

Example of a Conceptual Site Model and Site Summary – completed and submitted prior to Scoping Meeting Conceptual Site Model and Site Summary for XXXX Site (DE # XXXX)

The purpose of the Conceptual Site Model and Site Summary (CSM-SS) document is to provide a single document where all the information about the site can easily be reviewed and used for decision making at any stage of the project. This format is all inclusive and not all sections are applicable to all sites. The CSM-SS is a dynamic document that is intended to be refined and updated as new information becomes available.

At the initial stage of the development of this document, only information that is readily available and necessary for the Scoping Meeting for the investigation needs to be completed. The sections that need to be completed for the Scoping Meeting are shown in ***bold italics***. The CSM-SS should be submitted by the consultant at **least one week** prior to the Scoping Meeting and should be used during the Scoping meeting to identify the sampling plan.

Questions on the template contact Qazi Salahuddin at qazi.salahuddin@state.de.us or Rick Galloway at rick.galloway@state.de.us

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1.0 Site Description

SECTIONS	DESCRIPTION	COMMENTS	MAPS, PHOTOS & TABLES	REFERENCE USED
<i>1.1 Site Location (Address and Tax Parcel ID)</i>	Xxx Avenue Wilmington, DE 19805 Tax Parcel:		<u>Site Location Map</u> (See Appendix)	Phase I ESA
<i>1.2 Site Description (Acreage, Layout, current buildings, undeveloped areas, parking facilities/paved areas, etc)</i>	<ul style="list-style-type: none"> • 0.58 acre, rectangular shaped parcel. • One building that operates as an automatic car wash. • Mostly paved and concrete areas with a small portion of vegetated land with bushes & trees. • Steel canopy structure with 3 concrete islands where gas pumps and vacuum units were removed. • Diesel pump, which was removed, was between the canopy and the building. • Coastal sign pole near the northern corner of the property. 		<u>Site Detail Map</u> <u>Site Photos</u> (See Appendix)	Phase I ESA
<i>1.3 Current Zoning and future zoning</i>	<ul style="list-style-type: none"> • Commercial (C2) classification. • Expected to remain the same zoning in the future. 			Phase I ESA
<i>1.4 Existence of infrastructure (i.e., sewer, water, roads etc.)</i>	<ul style="list-style-type: none"> • Sewer and water services provided by the City of Wilmington. • Delmarva Power provides electricity and natural gas. 			Phase I ESA

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2.0 Site Developer and Development Plan

SECTIONS	DESCRIPTION	COMMENTS	MAPS, PHOTOS & TABLES	REFERENCE USED
<i>2.1 Developer/Applicant Name and Address</i>	XXXXX Wilmington, DE			Brownfield Certification Form
<i>2.2 Current Owner Name and Address (if different from 2.1)</i>	XXX Wilmington, DE 19805			Brownfield Certification Form
<i>2.3 Proposed future use and development plan</i>	Expanding the existing car wash by demolishing the existing canopy over the old gas station and adding more car wash bays.		Development plan (See Appendix)	Brownfield Certification Form
2.4 Project start date and completion date (Project Schedule)	Planning to start investigation in March 2008			
<i>2.5 Consultant Name and Address</i>	XXXXXX Wilmington, DE 19801			Brownfield Certification Form

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3.0 Site Regulatory/Operational/Investigation History

SECTIONS	DESCRIPTION	COMMENTS	MAPS, PHOTOS & TABLES	REFERENCE USED
<i>3.1 Operational History and known or potential use of chemicals or hazardous substances</i>	<ul style="list-style-type: none"> • Morocco (leather) manufacturer (1901) • Oil and refinery company(1927) • Gas station (?-2007) • Car wash (1971-present) • Part of DNREC-SIRB tannery site T29 	<p>Petroleum possibly related to oil refinery and/or gas station.</p> <p>Possible arsenic related to tannery.</p>	<p>Historic Maps</p> <p>Aerial Photos (See Appendix)</p>	Phase I ESA
<i>3.2 Regulatory History</i>	<p>UST removal in 1987 as well as 2007 EDR Databases</p> <ul style="list-style-type: none"> • RCRA-SQG: No violations. Possibly due to small quantity of waste sludge/sand removed from car wash wastewater holding tank. • FINDS: Probably pointing to RCRA activities. • UST: 8 registered UST • LUST: Listing is “inactive” 	<p>EDR – Environmental Data Resources, Inc. database</p> <p>RCRA-SQG – RCRA Small Quantity Generator</p> <p>FINDS – Facility Index System</p>		
<i>3.3 Investigation History</i>	<ul style="list-style-type: none"> • Part of DNREC-SIRB tannery site (T29) investigation • UST Removal Report (DNREC-TMB) 			

