WORK PLAN

CONESTOGA PINES PARK
SOIL GAS INVESTIGATION AND SURFACE WATER AERATION
EAST LAMPETER TOWNSHIP, LANCASTER COUNTY, PENNSYLVANIA

Submitted to

THE COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RECYCLING AND WASTE MANAGEMENT
DIVISION OF REMEDIATION SERVICES
and
HAZARDOUS SITES CLEANUP PROGRAM
SOUTHCENTRAL REGION

MAY 2010

Submitted by

WESTON SOLUTIONS, INC.
1400 Weston Way
West Chester, PA 19380

WESTON Work Order No. 00739.055.023
PADEP Work Assignment No.: IRRSC-3-181

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1. INTRODUCTION

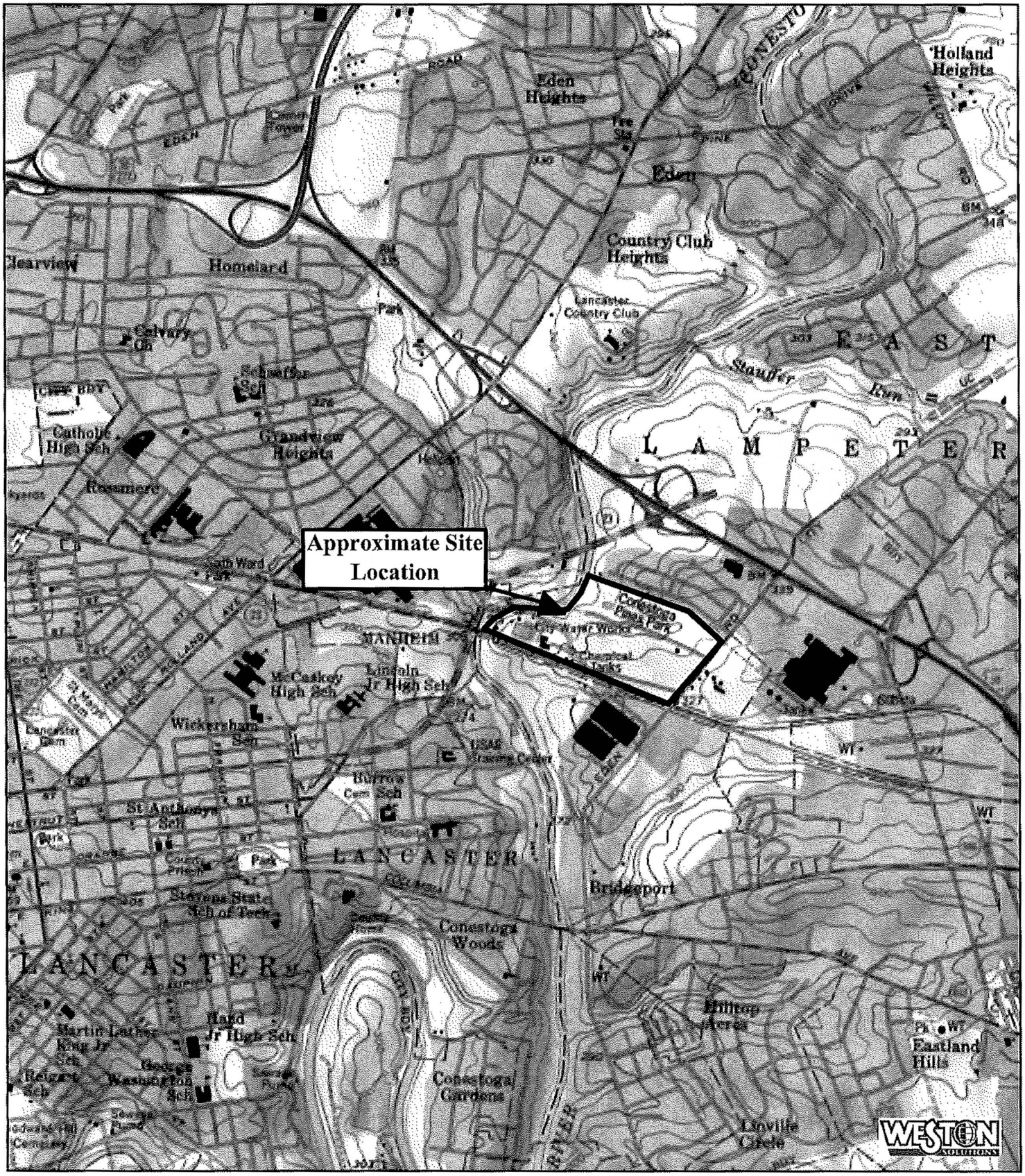
1.1 SITE DESCRIPTION AND BACKGROUND

The Conestoga Pines Park (Site) is located in East Lampeter Township and the City of Lancaster, Lancaster County, Pennsylvania (See Figure 1-1 Site Location Map). The Site is situated between Pitney Road and the Conestoga River. (See Figure 1-2 Site Plan). It is bordered on the north/northeast by a residential housing (Eden Manor Development) and Pitney Road to the east. Beyond Pitney Road, and up-gradient of the Site, is the Commerce Industrial Park East. The Norfolk Southern (NS) Railroad tracks and the CBS/Playskool, Inc. facility are located to the south. The Conestoga River forms the Site's western property boundary. The General Electric (GE) facility property lies to the west of the Conestoga River.

The Site slopes westward from Pitney Road towards the Conestoga River. The upper portion of the Site contains an existing renovated barn used as a recreation center, and the grass covered remnants of a former house foundation that is approximately 250 feet north of the barn. Approximately 100 feet below the former house foundation, is a spring discharge that forms an un-named tributary (UNT) that flows in a westerly direction to the Conestoga River. Located in the center portion of the Site are the ruins of a former day camp. Below this area is a public swimming pool and parking lot. Southwest of the Site is the Lancaster Municipal Water Authority Public Water Filtration Plant. Water taken from the Conestoga River is treated for potable use by the City of Lancaster.

In the 1930's, a Civilian Conservation Corps camp was developed on the Site. Physical structures related to this camp are visible on aerial photographs from the 1940's until the 1970's. The current recreation barn building and house foundation remnants are related to past farming operations.

The General Electric Company installed two monitoring wells (MWs) in 1991 (MWs 9109 & 9110), and two monitoring wells in 1992 (MWs 9211 & 9212) at the Site as part of an Environmental Protection Agency (EPA) mandated Resource Conservation and Recovery Act (RCRA) Facility Investigation. Sampling of these wells showed elevated levels of volatile



Legend

Site Boundary

SOURCE: USGS 7.5 Minute Series (Topographic) Quadrangle: Lancaster PA

N
W E
S

0 1,000 2,000
Feet

Figure 1.1
Site Locaton Map
Conestoga Pines Park Site
Lancaster PA

File: \\fsfed01\lig\Conestoga_Pines_Park\MXD\USGS_quad_siteloc.mxd, 13-Apr-10 13:46, ricksc

organic compounds (VOCs). The VOCs found were trichloroethylene (TCE), cis-1,2-dichloroethylene (cis-1,2-DCE), 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethylene (1,1-DCE) and 1,1-dichloroethane (1,1-DCA).

The highest levels of contamination have been at the spring forming the headwaters of the UNT to the Conestoga River. Annual sampling from 1992 to 1996 showed TCE levels in this spring ranging from 820 micrograms per liter (µg/L) to 498 µg/L. Sampling in 2008 showed 164 µg/L of TCE in the UNT headwaters, 20.8 µg/L in the middle section and 9.6 µg/L in the lower section.

Wells 9109 and 9110 were drilled on the west Site boundary near the Conestoga River to trace the plume of migrating TCE contamination from the GE facility on the west side of the Conestoga River. When TCE levels were found to be higher on the Site, wells 9211 and 9212 were drilled along an observed air photo lineament. These wells are near the stream headwaters. Well 9211 is 200 feet deep, and well 9212 is 30 feet deep. Water level measurements of wells 9211 and 9212 being similar, indicates hydraulic communication and negligible hydraulic gradient. The level of contamination decreases with depth in this well cluster. This indicates that the source of contamination is fairly close to the surface and in an eastern direction (up-gradient).

The Department performed a Site soil gas survey in October 1992. Several areas were strongly affected by VOCs in the soil gas. The most highly contaminated areas appeared northeast and northwest of the park barn and in a linear pattern extending to the west along the paved road to a former sand storage area (sand-pit). The area northeast of the barn is between the area of the former structure and the wooded land form which the contaminated spring/UNT arises. The area northwest of the barn (sand-pit) is approximately fifty (50) feet south of the paved road on the edge of the wooded hill that slopes to the south.

A limited number of soil samples were taken at some of the gas monitoring points in May 1993. None of the soil samples indicated a source of continuously released organic contamination. In 1999 and 2000, the Department sampled several surface water locations along the UNT. The analytical results show the springhead identified as the "headwater location" of the UNT had the highest levels of TCE. The range of headwater spring VOCs above groundwater regulatory

standards are TCE (450 – 580 µg/L), cis-1,2-DCE (51- 548 µg/L), and 1,1-DCE (18 µg/L). The Department's Water Quality Criteria for Toxic Substances Human Health Criteria standard for TCE in surface water is 2.7 µg/L and 1,1 DCE is 0.057 µg/L. The Department performed site investigations from November 2001 through November 2002, which included soil borings and additional well installations. The final report, dated February 21, 2003, concluded that the highest groundwater contamination is at the eastern property line with the R.R. Donnelley property. In winter 2007 and spring 2008 the Department again sampled the spring/UNT and TCE concentrations as high as 304 µg/L were detected at the headwater's surface water and as high as 365 µg/L in the headwater's sediments.

The Department also sampled several Site monitoring wells in winter 2007 and spring 2008, and determined the levels of TCE as follows: MW1 shallow was as high as 92 µg/L; MW1 deep was as high as 71.1 µg/L; MW2 was as high as 280 µg/L; and MW3 was as high as 242 µg/L.

R.R. Donnelley conducted hydrologic investigations in 2006 and 2008, neither of which determined the source of the VOC groundwater contamination. *(Entire Section From Commonwealth of Pennsylvania, Department of Environmental Protection, Bureau of Waste Management, Division of Remediation Services, Requisition For Contractual Services, dated February 01, 2010.)*

1.2 PURPOSE AND OBJECTIVE

The primary objective of this assignment is to assess the potential vapor intrusion pathway into the occupied buildings in the area of the Site.

The second objective is to develop a cost estimate to design and/or mitigate the human direct contact threat caused by the VOC contamination found in the spring/UNT that flows in a westerly direction to the Conestoga River. Furthermore, obtain any required waterways permits and/or approvals for the chosen design.

1.3 TASKS

- Attend site scoping meeting.

- Develop site specific work plan.
- Develop cost estimate for soil gas and indoor air quality (IAQ) planning and fieldwork to include the design costs associated with spring/UNT aeration and fence installation.
- Conduct IAQ sampling to evaluate the potential risk of exposure to VOCs by onsite/adjacent building occupants. This IAQ evaluation will include soil gas sampling between areas having known, elevated concentrations of VOCs in groundwater, and the occupied buildings onsite, and/or adjacent to the Site.
- Produce report indicating whether site-specific analysis or mitigation is necessary to protect human health from harmful vapors.

2. MANAGEMENT

Aspects of management for this project will include scheduling, work breakdown structure, subcontractor solicitation and management, coordination and meetings, project submittals, and resource management. These items are discussed in the subsections that follow.

2.1 PROJECT SCHEDULE AND WORK BREAKDOWN STRUCTURE

The proposed work breakdown structure (WBS) and schedule for this project are presented in Table 2-1 and Figure 2-1, respectively. The cost estimate for this project is formatted according to the WBS and is presented in Appendix A, Cost Estimate. All costs incurred to this project are to be charged to and invoiced against the tasks established in the WBS.

2.2 COORDINATION AND MEETINGS

PADEP and WESTON representatives participated in a project scoping/planning meeting onsite 23 February 2010. The meeting consisted of general discussions on the project, clarification as to PADEP expectations, schedule, and refinement of the specific scope of work, and a site walkthrough.

A project kick-off meeting will be held at the site or via conference call between PADEP, WESTON, and other appropriate stakeholders prior to the commencement of work at the Site. These meetings will be used to establish the expectations and procedures for conducting the field work as well as to present the project health and safety protocol. An agenda will be used to ensure that all key points are addressed.

Subsequent to the preliminary site health and safety briefing, a "tailgate" safety meeting will be held each morning of fieldwork with crew and subcontractors, before work begins. The WESTON site manager (SM) and/or the site health and safety coordinator (SHSC) will hold this meeting for the entire onsite crew. During the tailgate safety meeting, discussions of the daily

Table 2-1 Work Breakdown Structure

Task 1000, Project Management	All aspects of project.
Task 1010, Project Planning	Scoping, work plan, cost estimate, meetings and mobilization planning.
Task 2050, Spring/UNT Mitigation, and Fence Design	E&SC, electrical, grading and cross-section plans. Also included within this task is the cyclone fence design.
Task 2070, Report Preparation	Draft and Final Reports
Task 3010, Sampling	Personnel, materials, equipment, and other direct effort associated with collecting soil gas, indoor air, soil/sediment, and aqueous environmental samples.
Task 3020 Laboratory Analysis	SUMMA canister air analysis and other media not able to be processed by PADEP DOL.
Task 4020, Waste Transportation and Disposal	Subcontracted T&D of IDW produced during sampling
Task 4160, Site Restoration	Any reseeding or stabilization of disturbed areas onsite to their pre-existing condition, or better.
Task 4170 Barrier Installation	Cyclone fence or tree installation to prevent individuals from exposure to surface water within the headwater/UNT.
Task 4200 Spring/UNT Aeration System	Installation of in-stream, headwater aerator and step-down overflows down UNT.

work task-by-task schedule/approach and review pertinent safety topics to maintain safety and vigilance toward accident prevention at this work site. Additional safety meeting will be held should a new work task be initiated during the course of the day or upon the arrival of new subcontractors onsite.

During field work, the Project Manager (PM) will converse daily with the SM by phone to assess work progress.

2.3 SUBMITTALS

Throughout the duration of the project, WESTON will prepare and submit the following deliverables (in addition to this Work Plan and HASP) to PADEP, as required:

- Invitation for Bid (IFB) requests/specifications package(s) prior to solicitation of bids from prospective subcontractors.
- Bid analysis spreadsheet with attached recommendations and quotes for all subcontractors and/or subcontracted services.
- Daily activity reports (DARs) for each day of field work.
- Project Status Reports (PSRs) weekly while site work is in progress.
- Scope Change Requests if required
- Analytical data, including air, groundwater, and waste characterization reports.
- Vapor intrusion assessment report.
- Monthly invoices.
- Project Report – draft and final.

As part of this Work Plan, the following supporting documents are attached:

- Appendix A – Cost Estimate
- Appendix B – Site-specific Health and Safety Plan
- Appendix C – Sampling and Analysis Plan

2.4 STAFFING AND RESPONSIBILITIES

An organizational chart depicting the staff responsible for the control and execution of this project and the reporting relationships is presented as Figure 2-2. A discussion of the roles and responsibilities of the key project personnel is presented in the following subsections.

