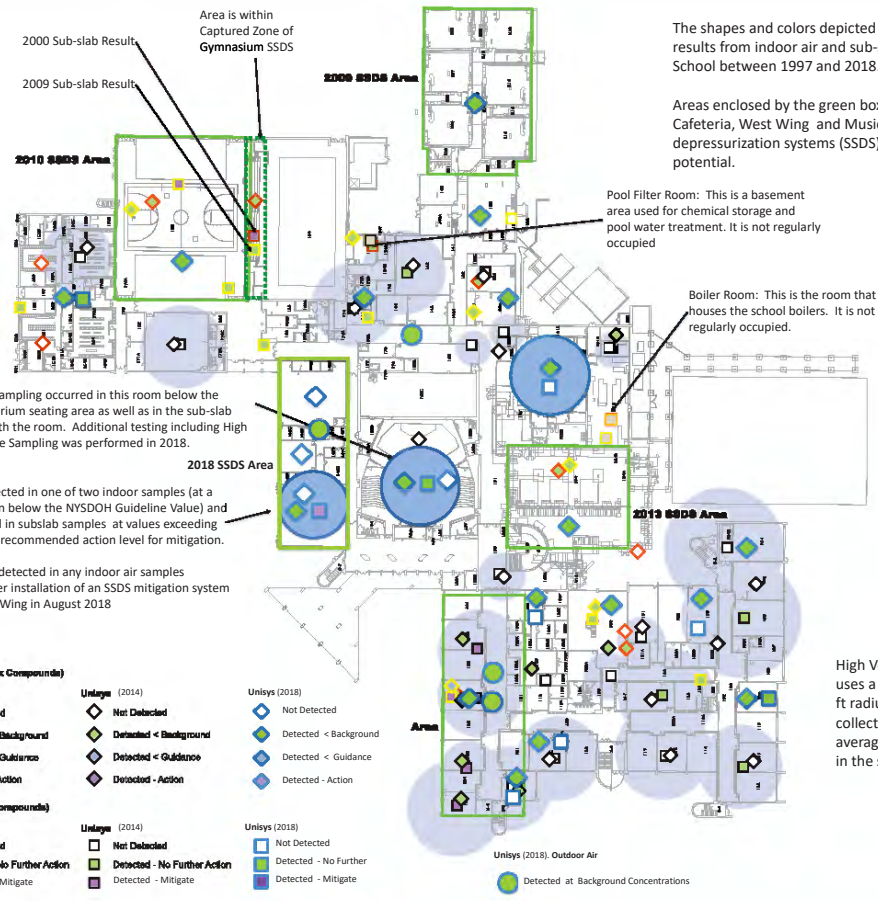
Extent of COPCs in Groundwater

Former Sperry Remington - North Portion #808022
Elmira, New York

Geosyntec consultants

Columbia, Maryland | December 2018

Figure 2-7



The shapes and colors depicted on this figure represent the locations and results from indoor air and sub-slab samples collected at Elmira High School between 1997 and 2018.

Areas enclosed by the green boxes: Gymnasium, K Wing Science Addition, Cafeteria, West Wing and Music Wing have operating sub-slab depressurization systems (SSDS) installed to mitigate the vapor intrusion potential.

Pool Filter Room: This is a basement area used for chemical storage and pool water treatment. It is not regularly occupied

Boiler Room: This is the room that houses the school boilers. It is not regularly occupied.

Prior sampling occurred in this room below the Auditorium seating area as well as in the sub-slab beneath the room. Additional testing including High Volume Sampling was performed in 2018.

TCE was detected in one of two indoor samples (at a concentration below the NYSDOH Guideline Value) and was detected in subslab samples at values exceeding the NYSDOH recommended action level for mitigation.

TCE was not detected in any indoor air samples collected after installation of an SSDS mitigation system in the Music Wing in August 2018

SVIA Sampling Locations and Types Supplemental Vapor Intrusion Assessment Program 2018

- Indoor Air
- Outdoor Air
- Sub-Slab
- HVS

High Volume Sampling (HVS) is a sampling technique that uses a "shop vac" to extract soil gas from a broad area 10 -50 ft radius below the slab. Samples of the extracted gas are collected for field and laboratory analysis to characterize the average concentration of volatile organic compounds (VOCs) in the sub-slab in the sampling area.

Explanation

Sub-Slab Depressurization System

Radius of Influence of High Volume Sampling

Indoor/Outdoor Air Sampling Location (NYSDOH Matrix Compounds)

NYSDEC/NYSDOH	ECSD	Unisys (2014)	Unisys (2018)
Not Detected	Not Detected	Not Detected	Not Detected
Detected < Background	Detected < Background	Detected < Background	Detected < Background
Detected < Guidance	Detected < Guidance	Detected < Guidance	Detected < Guidance
Detected - Action	Detected - Action	Detected - Action	Detected - Action

Sub-Slab Vapor Sampling Location (NYSDOH Matrix Compounds)

NYSDEC/NYSDOH	ECSD	Unisys (2014)	Unisys (2018)
Not Detected	Not Detected	Not Detected	Not Detected
Detected - No Further Action	Detected - No Further Action	Detected - No Further Action	Detected - No Further
Detected - Mitigate	Detected - Mitigate	Detected - Mitigate	Detected - Mitigate
Detected – Unoccupied Space			

Orange Border – Sample Collected BY NYSDEC/NYSDOH (1997-2000)

Yellow Border – Sample Collected BY ECSD. (2009)

Black Border – Sample Collected BY Unisys (2014)

Blue Border – Sample Collected BY Unisys (2018)

Unisys (2018). Outdoor Air

Detected at Background Concentrations

Previous Indoor and Sub-slab Sampling Results and Results from 2018 SVIA Sampling