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4.0 Potential Contaminants and Source Areas

SECTIONS	DESCRIPTION	COMMENTS	MAPS, PHOTOS & TABLES	REFERENCE USED
<i>4.1 Known Release Areas on Site</i>	<ul style="list-style-type: none"> • LUST site, however, limited documentation was found on the location and amount of petroleum leaked on site. • Petroleum odor when USTs were removed in 2007. 	Site is currently “inactive” with closure obtained on Feb. 5, 1999	CSM map (see Section 16.2)	
<i>4.2 Potential Source areas /areas of contamination on Site</i>	<ul style="list-style-type: none"> • UST removal areas and pump islands. • Historical location of tannery building and oil refinery area. 	No Further Action issued by TMB on January 30, 2008.	CSM map (see Section 16.2)	

5.0 Adjacent Properties and Release Sites

SECTIONS	DESCRIPTION	COMMENTS	MAPS, PHOTOS & TABLES	REFERENCE USED
<i>5.1 List all adjacent site land uses(past & present)</i>	<p>Current</p> <ul style="list-style-type: none"> • Dry cleaner (301 Greenhill Ave) • Catholic Charities of the Diocese of Wilmington (2601 W. 4th St) • Hawley Plaza (daycare, learning center, restaurant, pub) • Two daycares and a paved parking lot • Residences & private garages • Diver’s Used Vehicle Sales (210 Greenhill Ave) • Mohawk Tile & Marble <p>Historic</p> <ul style="list-style-type: none"> • 210 Greenhill Site, part of the Wilmington Leather Company, is nearby. 	E=	Adjacent Property Map (See Appendix)	Phase I ESA
<i>5.2 Describe any known or potential contaminant sources on adjacent sites.</i>	<ul style="list-style-type: none"> • Catholic Charities – UST and LUST site • Diver property – DE# 1080, SHWS, UST and LUST site • Dry cleaner – Drycleaner site, Air Emission Listing, RCRA-SQG, FINDS and PA Manifest site 			Phase I ESA

6.0 Geologic and Hydrogeologic Setting [Back to Table of Contents](#)

SECTIONS	DESCRIPTION	COMMENTS	MAPS, PHOTOS & TABLES	REFERENCE USED
6.1 Regional Geology	<ul style="list-style-type: none"> • Located in the Appalachian Piedmont Physiographic Province. • Approximately 1.8 miles north of the Fall Line separating the Piedmont and Coastal Plain Physiographic provinces • Poorly sorted fine-to-coarse grained sand, as well as possible interbedded silt, clay, gravel and cobbles. • Adjacent DNREC-SIRB site well logs indicate sand layer at ~11 feet and weathered bedrock at ~16 feet. 		Maps CSM Cross-section (see 16.3)	
6.2 Site Geology		Update this section after the investigation		
6.3 Regional Hydrogeology	<ul style="list-style-type: none"> • Groundwater generally flows toward the south. The depth of groundwater is estimated at approximately 12 feet below ground surface. 		CSM Cross-section (see 16.3)	<i>Geohydrology of the Wilmington Area, Hydrologic Map Series, Number 3</i>
6.4 Site Hydrogeology		Update this section after the investigation		

7.0 Surface and Subsurface Soil [Back to Table of Contents](#)

SECTIONS	DESCRIPTION	COMMENTS	MAPS, PHOTOS & TABLES	REFERENCE USED
7.1 Surface Soil				
7.1.1 Potential Contamination areas and contaminants (include concentration ranges, if known) for surface soil	Historic tannery area and oil refinery- Arsenic, and petroleum		Maps Tables	
7.1.2 Potential Receptors	Currently site is paved			
7.2 Subsurface Soil				
7.2.1 Potential Contamination areas and contaminants (include concentration ranges, if known) for sub-surface soil	<ul style="list-style-type: none"> • UST removal areas • Historical tannery area • Oil refinery area 		Maps Tables	
7.2.2 Potential Receptors	Future construction and utility workers			