2.4.1 Program Manager

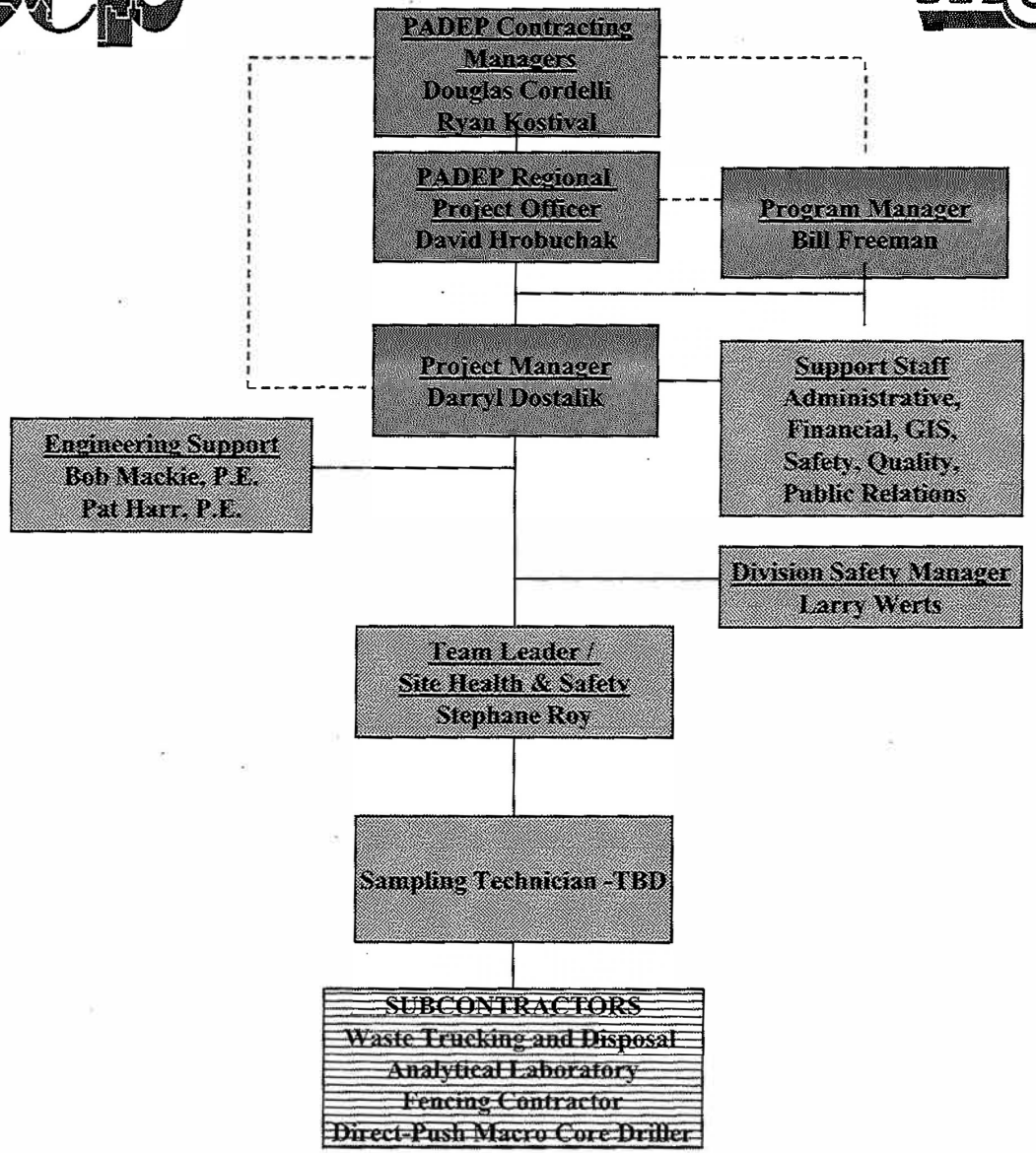
The Program Manager, Mr. Ed Hicks, will ensure that the Project Manager has the resources required to perform the project. He will also ensure that each project is executed in an appropriate manner, in compliance with the PADEP contractual requirements, and to the satisfaction of the PADEP Regional Project Officer. He will participate in the development and review of the Work Plan, as well as regularly monitor the performance of the field and office staff.

2.4.2 Project Manager

The Project Manager, Mr. Darryl Dostalik, will be responsible for executing the project and will be held accountable for ensuring that the work is completed properly and to the satisfaction of the PADEP Regional Project Officer. He will be the primary point of contact for the PADEP representatives. He is also responsible for leading the preparation and delivery of the Work Plan and Cost Estimate, and other project deliverables. He will administer the processing of any scope changes, if required. He will lead the preparation of the Project Report and will execute the project closeout activities.

Mr. Dostalik will perform the following project management tasks:

- Monitor actual spending against approved budgets
- Recommend changes, as needed, to control the quality and cost effectiveness of the project.
- Review the Daily Activity Reports during the course of field work.
- Prepare the Project Status Reports.
- Review Monthly Invoices.



Conestoga Pines Park - Figure 2-2

- Coordinate resources towards execution of fieldwork
- Organize progress, or technical meetings, if necessary.

2.4.3 Team Leader/Site Manager

The Team Leader/Site Manager for the proposed fieldwork is Stephane Roy. He will perform the following functions:

- Coordinate daily onsite activities, working closely with subcontractors and site personnel to ensure efficient use of time and resources.
- Maintain logbook to document all site activities, occurrences, incidents, visitors, subcontractors, deliveries, shipments, etc
- Maintain photo documentation of all work as it progresses.
- Report progress, issues and daily costs to the PADEP Project Officer, Project Manager, and appropriate QC personnel each day.
- Complete Daily Activity Reports
- Assist with writing the final project report.

2.4.4 Site Health and Safety Coordinator

The Team Leader/Site Manager may also perform the duties of the Site Health and Safety Coordinator (SHSC) on this particular project. He/she will be responsible for the implementation and enforcement of compliance with the site-specific HASP. The SHSC will be trained and currently certified in First Aid and CPR. He will conduct daily tailgate safety briefings each morning, and will inspect work activities during the day. In addition, he will maintain the appropriate daily health and safety record keeping.

3. FIELDWORK

3.1 ENVIRONMENTAL SAMPLING

3.1.1 Indoor Air and Soil Gas Sampling

3.1.1.1 Task Objectives

The objective of this response will be to determine if there is a vapor pathway between hazardous constituents in the Site groundwater/surfacewater and indoor air quality at select occupied structures and adjacent residences surrounding the Conestoga Pines Site.

Air samples will be collected at two (2) seasonally occupied structures onsite, the park barn and the concession stand near the pool. Additionally, soil gas samples will be collected from 12 locations along the northern perimeter of the site, adjacent to Eden Park. The analytical results of these air samples will be used to resolve the relationship, if one exists, between constituents in groundwater and the vadose zone, and the adjacent homes and buildings in the immediate area of known contamination. Data from previous groundwater and surface water sampling will be compared to indoor air quality data collected during the proposed sampling events. Two (2) sampling events are being proposed, at approximately 90 days apart to allow for a more representative soil vapor concentration model. Even small changes in soil lithology, porosity, and environmental conditions can affect the mobility of VOCs in soil. The proposed sampling plans, protocols, and techniques are detailed in Appendix C, Sampling and Analysis Plan.

3.1.1.2 Site Access, Permits and Utility Notifications

Site access has been secured by PADEP with the current property owner(s), and remains in effect for the duration of this project.

Although no erosion and sedimentation control plan (E&SC) is necessary for the soil gas sampling phase of this scope-of-work, any work within the Spring/UNT will require an

E&SC Plan, acceptable to the Lancaster County Conservation District (LCCD) employed to minimize risk of erosion, or runoff from the Site.

Utility notifications will be made to PA ONE CALL utility locating services by WESTON at least 72 hours prior to the start of any drilling, or intrusive work. No work will begin until confirmation has been issued that the proposed work area is clear of all local utilities.

3.1.1.3 Mobilization

Weston will mobilize the necessary personnel, subcontractors, materials, equipment, and supplies to perform task work, as follows:

Personnel

- (1) Team Leader/Site Manager
- (1) Site Health and Safety Coordinator/Sample Technician

Subcontractors

- Direct-push drilling
- Transportation and Disposal Company

Materials

- Erosion and Sedimentation Controls (straw bales, straw matting, and silt fence, if necessary)
- Safety Supplies (temporary construction fencing, caution tape, first responder kits, fire extinguishers, PPE, poly sheeting, etc
- Bentonite chips, hand tools, trash bags

Equipment

- (1) Pickup Trucks
- MultiRAE PID, LEL, CGI, O2 Gas Analyzer
- Sampling supplies: including; SUMMA canisters and associated hardware, probes, tubing, etc.

3.1.1.4 Sitework

WESTON will commence soil gas and IAQ sampling as specified in Appendix C Sampling and Analysis Plan (SAP). It may be necessary to coordinate sampling with local property owners, facility managers, homeowners prior to mobilizing due to the inherent protocols of IAQ sampling.

All soil gas sample locations (see Figure 3-1 Proposed Soil Gas Sample Locations) will be clearly identified with marking paint, flagging, pin flags, etc. upon arrival at the Site. Locations will be obtained from GIS coordinates previously agreed upon uploaded for easy acquisition in the field.

Direct-push equipment for soil gas sampling will be used to collect soil gas samples by driving drill pipe into the soil to a specified depth, then removing, creating an open hole. Stainless steel implant will be inserted into the open hole, whereby a sample hose/tube will be attached, and then sample collected into SUMMA canister. All samples will be properly labeled, logged, packed, and transported to an approved laboratory for analysis.

WESTON reviewed the PADEP reference document #253-0300-100 "*Vapor Intrusion into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standard*" and referred to the groundwater IAQ decision Matrix (Figure 1) in order to determine if a potential pathway may present risk to the nearby residents. The decision Matrix concludes that the pathway is incomplete and/or present negligible risk on the basis that no subsurface contamination was reported within 100 feet of inhabited building.

Since the source/sources of the cVOC have not been identified, WESTON will assume that the headwater spring location is the hot spot and propose the collection of soil gas samples on that basis. Additionally, the soil gas survey conducted by the PADEP Department of Environmental Remediation in December 1992 was also reviewed and useful in making the decision of the soil gas locations based on the isocencentration figures provided with the above mentioned Report. Therefore, in order to determine if VOC migration in the direction of the residential development is occurring, a series of soil gas samples will be collected along the north and east perimeters of the Conestoga

Pines Park as to minimize the disturbance of residents, until subsequent pathways are identified which would warrant IAS within the homes. Since the source of chlorinated VOC is unknown, soil gas samples should be collected from the northeastern perimeter of the Site, where the most elevated VOC concentrations were previously reported (near the headwater spring, and monitoring well MW-2 and MW-3).

Due to the clayey nature of soil at the Site, combined with a relatively shallow unsaturated depth to bedrock (10 feet bgs to 18 feet bgs), soil gas samples will be collected at multi-depth ranging from bedrock refusal up to 5 feet below surface. Ultimately, the soil gas samples are to be collected immediately at the Vadoze Zone as to maximize the extraction of VOC gas that may be present in soil immediately above the groundwater. WESTON proposed the installation of twelve (12) soil gas locations where samples will be collected at 2 different depths (where possible). In the event where bedrock refusal is relatively shallow (less than 10' bgs), only one soil gas sample should be collected. The soil gas locations are spaced at 40 feet intervals, which should provide for an estimated 20 foot radius of influence surrounding each location. The proposed soil gas locations are arranged linearly along the northern property boundary of the Conestoga Pines Park and distributed east and west of the headwater spring. This will provide for 240 feet of coverage on each side of the headwater spring along the residential dwelling.

The primary type of investigative derived waste (IDW) which is expected to be generated from this operation is drill cuttings and PPE. The soil drill cutting from the direct push drilling will be analyzed for organic vapors, and if found to be free of organics, the cuttings will be re-inserted into their respective holes. If elevated levels of organic vapors are present in the drill cuttings, these materials will be placed in onsite containers, sampled, and disposed of at an approved offsite facility. The holes will then be filled with bentonite chips to the surface. The quantity of PPE that will be generated will be minimal. All PPE will be bagged, sealed and disposed of offsite as municipal waste.

3.1.1.5 Demobilization

Demobilization will consist of site restoration and demobilization from the site. WESTON will restore Site to pre-existing conditions by; raking, mulching and reseeding

disturbed soil surfaces, removing any miscellaneous debris that has accumulated during the fieldwork, and removing any non-critical E&S controls (this may have to done following the establishment of groundcover. General cleanup will coincide with removal or final demobilization of all equipment, remaining materials, and personnel from the site.

3.1.2 Surface Water Sampling

3.1.2.1 General

Surface water sampling will be conducted to identify the point of compliance between the spring, and the Conestoga River. Procedures and protocols can be found within Appendix C, Sampling and Analysis Plan.

3.1.3 IDW Sampling

3.1.3.1 General

Soils produced during the installation of soil gas monitoring points will be screened for organic vapors with a PID. If elevated levels are detected in these soils, the material will be accumulated and secured in drums on site. These drums will then subsequently be sampled and contents evaluated upon review of analytical reports. If concentrations found within this material are below the relevant medium-specific concentrations, the soils will likely be disposed of on site in a manner that avoids any stream sediment contamination. Procedures and protocols for IDW sampling can be found within Appendix C, Sampling and Analysis Plan.

3.2 SPRING / UNT VOC AERATION

3.2.1 Task Objectives

The objectives of this task are to aerate the surface water at the spring head and further downstream in the UNT, by both mechanically introduced means and by enhanced cascade effect caused by gravity, which creates turbulence within the channel. Introducing aeration within the spring/UNT will encourage the natural off-gassing of organic vapors, thereby reducing the overall concentration of VOCs within the water.

Associated with enhanced aeration techniques to be incorporated, will be physical measures to discourage individuals from contacting the spring/UNT surface water that exceeds Act 2, residential direct-contact standards. A chain-link, or vegetative plantings (trees/shrubs/bushes) will be installed as a barrier, or deterrent, around the spring and downstream until direct-contact standards have been achieved. Historical sampling of the spring/UNT shows that concentrations of trichloroethylene (TCE) decrease between the spring and the Conestoga River. Following installation of aeration measures, surface water samples will be collected and analyzed to determine the point of compliance.

3.2.2 Task Permitting and Design

An erosion and sedimentation control (E&SC) plan will be required, and will be generated as part of the overall design for the spring/UNT mitigation plan. Although special consideration may be given to this project in the form of a permit waiver, or small project authorization, the assumption is that best management practices (BMPs) will be the minimum requirement when performing this work. Electrical work will be performed only by licensed electricians, according to the design, by permit only. Additionally, all electrical work will not be accepted until inspected and approved by a 3rd party service or local government agency.