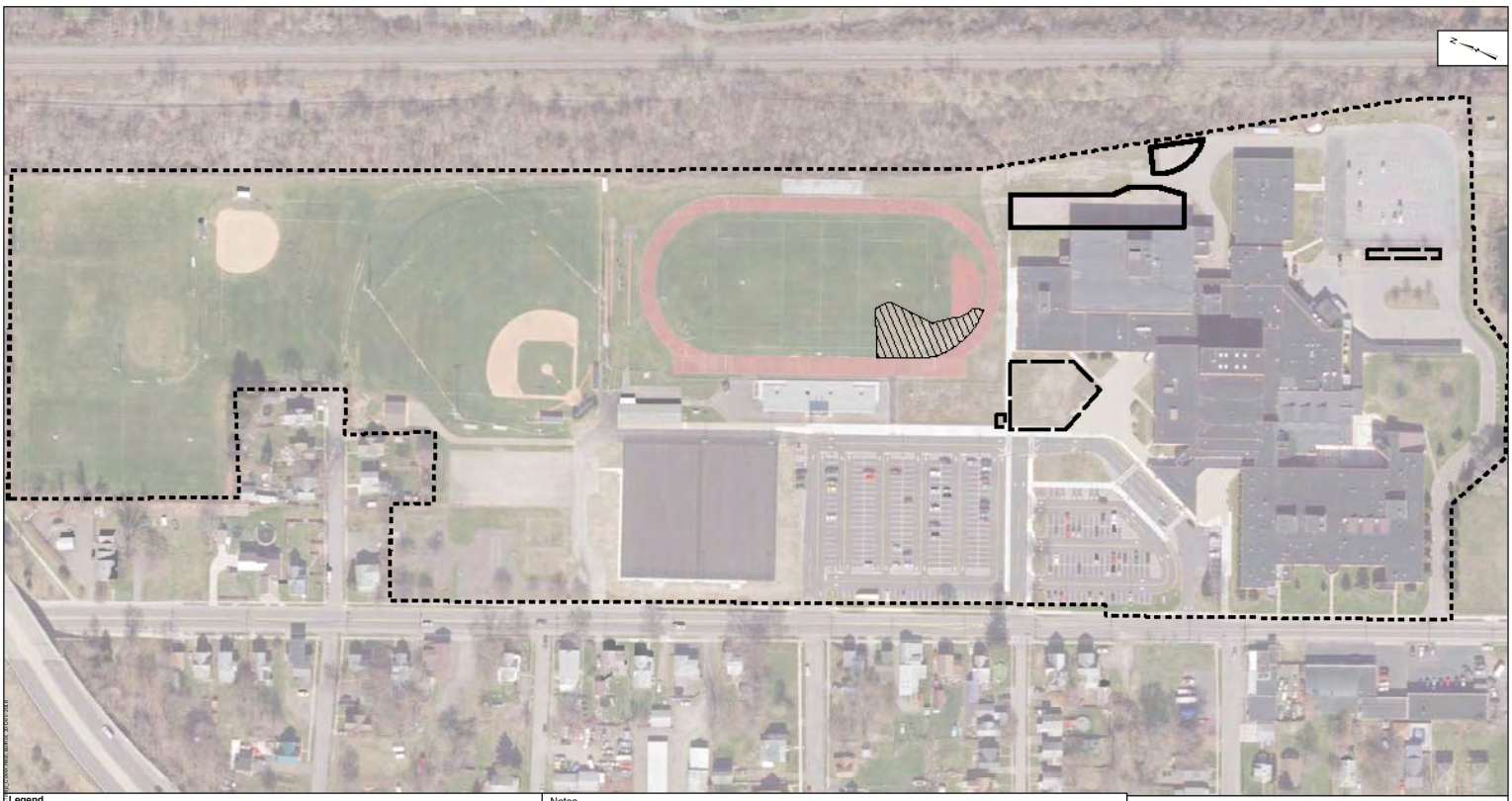
Former Sperry Remington Site – North Portion
Elmira, New York

Ceosyntec consultants

Columbia, Maryland

December 2018

Figure 2-8



Legend

- School Property
- Former Areas with Temporary Cover - Removed
- Areas with Temporary Cover
- IRM #1 - Top 0.5 ft Excavated

Notes
ft bgs - Feet below ground surface

Aerial imagery accessed via ArcGIS Online and provided by Microsoft on 20 December 2018.

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

150 75 0 150 Feet

Areas with Temporary Cover

Former Sperry Remington - North Portion #808022
Elmira, New York

Beech and Bonaparte engineering p.c.
an affiliate of Ramboll Consultants

Columbia, Maryland | December 2018

Figure **3-1**

APPENDIX A –PROPERTY DESCRIPTION

FORM 356X N. Y. DEED—BARGAIN AND SALE (From a Corporation)

TUTTLE LAW PRINT, PUBLISHERS SYOSSET, N.Y. 11791

33.00

This Indenture,

LIBER 653 PAGE 925

Made the 15th *day of* June,

Nineteen Hundred and Seventy-seven.

Between MARINE MIDLAND BANK, formerly known as Marine Midland Bank-Southern

a corporation organized under the laws of the State of New York, with offices at 150 Lake Street, Elmira, New York,

party of the first part, and

CITY SCHOOL DISTRICT OF THE CITY OF ELMIRA, NEW YORK, a school district organized under the Education Law of the State of New York, with its principal office at 951 Hoffman Street, Elmira, New York,

party of the second part,

Witnesseth that the party of the first part, in consideration of---ONE--------

and NO/100----------*Dollar* ($1.00----) *lawful money of the United States,* and other good and valuable consideration *paid by the party of the second part, does hereby grant and release unto the party of the second part,* its successors *and assigns forever, all* THAT TRACT OR PARCEL OF LAND situate in the City of Elmira, County of Chemung and State of New York, bounded and described as follows:

Beginning at a point in the northerly line of lands formerly belonging to Stephen Keating, which point is one hundred fifty (150) feet easterly from a point marking the northwest corner of said Keating lands located on the easterly line of South Main Street distant northerly four hundred ninety-one and ninety-four hundredths (491.94) feet from the northeasterly corner of South Main Street and O'Gorman Street; from said point of beginning running thence southerly parallel with the easterly line of South Main Street three hundred fifty-one and ninety-four hundredtha (351.94) feet to a point; thence easterly parallel with O'Gorman Street one hundred and eighty (180) feet to a point; thence southerly parallel with South Main Street one hundred eighty (180) feet to a point in the southerly line of O'Gorman Street; thence easterly along the southerly line of O'Gorman Street three hundred thirty-three and forty-eight hundredths (333.48) feet to the westerly line of the right-of-way of the Erie Lackawanna Railway Company; thence northerly along said right-of-way five hundred thirty-one and eighty-one hundredths (531.81) feet more or less to a point in the westerly line of the right-of-way of said railroad company, said point marking the northeast corner of said Keating lands; thence westerly along the northerly line of said Keating lands five hundred nine and thirty-five hundredths (509.35) feet to the point of beginning.

Being the same premises conveyed to the party of the first part by Referee's Deed from Vernando J. Bonsignore, Referee, dated October 11, 1974, and recorded October 18, 1974 in Chemung County Clerk's Office in Liber 635 of Deeds at page 47.

The premises herein conveyed does not represent a substantial portion of the assets of the grantor.

The grantor covenants that it has not done or suffered anything which might adversely affect the marketability of the title of the premises.

The grantor also covenants that the grantee shall quietly enjoy the said premises and that the grantor will forever warrant the title to the premises.

Liber 833 page 338

Together *with the appurtenances and all the estate and rights of the party of the first part in and to said premises,*

To have and to hold *the premises herein granted unto the party of the second part,* its successors *and assigns forever.*

That, in compliance with Section 13 of the Lien Law, the grantor will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.

In Presence of

In Witness Whereof, *the party of the first part has caused its corporate seal to be hereunto affixed, and these presents to be signed by its duly authorized officer this* 15th *day of* June, *Nineteen Hundred and* Seventy-seven.