8.0 Groundwater [Back to Table of Contents](#)

SECTIONS	DESCRIPTION	COMMENTS	MAPS, PHOTOS & TABLES	REFERENCE USED
8.1 Background contamination				
<i>8.2 Distance to Nearest drinking water source</i>	Approximately 8,000 feet			
<i>8.3 Predominant use of groundwater in the area and Site</i>	<ul style="list-style-type: none"> • Located in groundwater management zone • Ground water not currently used 	City water		
8.4 Depth & direction of groundwater flow of the uppermost aquifer	Depth at ~ 12 feet, flowing in a southern direction			
8.5 Deeper aquifer and impermeable layers (depth, thickness and flow direction)	N/A			
8.6 Distance to Water Resource Protection Area and to GMZ (if applicable)	Site is within the Wilmington GMZ			
8.7 Potential Contaminants (include concentration ranges, if known)				
8.8 Potential Receptor(s)	No current receptors-GMZ			

9.0 Surface Water [Back to Table of Contents](#)

SECTIONS	DESCRIPTION	COMMENTS	MAPS, PHOTOS & TABLES	REFERENCE USED
<i>9.1 Nearest surface water body (include distance from site)</i>	Approximately 4,000 feet		Map	
<i>9.2 Site Surface drainage direction</i>	Site drains towards the South		Site topo map	
<i>9.3 Usage of surface water at the area and Site</i>	NA			
9.4 Potential Contaminants (include concentration ranges, if known)	N/A			
9.5 Receptors	N/A			
9.6 Offsite source of Contamination	N/A			
9.7 Groundwater to surface water loading	N/A			

10.0 Sediment [Back to Table of Contents](#)

SECTIONS	DESCRIPTION	COMMENTS	MAPS, PHOTOS & TABLES	REFERENCE USED
10.1 Background contamination	N/A			
10.2 Site related contaminants				
10.3 Potential Receptor(s)				

11.0 Air (Vapor Intrusion)

SECTIONS	DESCRIPTION	COMMENTS	MAPS, PHOTOS & TABLES	REFERENCE USED
<i>11.1 Contaminant with Vapor Intrusion Potential</i>	Possible vapor intrusion based on the detection of BTEX's in the soil during a UST removal.	Potential contaminant based on operation history if no other data available		
<i>11.2 Current & Potential buildings within 100 feet and type of building</i>	<ul style="list-style-type: none"> • Carwash booth on site • Drycleaner • Daycare 			
11.3 Preferential Pathway		Need to investigate possibility during BRI stage		

12.0 Ecological Concern [Back to Table of Contents](#)

Are any of the following ecologically sensitive areas (ECSA) present on or adjacent to the site? If the answer is "YES" to any of these questions, then further ecological evaluation may be necessary.

Criteria	YES or NO	DESCRIPTION	COMMENTS	GRAPHICS DATA TABLE	REFERENCE USED
12.1 ESCA on or adjacent to site	NO				
12.1.1 Critical Habitat for endangered or threaten species					
12.1.2 Parks, wildlife refuge					
12.1.3 Coastal Barriers					
12.1.4 Spawning, migration and feeding areas					
12.1.5 Water way (stream, lake etc.)					
12.1.6 Wetland					
12.2 Site Within 2,000 feet of an ECSA	NO				
12.2.1 Connected to a ECSA via open-space, wooded area, ag land, perennial water body or other natural corridor?					
12.2.2 Storm runoff from the site discharges via a pipe or drainage swale directly to the ECSA?					
12.2.3 Evidence of soil erosion from the site such as gulleys, washout features					
12.3 The site supports fauna with a shelter or food source	NO				
12.4 Evidence of stressed veg., barren soil, dead animals, fish kills or other ecological detriments?	NO				

13.0 Asbestos and Lead Issues [Back to Table of Contents](#)

SECTIONS	DESCRIPTION	COMMENTS	MAPS, PHOTOS & TABLES	REFERENCE USED
13.1 Was lead paint survey conducted? Type of lead present in the buildings		N/A		
13.2 Was asbestos survey conducted? Type of asbestos present and is it friable		N/A		