3.2.3 Mob/Demob/Fieldwork

This section will be finalized upon approval of the pending spring/UNT mitigation design. Regardless of the particulars of the approved design, WESTON will only mobilize the necessary personnel, equipment, and materials in order to remain efficient, while completing the scope-of-work as designed. An updated schedule will be provided upon approval of the mitigation design.

Fieldwork will also include any restoration necessary to ensure the stability of surface grades, while preventing any potential erosion, prior to leaving the Site.

Cost estimates for the spring/UNT mitigation design will be included in Appendix A. Designing the spring/UNT mitigation will not proceed until directed to do so by PADEP. Current assumptions are that an electric aerator will be installed at the spring, with power provided by locally installed 120Volt service, and/or by a solar panel array. Small dams will be constructed perpendicular to the flow direction, from one stream bank to the other. These small dams will be designed to promote aeration of waters within the stream channel. A water wheel at the spring discharge will also be considered.

Depending upon the applicability of certain permits, it may be necessary to modify the UNT by channeling flow into an appropriately sized pipe. This option would eliminate the need for cascade, or aeration between the spring head and the discharge to the Conestoga River. This design may also incorporate perforations on the upper portion of the exposed pipe to promote air flow, and/or allow organic vapors to off-gas.

APPENDIX A

COST ESTIMATE

Conestoga Pines Park Site

IRRSC6 (Note: IRRSC6 requisition number not issued yet)
Soil Gas Investigation and Surface Water Aeration
16-Apr-10

Task	Total
Task 1000, Project Management	$7,891.42
Task 1010, Project Planning*	$6,660.48
Task 2050, Design Spring/UNT VOC Mitigation	$30,168.69
Task 2070, Report Preparation	$7,643.96
Task 3010, Sample Collection	$16,951.60
Task 3020, Laboratory Analysis	$15,400.00
Task 4020, Waste Transportation and Disposal	$1,200.00
Task 4160, Site Restoration	$3,315.02
Task 4170, Install Physical Barrier (fence or trees/bushes)	TBD
Task 4200, Spring/UNT Aeration System Installation	TBD
	$89,231.17

***Task subtotal is the total amount minus effort expended through 23 April 2010, under IRRSC5.**

Task: 1000 Project Management

Burdened Labor

Title	Name (if Known)	Duties	Hours	Rate	SubTotal
Project Manager	Dostalik	Coordination and control of project schedule, submittals, documentation, and track project costs against budgets. Meetings, site visits, and regular reviews of production, quality, safety, and one site visit	75	$96.42	$7,231.50
Division Safety Manager	Wertz	Review safety plan and reports, conduct one site visit	6	$93.32	$559.92

Other Direct Costs

Name	Type	Addtl Comment	Unit	Rate	SubTotal
Expenses	Misc project incidentals		2	$50.00	$100.00
Total			TOTAL		**$7,891.42**

Task: 1010 Project Planning

Burdened Labor

Title	Name (If Known)	Duties	Hours	Rate	SubTotal
Project Manager	Dostalik	Scoping, work plan, cost estimate, and misc. project planning & coordination.	18	$96.42	$1,735.56
Site Health and Safety Coordinator	Moser	Health and Safety Plan	8	$72.16	$577.28
Air Quality Technical Mgr.	Felck	Review soil gas and IAS plan	2	$109.37	$218.74
Associate Air Quality Scientist	Pelc	Assist with developing soil gas and IAS procedures/plans	8	$79.78	$638.24
Project Geologist	Roy	Technical aspects of work plan related to soils/geology, and develop sampling plan.	30	$80.35	$2,410.50
Technical Director	Scheinfeld	Site Geology	4	$124.90	$499.60
GIS Operator	Ricks	GIS maps	8	$54.05	$432.40

Other Direct Costs

Name	Type	Addtl Comment	Unit	Rate	SubTotal
GIS	Hourly contract rate		8	$18.520	$148.16

Total **$6,660.48**

Task 2050, Design Spring/UNT VOC Mitigation

Burdened Labor

Title	Name (If Known)		Hours	Rate	Total
PM	Dostalik	Coordinate design, design support, design documenation, meetings, procurement, permitting, subcontracting.	40	$96.42	$3,856.80
Sr GeoCivil Project Engineer	Mackie	Erosion and Sedimentation Plan	32	$128.49	$4,111.68
Associate Engineer	Harr	Cascade and fence design, develop E&SC	75	$80.19	$6,014.25
Associate Engineer	Brown	Permit & design support	75	$75.62	$5,671.50
Jr Cad Designer	Ziegler	Create drawings	24	$48.82	$1,171.68
Sr. CADD Designer	Pasatieri	Review drawings	8	$101.51	$812.08
Sr. Electrical Eng.	Briele, Richard D	Headwater spring aerator w/ solar option	20	$130.40	$2,608.00
Jr. Electrical Eng.	Denman, J	Headwater spring aerator w/ solar option	30	$74.09	$2,222.70

Subcontract Services

Sub Name (Optional)	Service	Addtl Comment	Unit	Rate	Total
TBD	Land Surveying	Site map and Topo	2	$1,850.00	$3,700.00

Total $30,168.69

Task 2070, Report Preparation

Burdened Labor

Title	Name (If Known)	Duties	Hours	Rate	SubTotal
Project Manager	Dostalik	Final reviews and overall coordination	24	$96.42	$2,314.08
Safety Manager	Moser	Safety Wrapup	4	$72.16	$288.64
Air Services	Felck	Air Report	4	$109.37	$437.48
Air Services	Pelc	Air Report	12	$79.78	$957.36
GIS Operator	Ricks	GIS maps	8	$54.05	$432.40
Project Geologist	Roy	Data reduction/interpretation	40	$80.35	$3,214.00

Other Direct Costs

Name	Type	Addtl Comment	Unit	Rate	SubTotal
N/A					

Total **$7,643.96**

Task 3010, Sample Collection

Burdened Labor

Title	Name (If Known)	Duties	Hours	Rate	SubTotal
EVENT 1					
PG, Sample Lead	Roy		24	$80.35	$1,928.40
Associate Engineer	Harr		24	$80.19	$1,924.56
EVENT 2					
PG, Sample Lead	Roy		16	$80.35	$1,285.60
Associate Engineer	Harr		16	$80.19	$1,283.04

Contractors Equipment

Name	Source	Rate Basis	Units	Rate	SubTotal
Modified Level D PPE	Contract Rate	Man/Day	10.0	$ 41.00	$ 410.00
Pickup Truck 4x4	Core, C-4	Day	6.00	$ 70.00	$420.00

Contractors Materials

Name	Unit of Measure		Units	Rate	SubTotal
Misc. Sampling Supplies	Geoprobe Sub	Per gas probe Event #1	28.0	$ 150.00	$ 4,200.00
Misc. Sampling Supplies		Per gas probe Event #2	28.0	$ 25.00	$ 700.00

Other Direct Costs

Name	Type	Addtl Comment	Unit	Rate	SubTotal
Decon Supplies		Drums and liners	4.0	$75.00	$300.00
Misc supplies	local		4.0	$100.00	$400.00

Subcontract Services

Sub Name (Optional)	Service	Unit	# Units	Rate	Total
Geoprobe Sub	punch in gas probes	Day	2	$ 1,800.00	$ 3,600.00
Geoprobe Sub		Mob/demob	1	$ 500.00	$ 500.00

Total **$16,951.60**

Task 3020, Laboratory Analysis

Subcontract Services

Sub Name (Optional)		Service	Addtl Comment	Unit	Rate	Total
EVENT 1						
Lancaster Labs	TO-15	SUMMA AIR	Standard TAT	30	$ 250.00	$ 7,500.00
Lancaster Labs	TCLP VOCs	IDW sampling	Standard TAT	1	$ 100.00	$ 100.00
EVENT 2						
Lancaster Labs	TO-15	SUMMA AIR	Standard TAT	30	$ 250.00	$ 7,500.00
Lancaster Labs	TCLP VOCs	IDW sampling	Standard TAT	1	$ 100.00	$ 100.00
Miscellaneous						
Shipping		Express Courier		0	$ 100.00	$ -
Misc . Supplies		Local	Bagies, ice, etc	2	$ 100.00	$ 200.00
Total						**$ 15,400.00**

Task 4020, Waste Transportation and Disposal

Subcontract Services Sub Name (Optional)	Service	Unit	# Units	Rate	Total
T&D Non-haz IDW	Offsite disposal	Drum	3	$ 400.00	$ 1,200.00
Total					**$ 1,200.00**

Task 4160, Site Restoration

Burdened Labor

Title	Name (If Known)	Duties	Hours	Rate	SubTotal
Sampling Lead	Roy		8	$80.35	$642.80
GeoCivil Associate Engineer	Harr		8	$80.19	$641.52

Contractors Equipment

Name		Rate Basis	Units		Rate	Total
Pickup Truck 4x4	Core, C-4	Day	1.00	$	70.00	$70.00
Skidsteer	Core C-14	Day	1.00	$	250.00	$250.00

Contractors Materials

Name		Unit of Measure	Units		Rate	Total
Straw and Seed	Direct		1.0	$	500.00	$500.00
Erosion Control Blankets	Direct	SY	1210.0	$	0.67	$810.70

Other Direct Costs

Name	Type	Addtl Comment	Unit	Rate	Total
Gas		Weekly	1.0	50.00	$50.00

Subcontract Services

Sub Name (If Known)	Service	Addtl Comment	Unit	Rate	SubTotal
MobDemob skidsteer		Ea	1.0	$ 350.00	$350.00

Total **$3,315.02**

APPENDIX B

SITE-SPECIFIC HEALTH AND SAFETY PLAN

Conestoga Pines Park Site
Site Specific Safety and Health Plan (SSSHP)
Lancaster City, Lancaster County, Pennsylvania

Prepared for

PADEP
Southcentral Regional Office
Harrisburg, PA

Prepared by

WESTON SOLUTIONS, INC.

May 2010

SITE-SPECIFIC SAFETY AND HEALTH PLAN (SSSHP) APPROVALS

By their specific signature, the undersigned certify that this SSSHP is approved for use during site activities at the Conestoga Pines Park Site.

WESTON – Project Health & Safety Coordinator Lawrence Werts	Date
WESTON - Project Manager Darryl Dostalik	Date

SITE-SPECIFIC SAFETY AND HEALTH PLAN APPROVAL/SIGNOFF FORM

Conestoga Pines Park Site

I understand, agree to, and will conform with the information set forth in this Site-Specific Safety and Health Plan (and the approved WESTON General Safety and Health Program) and discussed in the personnel safety and health briefing(s).

Name	Signature	Date

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LIST OF ACRONYMS

BTEX	benzene, toluene, ethylbenzene, xylene
CGI	combustible gas indicator
CIH	Certified Industrial Hygienist
CPR	cardiopulmonary resuscitation
DO	dissolved oxygen
FLD OPs	Field Operating Procedures
HEPA	High-Efficiency Particulate
IDW	Investigative Derived Waste
LEL	Lower Explosive Limit
mg/m^3	milligrams per cubic meter
MSDS	Material Safety Data Sheets
MTBE	Methyl tertiary-butyl ether
O_2	Oxygen
ORP	oxidation reduction potential
OV	Organic Vapor
PADEP	Pennsylvania Department of Environmental Protection
PCE	perchloroethylene
PID	photoionization detector
PPE	Personal protective equipment
SO	Safety Officer
SSHO	Site Safety and Health Officer
SSSHP	Site-Specific Safety and Health Plan
TCE	trichloroethylene
VOC	Volatile Organic Compound
WESTON®	Weston Solutions, Inc.

1. INTRODUCTION

The requirements of this Site-Specific Safety and Health Plan (SSSHP) apply to all aspects of fieldwork associated with the Conestoga Pines Park Site (SITE).

1.1 SCOPE AND APPLICABILITY

In addition to identifying key personnel responsible for health and safety at the site, personnel protective equipment (PPE) required, and site control provisions, this document also provides a health and safety risk analysis and an Emergency Response/Contingency Plan. The objective of this plan is to identify potentially hazardous conditions on-site during all fieldwork activities, and present measures to reduce or eliminate the associated risk of accidents or injuries that may occur during any phase of work at the SITE.

The provisions of this plan are mandatory for all personnel visiting or working at the SITE during sampling activities. Personnel include all of the selected Contractor's employees, subcontractors working on or visiting field activities, and PADEP personnel and representatives. All individuals will be required to read and be familiar with this plan prior to signing the approval/sign-off form, as well as attend daily tailgate safety briefings at the beginning of each workday.

1.2 VISITORS

All casual visitors to the SITE shall be briefed on the provisions of this plan. Only properly trained persons shall be allowed in active work areas or where intrusive activities are being performed. In the event that a visitor does not adhere to the provisions of this plan, he or she will be requested to leave the work area.

2. SITE DESCRIPTION AND BACKGROUND

The Conestoga Pines Park (Site) is located in East Lampeter Township and Lancaster City, Lancaster County, Pennsylvania. The Site is situated between Pitney Road and the Conestoga River. It is bordered on the north/northeast by a residential housing (Eden Manor Development) and Pitney Road to the east. Beyond Pitney Road, and up-gradient of the Site, is the Commerce Industrial Park East. The Norfolk Southern (NS) Railroad tracks and the CBS/Playskool, Inc. facility are located to the south. The Conestoga River forms the Site's western property boundary. The General Electric (GE) facility property lies to the west of the Conestoga River.

The Site slopes westward from Pitney Road towards the Conestoga River. The upper portion of the Site contains an existing renovated barn used as a recreation center, and the grass covered remnants of a former house foundation that is approximately 250 feet north of the barn. Approximately 100 feet below the former house foundation, is a spring discharge that forms an un-named tributary (UNT) that flows in a westerly direction to the Conestoga River. Located in the center portion of the Site are the ruins of a former day camp. Below this area is a public swimming pool and parking lot. Southwest of the Site is the Lancaster Municipal Water Authority Public Water Filtration Plant. Water taken from the Conestoga River is treated for potable use by the City of Lancaster.