MARINE MIDLAND BANK

By Paul G. Baxter
Paul G. Baxter VICE PRESIDENT

ASSESSING OFFICE
ELMIRA, N. Y.
JUN 22 1977
ASSESSOR

RECEIVED
$ -0-
REAL ESTATE
JUN 15 1977
TRANSFER TAX
CHEMUNG
COUNTY

#2788

State of New York } ss. *On this* 15th *day of* June,
County of CHEMUNG } *Nineteen Hundred and* Seventy-seven,
before me personally came PAUL G. BAXTER

to me personally known, who, being by me duly sworn, did depose and say that he resides in Town of Southport *that he is the* Vice President *of* Marine Midland Bank *the corporation described in, and which executed, the within Instrument; that he knows the seal of said corporation; that the seal affixed to said Instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation; and that he signed* his *name thereto by like order.*

Richard Denton
Notary Public

RICHARD DENTON 08-5989800
Notary Public, Chemung County
State of New York
Commission Expires 30th March 1978

FILED-RECORDED
JUN 15 4 29 PM 1977
CHEMUNG COUNTY
CLERK'S OFFICE
HARRY E. SHEFFER
COUNTY CLERK

LIBER 652 PAGE 327

THIS INDENTURE made this 21 day of April, 1977, between WESTINGHOUSE ELECTRIC CORPORATION, a Pennsylvania corporation having its principal office and place of business at Westinghouse Building, Gateway Center, Pittsburgh, Pennsylvania, party of the first part and THE CITY SCHOOL DISTRICT OF THE CITY OF ELMIRA, NEW YORK, a municipal corporation of the State of New York having its principal office and place of business at 951 Hoffman Street, Elmira, New York, party of the second part,

WITNESSETH that the party of the first part in consideration of one dollar ($1.00) lawful money of the United States and other good and valuable consideration paid by the party of the second part, does hereby grant and release unto the party of the second part, its successors and assigns forever:

ALL THAT TRACT OR PARCEL OF LAND situate in the City of Elmira and Town of Southport, Chemung County, New York, bounded and described as follows:

BEGINNING at an iron pin in the easterly line of South Main Street in the City of Elmira located 60.30 feet southerly along said line from the intersection of the easterly line of South Main Street with the southerly line of O'Gorman Street and running thence north 74° 02' 00" east a distance of 150.00 feet to an iron pin; thence south 15° 03' 00" east a distance of 60.0 feet to an iron pin; thence north 74° 05' 00" east a distance of 112.00 feet to an iron pin; thence north 15° 03' 00" west a distance of 120.40 feet to an iron pin in the south line of O'Gorman Street; thence north 74° 02' 00" east a distance of 68.00 feet along the southerly line of O'Gorman Street to an iron pin; continuing thence north 74° 02' 00" east along a continuation easterly of the southerly line of O'Gorman Street a distance of 333.48 feet to an iron pin in the westerly line of the right-of-way of the former Erie Railroad Company; thence south 15° 46' 00" east along the westerly line of the right-of-way of the Erie Railroad Company a distance of 984.24 feet to an iron pin; thence continuing along the westerly right-of-way of the Erie Railroad Company south 26° 25' 47" east a distance of 635.25 feet to an iron pin; thence continuing along the westerly right-of-way of the Erie Railroad Company south 20° 06' 00" east a distance of 154.93 feet to an iron pin; thence south 73° 37' 30" west a distance of 350.0 feet to an iron pin; thence south 18° 31' 26" west a distance of 73.15 feet to an iron pin; thence south 74° 45' 53" west a distance of 175.46 feet to an iron

RECEIVED $ Exempt REAL ESTATE APR 21 1977 TRANSFER TAX CHEMUNG COUNTY

2165

FILED-RECORDED CHEMUNG COUNTY CLERK'S OFFICE 77 APR 21 4 53 PM 1977

ASSESSOR'S OFFICE ELMIRA, N.Y. APR 21 1977 ASSESSOR

pin; thence north 60° 09' 32" west a distance of 118.91 feet to an iron pin; thence south 74° 50' 28" west a distance of 164.62 feet to an iron pin in the easterly line of South Main Street; thence north 15° 03' 00" west a distance of 1676.34 feet along the west line of South Main Street to the place of beginning.

Excepting and reserving an easement ten (10) feet in width running along the westerly line of the above described premises from the southwesterly corner thereof northerly a distance of 548.85 feet to the division line between the City of Elmira and the Town of Southport for the purpose of maintaining, repairing and replacing a sewer main.

Subject to a gas pipeline easement granted by Sperry Rand Corporation to the New York State Electric and Gas Corporation dated April 10, 1969 and recorded in Chemung County Clerk's Office in Liber 601 of Deeds at Page 663 as amended by agreement dated April 12, 1977, to be recorded in Chemung County Clerk's Office and subject to the right reserved to the City of Elmira to maintain a sewer line in what was formerly Scott Street reserved in a quitclaim deed from the City of Elmira to Morrow Manufacturing Company dated October 31, 1916 and recorded in Chemung County Clerk's Office in Liber 182 of Deeds at Page 127.

Being the same premises conveyed by the Chemung County Industrial Development Agency to Westinghouse Electric Corporation by Deed dated April 21, 1977, to be recorded in the Chemung County Clerk's Office.

Together with the appurtenances and all the estate and rights of the party of the first part in and to said premises,

To have and to hold the premises herein granted unto the party of the second part, its successors and assigns forever,

The party of the first part does hereby covenant that it has not done nor suffered anything to be done which will in any way encumber the title to the above described premises.

Pursuant to the Lien Law of the State of New York the party of the first part does hereby covenant and agree that it will hold the consideration received for this conveyance and the right to receive such consideration as a trust fund to be used first for the payment of the cost of any improvements which may have been made on the above described premises within four months preceding the date of this conveyance.

LIBER 652 PAGE 329

IN WITNESS WHEREOF the party of the first part has caused this deed to be executed by its duly authorized officers and its corporate seal to be affixed as of the day and year first above written.

WESTINGHOUSE ELECTRIC CORPORATION,

By _____

Its Vice President

Attest: _____

Its Assistant Secretary

State of Pennsylvania,)
: ss.
County of Allegheny .)

On the 19th day of April, 1977, before me, personally came S. W. Herwald, to me known, who being by me duly sworn, did depose and say that he resides at _____, in the City of Pittsburgh, Allegheny County, Pennsylvania; that he is the Vice President of Westinghouse Electric Corporation the corporation described in and which executed the foregoing deed; that he knows the seal of said corporation; that the seal affixed to said deed is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation and that he signed his name thereto by like order.

_____
Notary Public

JEANNE F. KANDERSEGGER, Notary Public
Pittsburgh, Allegheny County, Pa
My Commission Expires
July 27, 1978

Allegheny County, Commonwealth of Pennsylvania, ss:

I, John P. Joyce, Prothonotary of the Court of Common Pleas in and for the County of Allegheny, in the Commonwealth of Pennsylvania, the same being a Court of Law and Record, and having a seal, do hereby certify that _____ Esquire, before whom the foregoing ACKNOWLEDGMENT or AFFIDAVIT was taken, and who has thereunto, in his or her own proper handwriting, subscribed his or her name to the certificate of the proof and acknowledgment of the annexed instrument, was at that time and is now a NOTARY PUBLIC in and for the Commonwealth of Pennsylvania, resident of said County aforesaid, duly commissioned and sworn and authorized by law to take and certify affidavits and the acknowledgments and proof of deeds to land, etc., to be recorded, to all whose acts as such due faith and credits are, and of right ought to be, given throughout the United States and elsewhere; and further, that said instrument is executed in accordance with the laws of this Commonwealth, and that I am acquainted with his or her signature and seal, and believe the same to be genuine.