14.0 Community Outreach

SECTIONS	DESCRIPTION	COMMENTS	MAPS, PHOTOS & TABLES	REFERENCE USED
<i>14.1 Public Representatives (names and contact information)</i>	Senator Robert I. Marshall 302-744-4168 Representative Gerald L. Brady 302-744-4351	Senate District 3 Representative District 4		
14.2 Community groups	N/A			
14.3 Known areas of Public concern/issues	N/A			
14.4 Public Outreach Plan	N/A			

15.0 Other Federal/State/ Local Agency Involvement [Back to Table of Contents](#)

(Identify the agencies, issues and contacts related to this site)

Agencies	Issues/Involvements	Contact	Comments
15.1 DNREC Tank Management Branch	Above and underground storage tanks	302-395-2525	Sandi Carney
15.2 DNREC Solid and Hazardous Waste Branch	N/A		
15.3 DNREC Sediment & Storm water Management Section	Storm water management, erosion or sediment issues during construction	302-739-4411	
15.4 DNREC Wetland & Subaqueous Land Section	N/A		
15.5 Delaware State Historic Preservation Office	N/A		
15.6 Fire Marshall's Office	N/A		
15.7 Del DOT	N/A		
15.8 DNREC Groundwater Discharge	N/A		
15.9 DNREC Parks & Recreation	N/A		
15.10 City Planning Office	N/A		
15.11 County Planning Office	N/A		
15.12 DEDO	N/A		
15.14 Coastal Zone	N/A		
15.15 Federal Agencies (TSCA, EPA, ACOE, etc)	N/A		

16.0 Site Conceptual Model

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<i>Known and Potential Sources</i>	Impacted Media	Contaminants of Concern	Exposure Route	Receptors		Comments
				Current	Future	
Historic UST and pump islands	Surface and Subsurface Soil	Petroleum	Surface Subsurface	None None	None Construction worker	
	Groundwater	Petroleum	Drinking Vapor Intrusion	GMZ-N/A Site workers and offsite businesses	GMZ-N/A Site workers and offsite businesses	
Historic Tannery Operation	Surface and Subsurface Soil	Arsenic	Surface Subsurface	None None	None Construction worker	
	Groundwater	Arsenic	Drinking	GMZ-N/A	GMZ-N/A	
Historic Oil Refinery	Surface and Subsurface Soil	Potential Petroleum	Surface Subsurface	None None	None Construction worker	
	Groundwater	Potential Petroleum	Drinking Vapor Intrusion	GMZ-N/A Site workers and offsite businesses	GMZ-N/A Site workers and offsite businesses	

Notes:

Sources: historic fill, spill areas, USTs, hotspots (arsenic, lead, NAPL), etc

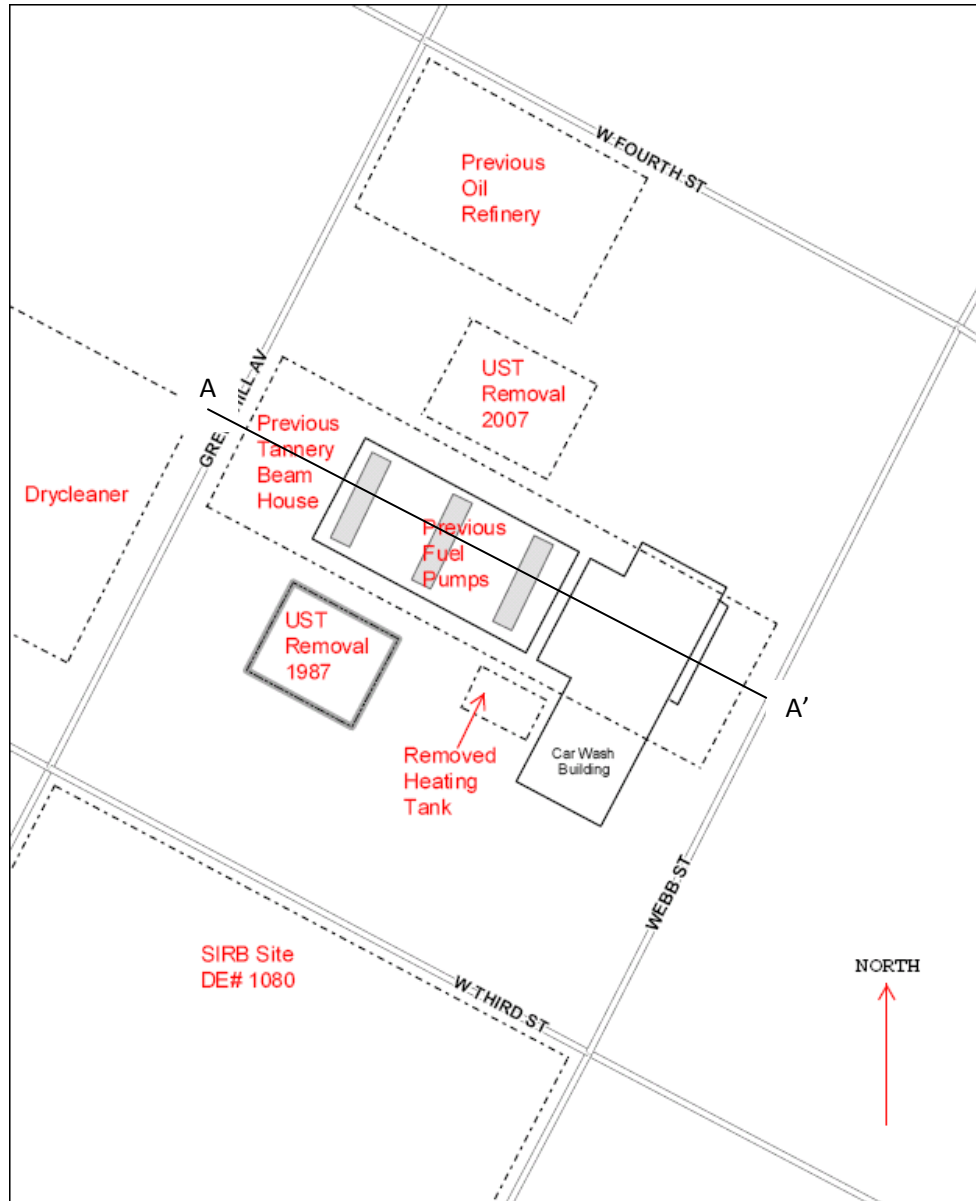
Impacted Media: Soil, Groundwater, Sediment, Surface water, Soil vapor, etc

Contaminant of Concern: dominant contaminants that will drive the risk, etc

Exposure routes: inhalation of vapors, dust, dermal, ingestion, fish consumption, etc.