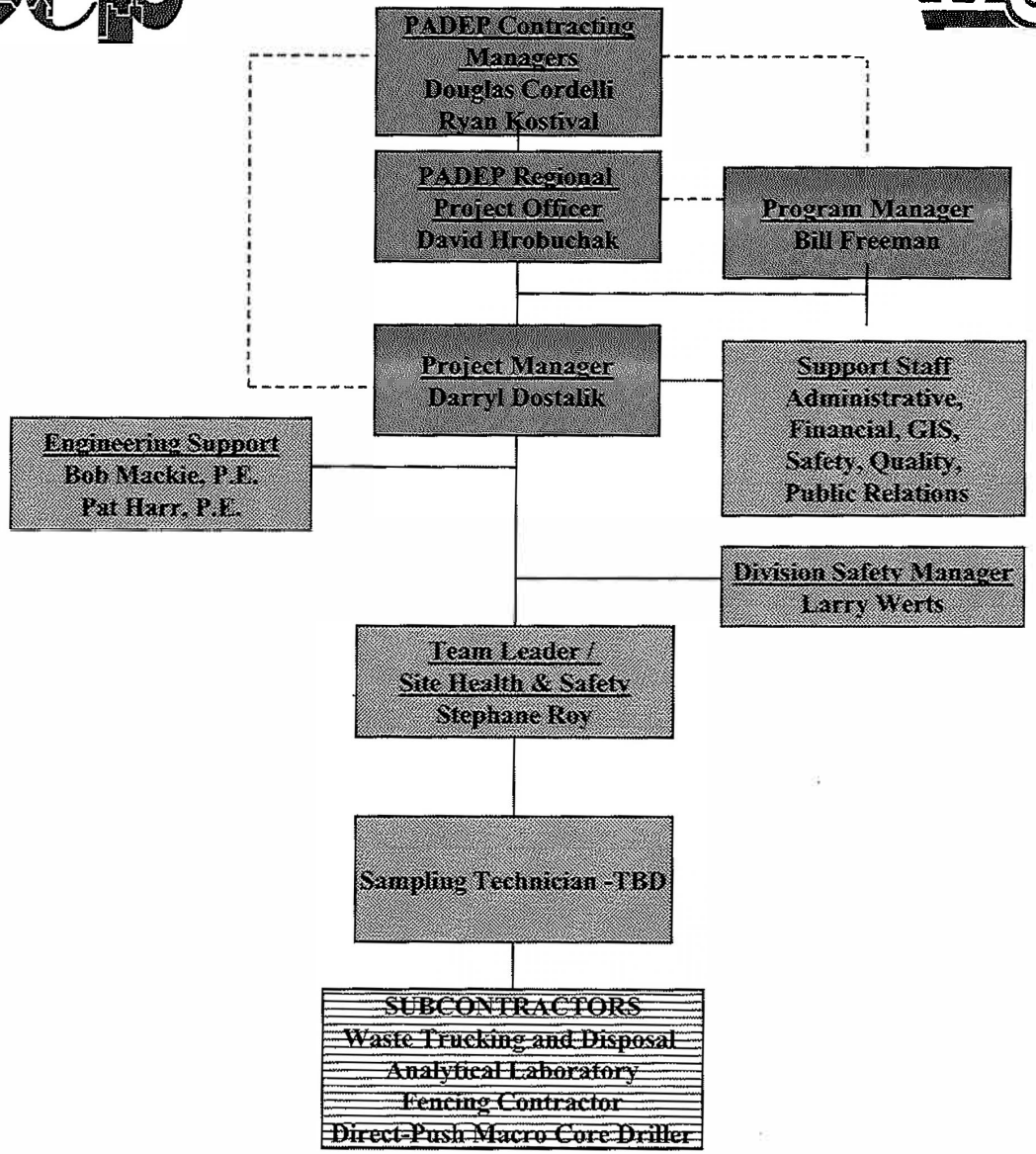
Additional site background information is presented in the PADEP Work Requisition, and in preceding sections of this Work Plan.

3. PERSONNEL

All operations and personnel having the potential for exposure to site hazards are subject to the requirements of the SSSHP. An organizational chart depicting the site-specific project organization is presented as Figure 3-1.

Table 3-1
Key Health and Safety Personnel

Name	Position	Telephone
Lawrence Werts	WESTON Division Safety Manager	(610) 701-3912
Darryl Dostalik	WESTON Project Manager	(610) 701-3183
Stephane Roy	WESTON Project Geoscientist / Site Health & Safety Coordinator	(610) 701-3147



Conestoga Pines Park - Figure 2-2

4. FIELD ACTIVITIES

The scope of work for this assignment, shown in Table 4-1, includes all activities associated with the April 2010 work plan at the SITE.

Table 4-1
CPP Site Field Activities

Task	Task Description
Mobilization / Demobilization	Office activities necessary to prepare personnel, equipment, materials, or other resources for fieldwork. Travel to site, setup field office or other infrastructure to perform fieldwork. All breakdown at site, travel home, and return equipment/materials and resources to non-fieldwork status.
Groundwater & surface water sampling	Site monitor wells (maximum of 20) will be sampled using a low-flow purge method. Tributary grab surface water samples will be directly collected in the laboratory bottles.
Soil gas implant installation & sampling	A total of 12 soil gas location will be installed with a tack-mounted geoprobe direct push unit. The soil gas location will then be sampled via a tubing attached to the buried implant and collected directly into the Summa canister.
Indoor Air quality sampling	Indoor air quality will be conducted using either the above or sub-slab method where a representative air sample will be collected on a 24 hour time-lapse directly into summa canisters using a flow controller..
Fence Installation	A protective fence will be install on the perimeter of the unnamed tributary from the headwater spring up to the point of compliance, downgradient of the tributary.
IDW Disposal	Any groundwater generated as IDW will be collected and temporarily stored in UN-approved 55-gallon drums with appropriate secondary containment (e.g., staged within a plastic-lined area framed with 4x4 lumber. Drums will be labeled with contents, date , and 'awaiting analysis'. A staging area will be determined during the well location site visit. Previous analytical data can be used to determine a preliminary method of disposal; however the final disposal method (i.e., hazardous or non-hazardous) will be determined using the sample results collected during this event. Preliminary disposal arrangements can be initiated prior to sample collection to minimize the length of time the drums are staged on-site. Nitrile gloves used for sampling will be placed in the site's regular municipal waste cans due to the relatively low VOC concentrations expected.

5. HAZARD IDENTIFICATION

Potential hazards on the SITE include chemical, biological, physical, and radiological hazards. The following sections describe each hazard, while Table 5-1 summarizes WESTON Field Operating Procedures (FLD OPs) addressing each hazard. Project-specific FLDs are included in Appendix A of this document.

Table 5-1
Hazards Evaluation

Hazard/Condition	WESTON Field Operating Procedure Titles (located in Appendix A)
Inclement Weather	FLD02 - Inclement Weather
Ambient Heat Stress	FLD05 - Heat Stress Prevention/Monitoring
Cold Stress	FLD06 - Cold Stress
Cold/Wet	FLD07 - Wet Feet
Improper Lifting	FLD10 - Manual Lifting/Handling Heavy Objects
Uneven Surfaces	FLD11 - Rough Terrain
Housekeeping	FLD12 - Housekeeping
Vehicle Hazards	FLD20 - Traffic
Fire	FLD31 - Fire Prevention/Protection Planning FLD32 – Fire Extinguishers Required
Electric	FLD35 – Electrical Safety
Biological Hazards	FLD43 – Biological Hazards FLD44 – Biological Hazards – Bloodborne Pathogens Exposure Control Plan – First Aid providers
Geoprobe drilling	Drilling Safety Guide (Section 1.6 of the Safety Officer Manual)
Samples	FLD49 – Safe Storage of Samples

5.1 CHEMICAL CONTAMINANTS

Chemicals are primarily present in the groundwater. The major contaminants, identified on the site during previous investigations, are TCE and cis-1,2-DCE, and 1,1-DCE. Material Safety

Data Sheets (MSDS) for TCE as well as all other contaminant of concern are included in Appendix B of this document.

5.1.1 Dermal Exposure

A dermal hazard may exist from skin contact with the site contaminants during sampling activities. During sampling, employees will have to handle water. Personal protective equipment will be used to help control dermal exposure. Nitrile sampling gloves will be used during the groundwater sampling or in any situation where the hands will be in contact with contaminated groundwater.

5.1.2 Inhalation Hazard

Workers may be exposed to chemical vapors associated with the groundwater contamination. Volatile Organic Compounds (VOCs) will be monitored by using a Photo Ionization Detector (PID) in situations where inhalation exposure could be expected (i.e. groundwater sampling). Re-evaluation of site conditions (work stand-down) by the SSO is required if any action-level is exceeded. All action levels will be enforced as specified in Section 7. Workers may also use respiratory protection, including air-purifying respirators equipped with approved filters/cartridges (High-Efficiency Particulate (HEPA) filters for particulates, Organic Vapor (OV) cartridges for vapors, or combination filter/cartridges for dual protection).

5.1.3 Ingestion

The ingestion potential for sampling activities is low. Traces of chemicals may be present on personnel's hands following sampling. The ingestion hazard may be greatly reduced by following basic hygiene practices, such as wearing gloves and washing hands prior to food consumption.

5.2 BIOLOGICAL HAZARDS

Biological hazards associated with the Conestoga Pines Park Site include stinging insects, poisonous plants, and animals. Risk of exposure varies based on the time of the year and location of the work assignment. Personnel will be briefed regarding site-specific hazards.

5.3 PHYSICAL HAZARDS

Physical hazards associated with sampling activities include the presence of heavy equipment, inclement weather, heat/cold stress, uneven terrain (trip and fall), vehicular traffic, heavy lifting, and housekeeping. Safe driving practices will be followed both on-site and driving to and from the site.

5.4 RADIOLOGICAL HAZARDS

Non-ionizing radiation creates concerns during periods of intense or prolonged exposure to the sun. Additional concerns are based upon instruments such as laser levels or upon work site locations near high-energy fields such as microwave towers. Personnel will be instructed in appropriate PPE or procedures to follow in the event that non-ionizing radiation creates a concern on-site. The use of sunblock will be encouraged.

6. ACTIVITY HAZARD ANALYSIS

Activity hazard analysis is an ongoing process from the initiation of the SSSHP preparation through the implementation and completion of the project; therefore, the activity hazard analyses will be completed for each task associated with the project. Site-specific activity hazard analyses are presented in Table 6-1. Project specific FLD OPs are included in Appendix A of this SSSHP, and are also contained in WESTON's Safety Officer Field Manual, which will be maintained on-site. If project conditions change or new activities are identified, appropriate FLD OPs will be reviewed and incorporated into the site-specific program.

Table 6-1 Activity Hazard Analysis

1. WESTON WO No. 00739.055.023		**2. Project** Conestoga Pines Park Site	**3. Facility** – Conestoga Pines Park
4. Date: April 2010		**5. Location** – Lancaster, Lancaster County, Pennsylvania	**6. Estimated Start Date:**

7. Item	8. Phase of Work	9. Safety Hazard	10. Precaution Action Taken
1	Mobilization/Demobilization	Industrial Chemicals	
		- Site contaminants, including tetrachloroethene	Low Risk – contaminants are found in groundwater. Material Safety Data Sheet (MSDS) directions will be followed. Follow MSDS safety precautions.
		- Commercial Products—fuels.	Low Risk - Material Safety Data Sheet (MSDS) directions will be followed. Follow MSDS safety precautions when fueling vehicles.
		Biological Hazards	
		- Poison plants, insects, and animals.	Moderate Risk – outdoor setting increases presence of these biological hazards. Site-specific awareness training will be provided. Follow WESTON FLD43.
		- Bacteria/viral infection.	Food will be properly stored and disposed of to avoid exposure and attracting animals and insects. First aid-trained persons are trained in bloodborne pathogen (BBP) exposure prevention, and first aid kits have BBP protection kits. Follow WESTON FLD44.

Table 6-1 Activity Hazard Analysis (continued)

1. **WESTON WO No.** 00739.055.023		2. **Project** – Conestoga Site	3. **Facility** – Conestoga Pines Park
4. **Date:** April 2010		5. **Location** – Lancaster, Lancaster County, Pennsylvania	6. **Estimated Start Date:**
7. Item	**8. Phase of Work**	**9. Safety Hazard**	**10. Precaution Action Taken**
1	Mobilization/Demobilization	Physical Hazards	
		- Inclement weather, heat, or cold.	Moderate Risk - Due to varying seasons for periodic sampling all kinds of inclement weather is a risk. Personnel will dress accordingly to prevent cold stress during cold seasons. Cold weather in mornings increases slip/fall risk, and morning safety meetings will remind personnel to use caution. During hot season personnel will be encouraged to stay hydrated and take breaks. Follow WESTON FLD02, 05, and 06.
		- Lifting.	Daily safety meetings will stress importance of lifting properly. Follow WESTON FLD10.
		- Rough terrain.	Support zone will be set up to minimize exposure to rough terrain during mobilization.
		- Traffic	Follow WESTON FLD20. Control access. Personnel working near roadways wear orange high visibility vests.
		- Housekeeping	Follow WESTON FLD12. Control and containerize trash. Store materials and equipment neatly.
		Radiological Hazards	
		- Ionizing Radiation	Low Risk – Ionizing radiation above background is not expected.
		- Non-Ionizing Radiation	Low Risk – Ultraviolet rays/ sun exposure will be controlled by encouraged use of sunblock
Equipment To Be Used: Vehicles Fire extinguisher and first aid kit Level D PPE Sunblock		**Inspection Requirements:** Daily inspection of equipment Inspection of fire extinguisher and first aid kit	**Training/Medical Requirements:** Site-specific Supervisor training for SO

Table 6-1 Activity Hazard Analysis (continued)

1. WESTON WO No. 00739.055.023		2. Project – Conestoga Site	3. Facility – Conestoga Pines Park
4. Date: April 2010		5. Location Lancaster, Lancaster County, Pennsylvania	6. Estimated Start Date:
7. Item	**8. Phase of Work**	**9. Safety Hazard**	**10. Precaution Action Taken**
2	Sample Collection	Industrial Chemicals	
		- Site contaminants, including trichloroethylene	Low Risk – contaminants are found in groundwater. Material Safety Data Sheet (MSDS) directions will be followed. Contact with contaminated media possible during sampling. Monitor for contaminants in the breathing zone. Follow MSDS safety precautions.
		Biological Hazards	
		- Poison plants, insects, and animals.	Moderate Risk – outdoor setting increases presence of these biological hazards. Site-specific awareness training will be provided. Follow WESTON FLD43.
		- Bacteria/viral infection.	Food will be properly stored and disposed of to avoid exposure and attracting animals and insects. First aid-trained persons are trained in bloodborne pathogen (BBP) exposure prevention, and first aid kits have BBP protection kits. Follow WESTON FLD44.
		Physical Hazards	
		- Inclement weather, heat, or cold.	Moderate Risk - Due to varying seasons for periodic sampling all kinds of inclement weather is a risk. Personnel will dress accordingly to prevent cold stress during cold seasons. Cold weather in mornings increases slip/fall risk, and morning safety meetings will remind personnel to use caution. During hot season personnel will be encouraged to stay hydrated and take breaks. Follow WESTON FLD02, 05, and 06.
		- Lifting.	Daily safety meetings will stress importance of lifting properly. Follow WESTON FLD10. Sampling can increase risk of repetitive motion stress. Samplers will rotate work assignments. Use neutral wrist and elbow positioning wherever possible.