In Testimony Whereof, I have hereunto set my hand and affixed the seal of the said Court at Pittsburgh, in said County this 19 day of _____ in the year of our Lord one thousand nine hundred and _____

_____ Prothonotary.

20928 By _____ Deputy

APPENDIX B-1

RESPONSIBILITIES of

OWNER and REMEDIAL PARTY

Responsibilities

The responsibilities for implementing the Interim Site Management Plan ("ISMP") for the Former Sperry Remington Site – North Portion Site (the "site"), number c808022, are divided between the site owner(s) and a Remedial Party, as defined below. The owner(s) (the "owner") is/are currently listed as:

Elmira City School District
Hillary Austin, Superintendent
607-735-3010
haustin@elmiracityschools.com.
951 Hoffman Street
Elmira, NY 14905

Solely for the purposes of this document and based upon the facts related to a particular site and the remedial program being carried out, the term Remedial Party ("RP") refers to any of the following: certificate of completion holder, volunteer, applicant, responsible party, and, in the event the New York State Department of Environmental Conservation ("NYSDEC") is carrying out remediation or site management, the NYSDEC and/or an agent acting on its behalf. The RP is:

Unisys Corporation
Kevin Krueger, Director, Global Environmental, Safety, Health and Security, Corporate Real Estate and General Services
651-212-7273
kevin.krueger@unisys.com.
801 Lakeview Drive, Suite 100
Blue Bell, PA 19422

Nothing on this page shall supersede the provisions of an Environmental Easement, Consent Order, Consent Decree, agreement, or other legally binding document that affects rights and obligations relating to the site.

Site Owner's Responsibilities:

1) The owner shall follow the provisions of the ISMP as they relate to future construction and excavation at the site.

2) In accordance with a periodic time frame determined by the NYSDEC, the owner shall periodically certify, in writing, that all Institutional Controls set forth in a(n) Environmental Easement remain in place and continue to be complied with. The owner shall provide a written certification to the RP, upon the RP's request, in order to allow the RP to include the certification in the site's Periodic Review Report (PRR) certification to the NYSDEC.

3) In the event the site is delisted, the owner remains bound by the Environmental Easement and shall submit, upon request by the NYSDEC, a written certification that the Environmental Easement is still in place and has been complied with.

4) The owner shall grant access to the site to the RP and the NYSDEC and its agents for the purposes of performing activities required under the ISMP and assuring compliance with the ISMP.

5) The owner is responsible for assuring the security of the remedial components located on its property to the best of its ability. In the event that damage to the remedial components or vandalism is evident, the owner shall notify the site's RP and the NYSDEC in accordance with the timeframes indicated in Section 1.3-Notifications.

6) In the event some action or inaction by the owner adversely impacts the site, the owner must notify the site's RP and the NYSDEC in accordance with the time frame indicated in [Section 1.3]- Notifications and (ii) coordinate the performance of necessary corrective actions with the RP.

7) The owner must notify the RP and the NYSDEC of any change in ownership of the site property (identifying the tax map numbers in any correspondence) and provide contact information for the new owner of the site property/ies. 6 NYCRR Part 375 contains notification requirements applicable to any construction or activity changes and changes in ownership. Among the notification requirements is the following: Sixty days prior written notification must be made to the NYSDEC. Notification is to be submitted to the NYSDEC Division of Environmental Remediation's Site Control Section. Notification requirements for a change in use are detailed in Section 2.4 of the ISMP. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html.

8) The owner will maintain permanent cover, and repair turf and floor cracks damaged by normal use on behalf of the RP. The RP remains ultimately responsible for maintaining the engineering controls.

9) Until such time as the NYSDEC deems the vapor mitigation systems unnecessary, the owner shall operate the systems, monitor sub-slab vapor mitigation system operations, pay for the utilities for the systems' operation, and report any maintenance issues to the RP and the NYSDEC.

10) In accordance with the tenant notification law, within 15 days of receipt, the owner must supply a copy of any vapor intrusion data, that is produced with respect to structures and that exceeds NYSDOH or OSHA guidelines on the site, whether produced by the NYSDEC, RP, or owner, to the tenants, if any, on the property. The owner must otherwise comply with the tenant and occupant notification provisions of Environmental Conservation Law Article 27, Title 24.

Remedial Party Responsibilities

1) The RP must follow the ISMP provisions regarding any construction and/or excavation it undertakes at the site.

2) The RP shall report to the NYSDEC all activities required for remediation, operation, maintenance, monitoring, and reporting. Such reporting includes, but is not limited to, periodic review reports and certifications, electronic data deliverables, corrective action work plans and reports, and updated SMPs.

3) Before accessing the site property to undertake a specific activity, the RP shall provide the owner advance notification that shall include an explanation of the work expected to be completed. The RP shall provide to (i) the owner, upon the owner's request, (ii) the NYSDEC, and (iii) other entities, if required by the ISMP, a copy of any data generated during the site visit and/or any final report produced.

4) If the NYSDEC determines that an update of the ISMP is necessary, the RP shall update the ISMP in consultation with the owner and obtain final approval from the NYSDEC. Within 5 business days after NYSDEC approval, the RP shall submit a copy of the approved ISMP to the owner(s).

5) The RP shall notify the NYSDEC and the owner of any changes in RP ownership and/or control and of any changes in the party/entity responsible for the operation, maintenance, and monitoring of and reporting with respect to any remedial system (Engineering Controls). The RP shall provide contact information for the new party/entity. Such activity constitutes a Change of Use pursuant to 375-1.11(d) and requires 60-days prior notice to the NYSDEC. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html .

6) The RP shall notify the NYSDEC of any damage to or modification of the systems as required under Section1.3 - Notifications of the ISMP.

7) The RP is responsible for the proper maintenance of any installed vapor intrusion mitigation systems associated with the site, as required in Section 5.4 or Appendix K (Operations and Maintenance Manual) of the ISMP.

8) Prior to a change in use that impacts the remedial system or requirements and/or responsibilities for implementing the ISMP, the RP shall submit to the NYSDEC for approval an amended ISMP.

9) Any change in use, change in ownership, change in site classification (*e.g.*, delisting), reduction or expansion of remediation, and other significant changes related to the site may result in a change in responsibilities and, therefore, necessitate an update to the ISMP and/or updated legal documents. The RP shall contact the Department to discuss the need to update such documents.

Change in RP ownership and/or control and/or site ownership does not affect the RP's obligations with respect to the site unless a legally binding document executed by the NYSDEC releases the RP of its obligations.

Future site owners and RPs and their successors and assigns are required to carry out the activities set forth above.