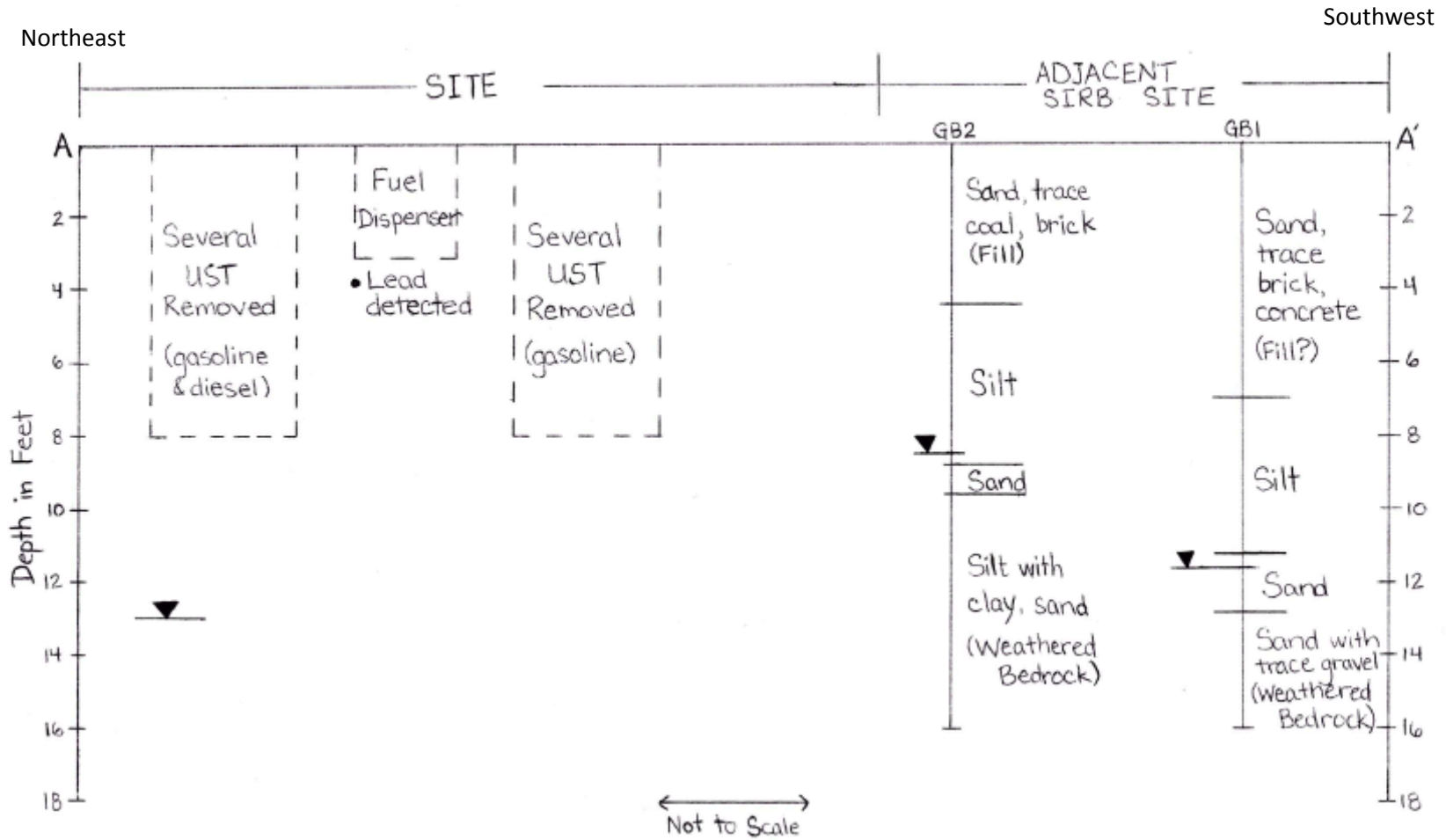
Receptors: area resident, future construction worker, recreational user, office worker, trespasser, gardener, fish and other ecological receptors, etc.

16.2 Conceptual Site Model (Map view) [Back to Table of Contents](#) Note: On a site map please show known and potential source areas, exposure pathways and receptors based on existing knowledge of the site and the regional area.



16.3 Conceptual Site Model (Cross-sectional View) [Back to Table of Contents](#)

Note: See above drawing for approximate location of A and A'