Table 6-1 Activity Hazard Analysis (continued)

1. WESTON WO No. 00739.055.023		2. Project – Conestoga Site	3. Facility – Conestoga Pines Park
4. Date: April 2010		5. Location – Lancaster, Lancaster County, Pennsylvania	6. Estimated Start Date:
7. Item	**8. Phase of Work**	**9. Safety Hazard**	**10. Precaution Action Taken**
2	Sample Collection		
		- Rough terrain.	Daily safety meetings will stress need for care in working on rough terrain.
		- Traffic	Follow WESTON FLD20. Control access. Personnel working near roadways wear orange high visibility vests.
		- Housekeeping	Follow WESTON FLD12. Control and containerize trash. Store materials and equipment neatly.
		Radiological Hazards	
		- Ionizing Radiation	Low Risk – Ionizing radiation above background is not expected.
		- Non-Ionizing Radiation	Low Risk – Ultraviolet rays/ sun exposure will be controlled by encouraged use of sunblock
Equipment To Be Used: Air monitoring instruments Heavy equipment Level D PPE Sunblock		**Inspection Requirements:** Daily calibration of instruments Daily inspection of equipment Daily inspection of safety equipment Daily calibration of safety equipment Weekly inspection of fire extinguishers and first aid kit	**Training/Medical Requirements:** Supervisor training for SO Site-specific training

Table 6-1 Activity Hazard Analysis (continued)

1. WESTON WO No. 00739.055.023		2. Project – Conestoga Site	3. Facility – Conestoga Pines Park
4. Date: April 2010		5. Location Lancaster, Lancaster County, Pennsylvania	6. Estimated Start Date:
7. Item	**8. Phase of Work**	**9. Safety Hazard**	**10. Precaution Action Taken**
3	Soil gas implant installation and sampling	Industrial Chemicals	
		- Site contaminants, including trichloroethylene	Low Risk – contaminants are found in groundwater. Material Safety Data Sheet (MSDS) directions will be followed. Contact with contaminated media possible during sampling. Monitor for contaminants in the breathing zone. Follow MSDS safety precautions.
		Biological Hazards	
		- Poison plants, insects, and animals.	Moderate Risk – outdoor setting increases presence of these biological hazards. Site-specific awareness training will be provided. Follow WESTON FLD43.
		- Bacteria/viral infection.	Food will be properly stored and disposed of to avoid exposure and attracting animals and insects. First aid-trained persons are trained in bloodborne pathogen (BBP) exposure prevention, and first aid kits have BBP protection kits. Follow WESTON FLD44.
		Physical Hazards	
		- Geoprobe Drilling	Moderate to High Risk- Hydraulically push drill rig supply significant down force power where several pinch point are possible. Avoid loose clothing around the geoprobe, wear leather gloves, and keeps hand away from moving parts. Use Drilling Safety Guide (Section 1.6 of the Safety Officer Manual)
		- Inclement weather, heat, or cold.	Moderate Risk - Due to varying seasons for periodic sampling inclement weather is a risk. Personnel will dress accordingly to prevent cold stress during cold seasons. Cold weather in mornings increases slip/fall risk.. During hot season personnel will be encouraged to stay hydrated and take breaks. Follow WESTON FLD02, 05, and 06.
		- Lifting.	Daily safety meetings will stress importance of lifting properly. Follow WESTON FLD10. Sampling can increase risk of repetitive motion stress. Samplers will rotate work assignments. Use neutral wrist and elbow positioning wherever possible.

Table 6-1 Activity Hazard Analysis (continued)

1. WESTON WO No. 00739.055.023		2. Project – Conestoga Site	3. Facility – Conestoga Pines Park
4. Date: April 2010		5. Location – Lancaster, Lancaster County, Pennsylvania	6. Estimated Start Date:
7. Item	**8. Phase of Work**	**9. Safety Hazard**	**10. Precaution Action Taken**
3	Soil gas implant installation and sampling		
		- Rough terrain.	Daily safety meetings will stress need for care in working on rough terrain.
		- Traffic	Follow WESTON FLD20. Control access. Personnel working near roadways wear orange high visibility vests.
		- Housekeeping	Follow WESTON FLD12. Control and containerize trash. Store materials and equipment neatly.
		Radiological Hazards	
		- Ionizing Radiation	Low Risk – Ionizing radiation above background is not expected.
		- Non-Ionizing Radiation	Low Risk – Ultraviolet rays/ sun exposure will be controlled by encouraged use of sunblock
Equipment To Be Used: Air monitoring instruments Heavy equipment Level D PPE Sunblock		**Inspection Requirements:** Daily calibration of instruments Daily inspection of equipment Daily inspection of safety equipment Daily calibration of safety equipment Weekly inspection of fire extinguishers and first aid kit	**Training/Medical Requirements:** Supervisor training for SO Site-specific training

Table 6-1 Activity Hazard Analysis (continued)

1. WESTON WO No. 00739.055.023		2. Project – Conestoga Site	3. Facility – Conestoga Pines Park
4. Date: April 2010		5. Location Lancaster, Lancaster County, Pennsylvania	6. Estimated Start Date:
7. Item	**8. Phase of Work**	**9. Safety Hazard**	**10. Precaution Action Taken**
4	Fence Installation	Industrial Chemicals	
		- Site contaminants, including trichloroethylene	Low Risk – contaminants are found in groundwater and possibly in tributary. Material Safety Data Sheet (MSDS) directions will be followed. Contact with contaminated media possible during fence installation. Remain outside of tributary when possible
		Biological Hazards	
		- Poison plants, insects, and animals.	Moderate Risk – outdoor setting increases presence of these biological hazards. Site-specific awareness training will be provided. Follow WESTON FLD43.
		- Bacteria/viral infection.	Food will be properly stored and disposed of to avoid exposure and attracting animals and insects. First aid-trained persons are trained in bloodborne pathogen (BBP) exposure prevention, and first aid kits have BBP protection kits. Follow WESTON FLD44.
		Physical Hazards	
		- Inclement weather, heat, or cold.	Moderate Risk - Due to varying seasons for periodic sampling all kinds of inclement weather is a risk. Personnel will dress accordingly to prevent cold stress during cold seasons. Cold weather in mornings increases slip/fall risk, and morning safety meetings will remind personnel to use caution. During hot season personnel will be encouraged to stay hydrated and take breaks. Follow WESTON FLD02, 05, and 06.
		- Lifting.	Daily safety meetings will stress importance of lifting properly. Follow WESTON FLD10. Sampling can increase risk of repetitive motion stress. Samplers will rotate work assignments. Use neutral wrist and elbow positioning wherever possible.

Table 6-1 Activity Hazard Analysis (continued)

1. WESTON WO No. 00739.055.023		2. Project – Conestoga Site		3. Facility – Conestoga Pines Park
4. Date: April 2010		5. Location – Lancaster, Lancaster County, Pennsylvania		6. Estimated Start Date:
7. Item	**8. Phase of Work**	**9. Safety Hazard**	**10. Precaution Action Taken**	
4	Fence Installation			
		- Rough terrain.	Daily safety meetings will stress need for care in working on rough terrain.	
		- Traffic	Follow WESTON FLD20. Control access. Personnel working near roadways wear orange high visibility vests.	
		- Housekeeping	Follow WESTON FLD12. Control and containerize trash. Store materials and equipment neatly.	
		Radiological Hazards		
		- Ionizing Radiation	Low Risk – Ionizing radiation above background is not expected.	
		- Non-Ionizing Radiation	Low Risk – Ultraviolet rays/ sun exposure will be controlled by encouraged use of sunblock	
Vehicle Level D PPE Sunblock		**Inspection Requirements:** Weekly inspection of fire extinguishers and first aid kit	**Training/Medical Requirements:** Supervisor training for SO Site-specific training	

Table 6-1 Activity Hazard Analysis (continued)

1. WESTON WO No. 00739.055.023		2. Project – Conestoga Site	3. Facility – Conestoga Pines Park
4. Date: April 2010		5. Location – Lancaster, Lancaster County, Pennsylvania	6. Estimated Start Date:
7. Item	**8. Phase of Work**	**9. Safety Hazard**	**10. Precaution Action Taken**
5	IDW Disposal	Industrial Chemicals	
		- Site contaminants, including trichloroethylene	Low Risk – Little IDW is expected to be generated aside from sampling gloves.
		Biological Hazards	
		- Poison plants, insects, and animals.	Moderate Risk – outdoor setting increases presence of these biological hazards. Site-specific awareness training will be provided. Follow WESTON FLD43.
		- Bacteria/viral infection.	Food will be properly stored and disposed of to avoid exposure and attracting animals and insects. First aid-trained persons are trained in bloodborne pathogen (BBP) exposure prevention, and first aid kits have BBP protection kits. Follow WESTON FLD44.
		Physical Hazards	
		- Inclement weather, heat, or cold.	Moderate Risk - Due to varying seasons for periodic sampling all kinds of inclement weather is a risk. Personnel will dress accordingly to prevent cold stress during cold seasons. Cold weather in mornings increases slip/fall risk, and morning safety meetings will remind personnel to use caution. During hot season personnel will be encouraged to stay hydrated and take breaks. Follow WESTON FLD02, 05, and 06.
		- Lifting.	Daily safety meetings will stress importance of lifting properly. Follow WESTON FLD10.
		- Rough terrain.	Daily safety meetings will stress need for care in working on rough terrain.

Table 6-1 Activity Hazard Analysis (continued)

1. WESTON WO No. 00739.055.023		2. Project – Conestoga Site		3. Facility – Conestoga Pines Park
4. Date: April 2010		5. Location – Lancaster, Lancaster County, Pennsylvania		6. Estimated Start Date:
7. Item	**8. Phase of Work**	**9. Safety Hazard**	**10. Precaution Action Taken**	
5	IDW Disposal	- Traffic	Follow WESTON FLD20. Control access. Personnel working near roadways wear orange high visibility vests.	
		- Housekeeping	Follow WESTON FLD12. Control and containerize trash. Store materials and equipment neatly.	
		Radiological Hazards		
		- Ionizing Radiation	Low Risk – Ionizing radiation above background is not expected.	
		- Non-Ionizing Radiation	Low Risk – Ultraviolet rays/ sun exposure will be controlled by encouraged use of sunblock	
Equipment To Be Used: Air monitoring instruments Level D PPE Sunblock		**Inspection Requirements:** Daily calibration of instruments Daily inspection of equipment Daily inspection of safety equipment Daily calibration of safety equipment Weekly inspection of fire extinguishers and first aid kit	**Training/Medical Requirements:** Supervisor training for supervisor and SO Site-specific training	

7. PROTECTION PROGRAM/ACTION LEVELS

7.1 AIR MONITORING

Air monitoring for industrial type contaminants will be conducted when site activities occur. A Multi-RAE gas meter will be utilized to monitor for VOCs and combustible environments. The Multi-RAE has an integrated photoionization detector (PID) that will detect volatile organics and a combustible gas indicator (CGI) for combustibles. The instrument will also be used to measure Lower Explosive Limit levels and oxygen levels. The readings will be documented on an air-monitoring log. The action levels are listed in Table 7-1. Should action levels dictate the need to evacuate, a stop work will be directed by the Site Safety Officer. It is not anticipated that high VOC levels will be encountered in the breathing zone and it is not anticipated that significant amounts of dust will be generated that will warrant particulate monitoring.

Table 7-1
Action Levels for Direct-Reading Air Monitoring Instruments

Hazard	Instrument	Action Level
Explosive atmosphere	CGI	<10% LEL: Continue investigation. >10% and <20% LEL (ambient air): Continue work with caution, continue monitoring. >10% LEL (confined space): Stop work and evacuate site until levels <10% are measured. >20% LEL (ambient air): Stop work and evacuate site until levels <20% are measured.
Oxygen content	Oxygen (O_2) meter (included with CGI instrument)	19.5% to 23% (ambient air): Acceptable levels for O_2. <19.5%: Stop work, and evacuate site until levels >19.5% and <23% (ambient air). >23% (ambient air): Fire hazard potential. Stop work and consult the SHSC/CIH.
Organic vapors	PID/FID	0 to 10 units: Continue monitoring and work activities >10: Halt work; notify WESTON Program Safety Manager, CIH, and re-evaluate conditions.

7.2 ENGINEERING CONTROLS

Wherever possible, engineering controls will be used to reduce workers' risks of exposure. Engineering controls in place for this assignment involve the assurance of adequate ventilation in the work area. Work areas are anticipated to be outdoors; therefore, adequate ventilation should be present and when possible worker should always be positioned upwind from the source of emission. Dust suppression methods may be implemented, if necessary, during dry site conditions.

7.3 TRAFFIC CONTROL

It is not expected that any work will require the use of traffic control.

7.4 ADMINISTRATIVE CONTROLS

Administrative controls generally involve application of standard practices where engineering controls are not feasible. Administrative controls for this assignment include: site and assignment specific training, and site control establishment.

7.4.1 Site-Specific Training

Site-specific training required for this assignment includes: awareness and recognition, contaminants of concern, biological hazards, inclement weather, rough terrain, drilling safety, safe lifting, and emergency procedures.

7.4.2 Site Control

Access to the Conestoga Pines Park SITE is currently unrestricted. During drilling and sampling activities, no one will be allowed to enter the work area(s) (area will be marked off with caution tape) without a proper safety brief. Work on the site will be limited to authorized and necessary personnel with valid credentials, training, and medical clearance. If sampling waste will be stored on-site overnight prior to disposal, appropriate labeling/markings will be used.

7.5 PERSONAL PROTECTIVE EQUIPMENT SELECTION

All personnel performing operations on-site will be required to use the appropriate level of protection. All phases of work for this project will be conducted in Level D. The components of the levels of protection are:

- Safety shoes or boots
- Hard hats for overhead hazards
- Safety glasses
- Nitrile gloves for sampling events
- Leather palmed work gloves and hearing protection, as necessary, for drilling work, heavy lifting, etc.
- Hearing protection around or near the geoprobe direct push unit.

7.6 HYGIENE AND DECONTAMINATION

A break area will be available within the support zone for all personnel working on-site. The break area will have, at a minimum: water and/or electrolyte replacement fluids available, protection from direct sunlight, and refuse containers. While performing intrusive field activities, no personnel will be permitted to eat, drink, or smoke while working in that area.

Level D decontamination will be completed by daily laundering of all outerwear with commercial grade detergents, or equivalent. All disposable items, such as nitrile gloves shall be properly discarded after each sampling event.