APPENDIX B-2 – LIST OF SITE CONTACTS

Name	Phone/Email Address
Joe Magliocca Representative of ECSD (Site Owner)	Phone: 607-735-3980 Email: jmagliocca@elmiracityschools.com
Dominic Insogna Representative of ECSD	Phone: 607-483-1133 Email: dinsogna@gstboces.org
Kevin Krueger Representative of Unisys Corporation (Remedial Party)	Phone: 651-212-7273 Email: kevin.krueger@unisys.com
Paul Brookner Geosyntec Consultants, Inc .	Phone: 612-253-8200 Email: pbrookner@geosyntec.com
Aron Krasnopoler, Ph. D., PE Beech and Bonaparte Engineering, PC	Phone: 410-381-4333 Email: akrasnopoler@geosyntec.com
Timothy Schneider, PE NYSDEC DER Project Manager	Phone: 585-226-5480 Email: timothy.schneider@dec.ny.gov
Bernette Schilling, PE NYSDEC Regional HW Engineer	Phone: 585-226-5315 Email: bernette.schilling@dec.ny.gov
Kelly Lewandowski, PE NYSDEC Site Control	Phone: 518-402-9553 Email: kelly.lewandowski@dec.ny.gov

APPENDIX C
HISTORIC SOIL BORING LOGS

APPENDIX D
HISTORIC WELL CONSTRUCTION LOGS

APPENDIX E
COPC DELINEATION MAPS

APPENDIX F
UNDERGROUND UTILITY SURVEY

APPENDIX G
EXCAVATION WORK PLAN

APPENDIX G – EXCAVATION WORK PLAN (EWP)

G-1 NOTIFICATION

All intrusive activities except for excavation within NYSDEC-approved restricted residential use soil cover underlain by a demarcation layer shall be managed under this Excavation Work Plan (EWP). Additionally, areas beneath hard cover such as the school building, pavement and walkways will also be managed under this EWP. At the request of ECSD, major ground intrusive activities must only be conducted when the high school is not in session, with the exception of emergencies and interim remedial measures (IRMs) or other remedial measures conducted under NYSDEC approved work plans, in which case adequate safeguards will be used to eliminate potential exposure pathways and, in the case of IRMs or other remedial measures only when operational concerns of ECSD have been addressed adequately at the sole discretion of ECSD such as restoration plans, evacuation plans, and other accommodations to ensure the safe and prudent operation of the high school. At least 15 days prior to the start of any planned activity that is anticipated to encounter remaining contamination, the site owner, the remedial party, or their representative will notify the NYSDEC. In the case of emergency soil excavation projects, NYSDEC will be notified within 48 hours. Emergency soil excavation projects are defined as projects that must occur immediately to address a subsurface maintenance emergency (e.g. damaged utility pipes). **Table G-1** includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix 1.

Table G-1: Notifications*

Timothy Schneider, PE Project Manager	Phone: 585-226-5480 Email: timothy.schneider@dec.ny.gov
David Pratt, PE Regional Hazardous Waste Remediation Engineer	Phone: 585-226-5315 Email: david.pratt@dec.ny.gov
Kelly Lewandowski, PE Site Control	Phone: 518-402-9553 Email: kelly.lewandowski@dec.ny.gov
Joe Magliocca Director of Facilities, Elmira City School District	Phone: 607-735-3980 Email: jmagliocca@elmiracityschools.com
Dominic Insogna Health & Safety Compliance Specialist GST BOCES/Elmira City School District	Phone: 607-735-3992 Email: dinsogna@gstboces.org
Kevin Krueger Director, Global Environmental, Safety, Health and Security Corporate Real Estate and General Services Unisys Corporation	Phone: 651-212-7273 Email: kevin.krueger@unisys.com

* Note: Notifications are subject to change and will be updated as necessary.

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and 29 CFR (Code of Federal Regulations) 1910.120;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix 4 of this interim SMP;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

G-2 ROLES AND RESPONSIBILITIES

Safe execution of all invasive and other work performed under this EWP is the responsibility of the remedial party or the owner of the property and their contactors or both depending on excavation activity to be performed.

Implementation of this EWP will be supervised by a qualified environmental professional (QEP) as defined in DER-10 1.3(b) representing the remedial party or the owner of the property, as applicable. The QEP will be responsible for environmental monitoring and compliance during all intrusive activities as described above. QEP oversight during intrusive activities within NYSDEC-approved restricted residential use soil cover underlain by demarcation layer will not be required. **Figures G-1** through **G-5** present areas of the Site that have NYSDEC approved restricted residential use soil cover underlain by a demarcation layer, known residual and remaining contamination and, areas that are under investigation.

Environmental monitoring and compliance responsibilities of the QEP include:

- Screening of soils to identify potentially contaminated material (Section G-3);

- Supervision of invasive work, excavation and load-out of excavated material, investigation for the presence of utilities and easements on the Site and oversight of decontamination of outbound trucks (Section G-5); and

- Evaluation of materials to be reused or imported onto the Site (Section G-8).

G-3 SOIL SCREENING METHODS

Procedures for characterizing excavated soils from the Site are summarized on **Figure G-6**.

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed by a QEP during all excavations into known or potentially contaminated material (remaining contamination). Soil screening by a QEP will not be required for excavations above demarcation layers in areas that have been remediated or in areas that have been investigated and determined to not require remediation. Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as major excavations for foundations and utility work, prior to and after issuance of the Certificate of Completion (COC).

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-site disposal of materials and on-site reuse is provided in Sections G-7 and G-8 of this Appendix, respectively.

Soil observed to be stained, discolored, tinted, dyed, unnaturally mottled, or has a sheen or produces elevated photoionization detector (PID) readings (i.e., sustained 10 ppm or greater) will be considered potentially contaminated and stockpiled for further assessment. Potentially contaminated soil defined as a source level of contamination includes soil that contains contaminant concentrations sufficient to be a potential exposure to public health or the environment, or can release contaminants to another environmental medium.

Figures G-1 through **G-5** are provided as reference to determine if soils in the work area require management with regards to potential contamination. As-built drawings contained in Construction Completion Reports listed in **Table G-3** also should be consulted to evaluate subsurface conditions and soil quality. Areas still under investigation should be treated as potentially contaminated. Areas that have been remediated have a minimum of two (2) feet of imported NYSDEC-approved restricted residential use soil cover underlain by a demarcation layer. Soils present above the demarcation layer in areas that have been remediated and soils approved for re-use as backfill below a demarcation layer may be appropriately returned to the excavation (above or below demarcation) without characterization. If odors, stained soils, liquid product or groundwater are encountered in

an excavation, the activity should be stopped immediately and a QEP shall be contacted to screen the soils for potential contamination as described above.

Table G-3: As-Built References*

Construction Completion Report, Interim Remedial Measure #1, Former Sperry Remington Site – North Portion, NYSDEC Project C808022, Geosyntec Consultants, April 2018; Revised February 2019
Construction Completion Report, Interim Remedial Measure #2, Former Sperry Remington Site – North Portion, NYSDEC Project C808022, Geosyntec Consultants, March 2019

* Note: As-built references will be updated as necessary.