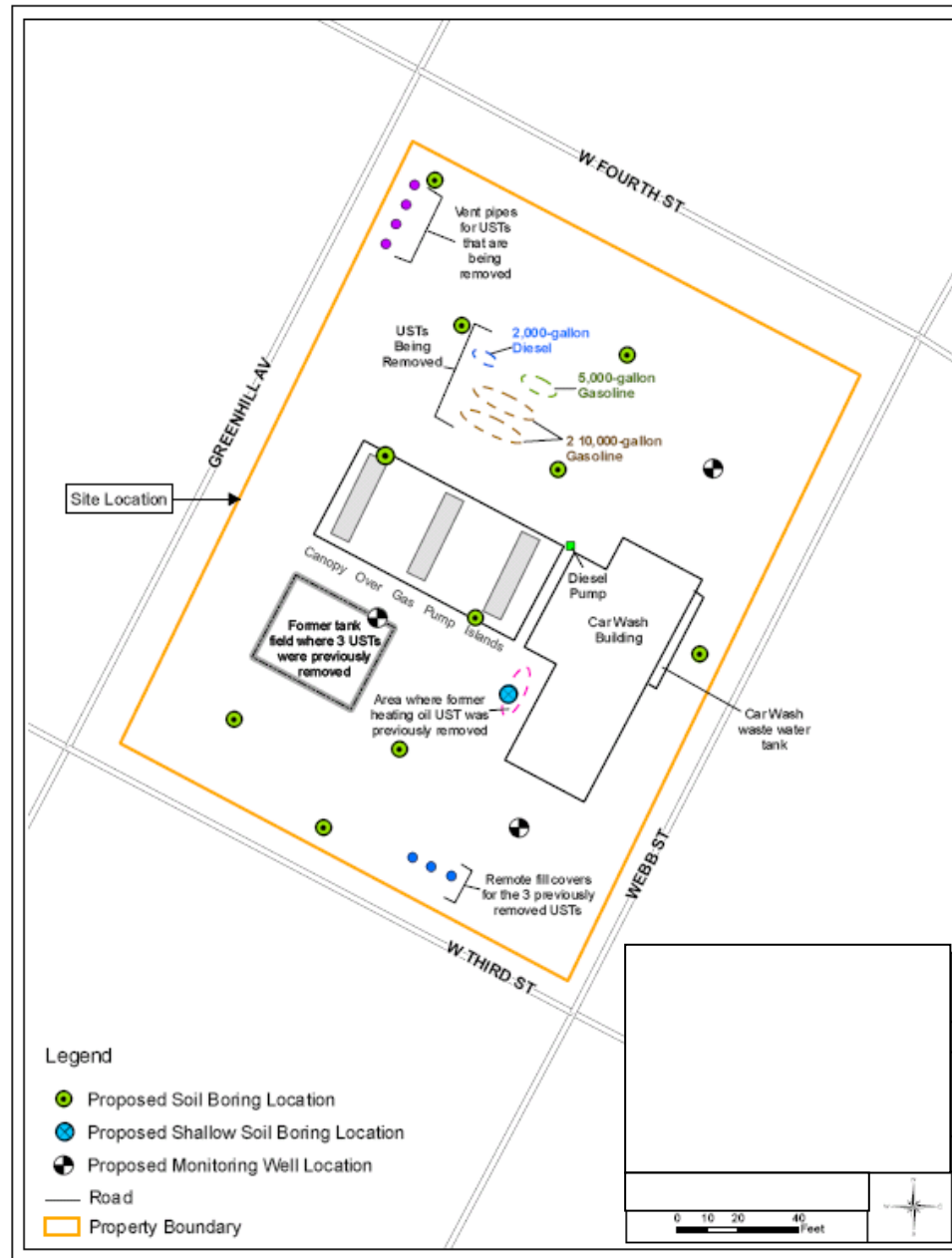


17.0 Proposed Sampling and Analyses Plan [Back to Table of Contents](#)

17.1 Proposed Sampling and Analyses Plan Table

Sampling Matrix	Sampling Locations and depth	Analysis	Comments/Justification
Surface soil	<ul style="list-style-type: none"> • Using direct push technology, drill 13 borings collecting a surface and subsurface sample from each. • One additional boring will be drilled in order to collect a surface sample only. • Surface samples will be collected between 0-2 feet below ground surface. • Subsurface will be collected at the groundwater interface or where contamination may be readily apparent. 	<ul style="list-style-type: none"> • All soil samples collected will be screened at DNREC’s laboratory. • Based on screening results samples will be analyzed for Full TAL/TCL parameters or selected analytical suites at Test America Laboratories Edison. 	Plan
Subsurface Soil	See Above.		
Groundwater	Install, develop and sample 3 pre-packed geoprobe wells.	Groundwater samples will be analyzed at Test America Laboratories Edison for Full TAL/TCL parameters.	
Air (vapor intrusion related)		Evaluate using DNREC Vapor Intrusion Policy	
Sediment			
Surface Water			
Other Survey (geophysical, etc)			

17.2 Sampling and Analyses Plan Map [Back to Table of Contents](#)



18.0 Statement of Intent

Note: At the end of the Scoping Meeting the Sampling and Analysis Table (17.1) and the Map (17.2) will be completed and will become the part of the Statement of Intent. In this section add any action items needed for the work plan.

(The Statement of Intent will be completed at the end of the Scoping Meeting and the next step will be the BFI work plan)

Appendix

Include Maps, Tables & Photos as needed [Back to Table of Contents](#)

Aerial Photo (2006) and Adjacent Property Map



Pictures of the Site [Back to Table of Contents](#)

Canopy that previously covered gas pumps



View of carwash exit



Proposed Development Plan [Back to Table of Contents](#)