8. EMERGENCY INFORMATION

8.1 EMERGENCY CONTACTS

Table 8-1
Emergency Contacts

Organization	Phone Number	Comment/Action
Ambulance Police Fire	911	1. Exact location, 2. Callback number, 3. Nature of emergency.
Lancaster General Hospital	717-544-5511	Physical trauma or chemical exposure
WESTON 24-Hr Medical Emergency (Qualisys – Dr. Walker)	800-874-4676	
Poison Control Center	1-800-222-1222	
Additional Assistance Numbers		
WESTON Larry Werts 24-Hr Health & Safety	215-815-6237	Larry Werts (cell)
Project Manager	610-701-3183	Darryl Dostalik

8.2 HOSPITAL ROUTE

Hospital Directions

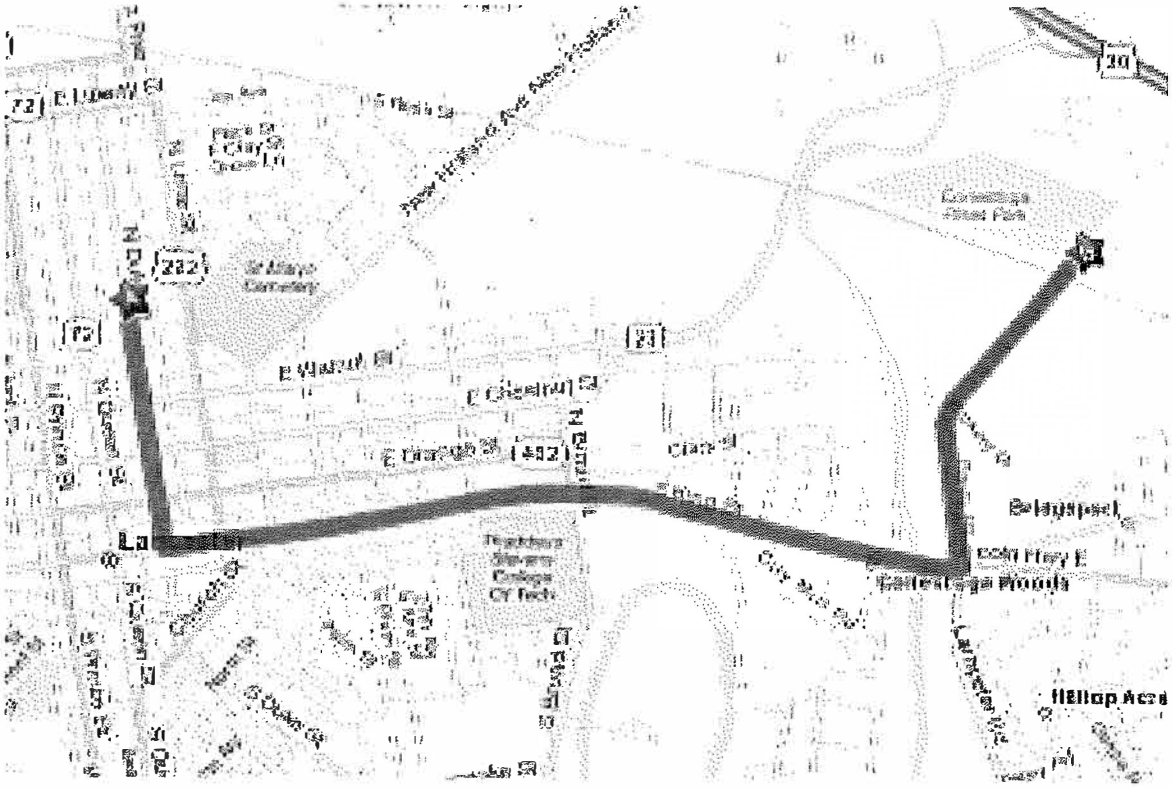
A map showing the route to the hospitals will be available in a WESTON vehicle on-site.

A route map to this primary hospital (**Lancaster General HOSPITAL, 555 North Duke Street, Lancaster, PA**) is provided as Figure 8-1.

Figure 8-1 Directions to Primary Facility

Step	Directions	Distance
1	You are at 150 Pitney Road, Lancaster, PA	
2	Exit the Park and turn right on Pitney Rd.	0.8 miles
3	Turn right onto East King Street / PA 462 E.	1.7 miles
4	Turn right, going North, onto N. Duke Street.	0.6 miles
5	Arrive at Hospital on your left	

Distance: 3.1 miles **Approximate Travel Time:** 7 mins



EMERGENCY RESPONSE PLAN

The assignment-specific equipment and elements of this Emergency Response Plan are listed in Table 8-2.

Table 8-2

Site-Specific Equipment and Elements of the Emergency Response Plan

Incident	Action
1. Emergency	Crews will stand by in a safe location to meet Emergency Responders.
2. Medical	At least one member of the team will be currently certified in first aid and cardiopulmonary resuscitation (CPR); and a first aid kit including BBP kit will be on-site. If a team member is injured, first aid will be given. If necessary, call 911 for emergency transport. If more than basic first aid is needed, use emergency care facility. See map and directions. In the event of a serious injury, after calling 911, contact offices/individuals on the call down list. In the event cell phones cannot get a signal then a land line phone is located in the building on-site.
3. Fire	Follow WESTON procedures FLD 31 and 32 to prevent and be prepared for a fire. At least one ABC 20-lb fire extinguisher will be on-site and accessible during field activities. In the event of a fire, call for assistance; call 911 for fire assistance. Use the portable fire extinguisher if safe. After calling 911, contact call-down list offices/individuals.
4. Spills	Risks of spills are low on this assignment. Fuel and other chemical handling will be performed to minimize the chance of spills. Any spilled material will be contained and placed in proper storage.

9. REFERENCES

Weston Solutions, Inc. (WESTON). *Safety Officer Manual.*

Weston Solutions, Inc. (WESTON). *Groundwater Sampling Work Plan and Cost Estimate.*

APPENDIX A
SAFETY PROCEDURES/FIELD OPERATING PROCEDURES (FLD OPS)

Hard (paper) copies of Field Operating Procedures are located in the "field" copy of this SSHSP.

APPENDIX B
MATERIAL SAFETY DATA SHEETS (MSDS)

Hard (paper) copies of MSDS sheets are located in the "field" copy of this SSHSP.

APPENDIX C
SAMPLING AND ANALYSIS PLAN

Sampling And Analysis Plan for Air and Soil Gas Samples
Conestoga Pines Park, Lancaster City, Pennsylvania
PADEP Work Assignment No. IRRSC5-3-181

1.0 OBJECTIVES OF SAMPLING

Air sampling will be used to identify an exposure pathway, between known volatile organic compounds (VOCs) documented in the groundwater beneath the site, and soil gas or indoor air samples to be collected from the Site. If VOCs are found to be present in the air, further evaluation will be conducted to resolve the relationship, if one exists, between hazardous constituents in groundwater and public inhalation exposure.

2.0 TYPES OF SAMPLES

Samples will be collected as follows:

- Soil gas between residential homes and documented groundwater contamination
- Indoor air quality (IAQ) within seasonally occupied structures
- Quality Control Samples (Ambient or Background Air and Field Duplicates).

3.0 SUMMA® CANISTER SAMPLING PROTOCOL

Table 1 identifies the proposed locations and quantities of samples to be collected. Sampling will be performed for a twenty four (24) hour period at each occupied structure, and for one (1) hour at each soil gas location/depth interval. During the sampling, canisters will be placed in either the basements, or no basement exists, within the least ventilated first level room of the structure. The sampling is designed so that each selected building and soil gas location/depth interval will be sampled once. In addition, a minimum of one (1) duplicate sample and one (1) ambient air sample per day will be obtained for quality control (QC) purposes during the sample collection period. The ambient air sample will be collected in a separate SUMMA canister outside the primary field sample location to identify any background contaminants that may be present which are not associated with the Site groundwater.

Communicating the intended sampling date/time to building and/or property owners is critical to the success of this proposed sampling effort. Formal access agreements to the Site and associated buildings has been established between PADEP and those respective owners. To ensure access to the Site/associated buildings for this sampling event, a questionnaire and announcement letter (Attachment 1) will be forwarded to each of the selected building owners. This letter informs each of the owners that sampling will be performed in their structure, and identifies the dates on which the samples will be collected. The letter will also provide specific details and instructions related to the sampling, as well as a questionnaire to be completed and returned by the building owner. The questionnaire will provide information which may be relevant to the sampling team. For example, whether petroleum products have, or are stored in the building to be sampled. Seventy-two (72) hours prior to the date of sampling, verbal contact will be made with the

owners to confirm the specific date and time for placing and collecting the canisters, and to identify the field team members who will come to the residence.

Meteorological conditions will be recorded every day during each sample period. In the event that sampling is postponed for any reason, WESTON will make every attempt to re-schedule for the next day.

3.1 Indoor Air and Soil Gas Sampling Procedures

The SUMMA canister samples will be collected, as outlined in the steps below.

3.1.1 The laboratory will provide SUMMA canisters that were cleaned using the "SUMMA" process, which involves electro-polishing and chemical deactivation of the internal surface of the vessel using a combination of exponential dilution, heat and high vacuum. The lab will certify that the canisters have been cleaned to the standards required for achieving the low sample detection limits. After cleaning, air from the canisters will be evacuated. The canisters will have a 6-liter capacity and a vacuum of approximately negative 30" Hg. A 7-micron pre-filter will be attached to the canister to minimize entry of particulates.

3.1.2 Fixed-rate flow controllers will be used on the canisters to meter the flow of air into the canisters at a relatively constant rate over the course of the sample collection period. The fixed flow rate should allow the canisters to be filled to two-thirds of the capacity (a 4 liter sample for a 6 liter canister). Cleaned fixed flow controllers will be provided by the lab and used during the sample collection. Flow controllers will be used only once.

3.1.3 A vacuum gauge will be used to measure the initial and final vacuum of the canister, and to monitor the filling of the canister. The gauges will be used to provide a relative measure of change. Before sampling, the gauge will confirm the pressure reads between negative 29" and negative 30" Hg for each canister.

3.1.4 All indoor air samples will be collected at a uniform height and will be positioned so they are out of direct sunlight during the sampling. To begin sampling, the flow controller will be attached to the sampler. All connections between the canister and the flow controller must be tight enough so that the various pieces of equipment (flow controller, gauge, etc.) when assembled cannot be rotated by hand. Any leaks in these connections will be corrected prior to sampling or the canister will be replaced. After the canister has been placed at the sample location, the canister inlet valve will be opened.

3.1.5 Soil gas samples will be collected using direct-push equipment by driving drill pipe into the soil to a specified depth. A sample tube attached to a small vapor extraction implant will be inserted into the drill pipe opening. The drill pipe will then be removed and clean sand packed interval will be placed approximately 1-2 feet above the vapor implant. Bentonite seal should be placed above the sand pack to prevent ambient air to interfere with sample collection. Soil gas sampling location should sit for 24 hours prior to initiate sampling collection.

3.1.6 At the end of the sampling period, the final vacuum for a canister will be measured using the vacuum gauge. The final canister vacuum should be between negative 4" and negative 12" Hg.

3.1.7 The samples will be packaged and shipped to the laboratory for analysis. The final vacuum will be noted on the chain of custody. This documentation will allow the lab to compare the vacuum from sampling with the receipt vacuum. The sample integrity is ensured if the final field reading and the lab receipt reading are similar. The sample may have been compromised during shipment, if the readings significantly differ. Custody seals will also be affixed across box entry points to provide another method of discerning if the samples were tampered with during shipment to the laboratory.

Sample information will be recorded on the SUMMA Canister Sampling Data Sheet provided in Attachment 2.

3.2 Field Duplicate Samples

The field duplicate samples will be collected as follows:

3.2.1 Field duplicate samples will be collected at the rate of one (1) duplicate per day, or per twenty (20) SUMMA canister samples collected, whichever is greater.

3.2.2 Field duplicate samples will be collected in the exact same manner as detailed in the preceding Section 3.1, for either indoor air or soil gas.

3.2.3 The field duplicate sample will be collected in the exact same location (co-located) as the primary, or parent field sample.

3.3 Ambient Air Sampling Procedures

Ambient air samples will be collected outdoors in the vicinity of the indoor air sample location, or the soil gas boring location. Ambient samples will be collected at a rate of one per day. The SUMMA canister samples will be collected as outlined in the steps below.

3.3.1 The laboratory will provide SUMMA canisters that were cleaned using the "SUMMA" process, which involves electro-polishing and chemical deactivation of the internal surface of the vessel using a combination of exponential dilution, heat and high vacuum. The lab will certify that the canisters have been cleaned to the standards required for achieving the low sample detection limits. After cleaning, air from the canisters will be evacuated. The canisters will have a 6-liter capacity and a vacuum of approximately negative 30" Hg. A 7-micron pre-filter will be attached to the canister to minimize entry of particulates.

3.3.2 Fixed-rate flow controllers will be used on the canisters to meter the flow of air into the canisters at a relatively constant rate over the specified sampling period. The fixed rate should allow the canisters to be filled to two-thirds of the capacity (a 4 liter sample for a

6 liter canister). Cleaned fixed flow controllers will be provided by the lab and used during the sample collection. Flow controllers will be used only once.

3.3.3 A vacuum gauge will be used to measure the initial and final vacuum of the canister, and to monitor the filling of the canister. The gauges will be used to provide a relative measure of change. Before sampling, the gauge will confirm the pressure reads between negative 29" and negative 30" Hg for each canister.

3.3.4 All ambient air samples will be collected at a uniform height and will be positioned so they are out of direct sunlight during the sampling. To begin sampling, the flow controller will be attached to the sampler. All connections between the canister and the flow controller must be tight enough so that the various pieces of equipment (flow controller, gauge, etc.) when assembled cannot be rotated by hand. Any leaks in these connections will be corrected prior to sampling or the canister will be replaced. After the canister has been placed at the sample location, the canister inlet valve will be opened.

3.3.5 An ambient sample will be collected at the same time as indoor air sample(s), and/or the soil gas sample(s).

3.3.6 At the end of the sampling period, the final vacuum for a canister will be measured using the vacuum gauge. The final canister vacuum should be between negative 4" and negative 12" Hg. Soil gas samples may have a higher final vacuum due to the increased resistance of pulling gas through the packed soil.

3.3.7 The samples will be packaged and shipped to the laboratory for analysis. The final vacuum will be noted on the chain of custody. This documentation will allow the lab to compare the vacuum from sampling with the receipt vacuum. The sample integrity is ensured if the final field reading and the lab receipt reading are similar. The sample may have been compromised during shipment, if the readings significantly differ. Custody seals will also be affixed across box entry points to provide another method of discerning if the samples were tampered with during shipment to the laboratory.

3.4 Sample Analysis

SUMMA canisters and air analysis will be provided by a laboratory. Analysis will be conducted in accordance with the protocols specified in EPA Methods TO-15 and/or TO-15SIM. All of the samples will be analyzed for the VOCs listed in Table 2. All data received from the laboratory will be validated according to U.S. EPA protocol to ensure data veracity. This will provide an assurance that the data are of acceptable quality.

3.5 Sample Identification and Numbering Scheme

CP-IA-1-043110-01

- CP – Conestoga Pines Site
- IA-1 or SG-1 – Sample Type (Soil Gas or Indoor Air) and Sequential Number relative to the total quantity of samples collected

- 083107 – End date of collection
- 01 – Primary Field Sample, 02 – Ambient Sample, 03 – Field Duplicate Sample

4.0 DATA ANALYSIS

The results of the sample analysis will be evaluated using the following the sequence of steps.

4.1 A qualitative comparison of the VOCs reported in air to those identified in the groundwater plume. Based on the objectives of the sampling, the data analysis will focus only on those VOCs known to exist in the groundwater plume that are detected in the air. Comparisons will need to account for the physicochemical properties of the VOCs of concern and their relative degradation products. While the results reported for all of the chemicals will be considered in the conclusions, only those chemicals identified in the plume that are detected in the air will be considered in the analysis of potential impacts.

4.2 A comparison of the VOC concentrations reported in the air of buildings and soil gas over the plume to concentrations reported within groundwater

This analysis will permit developing a conclusion as to whether the contaminants in the plume have similar concentrations to those indoor air or soil gas, and whether those concentration decrease with relative distance away from the Site.