G-4 SOIL STAGING METHODS

Material staging activities will be coordinated with ECSD. All excavated soil, regardless of condition, must be placed on polyethylene sheeting (sheeting) and covered to reduce precipitation infiltration and dust migration.

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC.

G-5 MATERIALS EXCAVATION AND LOAD-OUT

A QEP or person under their supervision will oversee invasive work and the excavation and load-out of all excavated material.

The presence of utilities and easements on the site will be investigated by the QEP. It will be determined whether a risk or impediment to the planned work under this interim SMP is posed by utilities or easements on the site. Dig Safely New York (1-800-962-7962) must be contacted for a utility location request for the proposed excavation area.

In areas of known contamination or areas under investigation, confirmation samples will be collected from the sidewalls and bottom of the excavation in order to document the chemical quality of soils left behind. Further discussion of confirmation sampling is presented in Section G-9. Geotextile fabric will be placed in the excavation prior to

backfilling below the cover system as a separation between remaining soils and the fill material.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and New York State Department of Transportation (NYSDOT) requirements (and all other applicable transportation requirements).

Trucks and equipment transporting contaminated soils shall be loaded in a manner that prevents contact with contaminated material outside of the secured bed of the truck. This includes the use of plastic sheeting or equivalent materials to prevent spilled soils from contacting the sides of the truck and the use of a clean physical barrier (plastic sheeting, etc.) to prevent truck tires from traveling directly on contaminated soils. The QEP will be responsible for ensuring that trucks and equipment that come into contact with contaminated soils outside of the secured bed are decontaminated prior to leaving the site.

A truck wash will be operated on-site, as appropriate. The QEP will be responsible for ensuring that all outbound trucks requiring decontamination will be washed at the truck wash before leaving the site until the activities performed under this section are complete. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

The QEP will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

G-6 MATERIALS TRANSPORT OFF-SITE

All transport of 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. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

Truck transport routes are as follows: (1) Trucks are to proceed north on S Main Street until reaching W. Miller Street. (2) Trucks are to turn right on W Miller Street and immediately turn on to Clemens Center Parkway heading north. (3) Trucks are to proceed on Clemens Center Parkway until reaching E Water Street. (4) Turn right on E Water Street and Proceed to I-86. All trucks loaded with site materials will exit the vicinity of the

site using only these approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

G-7 MATERIALS DISPOSAL OFF-SITE

Excavated soils that are being considered for off-Site disposal will be stockpiled and composite soil sample(s) will be collected for disposal characterization. The composite sample(s) will be analyzed for the parameters specified in **Table G-4** "Permitted Disposal Facilities-Soil Sampling Requirements Summary", and any additional parameters required by the permitted transporter. The number of composite samples collected will depend on the volume of soil excavated and the permitted disposal facility requirements. Individual gab samples will be collected if required by disposal facilities.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, construction and demolition (C/D) recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the next quarterly Site Inspection Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6 NYCRR Part 360-1.2. Material that does not meet Unrestricted Use SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

Soils with total PCB concentrations greater than or equal to fifty (50) mg/kg will be handled as PCB remediation waste under 40 CFR §761.3 Toxic Substances Control Act (TSCA) and as hazardous waste containing PCBs as defined in 6 NYCRR Part 371.4 (e). PCB remediation waste will be transported to at an appropriate treatment storage and/or disposal facility. Each shipment will have the required manifest, labeling and placarding in accordance with Federal and state laws and regulations.

Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site will disposed of based on the waste profile of the surrounding soils.

G-8 MATERIALS REUSE ON-SITE

The QEP will ensure that procedures defined for materials reuse in this interim SMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for reuse on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Excavated soil being considered for reuse must be characterized to determine whether it can be reused within a soil cover system (zero (0) to two (2) feet bgs) or as fill material below a cover system. Excavated soil may be reused as a soil cover system, or as backfill in landscaping berms, provided that soil concentrations do not exceed the Unrestricted Use Soil Cleanup Objectives presented in Appendix 5 of DER-10. A Request to Import/Reuse Form (http://www.dec.ny.gov/docs/remediation_hudson_pdf/requesttoreusesoil.pdf) must be completed and submitted to NYSDEC for approval for reuse. Excavated soils with known contamination may not be reused within a soil cover system.

Reuse of Excavated Soil Within a Soil Cover System

All material excavated from beneath the demarcation layer or from an area of known contamination or from an unknown area, must be sampled if it is to be reused on-site. If excavated soil does not have characteristics of potentially contaminated soil as determined by a QEP, one (1) composite and two (2) grab soil samples shall be collected for every 100 cy of excavated soil. Composite and grab soil sample(s) will be analyzed for parameters provided in **Table G-4** as a basis for achieving the Site SMOs for the soil cover system presented in **Table G-2**. The grab samples will be collected from the stockpile sample location with the highest PID measurements and will be analyzed only for VOCs. Each composite sample should be comprised of three (3) to five (5) discrete locations within the stockpile and biased towards impacted material. If analytical results indicate that the SMOs for the soil cover system are not exceeded, the soil may be used as soil cover. Otherwise, soil may be considered for use as fill beneath an approved cover system as described below.

Reuse of Excavated Soil as Fill Material Below a Soil Cover System

If excavated soil is proposed for reuse below a cover system, one (1) composite and two (2) grab soil samples shall be collected for every 100 cy of excavated soil. Composite and grab soil sample(s) will be analyzed for parameters provided in **Table G-4** as a basis for achieving the limits for Restricted Residential Use Allowable Constituent Levels listed in DER-10, Appendix 5. The grab samples will be collected from the stockpile sample location with the highest PID measurements and will be analyzed only for VOCs. If

analytical results indicate that the Restricted Residential Use Allowable Constituent Levels listed in DER-10, Appendix 5 are not exceeded, the soil may be used as fill beneath an approved cover system. If any of the SMOs are exceeded, excavated soil may be considered for use as fill beneath an approved cover system as approved by NYSDEC in accordance with DER-10.

Procedures for Collecting Soil Samples

A composite soil sample will be collected from each stockpile (l00 cy stockpiles or equivalent) and should be comprised of three (3) to five (5) discrete locations within each stockpile and biased to impacted material based visual, olfactory observations and PID measurements. A duplicate sample will also be collected for every twenty (20) composite soils collected. PID measurements will be recorded for each discrete location. For stockpiles considered potentially contaminated with VOCS, one (1) grab sample will also be collected from the stockpile sample location with the highest PID measurement. If none of the discrete locations exhibit PID readings, one (1) location will be selected at random. Grab soil sample(s) will be analyzed only for VOCs and composite soil samples will be analyzed for all parameters listed in **Table G-4**.

Soil samples will be composited by placing equal portions of fill/soil from each of the five (5) composite sample locations from one (1) 100-cy soil stockpile into a clean, stainless steel or Pyrex glass mixing bowl. The soil/fill will be thoroughly homogenized using a stainless steel or dedicated plastic scoop or trowel and transferred to jars provided by the laboratory. Sample jars will then be labeled and a Chain-of-Custody form will be prepared. All soil samples that require analysis will be submitted to a NYSDOH Environmental Laboratory Approval Program (ELAP) certified laboratory and analytical results will be data validated by an independent third party to insure accuracy of sampling, testing and data reporting procedures.

Reuse of Other Materials

Any demolition material proposed for reuse on-site will need to be approved by ECSD and be sampled for asbestos and lead if painted surfaces are present or suspected. The results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site will not be reused on-Site. Former industrial structures may not be reused onsite and must be disposed of properly.

G-9 CONFIRMATION SAMPLING

Confirmation samples will be collected from excavations in areas of known contamination and in areas under investigation in accordance with Section 5.4 (b) of

DER-10. The following are minimum confirmation sampling frequencies for soil excavations of:

i. less than 20 feet in perimeter, include one bottom sample and one sidewall sample biased in the direction of surface runoff;
ii. 20 to 300 feet in perimeter, one sample from the bottom of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area; or
iii. greater than 300 feet in perimeter, should be in accordance with either: (1) subparagraph ii above; or (2) a NYSDEC-approved reduced sampling frequency, where the remedial party submits a proposed sampling frequency.

In an excavation where multiple layers of contamination have been analytically identified, sidewall samples will be collected from each interval to the extent feasible.

Confirmation samples will be submitted to a fixed laboratory for analyses of COPCs known to be present or that are part of a remedial investigation. In excavations where multiple depth intervals have been excavated, sidewall confirmation samples will be collected from each interval. During the Remedial Investigation (RI) of the Site, sample handling and analytical procedures will be consistent the Quality Assurance Project Plan (QAPP) included the RI Work Plan. Sidewall or bottom samples requiring VOC analyses will be collected (1) from the zero to six-inch interval at the excavation floor within 24 hours of excavation; or (2) at six to twelve inches after 24 hours.

G-10 FLUIDS MANAGEMENT

All liquids to be removed from the site, including but not limited to, excavation dewatering, decontamination waters and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, and will be managed off-site, unless prior approval is obtained from NYSDEC.

Air monitoring for VOCs will be conducted during pumping of groundwater from an excavation. If pumping of water from an excavation is necessary (i.e., groundwater and/or storm water that has accumulated in an excavation), this will be performed in such a manner as to prevent the migration of particulates, soil/fill, or unsolidified concrete materials, and to prevent damage to the existing subgrade. Water pumped from excavations will be managed properly in accordance with all applicable regulations so as to prevent endangerment of public health, property, or any portion of the construction area.

In areas where groundwater may be contaminated, the groundwater in excavations will be field screened for VOCs and observed for any visible sheens. Water in the excavations will

not be discharged to the ground surface if staining or PID measurements above background are observed in the excavation, or a sheen is present on the water surface.

If any of these conditions exist, the water pumped from the excavations will be containerized in drums, totes or Frac tanks and will be analyzed in accordance with the Surface Water and Ground Water Quality Standards set forth in 6 NYCRR Part 703.5 and the local sewer authority discharge permit. If the water meets the surface water and groundwater quality standards, it may be discharged to the ground surface. If the water does not meet the surface water and groundwater quality standards, it may be discharged to the local sewer authority under a discharge permit. If the water quality is such that the local sewer authority discharge permit requirements will be exceeded, or the local sewer authority will not approve the discharge to a sewer, it will be transported to a permitted facility or treated on the EHS property via a treatment system that has been approved by the NYSDEC.

Runoff from surface discharges shall be controlled. No discharges shall enter a surface water body without proper permits. Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a State Pollutant Discharge Elimination System (SPDES) permit.

G-11 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with this interim SMP. The existing cover system is comprised of a minimum of twenty-four (24) inches of vegetated soil cover, or a minimum of six (6) inches of asphalt (including subbase material) in areas containing roads, sidewalks, and parking lots, or a minimum of six (6) inches of concrete (including subbase material) in areas containing roads, sidewalks or parking lots constructed of concrete in lieu of asphalt. The demarcation layer, consisting of orange snow fencing material, white geotextile or equivalent material, etc. will be replaced to provide a visual reference to the top of the remaining contamination zone, the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this interim SMP. If the type of cover system changes from that which exists prior to the excavation (e.g. a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the remaining contamination. As-built conditions will be documented by a NYS licensed surveyor and reported in the next quarterly inspection report. EWP **Figures G-1** to **G-5** will be updated quarterly to include the locations of demarcation layers and NYSDEC-approved fill material (imported or reused), as necessary.

G-12 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by a QEP and will be in compliance with provisions in this interim SMP prior to receipt at the site. A Request to

Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

Subgrade material from off property locations used to backfill excavations to increase Site property grades or to increase elevation shall meet the following criteria:

- Off-property borrow soils will be documented as having originated from locations having no evidence of disposal or release of hazardous, toxic or radioactive substances, wastes or petroleum products.

- Off-property soils intended for use as Site backfill cannot be defined as a solid waste in accordance with 6 NYCRR Part 360-1 .2(a).

- Virgin Sources are defined as a NYSDEC permitted mine or quarry. If an off-property soil source is designated as "virgin" soil, it shall be further documented in writing to be native soil material from areas not having supported any known prior industrial or commercial development or agricultural use.

- Virgin Sources shall be sampled in accordance with NYSDEC DER-10 Section 5.4(e) 3ii(1) and Table 5.4(e)10 including per- and polyfluoroalkyl substances (PFAS) as emerging contaminants.

- All non-virgin imported material will be sampled in accordance to NYSDEC DER-10 Table 5.4(e)10. Non-virgin soils will be tested by collecting one (1) composite sample and one (1) grab sample per 500 cy of material from each source area. If more than 1,000 cy of soil are borrowed from a given off-Property non-virgin soil source area, and both samples of the first 1,000 cy meet the SMOs, the sample collection frequency will be reduced to one (1) composite sample and one (1) grab sample for every 2,500 cy of additional soils from the same source, up to 5,000 cy. For borrow sources greater than 5,000 cubic yards, sampling frequency may be reduced to one (1) composite sample and one (1) grab sample per 5,000 cy, provided all earlier samples meet the SMOS.

- Composite soil samples should be analyzed for parameters listed in **Table G-4**, and grab soil samples should be analyzed only for VOCs.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d) or otherwise approved by NYSDEC. Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed in **Table G-2**. Soils that meet 'exempt' fill

requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site.

G-13 STORMWATER POLLUTION PREVENTION

When development at the EHS property requires disturbing more than one (1) acre of land, Federal and State laws require that the project obtain coverage under the NYSDEC SPDES General Permit for Storm Water Discharges from Construction Activities, Permit #GP-0-15-002 (Construction Storm Water General Permit) effective December 9, 2002. Requirements for coverage under the Construction Storm Water General Permit include the submittal of a Notice of Intent (NOI) form (http://www.dec.ny.gov/docs/water_pdf/gp015002cpnoi.pdf) and the development of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must fulfill all permit requirements and will provide the following information:

- Background discussion of the scope of the construction project. Statement of the storm water management objectives.
- Evaluation of post—construction runoff conditions.
- Description of proposed storm water control measures.
- Description of the type and frequency of maintenance activities required to support the control measure.