4.3 A comparison of the VOC concentrations reported in air samples from the occupied structures and soil gas locations to the risk based criteria established by a recognized standard (e.g., risk-based criteria developed by the United States Environmental Protection Agency Region III).

This analysis will evaluate how the concentrations reported in the residences compare with accepted exposure limits and the level of risk associated with the reported concentrations.

4.4 Lateral pathways will be evaluated, if present. If soil gas is found to be consistent with groundwater constituents, lateral areas relative to residential homes will be identified, which will lead to recommendations to pursue further investigations. In other words, if there are VOCs present in soil gas between the Site and addresses X thru Y on Princess Anne Drive, then recommendations to conduct residential indoor air quality sampling within those homes, and possibly the homes contiguous with them, will be made in the final report.

4.5 Comments

In general, the comparisons will be made first by performing a qualitative review of the findings, and, then, a quantitative review of the findings. The qualitative comparison provides an initial check and an indication of whether the quantitative comparison is needed.

In the process of developing conclusions and preparing recommendations, WESTON will review any possible interferences based on information gleaned from the occupant questionnaires, and inconsistencies and/or findings of QC sample reports. This information should assist in explaining and interpreting the results obtained during the sampling effort.

Figure
Summa Canister Schematic

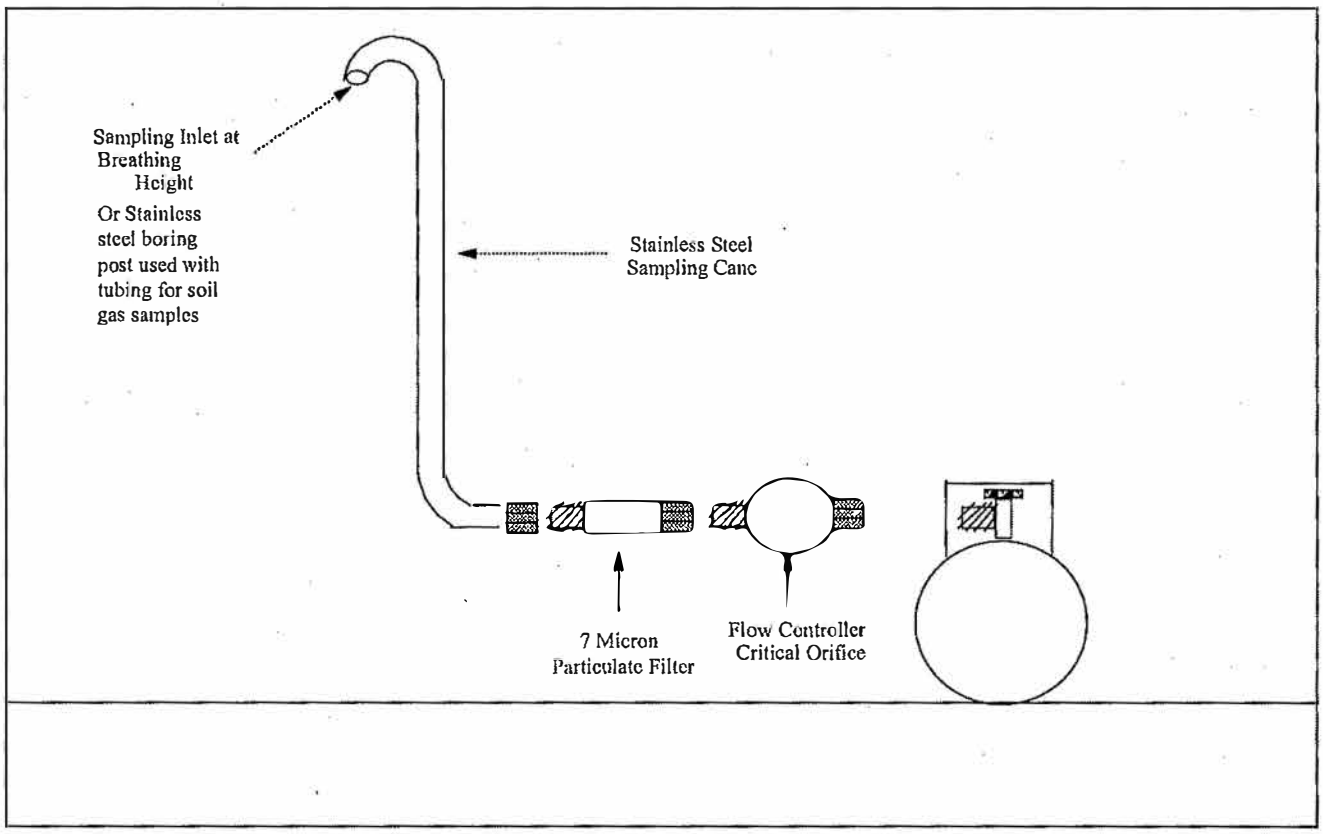


TABLE 1
Soil Gas and Indoor Air Sample Summary
Conestoga Pines Park, Lancaster City, Pennsylvania
PADEP Work Assignment No. IRRSC5-3-181

Sample Type/Location	Estimated Number of Samples	Analytical Method	Detection Limit	TAT
Indoor Air (Occupied Structures) – Concession Stand at Pool	2	EPA TO-15/TO-15SIM	0.02 to 0.1 ppbv	7 days
Indoor Air (Occupied Structures) – Park Barn	2	EPA TO-15/TO-15SIM	0.02 to 0.1 ppbv	7 days
Soil Gas Samples	45	EPA TO-15/TO-15SIM	0.02 to 0.1 ppbv	7 days
QC - Ambient	4	EPA TO-15/TO-15SIM	0.02 to 0.1 ppbv	7 days
QC – Duplicates	4	EPA TO-15/TO-15SIM	0.02 to 0.1 ppbv	7 days

TABLE 2
Analytes for Method TO-15
Conestoga Pines Park, Lancaster City, Pennsylvania
PADEP Work Assignment No. IRRSC5-3-181

Freon 12	1,3,5-Trimethylbenzene
Freon 114	1,2,4-Trimethylbenzene
Chloromethane	1,3-Dichlorobenzene
Vinyl Chloride	1,4-Dichlorobenzene
Bromomethane	Chlorotoluene
Chloroethane	1,2-Dichlorobenzene
Freon 11	1,2,4-Trichlorobenzene
1,1-Dichloroethene	Hexachlorobutadiene
Freon 113	Propylene
Methylene Chloride	1,3-Butadiene
1,1-Dichloroethane	Acetone
cis-1,2-Dichloroethene	Carbon Disulfide
Chloroform	2-Propanol
1,1,1-Trichloroethane	trans-1,2-Dichloroethene
Carbon Tetrachloride	Vinyl Acetate
Benzene	Chloroprene
1,2-Dichloroethane	2-Butanone
Trichloroethene	Hexane
1,2-Dichloropropane	Tetrahydrofuran
cis-1,3-Dichloropropene	Cyclohexane
Toluene	1,4-Dioxane
trans-1,3-Dichloropropene	Bromodichloromethane
1,1,2-Trichloroethane	4-Methyl-2-pentanone
Tetrachloroethene	2-Hexanone
Ethylene Dibromide	Dibromochloromethane
Chlorobenzene	Bromoform
Ethyl Benzene	4-Ethyltoluene
m,p-Xylene	Ethanol
o-Xylene	Methyl t-Butyl Ether (MTBE)
Styrene	Heptane
1,1,2,2-Tetrachloroethane	

ATTACHMENT 1

RESIDENT NOTIFICATION LETTER
RESIDENTIAL QUESTIONNAIRE
RESIDENTIAL SAMPLING REMINDER

Property Notification Letter
Conestoga Pines Park, Lancaster City, Pennsylvania
PADEP Work Assignment No. IRRSC5-3-181

___ April 2010

Dear :

Thank you for your assistance and support for this important project.

Weston Solutions, Inc. (WESTON®) is working with the PADEP to evaluate the vaport concentrations of volatile organic chemicals associated with the groundwater in the vicinity of your property.

During the week of _____, WESTON will collect samples to determine the quality of the air in buildings on your property and to assess possible offsite vapor migration. Samples will be collected in existing structures and from drill probes in soil along the northern propery boundary. This sampling will be conducted over the course of a twenty four-hour period.

We have designed the sampling to minimize any inconveniences to you and any operations that occur on your property. The following items outline the sampling plan and schedule.

- A card will be sent to your residence that identifies the date on which the sampling is scheduled.

- You will be notified 3 days before sampling will be performed. This notification will be made by telephone to confirm the date and the time when WESTON will be on site and place the sampling equipment. During this conversation you will be given the name of the WESTON field leader who will come to your house. Team members who come to your house will wear clothing that identifies them as WESTON employees.

- We will need to access your building either between 8:00 and 10:00 AM or 3:00 – 5:00 PM. WESTON will place the sampling equipment in your building and return 24 hours later to pickup the sampling equipment. Access will require approximately one-half hour at each building.

- The sampling equipment will consist of one or two stainless steel canisters, each fitted with a flow controller. The equipment will make no noise. We will position the canister(s) in the basement, or on the first floor in an out of the way locations.

- You will not have to make any adjustments to control the equipment. In the event something happens to the equipment, relate the events to the sampling team when they pickup the canister(s). If a canister gets knocked over, please upright the canister and place the unit in the original location.

- Please identify any activities, which you perform during the 24-hour sampling period that involve the use of chemicals, such as the use of hair spray, nail polish, paint, furniture stripper or refinisher. Recording the name of the product or having a container available for review will help to identify chemicals used.

Please indicate your preference for date and time for sampling to occur (1st, 2nd, & 3rd choice) in the appropriate box in the table at the bottom of this letter. We will do our best to accommodate your schedule. A second copy of this letter is provided to serve as your copy. Please make note of the dates for your records. Please return one copy of this letter in the self-addressed stamped envelope or contact me at my direct telephone number (610) 701-3183. Voice messages may be left at this telephone number if I am unavailable at the time of your call.

Once again, thank you for your support on this project. This effort will provide valuable information for you and your neighbors.

If you have any questions concerning this project, please contact _____ of PADEP at ___-___-____.

Very truly yours,

WESTON SOLUTIONS INC.

Darryl Dostalik
Project Manager

Monday,		Tuesday,		Wednesday,	
8:00 and 10:00 AM	3:00 & 5:00 PM	8:00 and 10:00 AM	3:00 & 5:00 PM	8:00 and 10:00 AM	3:00 & 5:00 PM

Residential Questionnaire
Conestoga Pines Park, Lancaster City, Pennsylvania
PADEP Work Assignment No. IRRSC5-3-181

This questionnaire is primarily designed to identify potential contributors to in-house (building) air quality.

Inspector: _____ Date form completed: _____
Time: _____

RESIDENT:

Name: _____

Owner of Property (if different from above): _____

Address: _____

Phone Number: _____

Rent or Own House: _____

Resident Ages and Sex: _____

Resident Occupations: _____

HOUSE:

Approximate age of house: _____ How long have you lived in house: _____

Type of Building: Single family dwelling Apartment Other _____

Approximate floor area of your home? Total surface is: _____ ft2 Unknown

Does the house have a basement? No Yes (Finished or unfinished)

Any foundation problems: Large cracks _____ Settling _____ Water _____

Is there a garage? _____ One or Two Car Attached or Unattached

How is the house entered from the garage? Closed door ____Open door ____Other _____

Is the auto parked in the garage routinely? _____ Do you have Central Air: Yes No

Is there a sump pump: Yes No Is there a gas clothes dryer: Yes No

Is there a gas cooking stove or oven: _____ Continuously burning pilot light: _____

Is there a gas hot water heater: _____ Continuously burning pilot light: _____

Location of water heater: Basement Garage Room/closet inside Other:_____

Location of clothes dryer: Basement Garage Room/closet inside Other_____

Heating type:Natural Gas Propane Coal Oil Radiators Forced Air Heat Pump Geothermal

Is there a burning stove: Yes No Burns: Wood Coal Other_____

Is there a fireplace: No Yes Burns: Wood Natural Gas Other_____

Residential Questionnaire
Conestoga Pines Park, Lancaster City, Pennsylvania
PADEP Work Assignment No. IRRSC5-3-181

RESIDENT/HOUSEHOLD ACTIVITIES:

Any hobbies using paints, solvents, fuels, etc: _____

Any recent home repair work done (type): _____

Any recent painting performed in the house:_____ How long ago:_____
Which rooms:_____

Any smokers in the home: _____ How many smokers _____ Packs per day:_____
Is smoking permitted in the house_____

In the past week, has any drapes, carpeting, or furniture in your home been commercially cleaned? Yes No

In the past week, has any of the following been used in your home:

Pesticide/Fungicide _____	Incense _____
Mothballs or moth crystals_____	Candles _____
Indoor air fresheners _____	Nail Polish Remover _____
Paint or paint thinners_____	Fondue _____
Solvents_____	Indoor barbecue _____

Do you use a kerosene heater: No Yes How often: _____
Where do you place the kerosene heater: _____

How often is the burning stove or fireplace used:_____
Where is it located:_____

What do you do with work clothes (other than office clothes):
_____

ADDITIONAL:

If visible and apparent, briefly attempt to identify containers in categories such as paints, polishes, cleaners, lubricants, paint removers, spot removers, etc. Ask resident if you can look into basement/first floor closets, storage areas, etc. but don't "press".

Other gasoline or diesel powered equipment (type and location):_____
_____

Approximate number of containers, especially those containing petroleum products _____
_____

Note anything unusual about type and amount of containers _____
_____

Residential Sampling Reminder
Conestoga Pines Park, Lancaster City, Pennsylvania
PADEP Work Assignment No. IRRSC5-3-181

SAMPLING REMINDER

Dear : **__ Date 2007**

Your building is scheduled for air sampling on _____. Before this event you *must*:

48-hours before, remove from you house and/or attached garage:

1. Gasoline, kerosene, and petroleum-containing equipment, such as lawn mowers, motor vehicles, snow blowers, and lawn & garden equipment; *even empty equipment, gasoline containers.*

2. Paints and solvents, such as paint thinners, mineral spirits, turpentine, and engine cleaners (unless well sealed or capped and without visible signs of leakage).

24-hours before testing:

1. Refrain from using products containing petroleum distillates (check product labels). Examples include furniture and shoe polish, hardware lubricants, corrosion inhibitors, spot removers, paints, varnishes, silicon caulks and sealants, glues, dyes, art supplies, nail polish, and perfumes.

2. Turn carbon filtration units or other air filters off.

12-hours before testing:

1. Close windows and do not reopen until test is done.

2. Keep doors closed, except when entering or exiting.

Following the steps listed above before your building is sampled is extremely important. A representative will call or visit your house the day before, or morning of, the scheduled testing to ensure the steps listed above have been taken. If you have any questions, please contact _____, PADEP at ___-___-____.