The SWPPP must address issues such as erosion prevention, sedimentation control, hydraulic loading, pollutant loading, ecological protection, EHS property characteristics that impact design, and EHS property management planning. All descriptions of proposed features and structures will include a description of structure placement, supporting engineering data and calculations, construction scheduling, and references to established detailed design criteria. The SWPPP will conform to all requirements as established by applicable regulatory agencies.

SWPPPs have been prepared by Unisys for construction of IRM #1 (2017), IRM #2 (2018) and IRM #3 (2019). SWPPPs and will be prepared for future remedial work under the BCP. NOIs for construction related to remedial activities will be submitted to the NYSDEC Division of Environmental Remediation (DER). ECSD may adopt the Unisys SWPPP if a capital improvement project is undertaken in an area where remedial actions will occur. ECSD will be responsible for SWPPP preparation for any construction undertaken by ECSD for capital improvements or otherwise that requires a SWPPP that does not coincide with remedial activities and will submit the SWPPP. Any SWPPP and NOI for construction activity that is not related to remedial activities will be submitted to the applicable state and local agencies.

Proven soil conservation practices will be incorporated in the construction and development plans to mitigate soil erosion, off—Property sediment migration, and water pollution from erosion. The use of appropriate temporary erosion control measures such as silt fencing and/or hay bales will be required around all soil/fill stockpiles and unvegetated soil surfaces during construction activities. Stockpiles shall be graded and compacted as necessary for positive surface water runoff and dust control. Stockpiles of soil/fill will be placed a minimum of 50 feet from the EHS property boundary.

Temporary Erosion Control Measures

Temporary erosion and sedimentation control measures and Best Management Practices (BMPs) will be employed during active construction stages. Prior to any construction activity, temporary erosion and sediment control measures shall be installed and maintained until such time that installed permanent erosion control measures are effective. Silt fencing and filter fabric inlet protection will be incorporated into construction activities.

As sediment collects along the silt fences, the silt fences will be cleaned to maintain the desired performance and to prevent structural failure of the fence. Accumulated sediment will be removed when bulges develop in the silt fence. Removed sediment will be stockpiled and characterized in accordance with Section G-3. The perimeter silt fences will remain in place until construction activities in the area are completed and vegetative cover or other erosion control measures are adequately established. Silt fences will be provided and installed in accordance with the New York Standards and Specifications for Erosion and Sediment Control (Blue Book 2016) and New York State Stormwater Design Manual.

Permanent Erosion Control Measures

Permanent erosion control measures and BMPs will be incorporated during cover system construction and during construction for long—term erosion protection. Permanent measures, as discussed below, will be installed as early as possible during construction phases. Parking and building systems associated with redevelopment shall not include dry wells or other subsurface injections/disposal piping unless they are located in areas where a subsurface investigation has reported contamination levels do not exceed groundwater standards.

Soils management practices involve the installation of an approved cover system including asphalt, concrete, or vegetated soil over all or portions of the SHS property that are under construction. Permanent erosion control measures incorporate a combination of design features to limit overall erosion and sediment problems to practical design limits, and the placement of permanent facilities during restoration for long term erosion protection.

Design features incorporated into the construction plans to control erosion will include limiting steep slopes, routing runoff to surface water collection channels, limiting flow

velocities in the collection channels to the extent practical, and lining collection channels, where appropriate. In areas where flow will be concentrated (i.e.; collection channels) the channel slopes and configuration will be designed to maintain channel stability.

Any final slopes greater than 33% will be reinforced and will have a demarcation layer under the clean cover to indicate if erosion has extended to the subgrade. Following the placement of final cover soils over regraded areas, a revegetation program will be implemented to establish permanent vegetation. Vegetation serves to reduce erosion, enhance evapotranspiration, and improve runoff water quality. Areas with slopes greater than 33% will be seeded in stages as construction is completed with 100 lbs./acre of seed of a sustainable perennial mixture.

In addition to the above seed mixture, mulch, mulch blankets, or synthetic fabric will be placed to prevent erosion during turf establishment.

Mulch will be placed on all slopes less than 15% and a mulch blanket on all slopes greater than l5%. Synthetic erosion control fabric will be placed in drainage ditches and swales.

Barriers will be installed and inspected by a trained inspector once a week and after every storm event. A trained contractor is defined as person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional Engineer, Certified Professional in Erosion, or other Department endorsed individual(s). Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the interim SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Silt fencing will be installed around the entire perimeter of the construction area.

G-14 EXCAVATION CONTINGENCY AND DEWATERING PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation

activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (Target Analyte List [TAL] metals; Target Compound List [TCL] volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline at (800) 457-7362. These findings will be also included in the Periodic Review Report.

If an excavation intersects the groundwater table, and ponded groundwater on the excavation floor interferes with further excavation, the following procedures must be implemented:

- Create a temporary sump in the lowest section of the excavation by removing additional material in this area where groundwater can collect.

- If the temporary sump cannot contain the collected groundwater volume during excavating, groundwater must be pumped and containerized in 55—gallon drums. Drums must be dated, labeled and stored in a secure area.

- A composite sample must be collected from all drums and analyzed for parameters specified by a permitted facility that accepts impacted groundwater. Arrangements must be made with the disposal facility for transport and disposal following receipt of the analytical results for the composite sample.

- All workers involved with managing groundwater in excavations and sampling containerized water must wear disposable outer garments, protective gloves and eyewear.

G-15 COMMUNITY AIR MONITORING PLAN

Air sampling locations will be selected and adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations. During any excavation activities on the high school property, an air monitoring station will be placed near the closest HVAC air intakes to monitor for potential impact to indoor air quality.

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary for excavation activities. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

- Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

- Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. Periodic monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities. Final DER-10 Page 206 of 226 Technical Guidance for Site Investigation and Remediation May 2010

1 If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (NYSDEC and NYSDOH) and County Health personnel to review.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

G-16 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site and on-site. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the PRR.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

G-17 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Particulate monitoring will be performed in accordance with the CAMP when ground-intrusive activities are conducted, including excavation, grading, and soil handling activities.

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles. The use of atomizing sprays is recommended so that excessively wet areas will not be created, however fugitive dust will be suppressed.

- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.

- Gravel will be used on roadways to provide a clean and dust-free road surface.

- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

- Vehicle speed will be restricted to ten (l0) miles per hour (mph) or the listed speed limit, whichever is less.

- Excavated areas and material will be covered as soon as possible after excavating activities cease. Vegetative cover will be established over cover soil as soon as possible.

G-18 OTHER NUISANCES

A plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

G-19 ACCESS CONTROLS

Access to soil/fill on the property must be controlled until final cover is placed to prevent direct contact with subgrade materials. Stockpiled soil/fill must be covered to limit access to that material and the construction area must be restricted with temporary fencing posted with “no trespassing" signs.

APPENDIX H – HEALTH AND SAFETY PLAN

APPENDIX I
AS-BUILT DRAWINGS

APPENDIX J
SITE MANAGEMENT FORMS

APPENDIX K
O&M MANUALS

APPENDIX L
QUALITY ASSURANCE PROJECT PLAN