INSPECTION DATE: _____ INSPECTION TIME: _____

SAMPLE DATE: _____ SAMPLE TIME: _____

ATTACHMENT 2

SUMMA CANISTER SAMPLING DATA SHEET

SUMMA Canister Sample Data Sheet
Conestoga Pines Park, Lancaster City, Pennsylvania
PADEP Work Assignment No. IRRSC5-3-181

SAMPLE LOCATION	SAMPLE TYPE[1]	LOCATION TYPE[2]	SAMPLE NUMBER	CANISTER NUMBER	SAMPLING PERIOD				VACUUM		SAMPLER CHECK		COMMENTS/ OBSERVATIONS
					Start Date	Start Time	Stop Date	Stop Time	INITIAL ("Hg)	FINAL ("Hg)	Time	Flowrate (ml/min) or "Hg	

1. Sample Type: Basement Ambient, Soil Gas, Field/Equipment Blank
2. Location Type: Plume, Edge of Plume, Plume Path (outside of plume, but in the plume path), Outside Plume (outside of plume and plume path).

ADDITIONAL COMMENTS:

SAMPLES COLLECTED BY _____

DATE _____

DATA CHECKED BY _____

DATE _____

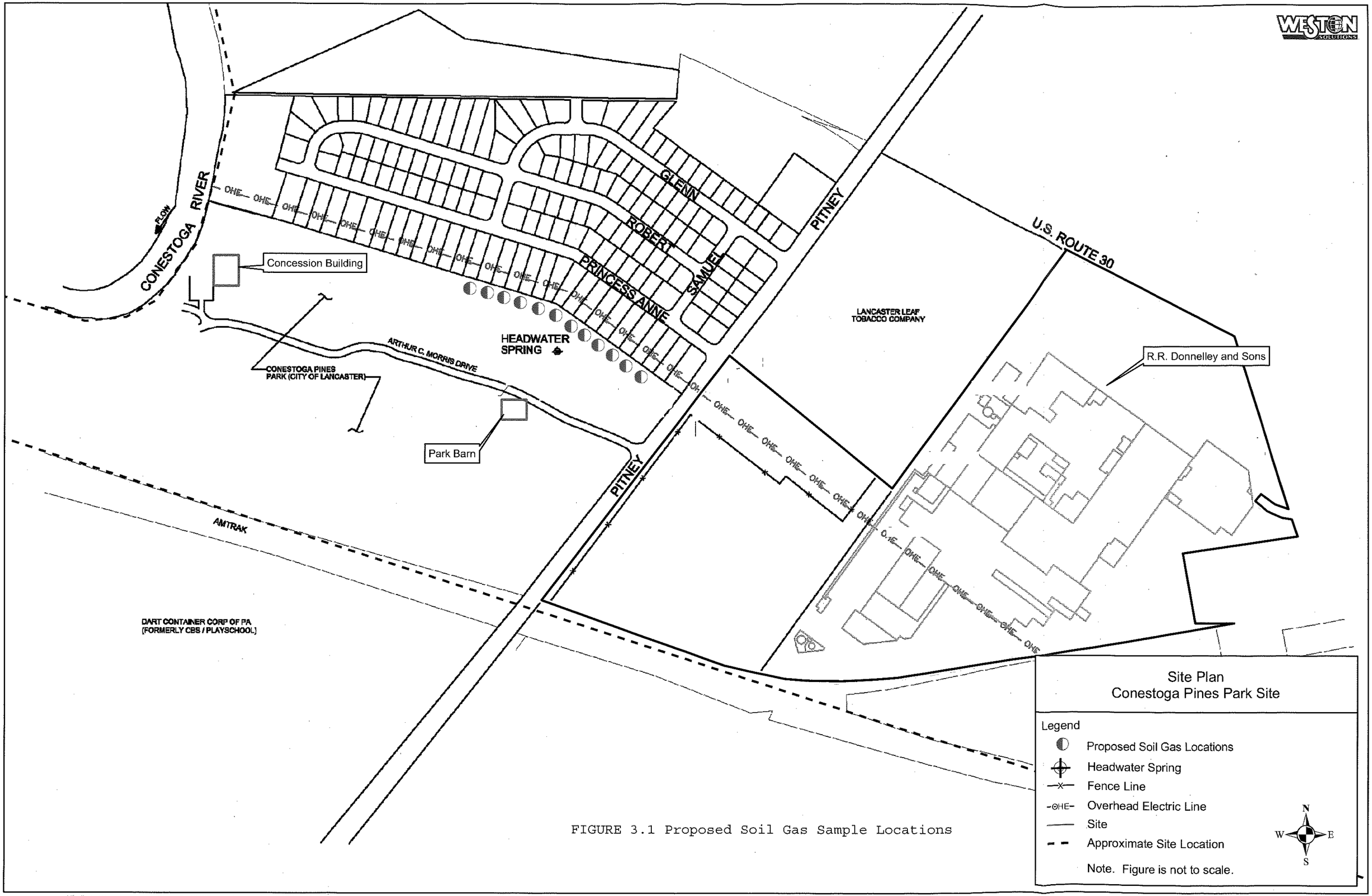


FIGURE 3.1 Proposed Soil Gas Sample Locations

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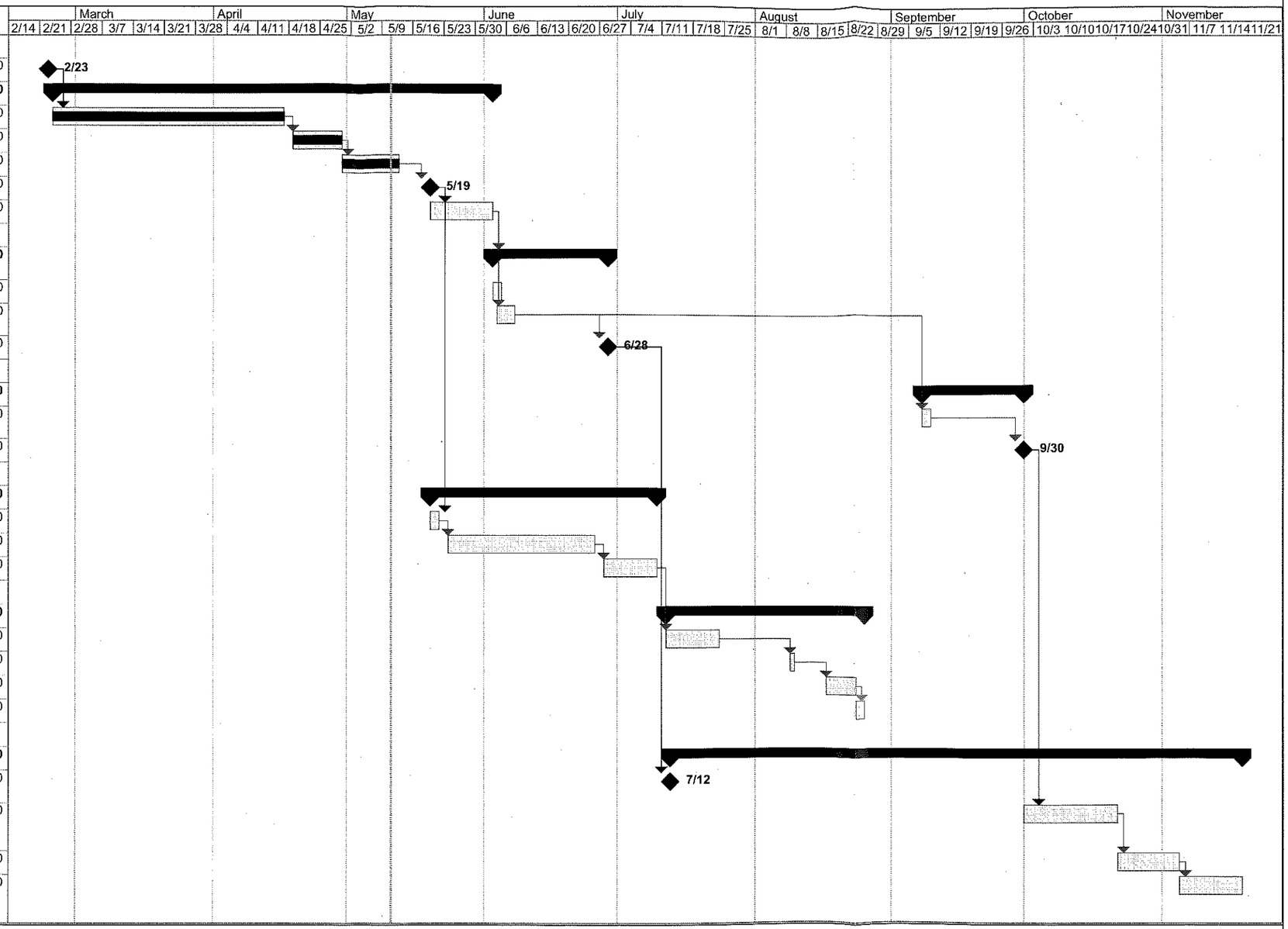
Weston Solutions, Inc.

PADEP SCRO

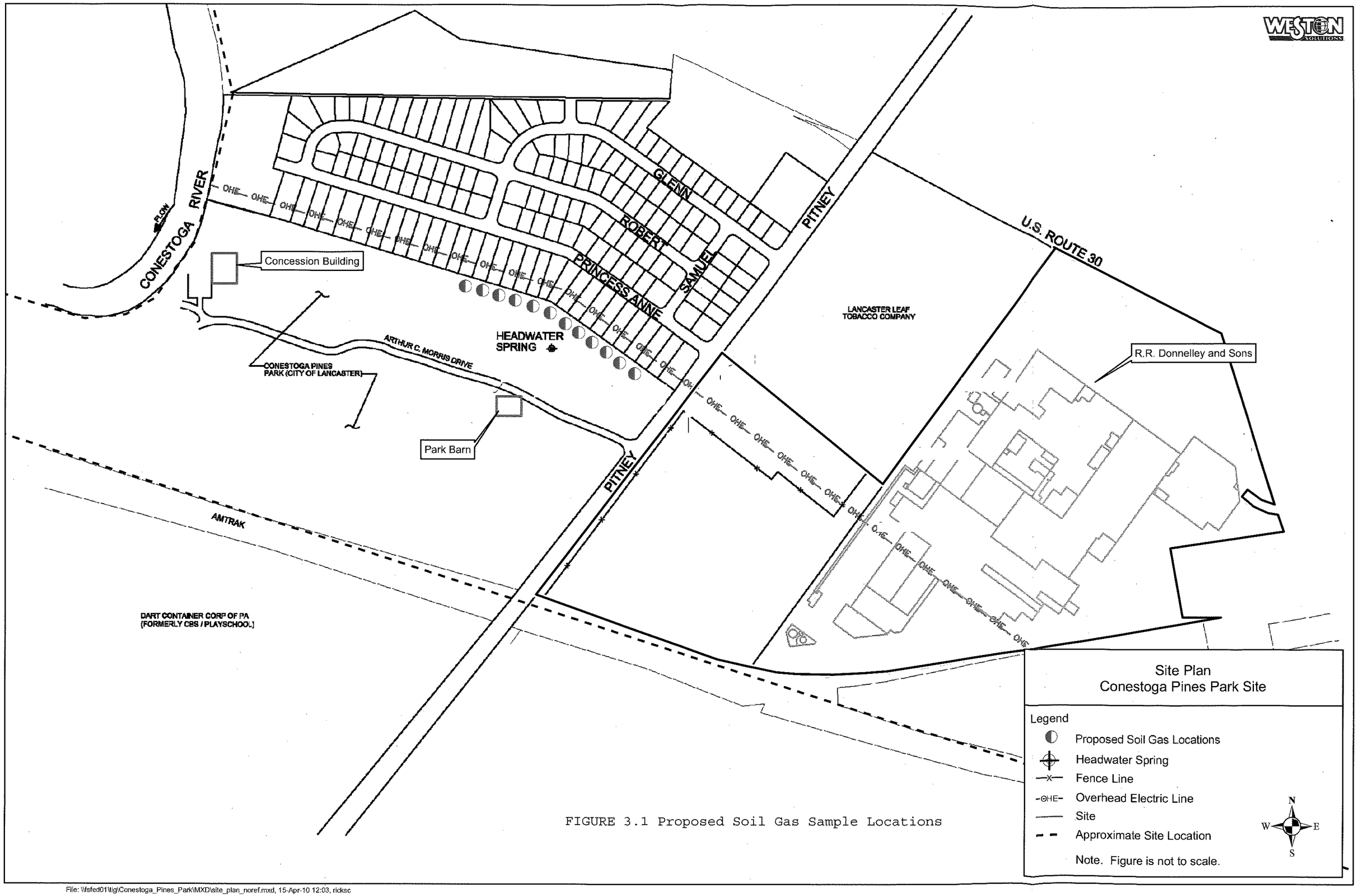
FIGURE 2-1
CONESTOGA PINES PARK SCHEDULE

ID	Task Name	Duration	Start	Finish
1				
2	Scoping Meeting	0 days	2/23/10	2/23/10
3	**Project Planning**	**71 days**	**2/24/10**	**6/2/10**
4	Draft Work Plan	38 days	2/24/10	4/16/10
5	PADEP Review	9 days	4/19/10	4/29/10
6	Final Work Plan	9 days	4/30/10	5/12/10
7	NTP for Design and Sampling	0 days	5/19/10	5/19/10
8	Procurement & Subcontracting	10 days	5/20/10	6/2/10
9				
10	**Soil Gas Point Installation and Air Sampling Event 1**	**18 days**	**6/3/10**	**6/28/10**
11	Intall Gas Points	2 days	6/3/10	6/4/10
12	Sample Occupied Structures and Gas points	2 days	6/4/10	6/7/10
13	Analytical Report	0 days	6/28/10	6/28/10
14				
15	**Sampling Event 2**	**17 days**	**9/8/10**	**9/30/10**
16	Sample Occupied Structures and Gas Points	2 days	9/8/10	9/9/10
17	Analytical Report	0 days	9/30/10	9/30/10
18				
19	**Design Aeration & Fence**	**37 days**	**5/20/10**	**7/9/10**
20	Topo Survey-Design	2 days	5/20/10	5/21/10
21	Design Spring and UNT Aeration	25 days	5/24/10	6/25/10
22	PADEP Review and Finalize Design	10 days	6/28/10	7/9/10
23				
24	**Spring, UNT Aeration & Fence**	**33 days**	**7/12/10**	**8/25/10**
25	Install Spring and UNT Aeration	10 days	7/12/10	7/23/10
26	UNT Sampling	1 day	8/9/10	8/9/10
27	Review UNT Data	5 days	8/17/10	8/23/10
28	Barrier Installation	2 days	8/24/10	8/25/10
29				
30	**Reporting**	**93 days**	**7/12/10**	**11/18/10**
31	Interim Report on Air Sampling Event 1	0 days	7/12/10	7/12/10
32	Draft Report, Events 1 & 2 and Includes Aeration Report & As-builts	15 days	10/1/10	10/21/10
33	PADEP Review	10 days	10/22/10	11/4/10
34	Final Report, Events 1 & 2 and Includes Aeration Report & As-builts	10 days	11/5/10	11/18/10



Project: CPP Project Schedule
Date: 5/11/10

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone



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